Ministry of Kampala Capital City and Metropolitan Affairs
Republic of Uganda

The Project for Integrated Urban Development Master Plan for Kampala Special Planning Area In the Republic of Uganda

Draft Final Report (Revised Version)

July 2024

Japan International Cooperation Agency (JICA)

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Appendix A

List of Abbreviations

Abbreviation	English
AfCFTA	African Continental Free Trade Area
AFD	French Development Agency (Agence Française de Développement)
AfDB	African Development Bank
BCR	Building Coverage Ratio
BM	Mixed land use in a Business zone
BRT	Bus Rapid Transit
CBD	Central Business District
DRC	Domestic Republic of Congo
EAC	East African Community
EDMP	Expressway Development Master Plan
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EU	European Union
FAR	Floor Area Ratio
FY	Financial Year
GDP	Gross Domestic Product
GIS	Geographic Information System
GKMA EDS	Greater Kampala Metropolitan Area Economic Development Strategy
GKMA	Greater Kampala Metropolitan Area
GKMA-PDP	Greater Kampala Metropolitan Area Physical Development Plan
GKMA-IUDMP	Integrated Urban Development Master Plan for Greater Kampala Metropolitan Area
GKMA UDP	Greater Kampala Metropolitan Area Urban Development Programme
GKUGA	Greater Kampala Urban Growth Area
GKUGA-PDP	Physical Development Plan for Greater Kampala Urban Growth Area
GPIPDP	Guidelines for the Preparation and Implementation of Physical Development Plans
GRDP	Gross Regional Domestic Product
HC	Health Centre
IBA	Important Bird and Biodiversity Area
IBZ	Vending Business Zone
ICT	Information and Communication Technology
IFC	International Finance Corporation
ITC	International Trade Centre
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
JKM Corridor	Jinja Kampala Mpigi Corridor
KCC	Kampala Capital City
KCCA	Kampala Capital City Authority
KCC-PDP	Kampala Capital City Physical Development Plan
KPDF	Kampala Physical Development Framework
KPDP	Kampala Physical Development Plan
KPIC	Kampala Capital City authority Plan Implementation Committee
NPPS&G	National Physical Planning Standards and Guidelines

Abbreviation	English
NPPS&G2	National Physical Planning Standards and Guidelines, Second Edition
KSPA	Kampala Special Planning Area
LBT	Labour-Based Technologies
LED	Local Economic Department
LGs	Local Governments
LVC	Land Value Capture
MaaS	Mobility as a Service
MCA	Multicriteria Analysis
MDAs	Ministries, Departments and Agencies
MGR	Metre Gauge Railway
MKCC&MA	Ministry of Kampala Capital City and Metropolitan Affairs
MMUTMP	Multi-Modal Urban Transport Master Plan
MoE	Ministry of Education and Sports
MoH	Ministry of Health
MoLG	Ministry of Local Government
MoLHUD	Ministry of Lands, Housing and Urban Development
MoWE	Ministry of Water Resources and Environment
MoWT	Ministry of Works and Transport
MSTC	Multi-Sectoral Technical Committee
MTIC	Ministry of Trade, Industry, and Cooperative
NAP	National Agriculture Policy
NDP	National Development Plan
NEMA	National Environment Management Authority
NGOs	Non-Government Organisations
NIP	National Industrial Policy
NITMP	National Integrated Transport Master Plan
NMT	Nonmotorised Transport
NPA	National Planning Authority
NPDP	National Physical Development Plan
NPIC	National planning board Plan Implementation Committee
NPPB	National Physical Planning Board
NPPS&G2	National Physical Planning Standards and Guidelines, 2nd Edition
NWSC	National Water & Sewerage Corporation
PDPs	Physical Development Plans
PIU	Project Implementation Unit
PPHPD	Passengers Per Hour Per Direction
PPP	Public Private Partnership
PRR	Progress Report
SEA	Strategic Environmental Assessment
SGR	Standard Gauge Railway
Sub-TWG	Sub-Technical Working Group
SWM	Solid Waste Management
SWOT	Strength, Weakness, Opportunity, Threat

Abbreviation	English
TAZ	Traffic Analysis Zone
TCC	Technical Coordination Committee
TOD	Transit-Oriented Development
ToR	Terms of Reference
TWG	Technical Working Group
UBOS	Uganda Bureau of Statistics
UETCL	Uganda Electricity Transmission Company Limited
UIA	Uganda Investment Authority
UMEA	Uganda Muslim Education Association
UN	United Nations
UNBS	Uganda National Bureau of Standards
UN-Habitat	The United Nations Human Settlements Programme
UNOC	Uganda National Oil Company
UNRA	Uganda National Roads Authority
URC	Uganda Railways Corporation
URF	Uganda Road Fund
UTMP	Urban Traffic Management Plan
UWEC	Uganda Wildlife Education Centre
VCR	Volume to Capacity Ratio
WB	World Bank

Executive Summary

The Project for Integrated Urban Development Master Plan for Kampala Special Planning Area (Project for GKMA-IUDMP)

Draft Final Report

Goals and Objectives of the Project

Goals of the Project

The expected goals of the Project are as follows:

- To realise appropriate management of urban development for the Greater Kampala Metropolitan Area (GKMA)
- To contribute to the promotion of sustainable urban growth in the GKMA

Objectives of the Project

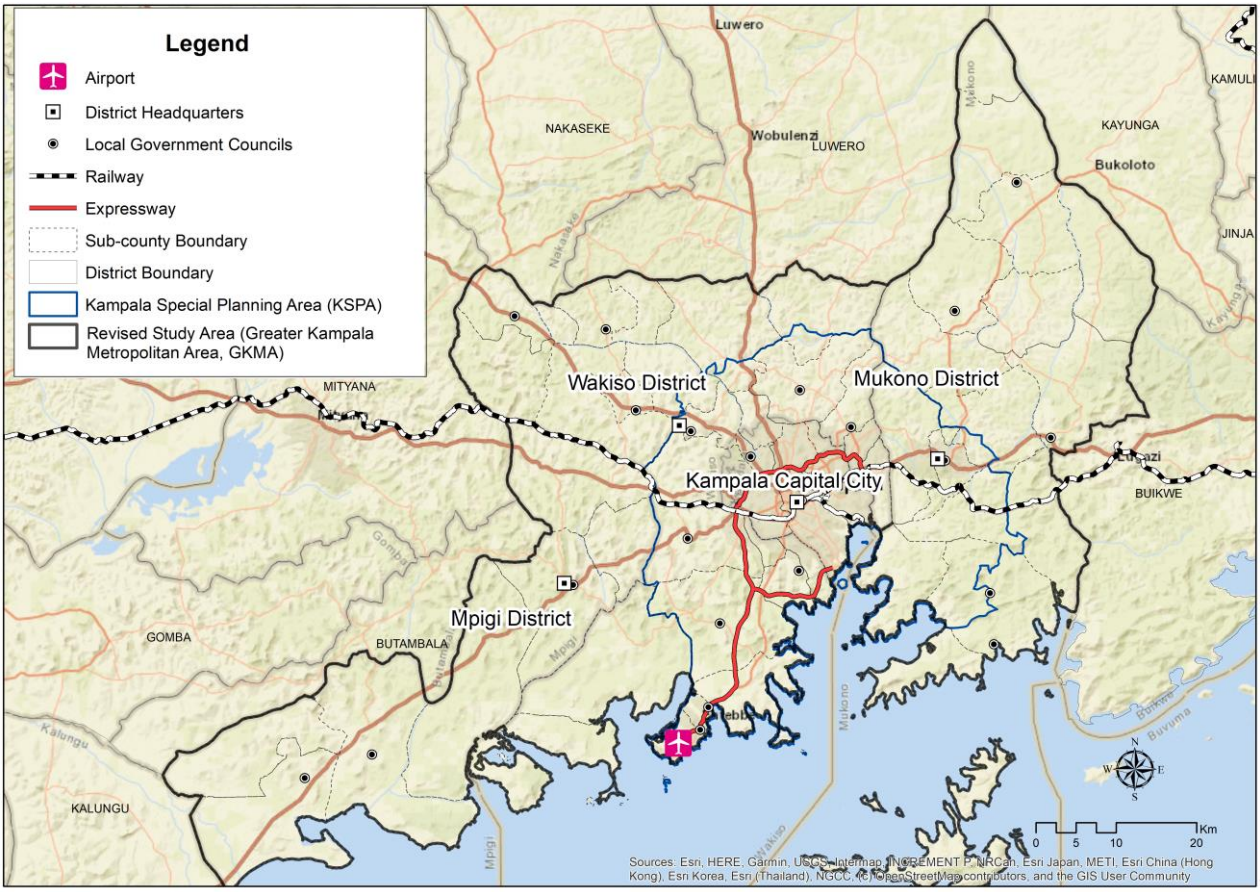
The objectives of the Project are as follows:

- To formulate the Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP). The target year for GKMA-PDP is set to be the year of 2050.
- To formulate the Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP) by upgrading the KPDF. GKUGA-PDP's target year is 2050.
- To formulate the Kampala Capital City Physical Development Plan (KCC-PDP) by upgrading the KPDP for Kampala Capital City. The target year for KCC-PDP is 2040.
- To prepare guidelines for formulating local-level detailed physical development plans the formulation of model plans.
- To establish a collaboration and coordination mechanism (or platform) for implementing the GKMA-PDP, GKUGA-PDP, and KCC-PDP

Study Area and Planning Areas of the Project

Study Area for the Project

Initially, the study area and planning area for the Project was Kampala Special Planning Area (KSPA), covering Kampala Capital City and part of Wakiso and part of Mukono Districts. The KSPA was declared as a special planning area for KPDF by MoLHUD in 2011. However, through a series of discussions with relevant entities in this Project, it is realised that in the surrounding areas of Kampala Capital City, urbanisation has already expanded partly beyond the boundary of KSPA. Therefore, the revised study area covering the administrative areas of Kampala Capital City, Wakiso District Local Government, Mukono District Local Government and Mpigi District Local Government was agreed upon at the First Technical Working Group (TWG) meeting as shown in Figure 1.



Source: JICA Expert Team

Figure 1 Revised Study Area covering the Greater Kampala Metropolitan Area (GKMA) consisting of Kampala Capital City, Wakiso District, Mukono District, and Mpigi District

Three Layers of Phsyical Development Plans and Three Planning Aeas in GKMA

Within the GKMA, the following three different types of geographical areas (three planning areas) are identified, requiring the formulation of different types of physical development plans (PDPs):

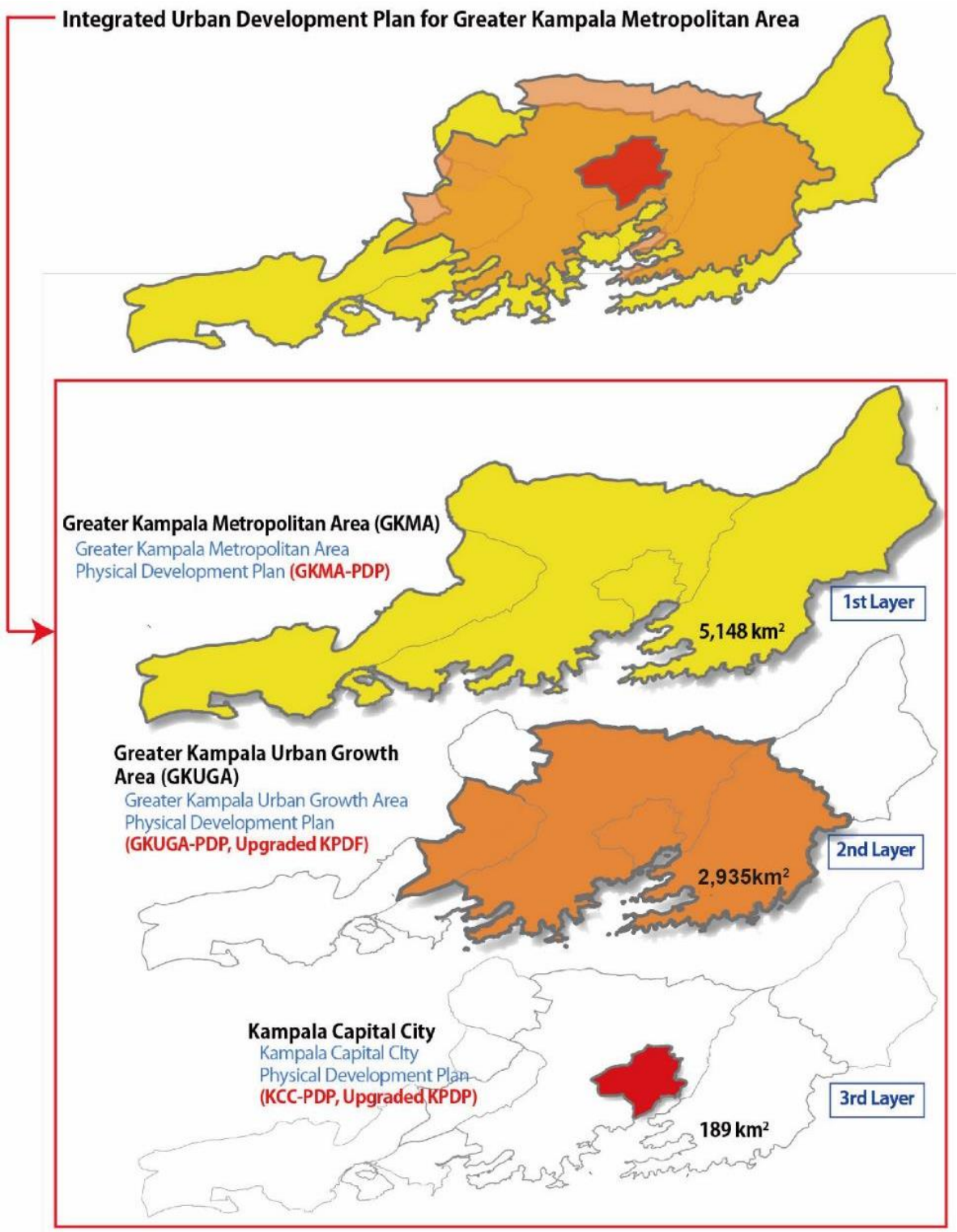
- "Greater Kampala Metropolitan Area (GKMA)" covering Kampala Capital City and neighbouring three districts, which include both large urbanising areas and extensive rural areas. The area size of GKMA is 5,148 km^2.
- "Greater Kampala Urban Growth Area (GKUGA)" consisting of Kampala Capital City and its surrounding urbanised areas including many municipal areas and towns. The Urban Growth Area is set by covering the whole of Kampala Capital City, part of Wakiso District, part of Mukono District, and part of Mpigi District. Urban development should be promoted within the boundaries of the Urban Growth Area, while contiguous urban development beyond the boundaries of the Urban Growth Area should be discouraged.
- "Kampala Capital City", which, is a highly urbanised area with national and regional-level functions of government administration, a commerce-service centre, an education centre and a health centre. Such high-level urban functions should service not only in the Urban Growth Area, but also in the GKMA, while some national functions are to be provided for the country as a whole.

For the GKMA, a Regional Physical Development Plan is to be formulated for guiding balanced urban and rural development by setting a Special Planning Area for GKMA.

For KUGA, a Regional Physical Development Plan is to be formulated for promoting integrated and sustainable urbanisation covering Kampala Capital City and its surrounding urbanising areas, by setting a Special Planning Area for GKUGA.

For Kampala Capital City, an Urban Physical Development Plan is to be formulated.

These three layers of physical development plans are considered as a set of PDPs, which is an integrated development master plan in GKMA as shown in Figure 2.



Source: JICA Expert Team

Figure 2 Three-Layer System of Physical Development Plans in GKMA

Organisation of Draft Final Report

The objectives of Interim Report are as follows:

- To record the progress made in Phase 5
- To prepare technical reports on physical development plans at the three levels, namely, GKMA Level, GKUGA Level and Kampala Capital City Level.
- To prepare model detailed local-level physical development plans for the pilot sites

The Draft Final Report is organised into the following eight parts:

- Part I: Introduction
- Part II: National-Level and Region-Level Development Plans in Uganda
- Part III: Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP)
- Part IV: Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP)
- Part V: Kampala Capital City Physical Development Plan (KCC-PDP)
- Part VI: Local-Level Detailed Physical Development Plans (Model Plans)
- Part VII: Institutional Framework for Implementation of Three Layer Physical Development Plans
- Part VIII: Strategic Environmental Assessment (SEA)

GKMA-PDP

Future Vision for GKMA

The overarching Vision of GKMA is as follows:

> "A liveable and sustainable metropolitan area with a competitive and innovative hub for Uganda and the East African Region, supported by strengthened infrastructure and developed human capital."

GKMA's vision is to guide development and management efforts at the levels of GKUGA and KCC because GKUGA and KCC are part of GKMA. However, characteristics of the three planning areas are different from each other as follows:

- GKMA: The Greater Kampala Metropolitan Area (GKMA) is a Capital City Region which is composed of Kampala Capital City, its suburbs and nearby cities, towns and rural areas. Administratively the GKMA is covered by the Kampala Capital City, Wakiso District, Mukono District and Mpigi District.
- GKUGA: The GKUGA is a Metropolis, a continuously urbanising area from the KCC within the GKMA.
- KCC: The Kampala Capital City (KCC) composes the Metropolitan Core together with its surrounding urban centres.

Development Goals for GKMA

The following three goals should be achieved in order to seek this future vision of GKMA:

- [Goal of Economic Sectors Development] Development of urban centres and industrial growth corridors, job creation and investments is promoted for government administration, business sectors, manufacturing sectors and higher education and tourism sectors are promoted, business services and support are provided for manufacturing and other economic sectors within the GKMA, as well as in the JKM Corridor. Taking advantage of improved potentialities of the JKM Corridor, especially due to the construction of the Kampala-Jinja Expressway, the GKMA will promote the development of manufacturing industries and other economic sectors in the JKM Corridor, including part of GKMA. To seek this goal would make GKMA and GKUGA a primary centre of corporate businesses and international relation for the inland part of the East African Region, as well as for Uganda.

- [Goal of Integration and Functionality] Spatial integration and urban centre functionality should be promoted in GKMA, especially in GKUGA, for enhancement of economic productivity and social wellness by reducing inefficient work and life due to traffic congestion.
- [Goal of Liveablity] At the same time, the attainment of a liveable urban environment is promoted for citizens and visitors not only within GKUGA including KCC, but also outside GKUGA within GKMA.
- [Goal of Environmental and Social Sustainability] Furthermore, the environmental and social sustainability of GKMA should be promoted by paying attention to the following aspects:
  - Conservation and wise utilisation of wetland,
  - Public accessibility/utilisation and environmental conservation of Victoria Lakefront areas
  - Improvement of residential environment of informal settlements.

Socio-Economic Framework for GKMA and GKUGA

Table 1 shows the future population framework for GKMA and GKUGA by short, medium and long term. Table 2 illustrate the change of share of economic sector and growth rates by economic sector.

Table 1 Future Population Framework for GKMA

		2014*	2020**	2030**	2040**	2050**
Kampala Capital City	Population	1,507,080	1,685,600	1,972,000	2,180,000	2,234,000
	Annual Growth Rate	-	1.88%	1.59%	1.00%	0.25%
Mpigi District	Population	253,770	301,342	435,000	662,000	998,000
	Annual Growth Rate	-	2.91%	3.74%	4.28%	4.20%
Mukono District	Population	596,804	745,000	1,109,000	1,644,000	2,346,000
	Annual Growth Rate	-	3.77%	4.06%	4.02%	3.62%
Wakiso District	Population	1,997,418	2,852,000	4,530,000	6,609,000	8,564,000
	Annual Growth Rate	-	6.12%	4.73%	3.85%	2.62%
GKMA	Population	4,355,072	5,584,000	8,046,000	11,094,000	14,142,000
	Annual Growth Rate	-	4.23%	3.72%	3.26%	2.46%
Outside Kampala Capital City in GKMA	Population	2,847,992	3,899,000	6,074,000	8,914,000	11,908,000
	Annual Growth Rate	-	5.37%	4.53%	3.91%	2.94%
GKUGA	Population	3,935,000	5,098,000	7,407,000	10,250,000	13,077,000
	Annual Growth Rate	-	4.41%	3.81%	3.30%	2.46%
Outside GKUGA in GKMA	Population	420,000	486,000	639,000	843,000	1,065,000
	Annual Growth Rate	-	2.43%	2.78%	2.81%	2.37%

Source*: UBOS
Source**: JICA Expert Team

Table 2 Future Economic Framework for GKMA

	GRDP (Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Estimated)	56,714	17.2	35.5	47.3
2025 (Projected)	75,063	16.1	35.4	48.5
2030 (Projected)	108,400	13.8	35.7	50.5
2035 (Projected)	165,488	11.4	35.4	53.2
2040 (Projected)	259,614	9.2	34.8	55.9

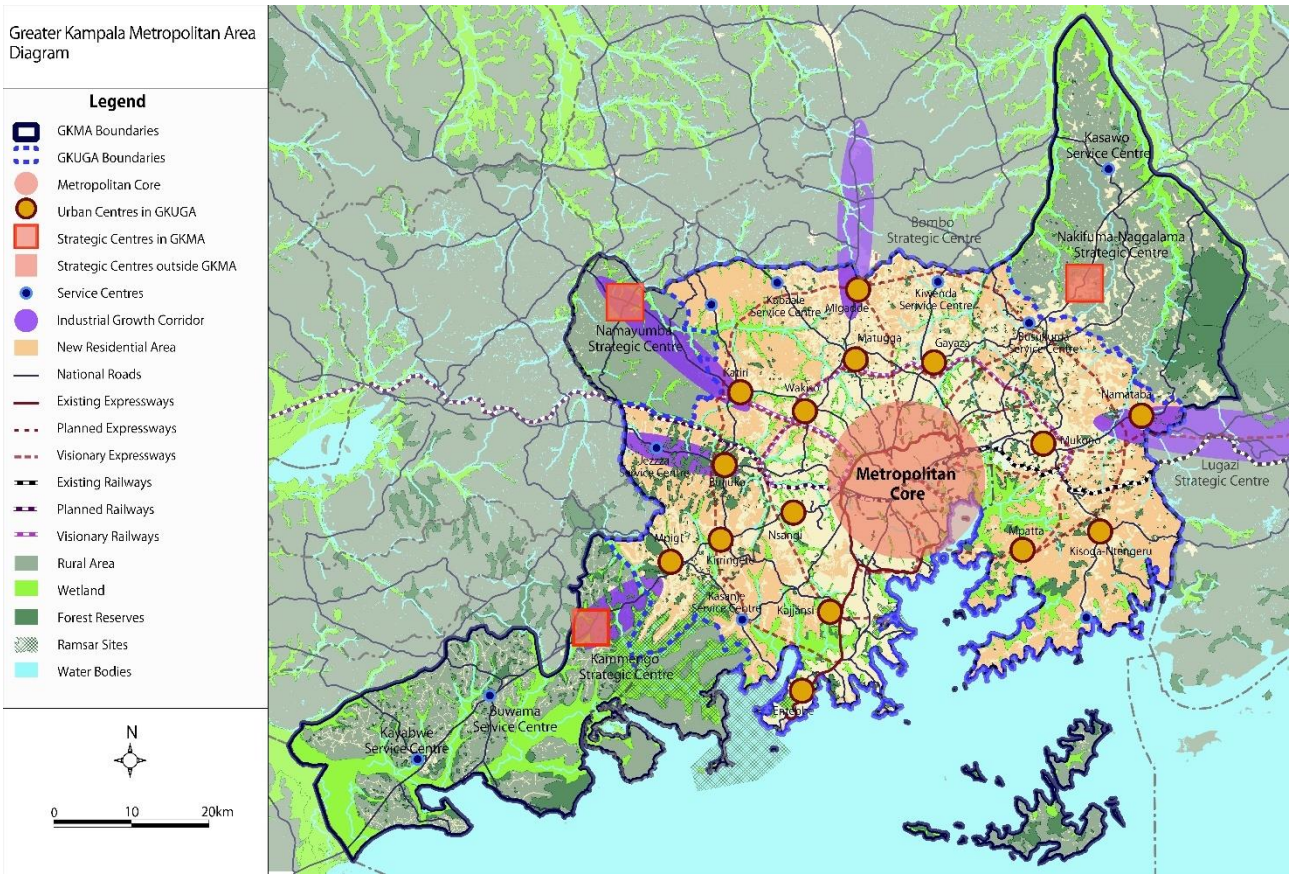
Source: JICA Expert Team

Future Spatial Diagram of GKMA

The future spatial diagram is composed of the following four major categories of spatial development:

- Landscape (Natural Areas)
- Housing (Residential Areas)
- Jobs (Urban Centres and Corridors)
- Connectivity (Transportation)

These different aspects of the future spatial diagram of the GKMA-PDP at the target year 2050 are depicted by different spatial elements. The future spatial diagram as shown in of the GKMA-PDP is prepared for guiding spatial development in GKMA.



Source: JICA Expert Team

Figure 3 Future Spatial Diagram of GKMA

GKUGA-PDP

Development and Management Goals for GKUGA

To get closer to the realising the Vision for GKMA described above, the following five development and management goals should be sought:

- To seek prosperous, stable and green "Urban Economies" by attracting investment in business, manufacturing, international tourism, higher education, and advanced health
- To accommodate high urban functions by developing decentralised urban centres, securing urban mobility and utilising Smart Technology
- To seek inclusive society by developing public transportation
- To manage livealbe urban environment with green and open space
- To enhance resilient against climate change and disasters

Overall Issues on Urban Development in GKUGA

The overall issues of GKUGA are as follows:

- Weak business support functions to promote development of economic sectors
- Insufficient infrastructure to support manufacturing and logistics industries in GGGKUGA outside Kampala Capital City
- Difficulties to transform a mono-centric structure to a multi-nucleus structure in GKUGA
- Too much concentration of urban function in Kampala Capital City causing serious traffic congestion
- Long travelling time

- Large Urban Population Living Under Poor Infrastructure in Kampala Capital City
- Insufficient Water Supply outside Kampala Capital City
- Insufficient Power Supply outside Kampala Capital City
- Lack of Coordination among Local Governments for Solid Waste Management
- Insufficient Drainage Facilities and Lack of Drainage Master Plan for outside Kampala Capital City
- Poor sanitation condition in informal settlement
- Degraded wetland due to encroachment caused by population increase and urbanisation, inflow of black water and sedimentation of wetlands
- As the urbanisation occurs rapidly outside Kampala City, this water-related pollution in these local governments surrounding Kampala City can worsen.
- Urban areas in good condition with appropriate plan have not been developed in the suburban areas.
- Along the radius roads outside Kampala Capital City, administration and commercial centres are developing and the concentration of their function has already begun. Around such centres, areas for low-income population are emerging, and without proper intervention, densely populated areas without basic infrastructure will be common in the suburban areas as well.

Overall Objectives for Urban Development in GKUGA

The following overall objectives are set for urban development in GKUGA:

- To develop competitive and vibrant economic sectors including not only commercial, services, and government administration, but also manufacturing sector and business sectors that will provide residents of GKUGA with enough employment opportunities in both formal and informal sectors by transforming the monocentric, congested, inefficient and fragmented spatial structure of GKUGA into a polycentric spatial structure within the GKUGA, but also a strongly integrated spatial structure within GKMA as a whole, but also with the JKM Corridor
- To enhance the healthy and resilient residential environment and urban amenity for enjoyable lives of people by providing basic infrastructure and developing urban centres within GKUGA outside Kampala Capital City, as well as within Kampala Capital City
- To promote environmental sustainability of GKUGA in harmony with lakefront areas and wetlands by developing a lakefront metropolitan together with wisely used and conserved wetlands
- To promote social sustainability and attain healthy residential areas by improving high-density and deteriorated environments of slums and supporting residents' livelihood by applying in-situ solutions, as well as paying attention to the economic and financial values of slums

Overall Strategies for Urban Development in GKUGA

Seven most important overall strategies are identified as follows:

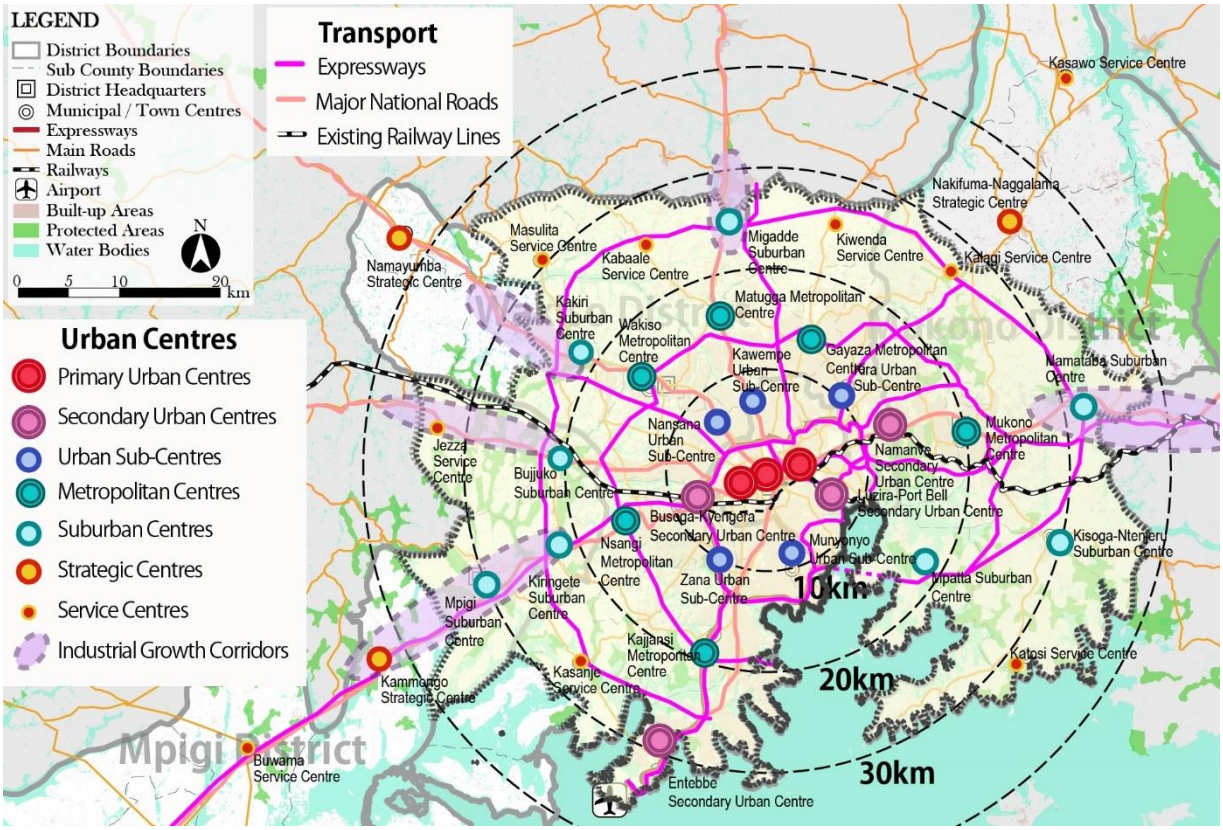
- To facilitate the implementation of the formulated integrated urban development master plan (three layers of physical development plans) in GKMA by establishing an Institutional Framework consisting of a technical coordination group (a compact and multi-sectorial group of government officers) and Joint Coordinating Committee consisting of a variety of MDAs and seven territorial local governments in GKMA
- To transform the current Monocentric Spatial Structure to a Polycentric Spatial Structure within the GKMA/GKUGA by promoting Metropolitan Centres outside KCC within GKUGA => Green Growth
- To strengthen a multi-modal public transportation network for supporting the development and operation of the Polycentric Spatial Structure of GKUGA => Green Growth
- To strengthen the urban core functions in GKUGA by expanding CBDs (Primary Urban Centres) and developing Secondary Urban Centres not only in KCC, but also its surrounding areas within GKUGA
- To development of Industrial Areas in the JKM Corridor by designating Industrial Growth Corridors but also by providing necessary infrastructure for industrial operation
- To promotion of Wetland Conservation and Wise Use by applying different approaches to KCC, GKUGA and GKMA => Green Growth
- To promotion of land use management of Victoria Lakeshore in GKMA/GKUGA for enhancing public amenity and environmental conservation

Future Spatial Structure of GKUGA

Considering the present situation and the policies for renewing KPDF/KPDP, preliminary future spatial structure of GKMA is prepared as in Figure 4.

Primary Urban Centre is expanded to Nakawa, while five Urban Sub-Centres in the area within 10km from Kampala City's city centre are identified. Furthermore, four Secondary Urban Cores are identified to support the function of the primary urban centres.

Kajjansi, Nsangi, Wakiso, Matugga, Gayaza and Mukono are expected to become the Metropolitan Centre and eight other centres are identified in GKUGA as Suburban Centres.



Source: JICA Expert Team

Figure 4 Future Spatial Structure of GKUGA

General Land Use Plan for GKUGA

Based on this future urban spatial structure prepared for GKUGA, a general land use plan is prepared for GKUGA for the following purposes:

- To show the boundaries for Greater Kampala Urban Growth Area (GKUGA), which are to be used for limiting urbanising areas within the GKUGA
- To show major characteristics (urban centres, roads and railways, and protected areas) of the future urban spatial structure
- To show other new land uses, such as new residential areas, in addition to existing land uses

In the general land use plan shown in **Error! Reference source not found.**, areas which should become urban centres outside Kampala Capital City are shown in circles and urban sub-centres in the future urban structure are shown in ribbon patterns along the arterial roads.

The radiuses of these circles are determined based on the considered influential area of each centre. The radius of the circles used for each type of centres are determined as follows:

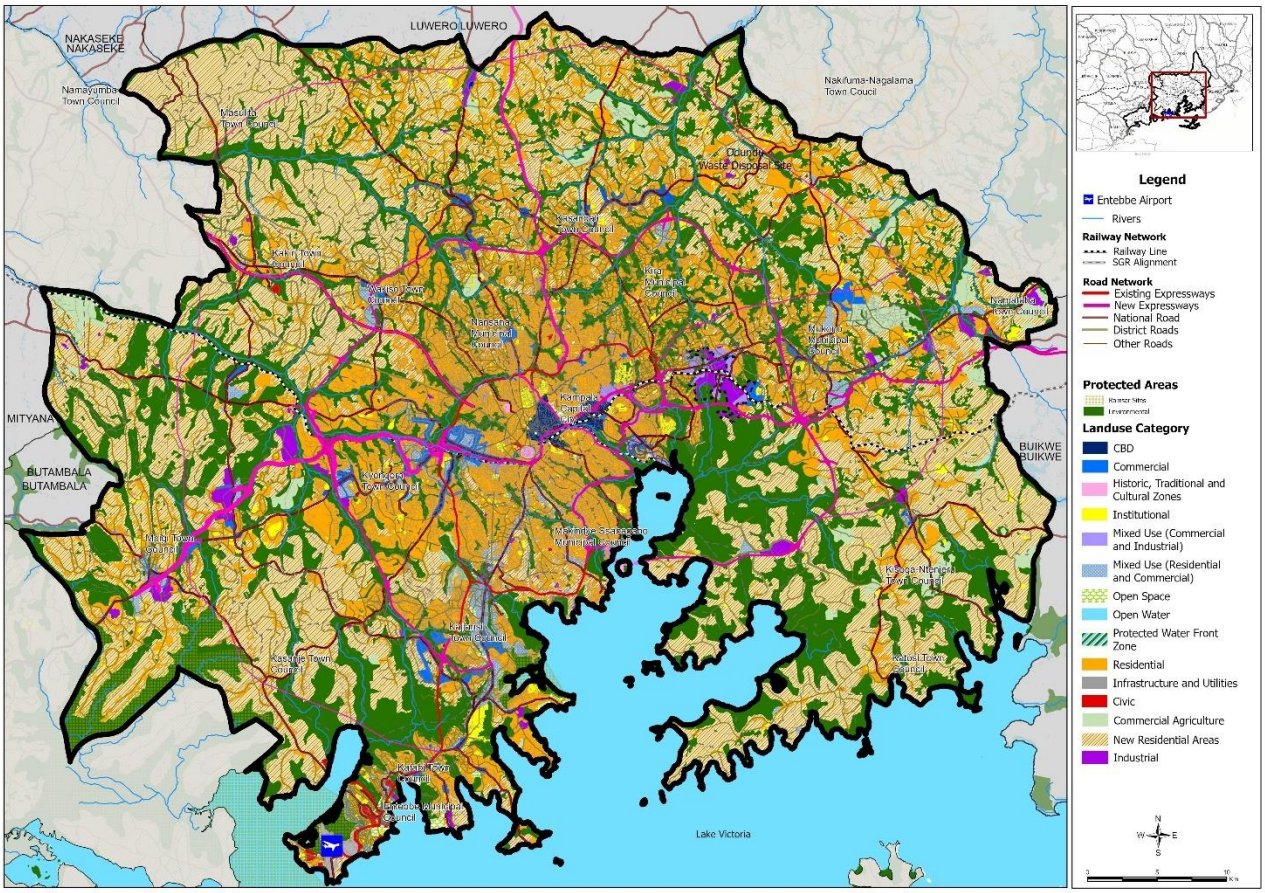
- Secondary Urban Centres: 2,000 m
- Metropolitan Centres and Suburban Centres: 1,200 m

- Service Centres: 600 m

The centre of these circles are on existing commercial centres and at the exits of the new expressways. The exists of the new expressways are determined as the centre of the circles because in GKUGA, due to the traffic congestion, more businesses and people will prefer to work and live closer to such locations. Therefore, the number of circles are different and the shape of the area determined as urban centres are also unique depending on the condition of each centres.

The surface size of the metropolitan centre is larger than suburban centres because the metropolitan centres were selected on areas with potential to grow with more than one expressway exits.

The existing centres which are designated as urban sub-centres have length between 1km and 4 km depending on the existing situation.

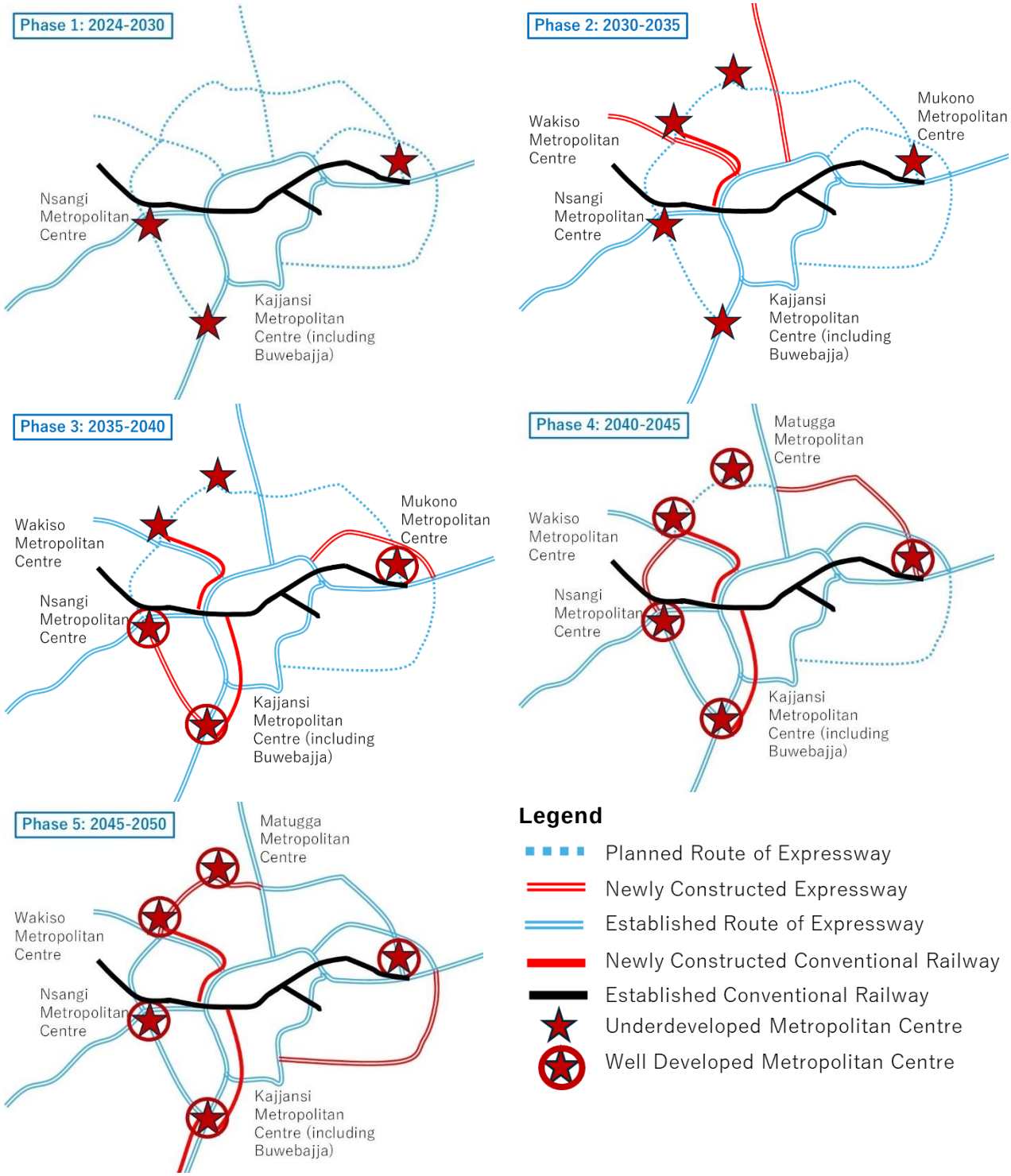


Source: JICA Expert Team

Figure 5 General Land Use Plan for GKUGA (Version June 2024)

Phased Development for GKUGA

Urban centre development could be promoted by developing strong connectivity through expressways, since mostly urban mobility measures depend on roads. Such strong connectivity can be attained only by constructing a good and wide-coverage of expressway network to smoothen road traffic. Therefore, a phased scenario of formation of spatial structure is composed considering the combination of urban centre development (especially Metropolitan Centres) and expressway development as shown in Figure 6.



Source: JICA Expert Team

Figure 6 Phased Development Plan for GKUGA

KCC-PDP

Objectives for General Land Use Plan for Kampala Cpital City

The objectives of the general land use plan for Kampala Capital City are as follows:

- To promote effective use of land that can vitalise economic activities
- To promote TOD in Kampala Capital City

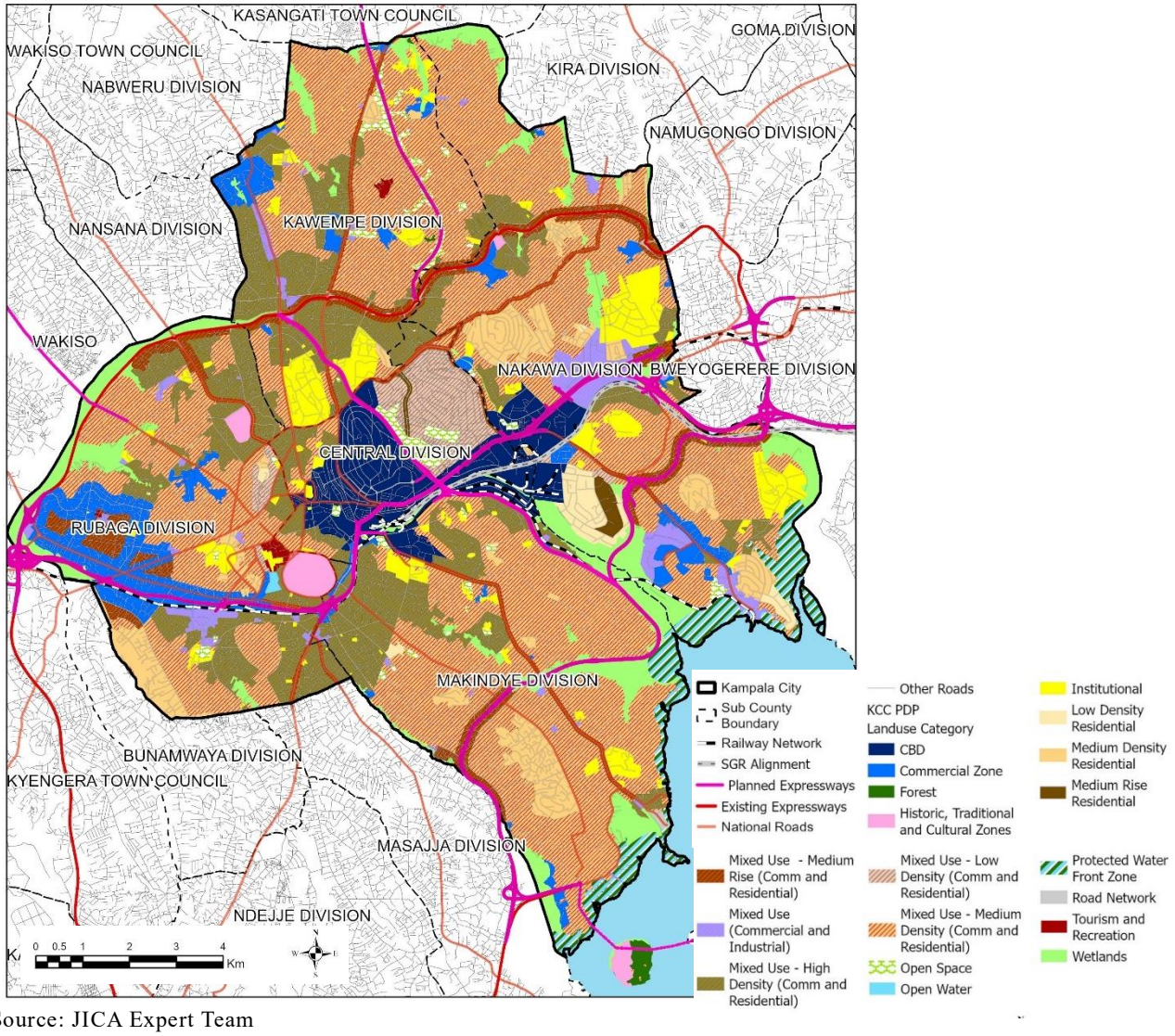
Policies for Revising the General Land Use Plan for Kampala Capital City

By considering the present condition and urbanisation issues of Kampala Capital City, the following policies are proposed for revising the general land use plan.

- To expand the area for CBD for accommodating commercial and business activities with high labour productivity, high-skilled industry, head quarter function for the nation and East African region, etc.
- To designate Medium Rise Mixed Use Zone (Commercial and Residential) along the major expressways and arterial roads for guiding TOD.
- To designate higher dense residential areas where multi-story buildings can be built to accommodate the population in an improved living environment by changing the land use from residential to Medium Rise Residential
- To designate High Density Mixed Use Zone (Commercial and Residential) on residential areas where the requirement for lot size does not the minimum lot size for high density residential area.
- To designate Low Density Mixed Use Zone (Commercial and Residential) on residential areas with relatively large plot and low rise buildings.
- To control developments on wetlands that function as waterway and natural ecosystem.
- To secure land for future infrastructure and urban parks by designating areas which are deteriorated wetlands.

General Land use Plan for Kampala Capital City

The general land use plan is shown in Figure 7.



Source: JICA Expert Team

Figure 7 General Land Use Plan for Kampala Capital City

PART I
INTRODUCTION

Chapter 1 Introduction

1.1 Background

Greater Kampala Metropolitan Area (GKMA) in the Republic of Uganda has been defined to be composed of the administrative areas of Kampala Capital City Authority and its surrounding three district local governments (Wakiso, Mukono and Mpigi Districts) by Kampala Capital City Act (Amendment, year 2020). The total population of GKMA was approximately 4.3 million in 2014. It is estimated to be about 5.6 million in 2020. Approximately, one-third of the gross domestic product (GDP) of Uganda is produced in GKMA, and around 70% of the factories in the country are concentrated in the said area.

Within the GKMA, a rapid urban area expansion has taken place together with rapid urban population increase. The urbanising areas centring in Kampala Capital City comprise a large urban agglomeration or conurbation.[1] The conurbation's population was 3.4 million including an urban population of 1.5 million in Kampala Capital City in 2014 and was estimated to be 5.1 million in 2020.

Kampala Capital City is a hilly place with valleys filled with rivers and wetlands. It has limited suitable lands for development and it is not easy to widen urban roads. Therefore, in order to promote urban development, it is important to carry out efficient and consistent development. Under such conditions, with the financial and technical support of the World Bank, and with participation of its surrounding local governments, Kampala Capital City Authority (KCCA) formulated the Kampala Physical Development Framework (KPDF), covering Kampala Capital City and its surrounding areas known as Kampala Special Planning Area (KSPA); and the Kampala Physical Development Plan (KPDP), covering Kampala Capital City. KPDF was prepared as a long-term urban integrated development plan to guide urban development and infrastructure provision of Kampala Capital City and its surrounding areas. On the other hand, KPDP is a general land use plan associated with development plans for various infrastructure sectors for Kampala Capital City.

This set of master plans was approved by the Ministry of Lands, Housing and Urban Development (MoLHUD) in 2013. However, there was insufficient discussion and coordination with relevant ministries and agencies during the process of formulating the KPDF and KPDP. In addition, KPDF and KPDP were not fully disseminated to neighbouring local governments and related sector ministries, departments and agencies (MDAs). As a result, individual sector development plans have been formulated on the basis of KPDF and KPDP, and ad hoc developments are underway. Moreover, since KPDP and KPDF are strategic in nature, it is hard to implement the plans. Furthermore, it is difficult for KPD and KPDP to guide the formulation of local-level detailed physical development plans.

Due to a massive influx of population, urban areas are expanding to sloping lands and suburbs in GKMA. Furthermore, disorderly development is occurring in the central area of the city, causing problems regarding transportation, environment, disaster prevention and landscape. Therefore, the

[1] A conurbation is a region comprising a central city and surrounding towns and suburban areas, which have merged to form one continuous urban area. In the context of GKMA, the conurbation is named as Greater Kampala Urban Growth Area (GKUGA) and defined in the area shown in Figure 2.2.2, Chapter 2.

formulation of an effective and implementable urban development master plan is required to realise a sustainable metropolitan area.

The KPDF and KPDP were formulated based on the census populations of 1991 and 2002. It has been pointed out that the projected populations for formulating the plans were overestimated. Consequently, it is required to revise the socioeconomic framework and urban structure based on appropriate reviews. In order for the plans to be used as documents that can guide urban development in the GKMA, it is essential for not only territorial entities in the GKMA, but also sectorial MDAs to participate in the planning process and to contribute to the plan formulation. Furthermore, it is necessary to establish a system/mechanism/platform of cooperation and collaboration for implementing the plan. Considering the existing issues of inadequate development management for implementing the plans, it is necessary to establish an urban development management system through the formulation of specific land use regulations and formulation of detailed plans at the local level.

Based on the above background, the Project provided technical cooperation for formulating the Integrated Urban Development Master Plan of GKMA by upgrading the current KPDF and KPDP and preparing guidelines for formulating local-level detailed physical development plans.

1.2 Goals and Objectives of the Project

The expected goals of the Project are as follows:

- To realise appropriate management of urban development for the GKMA
- To contribute to the promotion of sustainable urban growth in the GKMA

The objectives of the Project are as follows:

- To formulate the Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP). The target year for GKMA-PDP is set to be the year of 2050.
- To formulate the Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP) by upgrading the KPDF. GKUGA-PDP's target year is 2050.
- To formulate the Kampala Capital City Physical Development Plan (KCC-PDP) by upgrading the KPDP for Kampala Capital City. The target year for KCC-PDP is 2040.
- To prepare guidelines for formulating local-level detailed physical development plans through the formulation of model plans.
- To establish a collaboration and coordination mechanism (or platform) for implementing the GKMA-PDP, GKUGA-PDP, and KCC-PDP.

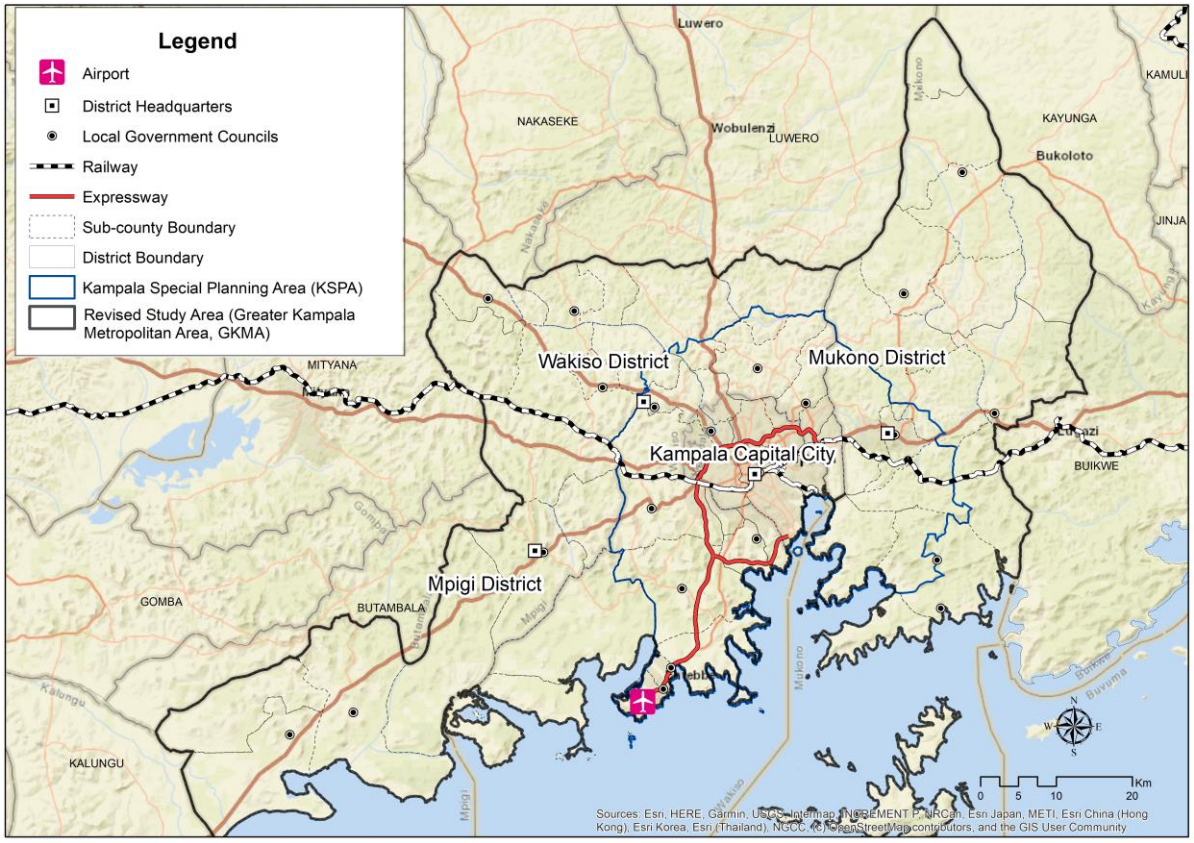
1.3 Study Area and Planning Areas of the Project

Initially, the study area and planning area for the Project was Kampala Special Planning Area (KSPA), covering Kampala Capital City and part of Wakiso and part of Mukono Districts. The KSPA was declared as a special planning area for KPDF by MoLHUD in 2011. However, through a series of discussions with relevant entities, it was realised that in the surrounding areas of Kampala Capital City, urbanisation has already expanded partly beyond the boundaries of KSPA.

Therefore, a new study area covering the administrative areas of Kampala Capital City, Wakiso District Local Government, Mukono District Local Government and Mpigi District Local Government was agreed upon at the first Technical Working Group (TWG) meeting on the 5th of October, 2021. The revised study area is shown in Figure 1.3.1.

Furthermore, a new planning area for the integrated urban development master plan has been determined within the boundaries of GKMA. The result of the consideration of planning areas for physical development plans in GKMA is described in Chapter 2 of this study report. The new

planning areas and their contents have been approved at the third Joint Coordination Committee (JCC) meeting on 22nd of March, 2023.



Source: JICA Expert Team based on data from Open Street Map

Figure 1.3.1 Revised Study Area for GKMA-IUDMP covering Kampala Capital City, Wakiso District, Mukono District, and Mpigi District

1.4 Phases of the Project

The Project was conducted in six phases for the following tasks:

Phase 1: From June 2021 to March 2022

- Analysis of Present Situation and Consideration of Updating Policy of the Current KPDF and KPDP
- Consideration of Planning Areas and Plan Contents for Physical Development Plans in GKMA
- Review of Existing Local-Level Detailed Physical Development Plans
- Establishment of Collaboration and Coordination Platform for Master Plan Formulation

Phase 2: From March 2022 to February 2023

- Consideration of Planning Areas and Plan Contents for Physical Development Plans in GKMA
- Formulation of GKUGA-PDP and KCC-PDP by Reviewing and Upgrading of the Current KPDF and KPDP (Draft Version of GKUGA-PDP and KCC-PDP)
- Review of Guidelines (Under Preparation) for Formulation of Physical Development Plans
- Initial Consideration of Preparation of Guidelines for Local-Level Detailed Physical Development Plans (Model Plans)
- Selection of Pilot Areas for Local-Level Detailed Physical Development Plans (Model Plans)
- Initial Consideration of Collaboration and Coordination Platform for Implementation of Physical Development Plans

Phase 3: From February 2023 to August 2023

- Formulation of GKMA-Level Physical Development Plan (GKMA-PDP)
- Formulation of Future Spatial Diagram for GKMA-PDP
- Updating Future Traffic Analysis with Additional Zones
- Preparation of Guidelines for Formulation of Local-Level Detailed Physical Development Plans (Model Plans)
- Preparation of Base Maps for Local-Level Detailed Physical Development Plans (Model Plans)
- Consideration of Collaboration and Coordination Platform for Implementation of Physical Development Plans
- Initial Consideration of Capacity Development and Publicity Activities

Phase 4: From August 2023 to February 2024

- Capacity Development and Publicity Activities,
- Improvement of 3-Layer Physical Development Plans in GKMA (GKMA-PDP, GKUGA-PDP, and KCC-PDP)
- Finalisation of Guidelines for Local-Level Detailed Physical Development Plans
- Formulation of Draft Local-Level Detailed Physical Development Plans (Model Plans)
- Preparation of Regulation for Collaboration and Coordination Platform for Promoting the Implementation of Physical Development Plans

Phase 5: From February 2024 to June 2024

- Capacity Development and Publicity Activities,
- Finalisation of Conclusions and Recommendations,
- Improvement of Local-Level Detailed Physical Development Plans (Model Plans)
- Preparation of Recommended Actions to Local-Level Detailed Physical Development Plans
- Finalisation and Approval of Regulation for Coordination and Collaboration Platform for Promoting Implementation of Physical Development Plans

Phase 6: From June 2024 to August 2024

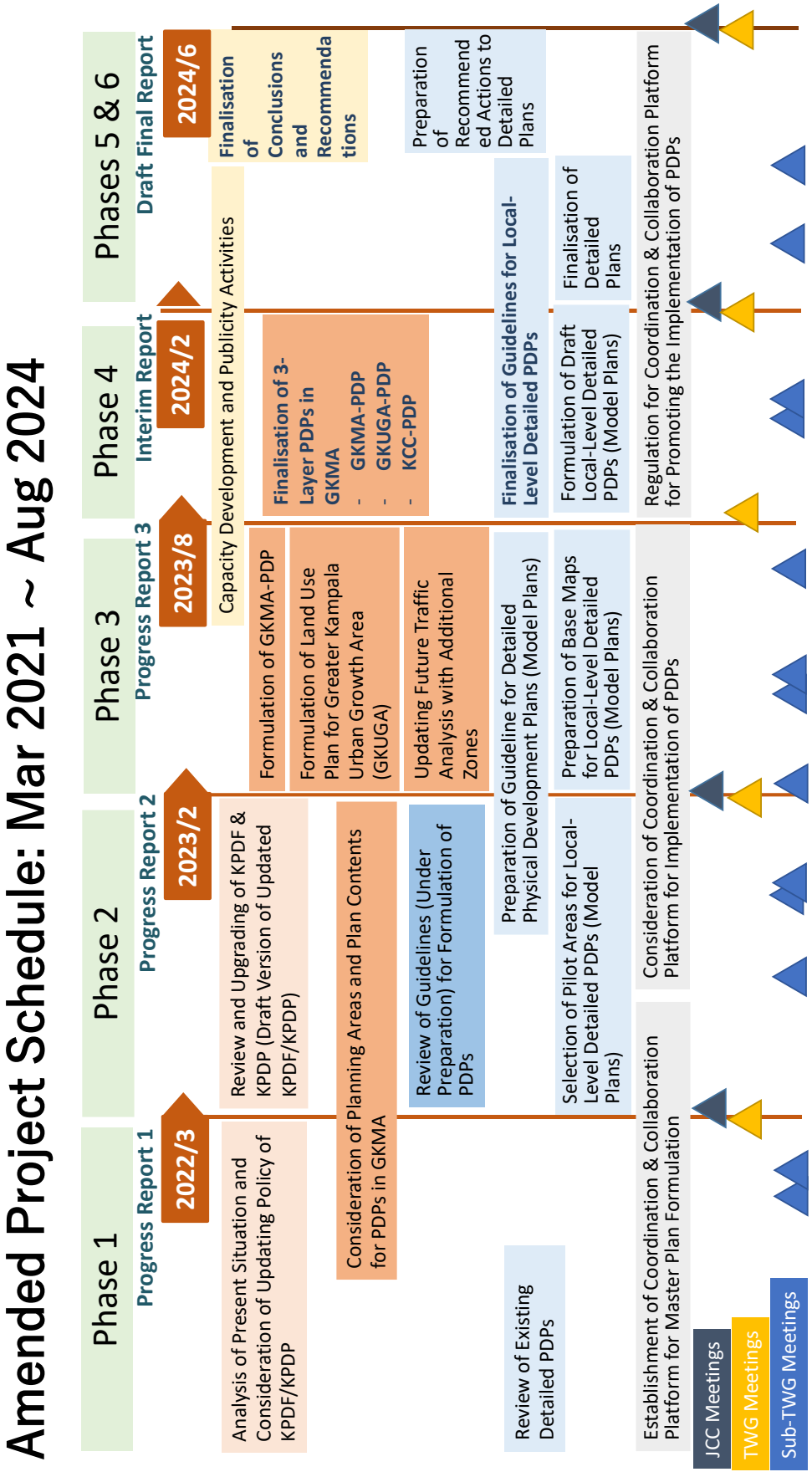
- Presentation of Draft Final Report for Discussion and Receiving Comments
- Revision and Finalisation of GKMA-PDP, GKUGA-PDP and KCC-PDP
- Revision and Finalisation of the Two Local-Level Detailed PDPs (Model Plans)
- Compilation of the Final Report

The studies conducted in each phase are compiled into the following reports:

- Progress Report 1: Study results of Phase 1
- Progress Report 2: Study results of Phase 2
- Progress Report 3: Study results of Phase 3
- Interim Report: Study results of Phase 4
- Draft Final Report: Study results of Phase 5
- Final Report: Study results of Phases 1 to 6

1.5 Schedule of the Project

The schedule of the Project is shown in Figure 1.5.1.



Source: JICA Expert Team

Figure 1.5.1 Project Schedule for GKMA-IUDMP

1.6 Organisation of Draft Final Report (DFR)

The objectives of Draft Final Report are as follows:

- To record the progress made in Phase 5
- To prepare technical reports on physical development plans at the three levels, namely, GKMA level, GKUGA level and Kampala Capital City level
- To prepare model detailed local-level physical development plans for the pilot sites

The Draft Final Report is organised into the following eight parts:

- Part I: Introduction
- Part II: National-and Region-Level Socio-Economic and Spatial Frameworks
- Part III: Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP)
- Part IV: Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP)
- Part V: Kampala Capital City Physical Development Plan (KCC-PDP)
- Part VI: Local-Level Detailed Physical Development Plans (Model Plans)
- Part VII: Institutional Framework for Implementation of Three Layer Physical Development Plans
- Part VIII: Strategic Environmental Assessment (SEA)

Table 1.6.1 shows an overview of the parts and chapters included in each part.

Table 1.6.1 Organisation of Parts and Chapters in Draft Final Report

Parts	Chapters	
Part I **Introduction** Part I includes an overview of the GKMA-IUDMP and a description of the Three-Layer System of Physical Plans.	Chapter 1	Introduction
	Chapter 2	Three-Layer System of Physical Development Plans
Part II **National and Regional-Level Socio-Economic and Spatial Frameworks** Part II deals with the future socio-economic framework and the National Regional Spatial Framework, which is broader than the GKMA.	Chapter 3	National and Regional Socio-Economic and Spatial Frameworks
Part III **Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP)** In Part III, the chapters describe the Future Vision and Sectorial Policy Proposals at GKMA level, including the Future Spatial Diagram for GKMA-PDP. Outputs: GKMA Spatial Diagram,	Chapter 4	Development Potentials, Future Vision and Socio-Economic Frameworks for Greater Kampala Metropolitan Area (GKMA)
	Chapter 5	Policies for Economic Sectors Development in Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA) and Kampala Capital City (KCC)
	Chapter 6	Policies for Spatial Development in Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA) and Kampala Capital City (KCC)
	Chapter 7	Transport Policies for Greater Kampala Metropolitan Area (GKMA)
	Chapter 8	Policies for Public Facilities in Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA) and Kampala Capital City (KCC)
Part IV **Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP)**	Chapter 9	Development Potentials, Future Vision, Overall Urban Development Strategies in Greater Kampala Urban Growth Area

Part IV includes contents on the Overall Urban Development Strategies and Sectoral Strategies for the GKMA-PDP including General Land Use Plan for GKUGA (2050), as well as on Phased Development and Priority Projects. Outputs: GKUGA Urban Spatial Structure, GKUGA General Land Use Plan, General Land Use Plans for Urban Centres		(GKUGA) including Kampala Capital City (KCC)
	Chapter 10	Strategies for Spatial Development in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City (KCC)
	Chapter 11	Urban Development Strategies for Promoting Housing and Residential Area Development in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 12	Development Strategies of Open Spaces and Wetland Management in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 13	Development Strategies of the Transport Sector in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 14	Development Strategies for Infrastructure Sectors in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 15	Climate Change Strategies in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 16	Priority Projects and Phased Development Plan for Urban Centres and Expressways in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 17	Profiles of Priority Projects in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
Part V **Kampala Capital City Physical Development Plan (KCC-PDP)** Part V describes Land Use Policies for KCC, including the General Land Use Plan for KCC. Outputs: General Land Use Plan for KCC	Chapter 18	Present Urban Characteristics of Kampala Capital City (KCC)
	Chapter 19	Land Use Policies for Kampala Capital City (KCC)
Part VI **Local-Level Detailed Physical Development Plans (Model Plans)** Part VI includes description of the Local-Level Detailed PDPs in two pilot sites and Capacity Development Trainings for the development of Detailed PDPs, including descriptions of Guideline and Planning Manual.	Chapter 20	Local-Level Detailed Physical Development Plans in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City
	Chapter 21	Capacity Development for the Formulation of Local-Level Detailed Physical Development Plans (PDPs)
	Chapter 22	Guidelines for Local-Level Physical Development Planning with Introduction of Zoning System
	Chapter 23	Planning Manual for Local-Level Detailed Physical Development Plans
Part VII **Institutional Framework for Implementation of Integrated Urban Development Master Plan for GKMA** Part VII deals with the Institutional Framework for Implementation, including the Technical Coordination Committee set up for the GKMA-IUDMP.	Chapter 24	Institutional Framework for Implementation of Integrated Urban Development Master Plan for GKMA
Part VIII **Strategic Environmental Assessment (SEA)** Part VIII describes the SEA undertaken for the GKMA-IUDMP.	Chapter 25	Strategic Environmental Assessment (SEA)

Source: JICA Expert Team

1.7 Study Approaches

The project has been conducted based on the following six basic approaches:

(1) Formulation of an Integrated Urban Development Master Plan Based on an Agreement among KCCA and Local Governments Composing the GKMA

The Greater Kampala Metropolitan Area (GKMA) is composed of nine autonomous territorial entities, each of which has the authority to formulate and implement its own physical development plan, as well as economic development plan.

However, in the metropolitan context, the formulation and implementation of disintegrated physical development plans do not lead to eventual solution of urban issues and identification of strategies for future co-prosperity among the territorial entities.

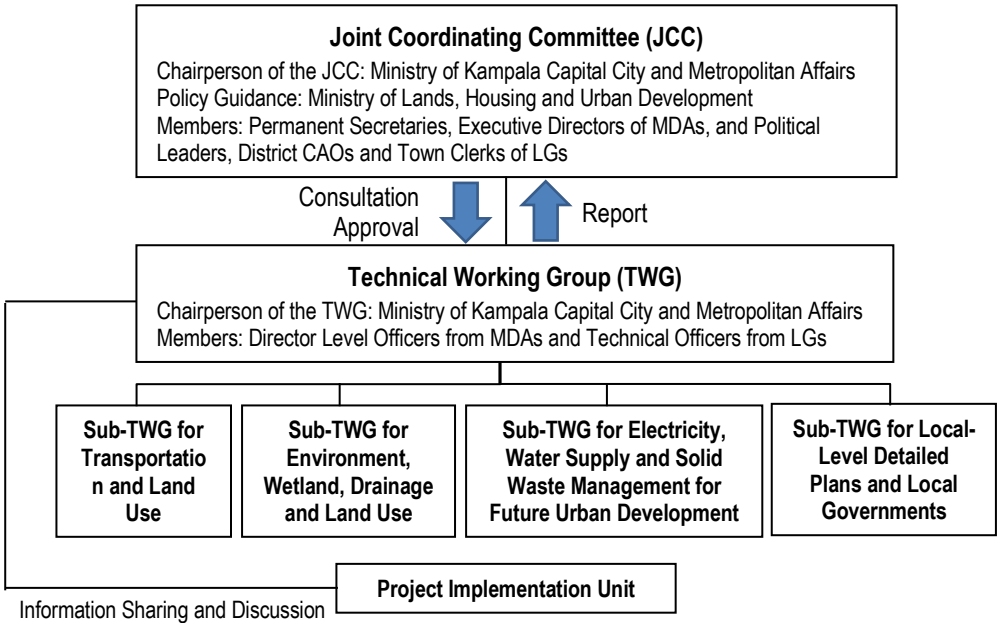
Thus, it is necessary to accelerate the formulation and implementation of an integrated urban development master plan (or an interdistrict-level physical development plan) for GKMA.

(2) Collaboration and Coordination Mechanism - To Renew the Urban Master Plan and to Promote the Implementation of a Renewed Master Plan

The KPDF and KPDP development projects in 2012 put emphasis on the process of making plans. In fact, a large number of meetings for collaboration and coordination were held, and the administrative and technical officers of local governments (Wakiso District, Mukono District and cities and towns) outside Kampala Capital City also participated in those meetings as described in the KPDF and KPDP final reports. However, evaluation said that the KPDF and KPDP formulated in 2012 were not completely coordinated with the local governments outside Kampala Capital City and sector ministries, as the coordination mechanism was not fully recognised by related local governments and organisations. This situation seemed to be partly brought by the fact that the themes and conclusions of the discussions of many committees and stakeholder meetings had not substantially reached the upper management officers of local governments and related sector ministries, according to the interview survey carried out in 2019. Judging from these results, the ownership of the participating members who supported the formulation of the KPDF was insufficient, partly because the collaboration and coordination mechanism, which should include a wide range of people, was not officially established.

However, at the time of renewal of KPDF/KPDP, the coordination of physical development plans within the GKMA (consisting of KCCA and its surrounding local governments) had been newly added to the jurisdiction of MKCC&MA due to the amendment of the Kampala Capital City Act in 2019. As a result, an "organisational mechanism of collaboration and coordination" was established for the purpose of updating and implementing KPDF/KPDP.

The JICA Expert Team proposed the inclusion of local governments to all the coordination bodies under discussion between the Ugandan Government and JICA, consisting of Joint Coordination Committee (JCC), Technical Working Group (TWG), Sub-Technical Working Groups (Sub-TWGs) and Project Implementation Unit (PIU) as shown in Figure 1.7.1. This project organization was approved by the JCC and TWG.



Source: JICA Expert Team based on R/D

Figure 1.7.1 Organisational Mechanism of Coordination for Formulation of Integrated Urban Development Master Plan (consisting of Three PDPs) for GKMA

(3) Retailoring of the Current KDPF/KPDP into a Concrete and Implementable Plan

1) To Retailor KPDF/KPDP into an Implementable Urban Development Master Plan by Adjusting Development Directions, Degrees, and Extent

The JICA Expert Team first reviewed and updated the "future goals," which are among the important contents of the urban development MP. The future goals were updated by paying attention to future population and urban structure (population distribution, function and placement of city centres, land use). First, the "present situation" and "past trends" were analysed with regards to future goals set in the 2012 MP.

The impact on urbanisation of the developed infrastructure (especially the Northern Bypass completed in 2010 and the Kampala-Entebbe Highway completed in 2016) at that time was analysed. Next, the future population estimation and future goals of urban structure were renewed.

2) To Retailor KPDF/KPDP into an Implementable Urban Development Master Plan by Renewing Development Strategies

An important content of a master plan is development strategy. In particular, KPDF for the GKMA has a policy of developing urban centres outside Kampala Capital City to change the GKMA to a multicore spatial structure. First, the JICA Expert Team reviewed what has been done for that purpose and how urban spatial transformation has progressed since the completion (year 2012) and official approval (year 2013) of KPDF/KPDP. After that, the kind of development strategies that should be formulated were re-examined in order to realise the future goals for future population, urban structure (population distribution, function and arrangement of city centres, land use). Then, based on these review and re-examination, development strategies have been renewed for the Integrated Urban Development Master Plan for GKMA (GKMA-IUDMP).

In the current KDPF/KPDP, efforts were made to examine and propose urban spatial structures. However, the examination of urban transportation network was not sufficient. In 2018, the Multi-Modal Urban Transport Master Plan (MMUTMP) did reflect the 2014 census population while following the KDPF/KPDP urban development policies, by making full use of traffic surveys and traffic simulation models. Then, the road network and public transportation network were revised. MMUTMP did not propose a Third Ring Road, while KPDF proposed it. KPDF has a public

transportation network based on Bus Rapid Transit (BRT) in 2022, but also mentions the need for Mass Rapid Transit (MRT) in 2040. On the other hand, MMUTMP proposed a public transportation network combining three MRT lines with LRT lines and BRT lines for a population of 9.42 million in 2040 in GKMA based on future traffic volume forecast.

In this Project, development strategies, in which the urban centre to be developed outside Kampala Capital City is integrated with the transportation networks consisting of roads, BRT, LRT, MRT and Transit-Oriented Development (TOD), were considered and formulated for renewing the urban development master plan.

3) To Formulate a More Concrete Plan from Existing Strategic-Level Plans for Implementation

It is observed that although the framework of the future metropolitan spatial structure is shown in KPDF/KPDP 2012, almost all PDPs formulated in GKMA are still very strategic in nature, and not concrete. In the PDPs at various levels in GKMA, they are not specific about the locations, project size, implementation phases, etc.

Therefore, mechanical coordination and integration between KPDF and existing actual projects and detailed plans at various levels are not so effective.

In such cases, rather than mechanical coordination/ integration, it is necessary to conduct many analyses and planning studies of concrete development cases, such as the planning study by combining PDPs and infrastructures. It is possible to implement and realise the future spatial structure and development strategies by taking into consideration the specific and slightly detailed plans and projects, and updating those policies and development strategies.

The JICA Expert Team took advantage of various opportunities, projects and action plans for considering concrete plans at any levels and places. Furthermore, such study results of concrete plan considerations were feedbacks to strategic-level plans in order to make those strategic plans more concrete.

(4) Promotion of Collaboration and Coordination Between GKMA-EDS and GKMA-IUDMP

The Greater Kampala Economic Development Strategy (GKMA-EDS) was formulated in 2017 by the Ministry of Kampala Capital City and Metropolitan Affairs with the support of World Bank (WB). The GKMA-EDS was approved by the cabinet, and the team established by MKCC&MA is currently selecting the projects to be implemented based on the Strategy. The JICA Expert Team promoted the collaboration and coordination with the GKMA-EDS (later named as GKMA Urban Development Programme, GKMA-UD) by guiding the project implementation from the physical planning aspects.

In the early phases of GKMA-IUDMP, discussion sessions between two technical teams (GKMA-UD and GKMA-IUDMP) were held. In the latter phases of GKMA-IUDMP, stakeholder meetings with districts were organized together with GKMA-EDS.

(5) Formulation of Local-Level Detailed Physical Development Plans (Local Detailed Plans) as Tools for Implementing Urban Development Master Plan

Local-Level Physical Development Plans (Local-Level PDP or Local Detailed Plans) are important tools for implementing urban development master plans. In order to function as such, some of the roles for local-level PDPs to be considered are as follows:

- Promotion of economic sector development and generation of employment opportunities by providing incentives
- Promotion of implementation of infrastructure development in accordance with upper-level infrastructure development plans by specifying space for such infrastructures
- Guidance of orderly and sustainable urban development by providing development regulations
- Development of liveable neighbourhoods by providing basic infrastructure/utilities and open

spaces.

1.8 Project Management Structure

In order to carry out the Project effectively and efficiently, the Ugandan counterpart side has organised the JCC, TWG, Sub-TWGs and PIU. Their roles and timing are shown in Table 1.8.1, and the respective structures are shown in Figure 1.8.1.

Table 1.8.1 Roles and Timing of Each Project Management Structure

Project Management Structure	Roles and Timing of Meetings
Joint Coordinating Committee (JCC)	• To discuss and define main items of the Project to facilitate inter-organisational coordination, and take necessary actions required for smooth implementation of the Project • To hold a meeting at least once a year and/or whenever deems it necessary
Technical Working Group (TWG)	• To discuss technical issues and capacity development activities • To monitor the progress of the Project • To hold a meeting whenever a main report of the Project becomes ready for discussion and/or whenever deemed necessary
Sub-Technical Working Group (Sub- TWG)	• To promote coordination among Greater Kampala, JICA Expert Team and other related organisations • To discuss actual strategies, plans and projects for different themes covering two to three sectors and for coordination among MDAs and LGs • To hold meetings whenever deemed necessary
Project Implementation Unit (PIU)	• To discuss daily issues and take direct actions for smooth implementation of the Project • To carry out all processes for the formulation of the Master Plan with JICA expert team while coordinating with relevant organizations. • To hold regular meetings

Source: JICA Expert Team

Source: JICA Expert Team

Figure 1.8.1 Project Management Structure

Chapter 2 Three-Layer System of Physical Development Plans

2.1 Background

2.1.1 Necessity to Deal with Larger Areas than Kampala Capital City in Physical Development

In Uganda, a large percentage (about 46%) of urban populations and the majority (about 65%) of non-agricultural economic productions are concentrated in Kampala Capital City and its surrounding areas. At the same time, urbanisation and economic production have physically expanded beyond the boundaries of Kampala Capital City since the middle of the 1990s. Then in the 2000s, concerned stakeholders became increasingly aware of the importance of metropolitan approach for working on challenges facing Uganda's capital together with its surrounding areas.

(1) Urban Sector as the Important Engine of Economic Development of Uganda

Vision 2040 (2010-2040) and the Second National Development Plan (2015/16-2019/20) regarded the urban sector as the most important engines of economic development for Uganda.

Moreover, Vision 2040 seeks the structural transformation of Ugandan society and economy from a peasant society to a modern and prosperous economy. This transformation is to be promoted not only based on more investment in economic sectors, but also in industrialisation and ICT development thorough innovation and advancement of science, technology, and engineering. This transformation needs to depend on the role of the expanding urban sector for generating values and wealth.

Urban sectors' economic activities and establishments have been concentrated not only in Kampala Capital City, but also located in its surrounding urban areas. In fact, industries have sought to be located along the radial national roads outside Kampala Capital City, as well as industrial parks, such as Namanve. GKMA produces 65% of Uganda's non-agricultural GDP and accommodate 70% of industrial facilities of Uganda.

(2) Urbanisation beyond Kampala Capital City

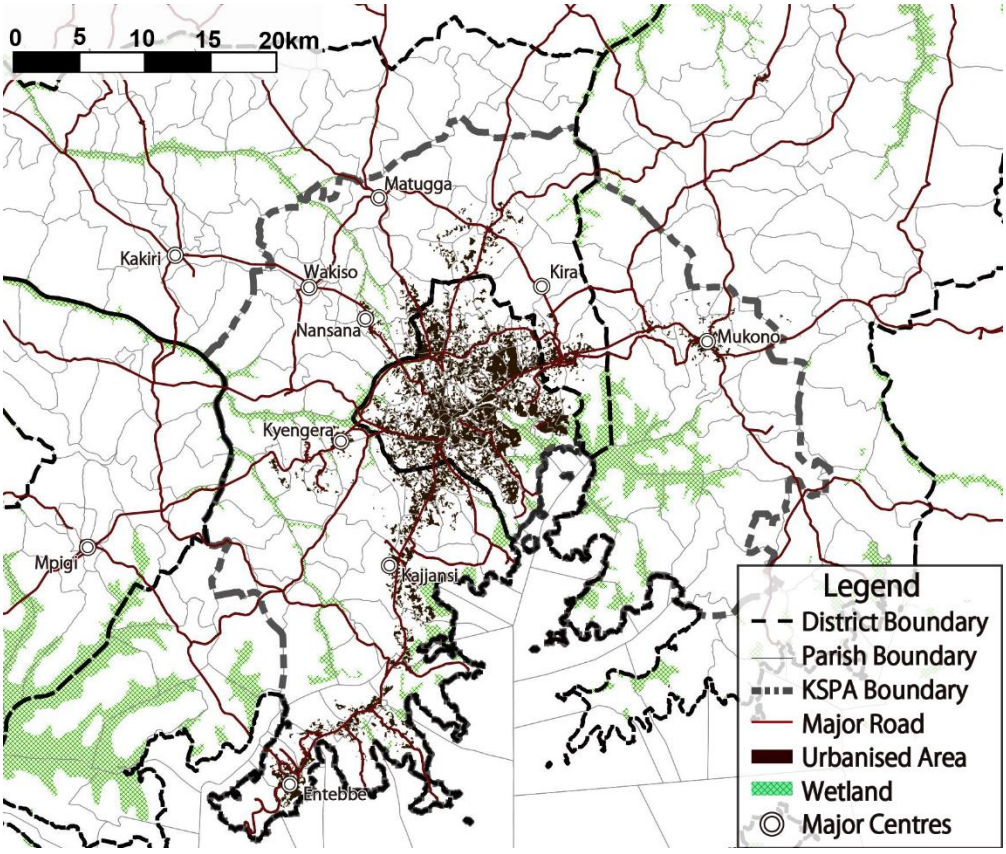
Kampala Capital City's population has grown three times larger between 1980 and 2014. However, its growth rates became smaller in 2002-2014 than the earlier periods. On the other hand, the population of the surrounding three districts (Wakiso, Mukono, and Mpigi Districts) started increasing more rapidly than that of Kampala Capital City in 2002-2014. As a result, in 2014, the population of the surrounding three districts is over 65% of that of GKMA. It is much larger than that of Kampala Capital City in 2014. See Table 2.1.1.

The interpretation of Landsat satellite data reveals that built-up areas have spread largely beyond the boundaries of KCCA by 2000, as shown in Figure 2.1.1, Figure 2.1.2, Figure 2.1.3, and Figure 2.1.4.

Table 2.1.1 Historical Changes of Populations of Kampala Capital City and its Surrounding Districts (Wakiso, Mukono, and Mpigi Districts) in GKMA

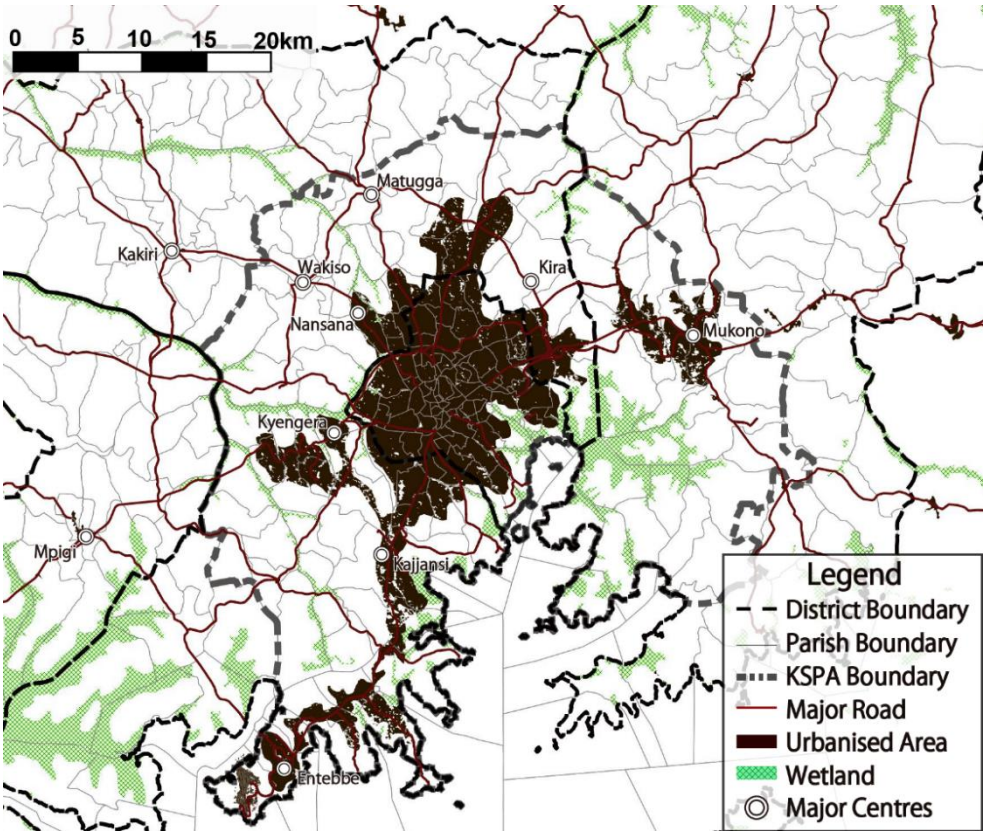
	Population			% out of GKMA Total Population				Annual Growth Rate (%)		
Year	Kampala Capital City (or Kampala Municipal Council)	Wakiso, Mukono, and Mpigi Districts	GKMA Total	Kampala Capital City (or Kampala Municipal Council)	Wakiso, Mukono, and Mpigi Districts	GKMA Total	Period	Kampala Capital City (or Kampala Municipal Council)	Wakiso, Mukono, and Mpigi Districts	GKMA Total
1948	62,264	-	-					-	-	-
1959	107,058	-	-					5.1%	-	-
1969	330,700	-	-					11.9%	-	-
1980	458,503	-	-					3.0%	-	-
1991	774,241	1,039,689	1,813,930	42.7%	57.3%	100.0%	1980-1991	4.9%	-	-
2002	1,189,142	1,508,198	2,697,340	44.1%	55.9%	100.0%	1991-2002	4.0%	3.4%	3.7%
2014	1,507,080	2,847,992	4,355,072	34.6%	65.4%	100.0%	2002-2014	2.0%	5.4%	4.1%

Source: JICA Expert Team based on the Population Censuses from UBOS



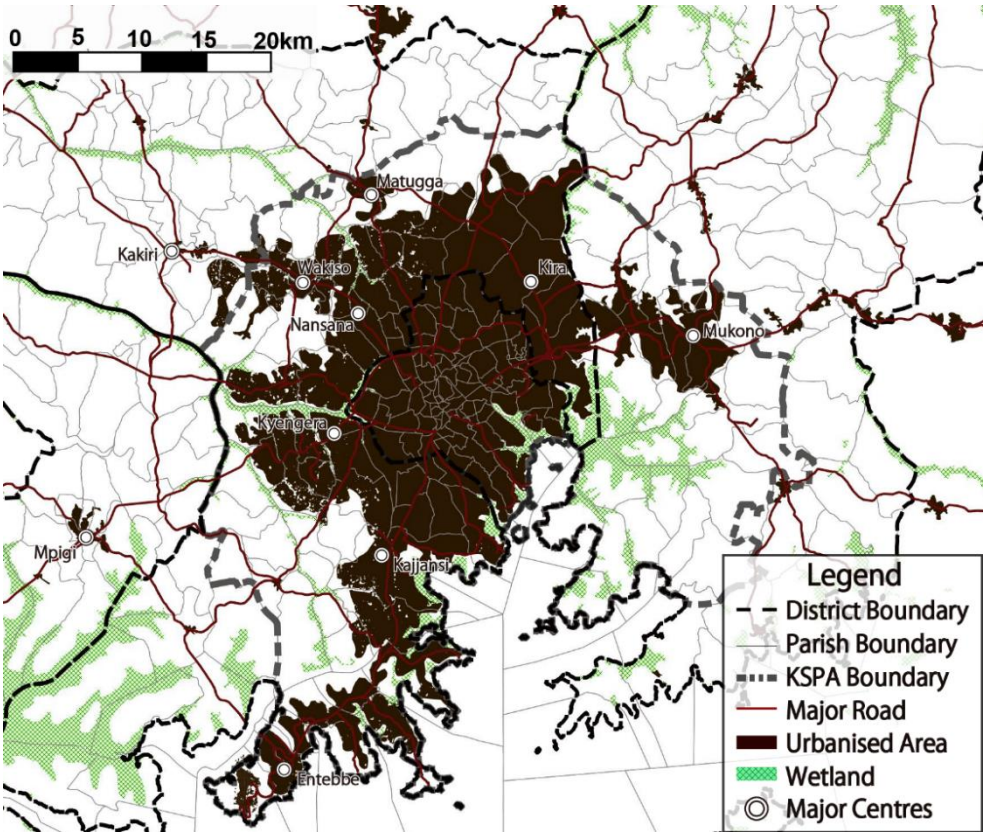
Source: JICA Expert Team based on Landsat 5 TM, acquired on 1995/10/19

Figure 2.1.1 Urbanisation beyond Kampala Capital City Boundary and Kampala Special Planning Area Boundary within Greater Kampala Metropolitan Area in 1995



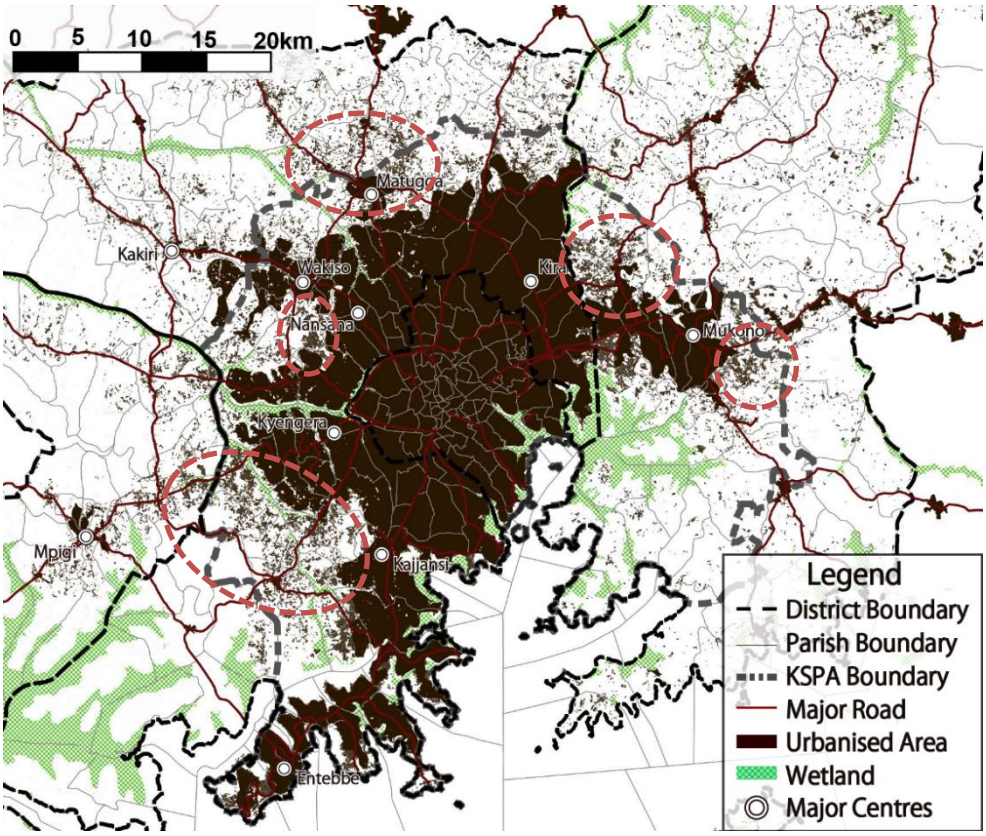
Source: JICA Expert Team based on Landsat 7 ETM+ acquired on 2000/03/29

Figure 2.1.2 Urbanisation beyond Kampala Capital City Boundary and Kampala Special Planning Area Boundary within Greater Kampala Metropolitan Area in 2000



Source: JICA Expert Team based on Landsat 8 OLI TIRS acquired on 2014/01/14

Figure 2.1.3 Urbanisation beyond Kampala Capital City Boundary and Kampala Special Planning Area Boundary within Greater Kampala Metropolitan Area in 2014



Source: JICA Expert Team based on Landsat 8 OLI TIRS acquired on 2021/11/10

Figure 2.1.4 Urbanisation beyond Kampala Capital City Boundary and Kampala Special Planning Area Boundary within Greater Kampala Metropolitan Area in 2021

(3) Importance of Metropolitan Approach

A 'Metropolitan Area' is a grouping of a central major city and its peripheral (suburban) and nearby municipalities and towns, where the central city has a strong economic and social influence on the surrounding areas. The Greater Kampala Urban Growth Area (GKUGA) is one such urban area.

These urban conurbations, where urbanisation extends far beyond the central city, are often administratively spread over several provinces and municipalities. The provinces and cities are given unique powers to formulate and implement physical development plans. As a result, the provinces and municipalities that make up a city-region often develop and build infrastructure in a disjointed manner.

In Uganda, due to rapid urbanisation and population increase, the following various, complex, and urban problems have mounted in Kampala Capital City:

- Unordered development including expanding unplanned settlements (informal settlements) and suburban sprawling
- Increasing traffic congestion and poor public transport services on roads due to the lack of integrated transport systems
- Deteriorated urban environment including water and air pollution, and poor solid waste management
- Service problems of marketplaces, health, and water supply exacerbated by poor infrastructure

In the course of the rapid expansion of urban areas and population increase, these challenges have affected wider areas not only in Kampala Capital City but also its surrounding districts.

Nevertheless, until around 2022, in decentralisation to districts and municipalities in Uganda local authorities within urban areas carrying out urban development separately although the development of roads, public transport and drainage systems should be treated as single networks.

As a result, it has become clear that the above-mentioned development problems of Kampala can neither be resolved by KCCA alone nor by districts.

The Metropolitan Approach is an approach to address these problems, whereby an urbanised area developed from a central city is considered as a single urban area, and the direction and strategy of urban development are defined and addressed in an integrated manner, The adoption of this approach is about to begin in and around Kampala Capital City.

In fact, in response to the problems faced by Kampala and its surrounding areas, the initiatives to deal with the metropolitan approach were addressed in the following forms:

- In 2010, Kampala Capital City Act (2010) defines "Metropolitan Area" as the area of jurisdiction of the Kampala Capital City Authority together with the neighbouring districts of Mpigi, Wakiso including Mengo Municipality and Mukono.
- In 2013, the Cabinet approved the Kampala Physical Development Framework for the new boundaries of Kampala Special Planning Area covering 839 km2.
- In 2015, the National Development Plan II (2015/16-2019/20) emphasized the importance of physical planning and urban development in Section 2.2.4 including the metropolitan approach for the Greater Kampala Metropolitan Area (GKMA) in Section 2.2.4.1.

However, after the completion and official approval of the KPDF and KPDP in 2013, the decoupling between KCCA and three district local governments has been more visible and widened in the implementation of the KPDF and KPDP. It was partly because the newly established central government agency for Kampala, KCCA, has a mandate only for Kampala. There is no institutional framework for coordination and collaboration for physical development within GKMA.

In fact, by 2018, the metropolitan approach had not played an important role until starting the formulation of Greater Kampala Economic Development Strategy (GKEDS). The effort at the formulation and implementation of GKEDS by involving NPA, Office of the President, MKCC&MA, MoLHUD, MoLG, MoWT, MTWA, MTIC, KCCA, UNRA, and UNRA has reminded various stakeholders of the necessity of metropolitan approach to the promotion of economic development, as well as physical development.

In some countries and in some contexts, the adoption of such a metropolitan approach means the necessity of establishing a metropolitan authority for certain services, such as transportation and solid-waste management. However, in case of Uganda, discussions were once held on the establishment of an organisation to implement such a Metropolitan Approach, but ultimately no such decision was taken. Now a new approach to coordination without creating separate authorities has been formulated and is being implemented.

2.1.2 Different Levels and Areas in Which to Conduct Management of Physical Development

In order to use the metropolitan approach, it is necessary to define the planning areas in GKMA by considering the following aspects:

- Different Levels of PDPs for Different Purposes
- Two Different Traditions in Physical Development Planning
- Needs for Integrating Socio-Economic Development Plans and PDPs

(1) Different Levels of Physical Development Plans for Different Purposes

In Uganda, the Physical Development Act 2010 and its amendment in 2020 introduced the following six levels (or layers) of physical development plans (PDPs):

(a) National Physical Development Plan
(b) Regional Physical Development Plans
(c) District Physical Development Plans
(d) Urban Physical Development Plans
(e) Local Physical Development Plans
(f) Detailed Physical Development Plans, Area Action Plans and Subject Plan

The national-level, regional-level and district-level physical development plans (upper-level PDPs) have the nature of guiding the formulation of lower-level PDPs. They are, in a sense, framework plans or structure plans. On the other hand, urban-level, local-level and detailed PDPs have the nature of directly controlling or regulating development and conservation of lands or wetlands, as well as land uses and buildings. This is possible and becomes understandable when you look at the plan scales of different levels of PDPs shown in Table 2.1.2.

In addition to these levels of PDPs, special planning areas can be determined for formulating PDPs. For example, a PDP for GKMA which consists of Kampala Capital City and neighbouring four districts can be formulated by determining such a special planning area, in accordance with the Physical Planning Act.

Table 2.1.2 Hierarchy of Physical Development Plans: Levels, Area Coverage and Scales of Plans

	Plan	Level	Area Coverage	Scale
(a)	National Physical Development Plan	National Level	The whole territory of Uganda	1:250,000~1:3,000,000
(b)	Regional Physical Development Plan	Region Level	Covering more than one district areas	1:50,000~1:500,000
(c)	District Physical Development Plan	District Level	The administrative area of each district	1:50,000 ~1:200,000
(d)	Urban Physical Development Plan/ Urban Structure Plan	Municipality Level, Town Level	The administrative area of each municipality or town council	1:5,000~1:50,000
(e)	Local Physical Development Plan/ Urban Detailed Plan	Ward Level	The administrative area of each ward or more than one ward	1:1,000~1:5,000
(f)	Detailed Physical Development Plan, Action Plan, Subject Plan	Local Area Level	Part of each ward	1:500~1:5,000

Source: JICA Expert Team, based on MoLHUD, 2010, Chapter 9 of National Physical Planning Standards and Guidelines 2010

(2) Two Different Traditions (Schools of Thoughts) in Physical Development Planning

In the practical fields of physical development planning, there are two different traditions (or schools of thought) in terms of plan coverage. The first one is the tradition of urban planning or town planning, which tends to focus on urbanised areas by setting special planning areas confined to urbanised areas. The other is the tradition of town and country planning (or physical planning which covers both towns and rural areas). The modern British planning belongs to the latter (the town and country planning tradition), while the Japanese planning system belongs to the former (the urban planning tradition).

The current KPDF and KPDP, which were formulated in 2012 and approved in 2013, are those made in the tradition of urban planning, in which certain urban boundaries for the future target year are defined and the defined urban areas are subject to physical development planning.

Therefore, the Kampala Special Planning Area was defined by limiting to future urbanised areas, and it was approved by the National Physical Planning Board so as to formulate the KPDF.

(3) Needs for Integrating Socio-Economic Development Plans and Physical Development Plans

In Uganda and many other countries, socio-economic development plans are to be regularly formulated at the national level and sub-national level[1] by relevant governments. Usually, these socio-economic development plans are linked to annual government budgets, as well as to government administrative areas.

On the other hand, physical development plans are formulated at different levels and for different planning areas together with necessary projects to achieve visions and goals. However, these plans and projects are not always incorporated into the socio-economic development plans and government budgets. Their planning areas are not always the same as government administrative areas.

However, it is easy to integrate them when the planning areas of the two types of the above-mentioned development plans are the same. In this respect, the NPA strongly recommends not dividing one existing administrative area into more than two areas so that district and other territorial entities could use the PDPs.

2.2 Three-Layer System of Physical Development Plans in GKMA

2.2.1 Three-Layer System of Physical Development Plans in GKMA

Considering the different views on PDPs and planning areas in GKMA described in Section 2.1, a three-layer system of physical development plans (PDPs) is recommended in GKMA. In this section, the three-layer system of PDPs is described.

According to the Kampala Capital City Act (Amendment) 2020, the Greater Kampala Metropolitan Area (GKMA) is defined as being comprised of the administrative areas of Kampala Capital City Authority, Wakiso District Local Government, Mukono District Local Government, and Mpigi District Local Government.

Within the GKMA, the following three different types of geographical areas are identified, requiring the formulation of different types of physical development plans (PDPs):

- "Greater Kampala Metropolitan Area (GKMA)" covering Kampala Capital City and neighbouring three districts, which include both large urbanising areas and extensive rural areas. The area size of GKMA is 5,148 km2.
- "Greater Kampala Urban Growth Area (GKUGA)" consisting of Kampala Capital City and its surrounding urbanised areas including many municipal areas and towns. The Urban Growth Area is set by covering the whole of Kampala Capital City, part of Wakiso District, part of Mukono District, and part of Mpigi District. Urban development should be promoted within the boundaries of the Urban Growth Area, while contiguous urban development beyond the boundaries of the Urban Growth Area should be discouraged.
- "Kampala Capital City, which," is a highly urbanised area with national and regional-level functions of government administration, a commerce-service centre, an education centre and a health centre. Such high-level urban functions should service not only in the Urban Growth Area, but also in the GKMA, while some national functions are to be provided for the country as a whole.

[1] In case of Uganda, the district level development plans in addition to the national level development plans are to be formulated.

In accordance with Table 2.1.2 (based on Physical Planning Act 2010 and National Physical Planning Standards and Guidelines 2011), GKMA- level physical development plan is a regional PDP, GKUGA-level physical development is also a regional PDP, and KCC-level physical development plan is a district PDP.

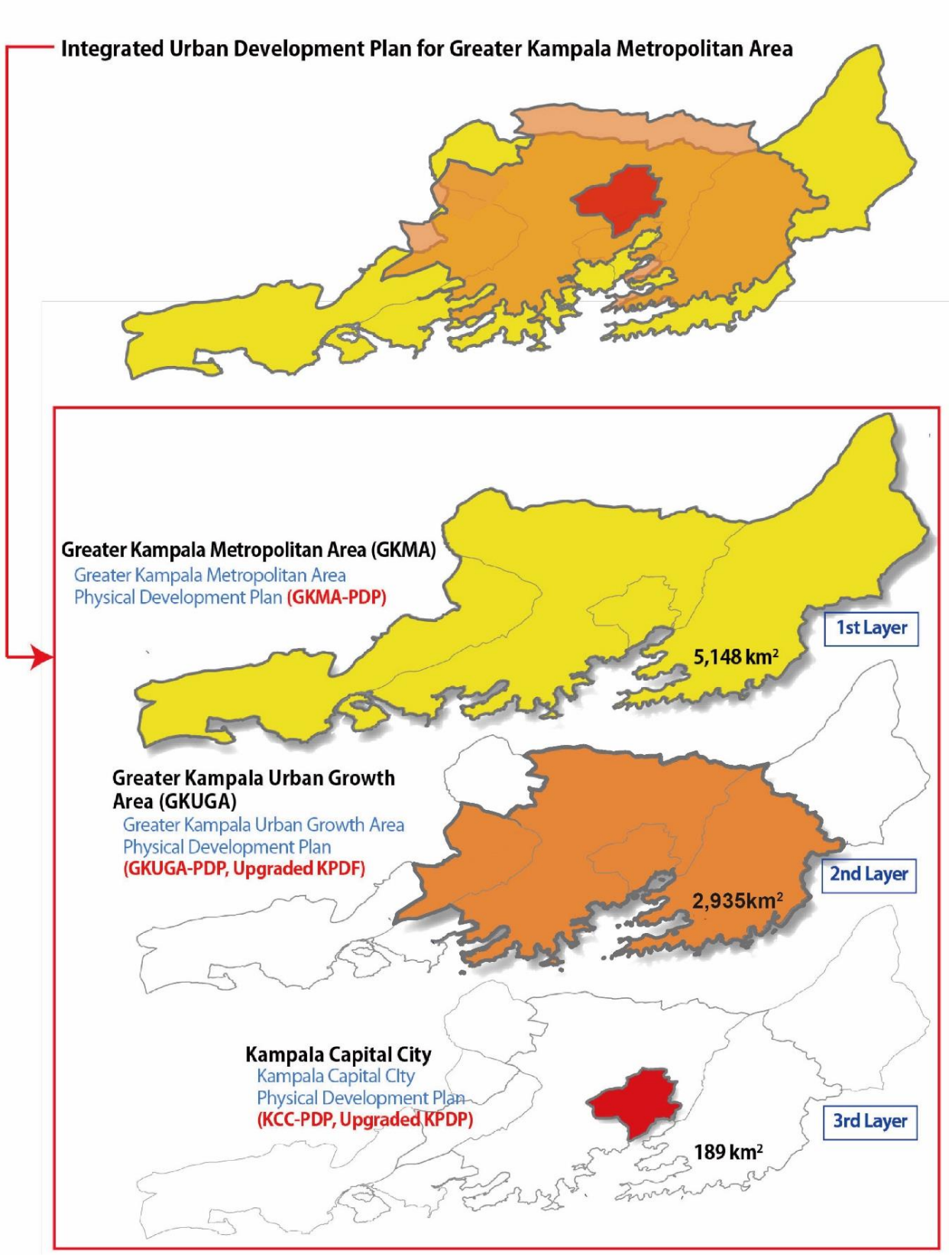
Since it covers four districts (more than one district), the Physical Development Plan for the GKMA (covering Kampala Capital City and the surrounding three districts) is to be a Regional Physical Development Plan, which is defined by the Physical Planning Act 2010. The PDP for GKMA is to be formulated for guiding balanced urban and rural development by setting a Special Planning Area for GKMA.

Since it covers part of four districts (more than one district), the Physical Development Plan for the GKUGA (not confining to Kampala Capital City, but also covering part of the three districts) is to be a Regional Physical Development Plan according to the definition by the Physical Planning Act 2010. The PDP for GKUGA is to be formulated for promoting integrated and sustainable urbanisation covering Kampala Capital City and its surrounding urbanising areas, by setting a Special Planning Area for GKUGA.

Since it covers one district, the Physical Development Plan for Kampala Capital City (at the district level) is to be a district physical development plan, according to the definition by the Physical Planning Act 2010. The PDP for KCC is to be formulated for guiding urban development and management within the KCC.

These three-layer physical development plans are considered as a set of PDPs, which is an integrated development master plan for GKMA.

On 19th December 2022, the agreement on three-layer system of PDPs in GKMA was signed among Office of the President, National Planning Authority (NPA), Ministry of Lands, Housing and Urban Development (MoLHUD), Ministry of Local Government (MoLG), Ministry of Works and Transport (MoWT) and JICA.



Source: JICA Expert Team

Figure 2.2.1 Three-Layer System of Physical Development Plans in GKMA

2.2.2 Planning Areas for Three-Layers of Physical Development Plans (PDPs)

The Three-Layer System of PDPs described in the previous section is required for responding the following three different planning areas:

Table 2.2.1 Physical Development Plans for the Planning Areas within GKMA

Layer	Planning Area	Physical Development Plan (PDP)
The First Layer	Greater Kampala Metropolitan Area (GKMA)	Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP)
The Second Layer	Greater Kampala Urban Growth Area (GKUGA)	Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP)
The Third Layer	Kampala Capital City	Kampala Capital City Physical Development Plan (KCC-PDP)

Source: JICA Expert Team

These three different planning areas are shown in Figure 2.2.1.

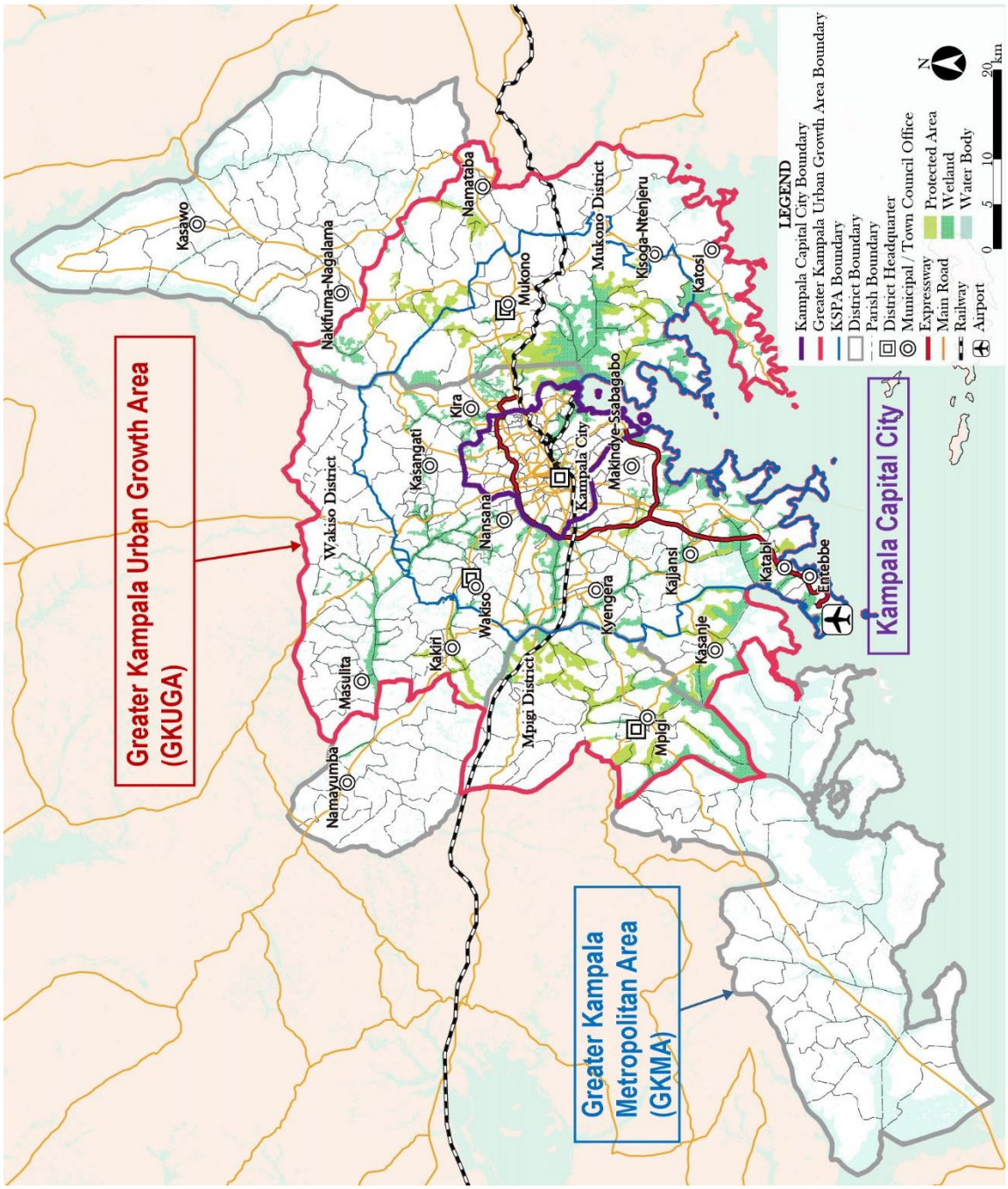
The boundaries of GKMA and Kampala Capital City are determined by the administrative boundaries of Kampala Capital City, Wakiso District, Mukono District and Mpigi District.

On the other hand, the boundaries for Greater Kampala Urban Growth Area (GKUGA) are determined by using local government level 3 (LC3) boundaries for municipalities and towns, and parish boundaries for sub counties, considering the following factors:

- Present urbanisation situation including population density for considering future urbanised areas (See Figure 2.2.3.)
- Existing national roads (See Figure 2.2.4.)
- Planned ring roads (See Figure 2.2.5.)
- Distance from the CBD of Kampala Capital City (See Figure 2.2.7)
- Potentiality of urban centres in the future (See Figure 2.2.8.)
- The list of parishes and wards in GKUGA are shown in Table 2.2.2, Table 2.2.3 and Table 2.2.4.

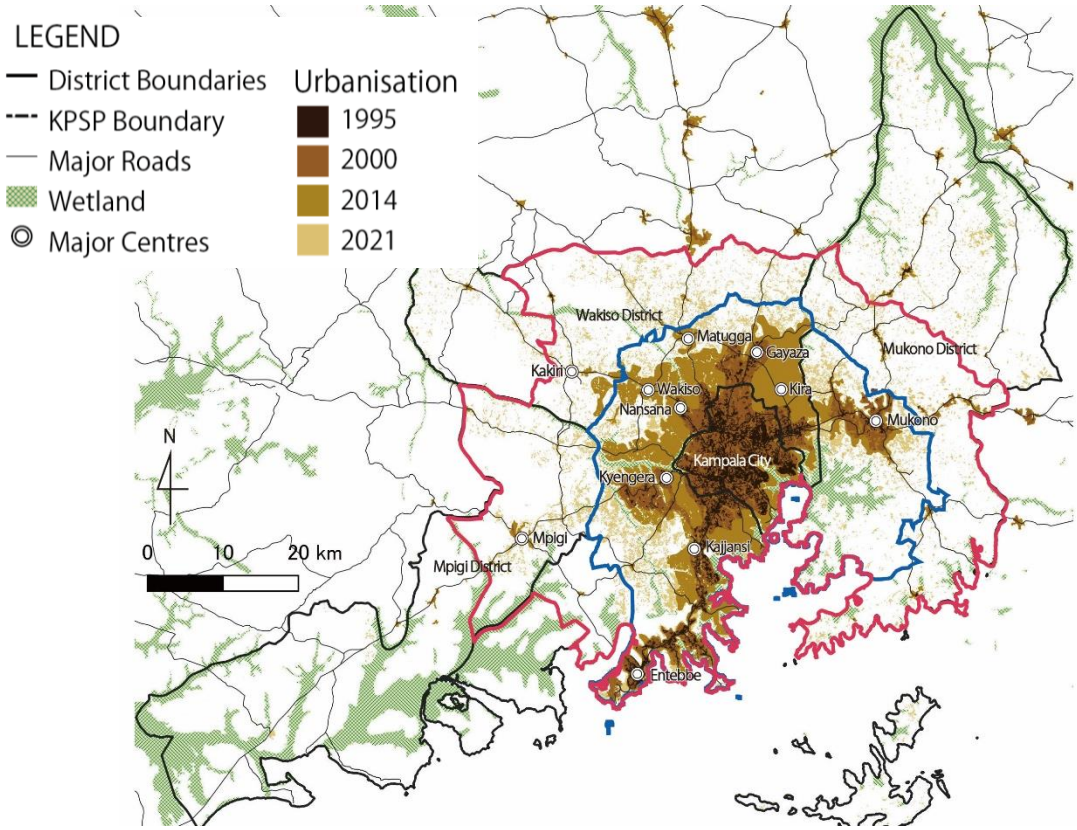
The boundaries for GKUGA was agreed at the Third JCC Meeting held on 20th March 2023.

The National Physical Planning Board approved GKMA which includes GKUGA, as a special planning area, then the Minister for Lands, Housing and Urban Development approved the declaration of GKMA as special planning area on 31st May 2024. GKMA was gazetted as special planning area on 14th June 2024.



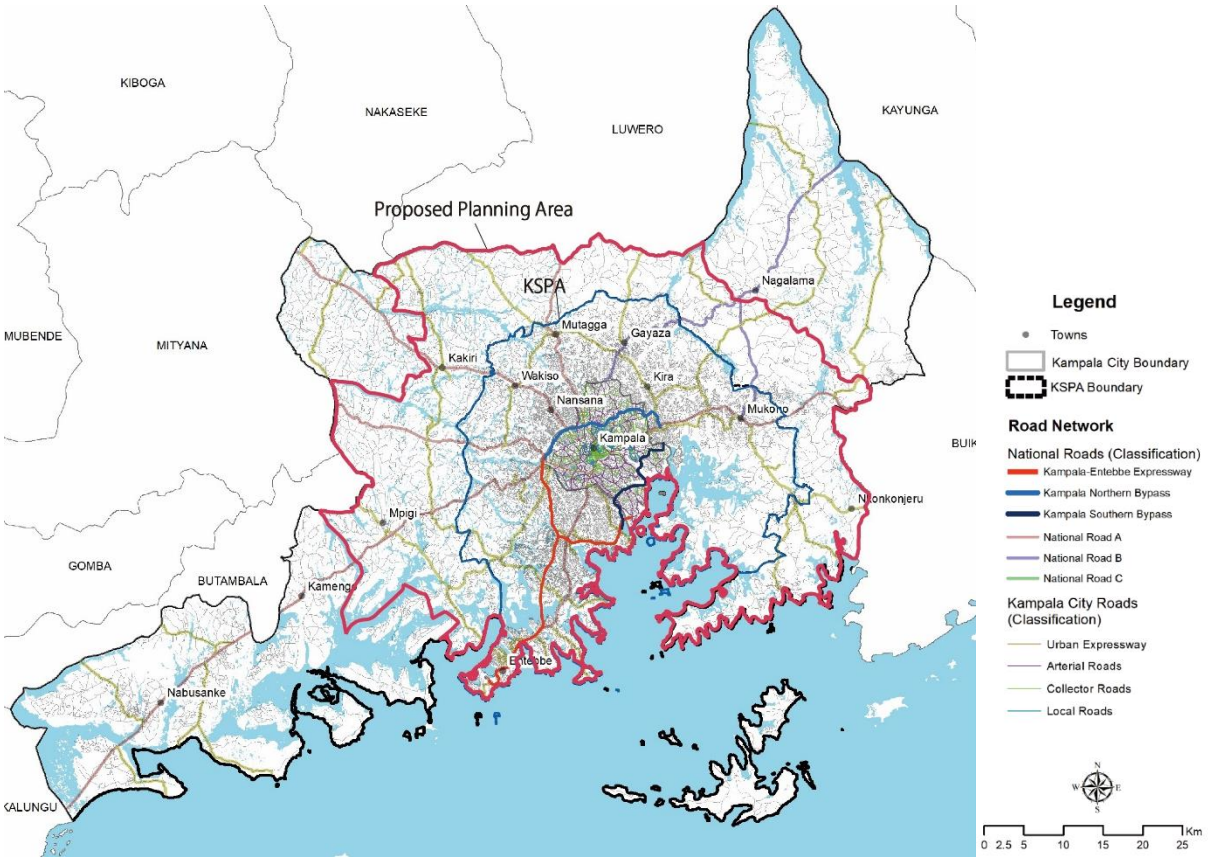
Source: JICA Expert Team

Figure 2.2.2 Planning Areas for Three-Layer Physical Development Plans in GKMA



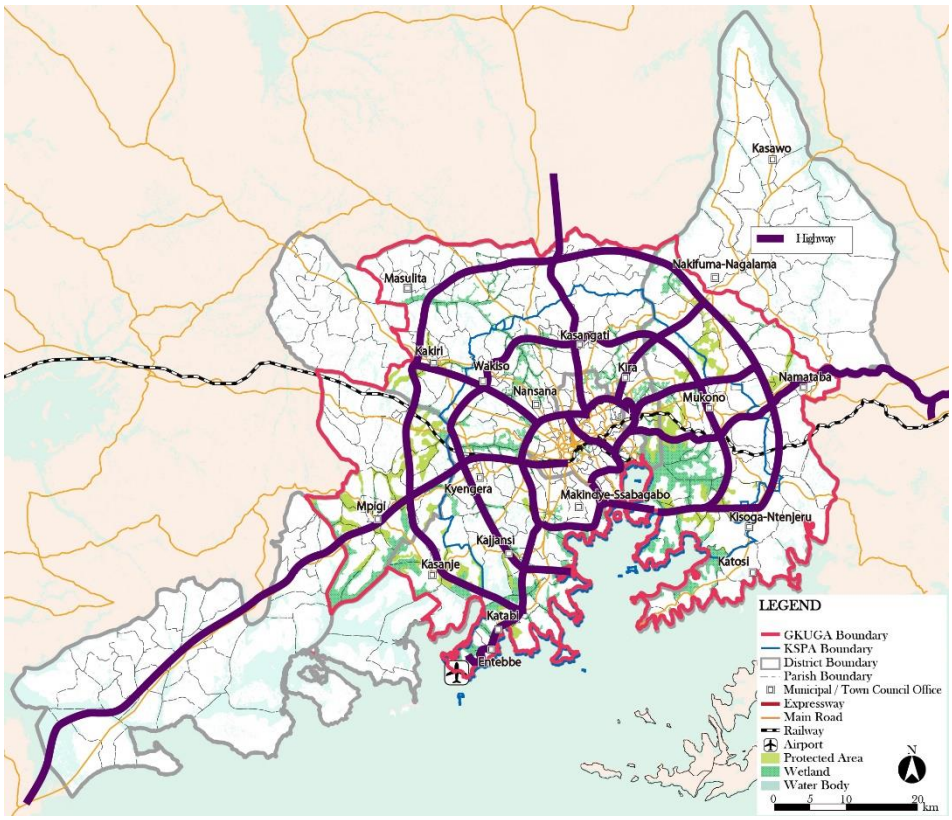
Source: JICA Expert Team based on Landsat 5 TM acquired on 1995/10/19, Landsa 7 ETM+ acquired on 2000/03/29, Landsat 8 OLI TIRS acquired on 2014/01/14, and Landsat 8 OLI TIRS acquired on 2021/11/10

Figure 2.2.3 Present Urbanisation Situation Considered



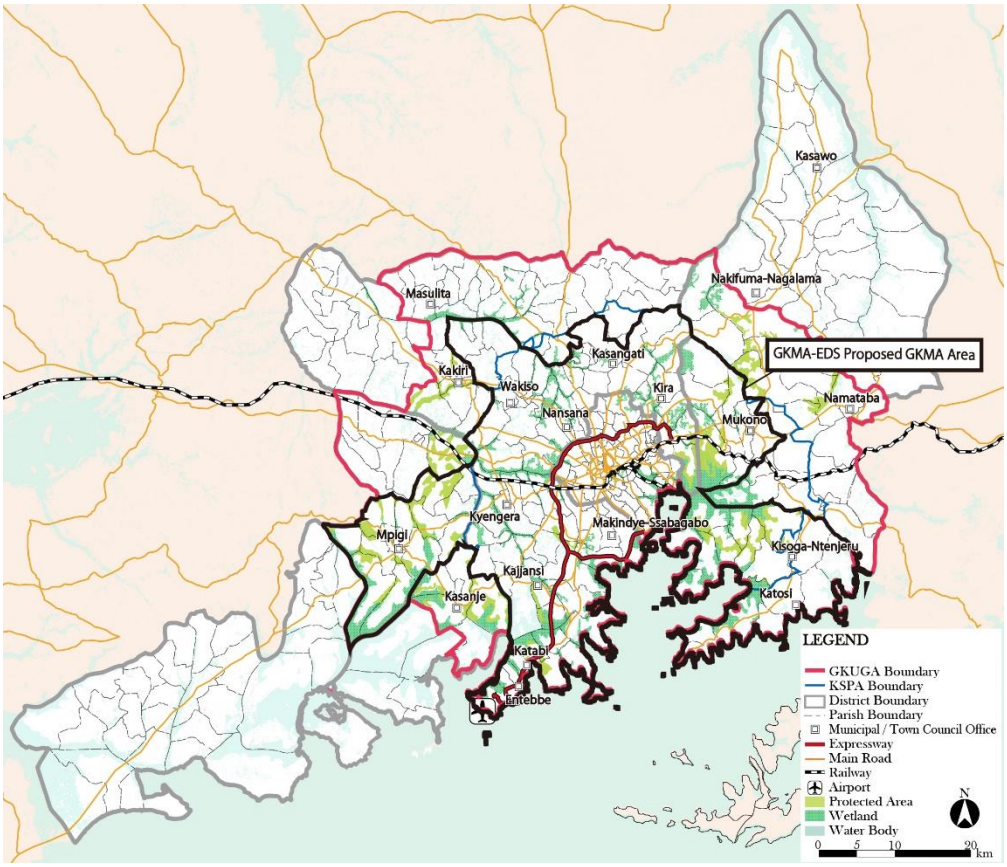
Source: JICA Expert Team based on data from UNRA

Figure 2.2.4 Existing National Road Network Considered for Proposed Urban Planning Boundary in GKMA



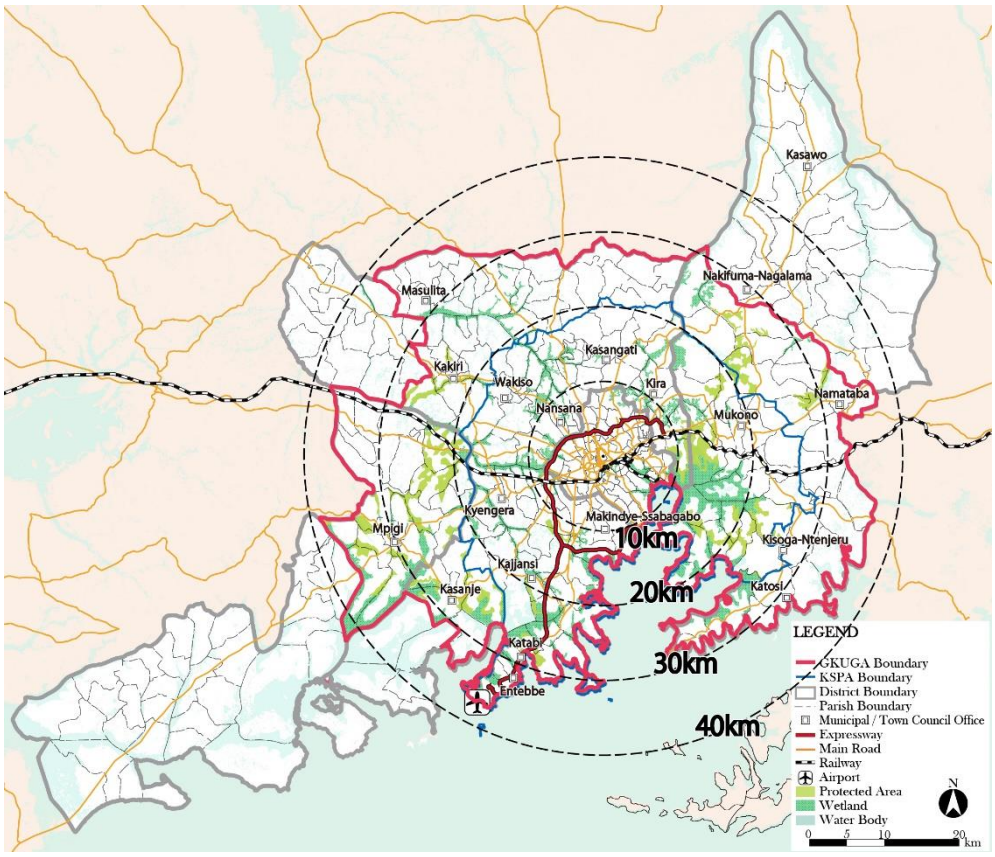
Source: JICA Expert Team based on various documents

Figure 2.2.5 Planned Routes of Outer Beltway and Radial Expressways Considered for Proposed Urban Planning Boundary in GKMA



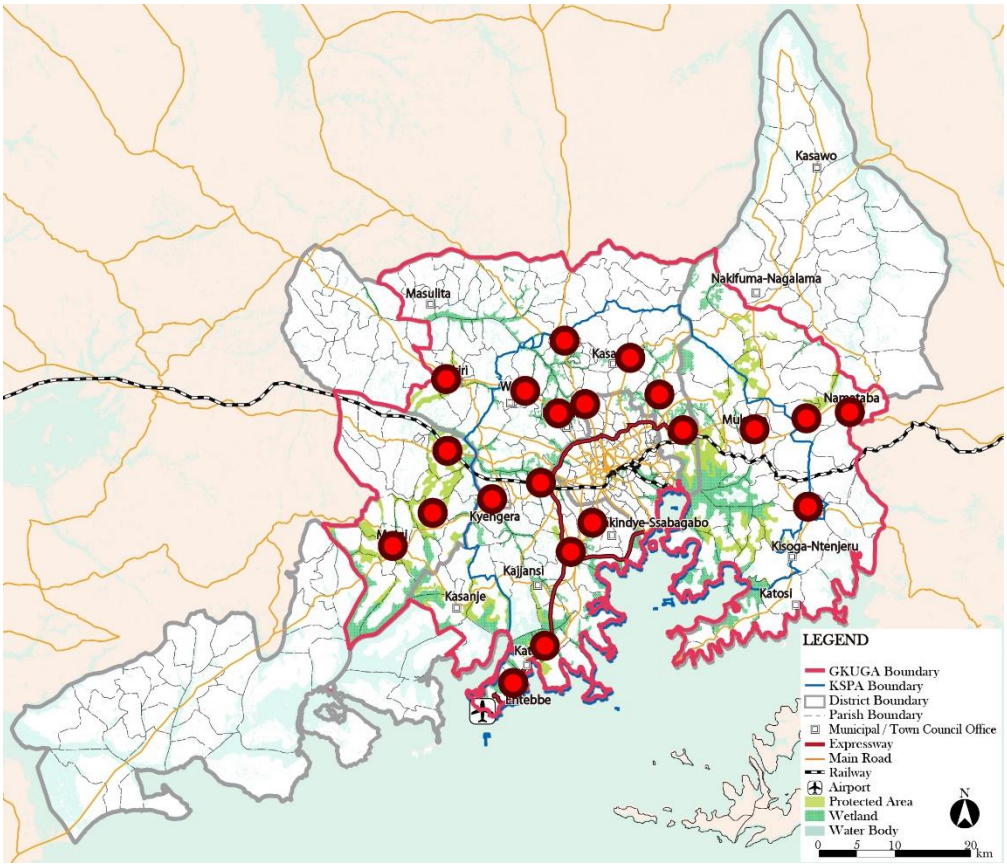
Source: JICA Expert Team based on Greater Kampala Economic Development Strategies

Figure 2.2.6 Area considered as Greater Kampala in the Greater Kampala Economic Development Strategies



Source: JICA Expert Team

Figure 2.2.7 Distance from Kampala City Centre



Source: JICA Expert Team

Figure 2.2.8 Potentiality of Areas to Become Urban Centres

Table 2.2.2 List of Parishes within GKUGA in Wakiso District

No.	Sub County	Parish	No.	Sub County	Parish
1	Entebbe Municipality Division A	Katabi Ward	64	Makindye-Ssabagabo Municipality Bunamwaya Division	Bunamwaya Ward
2		Central Ward	65		Mutundwe Ward
3	Entebbe Municipality Division B	Kiwafu Ward	66	Makindye-Ssabagabo Municipality Masajja Division	Masajja Ward
4		Kigungu Ward	67		Busabala Ward
5	Kajjansi Town Council	Nkungulutale Ward	68		Namasuba Ward
6		Kitende Ward	69	Makindye-Ssabagabo Municipality Ndejje Division	Ndejje Ward
7		Nakawuka Ward	70		Seguku Ward
8		Bulwanyi Ward	71		Mutungo Ward
9		Ssisa Ward	72	Masulita	Bbale Mukwenda
10		Nankonge Ward	73		Lwemwedde
11		Ngongolo Ward	74		Manze
12		Wamala Ward	75		Tumbaali
13		Nsaggu Ward	76		Nakikungube
14		Namulanda Ward	77	Masulita Town Council	Katikamu Ward
15		Bweya Ward	78		Kanzize Ward
16	Kakiri	Sentema	79		Kabale Ward
17		Luwunga	80		Masulita Ward
18		Magoggo	81		Lugungudde
19		Kamuli	82	Mende	Namusera
20		Buwanuka	83		Mende
21	Kakiri Town Council	Bukalango Ward	84		Banda
22		Kikubampanga Ward	85		Kaliiti
23		Kakiri Ward	86		Bakka
24		Lugeye Ward	87	Nansana Municipality Busukuma Division	Busukuma Ward
25		Nakyelongoosa Ward	88		Kiwenda Ward
26		Busujja Ward	89		Kabumba Ward
27	Kasangati Town Council	Katadde Ward	90		Kikoko Ward
28		Wattuba Ward	91		Magigye Ward
29		Gayaza Ward	92		Wamirongo Ward
30		Wampeewo Ward	93		Guluddene Ward
31		Kiteezi Ward	94		Lugo Ward
32		Kabubbu Ward	95	Nansana Municipality Gombe Division	Tikalu Ward
33		Bulamu Ward	96		Mwereerwe Ward
34		Nangabo Ward	97		Migadde Ward
35		Masooli Ward	98		Nasse Ward
36	Kasanje Town Council	Sokolo Ward	99		Wambale Ward
37		Bulumbu Ward	100		Ssanga Ward
38		Ssazi Ward	101		Gombe Ward
39		Kasanje Ward	102		Kiryamuli Ward
40		Zziba Ward	103		Matugga Ward
41		Mako Ward	104		Kavule Ward
42		Jjungo Ward	105		Buwambo Ward
43	Katabi Town Council	Kabale Ward	106	Nansana Municipality Nabweru Division	Nakyesanja Ward
44		Nalugala Ward	107		Wamala Ward
45		Nkumba Ward	108		Maganjo Ward
46		Kitala Ward	109		Kawanda Ward
47		Kisubi Ward	110	Nansana Municipality Nansana Division	Ochieng Ward
48	Kira Municipality Bweyogerere Division	Kirinya Ward	111		Nabweru North Ward
49		Bweyogerere Ward	112		Nabweru South Ward
50	Kira Municipality Kira Division	Kimwanyi Ward	113		Kazo Ward
51		Kira Ward	114		Nansana East Ward
52	Kira Municipality Namugongo Division	Kireka Ward	115		Nansana West Ward
53		Kyaliwajjala Ward	116	Wakiso	Ssumbwe
54	Kyengera Town Council	Kitemu-Kisozi Ward	117		Buloba
55		Kyengera Ward	118		Nakabugo
56		Kasenge Ward	119		Kyebando
57		Nsangi Ward	120		Naluvule
58		Nanziga Ward	121		Bukasa
59		Buddo Ward	122		Lukwanga
60		Katereke Ward	123	Wakiso Town Council	Mpunga Ward
61		Kikajjo Ward	124		Kavumba Ward
62		Maya Ward	125		Kisimbiri Ward
63		Nabbingo Ward	126		Namusera Ward
			127		Gombe Ward
			128		Kasengejje Ward

Source: JICA Expert Team

Table 2.2.3 List of Parishes within GKUGA in Mukono District

No.	Sub County	Parish	No.	Sub County	Parish
1	Katosi Town Council	Bunakijja Ward	27	Mukono Municipality Central Division	Ntaawo Ward
2		Nsanja Ward	28		Nsuube Kauga Ward
3		Lugazi Ward	29		Namumira Anthony Ward
4		Katosi Ward	30		Ggulu Ward
5		Kalengera Ward	31	Mukono Municipality Goma Division	Nantabulirirwa Ward
6		Nsanja Ward	32		Seeta Ward
7		Bunakijja Ward	33		Nyenje Ward
8	Kisoga-Ntengeru Town Council	Kisoga Ward	34		Bukerere Ward
9		Mpumu Ward	35		Misindye Ward
10		Maziba Ward	36	Mpunge	Lulagwe
11		Terere Ward	37		Mbazi
12		Ssaayi Ward	38		Mpunge
13		Ntenjeru-Ntazi Ward	39		Ngombere
14		Bugoye Ward	40	Nakisunga	Kiyoola
15	Kyampisi	Ntonto	41		Seeta nazigo
16		Kabembe	42		Namayiba
17		Ddundu	43		Kyabalogo
18		Kyabakadde	44		Namuyenje
19		Bulijjo	45		Katente
20	Mpatta	Ttaba	46		Kyetume
21		Mubanda	47		Wankoba
22		Nakalanda	48	Nama	Namubiru
23		Mpatta	49		Namawojjolo
24		Kabanga	50		Bulika
25		Mugomba	51		Katoogo
26		Kiyanja	52		Kasenge
			53		Mpoma
			54	Namataba Town Council	Namagunga Ward
			55		Namataba Ward

Source: JICA Expert Team

Table 2.2.4 List of Parishes within GKUGA in Mpigi District

No.	Sub County	Parish	No.	Sub County	Parish
1	Kiringente	Luvumbula	13	Mpigi Town Council	Ward C Ward
2		Kavule	14		Ward D Ward
3		Kikondo	15		Lwanga Ward
4		Sekiwunga	16		Bumoozi Ward
5		Kololo	17	Muduuma	Lugyo
6	Mpigi Town Council	Kakoola Ward	18		Jjeza
7		Kafumu Ward	19		Mbazzi
8		Maziba Ward	20		Magala
9		Kkonkoma Ward	21		Tiribogo
10		Kyali Ward	22		Bulerejje
11		Ward A Ward	23		Malima
12		Ward B Ward			

Source: JICA Expert Team

2.2.3 Plan Contents for Three-Layers of Physical Development Plans (PDPs)

In accordance with the Fourth Schedule (Matters to be dealt with in national and regional physical development plans) and Fifth Schedule (Matters to be dealt with in district, urban and local physical development plans) of Physical Planning Act 2010, the three layers of physical development plans (PDPs) should have the following plan contents:

(1) Greater Kampala Metropolitan Area Physical Development Plan (GKMA-PDP)

GKMA Physical Development Plan (GKMA-PDP) is composed of the following document and diagram:

- Policy document on development and conservation
- Spatial structure diagram

1) Policy Document on Development and Conservation

- Economic Sectors Development policies
  - Policies to promote development of economic sectors, growth centres and growth corridors
- Transportation Policies
  - Policies on transportation including development of roads and public transportation
- Spatial Development, Conservation and Land Use Policies
  - Policies on land use for promoting development of growth centres and growth corridors
  - Land Use Policies on designating non-development zones (wetlands, national parks and other conservation areas)

2) The Spatial Structure Diagram is to have the following features:

- The Spatial Structure Diagram covers the Planning Area for GKMA.
- The Spatial Structure Diagram is composed of the following elements:
  - Urban and rural centres (including growth centres and corridors)
  - Transportation networks (expressways, other national and district roads, and water transport network etc.)
  - Indicative land use patter showing development areas (including growth centres and corridors) and non-development areas
- The Spatial Structure Diagram is to be prepared schematically at a scale of 1:200,000-250,000.

(2) Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP)

Greater Kampala Urban Growth Area Physical Development Plan (GKUGA-PDP) has the following components:

- Urban Development Strategies
- Urban Spatial Structure and General Land Use Plan
- Sector Development Strategies and Priority Projects

1) Urban Development Strategies in GKUGA including Kampala Capital City Area

- Overall Urban Development Strategies
- Priority Areas for Formulating Local-Level Detailed PDPs
- Priority Projects on Promoting Urban Development

2) Urban Spatial Structure and General Land Use Plan in GKUGA

- Urban Spatial Structure to Guide the Transformation of Urban Spatial Structure
- General Land Use Plan (at a scale of 1:20,000-50,000) for Guiding the formulation of district-level and lower-level PDPs

3) Infrastructure and Services Sector Development Strategies and Priority Projects in GKUGA

- Issues
- Objectives
- Strategies
- Priority Projects

(3) Kampala Capital City Physical Development Plan (KCC-PDP)

Kampala Capital City Physical Development Plan (KCC-PDP) has the following components:

- Urban Development Strategies
- Urban Spatial Structure and General Land Use Plan
- Sector Development Strategies and Priority Projects

1) Urban Development Strategies

- Urban Development Strategies in the Context of GKMA and GKUGA
- Priority Areas for Formulating Local-Level Detailed PDPs in Kampala Capital City
- Priority Projects on Promoting Urban Development in Kampala Capital City

2) Urban Spatial Structure and General Land Use Plan

- Urban Spatial Structure to Guide the Transformation of Urban Spatial Structure
- General Land Use Plan (scale of 1:10,000-20,000) for guiding the formulation of local-level detailed PDPs

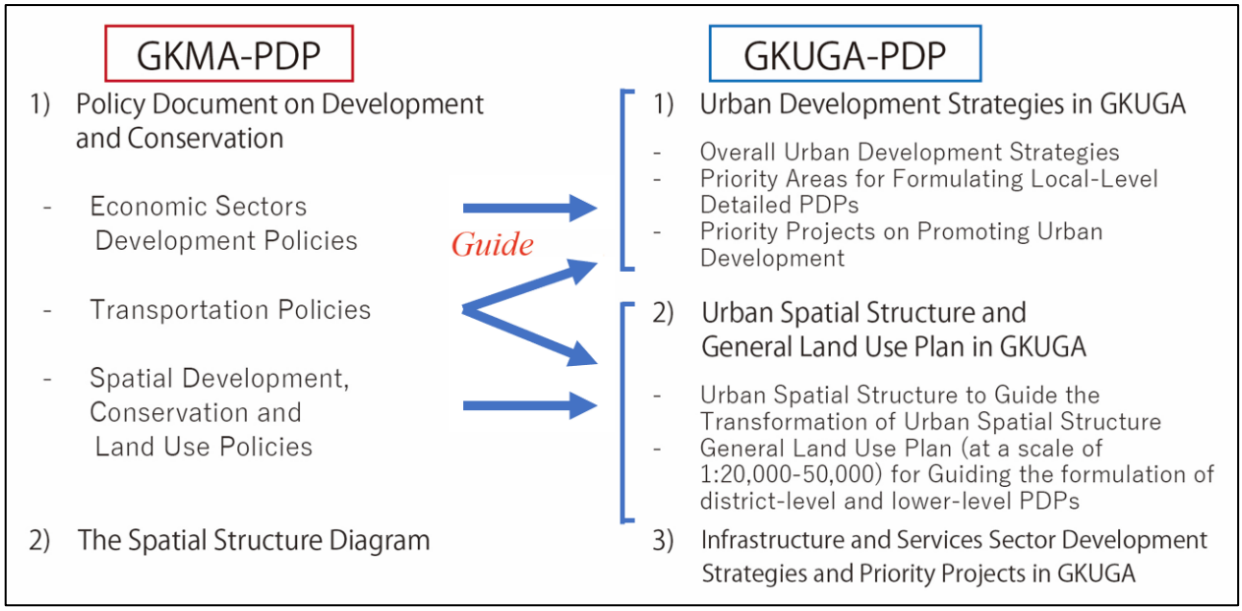
3) Infrastructure and Services Sector Development Strategies and Priority Projects as part of GKUGA-PDP

- Issues
- Objectives
- Strategies
- Priority Projects

2.3 Relationship among Three Layers of Physical Development Plans (PDPs)

(1) Relationship between GKMA-PDP and GKUGA-PDP

The first layer of PDP for GKMA level is to guide the second layer of PDP for GKUGA level. Economic sectors development policies at the GKMA level are influential over urban development strategies at the GKUGA level. GKMA's spatial development, conservation and land use policies are also to guide the spatial structure and land uses at the level of GKUGA. On the other hand, infrastructure development strategies for GKUGA are derived from GKMA's policies on economic sectors and spatial development including conservation. See Figure 2.3.1

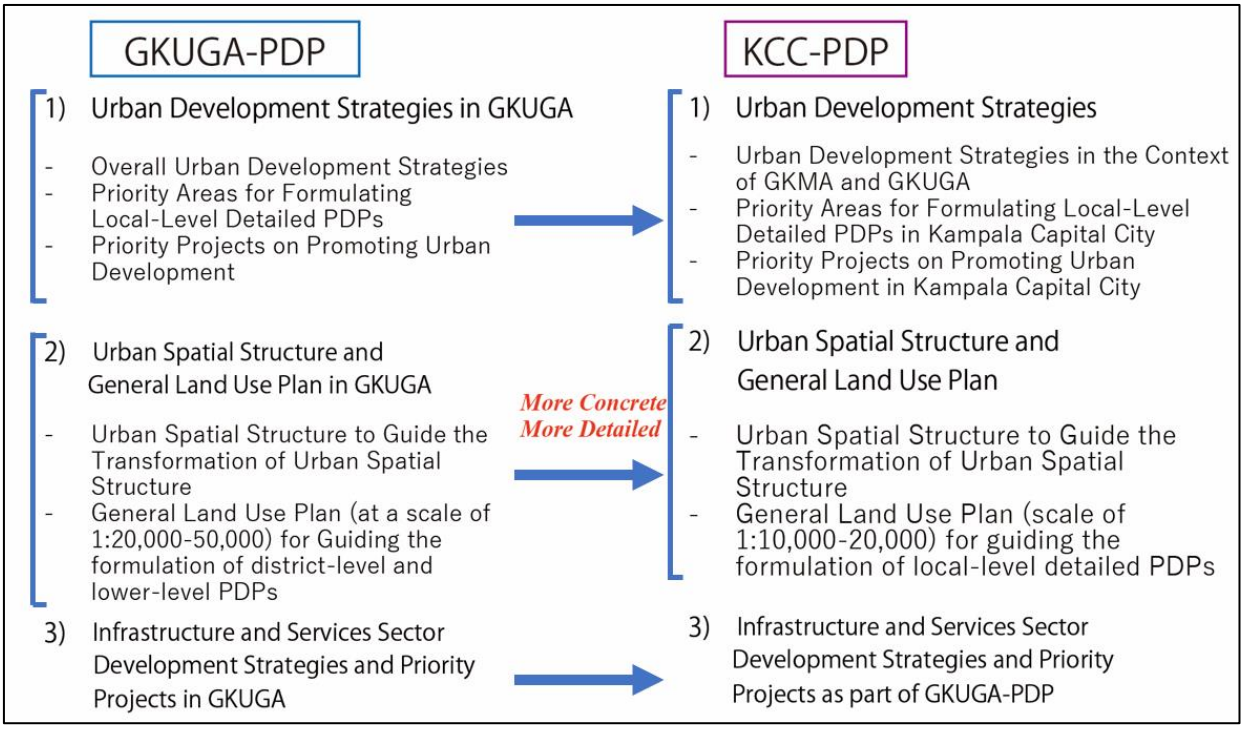


Source: JICA Expert Team

Figure 2.3.1 Relationship between GKMA-PDP and GKUGA-PDP

(2) Relationship between GKUGA-PDP and KCC-PDP

The relationship between GKUGA and KCC is different from that between GKMA and GKUGA. The PDP for KCC-PDP would be prepared by making a more concrete and more detailed PDP than that for GKUGA-PDP. See Figure 2.3.2.



Source: JICA Expert Team

Figure 2.3.2 Relationship between GKUGA-PDP and KCC-PDP

PART II

NATIONAL AND REGIONAL-LEVEL SOCIO-ECONOMIC AND SPATIAL FRAMEWORKS

Chapter 3 National and Regional Socio-Economic and Spatial Frameworks

3.1 Future Socio-Economic Frameworks for Uganda

3.1.1 Future Population Framework for Uganda

(1) Review of Past National Populations and Populations by Region

The result of 2024 Population Census of Uganda is not available at the time for preparation of this Draft Final Report.[1] Moreover, the data concerning population by income class and the number of jobs in formal sectors and informal sectors were not available, although such data are important for physical development planning for large metropolitan areas like GKMA.

In 2014, the population of Uganda was concentrated in the Eastern Region and Central Region, each with over 9 million people. Among the four regions, the Northern Region had the smallest population of approximately 7 million. Its population density was also the lowest at 84.2 persons/km^2 compared to those of the other regions which exceeded 150 persons/km^2.

Out of the approximately 9.5 million population in the Central Region, approximately 4.8 million (adequately half of the population of the region) lived in the GKMA. Despite that, the population density of the Region was lower than the Eastern Region.

Table 3.1.1 Population and Population Density by Region (2014)

	Area (km^2)	Population (2014)	Population Density (persons/km^2)
Central Region	61,403	9,529,238	155.2
Eastern Region	39,479	9,042,420	229.0
Northern Region	85,392	7,188,132	84.2
Western Region	55,277	8,874,860	160.6
Uganda	241,551	34,634,650	143.4

Source: UBOS, 2016, The National Population and Housing Census 2014 – Main Report

Uganda had rapid increase in population in the past decades at an average annual growth rate of over 3.00% between 1980 and 2014. The population increased especially between 1991 and 2002. This was most likely the result of natural increase as well as due to the returning Ugandans who fled the country in the 1970's and 80's because of conflict and political instability in the country. The population in the Northern Region specifically increased at a high rate of almost 5% per annum in this period. Since 2002, the population of Uganda had been concentrated in the Central Region which contains GKMA and Eastern Region where there were growing urban areas and fertile soils supporting rural populations.

[1] Since the UBOS started the 2024 Population Census in May 2024, highly probably any types of result of 2024 Population Census will not be available at the end of the master planning study for GKMA-IUDMP.

Table 3.1.2 Changes in Population by Region

	Population				Average Annual Growth Rate		
	1980	1991	2002	2014	1980-1991	1991-2002	2002-2014
Central Region	3,582,434	4,843,594	6,575,425	9,529,238	2.78%	2.82%	3.14%
Eastern Region	3,237,436	4,128,469	6,204,915	9,042,420	2.23%	3.77%	3.19%
Northern Region	2,424,242	3,151,955	5,363,669	7,188,132	2.42%	4.95%	2.47%
Western Region	3,392,067	4,547,687	6,298,075	8,874,860	2.70%	3.00%	2.90%
Uganda	12,636,179	16,671,705	24,442,084	34,634,650	2.55%	3.54%	2.95%

Source: UBOS, 2016, The National Population and Housing Census 2014 – Main Report

(2) Review of Past Urban Populations

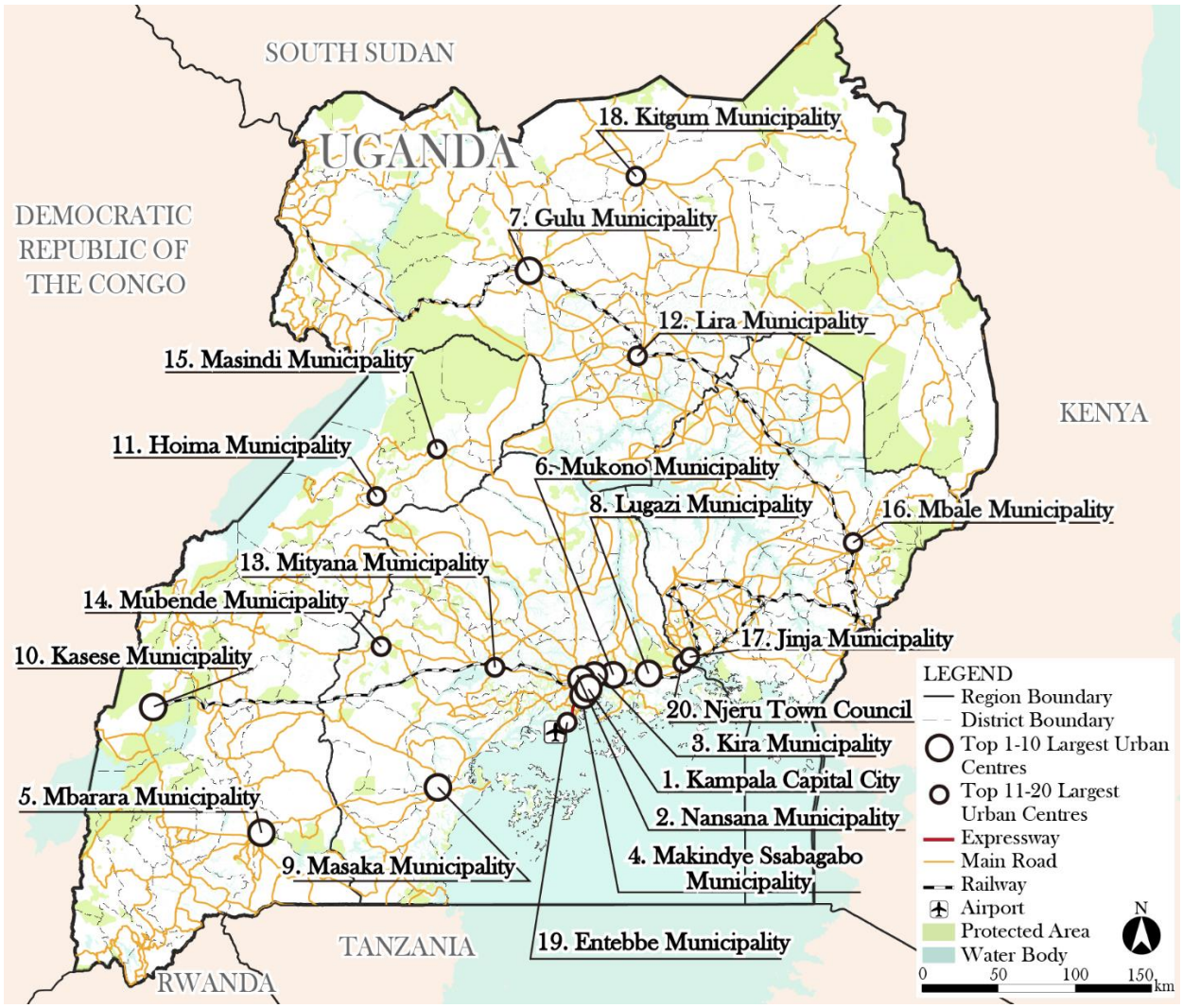
Based on the census of 2002 and 2014, the definition of urban population in Uganda is the population living in cities, municipalities, towns and town boards/townships. In 2002, the urban population of Uganda was estimated to be around 2.9 million, which had increased to around 7.4 million in 2014. With this rapid increase in population, by 2014, 30% more people were living in GKMA urban areas than in the whole of the rest of the urban areas in the country.

Out of the 20 largest urban centres in 2014, six urban centres, namely, Kampala City, Nansana Municipality, Kira Municipality, Makindye-Ssabagabo Municipality, Mukono Municipality and Entebbe Municipality, were within the GKMA.

Table 3.1.3 Population of the 20 Largest Urban Centres in Uganda 1991-2014

	Urban Centre	Metropolitan /Corridor	District	Region	Urban Population			Annual Population Growth Rate	
					1991	2002	2014	1991-2002	2002-2014
1	Kampala City	GKMA	Kampala	Central	774,241	1,189,142	1,507,114	3.98%	1.99%
2	Nansana Municipality	GKMA	Wakiso	Central	n/a	n/a	365,857	-	-
3	Kira Municipality	GKMA	Wakiso	Central	n/a	n/a	317,428	-	-
4	Makindye Ssabagabo Municipality	GKMA	Wakiso	Central	n/a	n/a	282,664	-	-
5	Mbarara Municipality	-	Mbarara	Western	41,031	69,363	195,160	4.89%	9.00%
6	Mukono Municipality	GKMA	Mukono	Central	7,406	46,506	162,774	18.18%	11.00%
7	Gulu Municipality	-	Gulu	Northern	38,297	119,430	149,802	10.89%	1.91%
8	Lugazi Municipality	JKM Corridor	Buikwe	Central	18,828	27,979	114,163	3.67%	12.43%
9	Masaka Municipality	-	Masaka	Central	49,585	67,768	103,293	2.88%	3.57%
10	Kasese Municipality	-	Kasese	Western	18,750	53,907	101,557	10.08%	5.42%
11	Hoima Municipality	-	Hoima	Western	4,616	27,934	100,126	17.78%	11.22%
12	Lira Municipality	-	Lira	Northern	27,568	80,879	99,511	10.28%	1.74%
13	Mityana Municipality	-	Mityana	Central	22,579	34,116	96,075	3.82%	9.01%
14	Mubende Municipality	-	Mubende	Central	9,301	15,996	95,416	5.05%	16.05%
15	Masindi Municipality	-	Masindi	Western	10,839	28,300	94,439	9.12%	10.56%
16	Mbale Municipality	-	Mbale	Eastern	53,987	71,130	92,863	2.54%	2.25%
17	Jinja Municipality	JKM Corridor	Jinja	Eastern	65,169	71,213	76,057	0.81%	0.55%
18	Kitgum Municipality	-	Kitgum	Northern	12,978	41,821	75,594	11.22%	5.06%
19	Entebbe Municipality	GKMA	Wakiso	Central	42,763	55,086	69,430	2.33%	1.95%
20	Njeru Town Council	JKM Corridor	Buikwe	Central	36,731	51,236	68,835	3.07%	2.49%

Note: The urban populations of Nansana, Kira and Makindye Ssabagabo were not available in 1991 and 2002 because these areas were not gazetted urban centres at the time of the census.
Source: UBOS, 2016, The National Population and Housing Census 2014 – Main Report



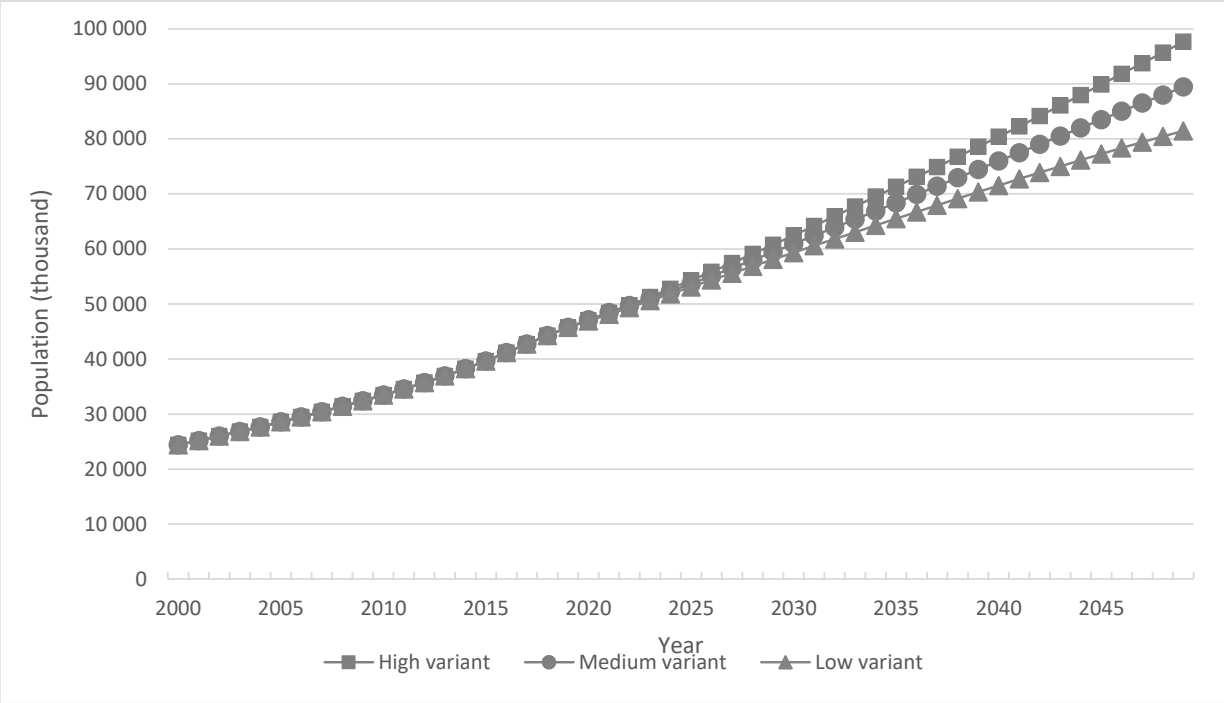
Source: JICA Expert Team based on The National Population and Housing Census 2014 – Main Report (UBOS, 2016)

Figure 3.1.1 Location of the 20 Largest Urban Centres in Uganda 2014

(3) Population Framework

1) Future Population of Uganda in Existing Population Projection

The World Population Prospects data of United Nations has three projections, high variant, medium variant and low variant. The population of Uganda is projected to reach almost 100 million around 2050 in the high variant, while in the medium variant and low variant it is projected to reach 90 million and 80 million, respectively.



Note: Populations between 2000–2020 are estimated populations. Populations from 2021 to 2050 are projected data.
Source: Department of Economic and Social Affairs Population Dynamics United Nations, World Population Prospects 2019

Figure 3.1.2 Future Projected Population of Uganda in World Population Prospects

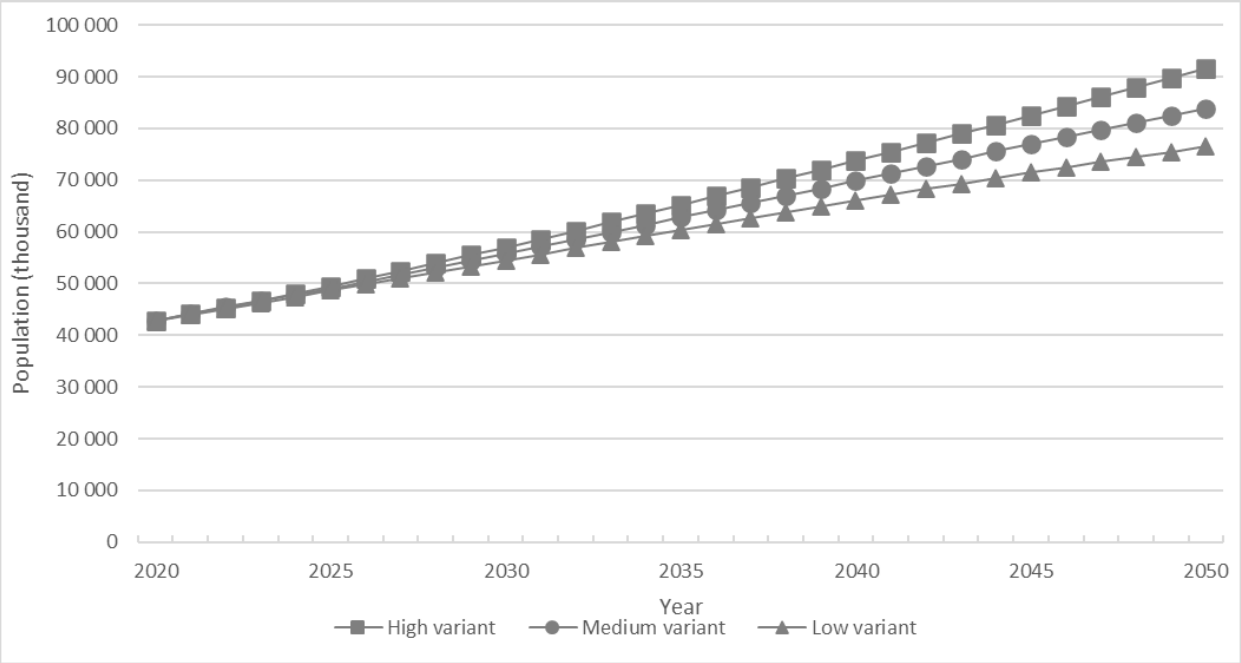
In Uganda Vision 2040, the population growth rate is projected to become 2.4% per annum which is the annual population growth rate in 2040 for the high variant in the World Population Prospects 2019.

2) Future Population Framework for Uganda

Although Uganda Vision 2040 projects the future population of Uganda as the high variant of the UN projection, the population of 2014 estimated by the UN Department of Economic and Social Affairs Population Dynamics is approximately 2.3 million more than the actual population recognised by the population and housing census 2014. Utilising the population growth rate of the high variant after adjusting for the population in 2014, the population of Uganda is expected to become approximately 73.7 million, which is slightly less than the population projected in the medium variant in the World Population Prospects. (See Figure 3.1.3.)

In the adjusted population projection, the population of Uganda is expected to increase to 66.0 million with the low variant growth rate, 69.9 million with the medium variant and 73.7 million with the high variant by 2040, and 76.4 million with the low variant growth rate, 83.9 million with the medium variant and 91.7 million with the high variant by 2050.

The Uganda Bureau of Statistics (UBOS) has also projected the population for 2021 as 42.9 million, which is approximately the same as the low variant population in 2020 in the adjusted projected population.



Source: JICA Expert Team based on World Population Prospects 2019 and Population and Housing Census 2014

Figure 3.1.3 Adjusted Projected Future Population of Uganda Based on Population and Housing Census 2014

The future population framework is summarized in Table 3.1.4. The population of Uganda is projected to become almost 70 million in 2040, and around 84 million in 2050.

Table 3.1.4 Future Population Framework for Uganda

		2002*	2014*	2020*	2030**	2040**	2050**
		Census	Census	Estimated	Projection	Projection	Projection
Uganda	Population	24,227,297	34,634,650	41,583,600	55,772,000	69,862,000	83,929,000
	Average Annual Growth Rate	-	3.02%	3.09%	2.98%	2.28%	1.85%

Source*: UBOS
Source**: JICA Expert Team

Discussed later in this report (in the next chapter, Chapter 4), with the current rate of urbanisation, and a continuing comparative rate of urbanisation in GKMA relative to the rest of Uganda, 15 million could be living in GKMA urban areas compared with only 5m in the rest of the country. However, the designation of secondary cities and plans for their connectivity nationally and internationally should significantly reduce this gap between the two.

3.1.2 Future Economic Framework for Uganda

(1) Review of GDP in the Existing Plans and Projections

In order to set the Gross Regional Domestic Product (GRDP) growth targets for 2025, 2030, 2035 and 2040, the following existing development plans or GDP growth projections were reviewed:

- Uganda Vision 2040 (approved in 2007)
- Third National Development Plan (NDP III) 2020/21–2024/25 (2020)
- National Agriculture Policy (2013) and Agriculture Sector Strategic Plan 2015/16–2019/20 (2016)
- National Industrial Policy (2020)

1) Uganda Vision 2040

According to Vision 2040, estimated GDP and associated real growth rates are likely to grow, to achieve US$9,500 per capita. Under this scenario, as Table 3.1.5 shows, a five-year average economic growth rate of about 8% is expected until 2040. By sector, agriculture will grow at an average rate of about 5%, while industry and services sectors will grow at an average of about 9%. The continued growth of sectors such as the telecommunication, construction and mining will be crucial in driving the growth of the country.

Table 3.1.5 National GDP Growth Scenario of Vision 2040

	Nominal GDP at Market Prices (US$, Billions)							Real GDP Annual Average Growth Rates (% per annua)					
Economic Sector	2010	2015	2020	2025	2030	2035	2040	2012 - 2015	2016 - 2020	2021 - 2025	2026 - 2030	2031 - 2035	2036 - 2040
Total GDP	17.0	24.2	41.2	83.6	167.2	319.6	580.5	8.44	8.58	8.35	8.22	8.07	7.83
Agriculture	3.8	5.3	7.8	13.6	23.4	38.5	60.1	5.24	5.37	5.15	5.02	4.88	4.65
Industry	4.5	6.7	12.0	25.1	51.4	99.6	182.6	9.67	9.52	9.05	8.71	8.40	8.04
Services	8.7	12.1	21.5	44.9	92.5	181.5	337.8	9.30	9.35	9.05	8.85	8.65	8.37

Source: National Planning Authority, 2010, Uganda Vision 2040

2) Third National Development Plan (NDP III) 2020/21–2024/25

The NDP III targets to be achieved at the end of the five-year period is set the context of Vision 2040 targets as well as the FY 2017/2018 baseline. As Table 3.1.6 illustrates, real GDP growth is estimated to range between 4.5 to 7.2% during FY2020/21–2024/25. To remedy climate change and the COVID-19 risk that subdued growth in NDP II, the government will augment several efforts. The Economic Growth Strategy that underpins the NDP III focuses on five key objectives:

- Expanding the Industrial Base of the Economy
- Consolidate and increase the stock and quality of productive infrastructure
- Enhancing productivity especially in the agricultural sector
- Exploiting natural resource endowments with environmental protection in mind
- Supporting private sector development through providing affordable financing for production and business.

Table 3.1.6 Contribution to Growth by Sector of NDP III

		17/18 (Baseline)	20/21	21/22	22/23	23/24	24/25
Real GDP Annual Average Growth Rate (%)		6.2	4.51	5.99	6.38	7.00	7.20
Annual Average Growth Rate (%)	Agriculture, forestry and fishing		1.31	1.72	1.81	1.97	2.01
	Industry		1.41	1.90	2.05	2.27	2.36
	Services		1.78	2.37	2.52	2.75	2.83
Contribution to GDP (%)	Agriculture, forestry and fishing	22.9	21.22	20.88	20.54	20.22	19.89
	Industry	26.5	27.55	27.81	28.05	28.31	28.56
	Services	43.4	44.18	45.07	45.97	46.89	47.80

Source: National Planning Authority, 2020, Third National Development Plan (NDP III) 2020/21-2024/25

The Ministry of Finance, Planning and Economic Development, as Table 3.1.7 indicates, estimated GDP projections in 2021, considering COVID-19 pandemic impacts. There are two scenarios: With or Without oil production from 2024/25.

As Vision 2040 also notes, the oil and gas resources will be crucial to spur economic growth and development in the country.

Table 3.1.7 GDP Growth Projection Reflecting the COVID-19 Pandemic Impact

	2021/22	2022/23	2023/24	2024/25	2025/26
GDP at market prices	3.8%	6.0%	6.5%	7.0%	7.4%
Oil GDP at market prices*	-	-	-	8.0%	10.0%
Agriculture, forestry and fishing	4.5%	5.1%	5.2%	5.2%	5.6%
Industry	4.6%	8.6%	9.1%	9.3%	9.2%
Services	3.3%	5.2%	5.9%	6.9%	7.3%

Note: * Oil GDP includes non oil GDP and estimated value addition from oil production. First year of oil production is FY 2024/25.
Source: Ministry of Finance, Planning and Economic Development (Oct. 2021)

3) National Agriculture Policy (NAP) and Agriculture Sector Strategic Plan (ASSP)

The NAP shows several challenges for agricultural development, including low production and productivity, low value addition to agricultural produce, lack of sustainable or dependable access to markets, and insufficient skilled agricultural labour forces. On the other hand, there are prospects for agriculture in Uganda, such as adequate land and water resources for production, high potential to improve productivity, and high export potential for agricultural products to regional and international markets. The vision of the NAP is "A Competitive, Profitable and Sustainable Agricultural Sector."

The Agriculture Sector Strategic Plan (ASSP) 2015/16–2019/20 operationalises the National Agriculture Policy (NAP). According to the ASSP, the overall goal is to achieve an average growth 6% per year over the next five years. There are four strategic objectives or priorities for the development and growth of the sector: to increase production and productivity; to increase access to critical farm inputs; to improve access to markets and value addition and strengthen the quality of agricultural commodities; and to strengthen the agricultural services institutions and the enabling environment. Over the plan period, the agriculture sector is set to achieve the following key outcome targets:

- Increase productivity by farmers to at least 50% of the yields at research stations for the 12 priority commodities
- Transform subsistence farmers into enterprise farmers and transforming small-holder farmers into commercial farmers

4) National Industrial Policy (NIP)

According to the NIP revised in 2017, there are several challenges of the industrial sector, including low productivity and capacity utilizations, insufficient supply of quality raw materials for value addition, low technology uptake and adoption, and inadequate skilled human resources. Therefore, the vision of the NIP is to build a fully integrated, competitive, high value and productive industrial sector. The Policy Goal is "increasing the manufacturing value-added as a percentage of GDP from 8.3% in 2018/19 to 16% by 2029/30."

The expected outcomes to be realized over the ten-year period of implementation are:

- Increased industry sector contribution to GDP from 27.1% in 2018/19 to 31.7% in 2029/30
- Increased contribution of manufacturing to GDP from 15.4% in 2018/19 to 26% in 2029/30.

5) Other Projections

According to the World Economic Outlook Database (April 2021) by the International Monetary Fund (IMF), the projected GDP growth rate is 6.4% in 2027, and the average growth rate is 6.1% from 2022 to 2026, as Table 3.1.8 illustrates.

Table 3.1.8 GDP Projection by IMF

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
GDP, constant prices, National currency, Billions	127,886	126,222	133,800	140,401	148,398	156,862	168,643	180,202	192,408	204,505
Growth Rate (%)	7.8	-1.3	6.0	4.9	5.7	5.7	7.5	6.9	6.8	6.3

Note: Estimates start after 2021
Source: World Economic Outlook (April, 2023), International Monetary Fund

(2) Future Economic Framework for Uganda

Table 3.1.9 illustrates the change of share of economic sector and growth rates by economic sector. The indicators are mainly based on the growth rates of GDP by Vision 2040, National Development Plan III, and the projections of the Ministry of Finance, Planning, and Economic Development.

The aspects considered are summarized below.

- In the whole country, while the share of agriculture sector to GDP may decrease, industrial and service sectors become more important.
- In the secondary sector, an increase in oil production is planned after 2024/25, though there may not be direct impacts on GKMA.

Table 3.1.9 Change of Economic Structure in Uganda

(a) Change of Share of Economic Sector

	GDP (Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Actual)	118,392	25.1	28.9	45.9
2025 (Projected)	157,360	23.0	32.0	45.0
2030 (Projected)	218,563	20.2	35.3	44.6
2035 (Projected)	314,692	17.0	37.7	45.3
2040 (Projected)	462,352	14.1	39.5	46.4
2045 (Projected)	684,297	11.6	40.6	47.8
2050 (Projected)	1,016,858	9.5	41.2	49.3

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2050

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	4.0	8.0	5.4	5.9
2025-2030 (Projected)	4.0	8.9	6.6	6.8
2030-2035 (Projected)	4.0	9.0	7.9	7.6
2035-2040 (Projected)	4.0	9.0	8.5	8.0
2040-2045 (Projected)	4.0	8.8	8.8	8.2
2045-2050 (Projected)	4.0	8.6	8.9	8.2

Source: JICA Expert Team

The future population, GDP and GDP per capita based on the population framework in Table 3.1.4 and economic framework in Table 3.1.9 are shown in Table 3.1.10. The speed of the population growth is expected to slow down gradually, while the economic growth accelerates. As a result, the GDP per capita will increase rapidly. According to UBOS, Uganda's GDP per capita reached 1,046 US dollar in 2021 and crossed the World Bank's threshold for a lower-middle-income country. The GDP per capita is estimated to more than double in the next two decades.

Table 3.1.10 Socio-economic Framework for Uganda

	Unit	2020	2030	2040	2050
GDP	Shilling Billion, at 2009/10 constant prices	118,392	218,563	462,352	1,016,858
	Annual Growth Rate %	-	6.32	7.78	8.20
Population	Persons	41,583,600	55,772,000	69,862,000	83,929,000
	Annual Growth Rate %	-	2.98	2.28	1.85
GDP per Capita	Shilling, at 2009/10 constant prices	2,847,000	3,766,000	6,265,000	12,115,693
	Annual Growth Rate %	-	2.84	5.22	6.82

Source: JICA Expert Team

For the Future Economic Framework, accelerated economic growth rates are set for the following reasons:

- Value-added boosting effects of secondary industries are expected for Uganda (e.g. oil production development is expected to start in the 2024/25-2030 period, and to be fully developed in the 2030-2040 period).
- Increasing consumer demand is expected because of the growing population of Uganda (particularly the tertiary sector will be affected, but primary and secondary effects are also expected).
- Accessibility to existing regional common markets, such as the East African Community (EAC), which has a high growth potential, is considered to have a positive impact on the economic growth of Uganda.

The implications of the above for GKMA is that while industrial growth will increase slightly, the big change will be from a decrease in contribution from agriculture to increase in services to GDP. The growth of the service sector is most strongly manifested in the growth of urban consumer markets and services. The composition of these sectors in term of size of firms, numbers of employees, income levels and patterns of consumption including factors such as residential densities, will have a strong impact on the nature of the urban fabric.

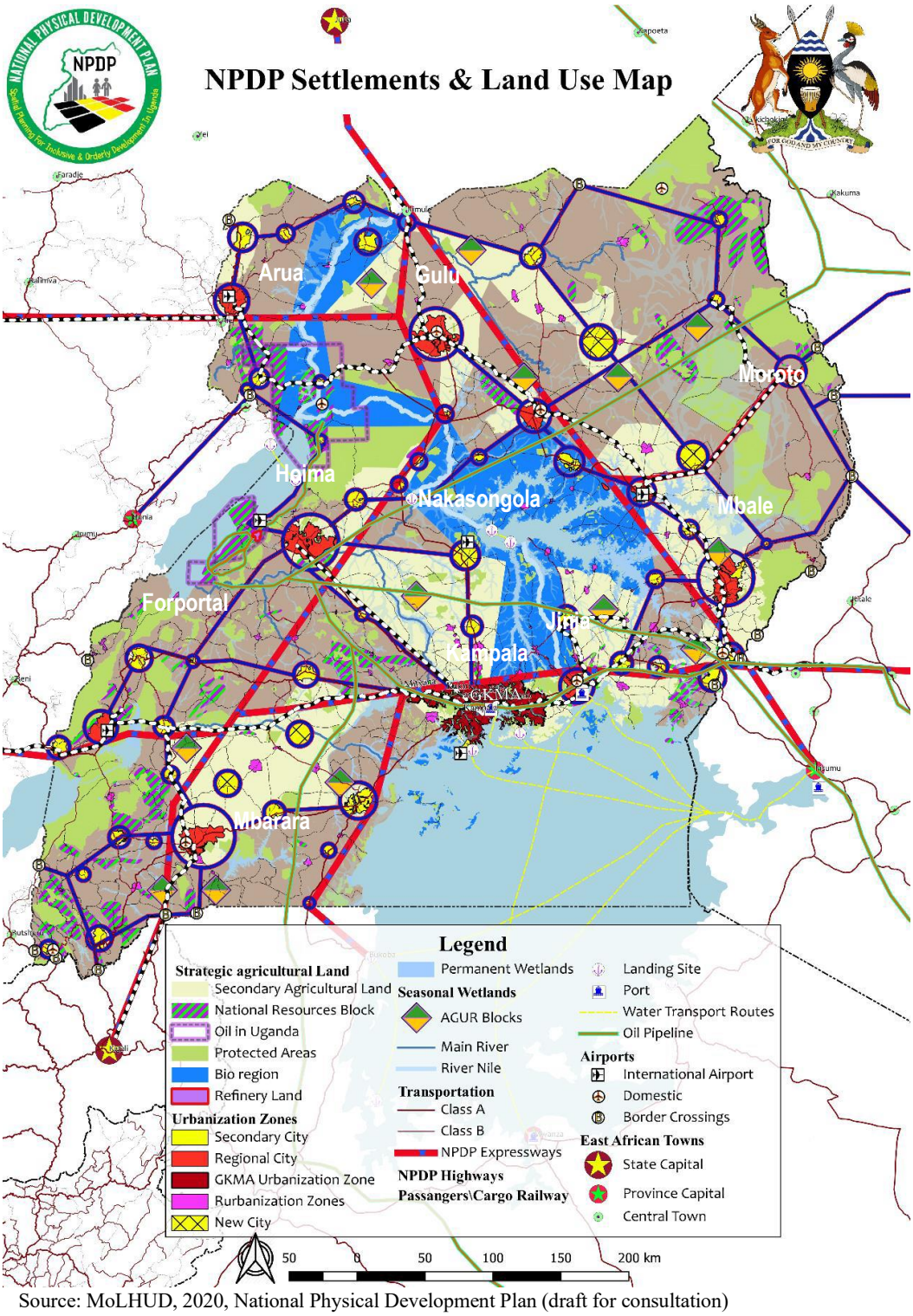
3.2 National and Regional Spatial Framework

3.2.1 National Physical Development Plan 2022-2040

The draft of the National Physical Development Plan (NPDP) was completed in January 2019 and was approved by the cabinet in November 2022.

(1) NPDP Urbanisation Proposal for Uganda

NPDP considers that the key objective of the urban pattern should be to mitigate the continued focus of expansion of Kampala around Lake Victoria as the "primate city." Based on analysis of other countries, such concept of primacy was considered to hinder development of Uganda. NPDP, therefore, accepts that "Vision 2040 identifies ten cities as growth poles: five regional cities (Gulu, Mbale, Kampala, Mbarara, and Arua) and five strategic cities (Hoima, Nakasongola, Fortportal, Moroto, and Jinja)."



Source: MoLHUD, 2020, National Physical Development Plan (draft for consultation)

Figure 3.2.1 Land Use and Settlement Pattern of Uganda in NPDP

In NPDP 2018-2040, the hierarchy of urban settlements in 2040 is considered as shown in Table 3.2.1. This is the case based on a substantial rebalancing of urban populations from GKMA to the secondary cities/urban centres.

Table 3.2.1 Hierarchy of Urban Settlements in NPDP

Level	Function	Range of Population	Settlements	Total Population

1	Capital	8.5 million	GKMA	8,500,000
2	Regional Growth Poles	1 million <	Hoima, Gulu, Mbarara, Mbale	5,250,,000
3	Subregional Growth Poles	0.5 – 1.0 million	Arua, Jinja-Njeru, Kasese, Lira, Soroti, Masaka	3,200,000
4	Major Towns	250,000 – 500,000	15	3,850,000
5	Secondary Towns	100,000 – 250,000	10	1,050,000
6	Townships	50,000 – 100,000	18	900,000
7	New Satellite Towns	250,000	3	250,000 *
8	Rurban	10,000 – 50,000	126	7,000,000
	Total			30,000,000

Note: *Additional 500,000 residents in new satellite towns are already included in the population of GKMA.
Source: MoLHUD, 2020, National Physical Development Plan (draft for consultation)

(2) GKMA as an Urban Entity Within the Proposed Corridor Pattern

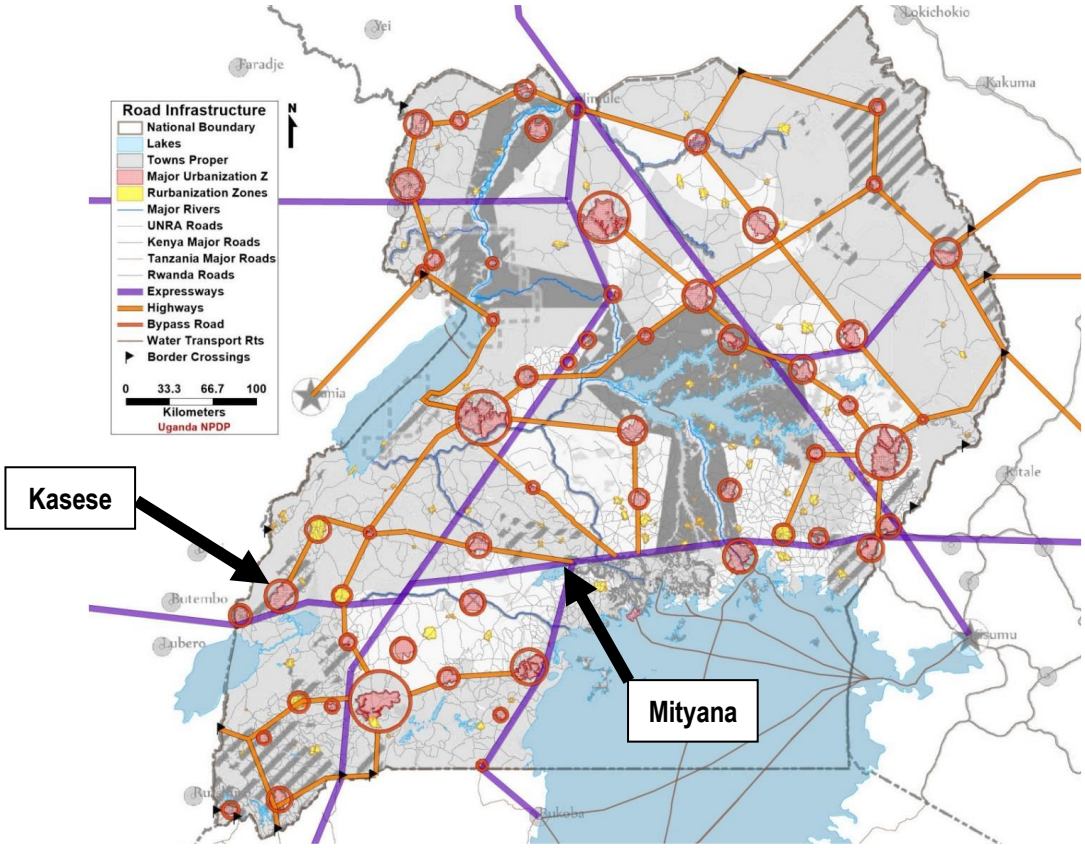
NPDP predicts that even with a focus on secondary cities to limit the growth of Greater Kampala, its population will still grow to 8.5 million by 2040. Therefore, NPDP has the principal urbanised conurbation in the Central Region as shown in Figure 3.2.2 as a pattern representing the entire maximum area of expansion. "This patch/pattern shows the physical boundaries in which the continuous sprawling of built-up area will be tolerated. Even if all measures are taken to ensure compact development and maximising urbanity the region is expected to extend from Mityana in the west to Lugazi in the east and Entebbe in the south. In the north, the sprawling of GKMA will be spatially limited by a new expressway crossing the country from east to west."

Source: MoLHUD, 2020, National Physical Development Plan (draft for consultation)

Figure 3.2.2 GKMA: Extract of the Land Use and Settlement Pattern of Uganda

(3) NPDP Road Network Proposals and Expressway

A key point in NPDP is the urban expansion concept based on a new expressway westwards between Kampala and DRC, which passes Mityana and Kasese. Whereas, the currently being constructed expressway is through Mpigi to Masaka, Mbarara, thence to Rwanda and Tanzania. A question remains as to whether this will replace the Mityana/ Kasese direct expressway concept and be the link also to DRC (via Mbarara). The Kampala-Mityana-Kasese corridor, as shown in Figure 3.2.3, is indicative of a lack of decision on this matter.



Source: MoLHUD, 2020, National Physical Development Plan (draft for consultation)

Figure 3.2.3 NPDP Road Network Proposals

(4) GKMA and Tourism at the Nile Bio-Region

NPDP cites GKMA for business tourism and the link to the Ssese Islands to develop tourism. It also incorporates the proposed "Nile Bio-region" which stretches from Jinja (and also the north eastern edge of GKMA, covering the watercourses which are tributaries of Lake Kyoga) through Lake Kyoga to Arua and beyond.

(5) NPDP Implementation: Relationship to NDPs

NPDP proposes a joint MoLHUD-NPA Physical Planning Unit to "plan, catalyse and track physical and spatial implications of national projects and programmes." However, no moves have been made on this yet. The "Unit" will work with the proposed National Spatial Data Infrastructure (NSDI) to be housed at NPA, of which the physical plans lodged in the Physical Planning and Urban Management Information System (PPUMIS) at MoLHUD will be a part. These systems will be disseminated regionally via the Ministerial Zonal Offices which have been set up to operate the National Land Information System (for land registration, in which compliance with Physical Plans is also checked).

On the other hand, it was decided that the National Physical Planning Board is to be housed by the NPA from July 2024 onwards.

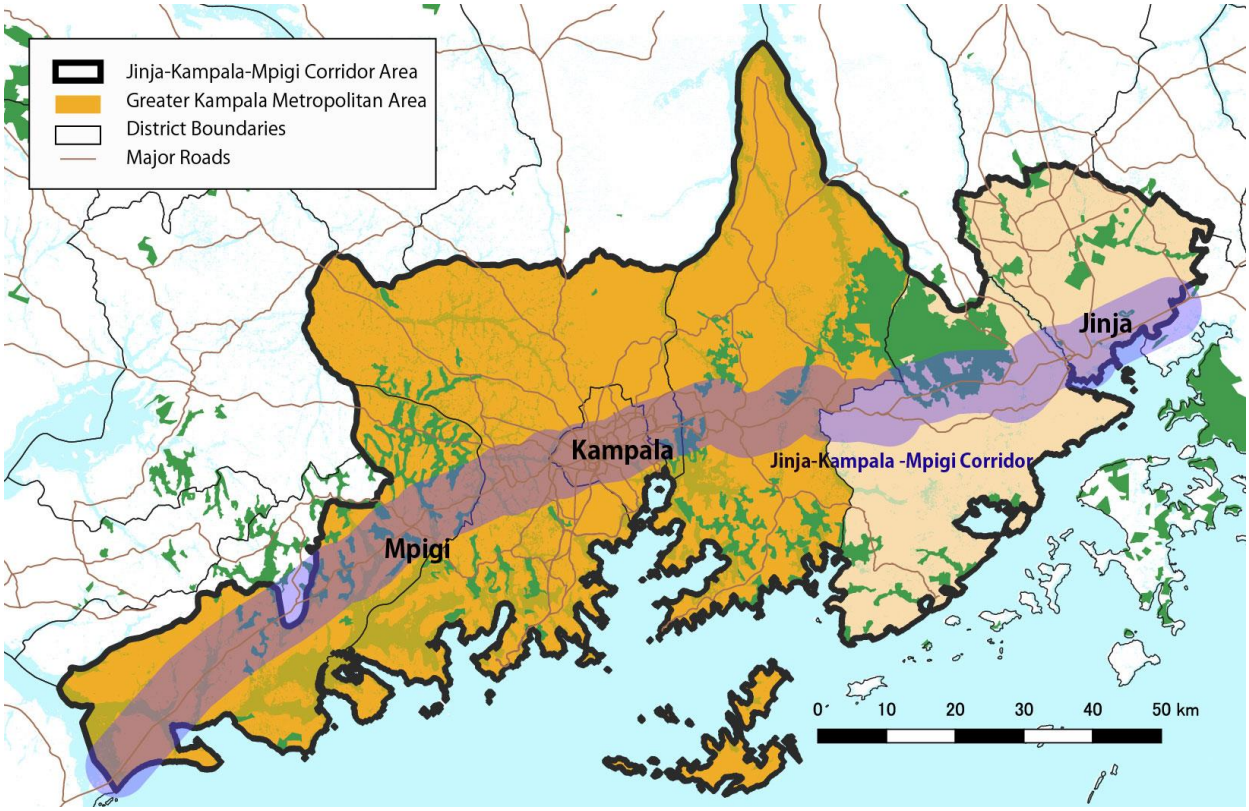
The NPDP also indicated a series of actions for implementing the Plan up to 2040, which are phased according to the cycle of NDPs (III-VI).

3.2.2 Jinja-Kampala-Mpigi Corridor Physical Development Plan

(1) Jinja-Kampala-Mpigi Corridor Physical Development Plan and the GKMA-IUDMP

The JKM Corridor Physical Development Plan is a higher-level plan, which sets the parameters for the lower-level plans, including the GKMA-IUDMP. The GKMA forms a major part of the

JKM Corridor, but the Corridor also has substantial areas in the east of the GKMA as shown in Figure 3.2.4.



Source: JICA Expert Team

Figure 3.2.4 Jinja-Kampala-Mpigi Corridor PDP Planning Area and GKMA

(2) Overview of Jinja-Kampala-Mpigi Corridor Physical Development Plan

The JKM Corridor Plan's objective is "to attract, manage and coordinate all forms of public, private, community and individual investments over an indefinite period based on demand."

In the context of NDP III's theme of Sustainable Industrialisation for Inclusive Growth, Employment and Sustainable Wealth Creation, the draft economic development proposals for the JKM Corridor are predicated on the fact that "a far stronger emphasis on industrial development has ensued (between 1990 and 2019): industry in Uganda in 2019 was 26% of GDP, up from 10% in 1990; manufacturing (60% of industry), from 5% to 17% which was higher than both Kenya (10%) and Tanzania (8%)".

Since the greatest proportion of the industrial development by far, has been in JKM Corridor (including GKMA), the JKM Corridor PDP identifies "unique opportunity, supported by policy, infrastructure, skills and investment, to create an industrial hub in the corridor region." The JKM Corridor PDP further considers that the corridor has the potential to become East Africa's principal industrial hub.

(3) Corridor Planning

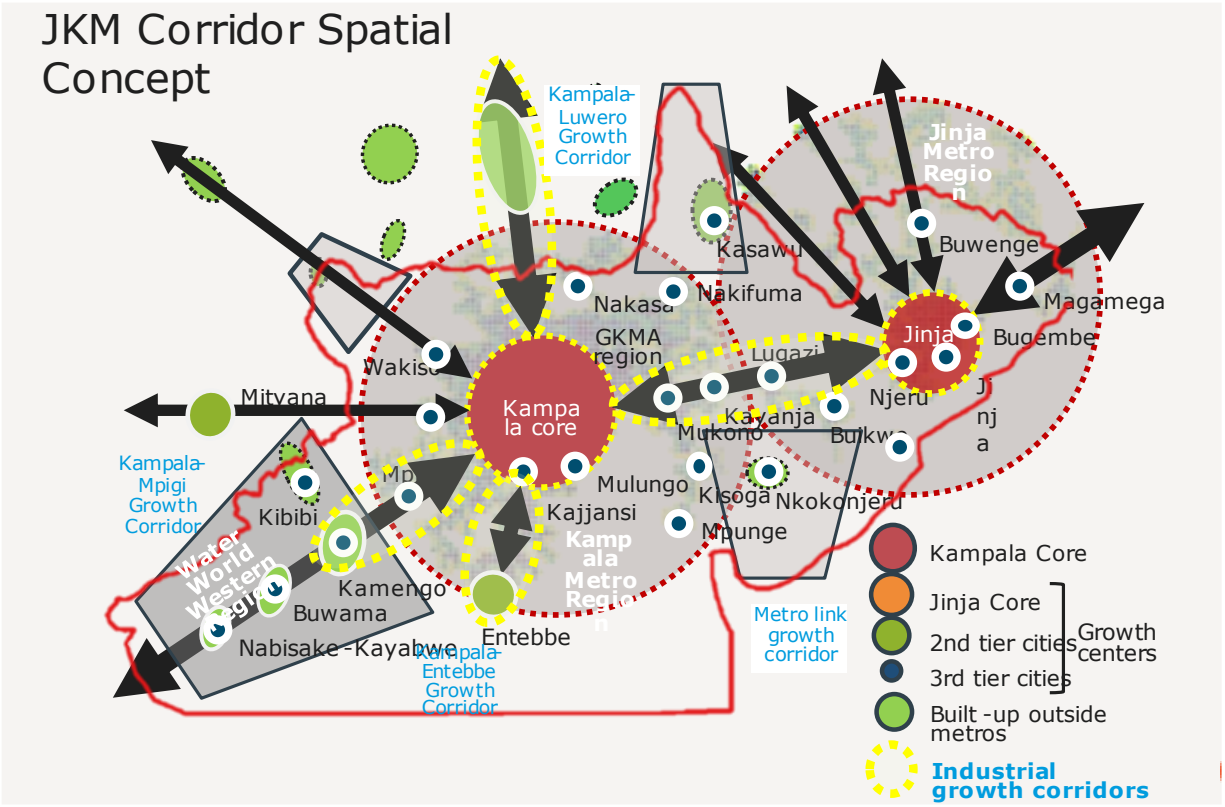
The JKM Corridor Physical Development Plan gives it's rationale as that *"...corridor-scale planning emphasizes on transforming transport corridors into development or economic corridors. ..... it is vital to go beyond just infrastructure to generate wider economic benefits…… and through this, shared or inclusive prosperity…"*

(4) Economic Growth Aim of the Jinja-Kampala-Mpigi Corridor Physical Development Plan

In context of the East African Community and region, the JKM Corridor PDP strategizes on "how to capitalise on the impact of the Northern Corridor in this location to create the wider economic benefits and inclusive prosperity."

The Plan is to serve as a guiding framework for prioritising and locating current and future investments.

The JKM Corridor Spatial Concept identifies Kampala and Jinja as the major core in the area, and four industrial corridors namely, Mukono-Lugazi-Jinja Corridor (Metro Link Growth Corridor), Kampala-Mpigi Growth Corridor, Kampala-Entebbe Growth Corridor, and Kampala-Luwero Growth Corridor as shown in Figure 3.2.5.



Source: COWI, 2021, JKM Corridor Economic Development, October 2021 (PowerPoint working draft for MoLHUD)

Figure 3.2.5 Draft Concept of Jinja-Kampala-Mpigi Corridor Regional Physical Development Plan

The area named as the Kampala Metro Region is more or less the area identified as GKUGA in GKMA-IUDMP.

PART III

GREATER KAMPALA METROPOLITAN AREA PHYSICAL DEVELOPMENT PLAN (GKMA-PDP)

Chapter 4 Development Potentials, Future Vision and Socio-Economic Frameworks for Greater Kampala Metropolitan Area (GKMA)

4.1 SWOT Analysis on Economic Sectors of Greater Kampala Metropolitan Area (GKMA) including Kampala Urban Growth Area (GKUGA)

To identify issues and constraints of GKMA including GKUGA and KCC, and to formulate possible solutions, a SWOT analysis was conducted paying attention to the following aspects:

- Regional integration of EAC and AfCFTA countries
- Manufacturing sectors of GKMA, as well as Uganda
- Logistics of Uganda
- Tourism Sector
- Doing Business Ranking
- Human Capital Development

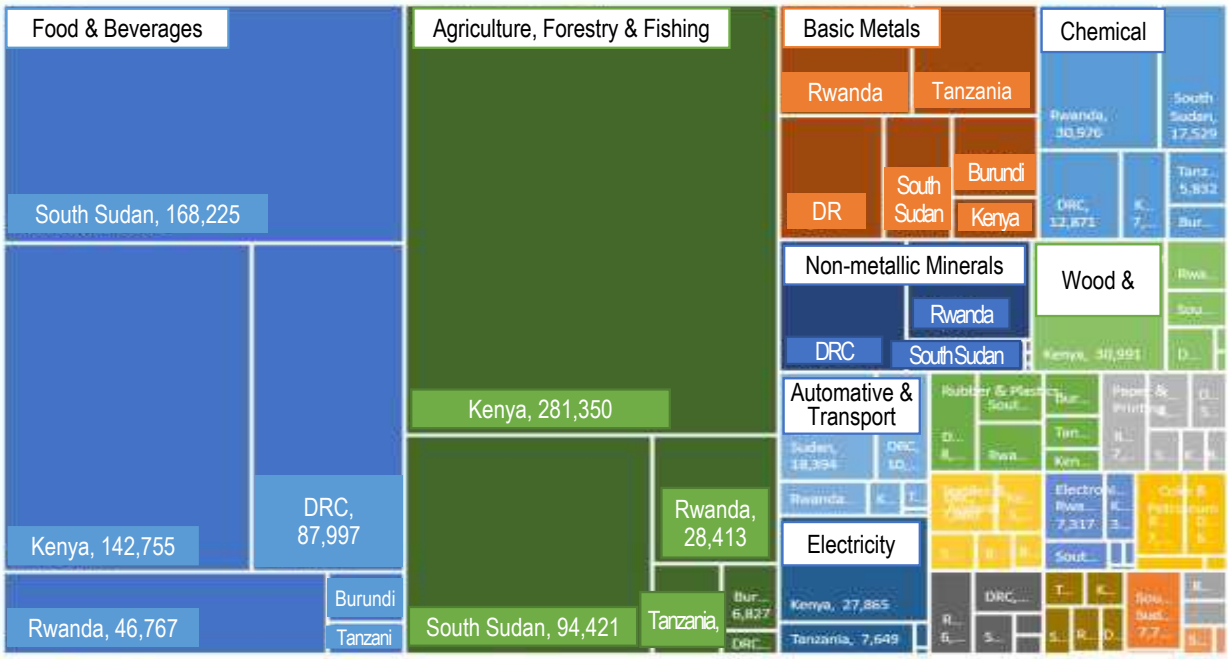
Table 4.1.1 SWOT Analysis of GKMA including GKUGA and Kampala Capital City

Strengths	Weaknesses
[Regional Integration of EAC and AfCFTA] • Regional integration in EAC is relatively stronger than in other regions of Sub-Sahara Africa, although it is much weaker than ASEAN and MERCOSUR.	**[Regional Integration of EAC and AfCFTA]** • The percentage of exports among EAC (the percentage of integration of EAC exports) remains as low as only 2%, in comparison with 17% for ASEAN.
[Manufacturing Sectors of GKMA, as well as Uganda] • Uganda has a small but vigorous manufacturing sector export base. • Uganda's GDP manufacturing sector percentage is relatively high (around 16%) in comparison with other sub-Saharan African countries (Kenya 7.5%, Tanzania 8.5%, Rwanda 8.4%, Ethiopia 5.6%). • Uganda is an important trade partner for all member countries of East African Community (EAC). • Uganda is also an important trade partner for the eastern part of Democratic Republic of Congo (DRC). • 65% of Uganda's merchandise exports to EAC countries are manufacturing products, while 70% of imports from EAC are primary sector commodities (agriculture, forestry, and fisheries). See Figure 4.1.1. • The formal starting of AfCFTA in 2021 has boosted the removal of trade barriers. • The disruption of the global supply chain due to the COVID-19 pandemic created an opportunity in which regional trade was promoted among EAC countries, as well as AfCFTA countries.	**[Manufacturing Sectors of GKMA, as well as Uganda]** • Uganda's manufacturing sectors are characterized by the following features: ✓Low productivity ✓Insufficient supply of quality raw materials ✓Low rate of technology adoption ✓High cost of value additional production ✓Inadequate skilled human resources ✓Limited capacity to comply with standards and regulations for product quality • The percentage of manufacturing sectors in Uganda's GDP has been stagnated (not increased) in the last decade. • The employment percentage in manufacturing sectors in Uganda has decreased from 5.5% in 2009 to 3.8% in 2016. • The majority of manufacturing firms are too small-scaled (micro, small, and medium enterprises (MSMEs)) to get access to credits and high-quality input materials for increasing the scale and productivity of production. • The majority (about 75%) of Uganda's manufacturing sectors are agro-processing industries with low value addition.

[Logistics of Uganda] • Although it is located 1,200 km inland from the Port of Mombasa, Uganda is well connected with the port by roads and railway. • Uganda is also well connected to DRC, Rwanda, Burundi and South Sudan by roads. **[Tourism Sector]** • Uganda is a world-famous destination for international nature tourism because of its wild animals and plants. Kampala Capital City is one of the gateways of Uganda for international tourists. • GKMA has nature and culture tourism potentialities that are yet untapped. **[Human Capital Development]** • Uganda has one of the highest populations of young people coming into the job market.	**[Doing Business Ranking in 2020]** • While the overall ranking of Uganda in 2020 was 116th, many Doing Business topics are poor, especially in the following areas: ✓Starting Business: 169th ✓Getting Electricity: 168th ✓Registering Property: 135th ✓Trading across Borders: 121st **[Logistics of Uganda]** • Since Uganda is located 1,200 km inland from the Port of Mombasa, because there are no high-standard roads nor a railway, the Logistics Performance Index of Uganda ranked 102nd in 2018. • Fuel transport supporting economic and social activities in GKUGA including Kamala Capital City is unstable due to Kampala's inland location and the large distance (1,200 km) to seaports. **[Tourism Sector]** • Weak sales promotion for GKMA's tourist destinations **[Human Capital Development]** • Large numbers of young people entering the job market are not getting the right skills training
Opportunities	**Threats**
[Regional Integration of EAC and AfCFTA] • Since Uganda is a member country of EAC, as well as that of AfCFTA, manufacturing products of Uganda are more favourably traded in the EAC common market. Uganda's manufacturing products have good penetration into the EAC common market. • Improvement of connectivity (logistics functions among countries) could enable the regional integration of markets of EAC and AfCFTA. • Regional integration within EAC and AfCFTA countries could provide opportunities in which a larger scale of economies in manufacturing production is possible. **[Manufacturing Sectors of GKMA, as well as Uganda]** • Uganda's manufacturing sector has strong backward linkages to primary sectors, such as agriculture, forestry, and fisheries. When higher production of manufacturing products is achieved, higher production of primary sectors becomes possible. **[Logistics of Uganda]** • Cargo volumes from/to South Sudan and the eastern part of DRC, as well as that from/to Uganda might increase sufficiently. This increase would improve the financial feasibility of a Standard Gauge Railway (SGD) connecting to the Port of Mombasa through Nairobi, enabling higher speed and a larger capacity of cargo railway transport. **[Tourism Sector]** • Kampala Capital City is the gateway to Uganda's natural and cultural tourism destinations. • Outskirt areas of GKMA also have nature tourist potentialities that are yet untapped in wetlands and forests, as well as lakefront areas of the Victoria Lake. • These GKMA's tourism potential destinations could be	**[Regional Integration of EAC and AfCFTA]** • There is a possibility that the regional economic integration will not be as well implemented as expected even with the institutionalisation of the regional economic integration of EAC and AfCFTA. **[Manufacturing Sectors of GKMA, as well as Uganda]** • Political instability and crises of Uganda might disrupt foreign investments to economic sectors, including manufacturing sectors, resulting in stagnant economic development. • Due to political instability and crises, ODA might be cut off, so economic infrastructure development could be disrupted. • Even if the regional economic integration progresses, the economic sector development in Uganda will not be realised because of the influx of competitive regional products from South Africa, Egypt and other countries of AfCFTA. **[Logistics of Uganda]** • The cargo transport function between Kampala and the Port of Mombasa will be maintained but, for various reasons, not upgraded to accommodate an increasing amount of transport demand. As a result, it will be difficult for Uganda to import fuel and commodities to support people's needs and economic production **[Tourism Sector]** • Pandemics of infectious diseases or regional conflicts (or wars) might disturb the flow of international tourists to Uganda. **[Human Capital Development]** • Large numbers of unemployed young people can constitute a threat to social and political stability

enjoyed by domestic tourist not only by GKMA urban dwellers, but also by other regions of Uganda. • Many of Buganda Kingdom's cultural sites are found in Wakiso District. **[Human Capital Development]** • With the right education and training, the abundance of low cost labour will attract investment.	

Source: JICA Expert Team, based on information from the following reports:
- Chapter 4 Industrialization and Economic Development Strategy, Draft Report of Jinja-Kampala-Mpigi (JKM) Corridor Physical Development Plan, 2022
- Final Report, GKMA Economic Development Strategy 2020
- World Bank Group, Doing Business 2020



Source: UNCTAD STAT 2018, Referred in Chapter 4 Industrialization and Economic Development Strategy, Draft Report on JKM Corridor Physical Development Plan, 2022

Figure 4.1.1 Uganda's Exports to EAC Countries including DRC, 2018 (Unit: USD 1,000)

4.2 Future Vision for GKMA including GKUGA and Kampala Capital City

4.2.1 Review of Existing Visions related to GKMA

In order to prepare a future vision for GKMA including GKUGA and Kampala Capital City (KCC), the following existing visions are reviewed:

- Vision 2040 for Uganda (a national vision)
- Vision for GKMA Economic Development Strategy (GKEDS)
- Vision of the Jinja-Kampala-Mpigi (JKM) Corridor Physical Development Plan

(1) Vision 2040 for Uganda

A strongly expected role of GKMA in Uganda's Vision 2040 (2010-2040) is the large engine of driving the economic structural transformation of Uganda from a peasant to a modern and prosperous country in 30 years.[1] In this period of 30 years, Uganda envisioned to attain a middle

[1] National Planning Authority (NPA), 2010, Vision 2040

income status by seeking an increasing share of industries (from 26.5% to 31%) of GDP and that of services (from 51.2% to 58%) of GDP.

(2) Vision of GKMA Economic Development Strategy (GKEDS)

In accordance with the GKMA Economic Development Strategy (GKEDS), the future vision for GKMA is as follows:

> "The Greater Kampala Metropolitan Area is to be united towards job creation, improved liveability and sustainable development for its citizens."[2]

(3) Vision of the Jinja-Kampala-Mpigi (JKM) Corridor Physical Development Plan

Since GKMA should be part of the Jinja-Kampala-Mpigi (JKM) Corridor, it is necessary to pay attention to the following future vision of the JKM Corridor:

> "In the JKM Corridor, economic opportunity, growth and trade are promoted, and are developed and realised in an inclusive and sustainable fashion for the benefit of all citizens of the corridor."[3]

4.2.2 Vision and Development Goals for GKMA

(1) Future Vision, Development Goals, Overall Issues and Overall Strategies for GKMA

A vision helps draw an image of how successful you want to see the region or metropolitan in the future. Development goals provides a set of directions of the region or the metropolitan area.

The future vision could be pursued by seeking development goals. The future vision and development goals are set beyond the target year (year 2050) for the concerned master plan (GKMA-PDP). The proposed development goals are described in Section (3) below.

In order to achieve the development goals and future vision around by 2060 (beyond 2050), overall issues are identified. Then in order to solve the overall issues, overall strategies for urban development and management should be formulated. For achieving the overall strategies, sectoral strategies are formulated. The overall issues and overall strategies for urban development are discussed in Section 9.3 of Chapter 9.

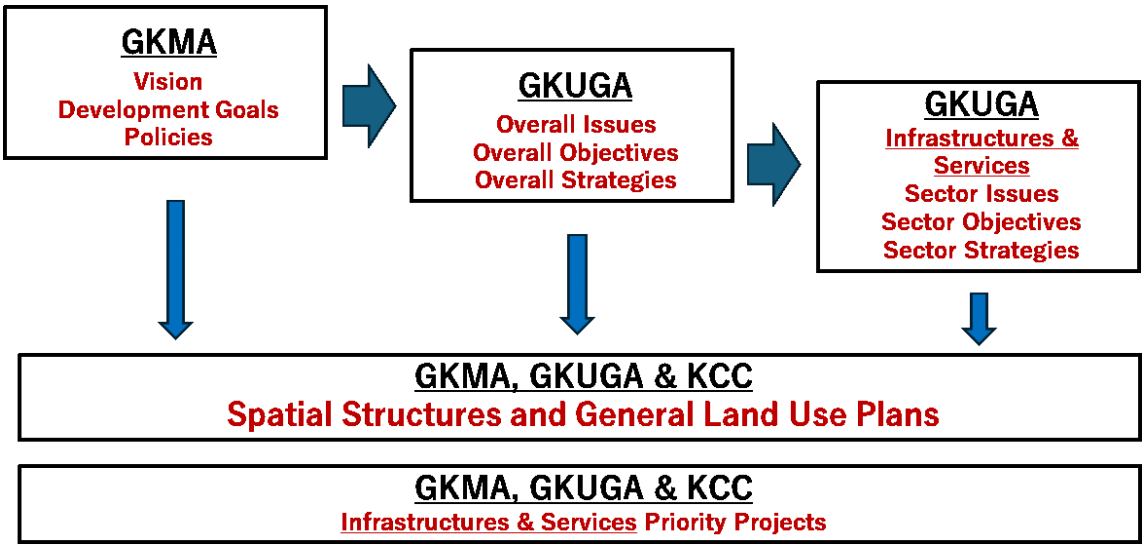


Figure 4.2.1 Relationship of Vision, Development Goals, Policies, Overall Issues, Overall Strategies and Priority Projects

[2] Minister for Kampala Capital City and Metropolitan Affairs, March 2020, Greater Kampala Economic Development Strategy 2020-2030
[3] COWI, 2022, Draft Report, Jinja-Kampala-Mpigi (JKM) Corridor Physical Development Plan, 2022

(2) Proposed Future Vision for GKMA

Reflecting the GKEDS vision for the GKMA and the JKM Corridor vision, as well as Vision 2040, the overarching Vision of GKMA is as follows:

> **"**A liveable and sustainable metropolitan area with a competitive and innovative hub for Uganda and the East African Region/the East African Community (EAC), supported by strengthened infrastructure and developed human capital."

This statement was prepared based on the results of discussion with key counterpart personnel of GKMA-IUDMP.

Since the GKUGA is an important and major part of the GKMA, this vision statement of GKMA is also to guide development and management efforts for GKUGA.

(3) Proposed Development Goals to Achieve the Proposed Vision for GKMA

The following five goals should be achieved in order to seek this future vision of GKMA:

- [Goal of Economic Sectors Development] Development of urban centres and industrial growth corridors, job creation and investments is promoted for government administration, business sectors, manufacturing sectors and higher education and tourism sectors are promoted, business services and support are provided for manufacturing and other economic sectors within the GKMA, as well as in the JKM Corridor. Taking advantage of improved potentialities of the JKM Corridor, especially due to the construction of the Kampala-Jinja Expressway, the GKMA will promote the development of manufacturing industries and other economic sectors in the JKM Corridor, including part of GKMA by accessing export markets in South Sudan, DRC, Kenya and others as shown in Figure 4.1.1. To seek this goal would make GKMA and GKUGA a primary centre of corporate businesses and international relation for the inland part of the East African Region, as well as for Uganda itself.
- [Goal of Integration and Functionality] Spatial integration and urban centre functionality should be promoted in GKMA, especially in GKUGA, for enhancement of economic productivity and social wellness by reducing inefficient work and life due to traffic congestion.
- [Goal of Liveablity] At the same time, the attainment of a liveable urban environment is promoted for citizens and visitors not only within GKUGA including KCC, but also outside GKUGA within GKMA.
- [Goal of Environmental and Social Sustainability] Furthermore, the environmental and social sustainability of GKMA should be promoted by paying attention to the following aspects:
  - Conservation and wise utilisation and leisure access to wetland and forestry, which are green infrastructure
  - Public accessibility/utilisation and environmental conservation of Lake Victoria waterfront areas
  - Improvement of residential and livelihood environment of unplanned areas and informal settlements equally focused on the needs of low-income people and households.
- [Goal in response to Climate Change] Planning will be cognizant of the impact of existing and projected climate extremes, the need to adapt and increase resilience of infrastructure and to mitigate GHG emission levels, as well as achieving the co-benefit of reducing air pollution.

4.3 Alternative Growth Scenarios for Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA)

As described in Section 3.2, Uganda's government has a national physical development plan seeking more balanced development all over the country of Uganda. In the national physical development plan 2018-2040, the development of regional cities and three growth corridors are envisioned, as shown in Figure 3.2.1. Furthermore, the radial corridors from Kampala including Jinja-Kampala-Mpigi Corridor would place Uganda as the hub of five East African countries.

Paying attention to the urban population growth and economic sectors development of regional cities and growth corridors in the territory of Uganda, as well as those of GKMA, the following three alternative growth scenarios are formulated for GKMA, by considering different degrees of development of regional cities and three growth corridors:

(1) Growth Scenario 1

- GKMA's Population: 16.3 million (2050) and 11.9 million (2040)
- The rest of the population in Uganda: 67.6 million (2050) and 58.0 million (2040)
- Scenario 1 is the case in which not much development is realised in regional cities and the three growth corridors, despite efforts made at developing regional cities, as well as developing the three growth corridors in the regions in accordance with the national-level regional development policies.
- As a result, a larger amount of population influx to the GKMA will continue, and concentrated development of economic sectors will occur in the GKMA.
- As a result, GKMA's population and economic growth continues to grow very rapidly.

(2) Growth Scenario 2 (Selected):

- GKMA's Population: 14.1 million (2050) and 11.1 million (2040)
- The rest of the population in Uganda: 69.8 million (2050) and 58.8 million (2040)
- Scenario 2 is the case in which efforts are made to implement the national-level policy of regional development, "promoting the development of regional cities and industrial development in the three growth corridors", but the degree of realisation of such regional development policy under Scenario 2 is lower than Scenario 3 and higher than Scenario 1. As a result, the degree of realisation of the regional development policy under Scenario 2 among these three alternatives is moderate. However, even in that case, industrial development in the Jinja-Kampala-Mpigi Corridor is relatively well realised because the construction of Kampala-Jinja Expressway has been committed.
- The population size of the GKMA is moderate, and the concentration of economic sectors in the GKMA is also moderate in comparison with the other two scenarios.
- As a result, it will be able to control GKMA's population growth at a moderate growth rate.

(3) Growth Scenario 3 (Desirable but difficult to curb GKMA's population at this level):

- GKMA's Population: 13.0 million (2050) and 10.3 million (2040)
- The rest of the Population in Uganda: 71.0 million (2050) and 59.6 million (2040)
- Scenario 3 is the case in which the national-level regional development policies including the promotion of developing regional cities all over Uganda and Jinja-Kampala-Mukono-Jinja Corridor are very successful. In this scenario, other GKMA corridors including Kampala-Hoima Corridor and Kampala-Gulu Corridor are also successful in attracting industrial development.
- The volume of population influx to GKMA is not so much as the other two scenarios.

- However, it is not easy to achieve the curbing of GKMA's population size like in this scenario.

Comparing these three growth scenarios each other, Scenario 2 is selected because it is more desirable than Scenario 1 and also because it is more realistic (achievable) than Scenario 3. The alternative Future Urban Spatial Structures for GKUGA which are considered in Section 10.1.2 are therefore based on this Selected scenario (Scenario 2).

4.4 Socio-Economic Framework for GKMA

4.4.1 Population Framework

(1) Review of Population Projection in KPDF/KPDP 2012

The most recent population and housing census in Uganda was conducted in 2014. Therefore, the future population framework set in KPDF/KPDP 2012 could not capture the actual situation in 2011, and assumed that the population in Kampala City will continue to grow rapidly. The population estimated to be in the Central Zone (Kampala City, part of Kasangati Town, part of Nansana Municipality and Makindye-Ssabagabo Municipality) was approximately 1.96 million in 2011, while the actual population in 2014 based on the population and housing census was 1.86 million. In addition, the population of Wakiso-Nabweru Zone (Wakiso Town, part of Nansana Municipality and part of Mende Sub County), which was identified as one of the existing centres to develop, and Nakisunga-Ntenjeru Zone (Mpatta Sub County, part of Nakisunga Sub County and part of Ntenjeru Sub County), which was identified as new centre, were also estimated to be larger than the actual population. On the other hand, the population of Nangabo Zone (part of Kasangati Town) and Ssisa-Katabi Zone (part of Kajjansi Town) were estimated to be much less than the actual situation with the population in 2014 already almost reaching the 2022 target population. (See Table 4.4.1.)

Table 4.4.1 Future Population Distribution in KPDF/KPDP and Current Projected Population

	Area (ha)	KPDF/KPDP Population Framework (1)			Estimation based on Census (2)
		Estimation 2011	2022 Target	Long Term Target	2014
Central Zone	25,300	1,960,000	3,240,000	3,630,000	1,860,000
Wakiso-Nabweru	21,600	380,000	580,000	810,000	350,000
Nangabo	12,200	70,000	160,000	460,000	150,000
Mukono-Goma-Kira	20,400	330,000	630,000	880,000	460,000
Nakisunga-Ntenjeru	28,700	120,000	470,000	1,040,000	50,000
Ssisa-Katabi	7,000	60,000	120,000	150,000	110,000
Ssia-Nsangi	20,100	120,000	400,000	750,000	200,000
Entebbe-Katabi	9,700	140,000	240,000	300,000	150,000
Total	145,000	3,175,000	5,850,000	8,000,000	3,300,000

Source (1): KCCA, 2012, Kampala Physical Development Plan Final Report
(2): JICA Expert Team based on Population and Housing Census 2014

This future population framework set in KPDF/KPDP 2012 has delayed the development of necessary infrastructure outside Kampala Capital City in KSPA. Furthermore, the urbanisation of the agglomeration in GKMA has expanded beyond KSPA in the decade since the formulation of KPSF/KPDP 2012.

(2) Future Population for Greater Kampala Metropolitan Area

The three scenarios described in Section 4.3 are considered for the future population framework.

The result of estimated future population described in Section 4.3 are shown in Table 4.4.2. The population in GKMA is expected to increase at a higher rate than the national average in all three scenarios. The average annual growth rate in the GKMA is projected to have started decreasing in

all scenarios, from 4.07% between 2002 and 2014 to 3.19% between 2040 and 2050 in Scenario 1, to 2.46% in Scenario 2 and to 2.37% in Scenario 3.

The area outside GKMA had approximately 89% of the national population in 2014, and it is expected to have in 2050, approximately 81%, 83% and 85% of the national population respectively in Scenario 1, 2 and 3.

In the selected Scenario 2, the population of GKMA is estimated to become approximately 8 million in 2030, 11 million in 2040 and 14 million in 2050. The population is expected to increase by three million in each decade.

Table 4.4.2 Future Population of Uganda and GKMA for Growth Scenarios 1, 2 and 3

		2002*	2014*	2020**	2030**	2040**	2050**
		Census	Census	Estimated	Projection	Projection	Projection
Uganda	Population	24,227,297	34,634,650	41,583,600	55,772,000	69,862,000	83,929,000
	Average Annual Growth Rate	-	3.02%	3.09%	2.98%	2.28%	1.85%
Growth Scenario 1							
GKMA	Population	2,697,340	4,355,072	5,584,000	8359,000	11,898,000	16,286,000
	Average Annual Growth Rate	-	4.07%	4.23%	4.12%	3.59%	3.19%
Outside GKMA	Population	21,519,344	30,279,578	36,000,000	47,413,000	57,964,000	67,643,000
	Average Annual Growth Rate	-	2.89%	2.93%	2.79%	2.03%	1.56%
Growth Scenario 2							
GKMA	Population	2,697,340	4,355,072	5,584,000	8,046,000	11,094,000	14,142,000
	Average Annual Growth Rate	-	4.07%	4.23%	3.72%	3.26%	2.46%
Outside GKMA	Population	21,519,344	30,279,578	36,000,000	47,726,000	58,768,000	69,787,000
	Average Annual Growth Rate	-	2.89%	2.93%	2.86%	2.10%	1.73%
Growth Scenario 3							
GKMA	Population	2,697,340	4,355,072	5,584,000	7,700,000	10,264,000	12,978,000
	Average Annual Growth Rate	-	4.07%	4.23%	3.27%	2.92%	2.37%
Outside GKMA	Population	21,519,344	30,279,578	36,000,000	48,071,000	59,598,000	70,951,000
	Average Annual Growth Rate	-	2.89%	2.93%	2.93%	2.17%	1.76%

Source*: UBOS
Source**: JICA Expert Team

(3) Future Population Framework for GKMA

Table 4.4.3 shows the future population framework of the selected scenario, Scenario 2 for GKMA by district and GKUGA.

The population in 2050 are estimated to become approximately 2.2 million in Kampala Capital City, approximately 1.0 million in Mpigi District, approximately 2.3 million in Mukono District and approximately 8.6 million in Wakiso District.

The population in GKUGA in 2040 and 2050 are expected to become approximately 10.3 million and 13.1 million respectively, while the population of those outside GKUGA in GKMA are expected to become approximately 0.8 million and 1.1 million respectively.

Table 4.4.3 Future Population Framework for GKMA by District

		2014*	2020**	2030**	2040**	2050**
Kampala Capital City	Population	1,507,080	1,685,600	1,972,000	2,180,000	2,234,000
	Annual Growth Rate	-	1.88%	1.59%	1.00%	0.25%
Mpigi District	Population	253,770	301,342	435,000	662,000	998,000
	Annual Growth Rate	-	2.91%	3.74%	4.28%	4.20%
Mukono District	Population	596,804	745,000	1,109,000	1,644,000	2,346,000
	Annual Growth Rate	-	3.77%	4.06%	4.02%	3.62%
Wakiso District	Population	1,997,418	2,852,000	4,530,000	6,609,000	8,564,000
	Annual Growth Rate	-	6.12%	4.73%	3.85%	2.62%
GKMA	Population	4,355,072	5,584,000	8,046,000	11,094,000	14,142,000
	Annual Growth Rate	-	4.23%	3.72%	3.26%	2.46%
Outside Kampala Capital City in GKMA	Population	2,847,992	3,899,000	6,074,000	8,914,000	11,908,000
	Annual Growth Rate	-	5.37%	4.53%	3.91%	2.94%
GKUGA	Population	3,935,000	5,098,000	7,407,000	10,250,000	13,077,000
	Annual Growth Rate	-	4.41%	3.81%	3.30%	2.46%
Outside GKUGA in GKMA	Population	420,000	486,000	639,000	843,000	1,065,000
	Annual Growth Rate	-	2.43%	2.78%	2.81%	2.37%

Source*: UBOS
Source**: JICA Expert Team

4.4.2 Economic Framework for GKMA

(1) Methodology of GRDP Projections

There are regional development plans in each district. However, there are no economic indicators for development such as projected growth rate of GRDP and GRDP by economic sectors.

Therefore, GRDP data, based on the share of the employees by sector from the Census of Business Establishments (2010/11), is used for the starting point of the projections. The steps for calculation are taken as follows:

- Estimating the share of the employed workers by sector for four districts in the whole country, based on the Census of Business Establishments (2010/11).
- Allocating the GDP in 2020 by sector in the whole country to four districts by using these shares of the employed workers of four districts in the country, assuming the value-added amount or the labour productivity per worker in the same sector is the same all over the country.

The share of the number of employees in each district is calculated on the basis of the figures in central region since there is no data by sector at district level, excluding Kampala.

The results of the estimation are summarized in Table 4.4.4 and Table 4.4.5. According to these tables, the GRDP in four districts amounted to UGX 39,701 billion in Kampala, UGX 12,858, billion in Wakiso, UGX 3,026 billion in Mukono and UGX 1,130 billion in Mpigi. The total amount of the four districts (UGX 56,714 billion) is about 48% of GDP of the whole country.

Table 4.4.4 Estimated GRDP and Share of GRDP to National GDP (2020)

(GDP, Uganda Shilling Billion at constant prices, 2009/10)

District	Primary Sector		Secondary Sector		Tertiary Sector		Total	Share
Kampala	2,170.4	5.5%	15,860.3	39.9%	21,670.3	54.6%	39,701.1	100.0%
Wakiso	5,731.4	44.6%	3,227.8	25.1%	3,898.5	30.3%	12,857.7	100.0%
Mukono	1,348.6	44.6%	759.5	25.1%	917.3	30.3%	3,025.5	100.0%
Mpigi	503.7	44.6%	283.7	25.1%	342.6	30.3%	1,130.0	100.0%
GKMA (Total of 4 districts)	9,754.1	17.2%	20,131.3	35.5%	26,828.8	47.3%	56,714.2	100.0%

Source: JICA Expert Team based on Census of Business Establishment, 2010/11

Table 4.4.5 Estimated GRDP and Share of GRDP by District to National GDP (2020)

	Uganda Shilling, billion	%
Kampala City	39,701.1	33.5
Wakiso District	12,857.7	10.9
Mukono District	3,025.5	2.6
Mpigi District	1,130.0	1.0
GKMA (Total of 4 districts)	***56,714.2***	***47.9***
Uganda	118,391.7	100.0

Source: JICA Expert Team based on Census of Business Establishment, 2010/11

(2) Economic Framework for GKMA

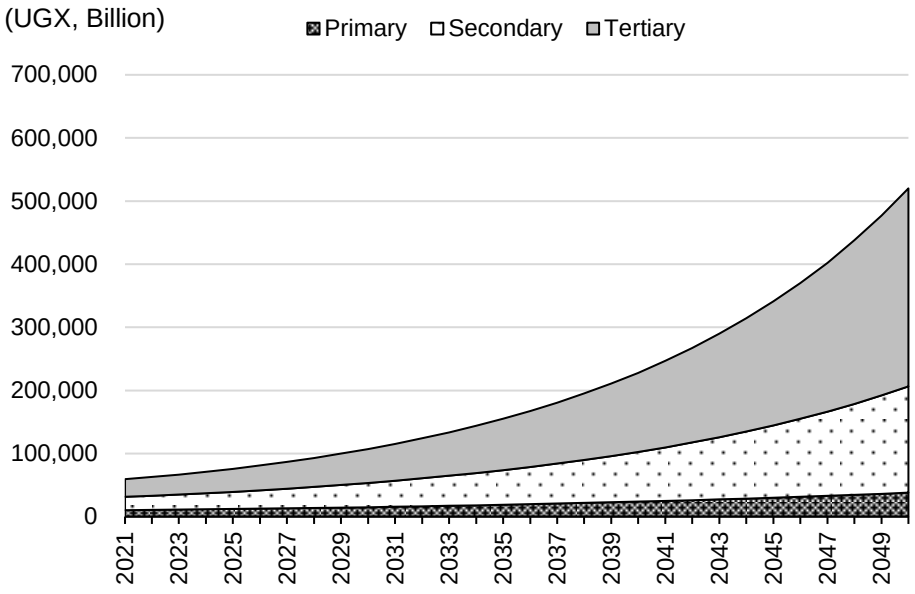
The indicators of economic growth for the case of Scenario 2 described in Section 4.3 are shown in Table 4.4.6.

Table 4.4.6 Annual Real Growth Rates of GDP and GRDP for Every Five Years between 2020 and 2040

	2020-2025 (Projected)	2025-2030 (Projected)	2030-2035 (Projected)	2035-2040 (Projected)	2040-2045 (Projected)	2045-2050 (Projected)
Uganda	5.2	6.4	6.8	7.1	7.6	7.9
Kampala City	6.2	7.6	8.0	8.3	8.7	9.1
Wakiso District	5.3	6.2	6.8	7.1	7.5	7.8
Mukono District	5.4	6.5	7.1	7.5	8.0	8.4
Mpigi District	5.3	6.2	6.7	7.0	7.3	7.7
GKMA	5.9	7.2	7.7	8.0	8.4	8.8

Source: JICA Expert Team

Figure 4.4.1 shows projected GRDP by economic sectors in GKMA from 2020 to 2050. The details are discussed below.



Source: JICA Expert Team

Figure 4.4.1 Projected GRDP by Economic Sectors in GKMA from 2020 to 2050

Table 4.4.7 to Table 4.4.12 illustrate the change of share of economic sector and growth rates by economic sector. The aspects considered are summarized below.

- In the whole country and four districts, while the share of agriculture sector to GDP may decrease, industrial and service sectors become more important industries.

- In the secondary sector, an increase in oil production is planned after 2024/25, though there may not be direct impacts on GKMA. However, several industrial parks in surrounding areas of Kampala, as well as planned industrial growth corridors, are a great business opportunity.
- The expansion of the service sector is consequent on the increase in urbanisation, driven by rapid natural increase in urban population as well as migration. It is to some extent self-generating and not driven by the secondary sector (industries).
- Infrastructure development and industrial agglomerations in industrial growth corridors, particularly in Wakiso, Mukono, and Mpigi Districts, may lead to an increase in job opportunities and then, an income increase. As a result, it may cause a development of service industry.

Table 4.4.7 Change of Economic Structure in Uganda

(a) Change of Share of Economic Sector

	GDP (Uganda Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Actual)	118,392	25.1	28.9	45.9
2025 (Projected)	152,763	23.7	30.0	46.3
2030 (Projected)	208,459	21.1	30.8	48.0
2035 (Projected)	289,687	18.5	31.4	50.1
2040 (Projected)	408,433	16.0	31.8	52.2
2045 (Projected)	587,806	13.5	32.0	54.5
2050 (Projected)	860,319	11.2	32.0	56.8

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2040

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	4.0	6.0	5.4	5.2
2025-2030 (Projected)	4.0	7.0	7.2	6.4
2030-2035 (Projected)	4.0	7.2	7.7	6.8
2035-2040 (Projected)	4.0	7.4	8.0	7.1
2040-2045 (Projected)	4.0	7.6	8.5	7.6
2045-2050 (Projected)	4.0	7.9	8.8	7.9

Source: JICA Expert Team

Table 4.4.8 Change of Economic Structure in Kampala Capital City

(a) Change of Share of Economic Sector

	GRDP (Uganda Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Estimated)	39,701	5.5	39.9	54.6
2025 (Projected)	53,585	4.9	40.0	55.1
2030 (Projected)	77,297	4.1	39.2	56.7
2035 (Projected)	113,430	3.3	38.0	58.6
2040 (Projected)	168,815	2.7	36.7	60.6
2045 (Projected)	256,479	2.1	35.1	62.8
2050 (Projected)	395,902	1.7	33.4	64.9

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2050

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	3.8	6.2	6.4	6.2
2025-2030 (Projected)	3.8	7.2	8.2	7.6
2030-2035 (Projected)	3.8	7.3	8.7	8.0
2035-2040 (Projected)	3.8	7.5	9.0	8.3
2040-2045 (Projected)	3.8	7.7	9.4	8.7
2045-2050 (Projected)	3.8	8.0	9.8	9.1

Source: JICA Expert Team

(c) Change of Share of GRDP to National GDP

	2020 (Estimated)	2025 (Projected)	2030 (Projected)	2035 (Projected)	2040 (Projected)	2045 (Projected)	2050 (Projected)
Kampala City	33.5%	35.1%	37.1%	39.1%	41.3%	43.6%	46.0%

Source: JICA Expert Team

Table 4.4.9 Change of Economic Structure in Wakiso District

(a) Change of Share of Economic Sector

	GRDP (Uganda Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Estimated)	12,858	44.6	25.1	30.3
2025 (Projected)	16,673	42.8	26.0	31.1
2030 (Projected)	22,538	39.5	27.1	33.4
2035 (Projected)	31,305	36.3	27.9	35.8
2040 (Projected)	44,110	32.9	28.6	38.6
2045 (Projected)	63,296	29.2	29.0	41.7
2050 (Projected)	92,350	25.6	29.4	45.0

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2050

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	4.5	6.1	5.9	5.3
2025-2030 (Projected)	4.5	7.1	7.7	6.2
2030-2035 (Projected)	5.0	7.4	8.3	6.8
2035-2040 (Projected)	5.0	7.6	8.7	7.1
2040-2045 (Projected)	5.0	7.8	9.2	7.5
2045-2050 (Projected)	5.0	8.1	9.5	7.8

Note: The figures for 2040-2045 and 2045-2050 are to be added.
Source: JICA Expert Team

(c) Change of Share of GRDP to National GDP

	2020 (Estimated)	2025 (Projected)	2030 (Projected)	2035 (Projected)	2040 (Projected)	2045 (Projected)	2050 (Projected)
Wakiso District	10.9%	10.9%	10.8%	10.8%	10.8%	10.8%	10.7%

Source: JICA Expert Team

Table 4.4.10 Change of Economic Structure in Mukono District

(a) Change of Share of Economic Sector

	GRDP (Uganda Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Estimated)	3,026	44.6	25.1	30.3
2025 (Projected)	3,943	42.6	26.4	31.0
2030 (Projected)	5,400	38.8	27.7	33.6
2035 (Projected)	7,600	35.2	28.4	36.5
2040 (Projected)	10,896	31.3	28.8	39.9
2045 (Projected)	15,974	27.3	28.9	43.8
2050 (Projected)	23,874	23.3	28.8	47.9

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2050

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	4.5	6.5	5.9	5.4
2025-2030 (Projected)	4.5	7.5	8.2	6.5
2030-2035 (Projected)	5.0	7.6	8.9	7.1
2035-2040 (Projected)	5.0	7.8	9.4	7.5
2040-2045 (Projected)	5.0	8.0	9.9	8.0
2045-2050 (Projected)	5.0	8.3	10.3	8.4

Source: JICA Expert Team

(c) Change of Share of GRDP to National GDP

	2020 (Estimated)	2025 (Projected)	2030 (Projected)	2035 (Projected)	2040 (Projected)	2045 (Projected)	2050 (Projected)
Mukono District	2.6%	2.6%	2.6%	2.6%	2.7%	2.7%	2.8%

Source: JICA Expert Team

Table 4.4.11 Change of Economic Structure in Mpigi District

(a) Change of Share of Economic Sector

	GRDP (Uganda Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Estimated)	1,130	44.6	25.1	30.3
2025 (Projected)	1,464	42.9	25.9	31.2
2030 (Projected)	1,976	39.6	26.9	33.5
2035 (Projected)	2,732	36.5	27.6	35.9
2040 (Projected)	3,825	33.3	28.2	38.5
2045 (Projected)	5,451	29.8	28.6	41.6
2050 (Projected)	7,892	26.3	28.9	44.8

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2040

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	4.5	6.0	5.9	5.3
2025-2030 (Projected)	4.5	7.0	7.7	6.2
2030-2035 (Projected)	5.0	7.2	8.2	6.7
2035-2040 (Projected)	5.0	7.4	8.5	7.0
2040-2045 (Projected)	5.0	7.6	9.0	7.3
2045-2050 (Projected)	5.0	7.9	9.3	7.7

Source: JICA Expert Team

(c) Change of Share of GRDP to National GDP

	2020 (Estimated)	2025 (Projected)	2030 (Projected)	2035 (Projected)	2040 (Projected)	2045 (Projected)	2050 (Projected)
Mpigi District	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%

Source: JICA Expert Team

Table 4.4.12 Change of Economic Structure in the GKMA

(a) Change of Share of Economic Sector

	GRDP (Uganda Shilling Billion, at 2009/10 constant prices)	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)
2020 (Estimated)	56,714	17.2	35.5	47.3
2025 (Projected)	75,665	15.9	35.9	48.1
2030 (Projected)	107,211	13.9	35.9	50.2
2035 (Projected)	155,067	12.1	35.3	52.5
2040 (Projected)	227,647	10.4	34.6	55.0
2045 (Projected)	341,199	8.8	33.5	57.7
2050 (Projected)	520,019	7.3	32.4	60.3

Source: JICA Expert Team

(b) Annual Growth Rates by Economic Sector by Five Years between 2020 and 2050

	Primary Sector (%)	Secondary Sector (%)	Tertiary Sector (%)	Total (%)
2020-2025 (Projected)	4.3	6.2	6.3	5.9
2025-2030 (Projected)	4.3	7.2	8.1	7.2
2030-2035 (Projected)	4.8	7.3	8.6	7.7
2035-2040 (Projected)	4.8	7.5	9.0	8.0
2040-2045 (Projected)	4.8	7.8	9.5	8.4
2045-2050 (Projected	4.8	8.0	9.8	8.8

Source: JICA Expert Team

(c) Change of Share of GRDP to National GDP

	2020 (Estimated)	2025 (Projected)	2030 (Projected)	2035 (Projected)	2040 (Projected)	2045 (Projected)	2050 (Projected)
GKMA	47.9%	49.5%	51.4%	53.5%	55.7%	58.0%	60.4%

Note: The figures for 2045 and 2050 are to be added.
Source: JICA Expert Team

The above future economic framework shows that the greatest share of projected growth in GDP is in Kampala Capital City, with declines in both agricultural (from 5.5% to 1.7% of GDP, which is already small) and industrial sectors (from 39.9% to 33.4% of GDP with industries moving out of the city) and a growth in services, such as in the CBD from 54.6% to 64.9%, which aligns with its role as the capital city and East African regional hub. Wakiso, Mukono and Mpigi see more rapid declines in agriculture (from 44.5 to 25.2%, partly driven by change to urban land uses), more rapid growth in both services (from 30.3% to 45.6% driving urban expansion) and industry (growing by 4% on industrial sites and corridors). However, in general, the three districts' share of GDP does not increase as rapidly as that of Kampala Capital City.

Chapter 5 Policies for Economic Sectors Development in Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA) and Kampala Capital City (KCC)

5.1 Present Situation of Economic Sectors in GKMA including GKUGA and KCC

5.1.1 Major Economic Sectors in Uganda and GKUGA

(1) Composition of Economic Activities in Uganda[1]

The major constituents of Ugandan GDP are as follows:

- Agricultural production (31% of GDP in 2011 and declining)
- Services sector (41% and rising)
- Industry including mining and construction (continuing at 28%)

In terms of livelihoods, agriculture (mostly small scale) employs around 70%; industry, 22%; and services, 7% of Uganda's population. Employment is mainly informal, contributing 51% of GDP[2], 78% of the labour force being individual small-scale farmers / traders / producers / service providers, those belonging to the many unregistered businesses or the one million plus small-scale enterprises (mostly in the trading or services sector) whose turnover is below the tax threshold.

The growth of the informal sector is a consequence of the high population growth, an important source of livelihood for the less educated, youth and women who would not otherwise find employment in the formal economy.

The relatively low degree of formalization is reflected in the numbers employed in formally registered businesses in 2011, which were only 46,000 in Agriculture, 159,000 in Industry and 873,000 in the service sector[3] (of which trade was 61%). Even of these, 70% were very small with a turnover of less than $USD 2,000 per year (2011 rate). Only 10% of businesses had a turnover of more than $4,000 per year, but these were responsible for 60% of value added and employed 58% of those employed in formal businesses[4]. 98% of businesses were Ugandan owned.

Looking at both the numbers employed and the numbers and size of businesses, it will be seen that the great majority of businesses whether in industry or services were very small, such as are found on road reserves and mixed use and unplanned areas, whereas the numbers of businesses that are big enough to occupy properly serviced industrial sites are small per sector but employ more people.

The Ugandan owned, relatively small-scale industrial sector is unlikely to be able to achieve the level of capital formation required for any major shift to economic growth based on industrialisation. This will have to involve Foreign Direct Investment (FDI) on larger sites and Special Economic Zones such as are now being witnessed as emerging beyond GKMA. These in turn can drive expansion of MSMEs and informal (unregistered) businesses, such as those within GKMA on industrial corridors, which are most likely to be smaller.

[1] Chapter 5 of Progress Report 1 for GKMA-UDMP.
[2] World Bank and ILOSTAT 2022 quoted in Economic Policy Research Centre, Uganda, Amos Sanday, 2023
[3] Trade and Industry Sector Statistical Abstract 2017-2018
[4] Trade and Industry Sector Statistical Abstract 2017-2018

But as noted in Chapter 4, the rate of growth of GDP in the industrial sector in GKMA by 2040 is only projected to be half of that in services, the latter being the driver of emerging sub-centres in GKMA, but which is again dominated by smaller enterprises.

The switch to formal and properly serviced growth is the aim, but it must be recognised that this will not be a short or even medium term development, given the current state of Uganda's economy.

(2) Dynamics and Direction of Growth of the Ugandan Economy

Uganda imports more tradeable goods than it exports. Imports are essential to a modernising economy that uses cars, mobile phones, etc. But the export of tradeable goods is a key to earning the foreign currency needed to pay for the imports.

Uganda's exports consist mainly of the following:

- Export of unprocessed agricultural products and commodities (including minerals) mostly to international partners outside the EAC, which do their own value addition to boost their own economic growth[5].
- Export of Uganda-manufactured goods, mostly to EAC neighbours.

There are also inward currency flows from remittances of Ugandans abroad, foreign aid and export of gold which is refined in large quantities in Uganda.

This explains the call for increased agricultural production and value addition, and why the theme of NDP III is *"Sustainable industrialisation for inclusive growth, employment and wealth creation"*. it is only by this that the value of tradeable goods that can be exported will increase, and enable the country to buy or make for itself the advanced tools, machinery, communication and mobility essentials which underpin a "modern and prosperous country" (Vision 2040).

Sustainable industrialisation is also seen as a main vehicle for increasing livelihoods and inclusive productivity.

(3) Industrialisation in Uganda

Three categories of manufacturing value chains are prioritised for development in NDPIII under the above theme and in the National Industrial Policy (NIP 2020):

- Agro-Based Industries: Fruits, Coffee, Cotton, Textiles and Apparels, Tea, Cassava, Grains, Oil Seeds, Sugar Cane, Bananas, Dairy, Leather, and Leather Products[6]
- Extractive-Based Manufacturing Industries: Iron and Steel, Oil and Gas (LPG), Synthetics, Plastics, Petrochemicals, Salt, Cement, and Fertilisers (for both international and EAC exports)
- Knowledge-Intensive Industries: Pharmaceuticals, Automobiles, Electricals and Electronics, and Product Assembling (for import substitution and EAC markets)

5.1.2 High Concentration of Manufacturing Sector in GKUGA including KCC[7]

The spatial characteristics of these manufacturing sectors are broad that **agriculture production** is located mostly in rural areas, **services sector** mostly in urban areas (increasing with rapid urbanisation), and **industry** including mining sector (mining and quarrying, oil and gas) and construction sector, etc. in both rural and urbanising (small scale industries) areas.

While GKUGA represents 10% of Uganda's population, it contributes to over a third of the national GDP. Kampala accounts for approximately a third of manufacturing GDP in Uganda, especially non-agriculture-related manufacturing, such as chemicals and machinery. Moreover, it

[5] In a recent address to the nation (July 2022), H.E. President called the export of raw commodities, whose value is mostly extracted by developed countries, as a form of "theft".
[6] Noting that some of these are commodities for international export, some are exported within the EAC
[7] Chapter 10 of Progress Report 1 for GKMA-UDMP.

is estimated that 70% of the country's manufacturing plants are clustered in GKUGA. Table 5.1.1 shows the distribution of industrial areas in the GKMA.

Kampala's GDP growth is being driven by its manufacturing and other tradeable goods and services sector. 80% of its population lives in informal settlements and works in informal employment.

Table 5.1.1 Distribution of Industrial Areas in the GKMA, Year 2022

	Within KCC	WIthin GKUGA outside KCC	WIthin GKMA outside GKUGA	WIthin GKMA (Total)
Kampala Capital City	758.0	N.A.	N.A.	758.0
Wakiso District	N.A.	840.2	0.0	840.2
Mukono District	N.A.	1,033.1	0.0	1,033.1
Mpigi District	N.A.	49.2	36.2	85.4
Total	758.0	1,922.6	36.2	2,716.8

Sources: JICA Study Team, based on the interpretation of Orthophoto prepared by World Bank supported Project "Three-Dimensional Oblique Aerial Imagery" by AAM Geomatics Pty Ltd., OpenStreetMap (Accessed Dec 2022), and ground truthing by the JICA Expert Team in 2022

5.1.3 Industrial Growth Potentials in Jinja-Kampala-Mpigi Corridor

The JKM PDP (JKM 4.3, pp. 21-22) also notes that with regard to the impact of industrial growth on the objective of inclusive growth and employment, *"the manufacturing sector in Uganda has strong backward linkages to primary sectors – each increase in manufacturing output raises output in primary sectors several times over, and this applies particularly to the goods which are traded within the EAC".*

Furthermore, the JKM Corridor PDP emphasises that "*while the importance of integrating Uganda into global value chains* (i.e., producing manufactured products for export to North America, Europe and Asia) *is "highlighted in the NIP, and should not be wholly discounted, these value chains are highly cost competitive and, as noted above, often do not generate the substantial linkages to the rest of the economy necessary for transformative and inclusive economic development. At the same time, sectors with regional comparative advantage should be prioritised, i.e., sectors where Uganda's exports within the EAC have a comparative advantage such as 'Food & Beverages' (18 percent of EAC imports), 'Wood & Furniture' (12 percent) and 'Non-metallic Mineral Products' (10 percent)".* (JKM 4.3, pp. 21-22)

5.1.4 Target Categories of Manufacturing Sectors for JKM Corridor including GKMA

As discussed in the previous sections, GKMA has accumulated 70% of Uganda's manufacturing plants. In the future, based on the international connectivity advantage through Northern Corridor to Mombasa Port, the strong accumulating power of manufacturing will be seen widely in the JKM Corridor including the GKMA. The following three categories of manufacturing sectors mentioned as Uganda industrialisation targets by NIP 2020 can be considered for industrial growth corridors of GKMA and JKM Corridor:

- Agro-Based Industries: Fruits, Coffee, Cotton, Textiles and Apparels, Tea, Cassava, Grains, Oil Seeds, Sugar Cane, Bananas, Dairy, Leather, and Leather Products[8]
- Extractive-Based Manufacturing Industries: Iron and Steel, Oil and Gas (LPG), Synthetics, Plastics, Petrochemicals, Salt, Cement, and Fertilisers (for both international and EAC exports)
- Knowledge-Intensive Industries: Pharmaceuticals, Automobiles, Electricals and Electronics, and Product Assembling (for import substitution and EAC markets)

[8] Noting that some of these are commodities for international export, some are exported within the EAC

5.1.5 Development Potentials of Tourism Sector in GKMA, GKUGA and KCC

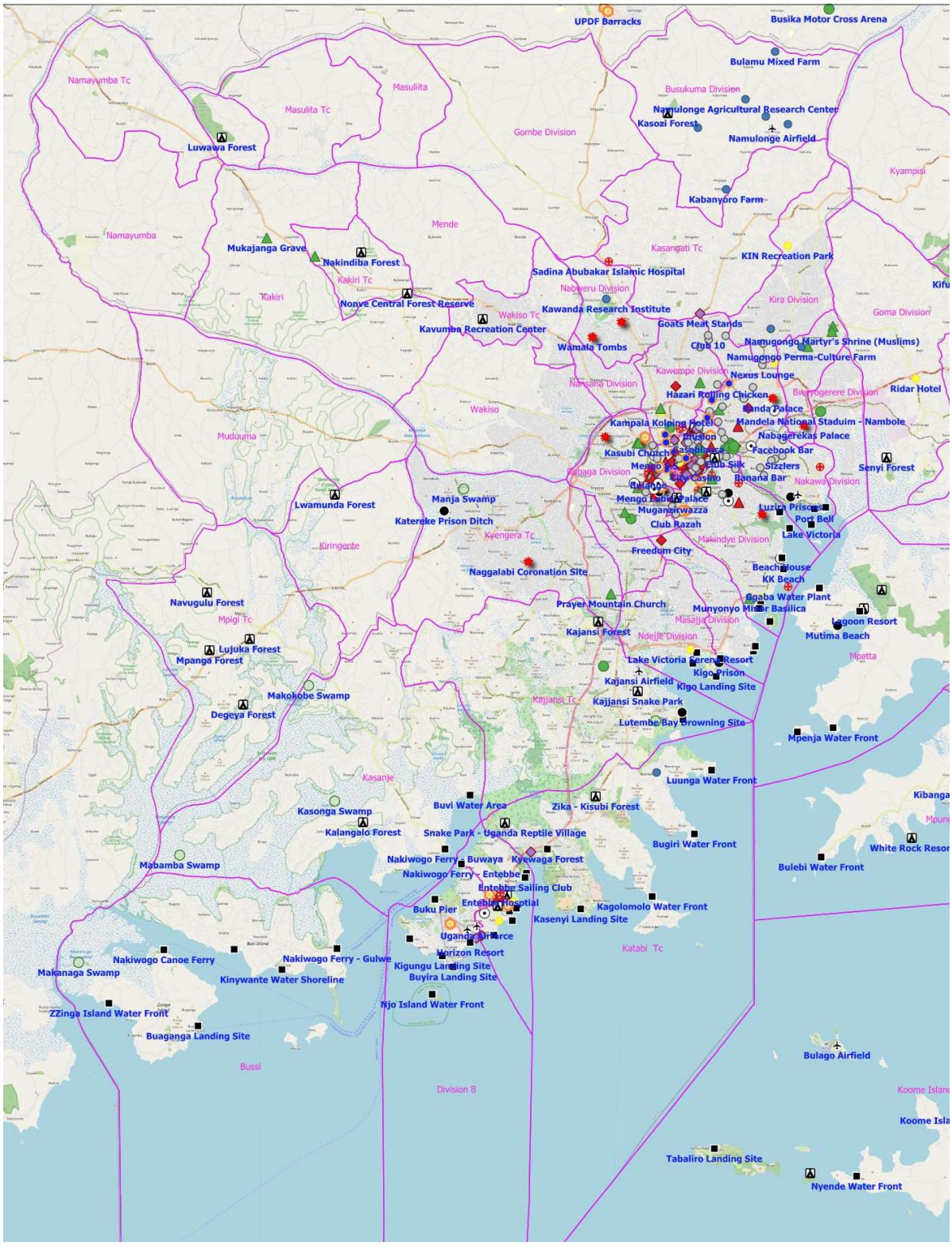
GKMA is endowed with vast tourism assets ranging from nature-based attractions including Lake Victoria, forests, and wetlands, to popular cultural and religious attractions and historical sites, conference and meetings facilities, medical and educational facilities which attract visitors.

In the GKMA, current District Development Plans have stronger emphasis on the tourism sector than the manufacturing industry. The main reason for a focus on tourism is the high level of foreign currency generated by leisure tourists, especially those who go to wildlife parks.

Apart from the Uganda Martyrs annual pilgrimage to Namugongo in Mukono District, the leisure tourism sector is strongest in Entebbe and other lake front locations in Wakiso where *"there are 488 hotels, guest houses, lodges and inns; over 11 beaches on Lake Victoria which have been developed for recreation purposes, and are very popular at weekends; the wild game at UWEC Zoo; Ngamba island resort where chimpanzees abound; Lutembe and Mabamba bays*[9]*."*

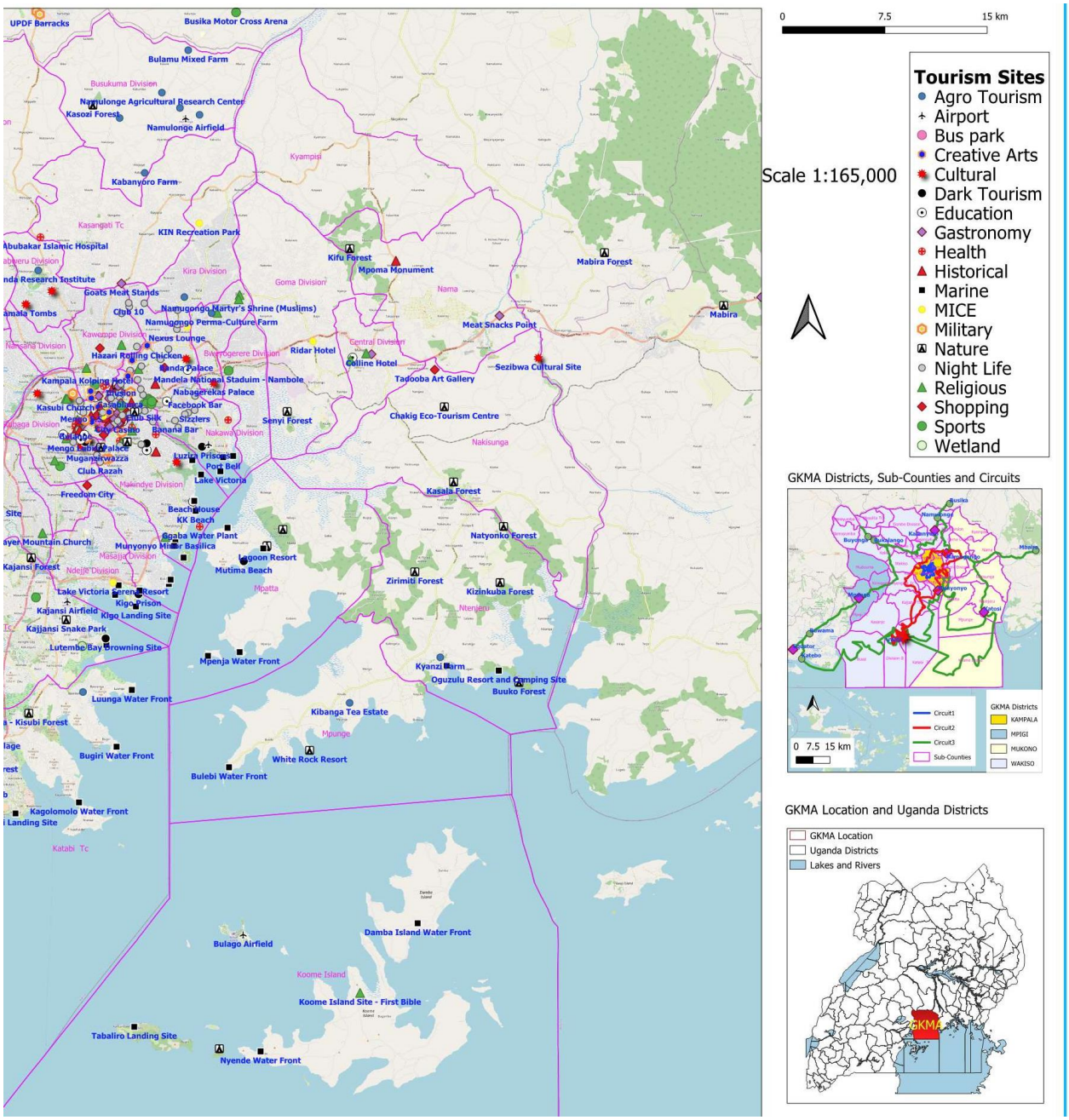
Extensive wetlands dominate the Mpigi lake front (with its Ramsar site and bird sanctuaries offering world-class bird watching experience) which also houses the Equator, but investment in tourism infrastructure in this area is yet small. On the other side of GKMA in Mukono District, the extensive lake front is also neither yet accessible nor developed for tourism, although the opportunity is also there. Figure 5.1.1 and Figure 5.1.2 show the location of tourism sites available in the GKMA.

[9] Wakiso District Development Plan 2020-21 to 2024-25



Source: Annex 3 Tourism Sites, Report on Feasibility Study for the Establishment of the Greater Kampala Tourism Circuit Project

Figure 5.1.1 Tourism Sites in the GKMA (1)



Source: Annex 3 Tourism Sites, Report on Feasibility Study for the Establishment of the Greater Kampala Tourism Circuit Project

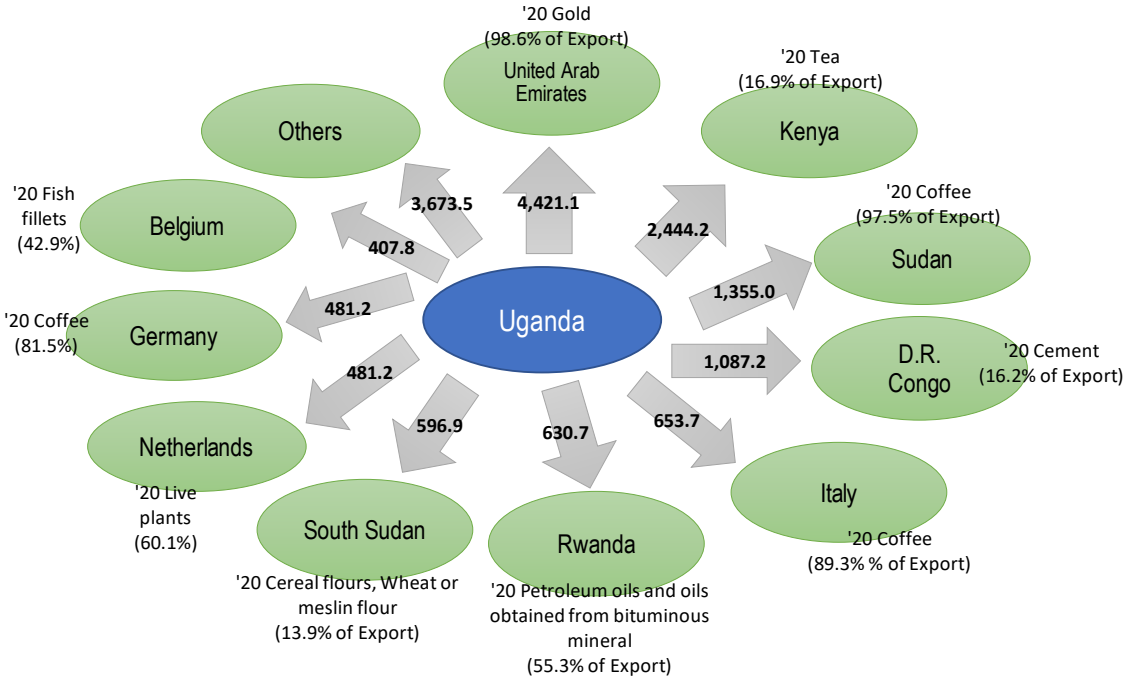
Figure 5.1.2 Tourism Sites in the GKMA (2)

5.3 Policies for Economic Sector Development in GKMA including GKUGA and KCC

5.3.1 Policies for Promoting the Manufacturing Sector to Be Targeted by the JKM Corridor including GKMA, GKUGA and KCC

(1) Intended Strategic Spatial Disposition of the Economies in the GKMA

When considering locations of industrial production, it is important to know the locations of the regional and international markets which industries in the GKMA (the hub not only of JKM Corridor but also of other corridors to the north and east) need to access. Knowing the specific corridors where specific tradeable goods need to move and how much is exported to where, is a factor in determining the spatial strategy for the GKMA.



Source: JICA Study Team, based on International Trade Centre (ITC) data

Figure 5.3.1 Uganda's Exports by Product and Country (2016-2020), in Thousands US Dollars

Ninety-eight percent of international, non-EAC Ugandan trade goes through Mombasa Port in Kenya. This applies both to the exports to international markets as described above and to imports, which are around 65% of the total value of each. The implication is clear – that the corridor which accesses Mombasa, eastwards from Kampala is the most significant – as is reflected in the JKM Corridor PDP.

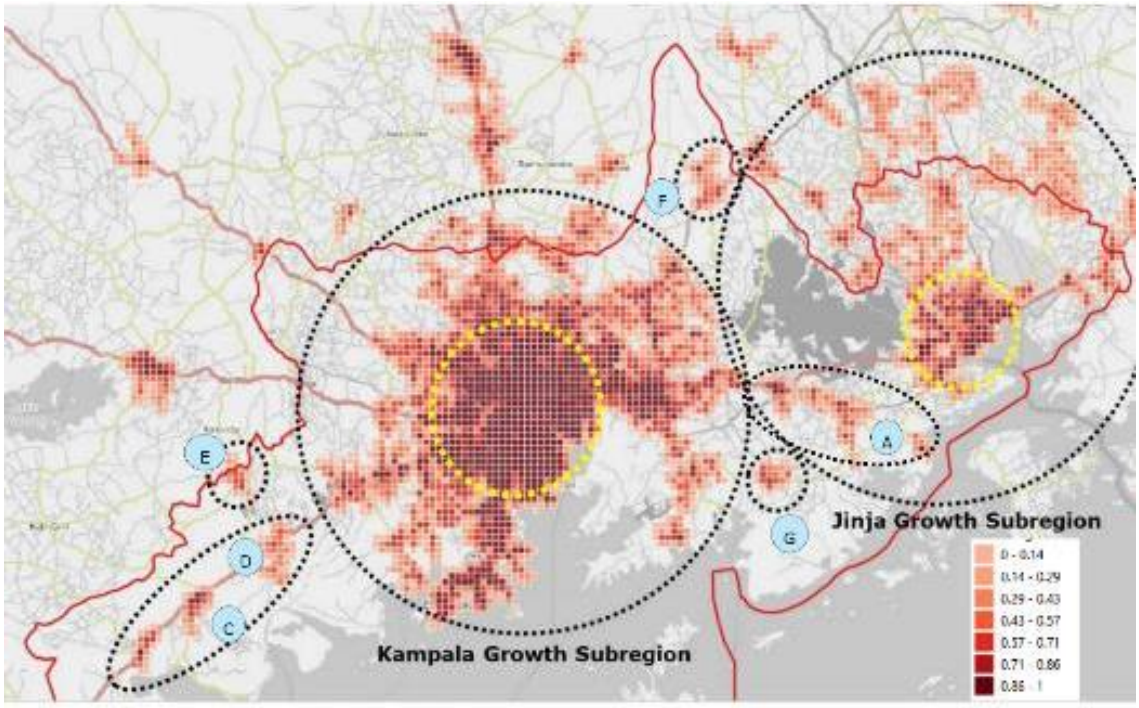
However, in terms of tradeable manufactured goods with backward linkages, the routes to DRC (7% of exports in 2020), Rwanda 4% and South Sudan (4%) are also important to know in terms of *planned growth corridors for increased access to regional and international markets*. Although the quantities seem small, they can also be seen to be distorted by the value of gold exported to the UAE (from the refinery at Entebbe which is mostly supplied from RSA, TZ and Kenya). These are the growth sectors with the greatest potential for backward linkages, increasing output in primary sectors.

Increased global insecurity and competition between, for example, G7/NATO and BRICS may also favour growth through regional integration over other international markets [10].

(2) JKM Corridor as the Industrial Hub of East Africa and GKMA

The GKMA-UDMP takes direction from the JKM Corridor PDP's use of the Uganda Vision 2040 and it's NDPIII industrialisation theme, aiming for the corridor to become the industrial hub of East Africa, picking up the NDPIII objectives of *"… investing in infrastructure, including serviced industrial parks, to support manufacturing (including for import substitution and enhanced exports)….in the planned growth corridors (of which JKM is at the heart) …..for increased access to regional and international markets"*.

The JKM Corridor PDP identifies two metropolitan regions within the JKM Corridor, one of which is the Kampala Growth Subregion that is substantially within the Greater Kampala Urban Growth Area (GKUGA).



Source: JKM Corridor PDP Draft Report, 2022: Chapter 3 Spatial Development and Framework and Strategy. "Figure 55 Two Metropolitan Regions in JKM" based on COWI A/S Analysis of CIESIN GRID Data.

Figure 5.3.2 Two Metropolitan Regions in the JKM Corridor

5.3.2 Policies for Promoting Tourism Sector in GKMA, GKUGA and KCC[11]

Despite GKMA's endowed tourism assets, its tourism potentials have been untapped, and the tourism sector in GKMA has been relatively underdeveloped and attracted a low volume of visitors.

GKMA can target the following six categories of tourists:

- Adventurers
- Business Travellers

[10] "The erosion of confidence will slow down investment in regions deemed insufficiently secure. Globalisation among "friends" may become a new norm. Fragmentation of the global space concerns not only goods and capital but also technical standards, used as a tool for market control. The potential benefits and difficulties of regional association are widely understood in Africa but the uncertain consolidation of national states and political systems makes progress difficult and results uncertain. Nevertheless, it seems inevitable that sustainable long-term development will hinge on diversification and growth of industries and services dependent on wider markets offered by regional integration and enhanced opportunities to link with external markets." Source: ISMERI EUROPA VI International Seminar Development Trajectories in the 21st Century, Poggio Mirteto (Italy), 12 - 16 June 2022

[11] This section is based on the analysis and recommendation by the World Bank supported "Feasibility Study for the Establishment of the Greater Kampala Tourism Circuit Project."

- Emerging Explorers
- City Break Travellers
- Nature Lovers
- Marine Adventurers

As the Third National Development Plan (NDPIII) recognised, the leading impediments to tourism development in the GKMA is the undeveloped infrastructure.

Due to insufficient infrastructure investment to cope with population growth and concentration within GKMA, a number of attractions is not easily accessible due to the state of poor access roads and severe traffic congestion.

In this circumstance, a tourism circuit development strategy has been formulated. An investment plan for tourism infrastructure has been developed to support the following three levels of circuits of tourism within the GKMA:

- **GKMA-Wide: Circuit 1:** GKMA Heartland Circuit: Circuit 1 is called GKMA Heartland Circuit and has a total distance of 46 km starting from National Theatre, which is also its start and end point.
- **GKUGA-Wide: Circuit 2:** GKMA Suburb Circuit: Circuit 2 is called GKMA Suburb Circuit, has a total distance of 181 km.
- **KCC-Wide: Circuit 3:** GKMA Urban Fringe Circuit: Circuit 3 has a total distance of 181 km.

These three tourism circuits are shown in Figure 5.3.3.

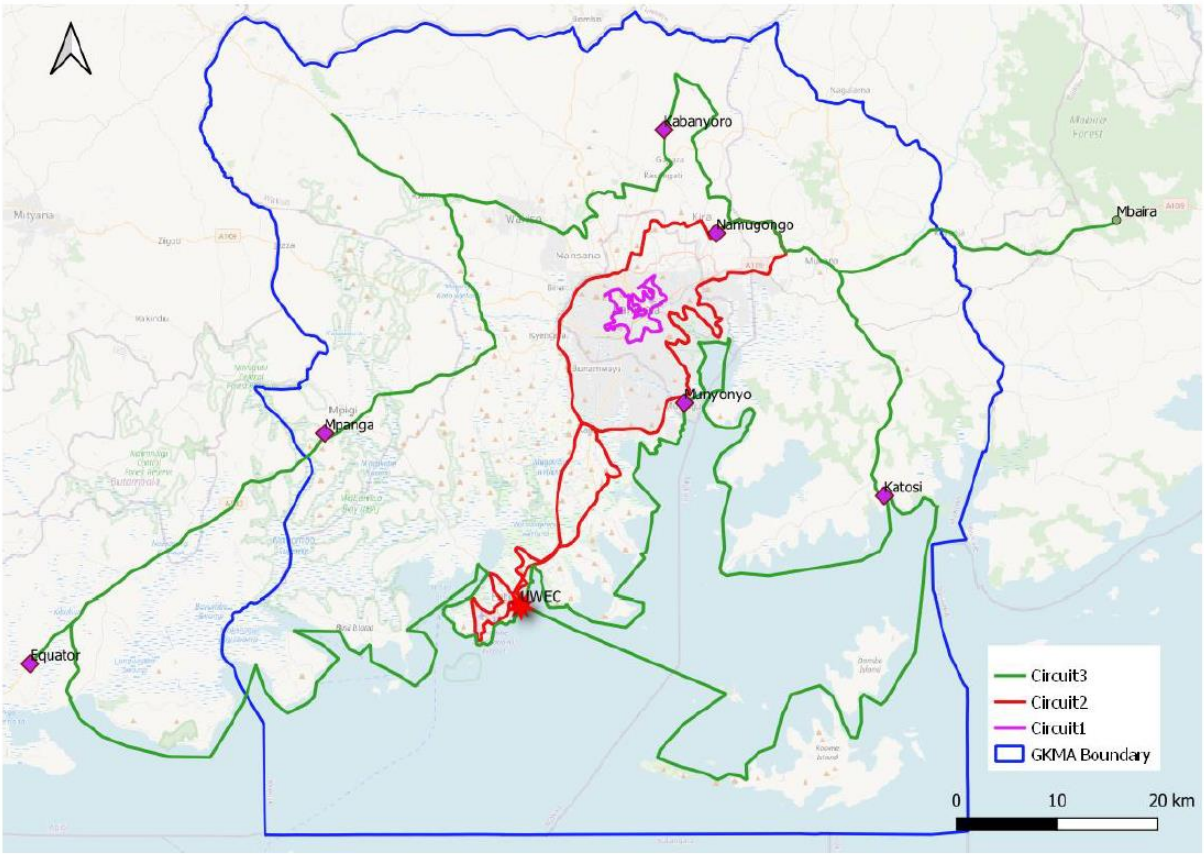
The tourism infrastructure to be rehabilitated and upgraded for the establishment of these tourism circuits are various covering the following kinds of infrastructure:

1) Tourism Site Access Roads

- Road Surface
- Road Marking
- Road Signage
- Road Walkways
- Bus Stops
- Roadside Seats
- Streetlights

2) Tourist Site Infrastructure and Amenities

- Sanitation Facilities
- Water and Power Supply
- Internet and Mobile Telephone Network Coverage
- Shopping Centres



Note: The GKMA boundary in this figure is not the same as the GKMA definition by the Kampala Capital City Act 2010.
Source: Feasibility Study for the Establishment of the Greater Kampala Tourism Circuit Project

Figure 5.3.3 The Three Tourism Circuits in GKMA

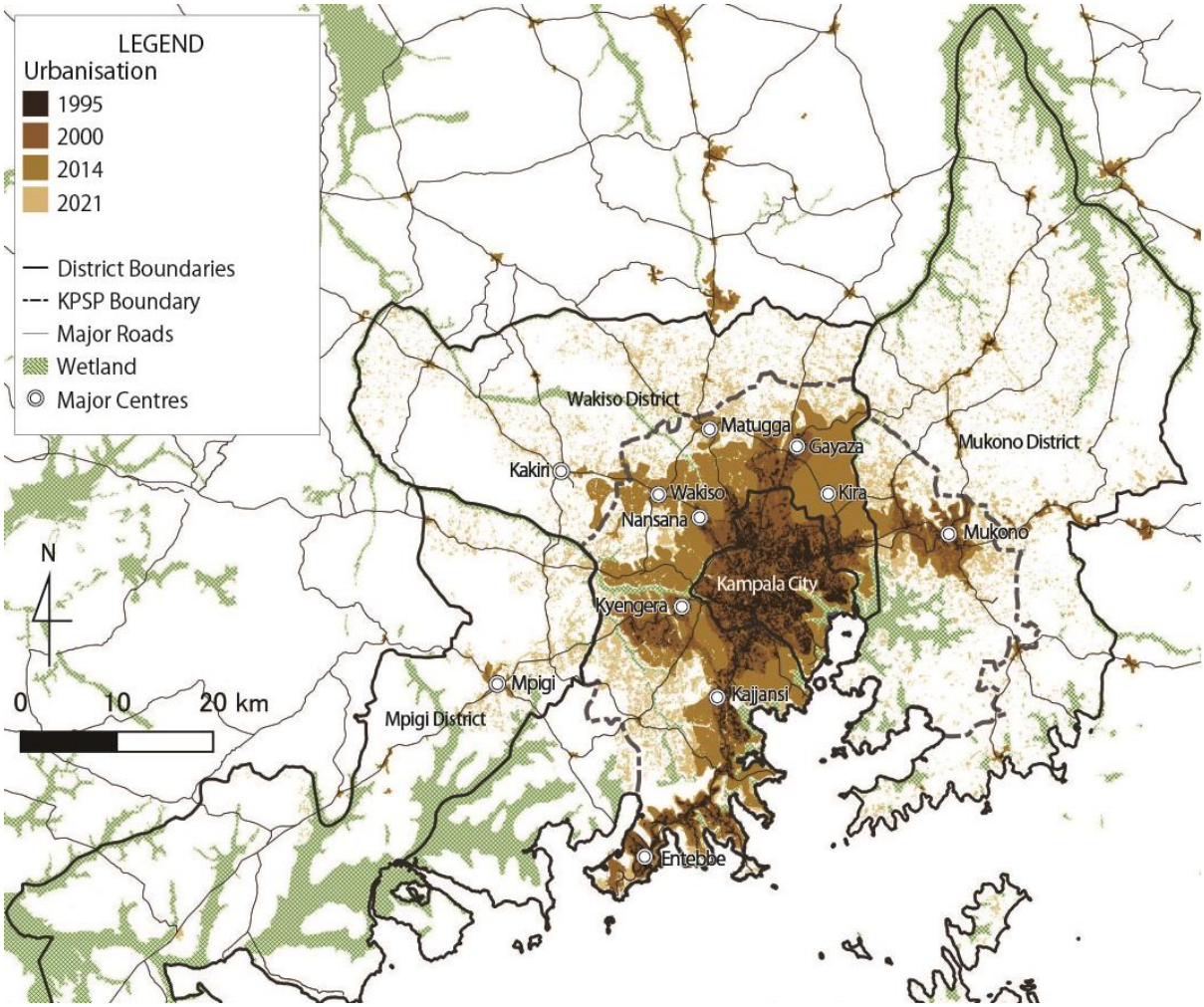
Chapter 6 Policies for Spatial Development in Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA) and Kampala Capital City (KCC)

6.1 Present Situation of Spatial Structures in GKMA including GKUGA and KCC

6.1.1 Spatial Characteristics of GKMA (Outside GKUGA Within GKMA, Within GKUGA Outside KCC, and Within KCC)

(1) A Large Mass of Urbanising Areas Continually Expanding from Kampala in the GKMA and Dominance of Rural Areas in the GKMA

The most salient spatial feature of GKMA is the presence of a large mass of urbanising areas (over 1,000 km^2), which have been continually expanding from the Kampala Capital City (KCC), as shown in Figure 6.1.1.



Source: JICA Expert Team based on Landsat 5 TM acquired on 1995/10/19, Landsat 7 ETM+ acquired on 2000/03/29, Landsat 8 OLI TIRS acquired on 2014/01/14, and Landsat 8 OLI TIRS acquired on 2021/11/10.

Figure 6.1.1 Urbanisation in GKMA (1995–2021)

The urbanised areas within the GKMA in 2021 accounted for 19% of its total area, while the percentages of urbanised areas in GKMA were 57% in 1995, 42% in 2000, and 23% in 2021, as shown in Table 6.1.1. Over 94% of the area in KCC had become urbanised areas, while 33% of Wakiso District area is urbanised, 9% is urbanised in Mukono District, and only 3% is urbanised in Mpigi District, as shown in Table 6.1.1 .

Table 6.1.1 Urbanised Areas by District in the GKMA (1995, 2000, 2014 and 2021)

Year / District	Urbanised Area				Total Surface Area	% of Urbanised Areas in Each District (2021)
	1995	2000	2014	2021		
Kampala	67.7 km²	144.4 km²	170.4 km²	172.6 km²	182.2 km²	94.7%
Wakiso	44.3 km²	160.1 km²	486.3 km²	628.7 km²	1,926.5 km²	32.6%
Mukono	5.6 km²	33.5 km²	73.5 km²	168.2 km²	1,859.9 km²	9.0%
Mpigi	1.0 km²	1.3 km²	6.9 km²	36.6 km²	1,214.1 km²	3.0%
GKMA Total	118.6 km²	339.2 km²	737.1 km²	1,006.1 km²	5,182.7 km²	19.4%

Source: JICA Expert Team based on Landsat 5 TM acquired on 1995/10/19, Landsat 7 ETM+ acquired on 2000/03/29, Landsat 8 OLI TIRS acquired on 2014/01/14 and Landsat 8 OLI TIRS acquired on 2021/11/10.

(2) National Transport Corridors

The expansive urbanisation has occurred along the following major national radial transport corridors (major radial national roads) from the central part of KCC towards outside of the GKMA:

- Masaka-Mpigi-Kampala Corridor (through Mpigi, Kyengera and Busega) (=> See “a.”)
- Fort Portal-Kampala Corridor (through Mityana, Kyengera and Busega) (=> See “c.”)
- Hoima-Kampala Corridor (through Wakiso, Kakiri and Nansana) (=> See “d.”)
- Bombo-Kampala Corridor (through Kawempe and Matsuga towards Masindi) (=> See “g.”)
- Nakifuma-Namugongo Corridor (=> See “j.”)
- Entebbe-Kampala Corridor (through Kajjansi) (=> See “l.”)
- Jinja-Kampala Corridor (through Mukono and Mbalala) (=> See “n.”)

These corridors and alphabets are shown in Table 6.1.2 and Figure 6.1.2.

Table 6.1.2 Transport Corridors (Road Corridors) Related to JKM Corridor

a	Kampala-Masaka Road	f	Gombe-?? Road	k	Nakwuka-Jungo Road	p	Jinja-Matuumu Road
b	Mpigi-Kabasanda Road	g	Kampala-Masindi Road	l	Kampala-Entebbe links	q	Jinja-Buwenge Road
c	Fort Portal-Kampala - A109	h	Gayaza-Kiwenda Road	m	Kampala-Bulebi	r	Magamega-Nakagyo Road
d	Kampala-Hoima Road	i	Nakasajja-Kiwenda Road	n	Metro-Link	s	Jinja-Mbale-Tororo
e	Kakiri-Kiziba Road	j	Namungongo Road	o	Jinja-Bukeka Road	t	Nakasongola–Kamuli–Iganga

Note: The alphabets indicate the transport corridors shown in Figure 6.1.2.
Source: COWI, June 2022, Draft Report of Jinja-Kampala-Mpigi (JKM) Corridor PDP, Chapter 3, Spatial Development Framework and Strategy

(1) GKMA’s Rural Areas

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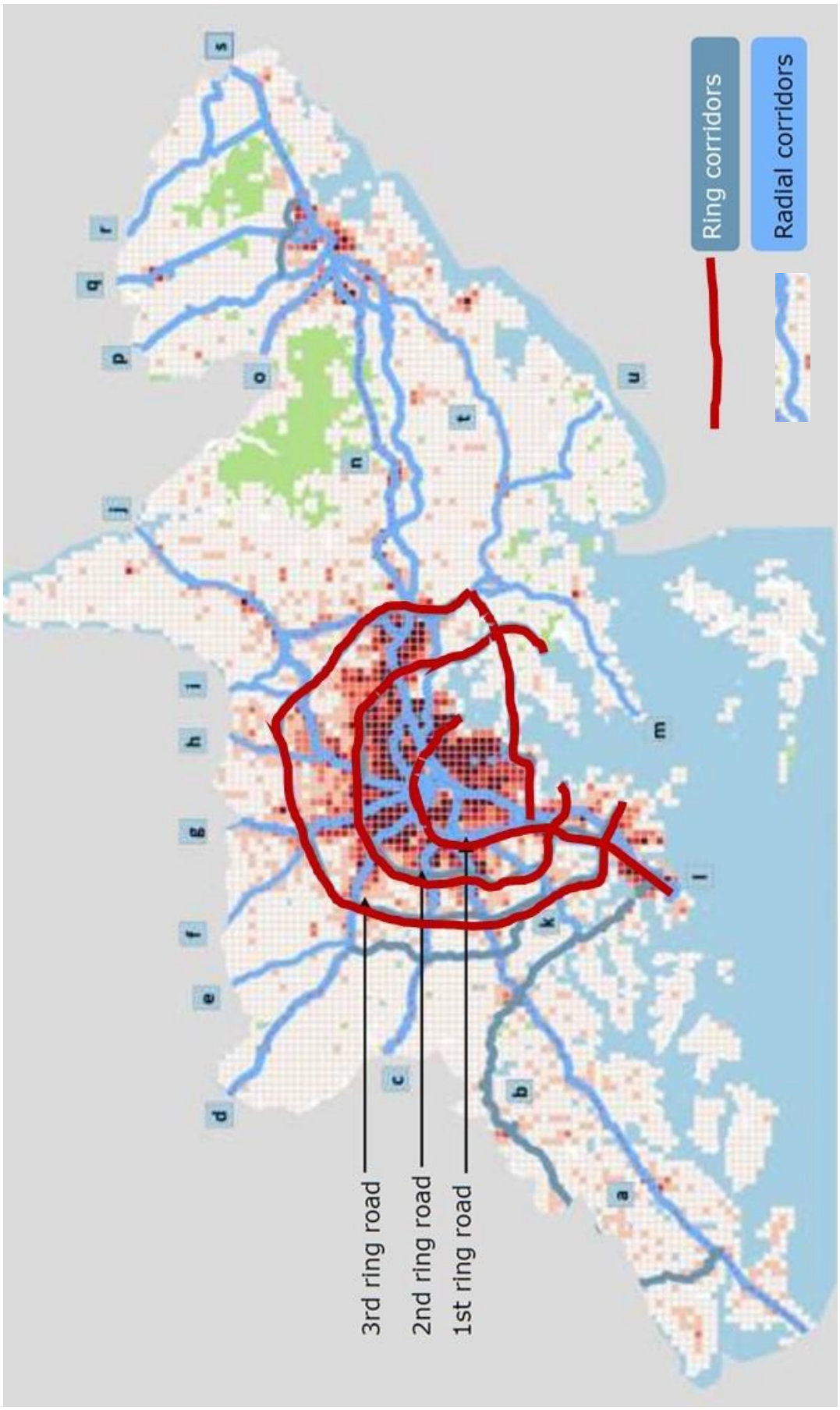
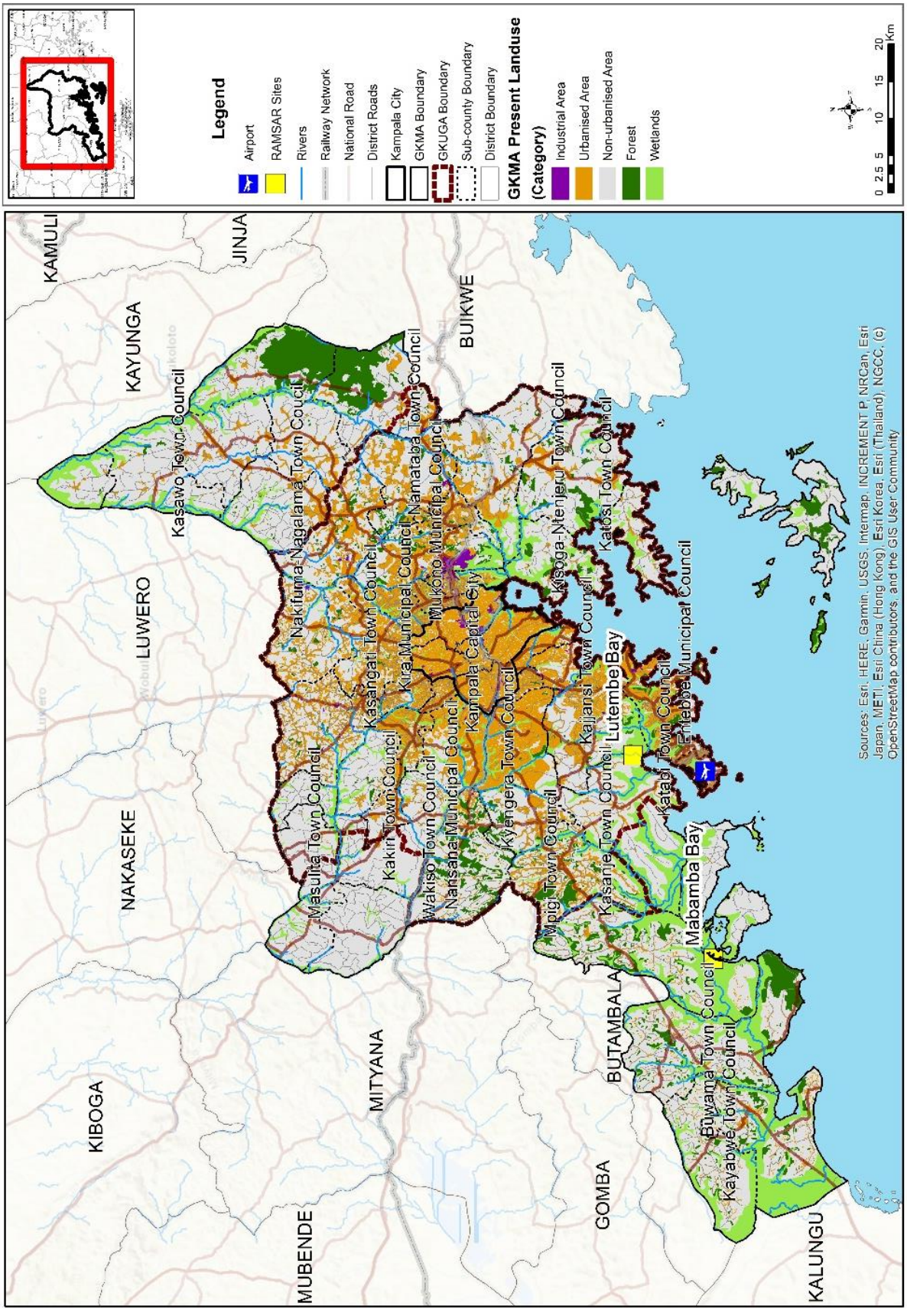
The rest of GKMA’s urbanising areas which are centered on KCC are mostly rural areas, in which smallholder farmers live, although commercial farmers and unplanned settlements are spreading. The distribution of the non-urbanised areas (rural areas) is shown in Figure 6.1.3. The majority (about 80%) of GKMA’s surface area was covered by non-urbanised areas (rural areas) in 2021.



Note: The alphabets indicate the transport corridors whose names are listed in Table 6.1.1.
Source: COWI, June 2022, Draft Report of Jinja-Kampala-Mpigi (JKM) Corridor PDP, Chapter 3, Spatial Development Framework and Strategy

Figure 6.1.2 Transport Corridors Identified by the Project for Jinja–Kampala–Mpigi (JKM) Corridor Physical Development Plan



Source: JICA Expert Team based on the interpretation of Orthophoto prepared by World Bank supported project "Three-Dimensional Oblique Aerial Imagery" by AAM Geomatics Pty Ltd., OpenStreetMap (accessed Dec. 2022). Ground truthing by the JICA Expert Team in 2022

Figure 6.1.3 Distribution of Non-Urbanised Areas (Rural Areas) in the GKMA

6.1.2 Present Situation of Non-Development Zones in GKMA

Rivers, lakes, wetlands, and forest reserves are protected by the acts and regulations of Uganda.

Within GKMA, there are two Ramsar sites, Lutembe Bay Wetland System and Mabamba Bay Wetland System. Lutembe Bay Wetland System, having an area of 98 ha, is located in Wakiso District 25 km south of Kampala. Part of Lutembe Bay Wetland has been reclaimed for horticultural activities and affected by commercial and industrial development, which is why it requires strong attention on protection. On the other hand, Mabamba Bay Wetland System covers an extensive area of 2,424 ha and located 35 km southwest of Kampala, bordering the Wakiso and Mpigi Districts. Both wetlands are also designated as Important Bird and Biodiversity Area (IBA), providing valuable bird habitats.

Forest reserves are also important natural assets that should be protected. In GKMA, among others, the Mabira Forest Reserve in Mukono District is one of the largest and significant rainforests in Uganda covering 30,000 ha and home to many endangered species.

There are also extensive forests and wetlands to the south of Mukono, east of KCC across Murchison Bay.

6.2 Future Spatial Development in GKMA including GKUGA and KCC

6.2.1 Future Urban Centres within GKMA

Development of urban centres necessary to organise the future spatial structure is recommended within the GKMA. Within the Greater Kampala Urban Growth Area (GKUGA), the recommended urban centres are described in Chapter 10 of this Draft Final Report.

(1) Metropolitan Core of GKMA

GKMA should have a strong and well-established Metropolitan Core, which is composed of Primary Urban Centres (CBDs) and Secondary Urban Centres, both of which are to provide strategic urban centre areas for accommodating high-level functions of businesses and commerce, government administration, health and education, as well as residential areas. The primary and secondary urban centres are located not only in Kampala Capital City (KCC), but also in Wakiso District and Mukono District.

(2) Urban Centres within GKUGA

Within the GKUGA outside the KCC, urbanisation is to take place continuously from the Metropolitan Core including the KCC. In this area, urban centres are to be formed for providing a variety of services including business offices/government offices (working places), business service providers, commercial facilities, educational and health facilities. Alternative spatial patterns of such urban centres and other functions are considered later in this Chapter (see Figure 6.2.2).

(3) Strategic Centres and Service Centres Outside GKUGA

Within the rural areas of the GKMA outside the GKUGA, the following two different types of centre functions of government, trading and services should be provided along transport corridors.

- Strategic Centres
- Service Centres

1) Strategic Centres

Strategic centres are located outside the GKUGA within the GKMA, and they lie along the radial transport corridors.

The strategic centres' urban areas are not continuous with the GKUGA. Their urban areas are physically separated from the GKUGA's urban areas.

The strategic centres are designated and intended to play a critical role in providing some business services to the industrial growth corridor (to be formed along the transport corridor), as well as urban commerce and service functions to surrounding areas.

2) Service Centres

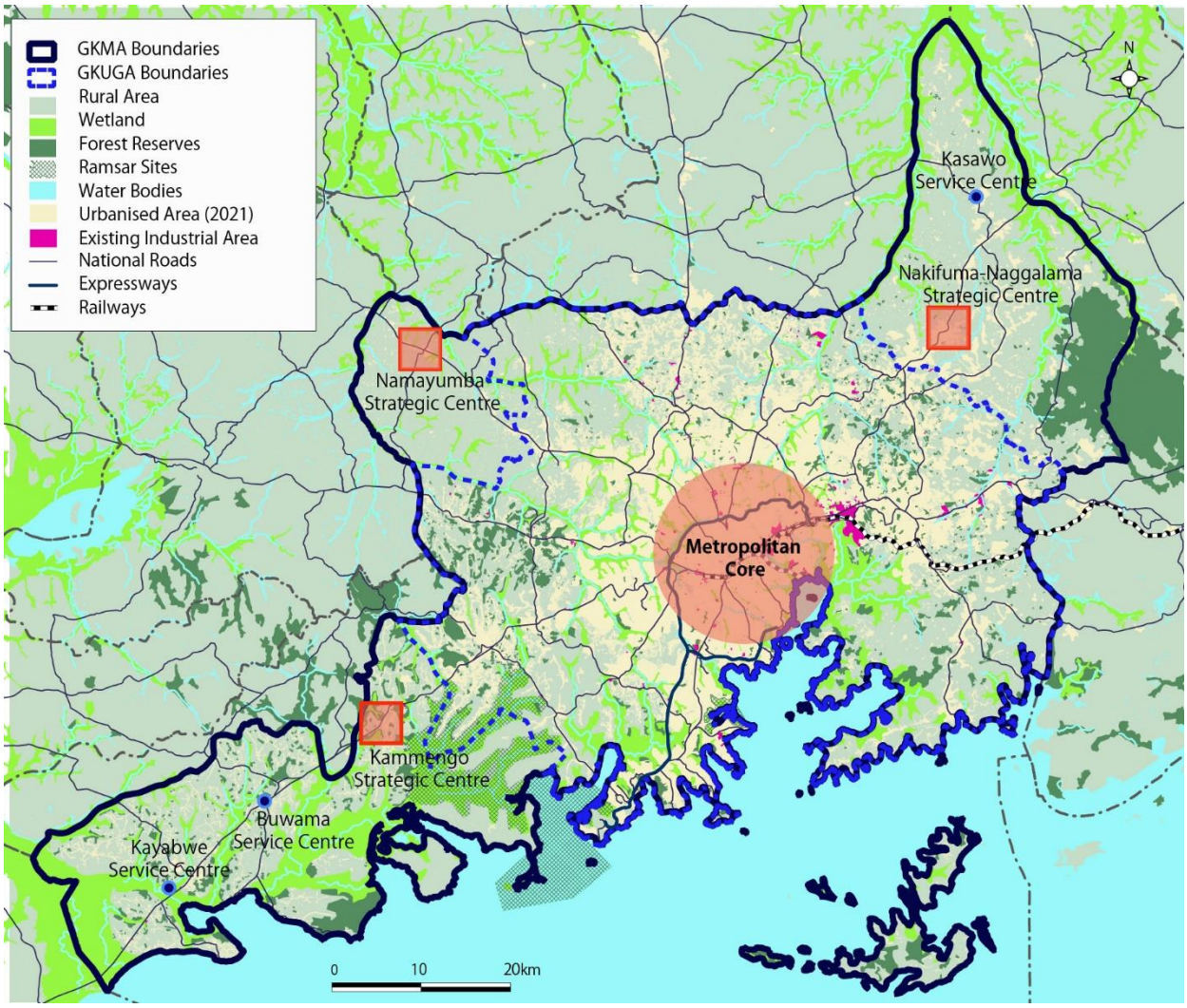
Service centres are designated and developed to provide government and commercial services to their surrounding areas, as well as within urban areas.

Within GKMA outside GKUGA, the strategic centres and service centres are identified as shown in Table 6.2.1 and Figure 6.2.1.

Table 6.2.1 Strategic Centres and Service Centres Outside GKUGA within GKMA

Name of Centre	Type of Centre	District
Hoima-Wakiso-Nansana-Kampala Corridor		
Namayumba	Strategic Centre	Wakiso District
Nakifuma-Namugongo Corridor		
Nakifuma-Naggalama	Strategic Centre	Mukono District
Kasawo	Service Centre	Mukono District
Masaka-Mpigi-Kampala Corridor		
Kammengo	Strategic Centre	Mpigi District
Buwama	Service Centre	Mpigi District
Kayabwe	Service Centre	Mpigi District

Source: JICA Expert Team



Source: JICA Expert Team

Figure 6.2.1 Metropolitan Core, Strategic Centres and Service Centres in the GKMA

6.2.2 Alternative Spatial Structures for the Future of GKMA including GKUGA and KCC

(1) High Potential Areas for Attracting Manufacturing Industries and Associated Business Service Sectors

Based on the policies for economic sector development in the GKMA and the present situation of the spatial structure in the GKMA, the following three potential areas (industrial growth corridors) for manufacturing industries and associated business service sectors are identified:

- Potential Area 1 (in the Direction of Mombassa, Kenya): Namanve-Mukono-Mbalala-Namataba-Lugazi: Jinja-Kampala Corridor
  - Within GKUGA: Namanve-Mukono-Mbalala-Namataba-GKUGA Boundary
  - Outside GKUGA: GKUGA Boundary-Lugazi
- Potential Area 2 (in the direction of Rwanda, DRC and Tanzania): Mpigi-Kammengo along the Masaka-Mpigi-Kampala Corridor
  - Within GKUGA: Mpigi-GKUGA Boundary
  - Outside GKUGA: GKUGA Boundary-Kammengo

- Potential Area 3 (in the direction of South Sudan and DRC): Matugga-Bombo along the Bombo-Kampala Corridor
  - Within GKUGA: Matugga-GKUGA Boundary
  - Outside GKUGA: GKUGA Boundary-Bombo

(2) Three Alternative Spatial Structures for GKMA

Considering the large amount of investment in manufacturing and related sectors will be coming in to these three potential areas, future spatial development patterns (spatial structures) are discussed and recommended in this section.

The following three alternative spatial structures are identified (as shown also in Figure 6.2.2):

Alternative Spatial Structure 1: A large amount of investment in manufacturing sectors and other business sectors has been made by fully utilising the above three potential areas both within GKUGA and outside GKUGA within GKMA. The industrial growth corridor is expanded beyond Kammengo to the west along the Masaka-Mpigi-Kampala Corridor. In order to achieve Spatial Structure 1, it is necessary to organise a substantial amount of infrastructure necessary for attracting and supporting manufacturing and other business sectors.

Alternative Spatial Structure 2 (Selected): A medium amount of investment in manufacturing sectors and other business sectors has been made in the above-mentioned three potential areas. To a considerable degree, manufacturing and other business investments are increased both within GKUGA and outside GKUGA within GKMA.

Alternative Spatial Structure 3: A small amount of investment in manufacturing sectors is attracted within the GKMA because more investors prefer the areas along Jinja-Lugazi Corridor, which is outside of the GKMA, than the areas within the GKUGA.

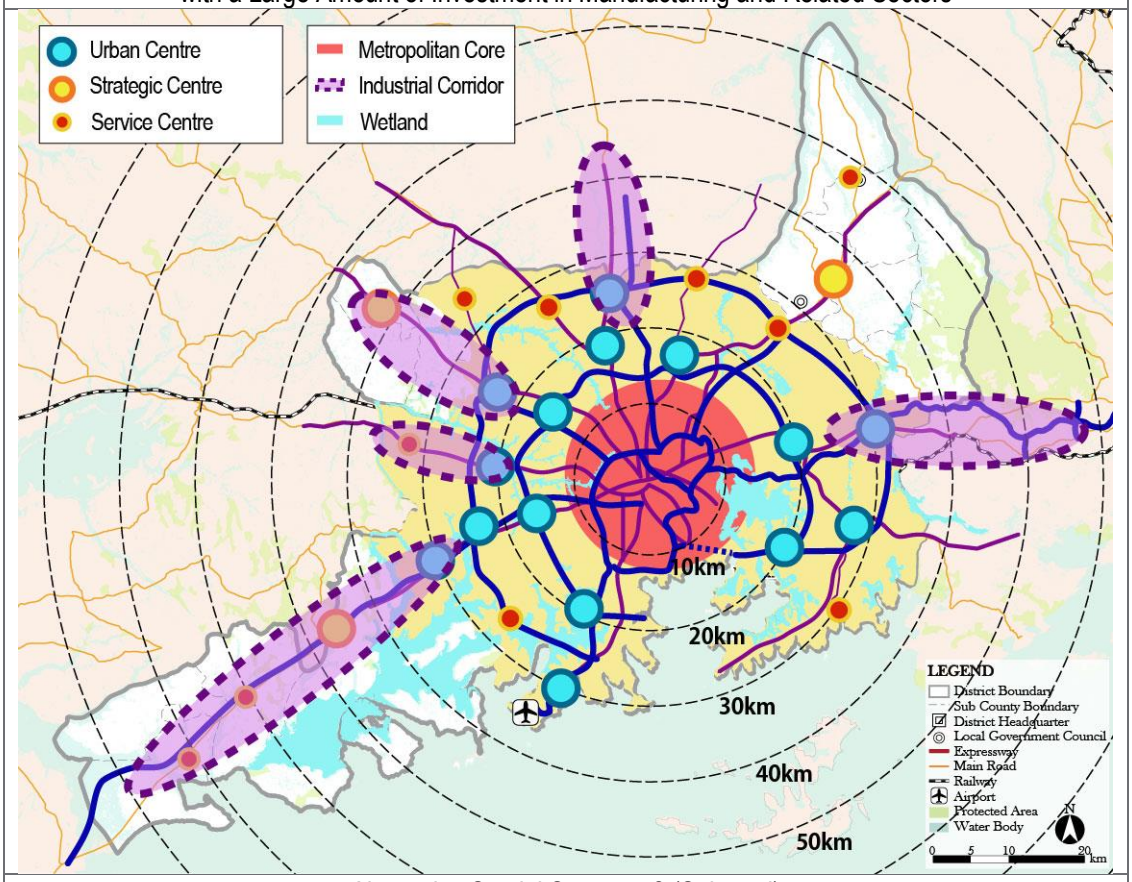
(3) Comparison of Three Alternative Spatial Structures for GKMA

From the perspective of possibility and desirability to achieve a spatial structure, the spatial structures for GKUGA are compared, and the Spatial Structure 2 is selected.

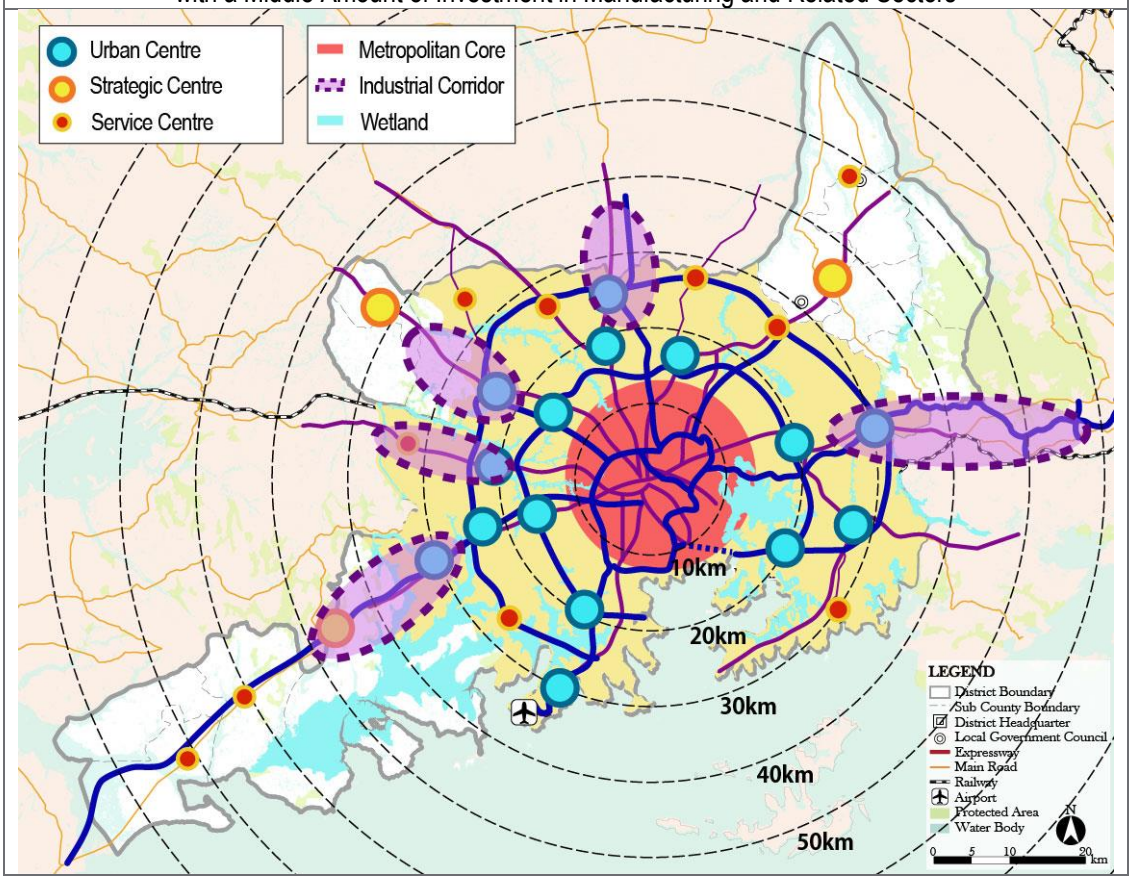
Spatial Structure 1 is desirable for both Uganda as a whole and GKUGA. However, it is difficult to achieve.

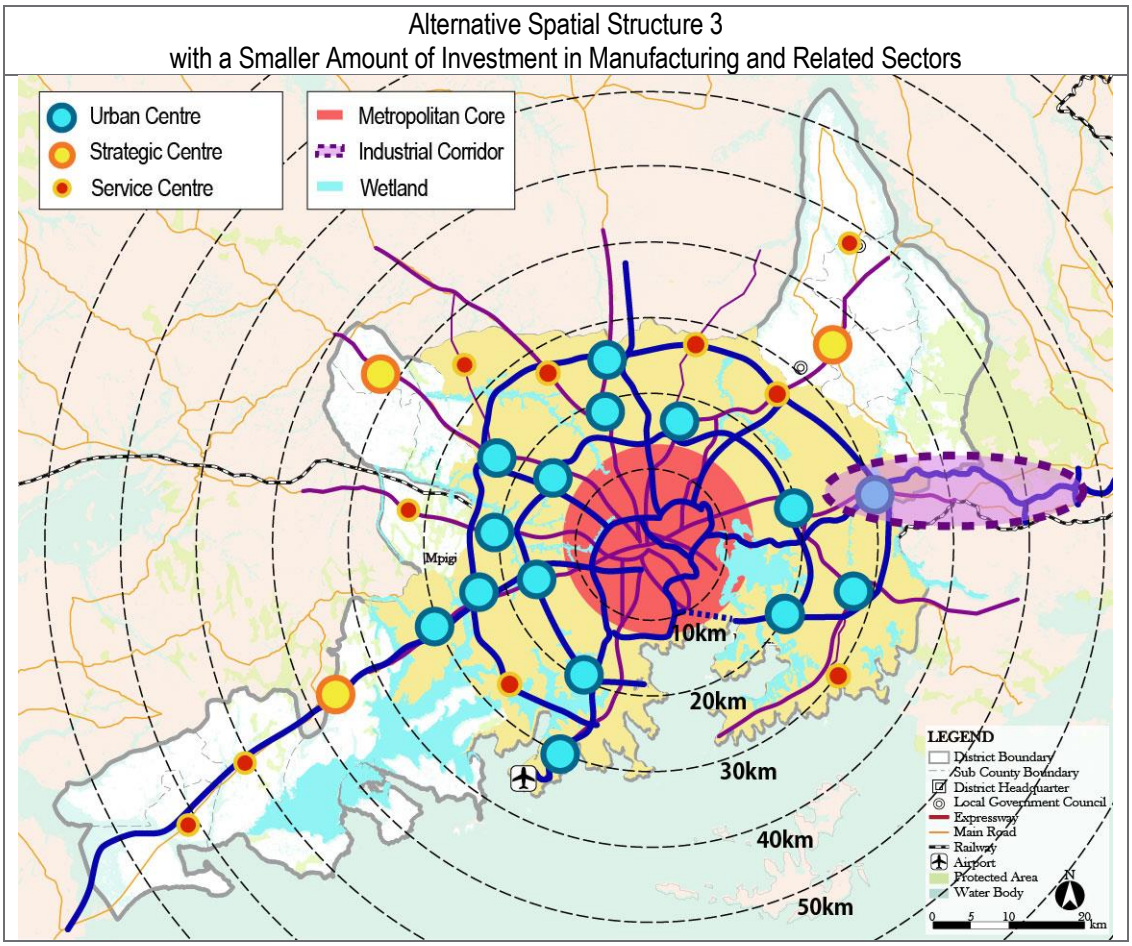
Spatial Structure 3 is relatively easy to achieve; however, it is not so desirable not only for GKUGA but also for Uganda as a whole.

Alternative Spatial Structure 1
with a Large Amount of Investment in Manufacturing and Related Sectors



Alternative Spatial Structure 2 (Selected)
with a Middle Amount of Investment in Manufacturing and Related Sectors





Source: JICA Expert Team

Figure 6.2.2 Alternative Future Spatial Structures for GKMA

6.2.3 Future Spatial Diagram for GKMA-PDP

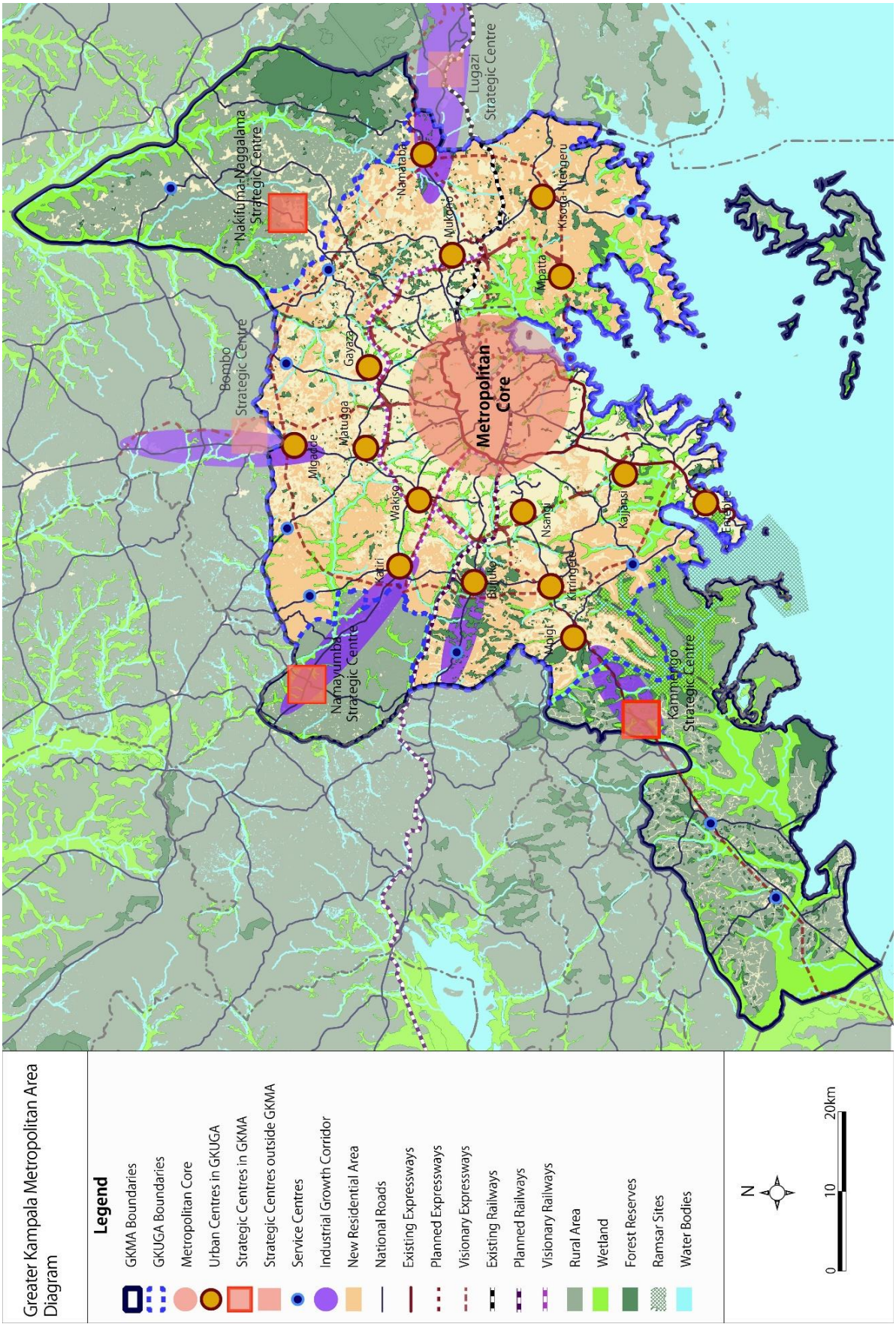
Alternative Spatial Structure 2 is selected for the future in physical development plan (PDP) for the Greater Kampala Metropolitan Area (GKMA). Based on this alternative, a future spatial diagram is prepared as one of the guiding tools for the GKMA-PDP, as shown in Figure 6.2.3.

The future GKMA spatial diagram is composed of the following four major elements of spatial development:

- Landscape (Natural Areas)
- Housing (Residential Areas)
- Jobs (Urban Centres and Industrial Growth Corridors)
- Connectivity (Transportation)

These major aspects contain different spatial elements as explained in this section.

These different aspects of the future spatial diagram of the GKMA-PDP for the target year 2050 are depicted by different spatial elements. The future spatial diagram of the GKMA-PDP is prepared for guiding spatial development in GKMA.



Source: JICA Expert Team

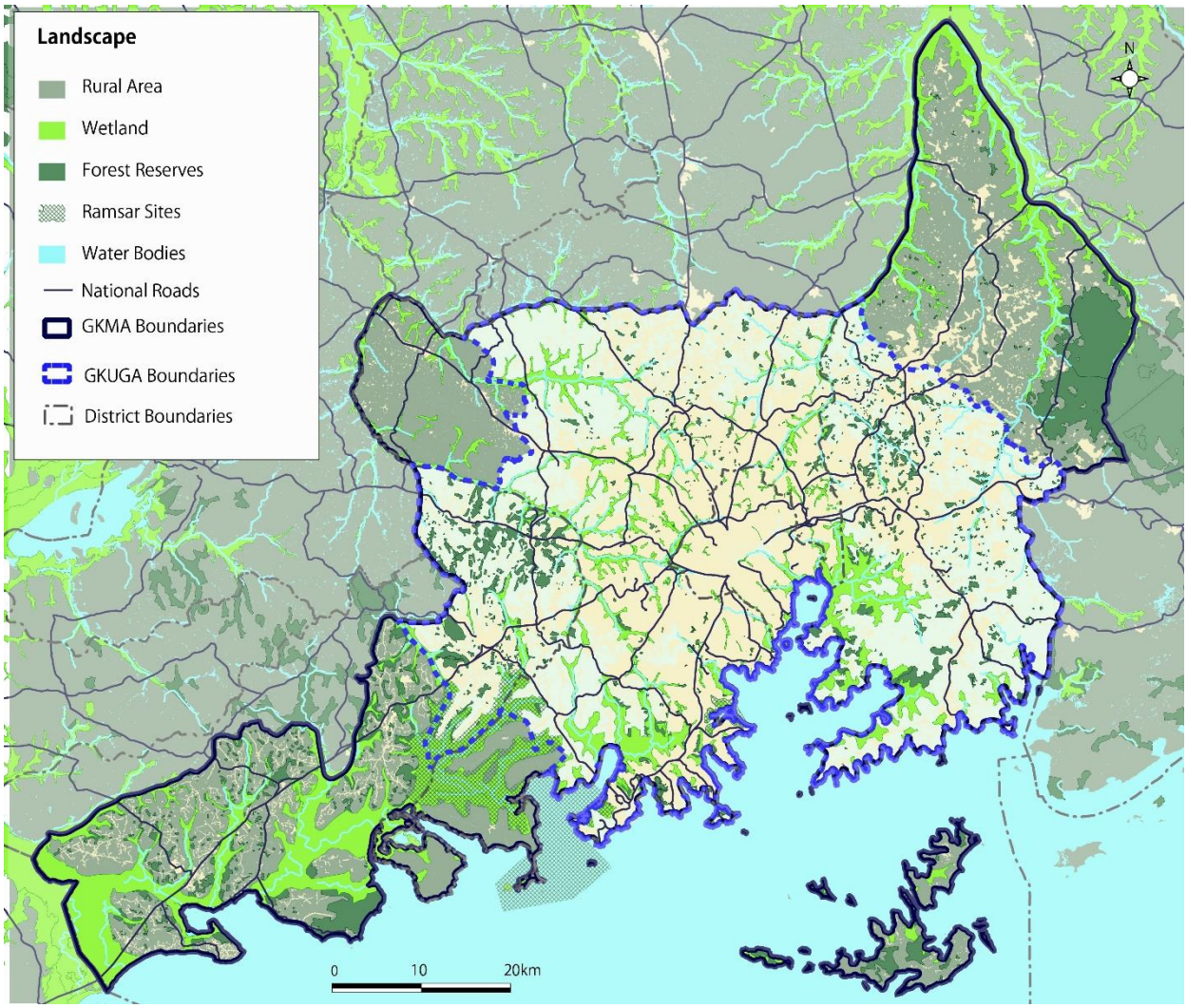
Figure 6.2.3 Future Spatial Diagram for GKMA-PDP

(1) Spatial Elements of Landscape (Natural Areas) in GKMA

The landscape aspect of the GKMA is composed of the following natural areas:

- Waterways and Wetlands
- Rural Areas
- Protected Natural Areas (Forest Reserves)
- Recreational Areas near or inside Wetlands and Forest Reserves

The landscape spatial elements for the future spatial diagram of the GKMA-PDP are shown in Figure 6.2.4.



Source: JICA Expert Team

Figure 6.2.4 Spatial Elements of Landscape (Natural Areas) in GKMA-PDP

(2) Spatial Elements of Human Settlement Areas in GKMA

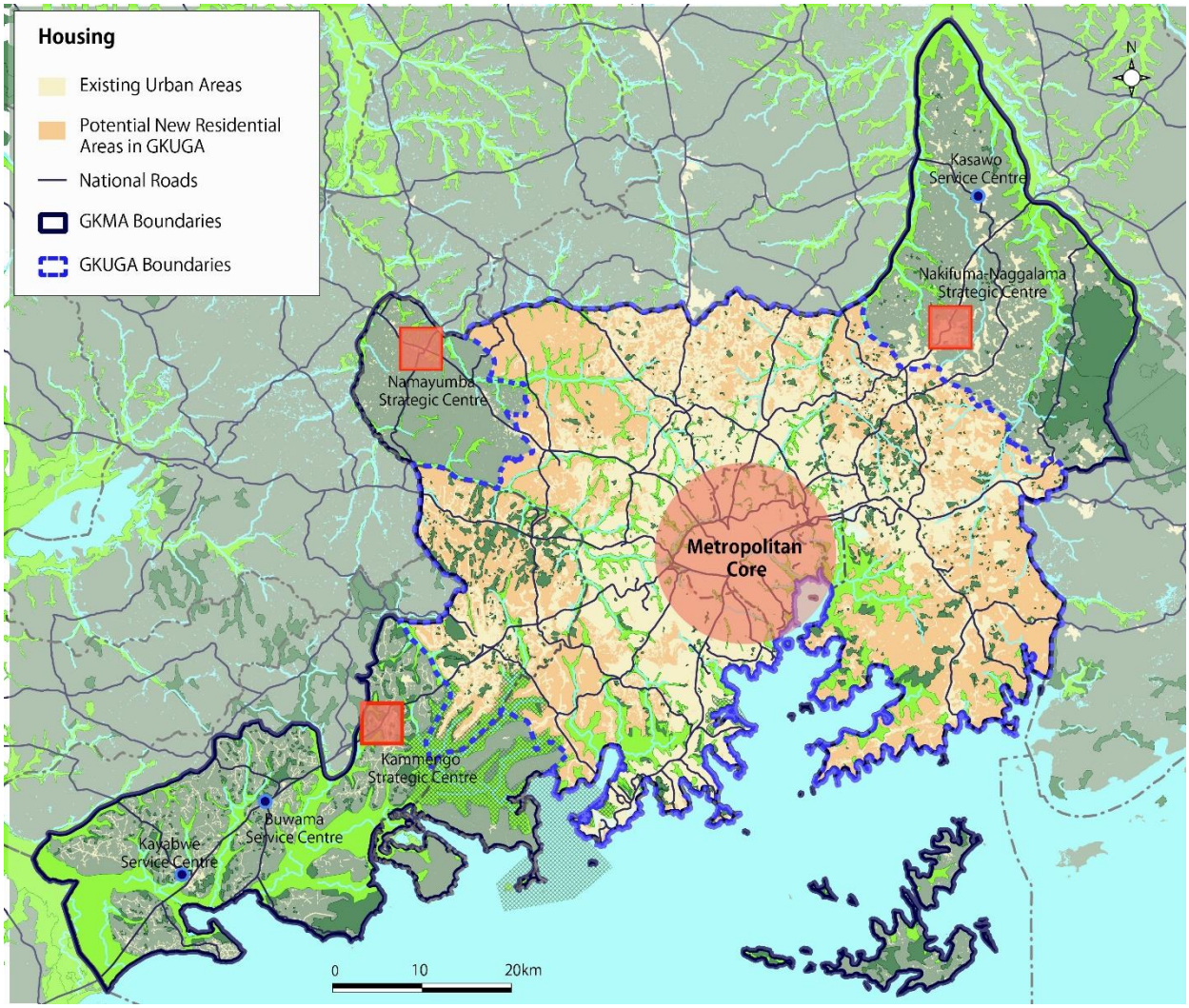
Housing in the GKMA is depicted by showing the following three different spatial elements:

- Existing Urban Areas
- New Urban Areas within the Continually Urbanising Areas from KCC
- New Urban Areas outside the Continually Urbanising Areas from KCC around the strategic centres and service centres outside GKUGA

GKUGA is set as a boundary for controlling continually urbanising areas from KCC. Therefore, these new urban areas from KCC will not go beyond the boundary of GKUGA.

The new urban areas outside the continually urbanising areas from KCC should be set around the strategic centres and service centres.

The housing spatial elements for the GKMA-PDP for the Year 2050 are shown in Figure 6.2.5.



Source: JICA Expert Team

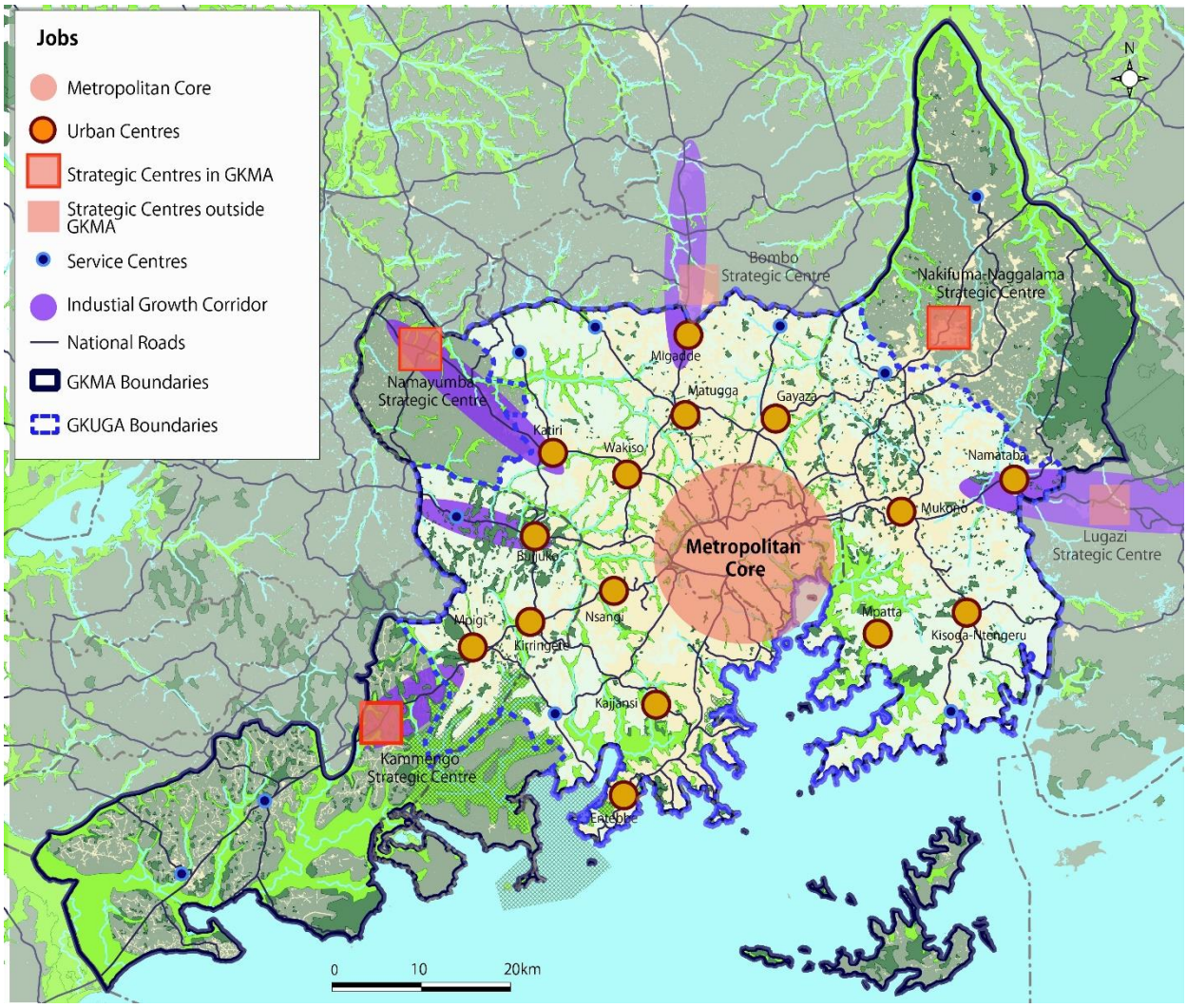
Figure 6.2.5 Spatial Elements of Human Settlement Areas in GKMA-PDP

(3) Job-Related Spatial Elements in GKMA

The job-related spatial aspects of the GKMA are included in the following spatial elements both inside and outside the GKUGA:

- Metropolitan Core
- Urban Centres
- Industrial Growth Corridor
- Strategic Centres
- Service Centres

The job-related spatial elements for the future spatial diagram of the GKMA-PDP are shown in Figure 6.2.6.



Source: JICA Expert Team

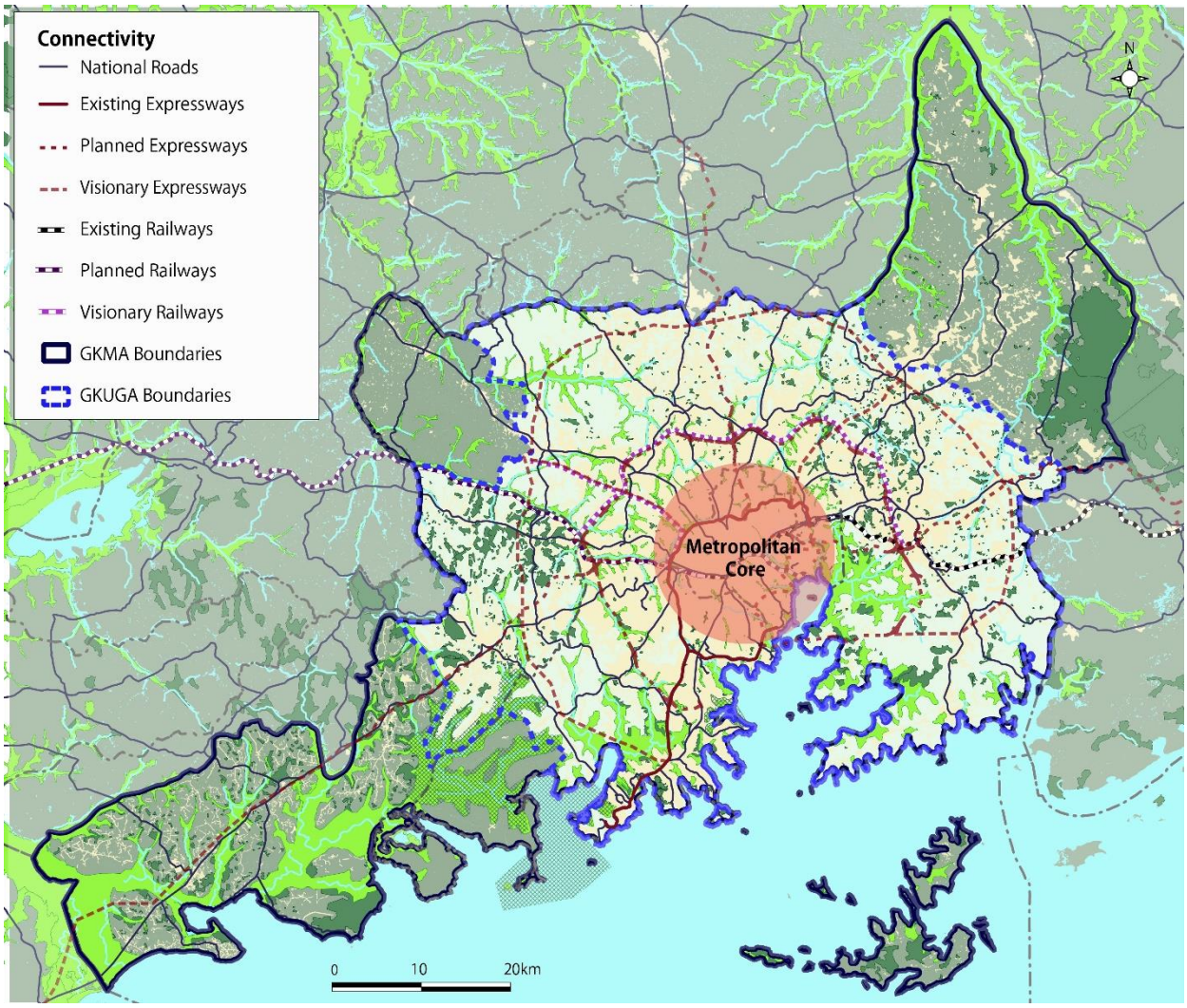
Figure 6.2.6 Spatial Elements of Jobs in GKMA-PDP

(4) Spatial Elements of Connectivity in GKMA

The major spatial elements for connectivity are as follows:

- Expressways
- Railways, Light Rail Transits (LRT) and Mass Rail Transits (MRT)
- Major Arterial Roads

The connectivity spatial elements for the future spatial diagram of the GKMA-PDP are shown in Figure 6.2.7.



Source: JICA Expert Team

Figure 6.2.7 Spatial Elements of Connectivity in GKMA-PDP

6.2.4 Policies for Promoting Development of Urban Centres and Growth Corridors in GKMA including GKUGA and KCC

(1) General Policies and Strategies for Spatial Development in GKMA

In order to pursue the vision set for GKMA and to promote the policies for its economic sector development, the following spatial development policy and strategies are to be implemented:

- To establish and strengthen a **Metropolitan Core** which is composed of Primary Urban Centres (CBDs) and Secondary Urban Centre, which will provide business, commercial and residential functions, as well as government administrative function not only for supporting the GKMA, Central Region and Uganda, but also for serving the inland region of the Eastern African Community (EAC).
- To manage the expansive urban development within the GKMA by setting **an urban growth boundary (Greater Kampala Urban Growth Area)** and containing continual urbanisation from the KCC within the boundary (the Greater Kampala Urban Growth Area Boundary)
- To promote the development of manufacturing and other business sectors outside the GKUGA within the GKMA by forming **industrial growth corridors**, as well as by promoting development of regional cities and growth corridors outside the GKMA
- To promote a polycentric urban pattern in the GKMA in the following two different ways:

- Promote a polycentric urban pattern (not continual urban expansion) outside the GKUGA within the GKMA
- Promote a polycentric urban pattern within continual urbanising areas within the GKUGA

(2) Land Use Frameworks for Urban Centres and Industrial Growth Corridors in GKMA

1) Background and Context

There is a number of regulatory agencies and instruments which can be used to promote and regulate urban centres and growth corridors.

Urban centres are the "centres" in a polycentric strategy as defined by the JKM Corridor Plan. "Polycentric" being the way of countering the continual urban sprawl which is inefficient among many other disadvantages.

Therefore, the regulation of urban centres will take into account and define the following aspects:

- Multifunctional nature of the centre
- Range and concentration of services for a given population within a specific distance
- Existence of multimodal transport interchanges so that the centres can be connected to many users, and foci for mobility can be combined with access to services
- A concentration of services that constitutes a viable urban centre which is not only based on proximity to residential development, but also on the presence of economic and employment-generating functions which can add weight to the rationale for the particular place to be the centre.

2) National Physical Development Plan (NPDP)

Another reference point is the NPDP which has its own categorisation of the hierarchy of types of urban centres in Uganda. These will facilitate local production, services and trade, and are subdivided into 3 types:

- Major towns (with 250 thousand to 500 thousand population): These are towns of local importance that facilitate significant economic activities and industries in peripheral areas.
- Secondary towns (with 100 thousand to 250 thousand population): These are towns that further expand urban development, supported by regional economic activities such as value chain systems for commercial agriculture.
- Townships (with 50 thousand to100 thousand population): These are towns that operate as central places for the agricultural periphery and also include production activities.

In summary, urban centres have a given projected size, range of services, level of connectivity, and types of economic activities that determine their places in the hierarchy.

3) Industrial Growth Corridor

The "corridor concept" has been frequently associated with transport and other physical infrastructure proposals. The Northern Corridor is initially not much about physical location and design, but mostly about integration of the procedures of the countries along its route to facilitate movement and trade.

The transport corridors enable goods to reach the market and people to get to their work and other destinations. On the other hand, growth corridors are those in strategically prominent locations (predominantly along the main trade routes), where a number of functions is spread along the line of the corridor and not just at a single centre.

In some cases, a corridor may be generated by the desire to cluster /connect one or more existing centres to create a single growth node.

(3) Supply and Demand for Industrial Land

The JKM Corridor Plan projects that in order to reach the ambitious NDPIII targets for increasing industrial output from 16% to 26% of GDP by 2030, an additional 41,000 ha of industrial land will be needed[1], given that "*based on previous trends…the majority of demand would be expected to be in the JKM Corridor*" (JKM 4.3.3 P.34).

The Uganda Investment Authority (UIA) Strategic Plan 2021/21–2024/25 focuses on five strategic areas, one of which is to accelerate Uganda's industrialisation through services of industrial parks. Currently, UIA has established and operates eight public industrial and business parks (IBPs): Kampala (Namanve), Luzira, Bweyogerere, Jinja, Soroti, Mbale, Kasese and Mbarara SME Park. Additionally, the UIA has supported establishment of operational private industrial parks. In the GKMA, there are three parks comprising 938 ha, all to the east of Kampala City, with Namanve being by far the largest at 890 ha. However, these comprised just a small amount of the required supply.

Information on private industrial sites and parks is difficult to obtain, but by using satellite imagery many observations can be made. If the majority of the 13,000 ha projected for "business as usual" by the JKM by 2030, and considering the target of 41,000 ha, are in Greater Kampala, the question arises as to where these lands are specifically located.

Competition for land in Uganda, population growth of which is one of the fastest growing globally, means that the assembly of land for industrial development is difficult. Being characterised as a substantially small-scale farming and rural economy, much of its land is either subdivided into small plots or in protected areas of forest, wetland, water courses, and lakes. Other larger plots are available in commercial farms which have been developed in earlier times, and in government or church holdings for development, security, educational or health uses.

6.2.5 Policies on Non-Development Zones and Conservation Zones (Wetlands and Forest Reserves) in GKMA including GKUGA and KCC

Different conservation and wise use policies are proposed for wetlands and forest reserves depending on the following three planning areas based on the present situation and opportunities:

- Within Kampala Capital City (KCC)
- Within Greater Kampala Urban Growth Area (GKUGA)
- Within Greater Kampala Metropolitan Area (GKMA)

(1) Within the KCC

Due to rapid urbanisation, the wetlands in the KCC are heavily degraded by encroachment and inadequate drainage and waste management systems. To prevent further degradation of wetlands, a degraded part should be transformed into green open space and the remaining part of the wetlands should be protected. In such cases, drainage channels for water flow should be maintained and the edge of the wetland can be developed. The green open space will provide recreational areas for the urban population and, with the proper management of waste and drainage, it can also enhance the property value of the surrounding area.

[1] Noting that "Business as Usual" would see only an additional 13,000 ha by 2030.

For the green open space development, the physical boundary of the wetland should be demarcated by a dike to prevent encroachment beyond the designated area and the illegal construction within the wetland can be easily identified. In the case of Japan, a wetland-based urban park was developed along with the construction of a dike to define the wetland boundary. Several zones are proposed along the wetland, such as a learning zone (educational purpose), an interaction zone (for picnic and restaurants), and an active zone (for sports events), as shown below.

Source: Niigata Prefecture

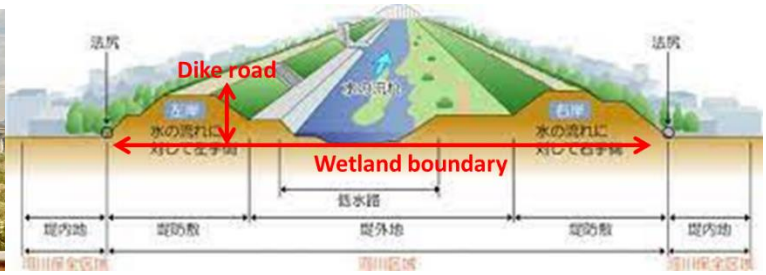
Figure 6.2.8 Image of Physical Demarcation of Wetland Boundary and Recreational Development

(2) Within the GKUGA Outside the KCC

In the GKUGA area, urbanisation is starting to have an impact on wetlands and reserved forests, especially the development of urban areas and expansion of industrial zones along the major corridors. For those areas with high development pressure, preventive conservation measures and strong development control should be put in place such as introducing buffer zone surrounding the conservation areas before approving development projects and strengthening the approval process in those areas.

Since the road induces the surrounding development, the number of roads crossing the wetlands should be limited and road design should be specified, such as elevated road design and construction of culverts in the case of at-grade roads. For roads along the wetland, a physical boundary should be created by constructing dike roads to limit access to the wetland. This will also prevent encroachment beyond the designated area and illegal construction within the wetland can be easily identified.

The policing system needs to be strengthened in cooperation with the district, sub-district level and local community level to prevent any illegal activities.



Source: JICA Expert Team (left) / Niigata Prefecture (right)

Figure 6.2.9 Road Design across Wetland and along Wetland

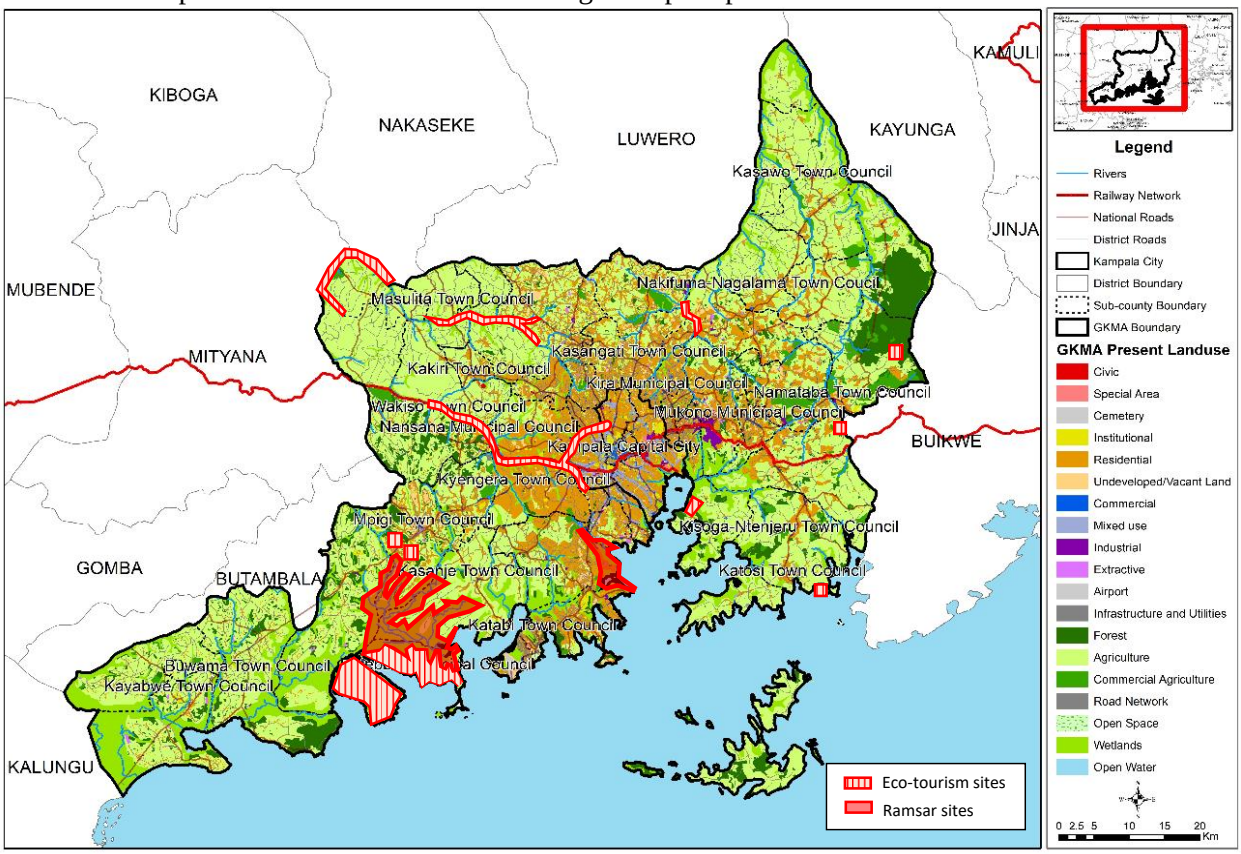
(3) Within the GKMA Outside the GKUGA

Within the GKMA, there are still wetlands and forests in the natural state. Taking advantage of this feature, those areas can be promoted as conservation and wise-use areas for recreation and tourism purposes. By identifying such areas in advance, they can be supported by the integrated planning of infrastructure and facility development. On this note, the potential wise use

recreational areas have been identified and proposed by the Physical Officer and Environmental Officer in each district.

Approaches for identifying potential areas for conservation and wise-use areas are listed below and the proposed areas are indicated in Figure 6.2.10 and Table 6.2.2.

- The area has nature-based tourism resources (wetland, forest, lake front)
- A part of the wetland can be used as green open space close to sub-centres



Source: JICA Expert Team

Figure 6.2.10 Proposed Conservation and Wise-Use Areas for Recreational and Tourism Purposes

Table 6.2.2 Proposed Location of Ecotourism Sites

District	Location	Characteristics
Mukono	Lakeshore leisure sites such as Devine Beach at Mpatta Peninsula (developed) Oguzulu Lakeshore (developed) Sezibwa Fall Chaking Eco-Tourism Centre (developed) Mabira Central Forest Reserve	Lakefront/Beach Lakefront/Beach Waterfall Forest Forest
Wakiso	Kijjabijjo A stretch of wetland along River Mayanja A stretch of wetland along River Mayanja Kato Lutembe Bay Ramsar Site Busi Island Mabamba Bay Ramsar Site	Wetland eco-park Wetland eco-park Wetland eco-park Ramsar site Lakefront Ramsar site
Mpigi	Mabamba Bay Ramsar Site Makanaga Wetland Mpanga Forest Reserve Lufuka Forest Reserve	Ramsar site Wetland Forest Forest

Source: JICA Expert Team

Chapter 7 Transport Policies for Greater Kampala Metropolitan Area (GKMA)

7.1 Background on Transport Policies for GKMA

GKMA is along the Northern Corridor connecting Mombasa and eastern and central African countries, including Uganda, Rwanda, Burundi, DR Congo, and South Sudan. It is a regional strategic transport hub of those countries and all the Ugandan districts. Moreover, GKMA it has several land use characteristics, such as urban, suburban, rural, and conservation areas.

Since the road network and public transport network are closely related to physical development plans, the background and policies on the trunk road network and intercity public transport network of GKMA are discussed in this section. The issues, objectives, and strategies in urban transport are discussed in Chapter 11.

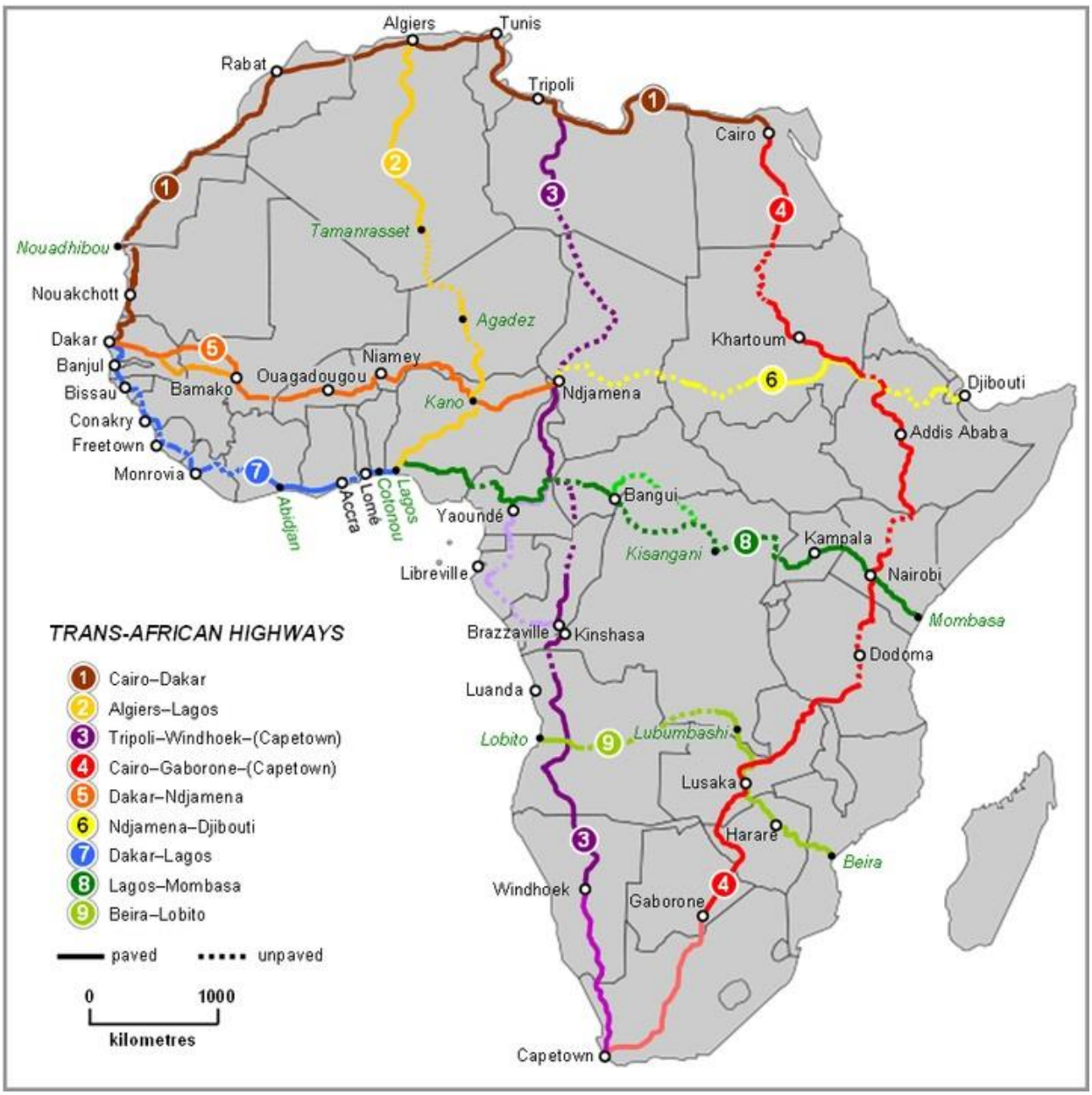
Nationwide issues on road safety, transport equity, environmentally sustainable transport, national road maintenance, and transport policy organization and finance are in the National Integrated Transport Master Plan (NITMP).

7.1.1 Regional Context of Transport for GKMA

The Trans-African Highway Network proposed Pan-African regional and international transport corridor in the 1980s. GKMA is on the No. 8 Lagos – Mombasa 6,260-kilometer highway (Figure 7.1.1). It plays a significant role in the African Northern Corridor, a regional corridor connecting Kenya, Tanzania, Uganda, South Sudan, DR Congo, Rwanda, and Burundi (Figure 7.1.2). The east-west direction road traffic of the Northern Corridor crossing Uganda passing through GKMA is in Figure 7.1.3.

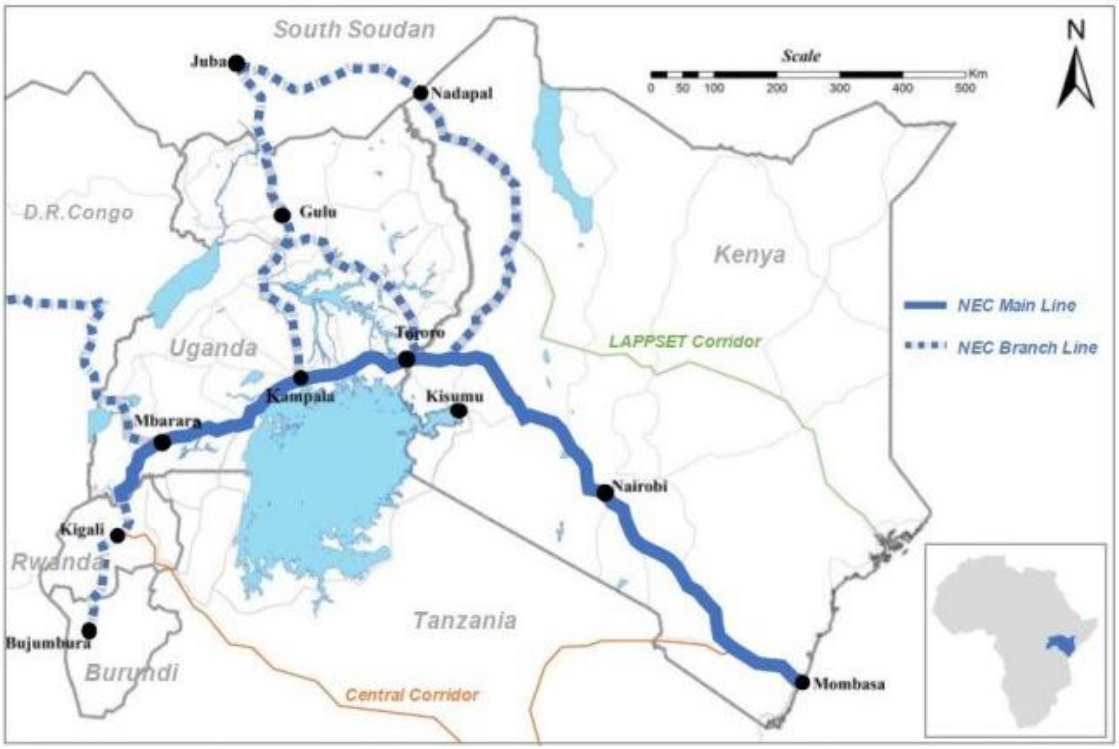
Moreover, GKMA is a crossroad of the Northern Corridor and a branch corridor to South Sudan. It is connected to Mombasa by a railway system. On the other hand, the abandoned railway line towards the west, which currently stops at Kasese, is expected to be renovated and extended (Figure 7.1.4).

Port Bell is also important in the current waterway transport in Lake Victoria as it connects to Kisumu in Kenya (Figure 7.1.5).



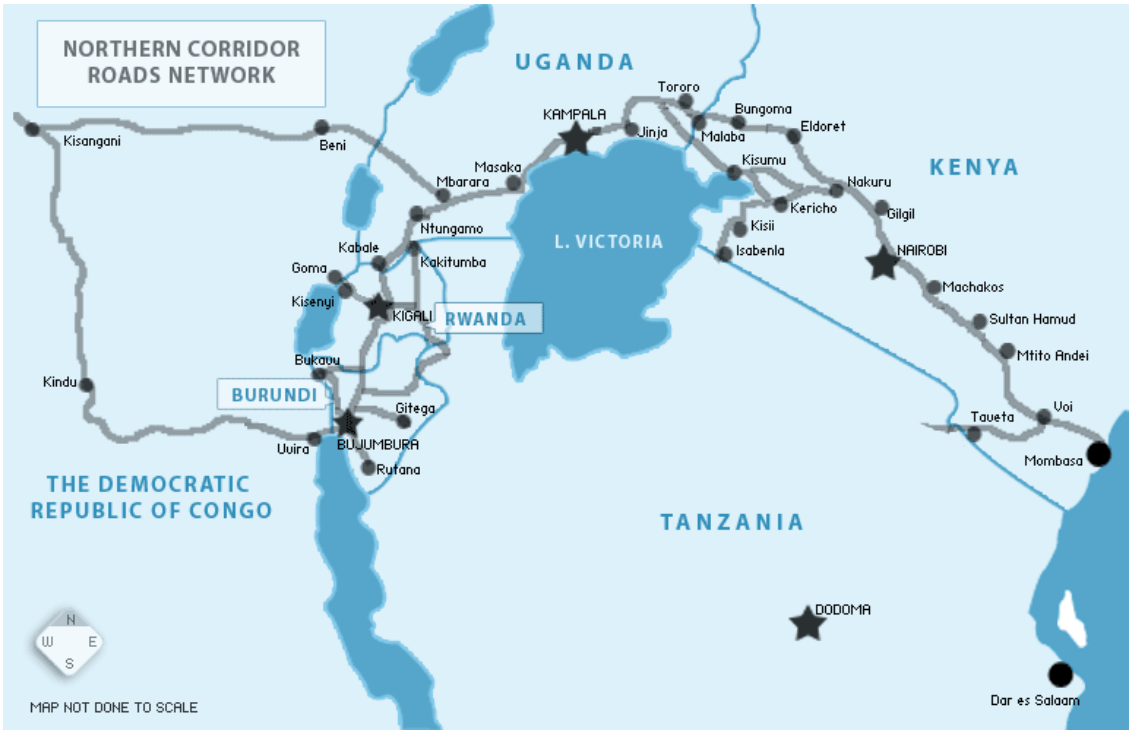
Source: Trans-African Highway network. (July 2022). In Wikipedia. https://en.wikipedia.org/wiki/Trans-African_Highway_network

Figure 7.1.1 Trans-African Highway Routes



Source: Northern Economic Corridor Master Plan, JICA

Figure 7.1.2 African Northern Economic Corridor

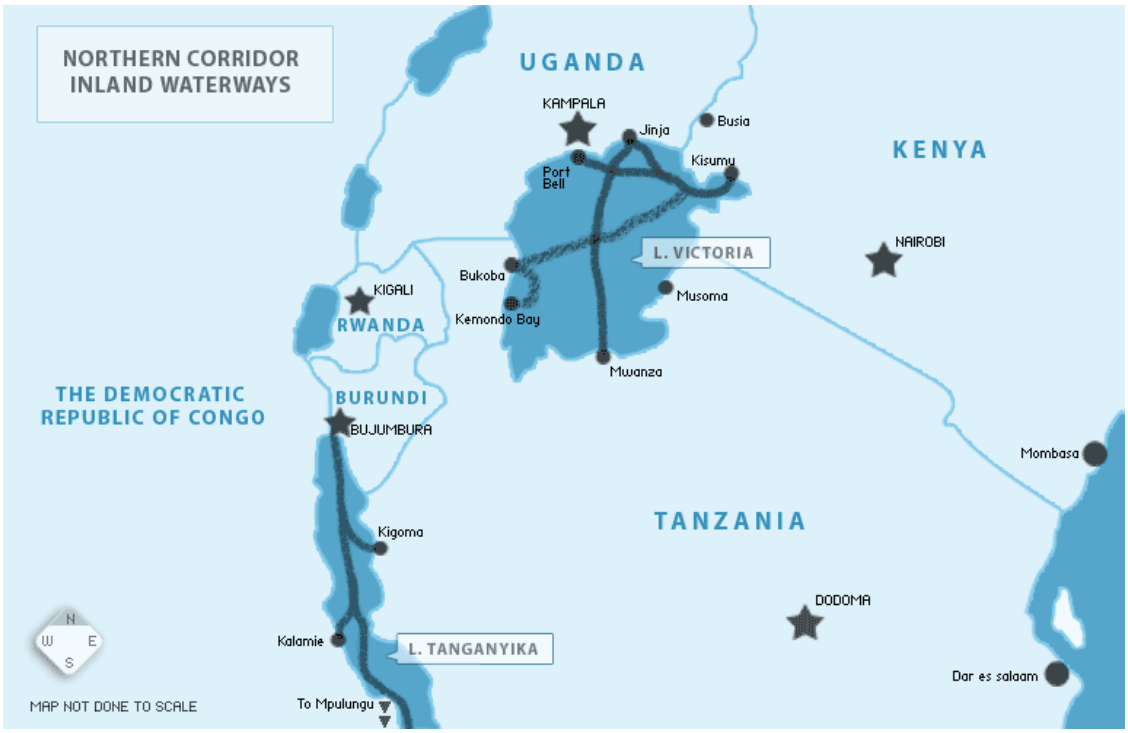


Source: ttanc http://www.ttcanc.org/maps.php

Figure 7.1.3 Road Network of the Northern Corridor

Source: ttanc http://www.ttcanc.org/maps.php

Figure 7.1.4 Railway Network of the Northern Corridor

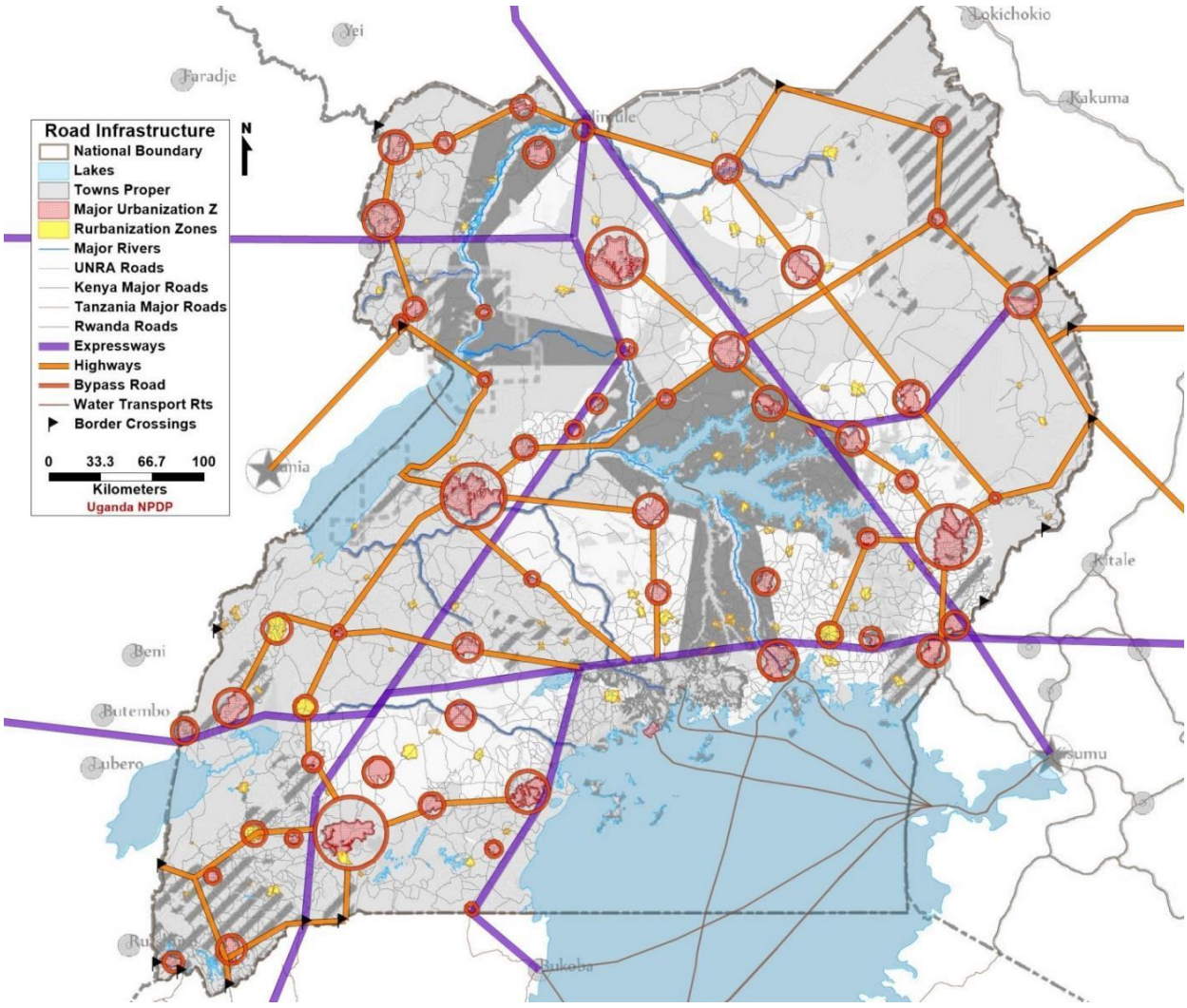


Source: ttanc http://www.ttcanc.org/maps.php

Figure 7.1.5 Inland Waterway Network of the Northern Corridor

7.1.2 National Context of Transport in GKMA

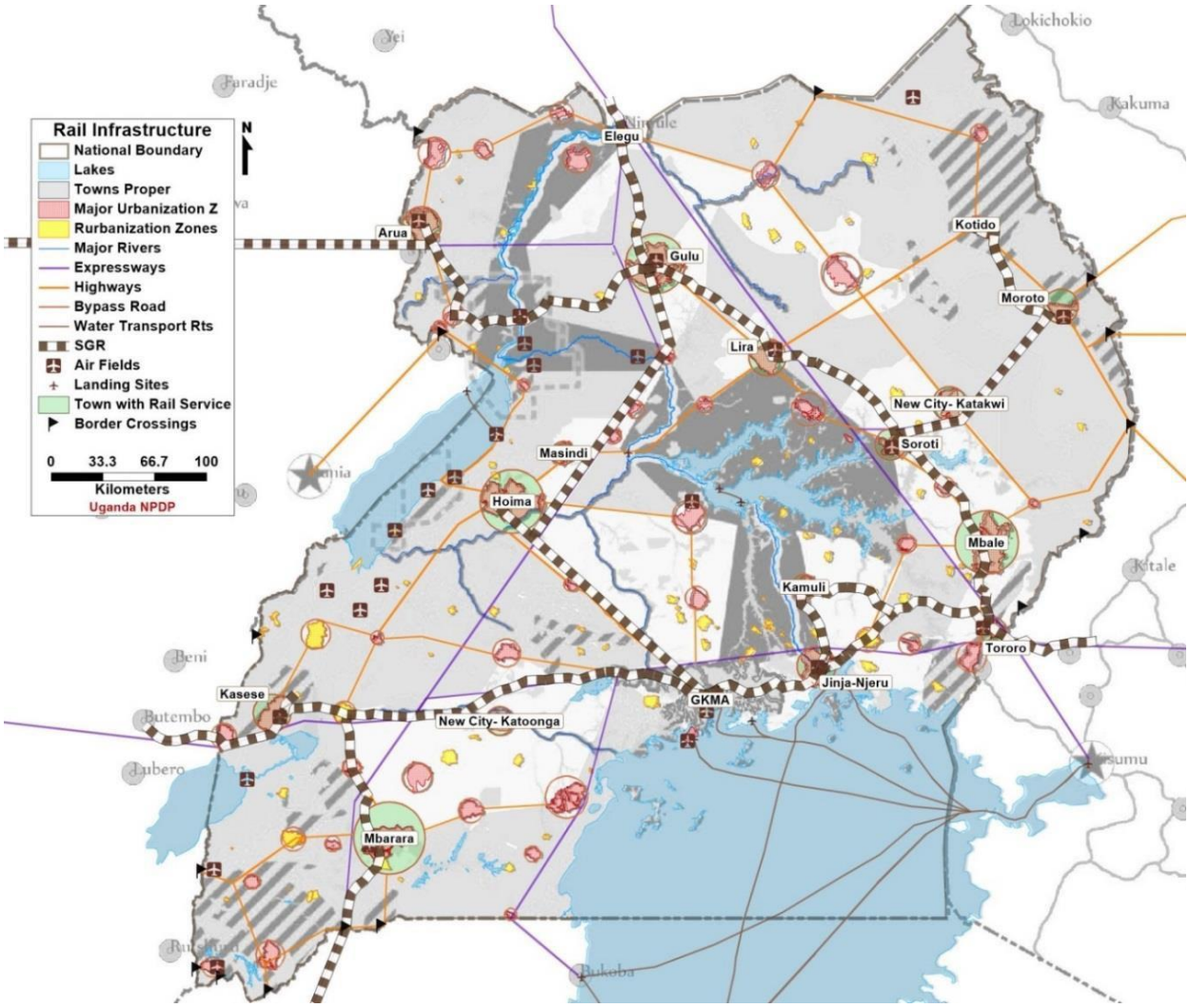
The National Physical Development Plan (NPDP) provides the road hierarchy and network on a national level. The expressways, shown in colour in Figure 7.1.6, will provide high-speed, high-capacity, and access-controlled roads for long-distance travel. It is important to note that the East-West expressway passes through the north of GKMA to avoid congested CBD. Another expressway from GKMA to Masaka and Rwanda is in Figure 7.1.6. Furthermore, the NPDP is proposing the construction of radial highways from GKMA to Nakasongola (north direction), Hoima (northwest direction), and Mubende (west direction).



Source: National Physical Development Plan 2019 – 2040

Figure 7.1.6 NPDP's Road Hierarchy and Network

The current railway line connecting Mombasa, Nairobi, Tororo, Jinja, and Kampala and the abandoned railway line connecting Kampala and Kasese are the backbone of east-west railway traffic. In addition, a new line from GKMA to Hoima is proposed in the NPDP, as shown in Figure 7.1.7.



Source: National Physical Development Plan 2019 – 2040

Figure 7.1.7 NPDP Railway Network

The UNRA completed a study on the Expressway Development Master Plan (EDMP), which it presented to the general public in November 2021. As of July 2023, the UNRA submitted a draft of the study to the Ministry of Works and Transport, the Minister presented it to the Cabinet for approval. EDMP provided a clearer picture of the expressway network in and around GKMA.

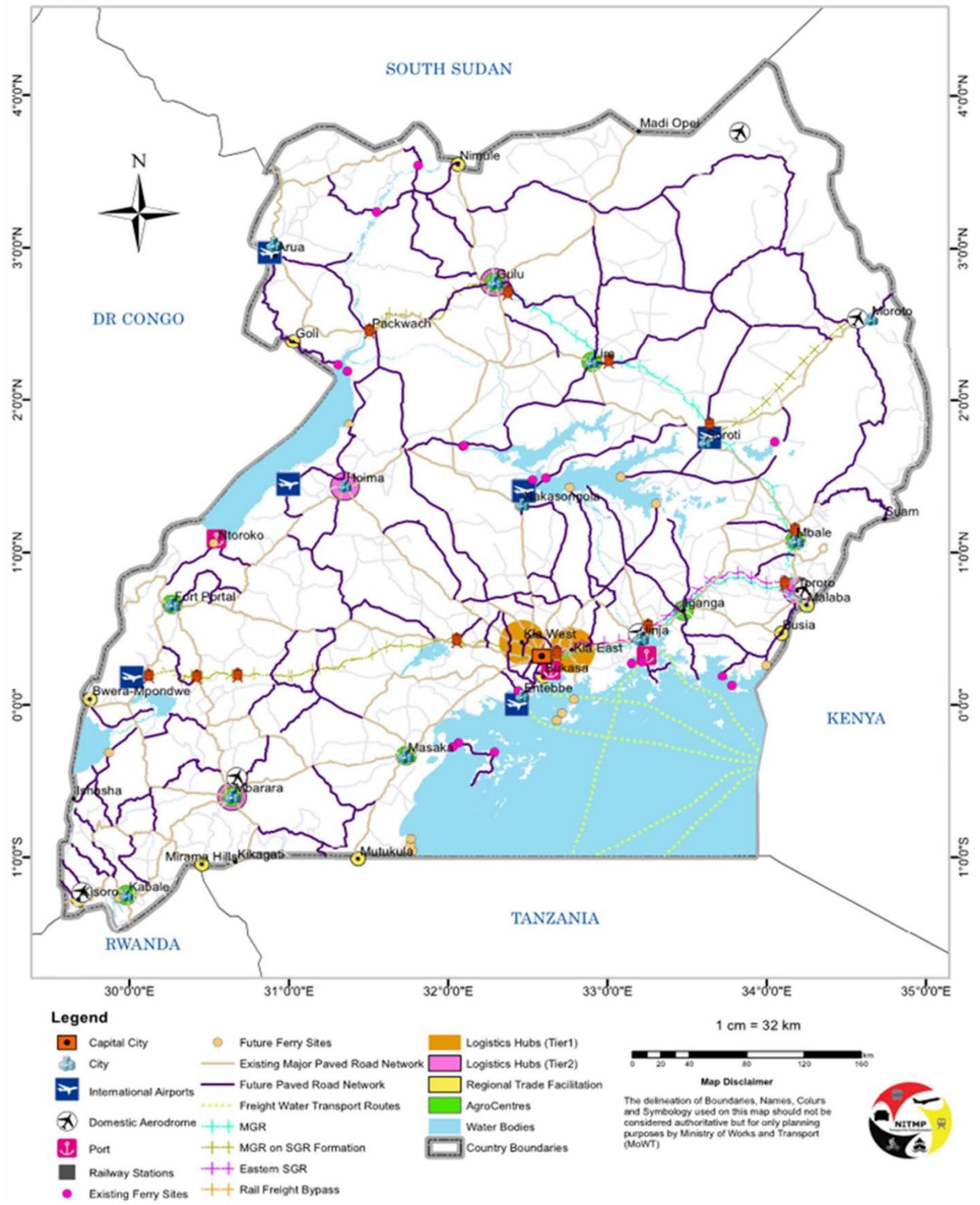
Three-layer ring roads and eight radial roads connecting major cities in Uganda are proposed in the EDMP, as shown in Figure 7.1.8. All radial roads and the two layers of the ring roads will be complete by 2050. EDMP also recommends grid routes bypassing GKMA.

For both NPDP and EDMP, east-west direction expressways are the backbone of the Northern Corridor. GKMA is in a strategic hub of the main corridor and its branches. Therefore, the plans offer careful consideration to separate through traffic from the congested CBD of GKMA by providing detour routes such as ring roads.

Source: UNRA (2021) prepared by Korea Expressway Corporation in joint venture with Kyong Dong Engineering Co., Ltd., Draft Final Report, the Consultancy Services for the Preparation of Expressway Development Master Plan (EDMP) for Uganda

Figure 7.1.8 Expressway Network of the Expressway Development Master Plan

Figure 7.1.9 shows the proposed transport network for 2040 by the NITMP. The NITMP assumed that Standard Gauge Railway (SGR) will reach Uganda by 2040. Consequently, it expects the Metre Gauge Railway (MGR) to be rehabilitated and improved by 2035. The current MGR from Tororo to Kampala will be the main railway line, while the MGR from Kampala to Kasese will turn into an SGR.



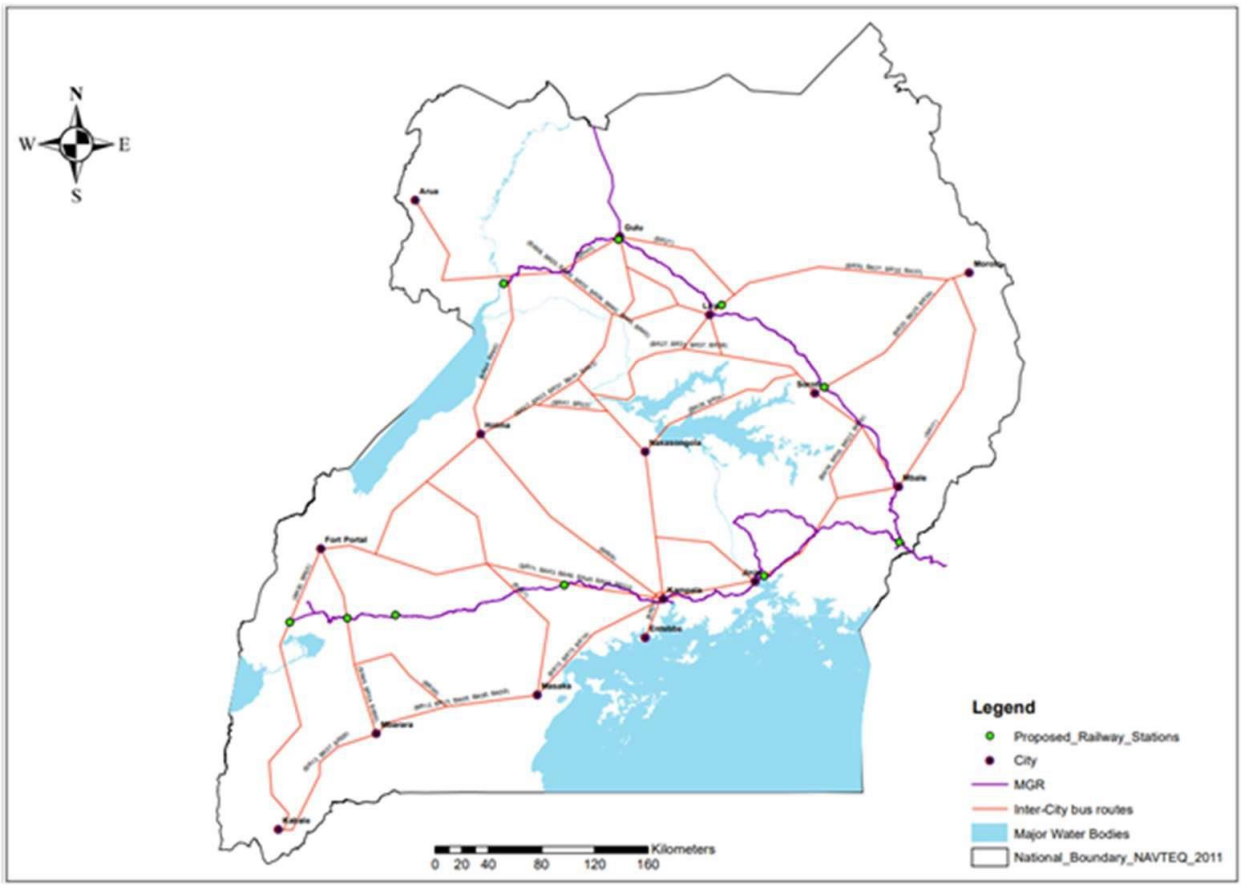
Source: National Integrated Transport Master Plan (2021)

Figure 7.1.9 2040 Transport Network Proposed by NITMP

The NITMP proposes to formulate the future national bus network and service by:

- Development and implementation of a National Public Transport Infrastructure Plan & Investment Strategy;
- Development of Capital Grant Programme to help eligible operators purchase new vehicles;
- Facilitating the roll out the first National Bus Network by implementing National Fares and Ticketing Strategy .

The future bus network will be 6,000 km, connecting 12 cities, 21 highly populated towns, and 13 municipalities, as shown in Figure 7.1.10.



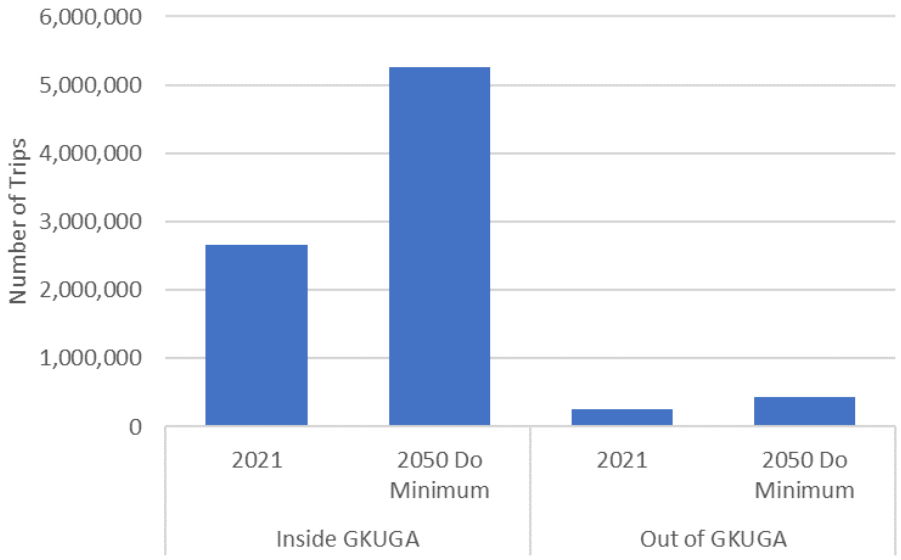
Source: MoWT cited by National Integrated Transport Master Plan, 2021

Figure 7.1.10 NITMP Planned National Bus Network

7.2 Present Transport Situation in GKMA

7.2.1 Increasing Travel Demand in GKMA

In line with the estimated population growth, the number of generated trips in GKMA are expected to be doubled in 2050 compared with 2021 (Figure 7.2.1). The increase in motorized trips is affected by economic growth, as the purchasing power for cars increases with household income. By observation, trips are concentrated in Kampala City if the construction of structures in urban areas continues to develop. Moreover, traffic congestion will occur more likely in suburban areas, especially along the radial national roads.



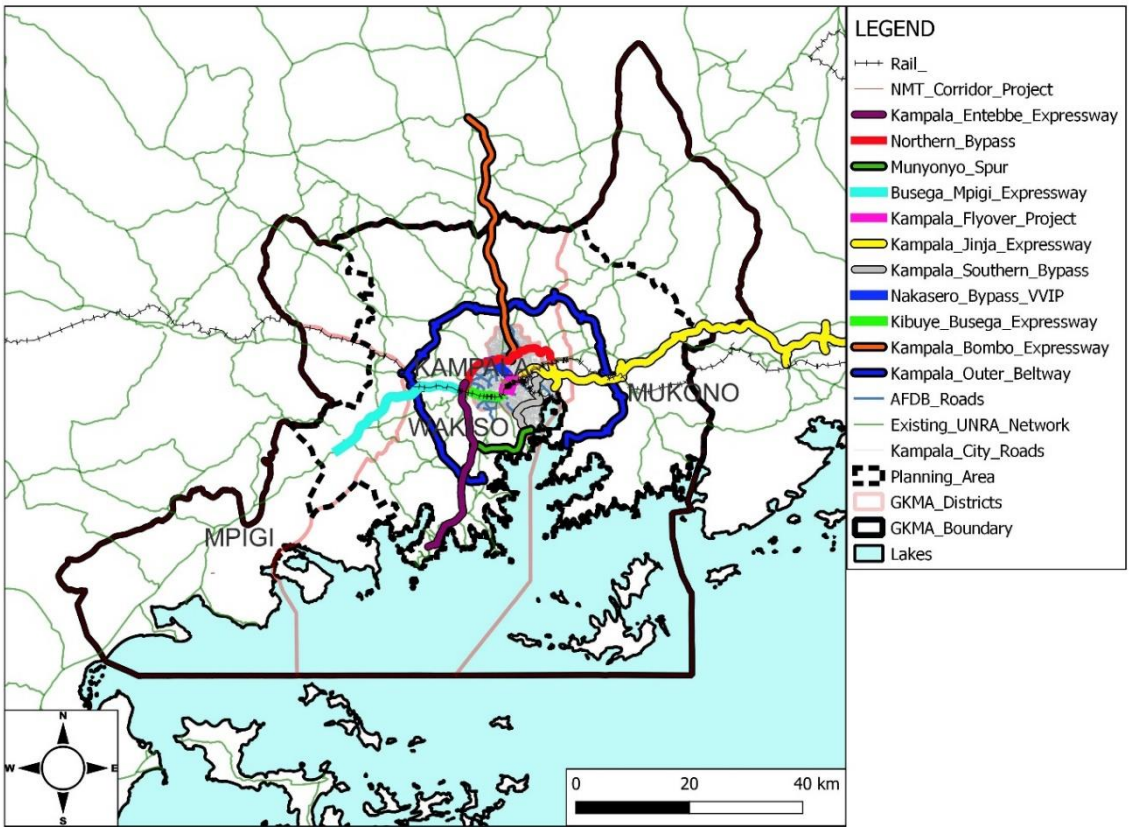
Source: JICA Expert Team

Figure 7.2.1 Estimated Trip Generation of GKMA over Years (Do-minimum Scenario)

7.2.2 Urban Spatial Structure and Road Network Plans

Most of the roads in GKMA are unpaved with two lanes (one lane for each direction) except national and arterial roads in KCC and other municipalities. Heavy traffic congestion is caused by poor road pavements and increasing traffic volume, especially in urban areas of GKMA. Furthermore, road pavement conditions are likely to worsen due to increased motorization, as observed in urban areas of middle-income countries. The Ugandan government is expanding expressways networks to handle increasing motorized travel demand.

Figure 7.2.2 shows the ongoing and committed expressway and arterial road. The Busega – Mpigi Expressway and Kampala Flyover Project are under construction, while other projects are either in the design or procurement stage.



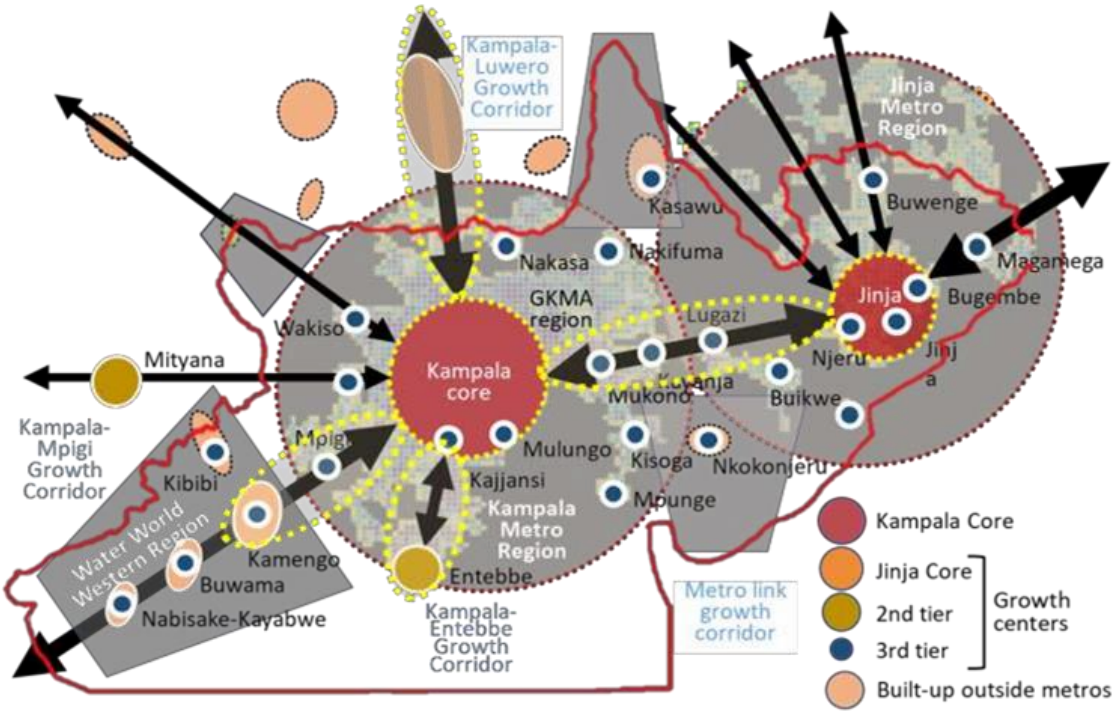
Source: JICA Expert Team based on Interview with Uganda National Roads Authority (UNRA) and Kampala Capital City Authority (KCCA)

Figure 7.2.2 Ongoing and Committed Road Network Development Projects for GKMA

The study on Jinja – Kampala – Mpigi (JKM) physical development plan (also known as the JKM Corridor PDP) was commissioned by the Ministry of Lands, Housing and Urban Development (MLHUD) and funded by the African Development Bank (AfDB) in collaboration with the Korea International Development Agency (KOICA) through the Korea-Africa Economic Cooperation (KOAFEC) Trust Fund. The JKM Plan should serve as a framework for the implementation of projects through well-prioritized investments, taking advantage of regional corridor assets and generating a broader range of economic benefits.

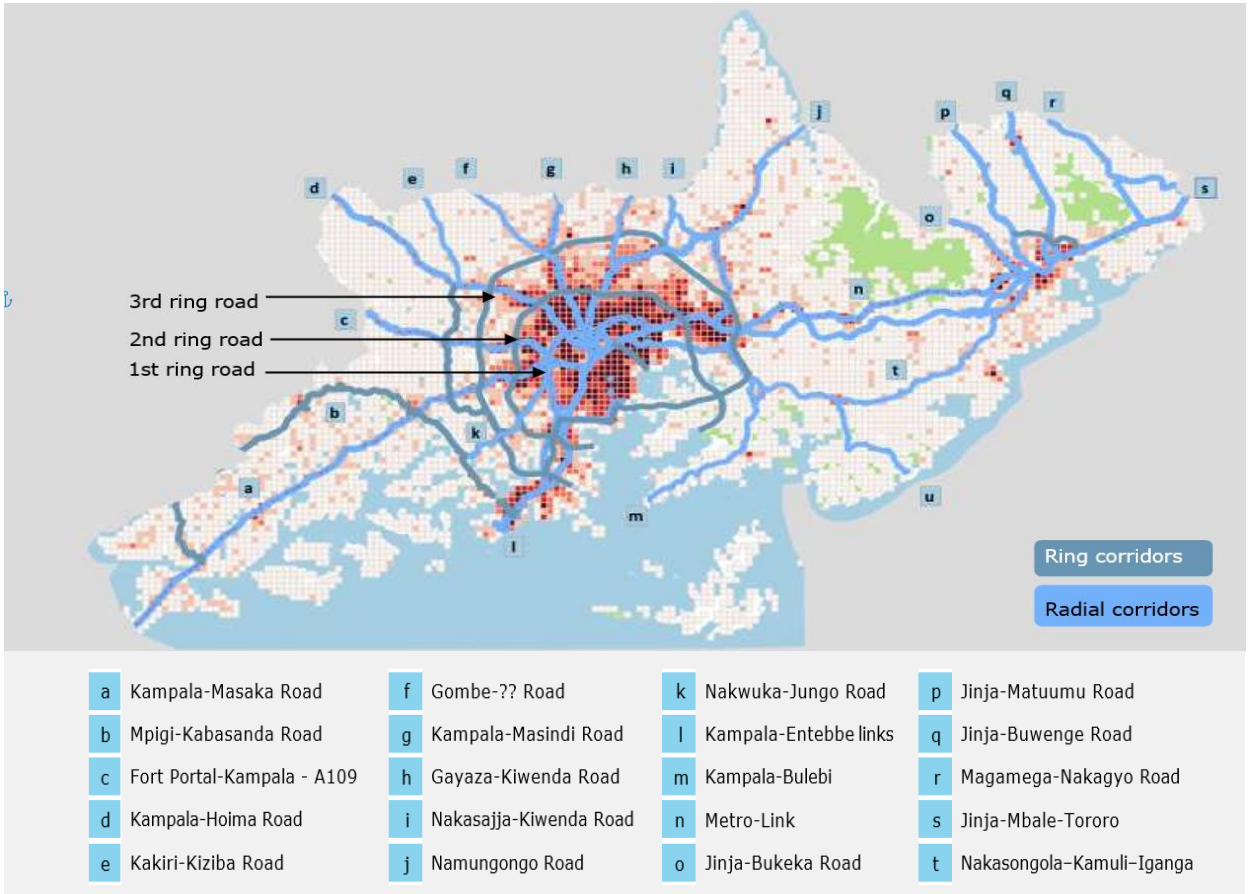
GKMA, Buikwe District, and Jinja District comprise the JKM corridor. The plans for the JKM Corridor were completed and published in February 2023. Figure 7.2.3 shows the proposed spatial strategy concept. The Kampala Core and Growth centres, and suburban areas of Kampala, lie within the proposed JKM Corridor. Proposals for four growth corridors, namely, Kampala – Luwero, Kampala – Mpigi, Kampala – Entebbe, and Metro Link, are underway today.

Ring and radial transport corridors will provide access to growth centres and support growth corridors and metropolitan areas, as shown in Figure 7.2.4. The proposal recommends three triple-ring roads.



Source: Draft Jinja – Kampala – Mpigi (JKM) Corridor Physical Development Plan, Presented in June, 2022

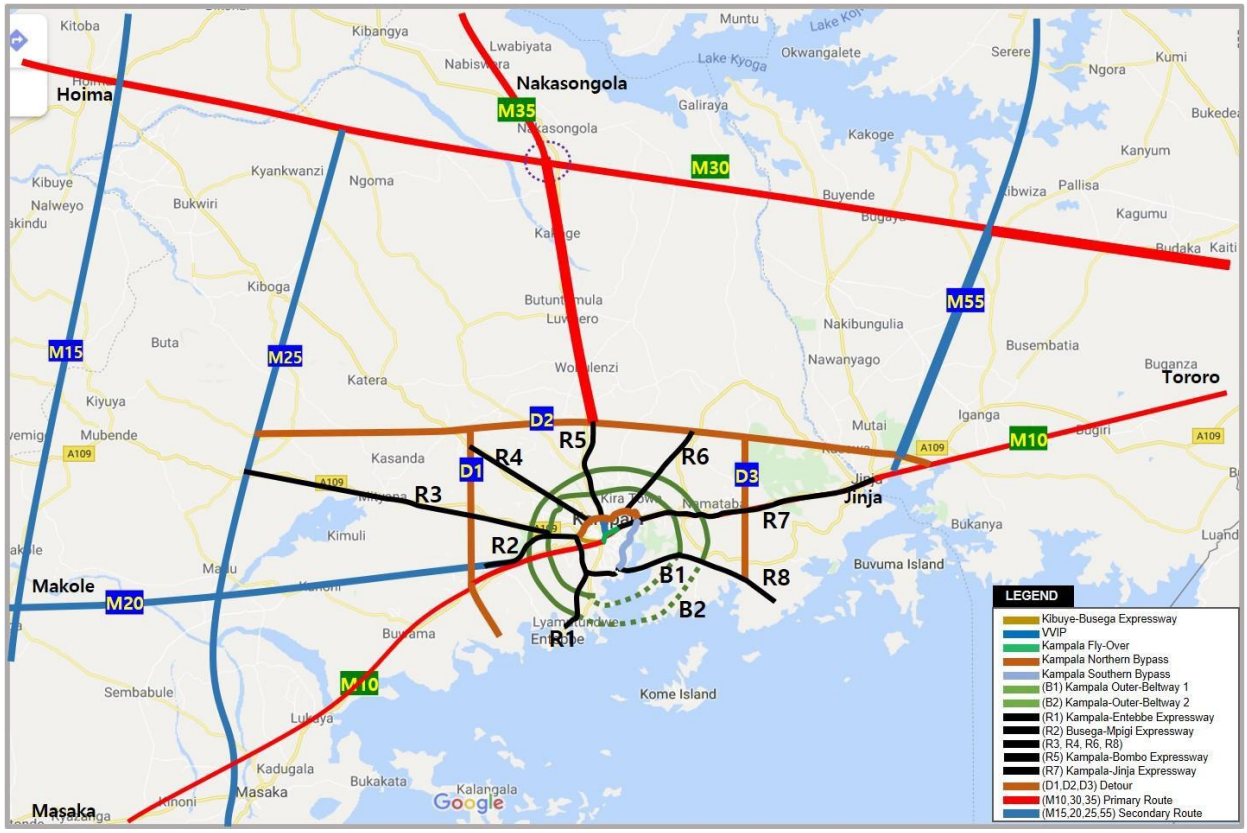
Figure 7.2.3 **Spatial Strategy Concept Proposed by Draft JKM Plan**



Source: Draft Jinja – Kampala – Mpigi (JKM) Corridor Physical Development Plan, Presented in June, 2022

Figure 7.2.4 Transport Corridors Proposed identified by Project for Jinja–Kampala–Mpigi (JKM) Corridor Physical Development Plan

The Expressway Development Master Plan (EDMP) includes the expressway network in GKMA (Figure 7.2.5). In addition to three-layered ring roads and eight radial roads, the plan proposes grid-type roads (D1, D2 and D3) to separate through traffic from the congested Kampala CBD.



Source: UNRA (2021) prepared by Korea Expressway Corporation in joint venture with Kyong Dong Engineering Co., Ltd., Draft Final Report, the Consultancy Services for the Preparation of Expressway Development Master Plan (EDMP) for Uganda

Figure 7.2.5 Proposed Expressway Network for GKMA

Despite the series of national-level and corridor-level plans, infrastructure development faces wide-ranging obstacles. In urban and suburban areas of GKMA, UNRA and Local Governments (LGs) face issues with land acquisition for new road construction and road widening projects.

According to the constitution, the land acquisition process should be fair, equitable, and prompt. Landowner can sell their land at the market price after their properties appreciate from proposed infrastructure development. Therefore, they tend to delay to wait for land price increases delaying proposed acquisitions and increasing project costs.

The capabilities of LGs are also issues worthy of examination. LGs are facing a chronic shortage of budget for road maintenance and construction. For instance, the allocation of funding is usually 50% of the budget, according to Mpigi District.

Uganda Road Fund (URF) is among the most significant sources of funds for road maintenance and repair. 29.42% of UGX 512.18 billion budget of URF, equivalent to UGX 150.69 billion, is allocated for District, Urban, and Community Access Roads (DUCAR) for the entire nation in the fiscal year 2020-2021, while over 60% is for UNRA roads.

Another issue is the quality and condition of road maintenance equipment. LGs often stop maintenance due to road maintenance equipment requiring repairs. As a result, road infrastructure managed by district governments is in poor condition. Most roads are unpaved, except for a few national roads and some in Kampala City. Also, human resources related to construction management and maintenance are issues for LGs.

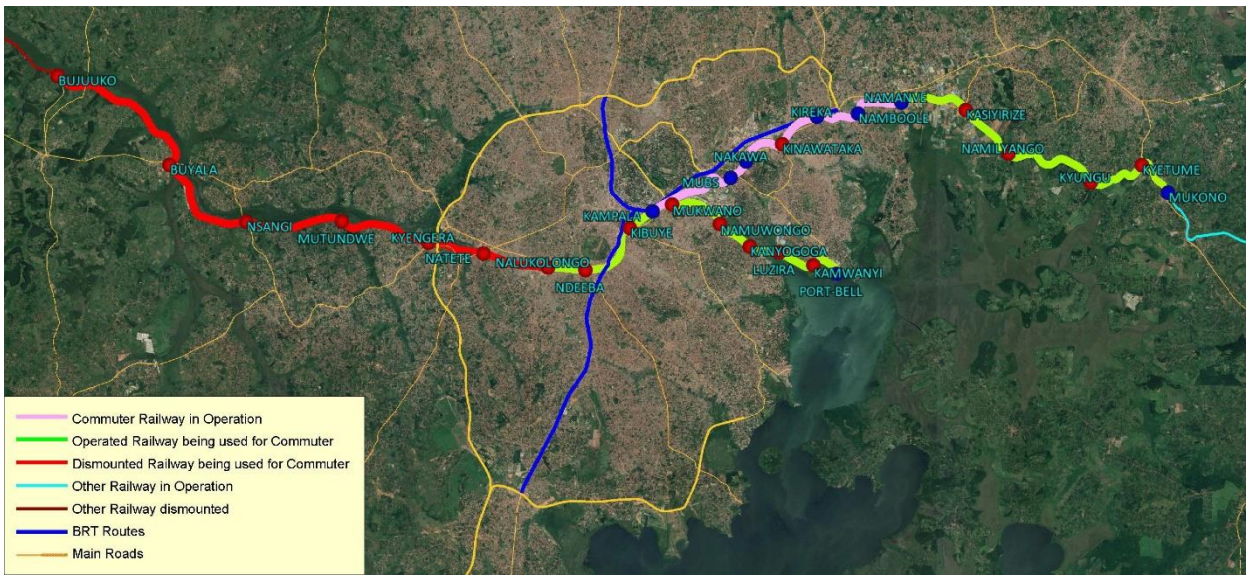
7.2.3 Public Transport Network

Two round-trip passenger railway services were operated between Kampala and Namanve during weekdays in 2022. It was far from providing sufficient urban railway services. It has been closed since April 2023 for six months to accommodate ongoing construction. The project will displace the entire railway to replace concrete sleeper panels and rails.

As discussed in Section 7.1.2, the NITMP proposes rehabilitating the Tororo – Kampala – Kasese railway track, fitting it with a new metre gauge configuration by 2035, as shown in Figure 7.1.9. Uganda Railways Corporation (URC) commenced the emergency repairs to the metre gauge railway of Kampala – Malaba (a Kenyan city sharing a border with Uganda), Kampala – Port Bell, and Kampala – Nalukolongo – Kyengera with funding from the African Development Bank (AfDB).

The "Feasibility Study of Expansion of Uganda Railways Passenger Services in Greater Kampala Metropolitan Area – Uganda" was conducted in 2020 with funding from the EU. The study proposed the modernisation of the 53 km section of Mukono – Kampala – Nalukolongo – Kyengera – Bujjuko, and the 8 km branch line to Port Bell.

As seen in Figure 7.2.6, Scenario 1 will supply the single track with diesel trains. Scenario 2 will provide enough trains for the forecasted increase in ridership, which requires electrification and double tracking.

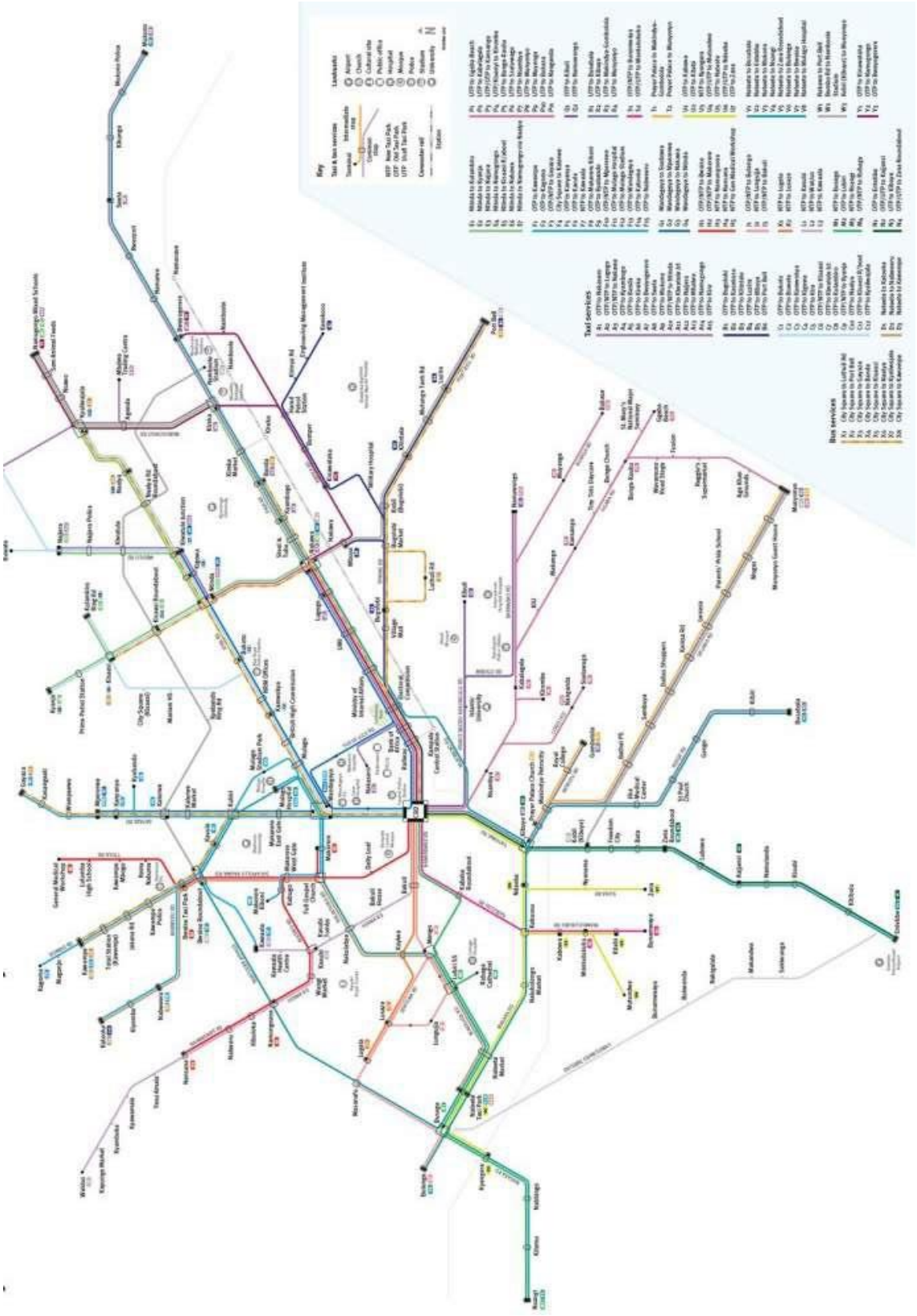


Source: Feasibility Study of Expansion of Uganda Railways Passenger Services in Greater Kampala Metropolitan Area (2020)

Figure 7.2.6 Present Railway Network and Planned Projects

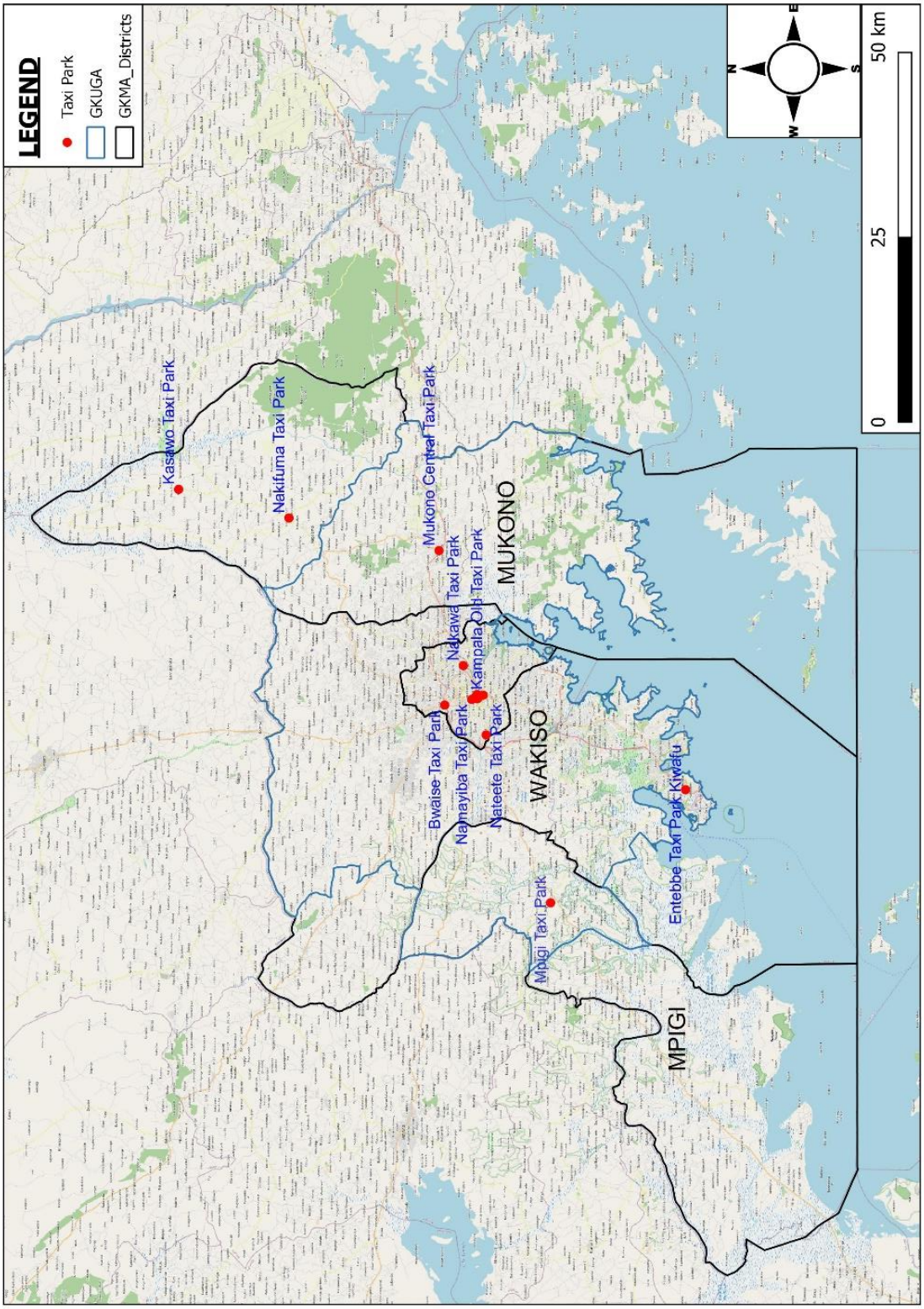
A dense taxi network operates within KCC. However, only taxi routes along major radial roads are available for passengers in suburban areas and rural areas, as shown in Figure 7.2.7. In suburban areas, feeder services from major radial roads are inadequate or restrictive, with boda-boda being the sole significant means of transport. At major junctions of radial roads, taxi park on roadsides, waiting for passengers. Many LG-operated taxi parks host only a small number of taxi, as ridership is broadly unavailable at their locations. Parked taxis cause traffic congestion in several junctions.

Districts manage taxi operators, and statistics are unavailable to quantify their efficiency. Local taxi operations are market-oriented, and there is limited policy-based intervention due to a lack of human resources and funding for LGs.



Source: KCCA, Kampala Public Transport Routes, https://www.kcca.go.ug/media/docs/Kampala%20Public%20Transport%20Routes.pdf

Figure 7.2.7 GKMA Public Transport Network



Source: JICA Expert Team based on interviews with KCCA and local governments

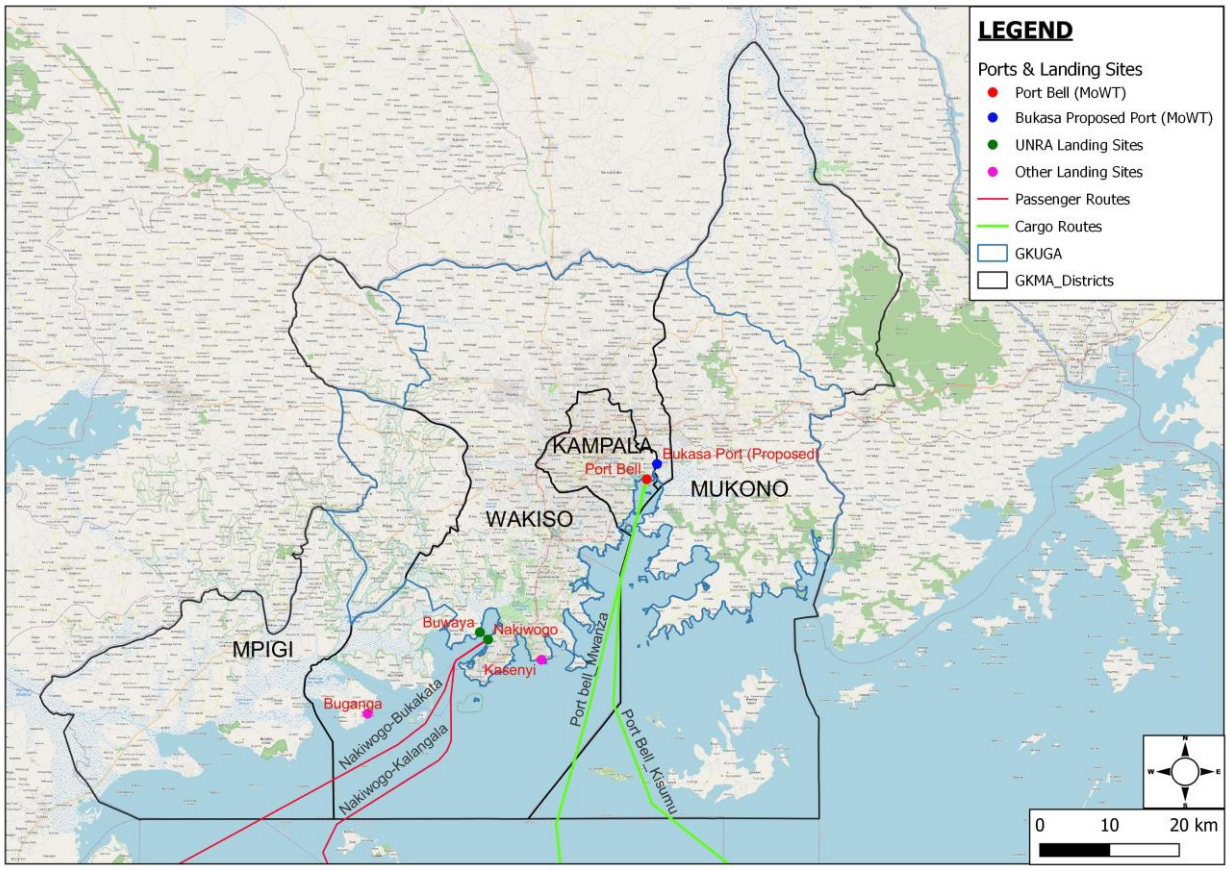
Figure 7.2.8 Locations of Taxi Parks in GKMA

Port Bell of Lake Victoria is a prominent port, serving as a landing site with surrounding smaller harbours for the ferries and private motorboats from the mainland to the outer islands in the GKMA and beyond. It functions as a multimodal transport hub.

The Ministry of Works and Transport plans to construct a new port in Bukasa to offer an alternative maritime landing for Uganda. Construction has not yet commenced, as the government of Uganda through the Ministry of Finance, Planning, and Economic Development, is still soliciting for a financier for the project.

Within the GKMA, the UNRA provides several short-range ferry services, as these ferry links are perceived to be an extension of the roads. Today, UNRA provides free high-frequency ferry services on the Nakiwogo (Entebbe, Wakiso) – Kyanvubu (Buwaya, Wakiso) (see Figure 7.2.9).

UNRA also operates ferry services between Nakiwogo (Entebbe) and Lutuboka (Bugala Island, Kalangala) to connect people from Bugala Island to mainland Uganda. However, these ferries are often considered deficient in connectivity and quality, so the GoU implements a PPP scheme to maintain and improve them.



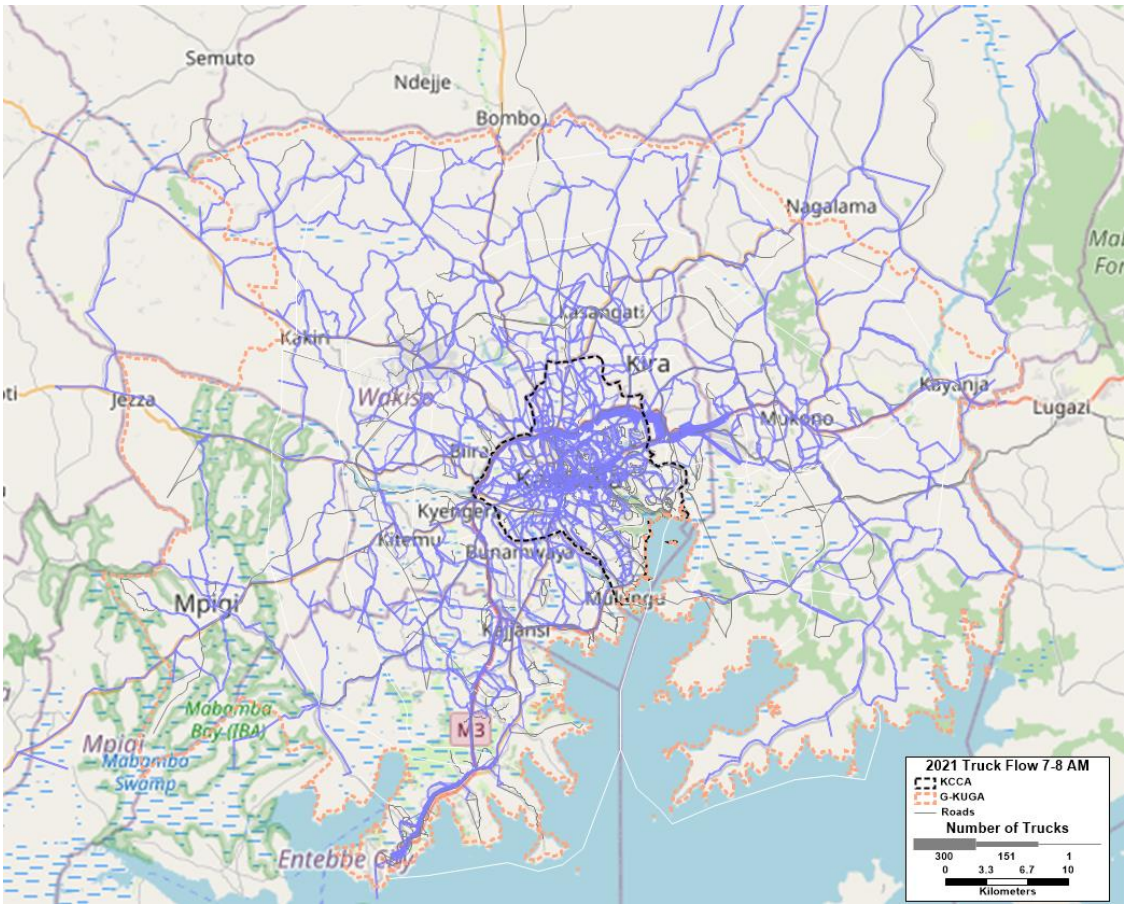
Source: JICA Expert Team based on interviews with Ministry of Works and Transport

Figure 7.2.9 Present Major Ferry Routes in GKMA

7.2.4 Logistics

Figure 7.2.10 shows the estimated freight vehicle flow on the present road network during the morning peak hour with the most traffic. While significant amount of freight traffic to, from, and through GKMA is prevalent across the map, most freight vehicles ply major arterial roads, such as those on Jinja, Bombo, Masaka, and Entebbe, because of their well-maintained conditions.

International and inter-regional freight traffic is often mixed with short-distance intra-GKMA traffic because of limited paved routes available to drivers.

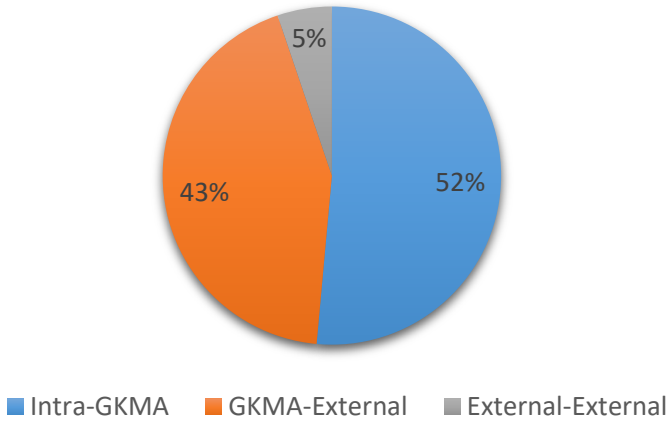


Source: KCCA, 2018, Final Report, Multi-Modal Urban Transport Master Plan

Figure 7.2.10 Freight Flow Volumes of the Morning Peak, 2016 Base Scenario

Figure 7.2.11 illustrates the share of freight traffic by OD type in GKMA based on the 2016 MMUTMP freight traffic survey.

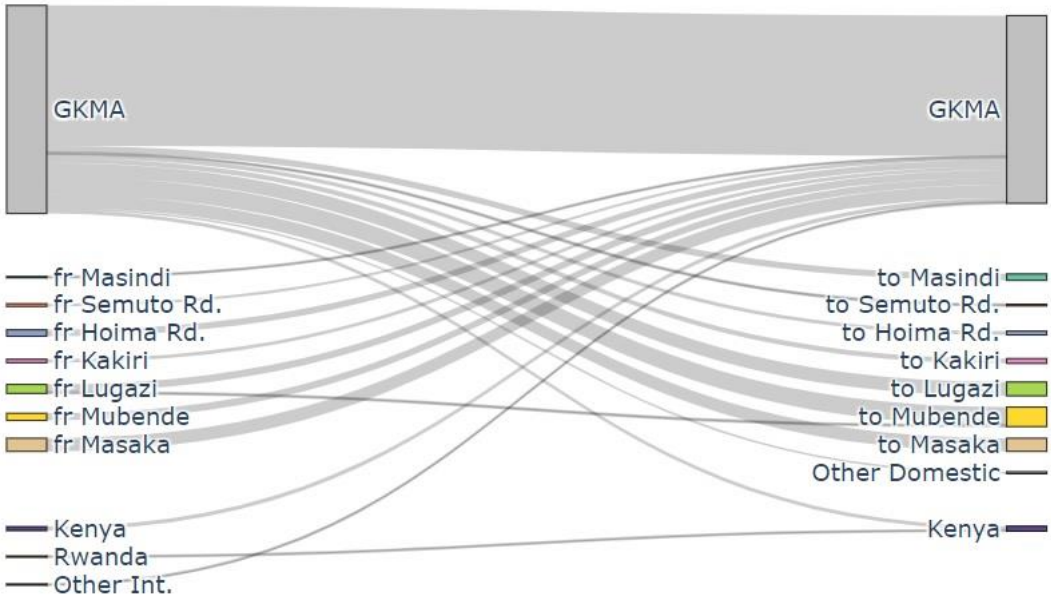
The survey indicates that nearly half of the freight vehicles on the GKMA interior travel through its boundaries to outer areas. Through traffic, such as from Lugazi to Mubende and Rwanda to Kenya, accounts for a mere 5%. A significant increase in cargo traffic is likely, as GKMA is on the northern corridor.



Source: JICA Expert Team based on Freight Traffic Survey conducted in 2016 as a part of the study for Multi-Modal Urban Transport Master Plan (MMUTMP), 2018
Note: This graph is based on the survey results of 1,557 trucks at 15 survey locations along major radial corridors in the MMUTMP Study Area. No adjustment are made.

Figure 7.2.11 Share of Freight Traffic by OD Type in GKMA

Freight vehicles run various routes to and from domestic destinations, such as Mubende, Masaka, and Lugazi. Many travel international routes, originating countries like Kenya and Rwanda (Figure 7.2.12).



Source: JICA Expert Team based on Freight Traffic Survey conducted in 2016 as a part of the study for Multi-Modal Urban Transport Master Plan (MMUTMP), 2018
Note: This diagram is based on the survey results of 1,557 trucks at 15 survey locations along major radial corridors in the MMUTMP Study Area. No adjustment are made. OD flows of 8 observations (vehicles) or less are not shown.

Figure 7.2.12 Origin and Destination Flow of Freight Vehicles Observed in GKMA

The current freight logistics of GKMA are heavily road-oriented, partly due to the lack of reliable railway and waterway freight transport. The capacity of intermodal facilities, such as an Inland Container Depot (ICD) and Port Bell of Lake Victoria, are insufficient to handle increasing demand. The Ministry of Works and Transport plans to construct a new port in Bukasa to accommodate rising freight traffic, but the project is yet to commence.

Despite the Government's commitment of developing the SGR project from Mombasa to Kigali and Juba, construction is on hold. As of this writing, the SGR is incapable of reaching the border. Metre gauge railways play an essential role in supplementing its deficiencies.

The current surface of ICDs measures 35 hectares, far from the acceptable level of 630 hectares, according to the estimates of NITMP in 2021.

7.2.5 Insufficient Transport Infrastructure and Services Outside GKUGA within GKMA

As described in the previous sections, GKMA contains the main trunk lines of various transport infrastructure and services, including the following:

- National-Level Arterial Roads (Corridors)
- National-Level Expressways
- National-Level Inter-City Bus Routes
- National-Level Railways

Plans for future transport developments are underway. Many finished projects crowd the centre of Kampala Capital City (KCC) via radial routes. Some planned routes intentionally bypass the KCC to decongest its roads.

The GKMA contains KCC in its centre, enclosed by outlying suburban and rural areas. Because of its strategic location, the GKMA hosts areas with wide-ranging functions, such as local administrative spaces, industrial zones, warehousing and logistics hubs, and localities with

suburban commercial services. They utilise the transport infrastructure and service trunk networks mentioned above.

Transport infrastructure and services are gradually reaching areas in GKUGA, where population growth is increasing due to suburbanisation from the KCC, and integrated urbanisation is forthcoming. However, there is a need to accelerate the development of infrastructure and services further.

In rural areas outside the GKUGA, where small administrative and service/trading centres are prevalent, national-level transport arteries and services provide inadequate support to improve living standards and business opportunities for local populations. Therefore, other provincial roads, taxi services and local bus routes, etc. are under development. However, they have not yet reached a level of development and maintenance sufficient for reliable service.

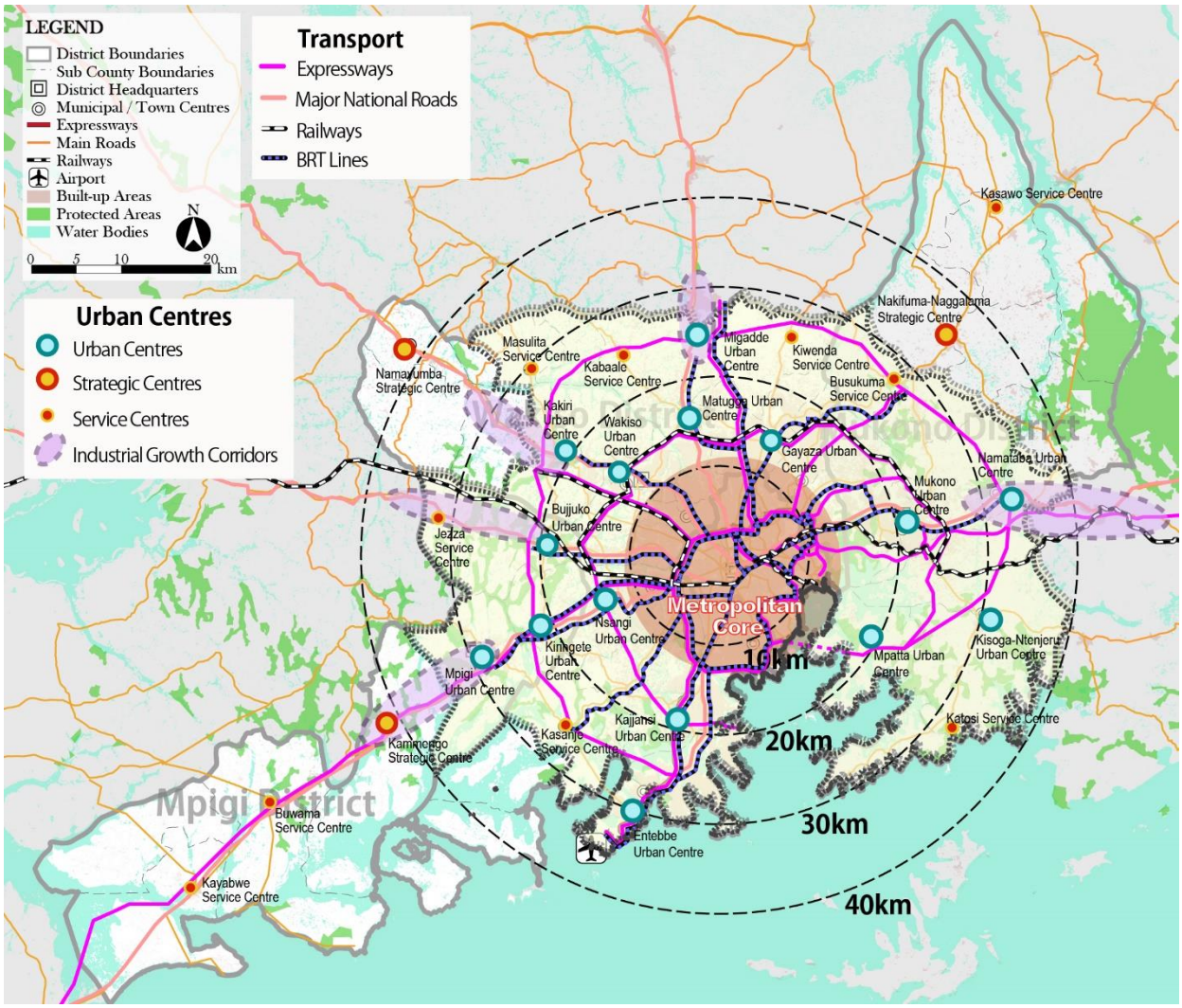
7.3 Policies for Trunk Road Development in GKMA

(1) Policy 1: Form a Polycentric Urban Spatial Structure with Radial and Ring Development Corridors

At present, the economic activities of GKMA are concentrated in Kampala Capital City (KCC), especially in the CBD, resulting in significant urban problems, such as traffic congestion and exorbitant land prices. Road capacity is fundamentally insufficient to handle increasing travel demand. While the government is working on the constructing new expressways, arterial roads are also required to serve intra-GKMA trips. The construction of radial corridors, composed of an expressway, a parallel arterial road, and access roads, is essential.

Combining an expressway with a parallel arterial road can improve resilience from road closure due to traffic accidents and natural disasters. Strategic growth corridors are under proposal for Kampala – Nansana – Wakiso – Kakiri, Kampala – Entebbe, and Kampala – Jinja.

Ring roads that service vehicles between sub-centres and through traffic are critical to supporting suburban centres and long-haul freight routes. They are essential for interconnected suburban centres as they reduce traffic on radial corridors. As GKMA is on the growing Northern Corridor, roads bypassing CBD are critical for separating intra-GKMA radial passenger trips from international and inter-district freight traffic. In the eastern and western periphery of the GKMA, roads going north and south accommodate these vehicles. Figure 7.3.1 shows the conceptual road network in GKMA. Road network development in GKMA must follow urban development policies. The proposed seven radial corridors and the three ring roads will connect suburban centres while segregating international and inter-regional traffic.



Source: JICA Expert Team

Figure 7.3.1 Road Network and Spatial Structure of GKMA

(2) Policy 2: Secure Lands for Transport Infrastructures and Urban Development

The pressure of urbanisation is growing in GKMA, especially at the periphery of the established urbanised area. If the government does not implement control measures, urban sprawl will continue without necessary infrastructure, such as arterial roads, sewage, drainage, and water and electricity supplies. Once land development progresses this way, it is challenging to reorganize the plots and install new roads as it will impact residents and commercial structures.

Restricting land development to allot spaces for transport infrastructure, such as roads and railways, is recommended for any green field. Physical development plans are critical for specifying land use, including allocations for transport infrastructure. It is, therefore, essential to formulate a detailed physical development plan at an early stage of urban planning. Also, strengthened government control over new building permits and land development is highly beneficial.

Real estate values around proposed road developments artificially increase during the time gap between government decisions and land acquisition. Landowners inflate prices while expecting the improvement of nearby transport infrastructure and the potential of urban development. The government must then purchase these lands with higher appraisal values. As a result, landowners capture all the profits from increased land values caused by new transport infrastructure.

For optimal cost-efficiency, government agencies must purchase lands in suburban areas, especially lands that can serve as candidates for suburban centres, as fast as possible to minimise the cost of land acquisition and capture the values offered by their appreciation.

A joint urban development project with landowners, international donors, and private investors can reduce the financial burden of acquiring land for government agencies.

(3) Policy 3: Pave the Roads for Development and Inclusion

District and community access roads in GKMA are barely paved. Unpaved roads limit the movement of residents and the potential for economic development. Agricultural and fishery transported on unpaved or rough roads can be damaged. Delivery time is critical for some agricultural and fish products which require freshness. Export and consumption in the national market are also limited.

Unpaved roads with poor surface conditions affect the accessibility of residents to medical services, job opportunities, public services, and the market. This results in social exclusion from transport infrastructures and services.

Flexible or rigid pavement contributes to improving mobility and accessibility. Although finance, human resources, and equipment are constraints in improving road pavements, the government must prioritise the needs of residents and industries, consider the risk in disaster-prone areas and problems in network connectivity, such as missing links, and examine the social and environmental aspects.

Construction of low-cost sealed roads with labour-based technologies (LBT) can reduce costs, create job opportunities, and improve ownership of the residents.

(4) Policy 4: Enhance GKMA's Regional Economy with Roads

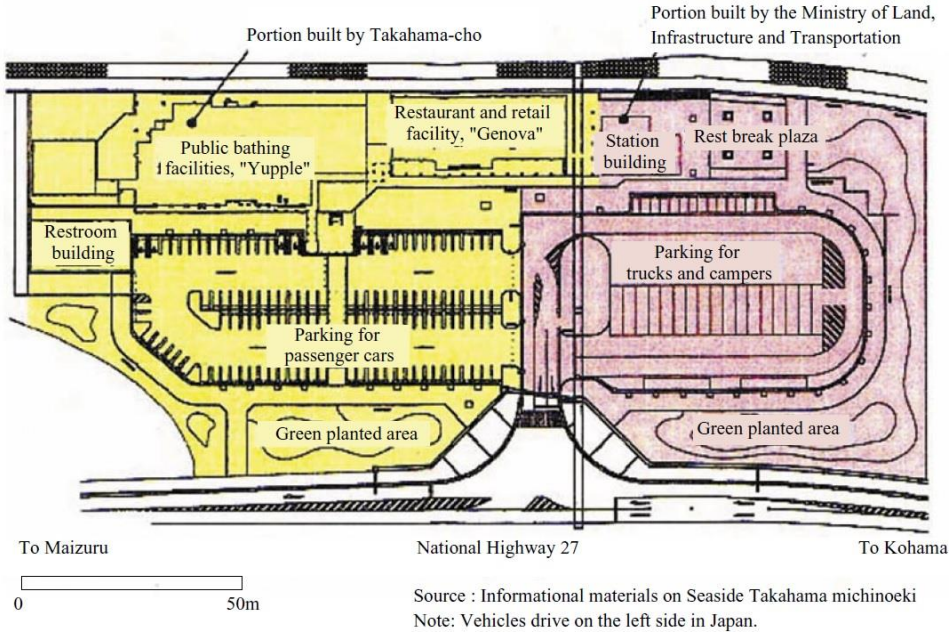
The high number of consumer markets in GKMA develops the potential for agriculture, industry, and tourism. GKMA is a gateway for international passengers and imported goods through the Jinja-Kampala Road, Entebbe International Airport, and several ports in Lake Victoria. Roads are fundamental infrastructure for transporting people and goods. Besides, roads can have the function of attracting people, selling local products, and providing information for tourists for all visitors.

The NITMP proposes the concept of "Ugandan Golden Routes (UGR)" connecting the scenic tourist locations in the country (Figure 7.3.2). GKMA is the hub of UGR, which connects Entebbe International Airport to the eastern area towards Jinja, the northwestern area toward Hoima, and the southwestern area toward Masaka.

The UGR concept includes drafting and implementing standards to provide comfortable rest areas and accessible marketplaces for selling local products along roads. The Guidelines of Roadside Stations "Michinoeki" (the World Bank, 2004) provides technical guidance on planning, implementing, marketing and operating rest areas and market sites (Figure 7.3.3).

Source: National Integrated Transport Master Plan (2021)

Figure 7.3.2 Ugandan Golden Routes



Source: Informational materals on Seaside Takahama michinoeki cited by Guidelines for Roadside Stations "Michinoeki", the World Bank, 2004, available online http://www.worldbank.org/transport/roads/rdside%20station%20docs/01_Intro-Note6.pdf

Figure 7.3.3 Example of Roadside Stations (or Rest areas and Market sites, "Michinoeki") in Japan

(5) Policy 5: Strengthen Local Governments for Planning, Implementation, and Maintenance of Roads

The Uganda Road Fund (URF) is for road maintenance and repair. However, it is insufficient to maintain the roads of the country, especially district roads, community access roads, and urban roads. It must have sufficient funding sources to cover required maintenance costs for UNRA roads, district roads, and community access roads.

For instance, Mpigi District has a total of 178 km total length of community access roads. 98.4 km of the community access road is well-maintained with the funding from the URF. Most of the community access roads are overgrown with bushes. Moreover, the allocated budget is not fully distributed due to financial constraints and emergency expenditures.

Roads without proper maintenance are expensive in the long run. From the viewpoint of capacity building of engineers and workers in charge of road maintenance, their experiences cannot be accumulated if their employment is only for a short term due to a lack of a continuous annual budget. Annual budget security for road maintenance and repair is a need to maintain good road conditions.

While acts are amended for road user charges (RUCS) to remit directly to URF, the treasury determines the funding level rather than the funding needs of road maintenance. Strengthening the funding capacity of URF and increasing the funding sources for the URF, such as an increasing tax for vehicle registration and inspection, can improve road maintenance and deter motorisation.

Human resources and equipment of LGs for road construction and maintenance need to develop. One constraint of local government for road network development and maintenance is human resources. Most LGs in GKMA have few engineers, oversee engineering projects, including roads, drainages, water supply, sanitation, solid wastes, government building management, and the like. Insufficient human resources to plan and implement infrastructure projects is problematic. Moreover, a shortage of equipment for road construction and maintenance is also an issue. A sufficient number of equipment should be prepared considering the period of maintenance of equipment.

7.4 Policies for Public Transport (including Buses, Taxi and Railway) in GKMA

(1) Policy 1: Revive Metre-Gauge Railways as a Trunk Mode

The Uganda Railways Corporation (URC) is working on the project of rehabilitation of the GKMA passenger rail service and the Kampala – Malaba international and domestic freight rail service funded by the African Development Bank. The GKMA passenger rail service includes the section of Kampala – Namanve, Kampala – Port Bell, and Kampala – Nalukolongo – Kyengera. It aims to significantly improve the capacity and speed of passenger and freight railway services. It is expected for completion at the earliest possible time. However, involuntary resettlement procedures and construction may affect the project delivery time. In the long term, further improvement of railway operations, such as double tracking and electrification, can improve travel speed and frequency.

(2) Policy 2: Improve Service Level of Road-Based Public Transport

Taxi (matatu) is the most common mode of urban transport in GKMA. It also plays a significant role in secondary and feeder routes where demand is moderate. The radial and ring development corridors of GKMA will be transform into high-capacity modes such as railway and Bus Rapid Transit (BRT). Boda-boda can serve feeder routes with less demand, such as rural areas of GKMA.

Buses operated by private sectors are the major mode of transportation for inter-district passengers. The Ministry of Works and Transport should manage private bus operators through route permits, fare approval, vehicle inspection, minimum service standard, and government subsidy. However,

the implementation is underutilized and should consider the safety and security of passengers and the level of service provided by public transportation. Multi-modal transport hubs at urban centres and service centres can ease burdens of transfer between inter-district routes, trunk routes and feeder routes.

With periodical surveys and data collection on travel demand, inspections on safety, security and service level, it is expected to manage all public transport modes properly. Digital transformation (DX) technology can significantly contribute to implement survey and data collection. It is also expected to ease routing and payment of all modes of public transport through the introduction of MaaS (Mobility as a Service). The government is expected to formulate a platform of MaaS to avoid monopoly and oligopoly of the market which also enables effective management of public transport modes.

(3) Policy 3: Encourage Modal Shift from Road-Based Freight Transport to Rail Transport and Waterborne Transport

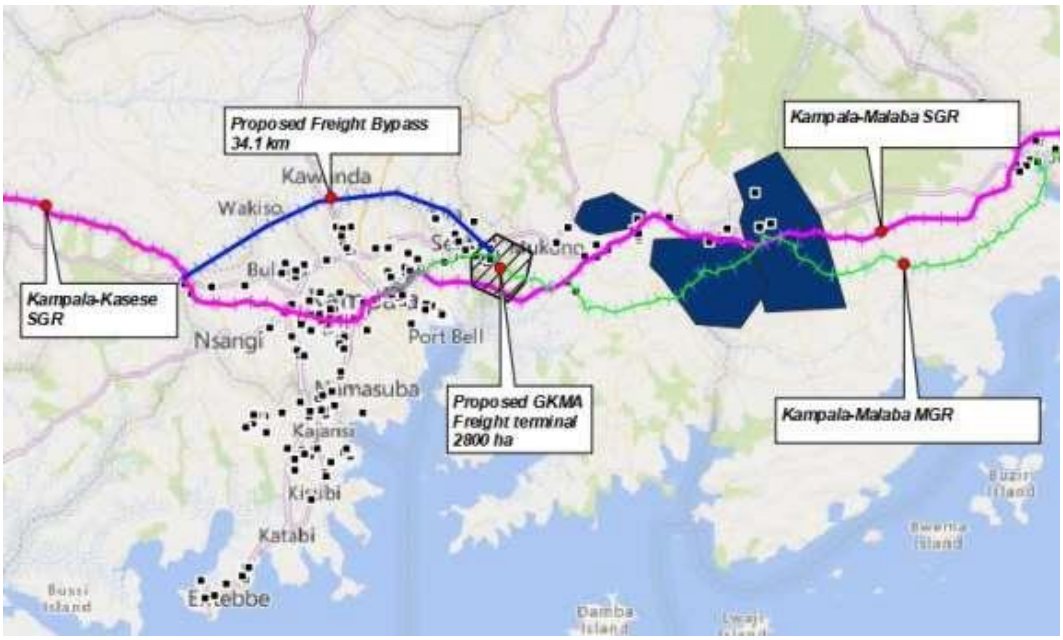
Road freight transport, mainly by trucks, provides excellent door-to-door services while it reduces cost and time for loading and unloading. However, it causes traffic congestion and produces greenhouse gases and air pollutants.

On the other hand, railway and waterborne freight transports require loading and unloading at the origin and destination stations and ports. They entail a lower unit cost per kilometre which can offset the cost and time for long-distance services. Therefore, the operating travel speed, the cost and time of loading and unloading of railway and waterborne freight transports need improvement.

Improving intermodal freight centres such as Greater Kampala Metropolitan Freight Terminal (GKMFT) can reduce the cost and time for the railway–truck cargo handling. Improvement of the current inland container depot in Mukono along the existing MGR is cost effective for the short term as land is readily available but should be upgraded to the GKMFT in long run.

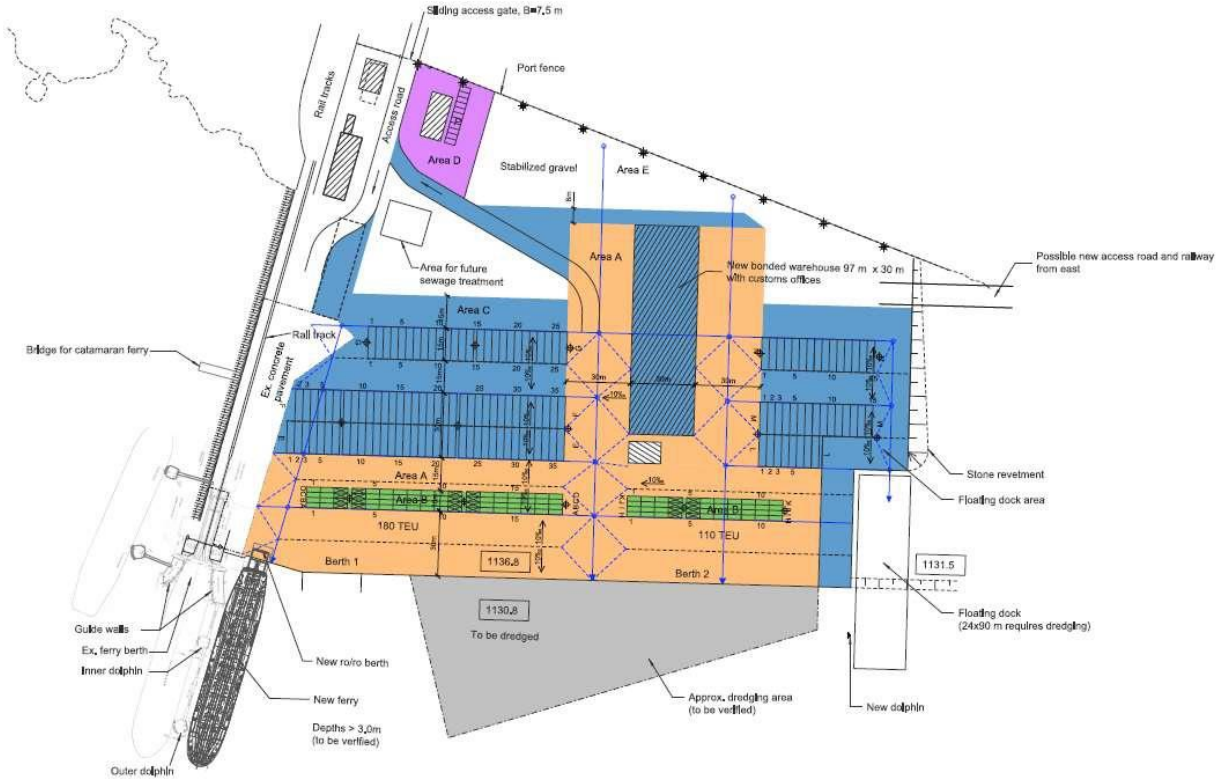
Port Bell plays a primary role in the water freight transport between Kisumu (Kenya), Musoma (Tanzania), Mwanza (Tanzania), and Bukoba (Tanzania) (Figure 7.4.2). The PPP scheme can improve the operation of regional freight in Port Bell. Moreover, the viability of large-scale infrastructures such as Busega Port and the SGR should be studied while considering cargo demand and finances. It is important to note that these projects may reduce the involvement of private investors in the development of current infrastructures.

The improvement of the current MGR of Kampala – Malaba (a Kenyan city on the border with Uganda) will affect the travel time of railways. The capacity of railway traffic around Kampala station is critical, especially during morning and evening peak hours. The detour railway route bypassing the CBD of Kampala, the Kampala Rail Bypass, is proposed in the National Integrated Transport Master Plan (NITMP). The joint development of the expressway, Kampala Outer Beltway, and the Kampala Rail Bypass can minimize cost, time and land acquisition.



Source: National Integrated Transport Master Plan (2021)

Figure 7.4.1 Proposal of Kampala Rail Bypass and Greater Kampala Metropolitan Freight Terminal by NITMP



Source: NIRAS (2015) sited by Finial Due Diligence Report, Lake Victoria Transport PPP Due Diligence (2018)

Figure 7.4.2 Port Bell Master Plan Layout

(4) Policy 4: Improve Accessibility for All Residents in GKMA

Access to public services, such as medical, educational, and administrative services, is essential regardless of residential location. BRT and railways are accessible to residents of urban areas such as GKUGA. However, islands, peninsulas, and mountains outside GKUGA are inaccessible since private transport operators would not invest in low-passenger demand areas.

Information and Communication Technology (ICT) can be a breakthrough to provide public transport services in these areas. Demand-responsive ride-hailing services (i.e., Safeboda and Uber) with several vehicles such as motorcycle, three-wheeler, car, and minibus can provide areas with less travel demand. The condition of universal service in the GKMA, which obligates service provision of the entire GKMA, can be set for the operational permission of ride-hailing platformers. Considering the financial constraints of public transport services in remote areas, subsidy schemes for public transport operation, either by private operators or residents in conjunction with the safety standards and service standards, can improve public transport services in remote areas.

(5) Policy 5: Strengthen Local Governments (LGs) for Public Transport Projects

Today, the public transport services in GKMA, excluding KCC, are market-oriented or market-driven. It is under-regulated with issues of safety, security, accessibility, and financial sustainability. Government interventions are expected to overcome these challenges. Unfortunately, most LGs are ineffective in regulating public transport services due to a lack of human and financial resources. While the development of common infrastructures such as road pavement and water supply has been the focus of LGs, LGs must pay more attention to public transport issues by allocating sufficient human resources.

Chapter 8 Policies for Public Facilities in Greater Kampala Metropolitan Area (GKMA) including Greater Kampala Urban Growth Area (GKUGA) and Kampala Capital City (KCC)

8.1 Policies for Health Facilities in GKMA including GKUGA and KCC

8.1.1 Present Situation of Health Facilities in GKMA including GKUGA and KCC

Health facilities in GKMA constitute about 71% of all health facilities in the Central Region of Uganda, and serve as an importance healthcare hub for the entire country. The four national referral hospitals, namely: Kawempe National Referral Hospital (started operation in 2016), Kiruddu Referral Hospital (started operation in 2016), Butabika National Referral Hospital and Mulago National Referral Hospital are in KCC. Additionally, the five specialised hospitals in the country are all in GKMA. Mukono, Wakiso and Mpigi Districts each has one Health Centre IV (HC IV), and in recent years these have been upgraded to general hospitals.

In the past years, health facilities in GKMA have been renovated either to improve service provision or as a requirement to upgrade the level of functionality/status. For instance, Kiruddu Health Centre (HC III) was recently upgraded to a national referral hospital, and Kawempe HC IV was also refurbished and upgraded to a national referral hospital. Additionally, the maternity block at Mpigi HC IV was renovated, and patients' waiting sheds at Muduuma HC III and Kyali HC III were also constructed. However, there has been no recent construction of new government-owned health facilities. Furthermore, renovation works in some health centres have been stalled due to unavailability of land for expansion and limited funding. Many health facilities are also overcrowded, especially the general hospitals in Mukono, Wakiso and Mpigi Districts. In general, the number of government-owned health facilities in GKMA has not increased to meet the growing population.

Table 8.1.1 Health Facilities by Ownership and Type in GKMA

Districts	GOVT	PFP	PNFP	Clinic	HC II	HC III	HC IV	Hospital	NRH	RH	RRH	SC	Total
Mpigi	21	11	10	1	13	26	1	1					42
Mukono	40	51	22	22	69	16	3	3					113
Kampala City	26	1371	61	781	585	48	13	22	2	3		4	1458
Wakiso	72	477	40	234	153	165	19	15				3	589
Total	159	1910	133	1038	820	255	36	41	2	3	0	7	2202

Note 1: GOVT = government; PFP = private for profit, PNFP = private non for profit, HC = health centre, NRH = national referral hospital, RH = referral hospital, RRH = regional referral hospital, SC =special clinic
Note 2: The number of national referral hospital in the table does not inclue Kawempe National Referral Hospital, Kiruddu Referral Hospital
Source: MoH, 2018, National Health Facility Master List

8.1.2 Policies for Health Facilities in GKMA including GKUGA and KCC

(1) To Sufficiently Increase the Number and Coverage of Health Facilities to Meet Rising Population in GKMA including GKUGA and KCC

The populations of Wakiso District, Mukono District and Mpigi District in GKMA have increased in the last few years and expected to increase further. And although the HC IV facilities in Wakiso District, Mpigi District and Mukono District have been elevated to general hospitals, they still experience excessive congestion. However, the provision of additional hospitals in the districts is restricted by the health policy that stipulates one general hospital per district. Moreover, while the

government policy recommends the provision of HC IV per constituency and HC III per sub-county, there are no such facilities in Kimenyede Sub County, Katosi Town, Ntenjeru – Kisoga Town, and Namataba Town. To ensure that the number of health facilities meets population demand, it is highly recommended that government's provision of these facilities be aligned with the population change pattern at the districts.

According to the standards of the Ministry of Health, one general hospital serves 500,000 population. (See Table 8.1.2) Nevertheless, the estimated population in Mukono District as of 2020 was over 700,000 and expected to increase further. Wakiso District had an estimated population of nearly 3,000,000 and also expected to increase in the future. On the other hand, Mpigi District had the threshold for a district hospital based on its estimated population of 314,412 in 2020, but this had been expected to exceed half a million people in the future. As per standards, Wakiso District and Mukono District are underserved even with the support of other low-level government health facilities in the districts. By aligning the provision of health facilities with population patterns, the following can be adopted to increase the number and coverage of health facilities in GKMA.

Table 8.1.2 Hierarchy of Health Facilities in Uganda

	Facility Type	Population Served	Function
1	National Referral Hospital (NRH)	10,000,000	This provides comprehensive specialist services. In addition, it is involved in teaching and research.
2	Regional Referral Hospital (RRH)	2,000,000	In addition to services offered at the general hospital, specialist services are offered, such as psychiatry, ENT (Ear, Nose and Throat), ophthalmology, dentistry, intensive care, radiology, pathology, and higher-level surgical procedures.
3	Referral Hospital	1,000,000	In addition to services offered at the general hospital, this hospital offers a package of specialised services and training.
4	General Hospital	500,000	In addition to services offered at Health Centre IV, other general services are provided. It also provides in-service training, consultation and research to community-based health services.
5	Health Centre IV	100,000	This provides preventive, promotive and outpatient curative care; maternity; inpatient health services; emergency surgery and blood transfusion; and laboratory services.
6	Health Centre III	20,000	This provides preventive, promotive and outpatient curative care; maternity; inpatient health services and laboratory services.
7	Health Centre II	5,000	This provides preventive, promotive and outpatient curative health services, outreach care, and emergency.
8	Health Centre I	Not Defined	This provides community-based preventive and promotive health services.

Source: MoH, 2018, National Health Facility Master List 2018

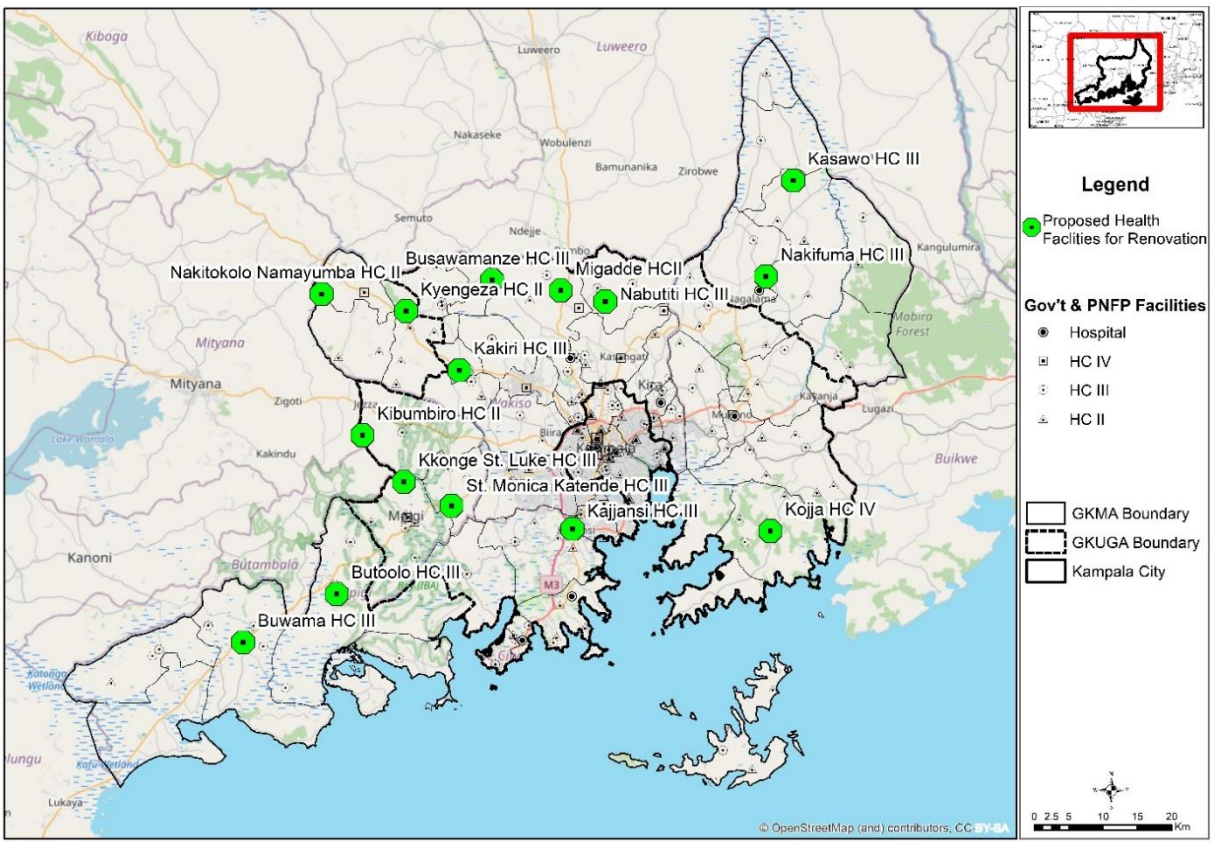
1) Provision of New Health Facilities to Support Population Demand in GKUGA

The government should make efforts to provide new health facilities in areas without HC III facilities such as Kimenyede Sub County, Katosi Town Council, Ntenjeru-Kisoga Town Council, and Namataba Town Council. They should also include Busiro County, Kyadondo County, Kasangati Town Council, and Entebbe Municipal Council which currently do not have any HC IV. Additional health facilities are further recommended at the urban sub-centres and suburban centres to support their urban functions and population in GKUGA.

2) Renovation and Upgrade of Existing Health Facilities to Increase Service Coverage in GKMA including GKUGA and KCC

The Ministry of Health has elevated the status of many health facilities, but such directive has not been followed with the needed upgrade of facilities. For instance, the HC IV facilities in the three districts around KCC have been elevated to general hospitals, but they still lack the upgrading of

their facilities. Also, Kyungu HC II and Buwama HC III which have been elevated to HC III and HC IV, respectively, face similar dilemma. The process of elevating facilities such as Nyanja HC II to HC III, Goma HC III to HC IV, and Nantabulirirwa HC II to HC III has been stalled. It is recommended that these health facilities be improved to meet their status elevation standards as recommended by the Ministry of Health. They will be important in reducing patient congestion at the general hospitals, and to relieve the pressure on facilities in KCC. Additionally, renovation works are also recommended in health facilities at the Service Centres of GKMA. The health facilities identified at the proposed Service Centres are shown in Figure 8.1.1.



Source: JICA Expert Team

Figure 8.1.1 Proposed Health Facilities for Renovation in GKMA

3) Promotion of Public-Private Health Service Partnership to Increase Healthcare Coverage in GKMA including GKUGA and KCC

It is recommended that the government initiates collaboration, support and partnership with private healthcare providers to increase the coverage of health service in GKMA, where more than 80% of the total number of health facilities are private for-profit (MoH, 2018). Therefore, government's partnership and support can increase primary healthcare service, particularly within and outside GKUGA in GKMA. In KCC, more than 90% of health facilities are private for-profit. So, a public-private partnership can enhance primary healthcare which has been affected due to the conversion of many facilities to specialised hospitals and congestion in these national facilities.

(2) To Secure Land for the Expansion and the Provision of New Health Facilities in GKMA including GKUGA and KCC

The policy recommendation is that lands for existing and future health facilities must be properly demarcated and titled to prevent encroachment. Currently, health facilities such as Kyabazala HC III, Seeta Nazigo HC III, Mpunge HC III, and Mukono General Hospital in Mukono District; Nabyewanga HC II in Nkozi Sub County; and Butoolo HC III in the Kammengo Sub County face severe cases of land encroachment. Securing the lands means that they must be demarcated and titled because at present, private individuals are able to encroach on health facility lands because

not all health centres have land titles. Table 8.2.4 shows the land title status of health facilities in Mukono District. For lands that have titles, it is also suggested that they must be fenced. In Goma Division in Mukono Municipality, about 2.39 ha of land have been secured for the expansion of Goma HC III to HC IV, but as shown in Figure 8.2.4, no physical barriers secure these from potential encroachment. However, acquiring land and titling are important steps in making sure that, land is securely protected from litigation.

In future perspective of health facilities in GKMA, rapid urbanisation may threaten areas that need new health facilities. So, it is also important for the local government councils to search, allocate, demarcate, and secure lands in Matugga, Wakiso, Nsangi, Mpigi, Kajjansi, Mpatta, Mukono, Namataba and Gayaza for the establishment of future health facilities. Similar activities have to be undertaken in the sub counties and town councils without HC III and HC IV facilities.

8.2 Policies for Educational Facilities in GKMA including GKUGA and KCC

8.2.1 Present Situation of Educational Facilities in GKMA including GKUGA and KCC

The number of educational facilities in GKMA has increased significantly in recent years with the contribution of the private sector. In some instances, several schools received additional classroom blocks and other learning infrastructure. In Mukono District, for instance, according to the Mukono District State of Affairs Address 2019, the district undertook the construction of a 2-in-1 classroom block with an office and store at St. Joseph Ssozi P/S in Mpatta Sub County; and carried out the construction of 8-in-1staff house, kitchen, and toilet at the Bunyiri Muslim Primary School in Kyampisi Sub County. Furthermore, the construction of St. Andrew's Ndwaddemutwe Seed Secondary School in Naggalama was also commissioned. The educational authorities at the local government areas also looking to undertake other projects as indicated in Table 8.2.1.

Table 8.2.1 Proposed Educational Facility Projects in Mukono District

School	Projects	Location
Nakanyonyi c/u Primary School	4 classroom blocks	Nagalama T/C
Nakanyonyi Project Primary School	4 classroom blocks	Nagalama T/C
Nasejjobe Umea Primary School	4 classroom blocks	Kasawo
Kimegga Primary School	Renovation of 5 classroom blocks	Namuganga

Source: Mukono District Education Department, 2022

In Wakiso District, similar activities are taking place for the renovation and construction of educational facilities. Table 8.2.2 shows future projects for facility enhancement in Wakiso District.

Table 8.2.2 Proposed Educational Facility Projects in Wakiso District

Project	Project Description	Funding Agency	Budget UGX
Construction of classrooms in selected primary schools	Construction of classrooms in Sagala, St. Kizito, Bugogo, Bakka, Nampunge, Bukondo, Kasaamu, Wattuba UMEA, Kiziba-Mixed and Entebbe UMEA primary schools	Development Grant G.O.U (District)	932,200 million
Construction of facilities in selected primary schools	Construction of pit-latrine facilities in Jjanyi, Namusera C.S, Kyebando UMEA, Jjungo C/U and Zziba Primary School	Development Grant G.O.U (District)	125 million
Construction of teachers' houses in selected schools	Construction of teachers' houses with two-stance pit latrines in selected schools in St. Jombe, Kasanje C/U, Kojja chance, Kavumba C/U, Mabombwe and St. Joseph Katadde Primary Schools, St. Joseph Bukobero	Development Grant GOU (District)	711 million
Provision of furniture to selected schools	Provision of 40 desks to each of these schools, i.e., Sagala, St. Kizito Kiti, Bugogo, Bakka, Nampunge, Bukondo chance, Kasaamu, Wattuba Umea, Kiziba mixed and Entebbe Umea primary schools	Development Grant GOU (District)	88 million
Renovation of classroom blocks	Rehabilitation of 4 classroom blocks at Buloba C/U and Makamba Memorial Primary Schools	Development Grant GOU(District)	240 million

Source: Wakiso District Education Department, 2022

With regards to the improvement of educational facilities in Mpigi District, the District's Local Government Development Plan 2020/2021 – 2024/2025 outlines some future projects to improve facilities. Table 8.2.3 provides details of the projects in Mpigi District.

Table 8.2.3 Proposed Educational Facility Projects in Mpigi District

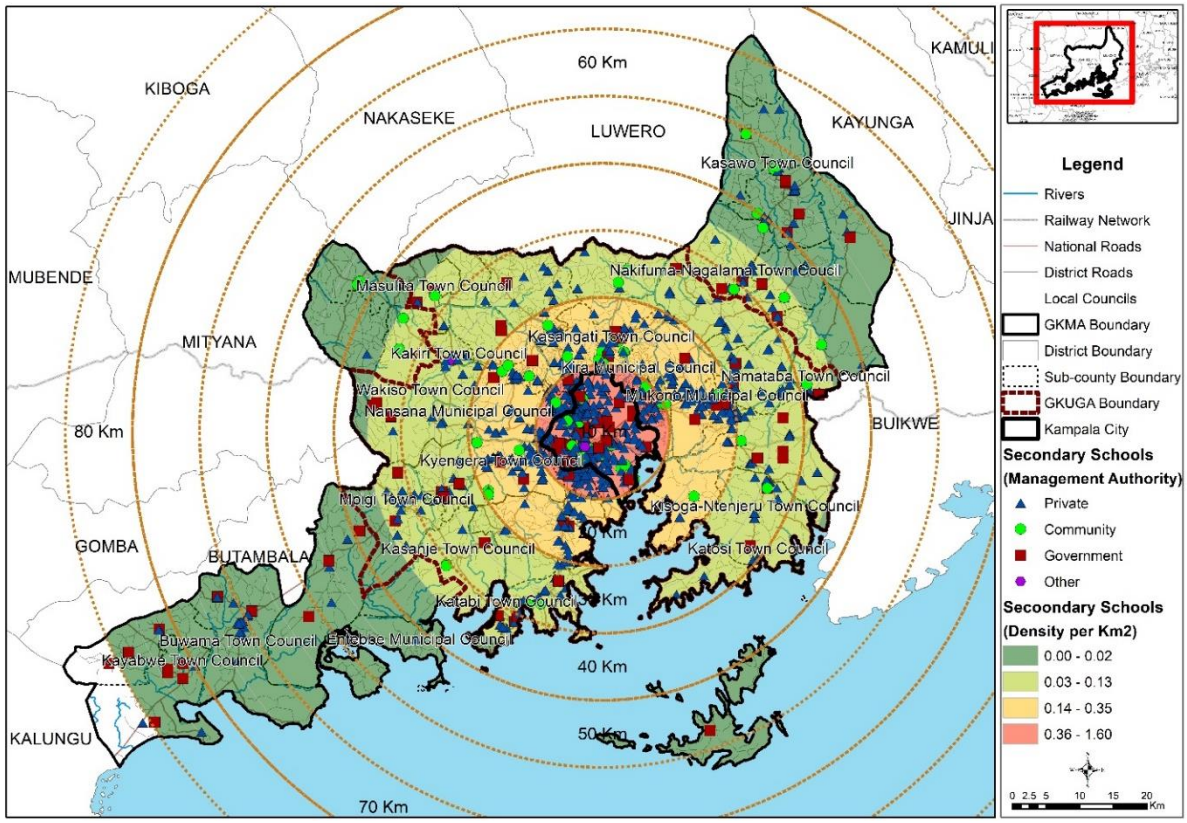
Project Name	**Construction of Lined Pit Latrine Stances with Handwashing Facilities at 22 UPE Schools**
Start Date:	1st July 2020
End Date:	30th June 2025
Project Cost	577,555,000 (Ugx)
Source of Funding	Sector Conditional Grant - Development
Description	The project contains the provision of classrooms, installing thunder arrestors, fixing pinboards, supply of desks, teacher's tables and chairs, and supply of water tanks
Location	Kibumbiro, Namabo, Equator P/S and Kituntu UMEA in the 1st FY and 16 pit latrines in the next FYs
Project Name	**Rehabilitation of Classroom Blocks at 13 UPE Schools**
Start Date:	1st July 2020
End Date:	30th June 2025
Project Cost	542,555,000 (Ugx)
Source of Funding	Sector Conditional Grant –Adhoc
Description	The project contains the provision of classrooms, installing thunder arrestors, fixing pinboards, supply of desks, teachers' tables and chairs, and supply of water tanks.
Location	Manyogaseka, Kituntu UMEA, Kitigi, Katende Mabuye, Ggoli boys, Luwunga, Ssango, Tabiro, Mbute, Mpondwe, Buyijja Kabira and Buyiga
Project Name	**Construction of Classrooms and Supply of 3-Seater Desks**
Start Date:	1st July 2020
End Date:	30th June 2025
Project Cost	865,000,000 (Ugx)
Source of funding	Sector Conditional Grant Development
Description	The project contains the provision of classrooms, installing thunder arrestors, fixing pinboards, supply of desks, teachers' tables and chairs, and supply of water tanks.
Location	Construction of classroom blocks at 10 UPE Primary schools (Nkasi P/S, Bujuuko UMEA, Kitokolo, Kokoota, Ggolo Progressive, Nakibanga, Ndibulungi, Bunjakko, Mawugulu, Bume, Bukibira, and Nsanja

Source: Mpigi District, 2020, Mpigi District Local Government Development Plan 2020/2021 – 2024/2025

Despite the efforts to improve and increase educational facilities, the major challenge on educational facilities in GKMA is the equity in their distribution. For instance, in the entire GKMA, there is an inadequate number of secondary schools to meet the rising population, and the situation is intensified by the inability of the sector to increase the number of schools in areas that have high population. This is due to the sector's policy to provide one secondary school per Sub County. Furthermore, existing secondary schools are not evenly distributed in GKMA geographically. Thus, the density of their distribution is high in the urban areas, especially in KCC, but at a distance of 20km, it reduces upon transition to peri urban and rural areas in GKMA. That is, many agglomerates are located close to the city centre in GKUGA, but few are located outside of GKUGA in GKMA. (Figure 8.2.1).

Similarly, the number of primary schools in GKMA increased. But both private and government primary schools had chosen to set up facilities along major arterial roads, especially in the Kampala Capital City. Therefore, while encroachment on public school lands in both primary and secondary schools threaten schools in the most urbanised areas in GKUGA and KCC, there is less encroachment on public school lands in areas outside GKUGA within GKMA.

Hence, the current situation of educational facilities in GKMA can be summarised as being dominated by variables such as existing policies, locational preferences or attractiveness, availability/unavailability of lands for schools and a persistent encroachment on school lands by private individuals.



Source: JICA Expert Team based on information from the MoE Abstract 2017, UBOS 2014

Figure 8.2.1 Density of Secondary Schools in GKMA

8.2.2 Policies for Educational Facilities in GKMA including GKUGA and KCC

(1) To Increase the Number of Secondary Schools to Meet Population Demand in GKMA

The current government policy on Universal Secondary School Education is to provide a secondary school in every sub county. This policy does not consider the population or the urbanisation trend of the sub-county. Therefore, local government areas with high population growth rates, such as Wakiso Town, Mende, Kakiri Town and Kajjansi Town, are deprived of

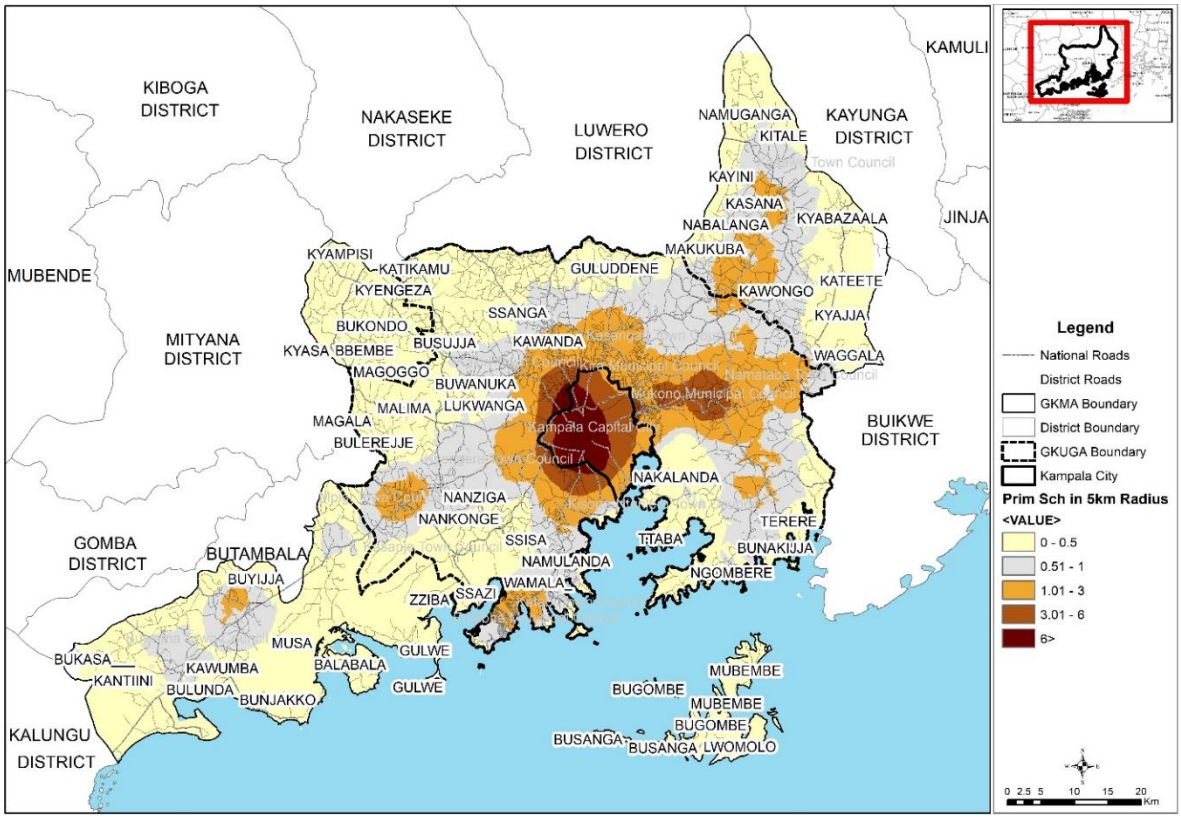
adequate number of secondary schools because of said policy. Currently, there is also Kisoga-Ntenjeru Town which has no secondary school.

Population in the new urban centres proposed in the GKMA-IUDMP is expected to increase, and this will require adequate secondary schools. Therefore, the policy implication will be on the importance of providing equitable secondary educational facilities to serve their urban functions. Therefore, the government must ensure that educational facility provision meets the population demand by revising the policy on establishing secondary schools in the country.

(2) To Increase the Number of Primary and Secondary Schools in GKMA to Ensure Spatial Equity

The education policy framework of Uganda stipulates the provision of one primary school in each parish as means to establishing good foundation for students in the country. However, both private and government primary schools in GKMA are not evenly distributed in the parishes. This situation has increased the school walking distance above the recommended 5km in many parishes such as Lukwanga, Nangabo, and Nakikungube in Wakiso District; Gulwe, Balabala, and Bukasa in Mpigi District; as well as Bunakijja, Ttaba and Mubembe in Mukono District (see hatched areas in Figure 8.2.2). Rather than providing equal spatial accessibility in the parishes, the schools are located along major arterial roads (see Figure 8.2.2). This pattern severely causes undue human and traffic congestion often experienced along these major roads, especially in Kampala City, Nansana, Kira and Mukono Municipalities. Therefore, redistributing primary schools will reduce the number of pupils in schools along the roads and traffic congestion, as well as ensure that schools will be accessible in the parishes.

The policy to increase the number of primary and secondary schools, however, require government's collaboration with the private sector, community, and religious and faith-based organisations to provide not only the needed schools but ensure that these are adequately distributed to reduce distance to be walked by most pupils. For this purpose, primary schools are needed in the areas listed above (as shown in Figure 8.2.2).



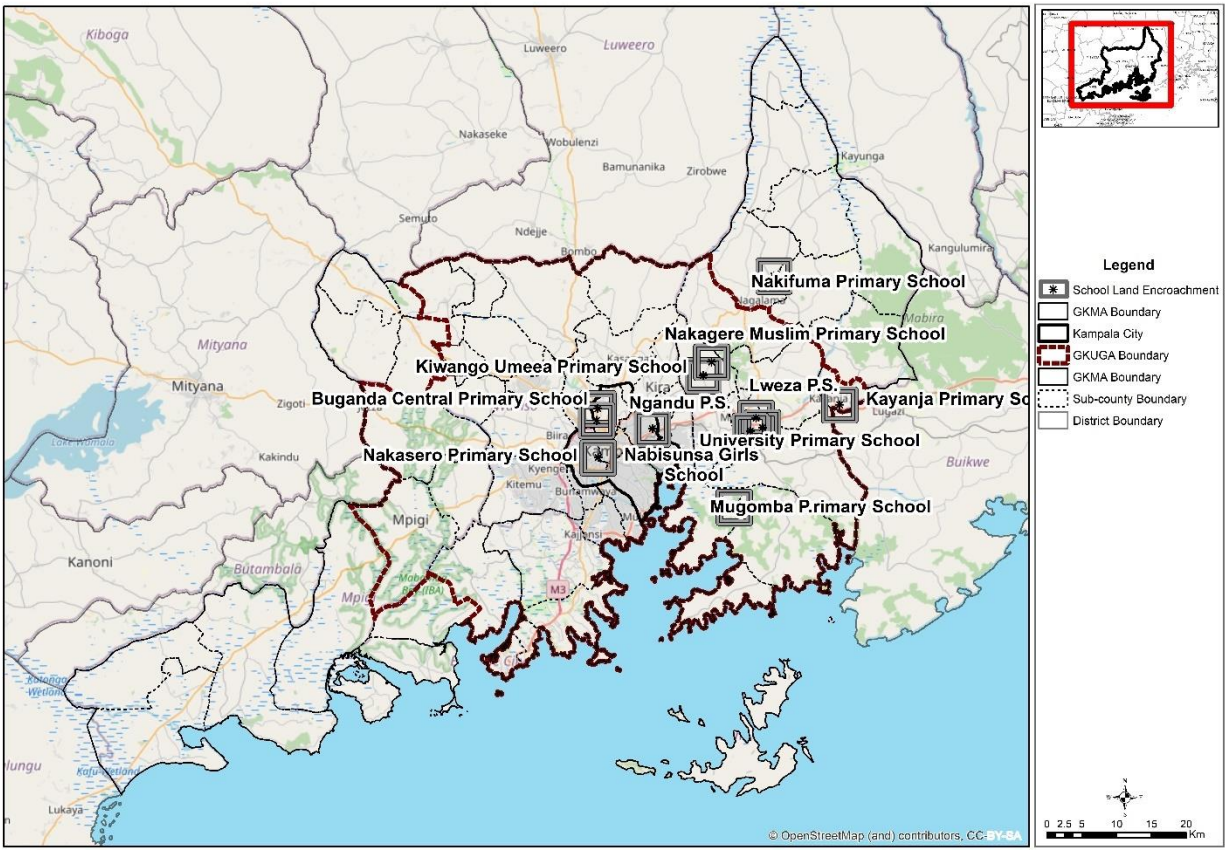
Source: JICA Expert Team based on information from the MoE Abstract 2017, UBOS 2014

Figure 8.2.2 Density of Primary Schools in GKMA

(3) To Safeguard School Lands in GKMA in the Urbanising Areas to Prevent Encroachment

Land has become scarce in the urban areas, especially in KCC, for the establishment of new educational facilities. With the projected increase in population and urbanisation in GKUGA, it is vital to safeguard existing school lands in these areas. In recent times, there have been cases of severe encroachment on public school lands by private developers in KCC and its surrounding areas. The affected schools (i.e., their respective playgrounds) include Kayanja Primary School, Ngandu RC Primary School, Nakifuma Voluntary Primary School, Mugomba Primary School, Nakagere Muslim Primary School, Lweza Primary School, Kiwango Primary School, Nantabulirwa C/U Primary School, Ngandu Primary School, and Nakagere Primary School which are all in Mukono District. Other schools with the same situation include Kawempe Islamic Secondary School, Nakasero Primary School, and the Buganda Road Primary School in the Kampala Capital City as shown in Figure 8.2.3.

The policy to safeguard public school lands means that, the Directorate of Education and Sports in Mukono, Wakiso and Mpigi Districts, as well as the Education and Social Services Directorate (ESD) of KCCA must ensure that, clear boundaries of public school lands are identified and surveyed, demarcated, and duly registered. It is also important to note that in some local government areas in GKMA, education officers do not have enough knowledge on the extent of school lands in their jurisdictions. Therefore, sensitising school managers at the districts can also provide an oversight responsibility to prevent cases of encroachment.



Source: JICA Expert Team based on information gathered through interviews with Education Diratorates in 2021

Figure 8.2.3 Encroachment of School Lands in GKMA

(4) To Secure Lands for School Expansion and for New School Provision in GKMA

Securing land will be very important for the education sector in the coming years due to rapid urbanisation. In Table 8.2.1, Table 8.2.2 and Table 8.2.3, the districts in GKMA envisage to undertake some projects to improve educational facilities in their respective jurisdictions. Although the earlier policy in Section (3) hopes to safeguard existing school lands, if the proposed

areas needed for expansion and the construction of new schools are not secured, land will not be available to undertake the projects listed by the districts.

Currently, land for the expansion and construction of new schools is scarce in Kampala City. This has become a concern for the city managers, especially as they seek to find at least 5 acres of land required for the provision of a Seed Secondary School in Kawempe. The situation can also happen in the new urbanising areas in Kajjansi Town Council, Mukono Municipality, Nansana Municipality, Entebbe Municipality, Katabi Town Council, Kyengea Town Council, Wakiso Town Council, Gayaza Parish in Kasangati Town Council, Matugga Sub County, Kira Municipality, and Mpigi Town Council if steps are not taken to prevent it.

Therefore, ensuring an effective urban function in the fast-growing areas will require proactive effort from the Education Directorates inside GKMA to identify potential lands (especially in GKUGA) to begin the process of conserving them for future use. It is also important to ensure that detailed information requirements, such the boundaries of the identified lands, are reflected in the respective 5-year development plans because over the past years, no such information have been provided in the development plans.

(5) To Increase the Number of Government Secondary Schools for Satisfying Local People's Needs for Secondary Schools outside GKUGA within GKMA

To increase the number of secondary schools outside GKUGA within GKMA, more private secondary schools should be incorporated into the USE programme through PPP. Recent study shows that, PPP approach to the USE programme increases secondary school access and provide cost effective alternative to government's efforts to increase the number of secondary schools[1,2]. However, to ensure the effectiveness of this PPP approach to increase the number of government secondary schools within GKMA outside GKUKA, it will be important to address some of the issues raised in the "A Review of Uganda's Universal Secondary Education Public Private Partnership Programme"[1] report 2018. These may include the following:

- By ensuring that there is accountability of investments from both the government and the private sector. It would also be important to ensure accountability of the intended expectation of increasing accessibility.
- By ensuring that there is enough public awareness of the relevance of the PPP to increasing secondary schools outside GKUGA and within GKMA so that other partners and donors could be attracted to the expand secondary school coverage
- By ensuring that there is equity in distribution and selection of partner private secondary schools to prevent uneven distribution and ensure equal opportunities for people outside GKUGA and within GKMA.

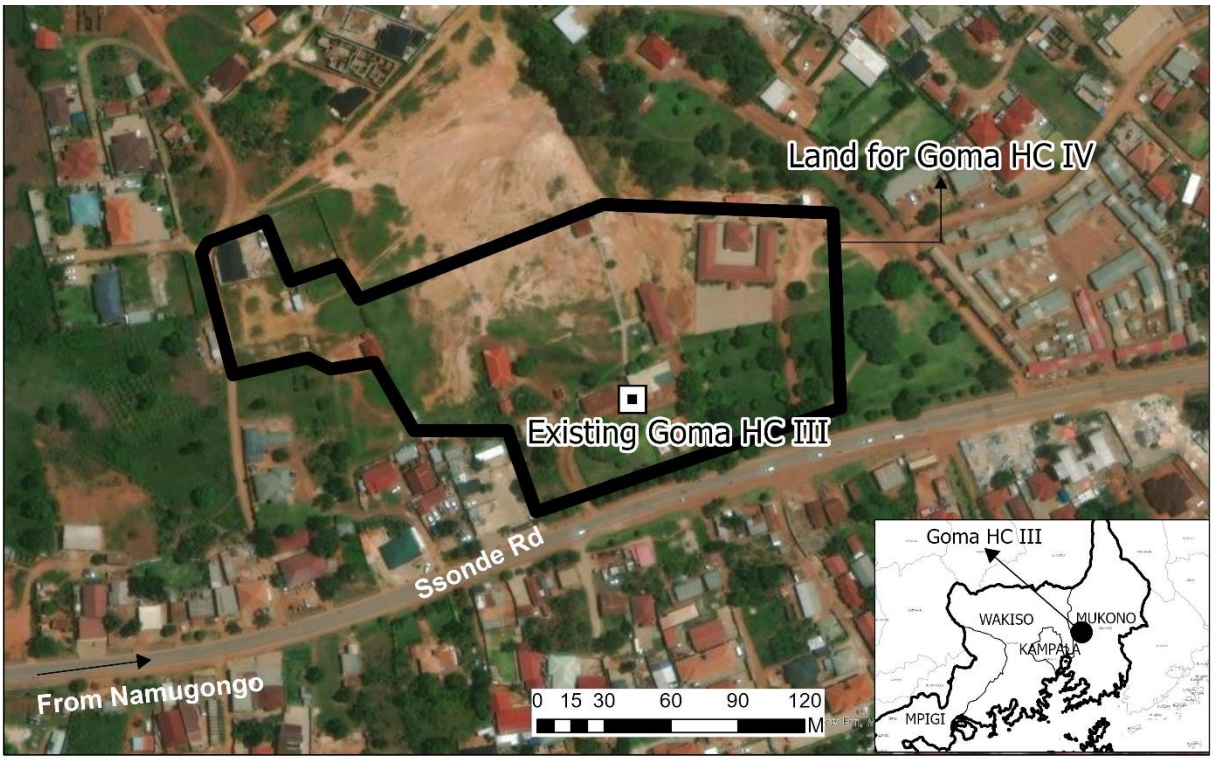
[1] A review of Uganda's Universal Secondary Education Public Private Partnership programme. Education Partnership Group 2018. available at: https://epg.org.uk/projects/generating-and-using-research-to-inform-policy/

[2] Impact of Public-Private Partnerships on Private School Performance: Evidence from a Randomized Controlled Trial in Uganda. Barrera-Osoro et. al. 2016. https://doi.org/10.5040/9781350995079

Table 8.2.4 Status of Land Titles of Government Health Facilities

No	Health Facility	Subcounty	Status of Land Title
1	Bugoye HC II	Mpatta Subcounty	Not yet transferred – mailo land donated
2	Bulika HC II	Nama Subcounty	Titled but not yet transferred – mailo land donation
3	Buntaba HC II	Kyampisi Subcounty	Anglican Church land
4	Damba HC II	Kkoome Island Subcounty	Public land – not yet titled
5	Goma HC III	Goma Division	Titled from Buganda Land Board
6	Kabanga HC III	Mpatta Subcounty	Public land – not yet titled
7	Kansambwe HC II	Kkoome Island Subcounty	Donated by the community
8	Kasana HC II	Kasawo Subcounty	Public land not titled
9	Kasawo HC III	Kasawo Subcounty	Titling in process – mailo land
10	Kasenge HC II	Nama Subcounty	Negotiations underway
11	Kateete HC II	Ntunda Subcounty	Public land, not titled
12	Katente HC II	Nakisunga Subcounty	Orthodox Church land
13	Katoogo HC III	Nama Subcounty	Titling in process – mailo land
14	Kigogola HC II	Kasawo Subcounty	Public land but not yet titled
15	Kimenyedde HC II	Kimmenyedde Subcounty	Kabakas land
16	Kiyoola HC II	Nakisunga Subcounty	Public land but not titled
17	Kojja HC IV	Kisoga Town Council	Subcounty land from Buganda Land Board
18	Koome HC III	Kkoome Island Subcounty	Public land but not yet titled
19	Kyabalogo HC II	Nakisunga Subcounty	Buganda Land Board land
20	Kyabazaala HC III	Ntunda Subcounty	Titled land
21	Kyampisi HC III	Kyampisi Subcounty	Buganda Land Board land
22	Kyungu HC III	Central Division (Mukono MC)	Titled land
23	Mbaliga HC II	Kyampisi Subcounty	Titling in process – mailo land
24	Mpoma HC II	Nama Subcounty	Titled land
25	Mpunge HC III	Mpunge Subcounty	Public land, titled
26	Mukono General Hospital	Central Division (Mukono MC)	Titled land
27	Mwanyangiri HC II	Nakisunga Subcounty	Public land
28	Myende HC II	Kkoome Island Subcounty	Donated by the community but not yet titled
29	Nabalanga HC III	Nakifuma-Nagalama Town Council	Buganda Land Board land
30	Naggojje HC III	Nagojje Subcounty	Buganda Land Board land but not titled
31	Nakifuma HC III	Nakifuma-Nagalama Town Council	Titled land
32	Namasumbi HC II	Kyampisi Subcounty	Belongs to Prince Kakungulu
33	Namuganga HC III	Seeta-Namuganga Subcounty	Anglican Church land
34	Nantabulirwa HC II	Goma Division	Catholic Church land
35	Nyanja (Mukono) HC II	Goma Division	Titled land
36	Seeta Kasawo HC II	Seeta-Namuganga Subcounty	Buganda Land Board land but not titled
37	Seeta Nazigo HC III	Nakisunga Subcounty	Titled land
38	Wagala HC II	Nagojje Subcounty	Mailo land but not yet titled

Source: Mukono Municipal Health Department, 2022



Source: JICA Expert Team based on information from the Mukono Municipal Council, 2022

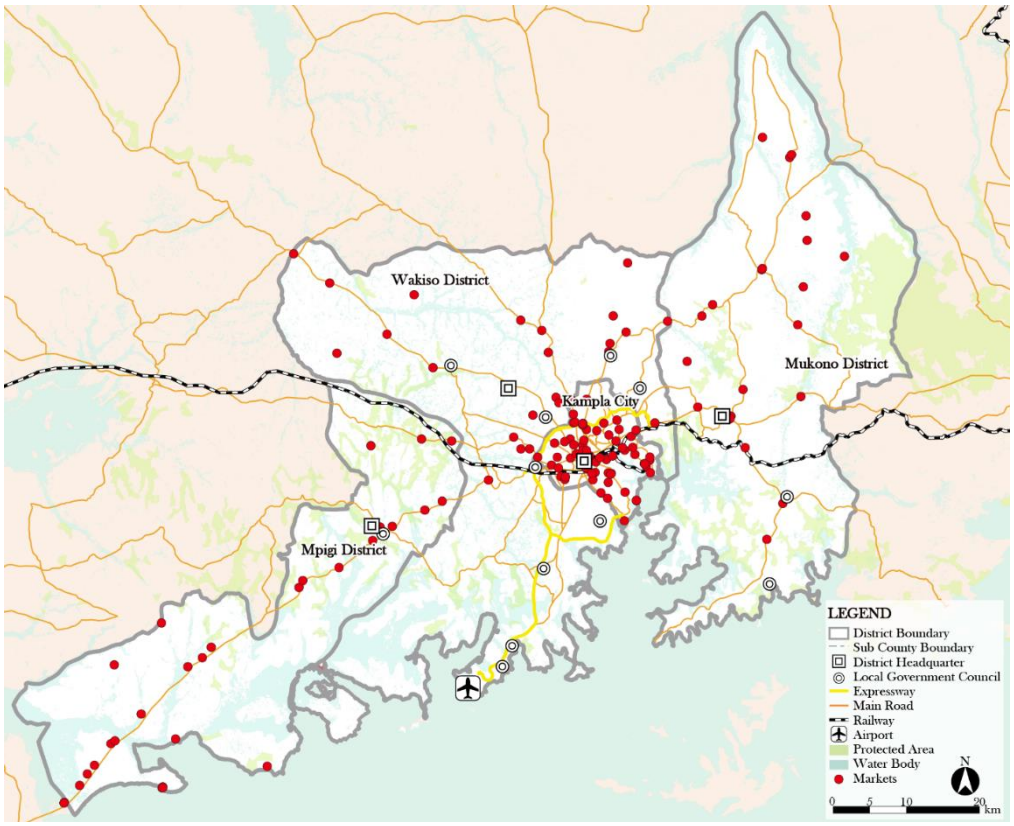
Figure 8.2.4 Acquired Land for the Upgrading of Goma HC III to HC IV in Mukono District

8.3 Policies for Market Facilities in GKMA including GKUGA and KCC

8.3.1 Present Situation of Market Facilities in GKMA including GKUGA and KCC

The role of markets in Uganda is more of a place for its citizens' everyday shopping rather than for wholesale traders. Therefore, although the number of supermarkets and shopping malls are increasing in GKMA, especially in KCC, the markets are still the main place for purchasing fresh food for the citizen of GKMA. The major local markets as of 2014 in GKMA are shown in Figure 8.3.1, and most major markets are located along the major arterial roads.

In the Greater Kampala Metropolitan Area Urban Development Programme (GKMA-UDP), 20 markets in GKMA were identified as markets to be upgraded or newly established in the next five years, as listed in Table 8.3.1.



Source: JICA Expert Team Based on UBOS and KCCA, 2014

Figure 8.3.1 Location of Major Market Places in GKMA

Table 8.3.1 List of Markets included in GKMA-UDP to be Designed and Constructed

District	Subcounty/Town/ Municipality/Division	Name	Note
Kampala	Nakawa Division	Kinawataka Market	
Kampala	Central Division	Usafi Market	
Kampala	Nakawa Division	Bukoto Market	
Kampala	Makindye Division	Ggaba Market	
Kampala	Nakawa Division	Nakawa Market	
Mpigi	Muduuma Subcounty	Bujjuko Market	0.5 acres of land available
Mpigi	Kiringete Subcounty	Nakirebe Market	1 acre of land available for maize processing or value addition. 300 stalls
Mukono	Mukono Municipality	Kame Valley Market	
Mukono	Mukono Municipality	Goma Market	
Wakiso	Wakiso Subcounty	Bulaga Market	
Wakiso	Kajjansi Town	Kajjansi Urban Regeneration Hub	PPP
Wakiso	Wakiso Town	Wakiso Town Council Market	
Wakiso	Katabi Town	Kawuku Market	
Wakiso	Nansana Municipality	Kakelenga Market	
Wakiso	Nansana Municipality	Nansana Market	
Wakiso	Entebbe Municipality	Nakiwogo Market	
Wakiso	Entebbe Municipality	Fish Market	
Wakiso	Entebbe Municipality	Katabi Market	
Wakiso	Kira Municipality	Kireka Main Market	
Wakiso	Kira Municipality	Kireka Farmers Market	
Mukono	Mukono Municipality	Kame valley Market	
Mukono	Mukono Municipality	Goma Market	

Source: MKCC&MA, 2022, GKMA Urban Development Project Project Profile

8.3.2 Policies for Market Facilities in GKMA including GKUGA and KCC

(1) Development of Wholesale Markets in the Outskirts of GKUGA and Outside GKUGA in GKMA

The future urban population in GKUGA is expected to reach 10 million by 2040 and 13 million by 2050. To support this huge number of urban populations, it is important to consider efficient system for distribution of goods and foods, by developing wholesale markets.

The existing markets in GKMA are located relatively close to the centre of the city. In already densely urbanised areas, the existing markets cannot expand its facilities as the population increases due to land availability. Also, it is not necessary for wholesale markets to be in the urban centres, where the land value is high.

Wholesale markets should be developed near the suburban centres in the outskirts of GKUGA or near the strategic centres or service centres outside GKUGA in GKMA. The goods transported to GKMA can be unloaded at such wholesale markets which will decrease the number of large trucks entering the metropolitan centres and other urban centres of GKUGA.

(2) Upgrading Exist Markets

It is difficult to acquire new land especially in urban areas. In addition, as urbanization progresses, it is unlikely that demand for open street type markets will increase in urban areas. Given the aging of markets facilities as well, upgrading or improving the condition of existing markets is considered more important than establishing new markets especially in KCC and already urbanised areas in GKUGA.

In terms of infrastructure development and efficient land use, the appropriate policy for updating existing markets is to rebuild them into mixed-use building-type markets. These have been implemented at Wandegeya Market, Busega Market, Namuranda Market, Mpigi Central Market and so on. In this updating policy, it is expected to improve infrastructure facilities and provide an orderly arrangement of commercial space. On the other hand, Wandegeya Market and Namuranda Market had issues that vendors and customers are not accustomed to markets with multiple floors because they have been accustomed to open street type markets, and the upper floors are not being used effectively.

Therefore, it is necessary consider the allocation of usage. For instance, functions that attract a certain number of people with specific purposes, such as corporate offices and a part of government services, is inserted on the upper floors, while a market is set up on the ground floor. In addition, it is considered to be important to provide training for both vendors and users to be accustomed to mixed-use building-type market.

(3) Development of a Policy and Framework Guiding Markets for Local Government

In addition to updating the existing Market Act, it is necessary to establish a policy for the establishment and management of markets in each local government. Since Market Act states that markets are supposed to be operated by local governments, the existing Market Act does not sufficiently take private markets into consideration. Thus, it is considered to cause informal markets to sprawl. In addition, it is effective to have policy/ guidelines in each local government which is well coordinated with Market Act to correspond with situation of current markets and finance/human resource of each local government. This will clarify the division of roles between the public and private sectors and enable smoother and more efficient market operations.

PART IV

GREATER KAMPALA URBAN GROWTH AREA PHYSICAL DEVELOPMENT PLAN (GKUGA-PDP)

Chapter 9 Development Potentials, Future Vision, Overall Urban Development Strategies in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City (KCC)

9.1 SWOT Analysis on Urban Sectors of Greater Kampala Urban Growth Area (GKUGA)

To identify issues and constraints on urban sectors of Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City (KCC), and to formulate possible solutions, a SWOT analysis was conducted paying attention to the following aspects of the urban sector in GKUGA;

- Urban Functions
- Transport and Traffic
- Economic Sectors
- Environment

Table 9.1.1 SWOT Analysis on Urban Sectors of GKUGA including KCC

Strengths	Weaknesses
• Kampala Capital City is a primary centre of higher education in Uganda. • The level of higher education in Kampala Capital City is relatively good within Sub-Saharan African countries. • Kampala Capital City and GKUGA have better infrastructure and economic conditions compared with other areas, and the population is continuously increasing. • As a result, a large, relatively cheap labour force exists in GKUGA.	• The number of formal jobs created is not large enough to keep up with the rapid population growth in GKUGA. • Urban areas are disconnected or poorly connected by the poor condition of road networks and road junctions within GKUGA and GKMA. • The size of the present CBD in Kampala Capital City is not large enough to attract and accommodate regional headquarters of corporations, as well as national headquarters of corporations. • Costs of economic production in GKUGA are high due to poor infrastructure, including electricity supply, road, drainage, and water supply. • The condition of economic infrastructure development (such as those for power supply, water supply and access roads) is poor. As a result, it is difficult to attract investments to economic sectors. Development of the economic sectors is not well promoted. • Drainage infrastructure is not well maintained resulting in increased flooding and inundation risks in expanding urban areas of GKUGA..
Opportunities	**Threats**
• Taking advantage of the strategic location within the integrated region of EAC, GKUGA and Kampala Capital City would be good location for regional headquarters serving inland countries of EAC. • Kampala Capital City and urban centres of GKUGA would become primary urban centres to provide business services not only to the whole area of GKUGA, but also to the Jinja-Kampala-Mpigi (JKM) Corridor. • Taking advantage of the improved connectivity to Mombasa Port thgough the prospective construction of Jinja-Kampala Expressway, outskirt areas of GKUGA and the whole area of	• The national policies for promoting the development of regional towns might not be effectively implemented. Thus, a large influx of population from regional areas to GKUGA will continue. This might result in an excessive accumulation of population and economic activities in GKUGA. • Such excessive concentration of population and economic activities in GKUGA could deteriorate the business and social environment. • Such a continuing population increase may create informal settlements outside Kampala Capital City within GKUGA.

JKM Corridor could be industrial centres and industrial corridors in which manufacturing sectors would flourish by targeting the common markets of EAC and AfCFTA.	

Source: JICA Expert Team, based on information from the following reports:

- Chapter 4 Industrialization and Economic Development Strategy, Draft Report of Jinja-Kampala-Mpigi (JKM) Corridor Physical Development Plan, 2022
- Final Report, GKMA Economic Development Strategy 2020

9.2 Development Goals for GKUGA including Kampala Capital City

9.2.1 Three Different Types of Characteristics of Three Planning Areas for PDPs

In Section 4.2 of Chapter 4 of this Draft Final Report, the following future vision for GKMA including GKUGA and KCC is formulated:

Vision for GKMA 2050

- A liveable and sustainable metropolitan area with a competitive and innovative hub for Uganda and the East African Region, supported by strengthened infrastructure and developed human capital

This GKMA's vision is to guide development and management efforts at the levels of GKUGA and KCC because GKUGA and KCC are part of GKMA. However, characteristics of the three planning areas are different from each other as follows:

- GKMA: The Greater Kampala Metropolitan Area (GKMA) is a Capital City Region which is composed of Kampala Capital City, its suburbs and nearby cities, towns and rural areas. Administratively the GKMA is covered by the Kampala Capital City, Wakiso District, Mukono District and Mpigi District.
- GKUGA: The GKUGA is a Metropolis, a continuously urbanising area from the KCC within the GKMA.
- KCC: The Kampala Capital City (KCC) composes the Metropolitan Core together with its surrounding urban centres.

9.2.2 Development and Management Goals for GKUGA

To get closer to the realising the Vision for GKMA described above, the following five development and management goals should be sought:

- To seek prosperous, stable and green "Urban Economies" by attracting investment in business, manufacturing, international tourism, higher education, and advanced health
- To accommodate high urban functions by developing decentralised urban centres, securing urban mobility and utilising Smart Technology
- To seek inclusive society by developing public transportation
- To manage livealbe urban environment with green and open space
- To enhance resilient against climate change and disasters

9.3 Overall Urban Development Strategies for GKUGA including KCC

9.3.1 Overall Issues on Urban Development in GKUGA

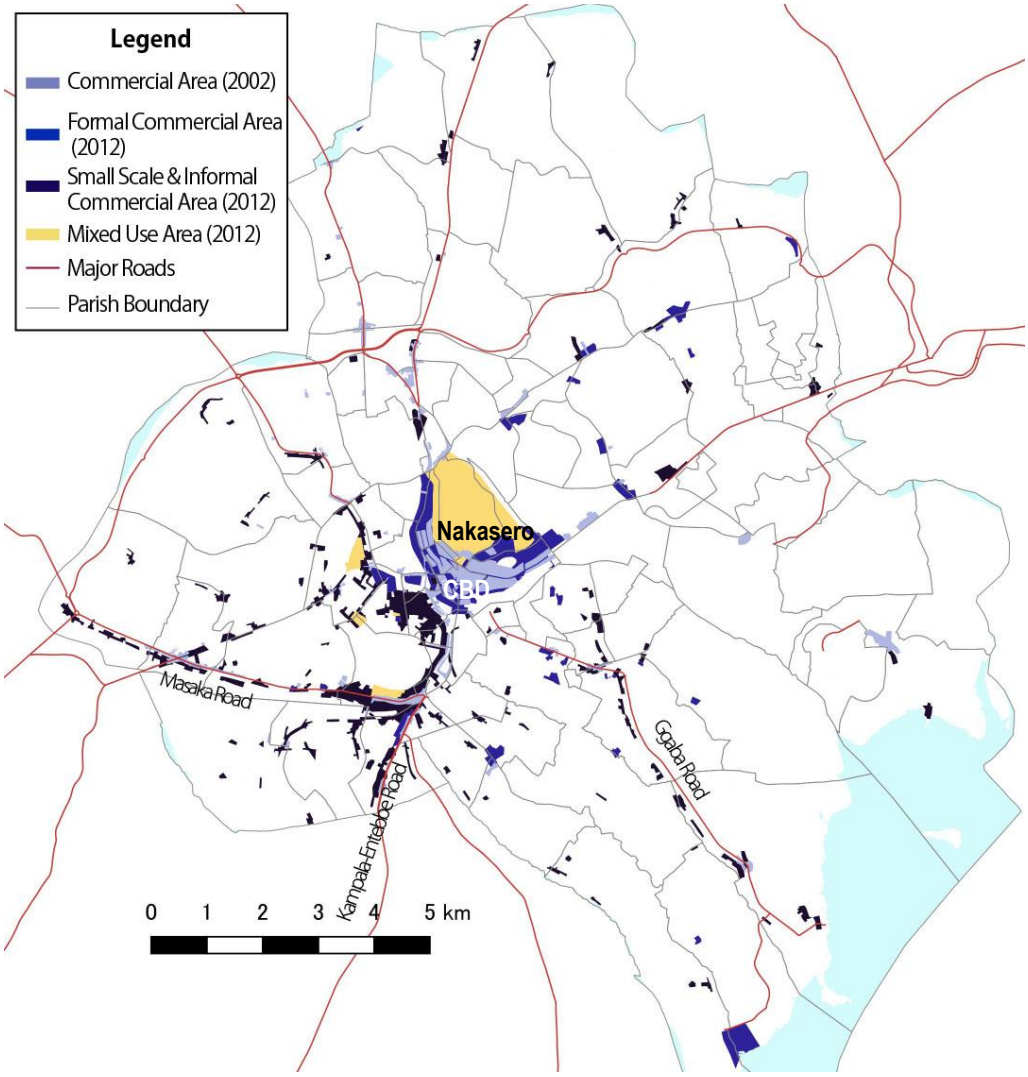
In this section, overall issues in Greater Kampala Urban Growth Area (GKUGA) are identified and discussed. Overall issues are divided into economic sectors, habitation, basic infrastructure and services, transformation of urban structure and environmental protection.

(1) Overall Issues on Economic Sectors in GKUGA

1) Weak Business Support Functions to Promote Development of Economic Sectors

Business support functions of GKUGA are still weak to promote development of economic sectors for GKUGA and other regions.

The commercial area around CBD in Kampala Capital City has expanded in the past decades with formal commercial activities. Furthermore, small-scale and informal commercial areas have emerged along some major roads such as Masaka Road, Ggaba Road and Kampala-Entebbe Road. By 2012, the junction of Masaka Road and Kampala-Entebbe Road (Najjanankubi), and the area southwest of CBD (Kisenyi and Katwe) had become major commercial areas in Kampala City. In addition, some industrial areas along Masaka Road closer to the CBD had changed to commercial areas. However, the commercial areas in Kampala City as of 2012 covered only 4.2%. (See Figure 9.3.1.)



Source: KCCA GIS Unit

Figure 9.3.1 Commercial Areas in Kampala Capital City (2002 and 2012)

In 2019, commercial area and government offices covered approximately 8km^2, which was 4.58% of Kampala Capital City. Considering that Kampala Capital City is the national capital, the surface area of commercial area and government offices is small, and the land is not fully utilised for economic activities.

In addition, between 2002 and 2012, residential areas of Nakasero also increased their commercial activities and became mixed-use areas. The mixed-use area in 2019 covered 17.19% of Kampala

Capital City. Currently, the residential areas in Kampala Capital City is gradually increasing their commercial activities, but such areas do not have many modern high-rise office buildings to accommodate high-performance service industries. In Kampala, modern urban centres have not been developed for accommodating national or regional headquarters of multinational corporations.

Kampala Capital City and GKUGA could have been in the advantage position when international companies consider where to have their regional corporate centres representing the inland area of East Africa. But due to the traffic congestion and dysfunction of the city centre, there is a possibility that they will lose against other cities. For example, in the future, Nairobi in Kenya can become one of the alternative options for taking care of business inland.

However, business support functions including administrative and management, financing, accounting and legal services, logistics, ITC, marketing, and research and development, cannot be developed without good urban environment, with the presence of transport infrastructure, power supply, water supply, and ICT. These basic infrastructures for business support functions are lacking in Kampala.

2) Insufficient Infrastructure to Support Manufacturing and Logistics Industries in GKUGA outside Kampala Capital City

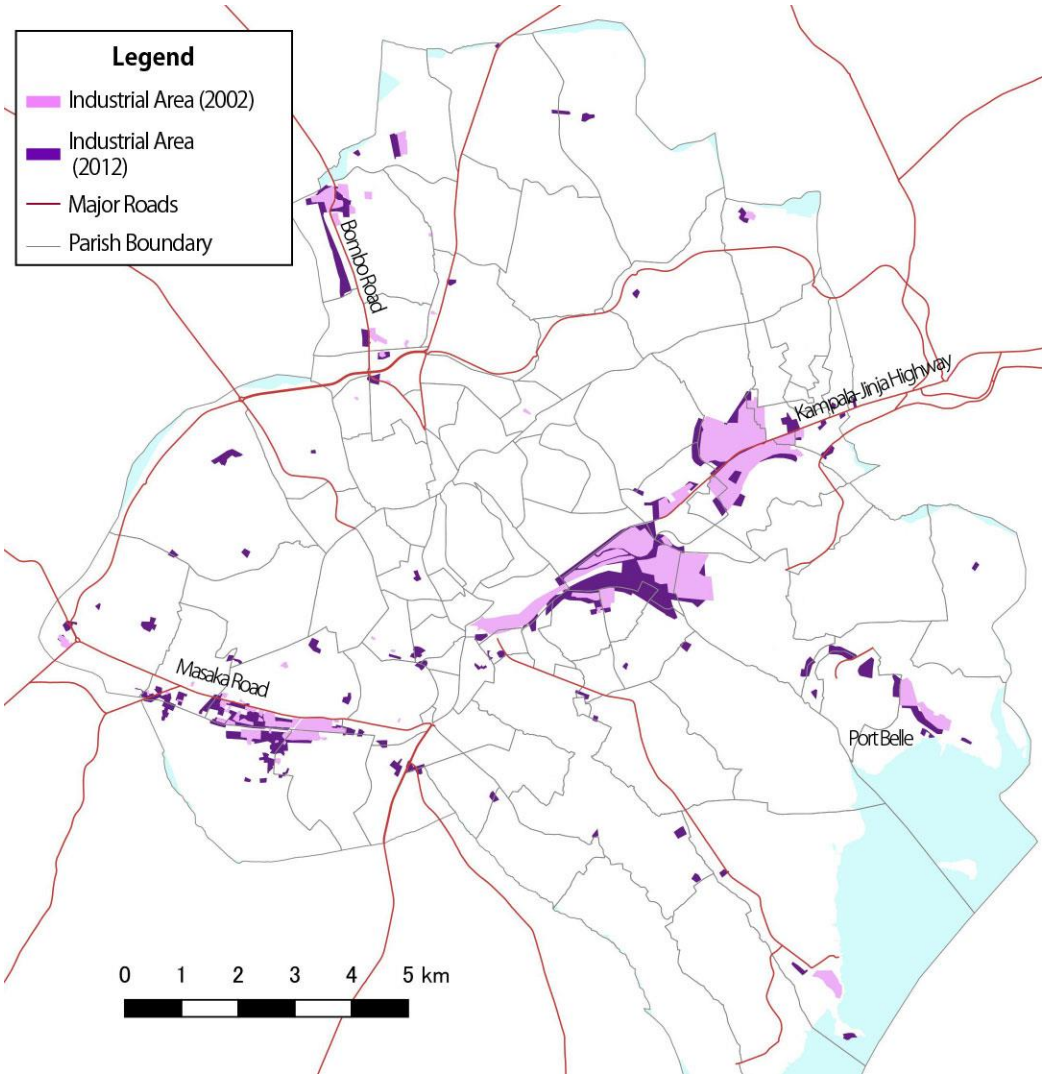
Although in GKUGA outside Kampala Capital City there are relatively ample lands for manufacturing and logistics industries, there are no sufficient infrastructure and business services to support them.

The urban structure of GKUGA is shaped by the national roads radiating outward from the centre of Kampala. With the expansion of the urban area, factories and logistics facilities have been developed along Kampala-Jinja Road, Masaka Road and Bombo Road, and around Port Bell and Luzira. The industrial area, especially along Kampala-Jinja Road, is located in the prime land of Kampala Capital City, which was proposed to change to expanded CBD, but this has not been realised.

On the other hand, out of the eight major employment centres and business parks proposed in KPDP 2012, those of Butabika, Munyonyo and Busega are planned in wetlands, while those of Kyambogo, Makerere are planned in undeveloped land next to universities. Nakawa already has a business park established, and Bukoto is now being developed to become a multi-function complex. Nangabo, which was vacant land in 2011, is being developed as an industrial area.

Although Namamve Industrial Park is established to the east of Kampala, there is an insufficient amount of land with infrastructure for manufacturing and logistics industries.

Furthermore, to utilise the land within Kampala Capital City, the logistics function should shift from the city centre to the area around the new expressways constructed such as Northern Bypass and Entebbe Expressway in the surrounding districts within GKUGA.



Source: KCCA GIS Unit

Figure 9.3.2 Industrial Area in Kampala City (2002 and 2012)

(2) Overall Issues on Difficulties to Transform a Mono-Centric Spatial Structure to a Poly-Centric Spatial Structure in GKUGA

In Kampala Capital City, a limited length of four-lane roads is available due to insufficient development budgets. It was also difficult to extend a railway network in Kampala Capital City. Nevertheless, GKUGA have a relatively better level of urban infrastructure compared to regional cities and other urban areas. Because of this, many people and businesses have been attracted to Kampala Capital City and its surrounding areas. As a result, a large metropolitan area with 3.9 million population (2014) has emerged.

Due to high land prices in Kampala Capital City and rapidly increasing populations, more people start living in suburban areas outside Kampala Capital City. As a result, the suburban area outside of Kampala Capital City (2.4 million in 2014) has a larger population than that of Kampala Capital City (1.5 million in 2014).

However, since the infrastructure level of Kampala Capital City is much better than suburban areas outside of Kampala Capital City, more working places, and commercial and social service facilities tend to be concentrated inside Kampala Capital City. The daytime population (combined residential population and daytime visitors) in Kampala Capital City is estimated to be over 2.8 million (2014). This kind of monocentric spatial structure of GKUGA causes serious traffic congestion and malfunctioning in Kampala Capital City.

Under these circumstances, more investments in the projects for improving urban infrastructure and services have been conducted in Kampala Capital City. However, these infrastructure and service improvement have attracted more populations and more economic activities, which create more demands for urban infrastructure. As a result, there have been repeated failures in vain for satisfying such increasing demands, and leading to strengthening of monocentric spatial structure of GKUGA as a whole.

(3) Overall Issues on Habitation and Traffic Congestion in GKUGA

1) Too Much Concentration of Urban Function in Kampala Capital City Causing Serious Traffic Congestion

GKUGA is the centre of business and industry, which is the engine of economic growth of Uganda, as well as the centre of government administration. In fact, the GKMA accounts for 46% of Uganda's urban population, and produces one-third of the national GDP. Furthermore, approximately 70% of industrial plants are concentrated in this area.

The population of the metropolitan area is increasing rapidly with excessive migration and social increase of population. Since the land price in Kampala Capital City is increasing, residential area is expanding outside Kampala Capital City in an unorderly manner, causing urbanisation in the suburban area.

There is an over concentration of workplaces (jobs), education facilities (primary schools, secondary schools and universities), commercial functions including markets and shopping centres in Kampala Capital City. Although there are some commercial and service functions along the radial roads, these are still limited and far from enough.

As a result, serious traffic congestion disrupts economic and social activities in Kampala.

2) Long Travelling Time

The development of road and public transport infrastructures cannot catch up with the rapid population growth, rapid urbanisation and economic growth in GKMA. This will result in a decrease in a modal share of public transport services (buses and taxis) which share road space with motorised private transport modes (cars and motorcycles).

This is due to the following mechanism. In line with economic growth, the number of private motorised vehicles increases causing traffic congestion. Due to the traffic congestion, the travel time of the road-based public transport increases, and this causes further motorisation. In addition, the existence of "flexible" and "fast" motorcycles further accelerate motorisation.

The passenger railway service can be a breakthrough addressing this social dilemma as it is not affected by traffic congestion.

However, for metropolitan areas in the Least Developed Countries (LDCs), the passenger railway service is an expensive option in terms of initial investment, operation and maintenance considering the affordability of the government and passengers. While it is not an easy option, it is high time to consider the introduction of urban railway services.

Because of underdeveloped public transportation, the mobility in urban life is constrained and traveling results in loss of time.

(4) Overall Issues on Infrastructure and Services for Supporting People's Life

1) Large Urban Population Living Under Poor Infrastructure in Kampala Capital City

The GDP per capita of GKMA is about four-fold of the national average and is the driving force of the national economy. (See Table 9.3.1.) Despite the situation, it is said that in Kampala Capital City, over 60% of the population lives in slums, where the infrastructure and services such as access roads, drainage, water supply and power supply are insufficient. The slum areas occupy

17.7% of the land of Kampala Capital City. Furthermore, such area is expanding in the surrounding local governments of Kampala Capital City.

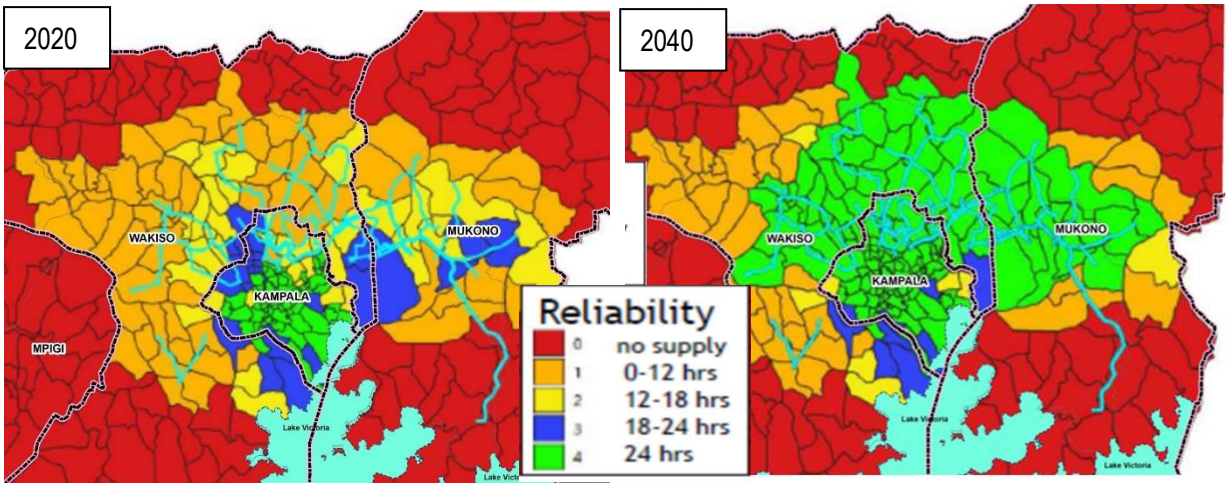
Table 9.3.1 GDP per Capita and Poverty Rate

	Uganda	GKMA	Kampala	Wakiso	Mukono	Mpigi
GDP Per Capita (2014)*	USD 602	USD 2,391	USD 3,116	USD 2,170	USD 1,305	USD 1,065
Poverty Rate**	42% (2016)	-	4.00% (2014)	13.06% (2014)	16.29% (2014)	19.53% (2014)

Source *: JICA Expert Team, based on "Estimating District GDP in Uganda" (2017, USAID)
Source**: Development Initiatives, Spotlight on Uganda

2) Insufficient Water Supply outside Kampala Capital City

Water supply development by NWSC has always targeted the metropolitan area. However, there was delay in reflecting the 2014 population census result in the water supply infrastructure development plan. Furthermore, there was delay in changing the policy to improve the water supply outside Kampala Capital City. Therefore, although NWSC is currently revising their plan, there are areas within GKUGA which will not receive sufficient water supply even after all the projects for water supply are implemented in 2040. (See Figure 9.3.3.)



Note: The areas in red are areas outside the jurisdiction area of NWSC Kampala Metropolitan Area
Source: August 2021, Draft Optioneering Report (Preparation of Detailed Design, Tendering and Works Supervision for the Rehabilitation, Restructuring and the Extension of Kampala Water Supply Network)

Figure 9.3.3 Water Supply Reliability in GKUGA in 2020 and after Project Implementation Proposed by Kampala Water-Lake Victoria Water and Sanitation Project in 2040

3) Insufficient Power Supply outside Kampala Capital City

The situation is the same for power supply. There is delay in changing the policy to strengthen the power supply in the suburban areas outside Kampala Capital City. It is necessary for this GKMA-IUDMP to reconsider the future suburban centres and population distribution, and coordinate these with the existing plan of the power distribution company.

4) Lack of Coordination among Local Governments for Solid Waste Management

As for the solid waste management sector, it is necessary for the local governments comprising the GKMA to formulate a master plan for solid waste management and corresponding action plan. But these are not prepared yet, since KCCA at the moment is still focused on Kampala Capital City only.

5) Insufficient Drainage Facilities and Lack of Drainage Master Plan for outside Kampala Capital City

The drainage sector's main consideration is the relationship between the upstream and downstream portions of the river. If the drainage infrastructure is implemented upstream, the drainage issue becomes the downstream portion. The area outside Kampala Capital City, where urbanisation is accelerating, will be impacted by the drainage infrastructure development in Kampala Capital City before said area will be prepared for implementing its drainage infrastructure. However, there is no action yet to prepare the drainage master plan for outside Kampala to minimise this impact.

(5) Environmental and Social Issues

The informal settlement in Kampala Capital City covers approximately 18% of the surface area, and approximately 60% of Kampala Capital City's population lives in that area. The population density in the informal settlement is extremely high and the living condition is dense. The sanitation condition is poor and potable water supply is limited.

Large amount of uncollected garbage is common not only in the informal settlement but across Kampala Capital City, which mostly end up clogging the drainage network or river, wetland and lake. Furthermore, the wetlands are being degraded due to encroachment caused by population increase and urbanisation, inflow of black water in the wetland, and sedimentation of wetlands.

Kampala Capital City is located in the upper stream of the neighbouring areas including Wakiso District and the Lake Victoria. Therefore, the pollution in Kampala Capital City is risking the pollution of water bodies, wetlands and groundwater in the downstream areas, which is other local government area. As the urbanisation occurs rapidly outside Kampala Capital City, this water-related pollution in these local governments surrounding Kampala Capital City can worsen.

Rapid population increase and urbanisation are happening outside Kampala Capital City, and the basic urban infrastructure and services cannot catch up with the pace. As a result, urban areas in good condition with appropriate plan have not been developed in the suburban areas.

Along the radius roads outside Kampala Capital City, administration and commercial centres are developing and the concentration of their function has already begun. Around such centres, areas for low-income population are emerging, and without proper intervention, densely populated areas without basic infrastructure will be common in the suburban areas as well.

9.3.2 Overall Objectives for Urban Development of GKUGA

To achieve the development of GKUGA, as well as the vision of GKMA, the following overall objectives are set for urban development in GKUGA:

- To develop competitive and vibrant economic sectors including not only commercial, services, and government administration, but also manufacturing sector and business sectors that will provide residents of GKUGA with enough employment opportunities in both formal and informal sectors by transforming the monocentric, congested, inefficient and fragmented spatial structure of GKUGA into a polycentric spatial structure within the GKUGA, but also a strongly integrated spatial structure within GKMA as a whole, but also with the JKM Corridor
- To enhance the healthy and resilient residential environment and urban amenity for enjoyable lives of people by providing basic infrastructure and developing urban centres within GKUGA outside Kampala Capital City, as well as within Kampala Capital City
- To promote environmental sustainability of GKUGA in harmony with lakefront areas and wetlands by developing a lakefront metropolitan together with wisely used and conserved wetlands
- To promote social sustainability and attain healthy residential areas by improving high-density and deteriorated environments of slums and supporting residents' livelihood by applying in-

situ solutions, as well as paying attention to the economic and financial values of slums

9.3.3 Overall Strategies for Urban Development of GKUGA

To make progress towards the overall objectives for urban development in GKUGA identified in the previous section, the following overall strategies are formulated for urban development in GKUGA.

(1) Most Important Overall Strategies

Seven Most Important Overall Strategies are identified as follows:

- To facilitate the implementation of the formulated integrated urban development master plan (three layers of physical development plans) in GKMA by establishing an Institutional Framework consisting of **a technical coordination committee (a compact and multi-sectorial group of government officers)** and Joint Coordinating Committee consisting of a variety of MDAs and nine territorial local governments in GKMA
- To transform the current Monocentric Spatial Structure to a Polycentric Spatial Structure within the GKMA/GKUGA **by promoting Metropolitan Centres** outside KCC within GKUGA => **Green Growth**
- To strengthen **a multi-modal public transportation network** for supporting the development and operation of the Polycentric Spatial Structure of GKUGA => **Green Growth**
- To strengthen the urban core functions in GKUGA by **expanding CBDs (Primary Urban Centres) and developing Secondary Urban Centres** not only in KCC, but also in its surrounding areas within GKUGA
- To development of Industrial Areas in the JKM Corridor **by designating Industrial Growth Corridors but also by providing necessary infrastructure for industrial operation**
- To promote Wetland Conservation and Wise Use by applying different approaches to KCC, GKUGA and GKMA => **Green Growth**
- To promote **land use management of Victoria Lakeshore** in GKMA/GKUGA for enhancing public amenity and environmental conservation

(2) Next Most Important Strategies

The next seven most important strategies are as follows:

- To promote **infrastructure development to support urban development of Metropolitan Centres** and surrounding areas outside KCC
- To **prevent the growth of baby slums** in suburban areas outside KCC by providing basic infrastructure (such as local roads with gutters, water supply, sanitation facilities) in baby slum areas
- To disseminate the importance of formulation and implementation of **"Physical Development Plans (PDPs)" for the purpose of maintaining public interests**, regardless of land tenure systems under the Uganda's Constitution and accelerate the **preparation of detailed PDPs** for guiding the formation of Metropolitan Centres and surrounding areas and development control by enforcing land use regulations based on Land Use Zoning System
- To promote Foreign Direct Investment (FDI) and domestic investment for developing **manufacturing and tourism sectors** in GKUGA, as well as GKMA
- To promote urban development by following a Transit-Oriented Development (TOD) policy, paying attention to existing railway lines, expressways integrated with BRT and new lines of LRT/MRT

- To construct **an outer ring road for strengthening the east-west connectivity** as part of Northern Corridor from Mombasa Port in Kenya connecting to Juba in Sudan, Kigali in Rwanda, Bujumbura in Burundi, and Kinshasa in DR Congo via Kampala
- To promote the allocation of **a good level of educational and health facilities** with urban centres outside Kampala Capital City for attracting middle-income populations outside Kampala Capital City in GKUGA

(3) Strategies for Responding to Climate Changes

Climate Change Strategies are provided in Chapter 15.

Chapter 10 Strategies for Spatial Development in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City (KCC)

10.1 Future Urban Spatial Structure of GKUGA

10.1.1 Spatial Analysis for GKUGA

The future urban spatial structure of GKUGA is to define the direction of urban development. It is related to the other sectoral strategies which are described in the later chapters. The following items for spatial analyses are examined in order to formulate a future urban spatial structure.

(1) Present Spatial Characteristics of GKUGA

1) Urban Centres within Kampala Capital City

Most of the urban and administrative functions of Kampala City are concentrated in its city centre. Its central business district (CBD) has two types of areas. The first area covers the taxi parks (Old Taxi Park and New Taxi Park) that function as the transportation terminals for the taxis (minibuses) and a large cluster of formal and informal commercial activities located on the west of CBD.

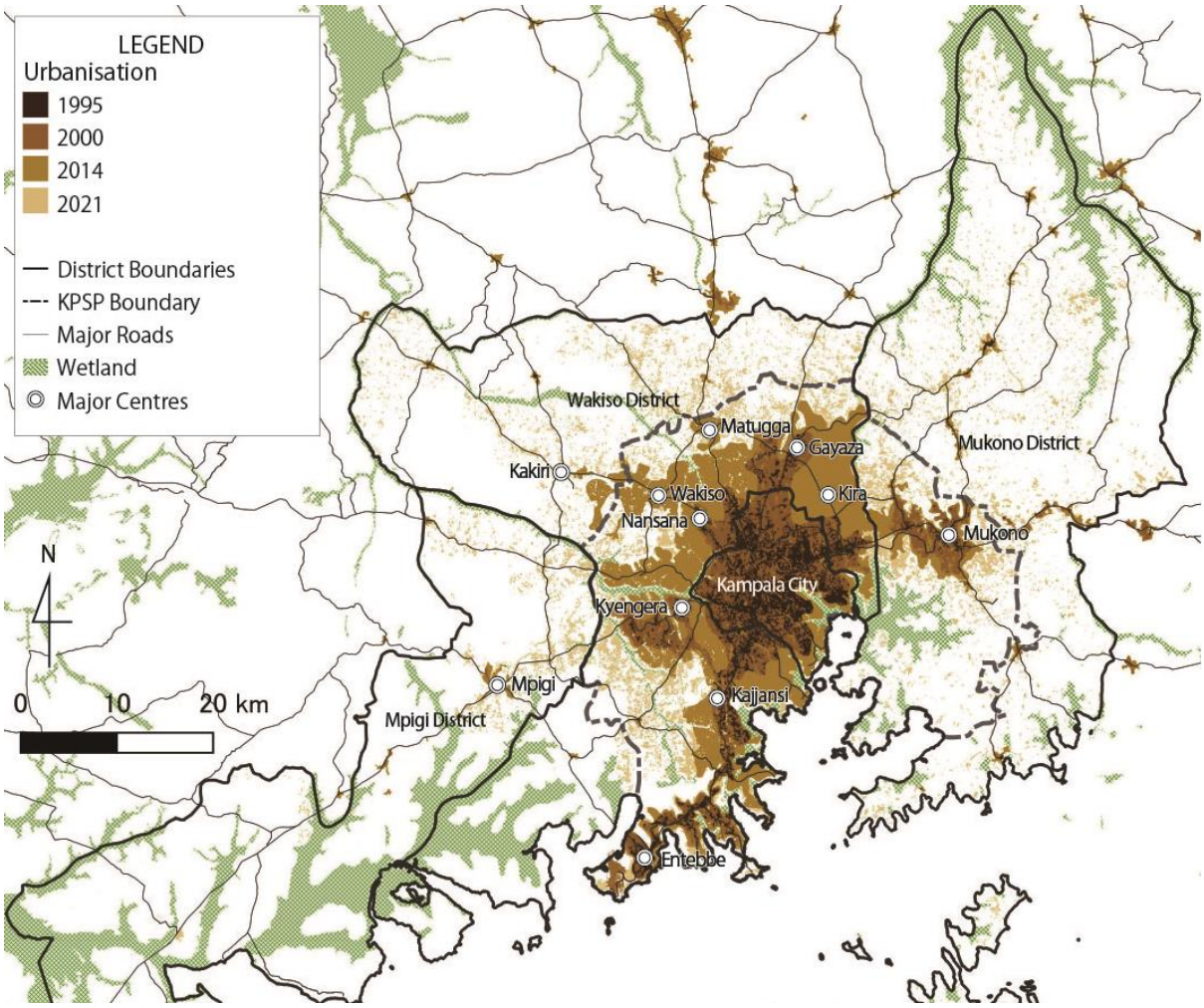
The second is the area with offices of the Central Government, the Parliament, headquarters of banks and other private companies which are formal businesses. This area is on the eastern side of the CBD.

There are also other areas in Kampala Capital City that are developing as urban centres which are attracting urban functions of public and private administrative offices and commercial-service facilities:

- Nakawa
- Kawempe
- Port Bell-Luzira

2) Urban Expansion and Suburbanisation in GKUGA

The urbanisation of GKMA has not only gradually expanded to the surrounding areas outside Kampala Capital City in the past decades, but also to vacant lands and agricultural lands within Kampala Capital City. Between 2000 and 2014, the urbanisation occurred rapidly and the area within a radius of 10–12 km around Kampala Capital City centre were mostly urbanised by 2014. In 2021, most areas within the Kampala Special Planning Area (KSPA) declared in 2011 were urbanised. (See Figure 10.1.1.)



Sources: JICA Expert Team, based on Landsat 5 TM acquired on 1995/10/19; Landsat 7 ETM+ acquired on 2000/03/29, Landsat 8 OLI TIRS acquired on 2014/01/14, and Landsat 8 OLI TIRS acquired on 2021/11/10.

Figure 10.1.1 Urbanisation in GKMA (1995–2021)

3) Monocentric Urban Spatial Structure and Poorly Developed Suburban Centres

Although KPDF 2012 proposed a spatial structure to create new centres outside Kampala Capital City, at present, GKUGA has a monocentric spatial structure with most of the major administrative, business, commercial and social functions concentrated within Kampala Capital City. Urbanisation in GKUGA follows major national roads, which run radially from the city centre to surrounding areas. Although there are service centres in suburban areas, they have been poorly equipped with urban functions and basic infrastructure.

4) Potential Suburban Centres

At present, municipal centres (municipality capitals) and town centres (town council capitals) function as the service centres, which provide government services and some commercial functions in the suburban areas. However, some municipal centres in the neighbouring Kampala Capital City are developing rapidly. They are expected to play roles of suburban centres, which provide not only commercial and service functions, but also job opportunities for their surrounding suburban areas.

The current suburban centres identified are the following:

- Kajjansi: Kajjansi Town (Wakiso District)
- Katabi: Katabi Town (Wakiso District)
- Entebbe: Entebbe Municipality (Wakiso District)

- Nsangi: Kyengera Town (Wakiso District)
- Mpigi: Mpigi Town (Mpigi District)
- Mukono: Mukono Municipality (Mukono District)
- Wakiso: Wakiso Town (Wakiso District)
- Matugga: Gombe Division of Nansana Municipality (Wakiso District)
- Gayaza: Kasangati Town (Wakiso District)

The existing town centres are developing to become service centres for the emerging urban population. Most of them are located along major national radial roads. However, in Kasangati Town, Gayaza is developing as its service centre. Furthermore, Matugga in Nansana Municipality is also functioning as the service centre for the area. Matugga is expected to become one of the major urban centres of Wakiso District as indicated in the Wakiso District PDP.

The present service centres identified are the following:

- Kakiri: Kakiri Town (Wakiso District)
- Kasanje: Kasanje Town (Wakiso District)
- Masulita: Masulita Town (Wakiso District)
- Namayumba: Namayumba Town (Wakiso District)
- Kabaale: Gombe Division of Nansana Municipality (Wakiso District)
- Kiwenda: Busukuma Division of Nansana Municipality (Wakiso District)
- Busukuma: Busukuma Division of Nansana Municipality (Wakiso District)
- Nakifuma: Nakifuma Sub County (Mukono District)
- Namataba: Namataba Town (Mukono District)
- Kasawo: Kasawo Sub County (Mukono District)
- Kisoga-Ntengeru: Kisoga-Ntengeru Town (Mukono District)
- Katosi: Katosi Town (Mukono District)
- Buwama: Buwama Sub Couny (Mpigi District)
- Jezza: Muduuma Sub County (Mpigi District)

(2) Existing Land Use Distribution

This section describes the present land uses in the GKUGA area derived from the interpretation of satellite imageries acquired in 2019. This process is, however, augmented by ground truthing and observation of current development in the region.

The overall GKMA area has witnessed rapid urbanisation in recent times but in context, the current urbanised area in GKUGA is approximately 1,000 km^2, which is more than double the entire urbanised area in GKMA in 2000. Approximately, 78% of Kampala Capital City is urbanised while approximately 40% of the other urban local governments in GKUGA are urbanised. In the rural local governments, only 23% of the surface area is urbanised.

The agricultural lands, together with other non-urbanised areas such as open spaces, barren lands, forests, wetlands and other uses rather constitute about 66% of the total land use activities in GKUGA. (See Table 10.1.1.)

Table 10.1.1 Urbanised Area and Non-urbanised Area in GKUGA (2019)

	Kampala Capital City		Other Urban Local Governments (Municipalities and Towns)		Rural Local Governments (Sub-counties)		GKUGA (Total)	
	Surface Area (ha)	Share (%)	Surface Area (ha)	Share (%)	Surface Area (ha)	Share (%)	Surface Area (ha)	Share (%)
Urbanised Area	14,098.25	78.45%	56,546.32	39.39%	21,401.04	22.83%	99,702.19	33.97%
Non-urbanised Area	3,873.31	21.55%	87,018.92	60.61%	72,328.65	77.17%	193,770.05	66.03%
Total	17,971.55	100.0%	143,565.24	100.0%	93,729.69	100.0%	293,472.24	100.0%

Source: JICA Expert Team, based on the interpretation of satellite images (2019) and ground truthing, 2022

Table 10.1.2 gives an overview of the current land uses in the local council areas in GKUGA.

Table 10.1.2 Land Use Distribution in GKUGA, by District

Area / Land Use Category	Kampala City (5 divisions)		Wakiso District (4 municipalities, 8 towns and 4 sub-counties)		Mukono District (1 municipality, 3 towns and 5 sub-counties)		Mpigi District (1 town and 2 sub-counties)		GKUGA	
	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)	Area (ha)	Share (%)
Residential	7,687.6	42.78	51,398.0	35.80	18,244.8	19.47	6,770.7	17.72	84,101.0	28.66
Commercial	894.9	4.98	1,159.6	0.81	555.1	0.59	115.6	0.30	2,725.2	0.93
Mixed Use	3,098.9	17.24	880.1	0.61	151.0	0.16	231.7	0.61	4,361.7	1.49
Institutional	1,289.6	6.57	2,142.0	0.59	1,410.3	1.50	477.8	1.25	5,319.7	1.81
Special Area	272.4	1.52	29.6	0.02	0.0	0.00	2.5	0.01	304.5	0.10
Civic	96.8	0.54	96.0	0.07	6.5	0.01	9.2	0.02	208.6	0.07
Industrial	758.1	4.22	841.0	0.59	1,033.2	1.10	49.2	0.13	2,681.4	0.91
Urbanised Areas	14,098.3	78.45	56,546.3	39.39	21,401.0	22.83	7,656.6	20.04	99,702.2	33.97
Airport	0.0	0.00	428.3	0.30	0.0	0.00	0.0	0.00	428.3	0.15
Road Network	1,267.0	7.05	3,870.6	2.70	1,141.2	1.22	352.0	0.92	6,948.0	2.37
Infrastructure and Utilities	135.9	0.76	48.1	0.03	0.0	0.00	60.5	0.16	244.5	0.08
Extractive	18.2	0.10	524.4	0.37	532.0	0.57	89.8	0.24	1,164.5	0.40
Commercial Agriculture	0.3	0.00	1,925.8	1.34	3,844.7	4.10	1,176.2	3.08	6,948.0	2.37
Cemetery	8.8	0.05	0.2	0.00	0.0	0.00	0.0	0.00	9.0	0.00
Open Space	161.9	0.90	262.6	0.18	1.0	0.00	10.8	0.03	437.5	0.15
Barren Land	552.4	3.07	3,669.0	2.56	1,772.4	1.89	774.4	2.03	6,768.1	2.31
Agriculture	103.7	0.58	51,392.6	35.80	48,901.3	52.17	17,551.7	45.94	107,949.3	40.19
Forest	48.6	0.27	3,091.4	2.15	6,735.0	7.16	6,043.3	15.82	15,918.2	5.42
Wetlands	1,567.1	8.72	21,804.0	15.19	9,401.1	10.03	4,490.5	11.75	37,262.7	12.70
Open Water	9.4	0.05	0.0	0.00	0.0	0.00	0.0	0.00	9.4	0.00
Other Areas	3,873.3	21.55	87,018.9	60.61	72,328.7	77.17	30,549.2	79.96	193,770.1	66.03
Total Land Use	17,971.6	100.00	143,565.3	100.00	93,729.7	100.00	38,205.8	100.00	293,472.2	100.00

Source: JICA Expert Team, based on the interpretation of satellite images (2019) and ground truthing, 2022

Approximately 84% of urbanised area in GKUGA is residential land use, while that of Kampala Capital City is approximately 55%. This is due to the shift of residential land use in Kampala Capital City changing to mixed use.

Comparing the land use by district in GKUGA, the district with largest institutional area is Wakiso District where most population in GKUGA lives. However, the share of institutional area is the lowest among the four districts. The district with largest area for industrial area is in Mukono District, which has Namanve Industrial Park. On the other hand, the industrial area in Mpigi District is extremely small compared with the other three districts.

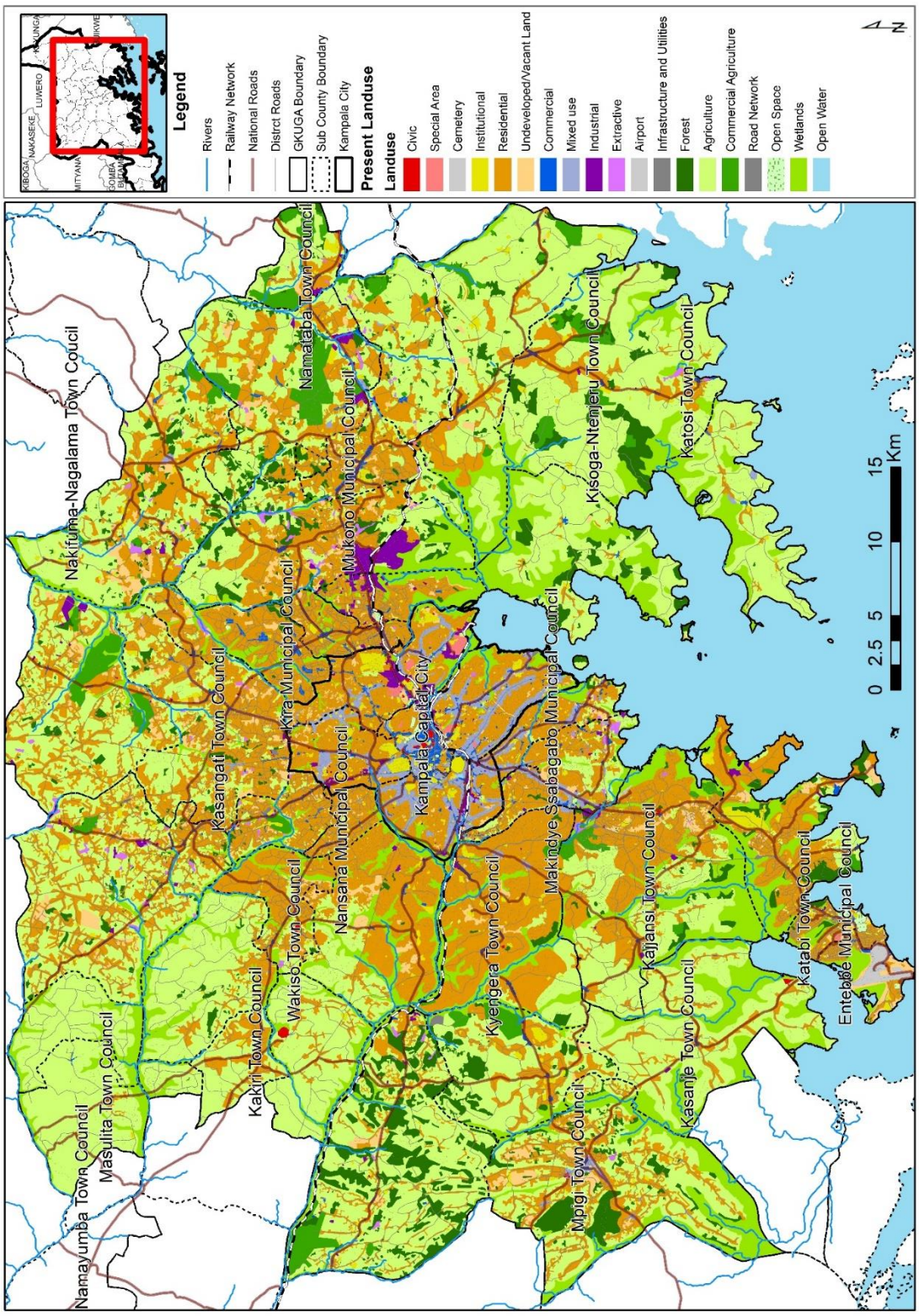
It is also noteworthy that Mukono District has the largest surface area for commercial agriculture. Mukono District has large lands used for tea plantation.

Comparing land use by municipality, town and sub county, Wakiso Town, Kasangati Town, Kyengera Town and Kira Municipality, Wakiso Sub County are the five local governments with more than 50% of its land used as residential. On the other hand, although the area is designated as town area, Masulita Town, Katosi Town, Kakiri Town and Kasanje Town have over 60% of its jurisdiction area as agricultural land. As for Kasanje Town and Masulita Town, less than 3% of its land are urbanised. (See Figure 10.1.2.)

Source: JICA Expert Team, based on the interpretation of satellite images (2019) and ground truthing, 2022

Figure 10.1.2 Distribution of Land Use by Municipality, Town and Sub County in GKUGA

Figure 10.1.3 shows the present land use map of GKUGA. The major industrial areas can be found on Jinja-Kampala Road, while the mixed-use areas can be found along the radial roads in Kampala Capital City and the municipalities surrounding Kampala.



Sources: JICA Expert Team, based on the interpretation of satellite images (2019) and ground truthing, 2022

Figure 10.1.3 Present Land Use Map of GKUGA

(3) Future Urban Spatial Structure Proposed in KPDF

1) Spatial Planning Strategy

A spatial planning strategy was set to guide the KPDF and KPDP, and this is described below.

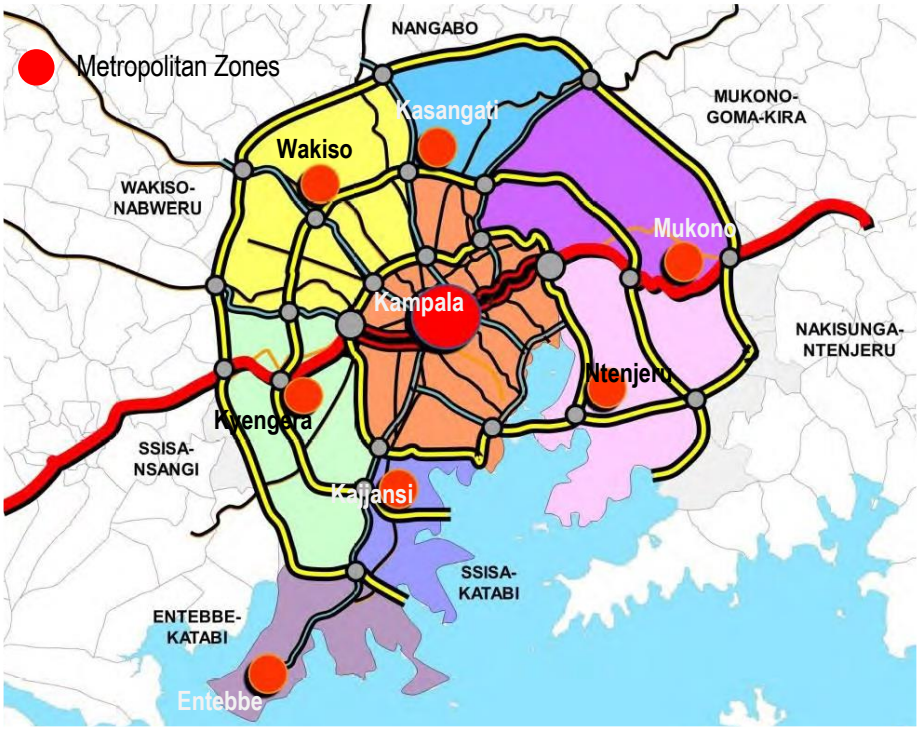
- A new physical vision for Kampala to guide the development of the city and metropolitan area in a planned and organised manner
- A national comprehensive urbanisation policy and physical plan to accelerate the development of existing and new towns
- Strengthening existing and new urban centres to ease the pressure on Kampala City's infrastructure and services, enabling the city's future balanced development
- A planned metropolitan structure to stop unbalanced sprawl
- Sustainable development, which protects the most important existing natural resources, will ensure the future of Kampala as a modern and quality city for future generations.

2) Spatial Framework for Kampala Special Planning Area (KSPA) in KPDF and KPDP

The spatial model selected in KPDF is the Radial Integrated Model including the strengthening of the existing centres of Wakiso, Mukono and Entebbe, and further development of new centres in Ssisa-Nsangi and Nakisunga-Ntenjeru areas. It includes a new metropolitan transportation system with three ring roads, namely, inner ring road, middle ring road and outer ring road. There is also an urban freeway which runs through the city centre along the east-west axis. (See Figure 10.1.4.)

In addition, four levels of service centres are identified as part of the metropolitan service centres hierarchy as follows:

- Central Zone (Kampala)
- Metropolitan Zone Centres (Entebbe, Kajjansi, Kyengera, Wakiso, Kasangati, Mukono and Ntenjeru)
- Quarter Centres
- Local Centres



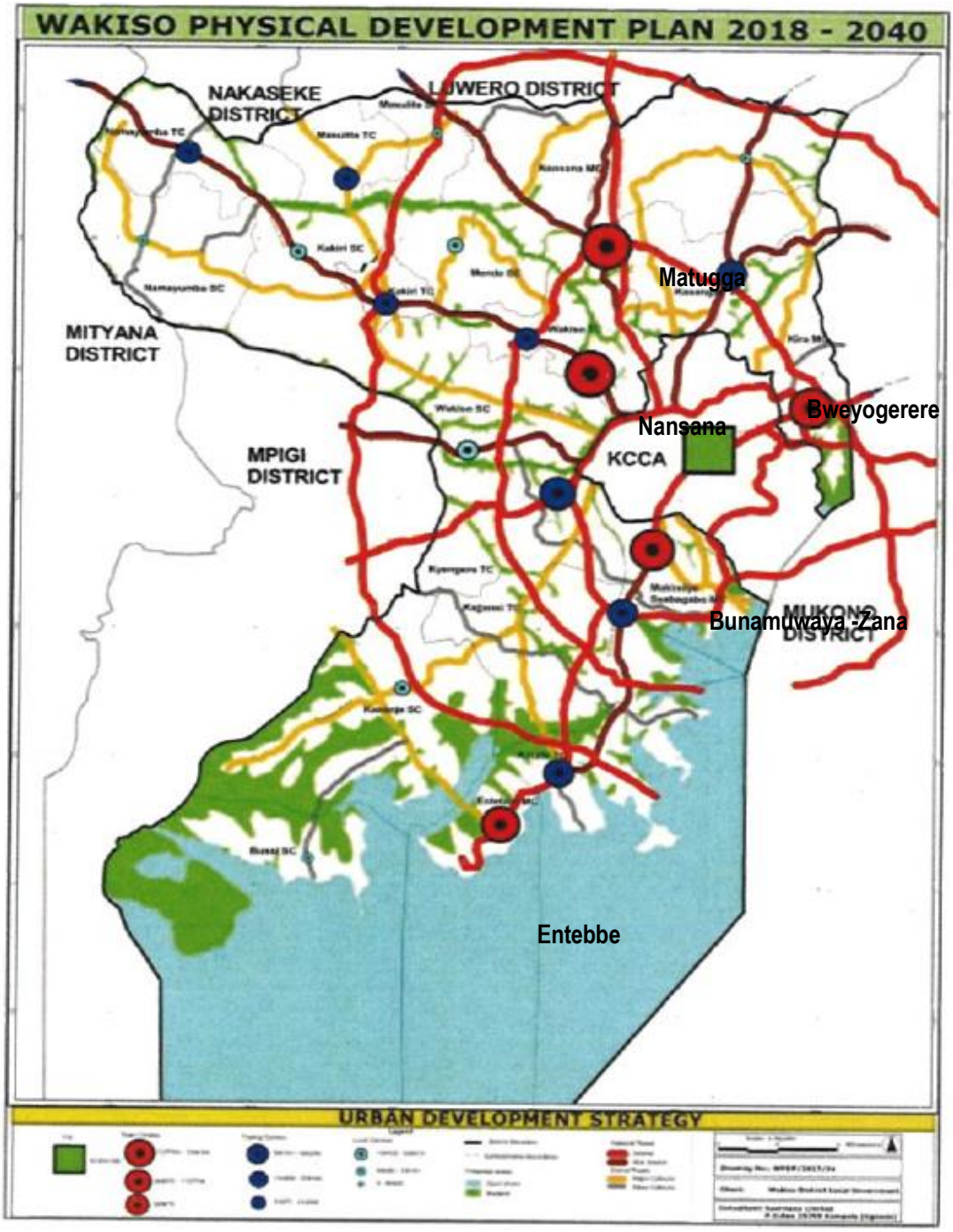
Source: KCCA, 2012, Kampala Physical Deevlopment Plan Final Report

Figure 10.1.4 Future Spatial Structure of KSPA in KPDF/KPDP

(4) Urban Spatial Structure Proposed in Wakiso District Physical Development Plan

The spatial structure in the Wakiso District PDP is shown in Figure 10.1.5 with Nansana, Matugga, Entebbe, Zzana and Kyaliwajjala as city centres, and Gayaza, Wakiso, Katiri, Masulita, Namayumba, Kyengera, Katabi and Kajjansi as trading centres. Although, the middle ring road and the outer ring road proposed in KPDF are adopted into the Wakiso District PDP, the outer ring road has been modified further outside the KSPA boundary.

In the four municipal councils (Entebbe, Kira, Makindye-Ssabagabo and Nansana) in Wakiso District, the land-use plan in Figure 10.1.5 shows the CBD area designated in each municipality. Other key land uses in the land-use plan are district commercial centres, local commercial centres, inner residential zones, central residential zones, peripheral residential zones, industrial establishment, commercial/ urban agriculture, institutional, wetlands, natural forest reserve, buffer zones, tourism and recreation, waterfront areas and special areas. There are three industrial areas designated to reserve land for medium and heavy industries, namely, in Namanve (existing), Mutagga-Kakerenge along Bombo Road and Kakajjo-Mbalwa-Janda.



Source: Wakiso District, 2018, Wakiso District Physical Development Plan 2018–2040

Figure 10.1.5 Urban Centre Development in Wakiso District PDP 2018-2040

10.1.2 Alternative Future Urban Spatial Structures for GKUGA

As for GKMA's population size, Growth Scenario 2 is selected considering the population allocation of Uganda as a whole and GKMA, as described in Section 4.3 of Chapter 4. Moreover, as for the spatial structure within the GKMA, Alternative Spatial Structure 2 is selected in terms of the manufacturing sector's investment volume and locations, as described in Section 6.2 of Chapter 6.

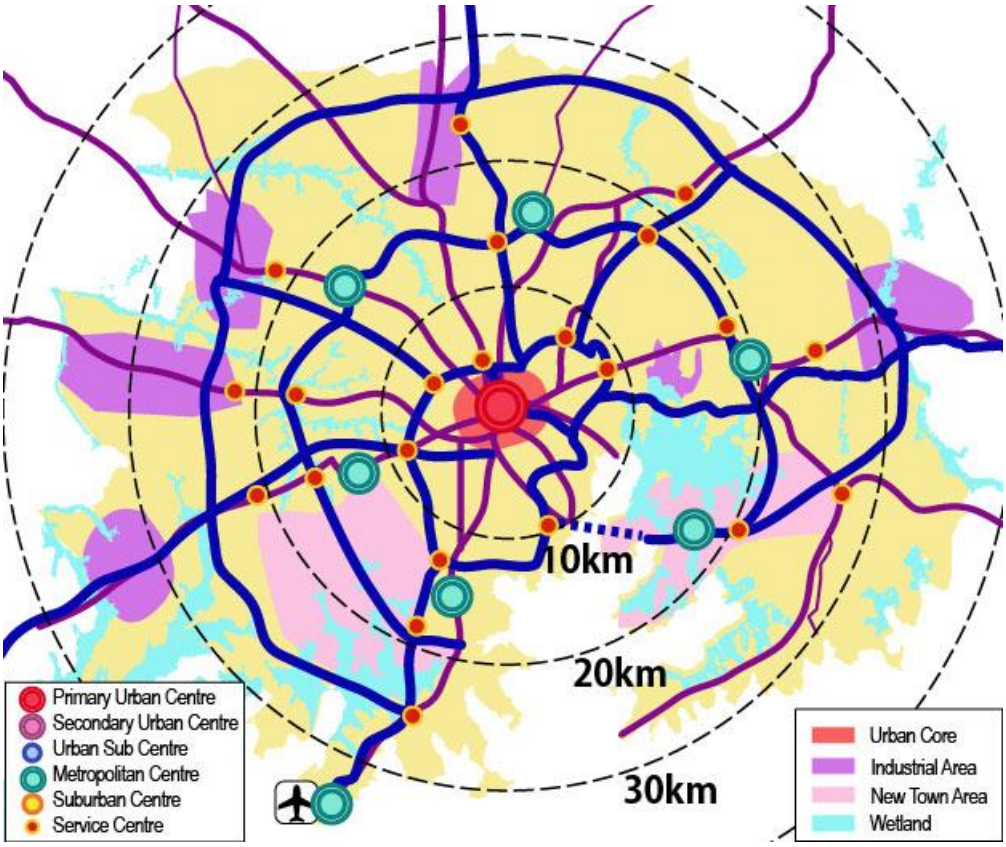
In response to these alternatives mentioned above, the following four alternative future urban spatial structures can be considered for GKUGA paying attention to the following aspects/factors to differentiate future urban spatial structures:

- Wide allocation of urban centres outside KCC in large distance from the central core of KCC

- Allocation of Metropolitan Centres which are major urban centres with job opportunities, as well as residential services, in suburban areas outside KCC
- Expansion of CBDs (no expansion or wide expansion of CBDs)
- Adoption of setting Secondary Urban Centres for Supporting the CBDs (Primary Urban Centres)
- Spatial patterns of Industrial Growth Corridors within the selected spatial structure of GKMA

(1) Alternative Urban Spatial Structure A: Poly-Centric Spatial Structure, which is composed of Spontaneously Developed Urban Centres Just Outside of the Boundaries of Kampala Capital City and a Large Single CBD within Kampala Capital City

- To develop urban centres outside Kampala Capital City, as proposed by KPDF 2012. The spontaneously developed urban centres just outside Kampala Capital City will be fostered. The expansion of dense urbanisation will happen within 25km radius from Kampala Capital City's urban core.
- Consecutive expansion of one large CBD is developed in Kampala City as planned in KPDP 2012.
- Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core along with Entebbe.
- Service Centres will be developed within 20-25 km radius from Kampala Capital City's urban core.
- Industrial area will be developed around 25-35km radius from Kampala Capital City's urban core, along with the existing Namanve Industrial Park.
- Large new town development is proposed in the southern areas of Wakiso District and Mpigi District.

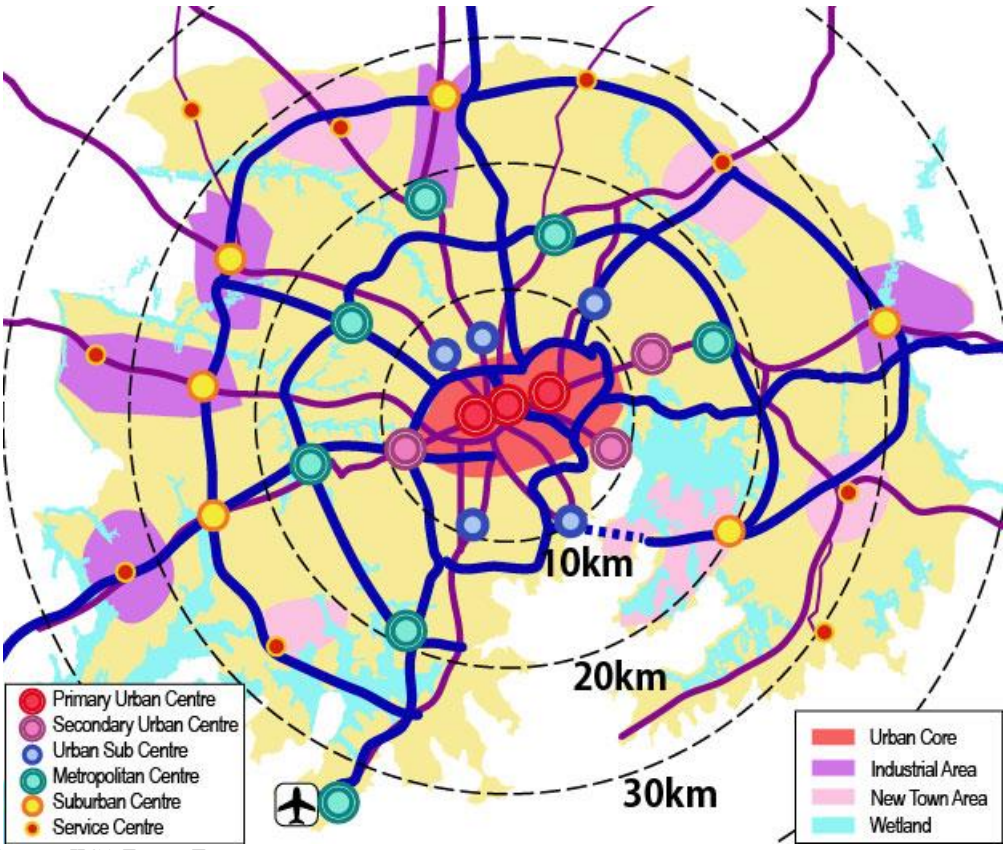


Source: JICA Expert Team based on KPDF 2012

Figure 10.1.6 Alternative Urban Spatial Structure A for GKUGA

(2) Alternative Urban Spatial Structure B: Poly-Centric and Widely Distributed Spatial Structure, which is composed of Large Urban Centres Widely Located Outside of Kampala Capital City and Expanded CBD supported by Secondary Urban Centres

- Large population will be distributed to outside Kampala Capital City.
- Urban Centres with major functions (job provision and service provision for residents) are distributed at 20-30 km radius from Kampala Capital City's urban core.
- The expansion of dense urbanisation will happen within 35km radius from Kampala City's urban core around the urban centres widely located in GKUGA.
- Three Primary Urban Centres will be developed in the centre of Kampala Capital City, and the function of the Primary Urban Centres will be supported by three Secondary Urban Centres adjacent to the urban core at Luzira-Port Bell, Busega-Kyengera and Namataba.
- Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core along with Entebbe.
- Suburban Centres will be developed at the major junctions of expressways such as Kirringete, Bujjuko, Kakiri, Migadde, Namataba and Mpatta.
- Service Centres will be developed within 25-35 km radius from Kampala Capital City's urban core.
- Industrial area will be developed around 25-35km radius from Kampala Capital City's urban core.
- New town development is proposed around Kasanje, Kabaale, Kalagi, Kisoga and Mpatta.

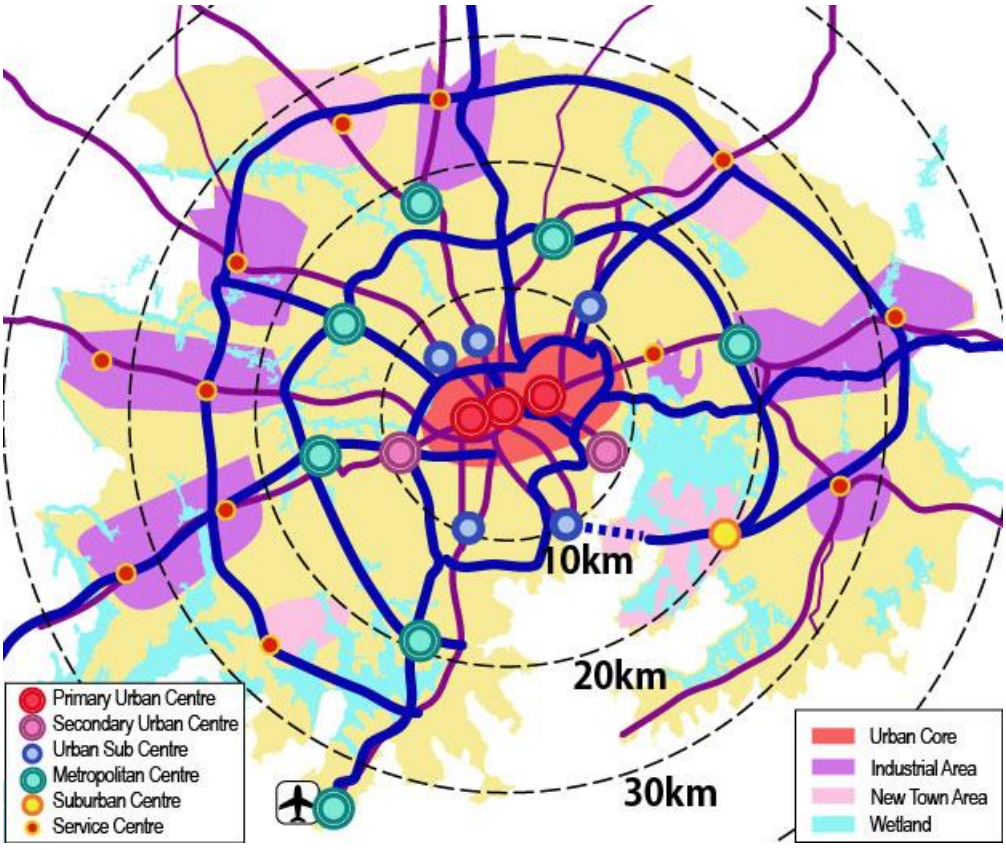


Source: JICA Expert Team

Figure 10.1.7 Alternative Urban Spatial Structure B for GKUGA

(3) Alternative Urban Spatial Structure C: Urban Spatial Structure taking Advantage of the Industrial Location Potential Created by JKM Corridor centred on Kampala-Jinja Expressway

- Large population will be distributed to outside Kampala Capital City.
- Industrial Growth Corridors will be allocated along the major corridors of Jinja-Kampala including Namanve Industrial Park, Kampala-Mpigi, Kampala Mitiana, Kampala-Hoima, Kampala-Bombo and around Kisoga. Industrial area will be developed around 20-35km radius from Kampala Capital City's urban core.
- Three Primary Urban Centres will be developed in the centre of Kampala Capital City, and the function of the Primary Urban Centres will be supported by two Secondary Urban Centres adjacent to the urban core at Luzira-Port Bell and Busega-Kyengera.
- Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core along with Entebbe.
- Service Centres will be developed within 25-35 km radius from Kampala Capital City's urban core to provide services to the industrial area.
- New town development is proposed around Kasanje, Kabaale, Kalagi, and Mpatta.



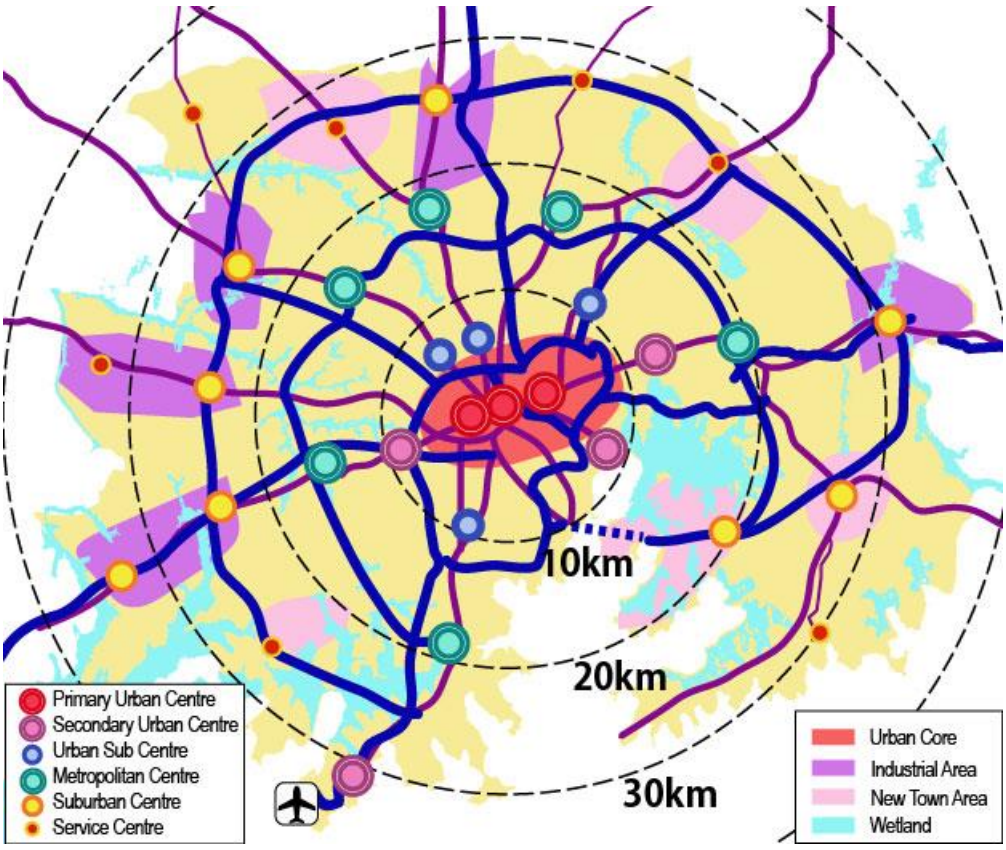
Source: JICA Expert Team

Figure 10.1.8 Alternative Urban Spatial Structure C for GKUGA

(4) Alternative Urban Spatial Structure D: Poly-Centric and Widely Distributed Spatial Structure, taking Advantage of the Expressway Development in GKUGA to Support Industrial Development and Urban Development

- Large population will be distributed to outside Kampala Capital City.
- Urban Centres with major functions (job provision and service provision for residents) are distributed at 20-30 km radius outside Kampala Capital City.

- The expansion of dense urbanisation will happen within 35km radius from Kampala Capital City's urban core taking advantage of the expressway development.
- Three Primary Urban Centres will be developed in the centre of Kampala Capital City, and the function of the Primary Urban Centres will be supported by three Secondary Urban Centres adjacent to the urban core at Luzira-Port Bell, Busega-Kyengera and Namataba.
- Entebbe will also be developed as the Secondary Urban Centre with its strategic function as international gateway and some central government functions.
- Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core.
- Suburban Centres will be developed at the major junctions of expressways such as Kirringete, Mpigi, Bujjuko, Kakiri, Migadde, Namataba, Kisoga and Mpatta.
- Service Centres will be developed within 25-35 km radius from Kampala Capital City's urban core.
- Industrial area will be developed around 25-35km radius from Kampala Capital City's urban core.
- New town development is proposed around Kasanje, Kabaale, Kalagi, Kisoga and Mpatta.



Source: JICA Expert Team

Figure 10.1.9 Alternative Urban Spatial Structure D for GKUGA (Selected)

(5) Selected Future Urban Spatial Structure for GKUGA: Alternative Urban Spatial Structure D is Selected.

Desirable and implementable future urban spatial structure should have the following characteristics:

- Wide allocation of urban centres should be promoted in suburban areas outside KCC, considering a rapid increase of residential populations outside KCC. ➔ Alternative Urban

Spatial Structures A and C are not selected.

- Metropolitan Centres which are major urban centres in suburban areas outside KCC should be developed so that they play a large and critical role not simply for providing daily services for suburban residents, but also for providing job opportunities. Metropolitan Centres' locations are selected by considering current and future expressways' routes.
- Considering the future size of total population (over 10 million) of GKUGA (urban metropolitan area), the CBDs of GKUGA should be expanded physically and functionally. ➔Alternative Urban Spatial Structure A is not selected.
- Strong industrial growth corridors should be developed along Kampala-Jinja Expressway and Kampala-Mpigi Expressway within the GKUGA. ➔ Alternative Urban Spatial Structures A and B are not selected.

As a result of these considerations, Alternative Urban Spatial Structures D is selected.

10.1.3 Future Urban Spatial Structure for GKUGA

The urban spatial structure is composed by different types of urban centres, roads, and public transports. The hierarchy and characteristics of the urban centres in GKUGA are summarised in Table 10.1.3. These urban centres are classified into six orders from Order 1 to Order 6, based on the expected degree of development.

Table 10.1.3 Hierarchy and Characteristics of Urban Centres in GKMA (2050)

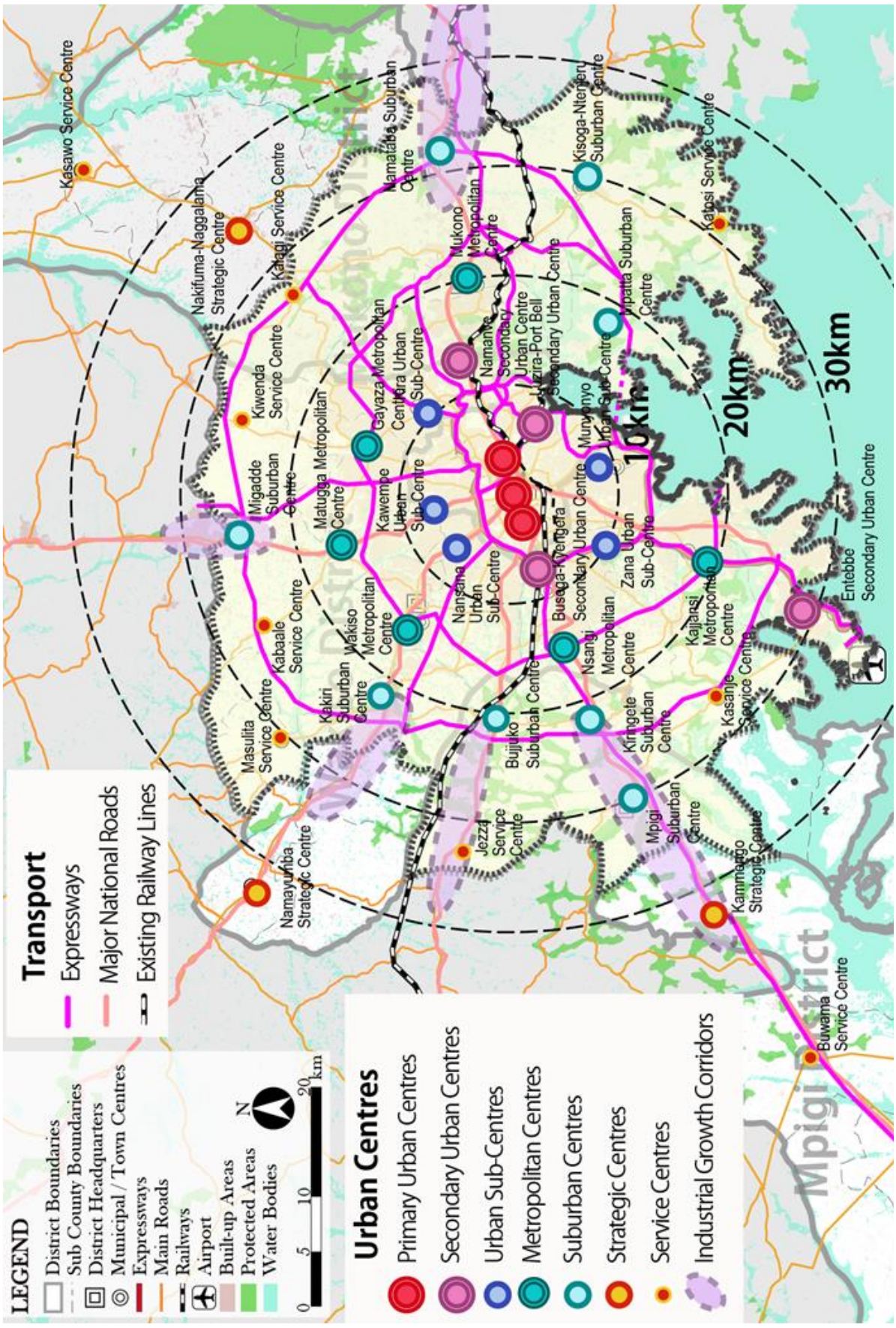
	Functions	Influential Areas	Other Characteristics
Primary Urban Centres (CBD) **Order 1**	National Government, Major Business, Commercial, Service, and Advanced Education and Health Functions providing Major Services and Jobs	East African Region, Uganda, Central Region, GKMA, GKMA and KCC	Urban Centres composing the Urban Core (Administrative and Business Centres) to cover the GKUGA
Secondary Urban Centres **Order 2**	National Government, Major Business, Commercial, Service, Education, and Health Functions, Providing Major Services and Jobs	GKMA and GKUGA	Urban Centres Supporting the CBDs
Metropolitan Centres **Order 3**	Major Centres of GKUGA outside Kampala Capital City, having Local Government, Business, Commercial, and Advanced Service Functions, Providing Services, as well as Jobs	Wide Areas (outside KCC) Surrounding the Metropolitan Centre Providing Jobs and Services	Located at junctions of major radial roads or radial expressways and planned ring expressways
Urban Sub-Centres **Order 4**	Local Government, Commercial, and Services to Support Primary and Secondary Urban Centres, Providing Services and Jobs	Surrounding Areas of the Urban Sub-Centre along a Radial Road	Spontaneously developed centres located along the radial roads from the CBDs
Suburban Centres **Order 4**	Major Centres of GKUGA outside KCC, having Local Government Offices, Business and Commercial and Service Functions, Providing Services and Jobs	Areas (outside KCC) of Surrounding the Suburban Centre Providing Jobs and Daily Services	Located along major radial roads
Strategic Centres **Order 5**	Major Centres of GKMA outside GKUGA, having Local Government Offices, Business and Commercial and Service Functions Supporting an Industrial Corridor, as well as Surrounding Rural Areas	Wide Areas (outside GKUGA) of Surrounding Rural Areas, as well as Industrial Growth Corridors.	Located along major radial roads
Service Centres **Order 6**	Local Government, Commercial, and Basic Service Functions	Surrounding Areas	Service Centres for neighbouring areas

Source: JICA Expert Team

Industrial growth corridors are located on selective arterial roads. The industrial growth corridors should have infrastructure to promote industrial development along the corridor.

Figure 10.1.10 illustrates the selected future urban spatial structure for GKUGA (based on the Alternative Urban Spatial Structure D for GKUGA) for 2050. It reflects the above-mentioned overall development scenarios and strategies for the GKUGA.

The urban centres designated in the future urban spatial structure for GKUGA is listed in Table 10.1.4.



Source: JICA Expert Team

Figure 10.1.10 Future Urban Spatial Structure for GKUGA (2050)

Table 10.1.4 List of Urban Centres in Urban Spatial Structure for GKUGA

Urban Centres	Name of Urban Centres	Location
Primary Urban Centre Order 1	Nakasero Primary Urban Centre	KKC
	Old Kampala Primary Urban Centre	KKC
	Nakawa Primary Urban Centre	KKC
Secondary Urban Centre Order 2	Namanve Secondary Urban Centre	Mukono Municipality in Mukono District
	Busega-Kyengera Secondary Urban Centre	KCC, and Kyengera Town and Wakiso Sub County in Wakiso District
	Luzira-Port Bell Secondary Urban Centre	KCC
	Entebbe-Katabi Secondary Urban Centre	Entebbe Municipality in Wakiso District
Metropolitan Centres Order 3	Mukono Metropolitan Centre	Mukono Municipality in Mukono District
	Gayaza-Kasangati Metropolitan Centre	Kasangati Town in Wakiso District
	Matugga Metropolitan Centre	Nansana Municipality in Wakiso District
	Wakiso Metropolitan Centre	Wakiso Town, Mende Sub County and Wakiso Sub County in Wakiso District
	Nsangi-Nakirebe Metropolitan Centre	Nsangi Sub County
	Kajjansi Metropolitan Centre	Kajjansi Town in Wakiso District
Suburban Centres Order 4	Mpatta Suburban Centre	Mpatta Sub County in Mukono District
	Kisoga-Ntengeru Suburban Centre	Kisoga Town in Mukono District
	Namataba Suburban Centre	Namataba Town and Nama Sub County in Mukono District
	Migade Suburban Centre	Nansana Municipality in Wakiso District
	Katiri Suburban Centre	Kakiri Town and Kakiri Sub County in Wakiso District
	Bujjuko Suburban Centre	Muduuma Sub County in Mpigi District
	Mpigi Suburban Centre	Mpigi Town in Mpigi District
Urban Sub-Centre Order 4	Kira Urban Sub-Centre	Kira Municipality in Wakiso District
	Kawempe Urban Sub-Centre	KCC
	Nansana Urban Sub-Centre	Nansana Municipality in Wakiso District
	Zana Urban Sub-Centre	Makindye-Ssabagabo Municipality in Wakiso District
	Munyonyo Urban Sub-Centre	KCC
Strategic Centre Order 5	Nakifuma Strategic Centre (Outside GKUGA)	Sub County in Mukono District
	Namayumba Strategic Centre (Outside GKUGA)	Namayumba Town in Wakiso District
	Kammengo Strategic Centre (Outsde GKUGA)	Kammengo Sub County in Mpigi District
Service Centre Order 6	Katosi Service Centre	Katosi Town in Mukono District
	Kalagi Service Centre	Kyampsi Sub County in Wakiso District
	Kasawo Service Centre (Outside GKUGA)	Kasawo Sub County in Mukono District
	Kiwenda Service Centre	Nansana Municipality in Wakiso District
	Kabaale Service Centre	Nansana Municipality in Wakiso District
	Masulita Service Centre	Masulita Town in Wakiso District
	Jezza Service Centre	Muduuma Sub County in Mpigi District
	Kasanje Service Centre	Kasanje Town in Wakiso District
	Buwama Service Centre (Outside GKUGA)	Buwama Sub County in Mpigi District
	Kayabwe Service Centre (Outside GKUGA)	Kayabwe Sub County in Mpigi District

Source: JICA Expert Team

10.1.4 Identities of Major Urban Centres

The identities of each secondary urban centre and metropolitan centre are identified to understand the future development direction of each urban centres.

(1) Secondary Urban Centres

The secondary urban centres exhibit unique characteristics and identities based on the strategic location and urban functional features performed over time in the country and in the GKMA existence.

1) Entebbe-Katabi Secondary Urban Centre

Entebbe- Katabi Secondary Urban Centre is an ***Historical and Recreational***, through it numerous beaches and water sport activities.

Entebbe - Katabi niches a long and a beautiful historical importance to Uganda, located along Lake Victoria, it provides an administrative and commercial functions since the colonial period of 19th century and is the first capital city of Uganda.

Uniquely, Entebbe illustrates the oldest and the only aviation gateway route to the world through the Ëntebbe International Airport located at the apex of the Entebbe Peninsula. Its home to the official residences and Office to the presidents of the Country "State House"

Distinctly, the oldest natural and protected elements of the first botanical gardens, Zika Forest Reserve and the Entebbe Golf Course, the blending in of the wildlife elements of the Entebbe Wild Life Education Centre provides key elements for Entebbe-Katabi Secondary Urban Centre.

It's of great significance, to note that most of the country's historical establishment is denoted through the history of Entebbe town, ranging from Christianity arrival into the country to colonial administration over time.

2) Busega-Kyengera Secondary Urban Centre

Busega -Kyengera can become the multi-model transportation centre for GKMA.

It is located at the western part of Kampala, the capital city along the Kampala-Masaka Highway, Mityana-Fortportal Highway and at the exit of Entebbe Expressway.

The town is exited along the western railway link to western Uganda at Kyengera Railway Station.

Busega -Kyengera is uniquely split by natural wetland system of Mayanja Wetland and Lubigi Wetland that forms an integral part within the urban fabric of Busega-Kyengera.

Kyengera -Busega is also known for educational institution of Kabojja Islamic University of Uganda

3) Luzira-Port Bell Secondary Urban Centre

Luzira-Port Bell would be developed as a waterfront business centre, with lake view homes, hotels and apartments.

Port Bell is established in the colonial period as an access point for air, water and railway on Lake Victoria with an easy access to Kisumu (Kenya) and to Musoma and Mwanza (Tanzania) for passengers and goods.

Luzira -Port Bell thrives with industrial establishments of pharmaceutical factories such as Cipla Quality Chemical limited, and brewing factories such as East Africa Breweries limited, Uganda Distillers and processing Tumpeco limited. There is also a plan to relocate the prison currently at Luzira and develop the area as international conference centre.

Prominently, Luzira -Port bell is known for its high-end lake view residential areas.

4) Namanve Secondary Urban Centre

Namanve Secondary Urban Centre is identified as the industrial centre of GKMA.

Namanve rose to prominence in the early 2000, as the biggest industrial park in the country and home to numerous warehouses, businesses and offices, as well as manufacturing factories such

Century Bottling Company Coca- Cola and hotels such Kampala Nile Resort, Source of the Nile Hotel Namanve among others.

Namanve Railway Station is a very important and operational passenger station on the eastern route.

(2) Metropolitan Centres

The identities of the six metropolitan centres in GKUGA are based on the unique characteristic or unique potentials of that exist in these centres that are ought to be conserved or improved for the future.

1) Kajjansi Metropolitan Centre

Kajjansi Metropolitan Centre shall become an eco-tourism centre of GKUGA.

For a long time, Kajjansi is known for mainly three elements, the Kajjansi Uganda Clay Tiles, the Kajjansi - Bweya Airfield, and the Kajjansi fish breeding ponds at the Aquaculture Research and Development Centre that lies in the wetland that connects to the wetland system of Lake Victoria. The key elements of Ramser conservation area, the very sensitive wetland system for fish breeding, should be maintained and preserved.

The location of Kajjansi on the lake shoreline of Lake Victoria, is blessed with unique natural elements of Ramser site at Lutembe; beaches and marine recreation, with a series of wetlands, and lately its denoted with the upcoming development of the government campus at Bwebajja.

2) Nsangi Metropolitan Centre

Nsangi Metropolitan Centre could be the horticultural and heritage centre for GKUGA.

The town is characterized with a long traditional & cultural set up with heritage sites for coronation of Crown Kings for Buganda Kingdom at Buddo in Naggalabi used for the Kings installation for the past eight centuries and believed to be where the first Buganda King was crowned.

Recently, the town exhibits modern flower farms and horticultural for both export and for local market, with extensive possible expansion areas into neighboring areas of Nsimbe.

Nsangi Metropolitan Centre would therefore portray a blend of both modernity intertwined with heritage of town set up a long side the gateway to the western part of the country.

3) Wakiso Metropolitan Centre

Wakiso Metropolitan Centre shall become a liveable administrative centre.

It is home to the district headquarters for four municipalities and seven town councils in GKMA.

The population of Wakiso Metropolitan Centre and its surrounding area has been increasing rapidly and new housing are being developed. It is also an urban centre that still has large unused land and has high potentiality for future development.

4) Matugga Metropolitan Cnetre

Matugga Metropolitan Centre would become an agro-industrial research centre for GKUGA.

Matugga Centre located at the link to Kapeeka Industrial Park and the existing industrial areas along Bombo-Gulu Highway in the northern part of GKMA is boasted by the existing hydro electrical power substation at Kawanda.

Prominently Matugga is posed with manufacturing factories such as Luuka Plastic ltd, Best Pack Uganda Limited in beverages, agro-processing such as Kiri Soda, beef processing- Eygpt Uganda Food Security Company Limited, Bugera Coffee Ltd, Ahmed Raza Foods Industries; pharmaceutical factories such as Biological Drugs MRNA Vaccines Facility, Royal Care Cosmetics limited.

The town is also known for the National Agricultural Research Organization (NARO) at Kawanda

Matugga Metropolitan Centre also still has available land for future expansion providing opportunity for developing research institutions.

5) Gayaza-Kasangati Metropolitan Centre

Gayaza Metropolitan Centre shall become the education and recreation centre for GKUGA.

Gayaza is prominently known for its oldest educational institution, Gayaza High School, and Makerere University Agricultural Research Institution Kabanyolo. They are key unique elements of the metropolitan centre.

In recent years, establishment of the high-end recreational areas and eco-parks such as horse-riding recreation areas such as Frame Tree Stables, forms new identities for Gayaza.

6) Mukono Metropolitan Centre

Mukono Metropolitan Centre shall become the industrial centre for GKUGA.

Mukono Metropolitan Centre is located on the gateway to Kampala through the eastern transit route from Kenya, on the industrial corridor.

It is also characterised with numerous tertiary institutions such as Uganda Christian University Mukono and secondary schools such as Seeta High school, St. Marys Namangunga, Seroma High School

Mukono Metropolitan Centre also has the district headquarters of Mukono District.

10.1.5 Population Distribution within GKUGA[1]

The population distribution of GKUGA by sub county is prepared based on the future population framework at the GKUGA level discussed in Section 4.4 and considering the future urban spatial structure discussed in Section 10.1.3. The future population distribution in GKUGA for 2030, 2040 and 2050 are shown in Table 10.1.5.

In some sub counties, divisions, and towns, the population will not continue to increase as it has been the previous decades if the population density is extremely high.

The population density in the sub counties are shown in Table 10.1.6. In Kawempe Division, Rubaga Division, Makindye Division of Kampala Capital City and Nansana Division of Nansana Municipality already had the population density of over 10,000 person / km^2.

Table 10.1.5 Population Distribution by Sub County in GKUGA

	2002	2014	2020	2030	2040	2050
Kampala Capital City						
Central Division	88,094	75,168	77,000	80,000	90,000	93,000
	-	-1.31%	0.37%	0.44%	1.13%	0.31%
Kawempe Division	262,165	338,665	377,000	434,000	470,000	473,000
	-	2.16%	1.83%	1.40%	0.80%	0.07%
Rubaga Division	295,088	383,216	428,000	494,000	536,000	541,000
	-	2.20%	1.86%	1.43%	0.83%	0.10%
Makindye Division	303,171	393,008	443,000	523,000	579,000	596,000
	-	2.19%	2.00%	1.68%	1.03%	0.29%
Nakawa Division	240,624	317,023	360,000	442,000	503,000	524,000
	-	2.32%	2.13%	2.07%	1.31%	0.41%
Mpigi District						
Kiringente	12,853	22,725	30,000	54,000	98,000	196,000
	-	4.86%	4.89%	5.88%	6.18%	7.23%
Mpigi Town Council	34,374	43,360	53,000	81,000	128,000	196,000
	-	1.95%	3.44%	4.29%	4.73%	4.32%
Muduuma	21,133	30,636	37,000	58,000	96,000	149,000

[1] The population is residential population, who stay in those areas at night.

	-	3.14%	3.17%	4.55%	5.24%	4.48%
Mukono District						
Kyampisi	28,594	45,074	62,000	91,000	127,000	164,000
	-	3.87%	5.42%	3.97%	3.36%	2.61%
Nakisunga	39,545	48,330	62,000	96,000	139,000	188,000
	-	1.69%	4.33%	4.40%	3.79%	3.04%
Nama	33,004	54,268	70,000	107,000	175,000	266,000
	-	4.23%	4.26%	4.33%	5.06%	4.30%
Ntenjeru	55,443	41,104	48,000	69,000	102,000	141,000
		2.22%	2.58%	3.65%	4.06%	3.31%
Mpatta		17,145	20,000	25,000	41,000	90,000
		2.22%	2.25%	2.32%	5.25%	8.11%
Mpunge		13,919	16,000	21,000	26,000	29,000
	-	2.22%	2.58%	2.65%	2.05%	1.31%
Mukono Central Division	46,506	69,671	85,000	129,000	205,000	322,000
	-	3.43%	3.46%	4.23%	4.70%	4.63%
Mukono Goma Division	45,062	93,039	134,000	247,000	431,000	699,000
	-	6.23%	6.26%	6.33%	5.71%	4.95%
Wakio District						
Kakiri	29,828	39,137	53,000	94,000	165,000	271,000
		5.76%	5.22%	5.86%	5.82%	5.05%
Kakiri Town Council		19,257	29,000	57,000	106,000	182,000
	-	5.76%	6.95%	7.02%	6.40%	5.63%
Kasanje	29,518	29,008	35,000	50,000	73,000	117,000
	-	-0.15%	3.42%	3.49%	3.85%	4.84%
Kajjansi Town Council	31,526	92,916	160,000	293,000	486,000	751,000
	-	9.43%	9.46%	6.25%	5.20%	4.43%
Katabi Town Council	57,587	105,669	151,000	202,000	255,000	300,000
	-	5.19%	6.08%	2.97%	2.37%	1.63%
Masuliita	20,166	10,714	12,000	15,000	18,000	21,000
		1.91%	2.42%	2.06%	1.89%	1.15%
Masulita Town Council		14,589	20,000	36,000	68,000	117,000
	-	1.91%	5.72%	6.00%	6.40%	5.63%
Kyengera Town Council	73,155	195,531	306,000	498,000	765,000	1,048,000
	-	8.54%	7.76%	5.00%	4.38%	3.19%
Wakiso	66,735	176,780	236,000	382,000	584,000	830,000
		12.12%	4.92%	4.94%	4.33%	3.58%
Wakiso Town Council		60,210	120,000	239,000	356,000	394,000
		12.12%	12.15%	7.14%	4.07%	1.03%
Mende		26,327	46,000	114,000	253,000	461,000
	-	12.12%	9.55%	9.62%	8.27%	6.20%
Entebbe Division A	32,031	39,484	44,000	53,000	60,000	63,000
	-	1.76%	1.79%	1.86%	1.26%	0.53%
Entebbe Division B	23,055	30,735	36,000	46,000	55,000	62,000
	-	2.42%	2.46%	2.53%	1.93%	1.19%
Kira Bweyogerere Division	124,067	106,842	165,000	274,000	369,000	398,000
		8.14%	7.56%	5.17%	3.02%	0.76%
Kira Kira Division		60,499	97,000	193,000	298,000	392,000
		8.14%	8.17%	7.11%	4.45%	2.79%
Kira Namugongo Division		149,816	169,000	208,000	241,000	260,000
	-	8.14%	2.02%	2.09%	1.50%	0.76%
Kasangati Town Council	57,751	142,361	224,000	434,000	661,000	777,000
	-	7.81%	7.84%	6.85%	4.29%	1.62%
Makindye-Ssabagabo Bunamwaya Division	136,322	72,533	94,000	116,000	135,000	146,000
		6.28%	4.43%	2.15%	1.50%	0.76%
Makindye-Ssabagabo Masajja Division		117,248	155,000	202,000	244,000	275,000
		6.28%	4.81%	2.65%	1.93%	1.19%
Makindye-Ssabagabo Ndejje Division		93,491	135,000	251,000	389,000	402,000
	-	6.32%	6.39%	4.50%	0.33%	6.32%
Nansana Busukuma Division	27,197	37,730	48,000	77,000	127,000	213,000

	-	2.77%	4.21%	4.74%	5.20%	5.26%
Nansana Gombe Division	39,849	76,639	106,000	185,000	305,000	418,000
	-	5.60%	5.63%	5.71%	5.09%	3.22%
Nansana Nabweru Division	104,400	106,265	195,000	260,000	301,000	325,000
		7.58%	10.67%	2.89%	1.50%	0.76%
Nansana Nansana Division		144,490	159,000	179,000	191,000	189,000
	-	7.58%	1.59%	1.22%	0.63%	-0.10%
Greater Kampala Urban Growth Area	2,358,843	3,934,622	5,097,000	7,409,000	10,251,000	13,079,000
	-	4.36%	4.41%	3.81%	3.30%	2.47%

Note 1: 2002 and 2014 data are Population and Housing Census data of UBOS
Note 2: Upper row is population lower row is average annual population growth rate
Source: JICA Expert Team

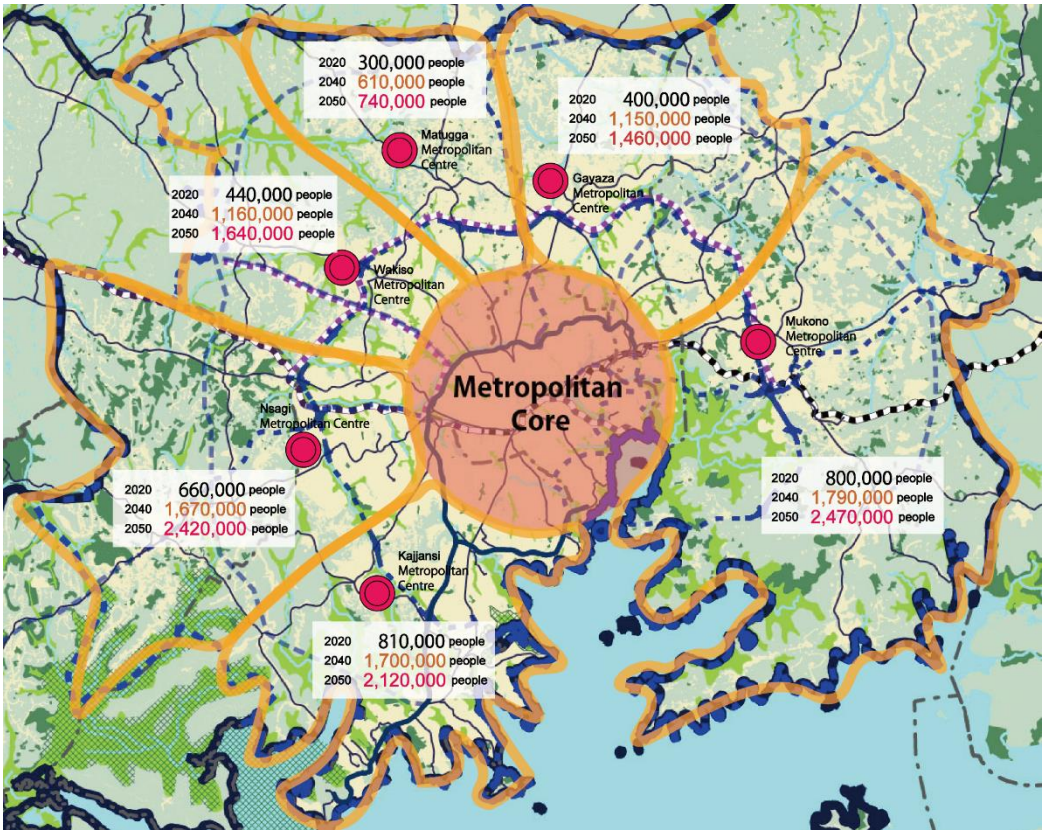
Table 10.1.6 Population Density by Sub County in GKUGA

Sub Counties / Divisions / Towns	Surface Area (km^2)	Population Density (Persons/km^2)			
		2020	2030	2040	2050
Kampala Capital City					
Central Division	15.1	5,102	5,301	5,963	6,162
Kawempe Division	30.8	12,231	14,080	15,248	15,345
Rubaga Division	37.5	11,419	13,180	14,301	14,434
Makindye Division	44.0	10,066	11,883	13,156	13,542
Nakawa Division	51.5	6,990	8,583	9,767	10,175
Mpigi District					
Kiringente	74.7	402	723	1,312	2,625
Mpigi Town Council	150.6	352	538	850	1,301
Muduuma	156.8	236	370	612	950
Mukono District					
Kyampisi	126.2	491	721	1,007	1,300
Nakisunga	193.2	321	497	719	973
Nama	118.6	590	902	1,475	2,242
Ntenjeru	171.2	280	403	596	824
Mpatta	89.8	223	279	457	1,003
Mpunge	59.9	267	351	434	484
Mukono Central Division	36.7	2,317	3,516	5,588	8,777
Mukono Goma Division	114.9	1,167	2,150	3,752	6,085
Wakio District					
Kakiri	141.6	374	664	1,165	1,913
Kakiri Town Council	26.8	1,084	2,131	3,963	6,804
Kasanje	212.2	165	236	344	551
Bussi	112.2	152	178	214	250
Kajjansi Town Council	142.8	1,120	2,051	3,403	5,258
Katabi Town Council	77.8	1,941	2,596	3,277	3,856
Masuliita	57.5	209	261	313	365
Masulita Town Council	56.2	356	640	1,209	2,080
Kyengera Town Council	110.0	2,782	4,527	6,954	9,526
Wakiso	149.3	1,581	2,559	3,913	5,561
Wakiso Town Council	36.0	3,331	6,635	9,883	10,938
Mende	72.4	635	1,574	3,493	6,365
Entebbe Division A	15.2	2,889	3,480	3,939	4,136
Entebbe Division B	18.7	1,921	2,454	2,935	3,308
Kira Bweyogerere Division	28.5	5,790	9,615	12,949	13,967
Kira Kira Division	46.2	2,101	4,181	6,455	8,491
Kira Namugongo Division	20.9	8,102	9,971	11,553	12,464

Kasangati Town Council	101.7	2,202	4,266	6,497	7,637
Makindye-Ssabagabo Bunamwaya Division	12.5	7,509	9,267	10,785	11,663
Makindye-Ssabagabo Masajja Division	22.7	6,814	8,881	10,727	12,090
Makindye-Ssabagabo Ndejje Division	31.9	4,233	7,871	12,198	12,606
Nansana Busukuma Division	111.0	433	694	1,145	1,920
Nansana Gombe Division	143.8	737	1,286	2,120	2,906
Nansana Nabweru Division	27.0	7,221	9,628	11,146	12,035
Nansana Nansana Division	13.2	12,042	13,557	14,466	14,315
Greater Kampala Urban Growth Area	5,145.9	991	1,440	1,992	2,542

Source: JICA Expert Team

Based on the future population distribution estimated in Table 10.1.5, the population each metropolitan centre should serve as a metropolitan with poly-centric structure in 2030, 2040 and 2050 are estimated. It is estimated that Nsangi Metropolitan Centre, Mukono Metropolitan Centre and Kajjansi Metropolitan Centre need the capacity to serve over 2 million population with jobs, tertiary education and health facilities by 2050.



Source: JICA Expert Team

Figure 10.1.11 Population of Influential Areas (Service Areas) of Metropolitan Centres

10.2 General Land Use Plan for GKUGA

10.2.1 Introduction: General Land Use Plans

GKUGA's future urban spatial structures discussed in Section 10.1 of Chapter 10 are composed of the following spatial elements:

- Types and Location of Urban Centres
- Arterial Roads, Expressway and Railways
- Protected Areas (Wetlands and Forest Reserves)

Based on this future urban spatial structure prepared for GKUGA, a general land use plan is prepared for GKUGA for the following purposes:

- To show the boundaries for Greater Kampala Urban Growth Area (GKUGA), which are to be used for limiting urbanising areas within the GKUGA
- To show major characteristics (urban centres, roads and railways, and protected areas) of the future urban spatial structure
- To show other new land uses, such as new residential areas, in addition to existing land uses

The general land use plan is formulated by the following steps:

- Step 1: Putting present land use as the background of the GKUGA
- Step 2: Allocating "Protected Areas, such as wetlands and protected forestry"
- Step 3: Putting "New Residential Areas" in suitable areas for residential areas within the boundaries of GKUGA
- Step 4: Consider land use plans within Urban Centre Areas as follows:
  - Step 4-1: Identification of central points, such as existing commercial centres, junctions of national road and access road to expressways for urban centre areas.
  - Step 4-2: Determination of influential areas from the central points identified in Step 1 in urban centre area.
  - Step 4-3: Consideration of necessary road network within urban centre areas for promoting urban development
  - Step 4-4: Consideration of potential commercial areas, mixed use areas and new industrial areas for urban centre areas.
  - Step 4-5: Overlaying proposed new land use on existing land use.

10.2.2 Conceptual General Land Use Plan for GKUGA

Based on the future urban spatial structure shown in Figure 10.1.10, areas which should become urban centres outside Kampala Capital City are shown in circles, and urban sub-centres in the future urban spatial structure are shown in ribbon patterns along the arterial roads.

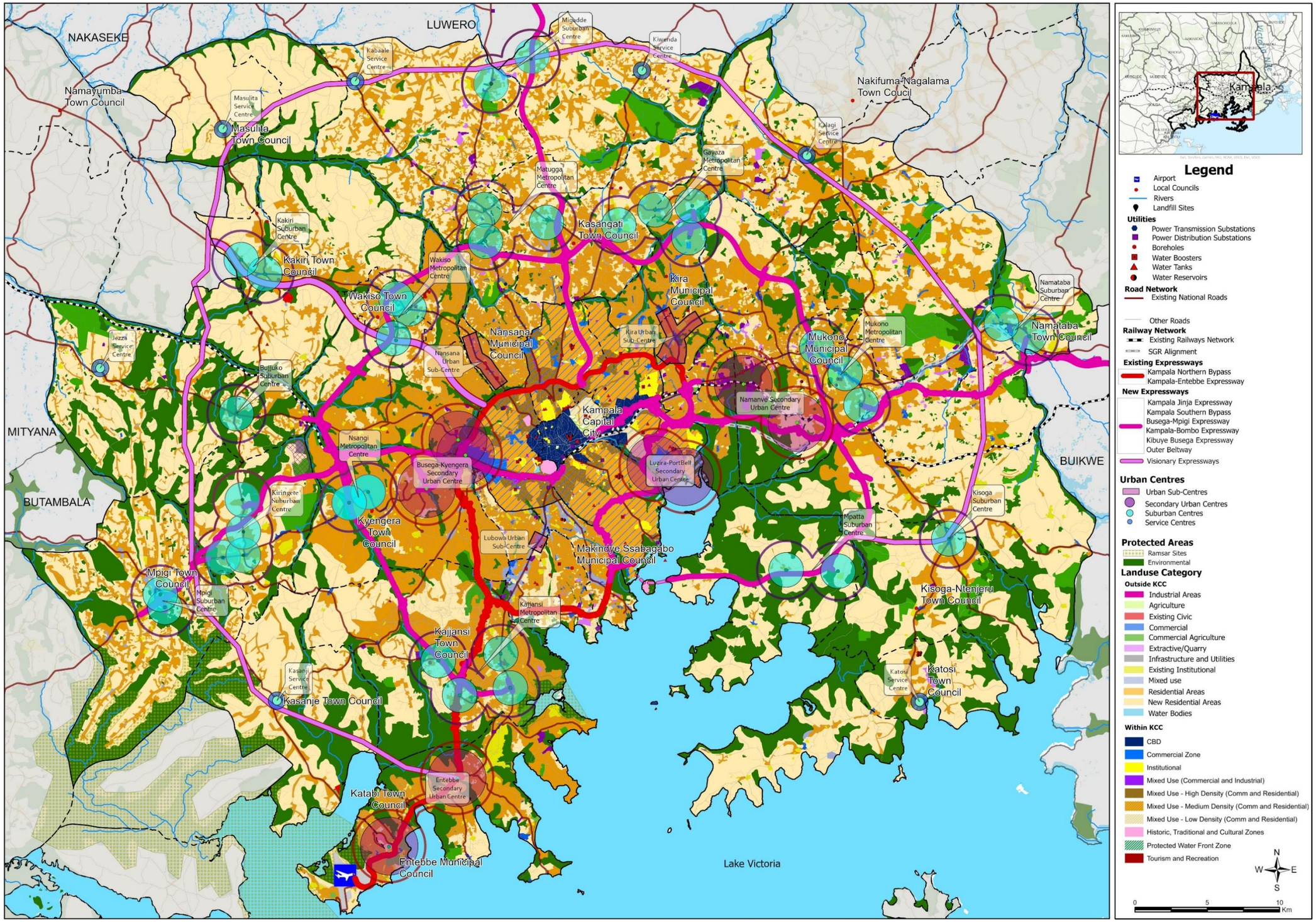
The radiuses of these circles are determined based on the considered influential area of each centre. The radius of the circles used for each type of centres are determined as follows:

- Secondary Urban Centres: 2,000 m
- Metropolitan Centres and Suburban Centres: 1,200 m
- Service Centres: 600 m

The central points of these circles are on existing commercial centres and at the exits of the new expressways. The exists of the new expressways are determined as the centre of the circles because in GKUGA, due to the traffic congestion, more businesses and people will prefer to work and live closer to such locations. Therefore, the numbers of circles are different in different urban centres, and the shape of the area determined as urban centres are also unique depending on the condition of each centres.

The surface size of the metropolitan centre is larger than suburban centres because the metropolitan centres were selected on areas with potential to grow with more than one expressway exits.

The existing centres which are designated as urban sub-centres have length between 1km and 4 km depending on the existing situation.



Source: JICA Expert Team

Figure 10.2.1 Conceptual General Land Use Plan for GKUGA

(1) Entebbe Corridor, Mpigi Corridor and Mityana Corridor

The General Land Use Plan for Entebbe Corridor, Mpigi Corridor and Mityana Corridor which is shown in Figure 10.2.2 is part of the General Land Use Plan for GKUGA. This plan map shows new residential areas to be extended toward the boundaries of GKUGA while wetlands and forest reserves are to remain as protected areas.

In addition, this plan map shows three corridors, namely, Entebbe Corridor, Mpigi Corridor and Mityana Corridor,

Entebbe Corridor has the following urban centres:

- Zana Urban Sub-Centre with 1,000m length ribbon commercial/mixed use zones along Entebbe Road
- Kajjansi-Bwebajja Metropolitan Centre with four circles of commercial/mixed use zones out of which two circles are designated new development area as New Kajjansi
- Entebbe Secondary Urban Centre with 2 large circles of commercial/mixed use zones

Mpigi Corridor has the following urban centres:

- Busega-Kyengera Secondary Urban Centre with 3 large circles of commercial/mixed use zones
- Nsangi Metropolitan Centre with 3 circles of commercial/mixed use zones
- Kirringete Suburban Centre with 4 circles of commercial/mixed use zones with some industrial area
- Mpigi Suburban Centre with 2 circles of commercial/mixed use zones with some industrial area

Mityana Corridor has the following centres:

- Bujjuko Suburban Centre with 1 circle of commercial/mixed zones
- Jezza Service Centre with 1 circle of commercial/mixed zones

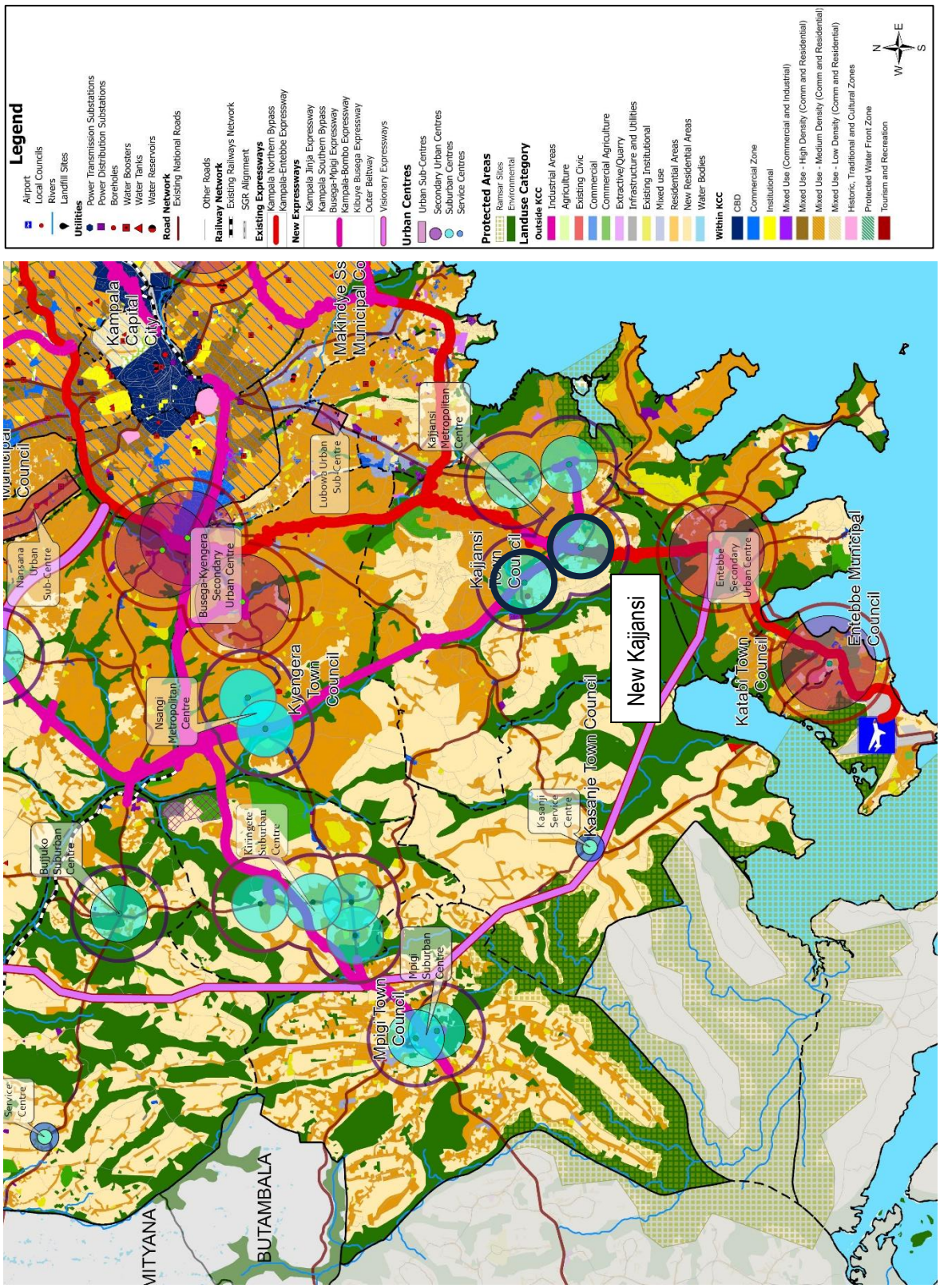


Figure 10.2.2 Preliminary General Land Use Plan for Entebbe Corridor, Mpigi Corridor and Mityana Corridor

Source: JICA Expert Team

(2) Wakiso Corridor and Bombo Corridor

The General Land Use Plan for Wakiso Corridor and Bombo Corridor which is shown in Figure 10.2.3 is part of the General Land Use Plan for GKUGA. This plan map shows new residential areas to be extended toward the boundaries of GKUGA while wetlands and forest reserves are to remain as protected areas. This plan map also shows three corridors, namely, Wakiso Corridor and Bombo Corridor.

Wakiso Corridor has the following urban centres:

Urban Sub-Centre

- Nansana Urban Sub-Centre with 4,000m length ribbon commercial/mixed use zones along Entebbe Road
- Wakiso Metropolitan Centre with three circles of commercial/mixed use zones out of which one circle is designated as New Wakiso since the Second Ring Expressway crosses the existing Hoima Road and proposed radial Expressway to Kakiri
- Kakiri Suburban Centre with two circles of commercial/mixed use zones with some industrial area

Bombo Corridor has the following urban centres:

- Matugga Metropolitan Centre with three circles of commercial/mixed use zones since the Second Ring Expressway and Bombo Radial Expressway connect in Matugga Area.
- Migadde Suburban Centre with two circles of commercial/mixed use zones with some industrial area

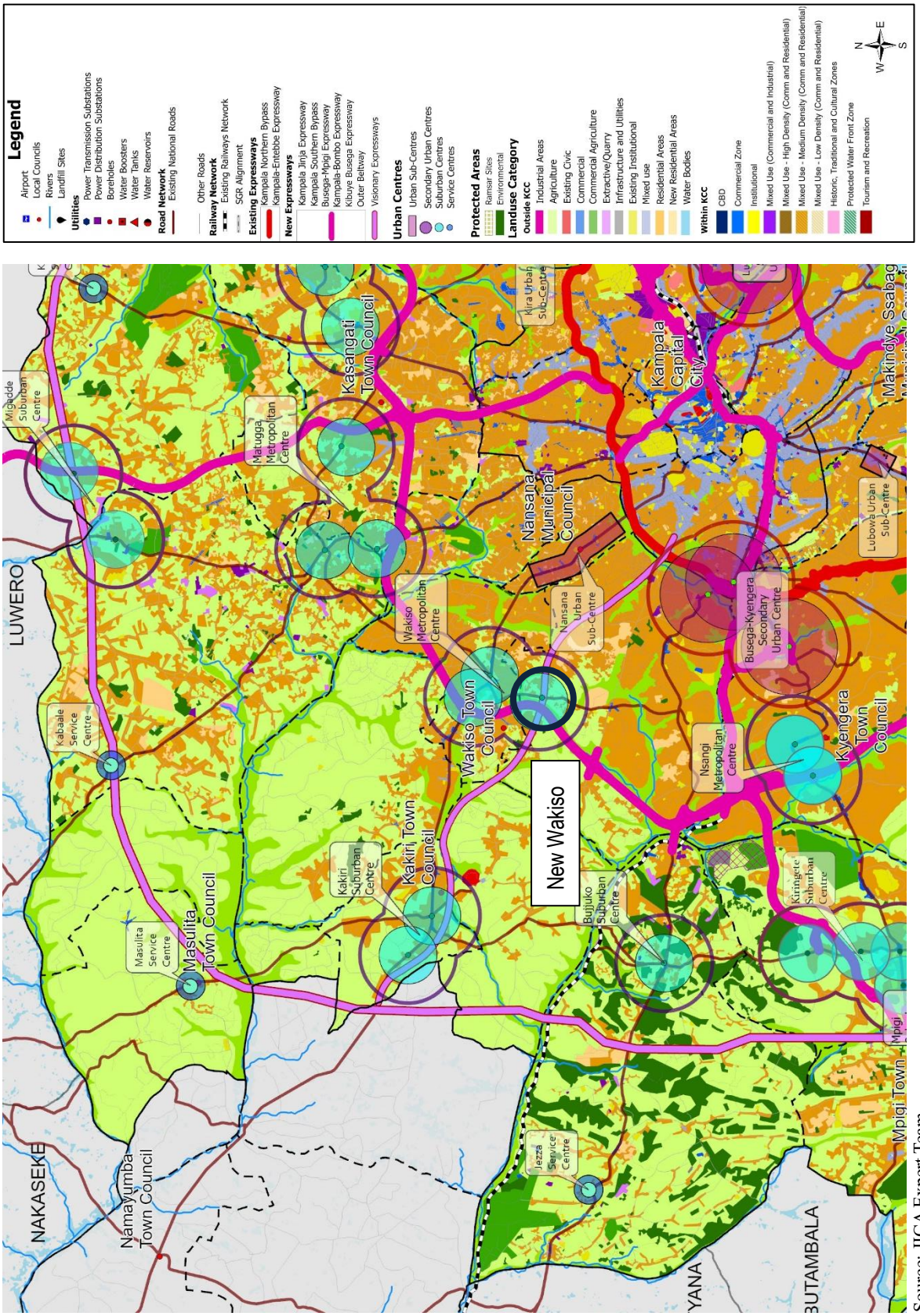


Figure 10.2.3 Preliminary General Land Use Plan for Wakiso Corridor and Bombo Corridor

Source: JICA Expert Team

(3) Gayaza Corridor, Mukono Corridor and Kisoga Corridor

The General Land Use Plan for Gayaza Corridor, Mukono Corridor and Kisoga Corridor, which is shown in Figure 10.2.4, is part of the General Land Use Plan for GKUGA. This plan map shows the following three corridors:

Gayaza Corridor has the following one urban centre:

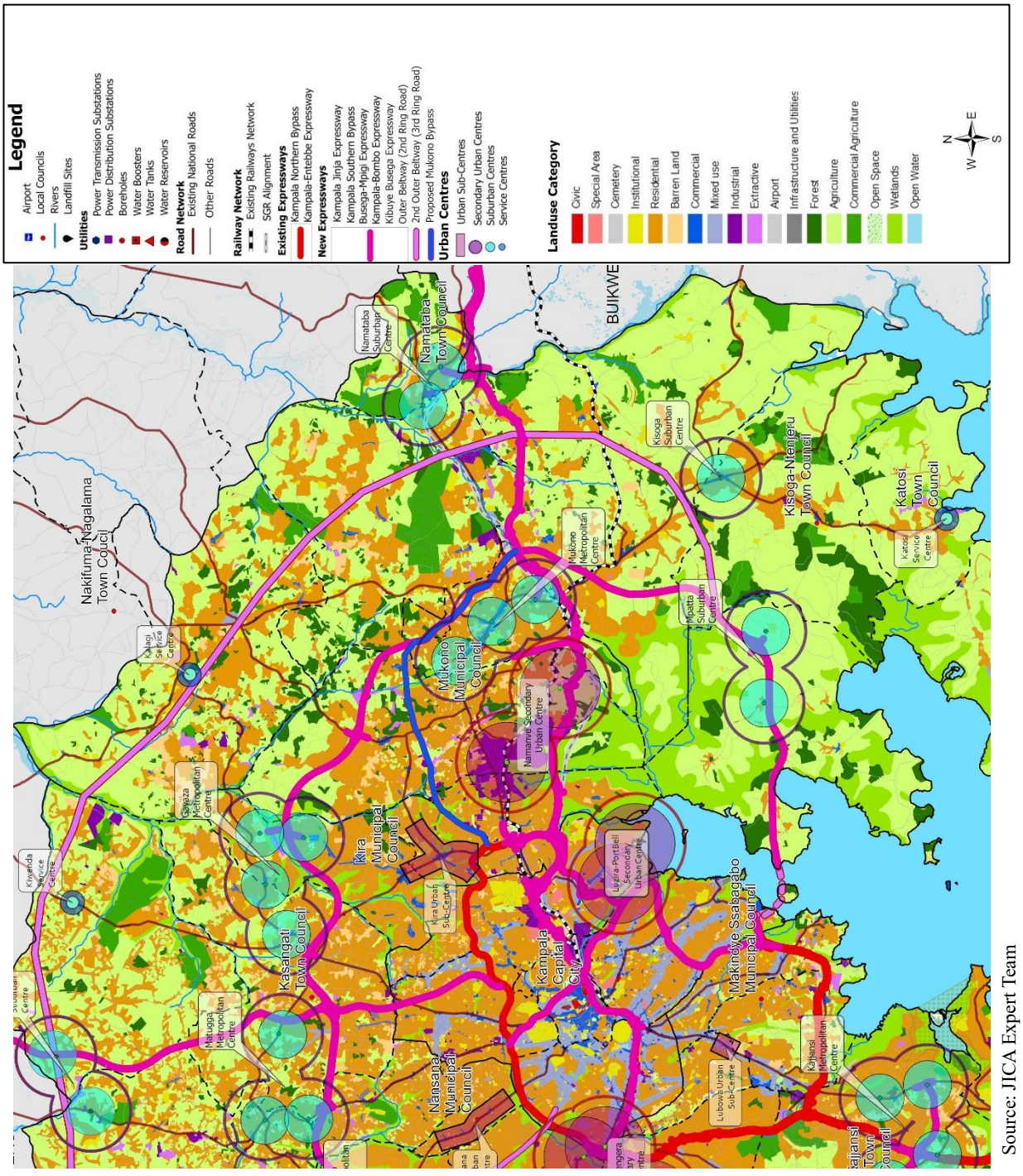
- Gayaza Metropolitan Centre with four circles of commercial/mixed use zones since Gayaza Area has two radial arterial roads and the Second Ring Expressway
- Kalagi Service Centre with one circle of commercial/mixed use zones

Mukono Corridor has the following three urban centres:

- Namanve Secondary Urban Centre with two large circles of commercial/mixed use zones
- Mukono Metropolitan Centre with four circles of commercial/mixed use zones
- Namataba Suburban Centre with two circles of commercial/mixed use zones with some industrial areas

Kisoga Corridor has the following two urban centres:

- Mpatta Suburban Centre with two circles of commercial/mixed use zones
- Kisoga Suburban Centre with one circle of commercial/mixed use zones



Source: JICA Expert Team

Figure 10.2.4 Preliminary General Land Use Plan for Gayaza Corridor, Mukono Corridor and Kisoga Corridor

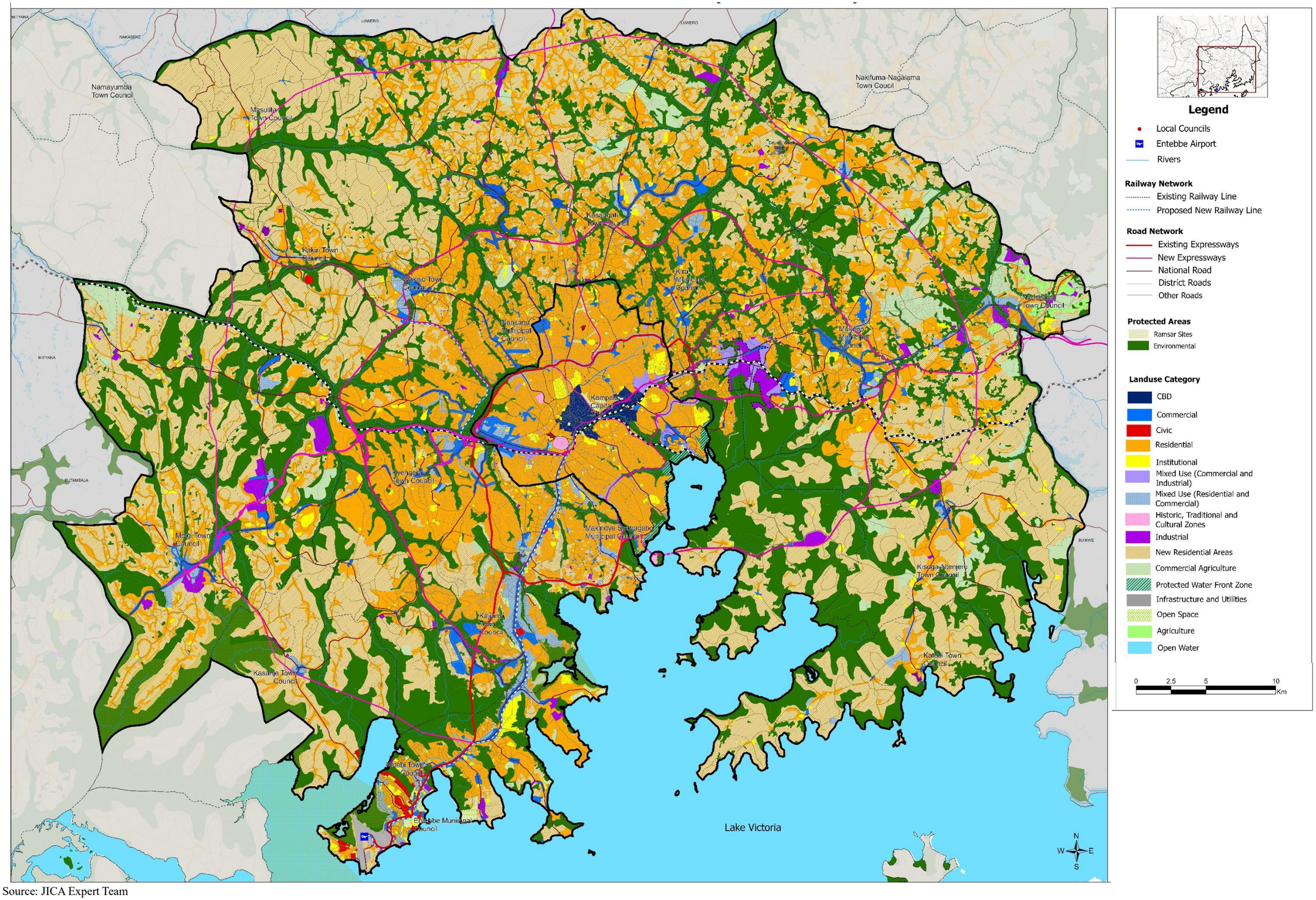
10.2.3 Land Use Categories for General Land Use Plan for GKUGA

The general land use plan for GKUGA is to use the land use categories designated in the draft National Physical Planning Guidelines and Standards Second Edition 2023. The following are the land use categories used in the general land use plan for GKUGA:

- Existing Residential
- New Residential
- Commercial
- Industrial
- Mixed Use (Commercial and Residential)
- Mixed Use (Commercial and Industrial)
- Institutional
- Civic
- Infrastructure and Utilities
- Open Water
  - Environmental (Forests, Open Spaces, and Wetlands)
  - Agriculture

10.2.4 General Land Use Plan for GKUGA

The general land use plan for GKUGA is formulated by preparing the conceptual general land use plan for GKUGA paying attention to different potential areas for urban centres. The proposed general land use plan for GKUGA is shown in Figure 10.2.5.



Source: JICA Expert Team

Figure 10.2.5 General Land Use Plan for GKUGA (2050) (Version June 2024)

10.3 General Land Use Plans for Urban Centres in GKUGA

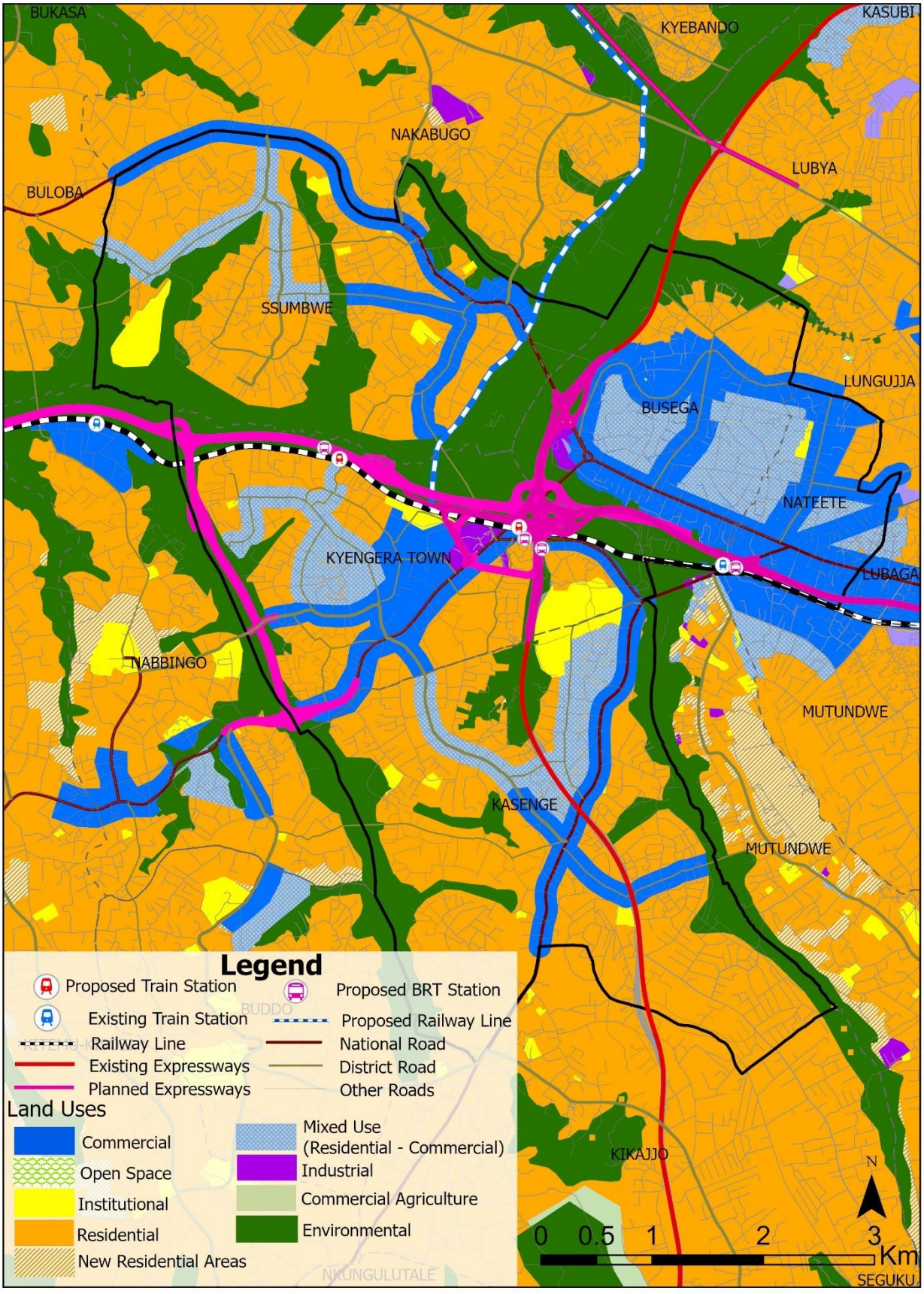
Urban Centres in GKUGA are the most important elements of the urban spatial structure. In this section, General Land Use Plans for urban centre areas are shown in this section. Such General Land Use Plans are important tools to guide the preparation of local-level detailed PDPs, as well as to guide the development of basic infrastructure to support those urban centres.

10.3.1 General Land Use Plans for Secondary Urban Centres in GKUGA

There are three following Secondary Urban Centres:

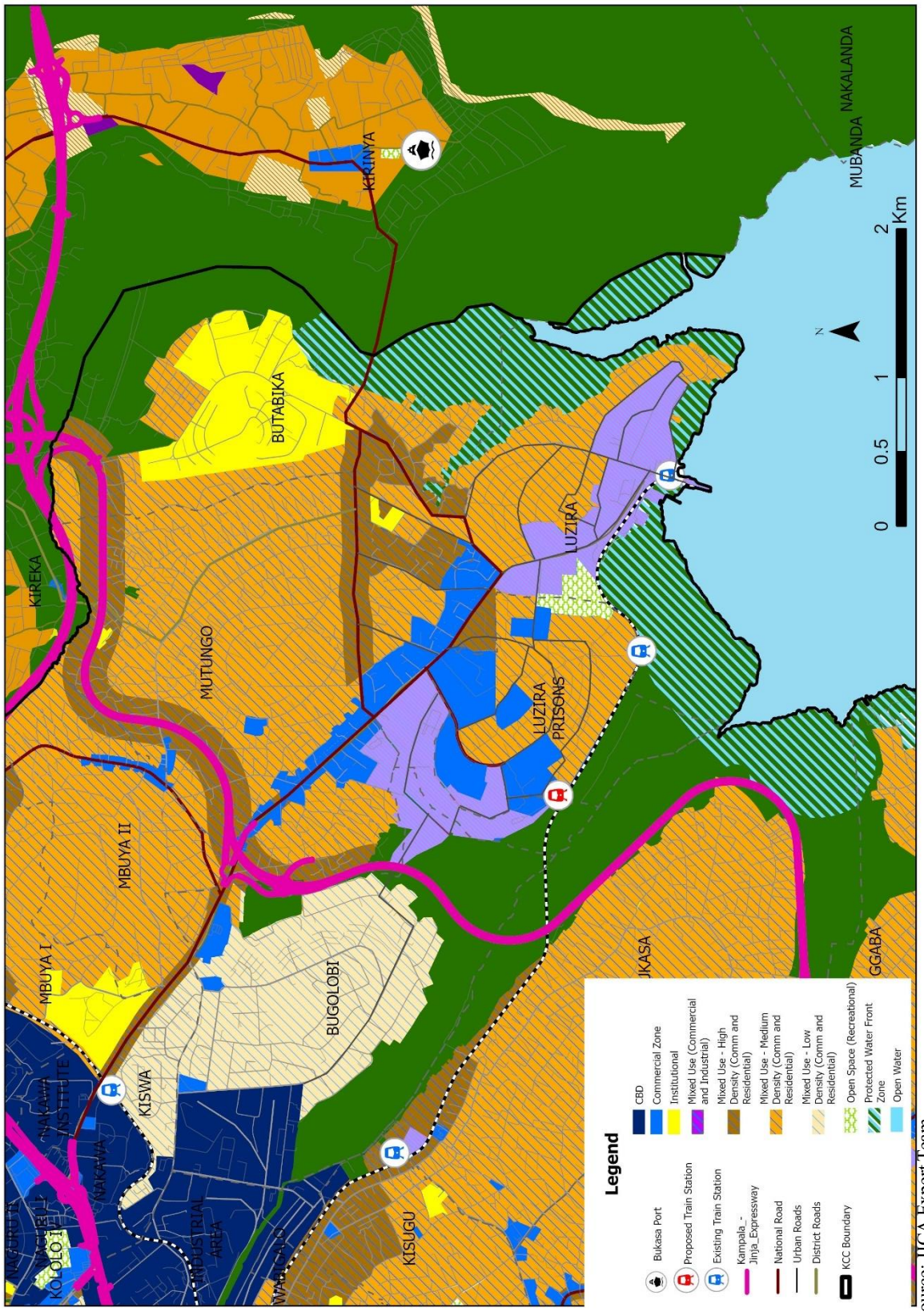
- Busega-Kyengera Secondary Urban Centre
- Luzira-Port-Bell Secondary Urban Centre.
- Namanve Secondary Urban Centre
- Entebbe-Katabi Secondary Urban Centre

The General Land Use Plan for these urban centre areas are shown in Figure 10.3.1, Figure 10.3.3, Figure 10.3.4 andFigure 10.3.5.



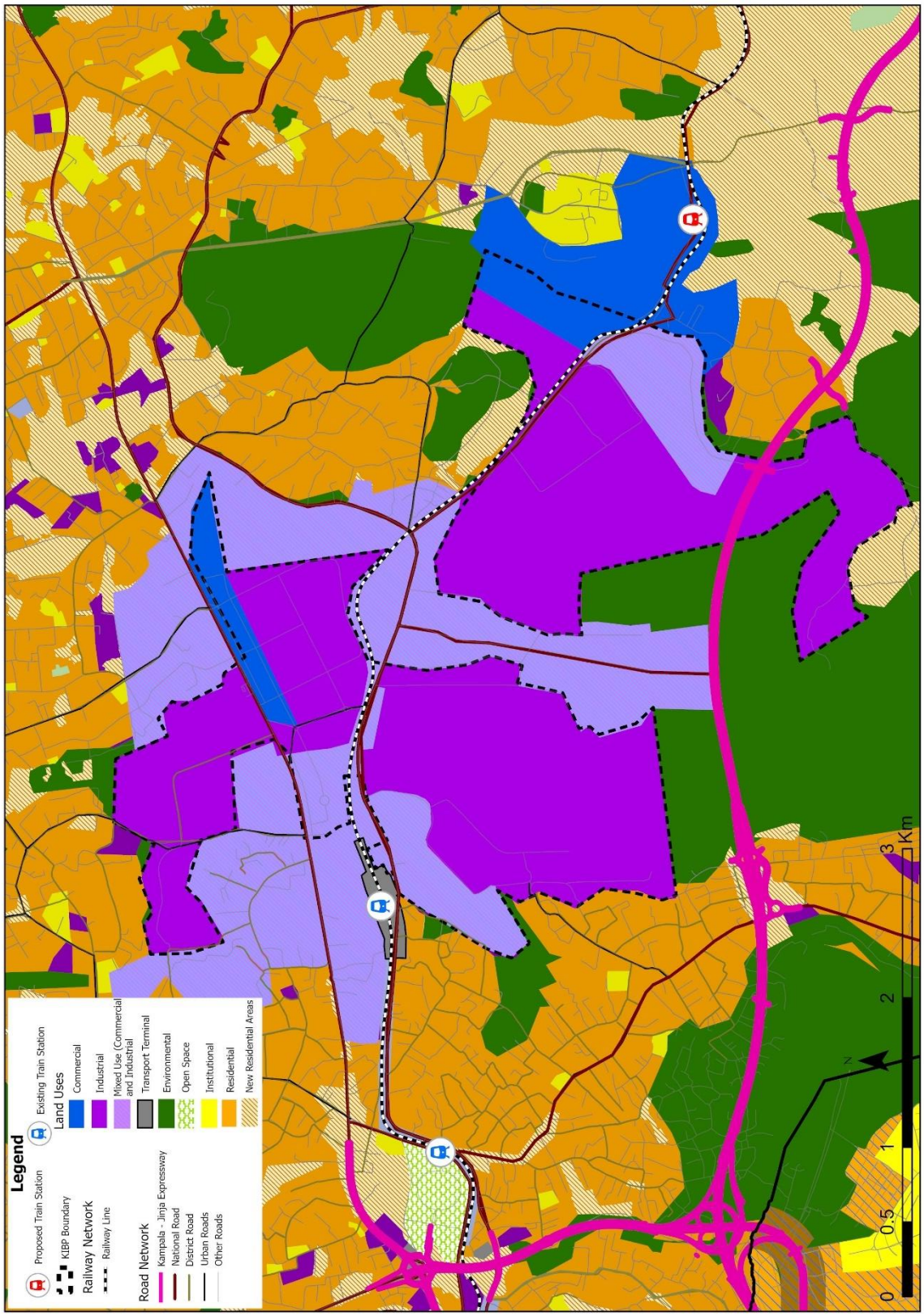
Source: JICA Expert Team

Figure 10.3.1 General Land Use Plan for Busega-Kyengera Secondary Urban Centre



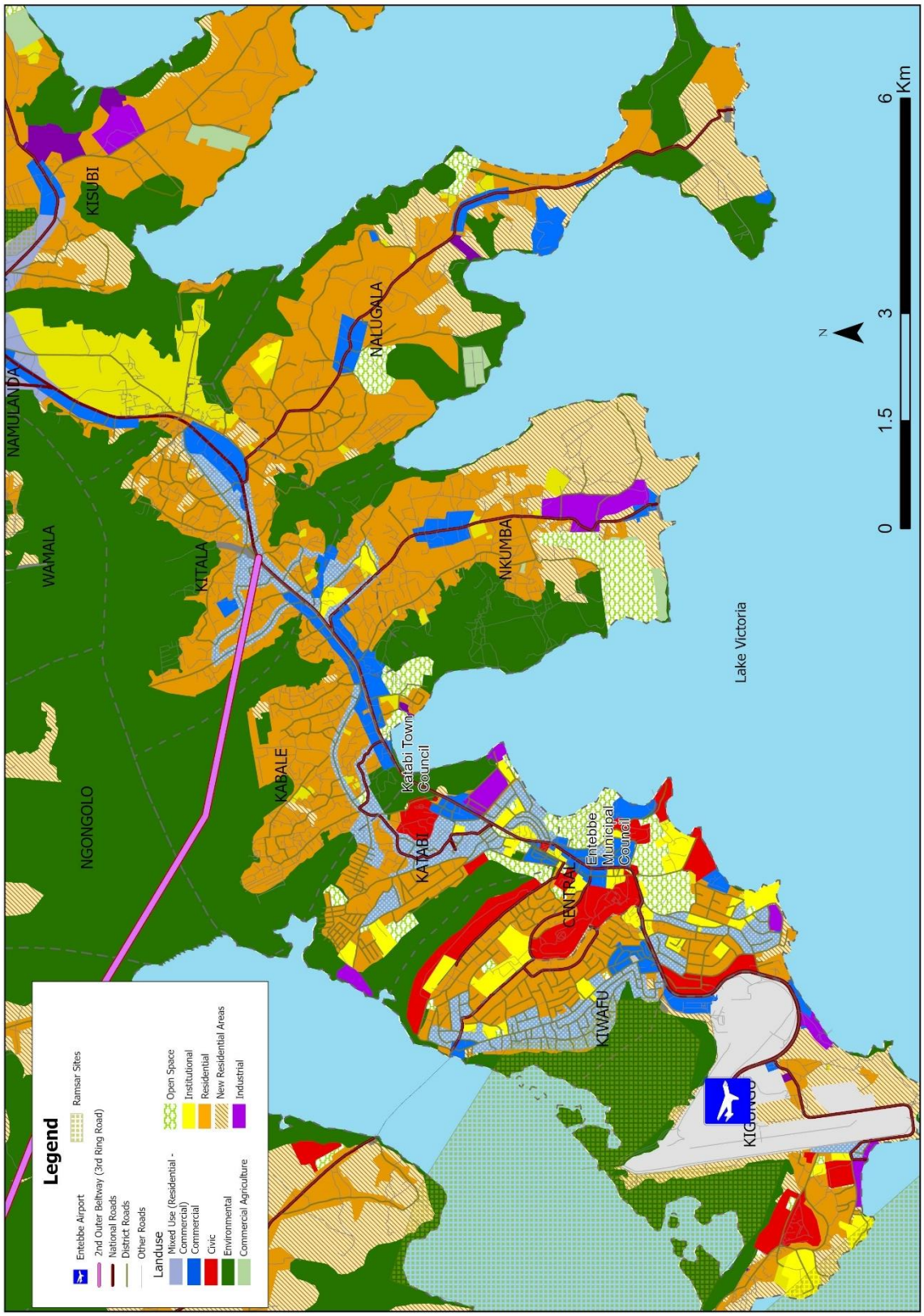
Source: JICA Expert Team

Figure 10.3.2 General Land Use Plan for Luzira-Port Bell Secondary Urban Centre Area



Source: JICA Expert Team

Figure 10.3.3 General Land Use Plan for Namanve Secondary Urban Centre Area



Source: JICA Expert Team

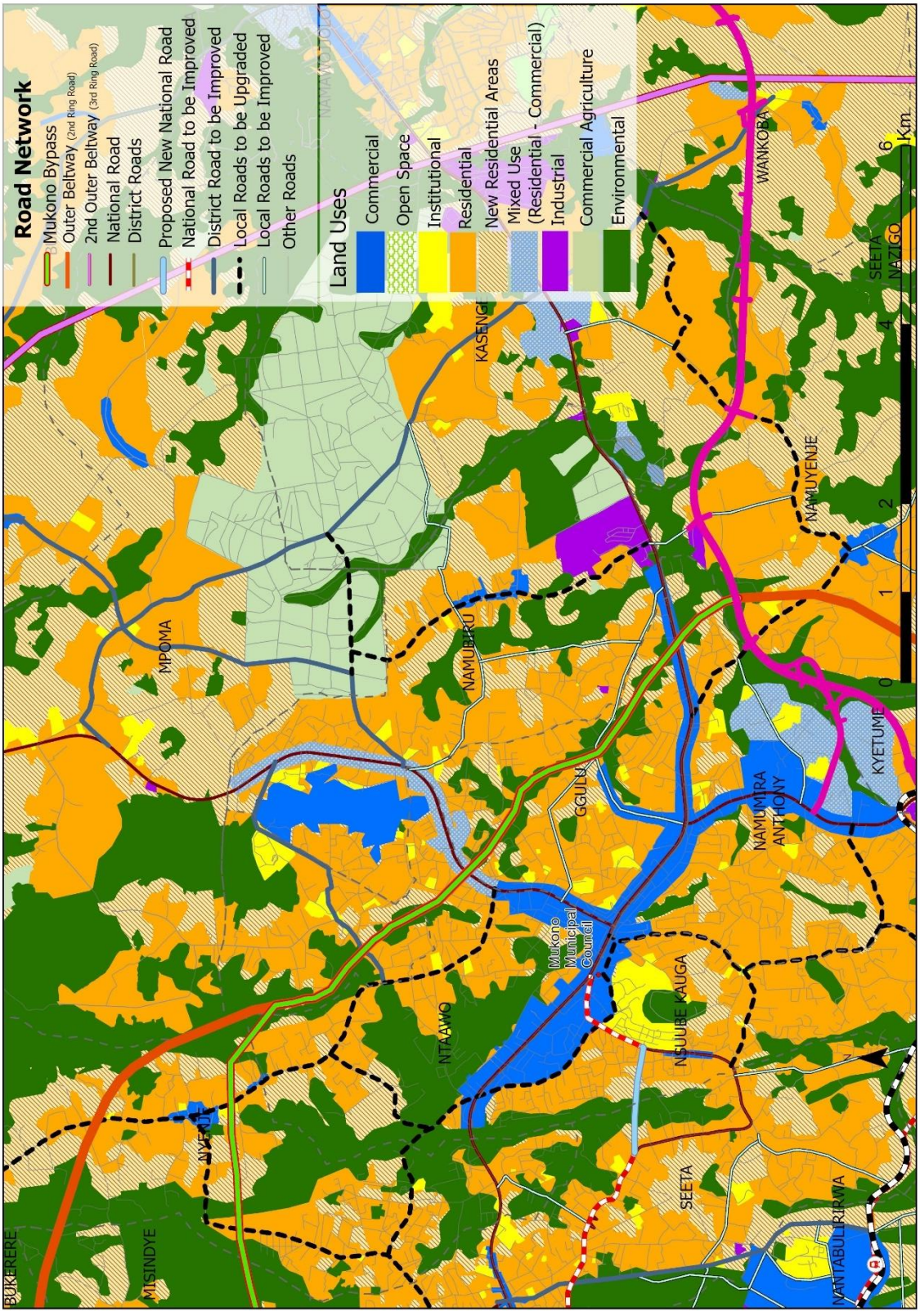
Figure 10.3.4 General Land Use Plan for Entebbe-Katabi Secondary Urban Centre Area

10.3.2 General Land Use Plans for Metropolitan Centres in GKUGA

There are the following six Metropolitan Centres in GKUGA.

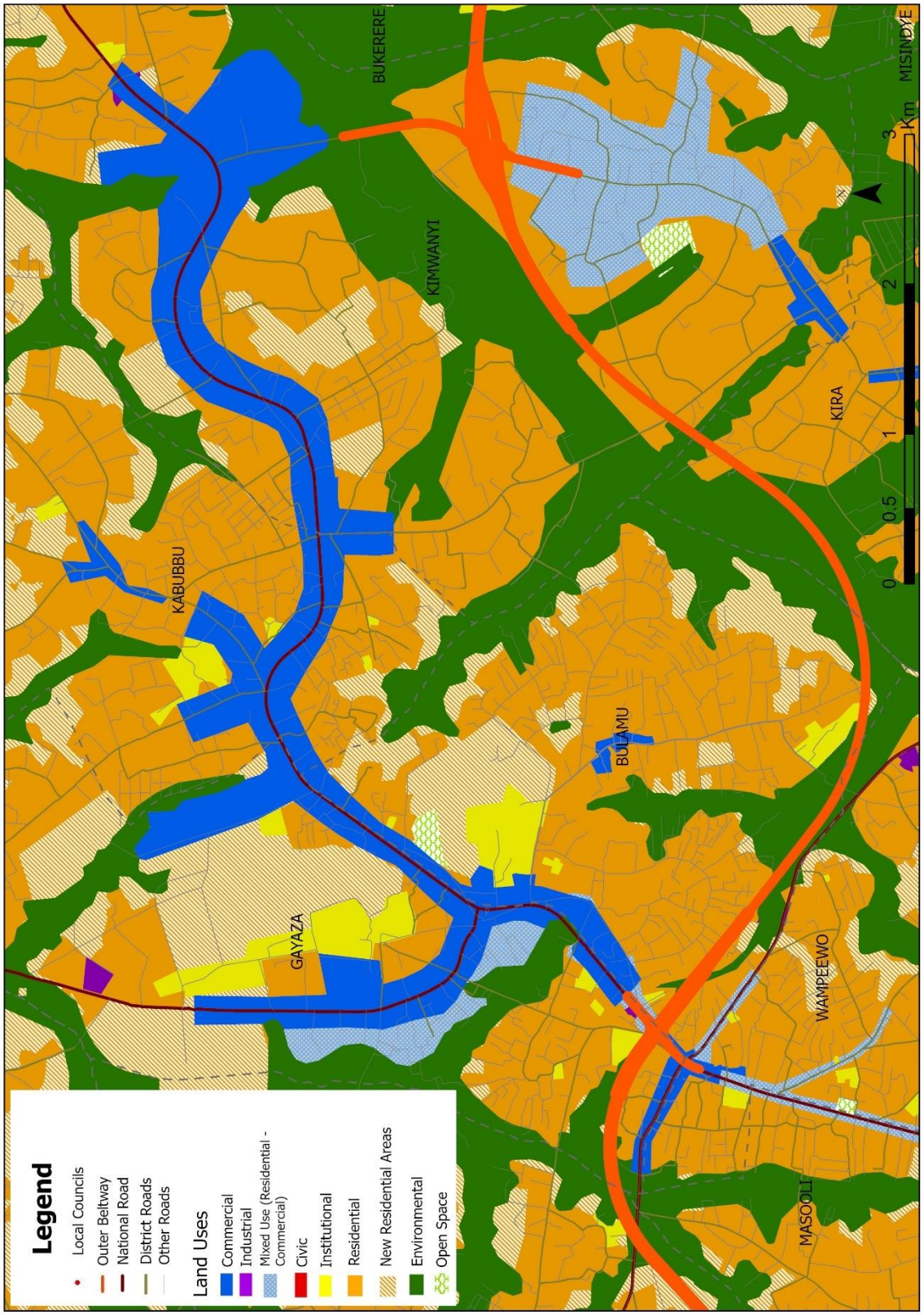
- Mukono Metropolitan Centre
- Gayaza-Kasangati Metropolitan Centre
- Matsugga Metropolitan Centre
- Wakiso Metropolitan Centre
- Nasangi Metropolitan Centre
- Kajjansi Metropolitan Centre

The General Land Use Plan for these urban centre areas are shown in Figure 10.3.6, Figure 10.3.7, Figure 10.3.8, Figure 10.3.9, Figure 10.3.10 and Figure 10.3.11.



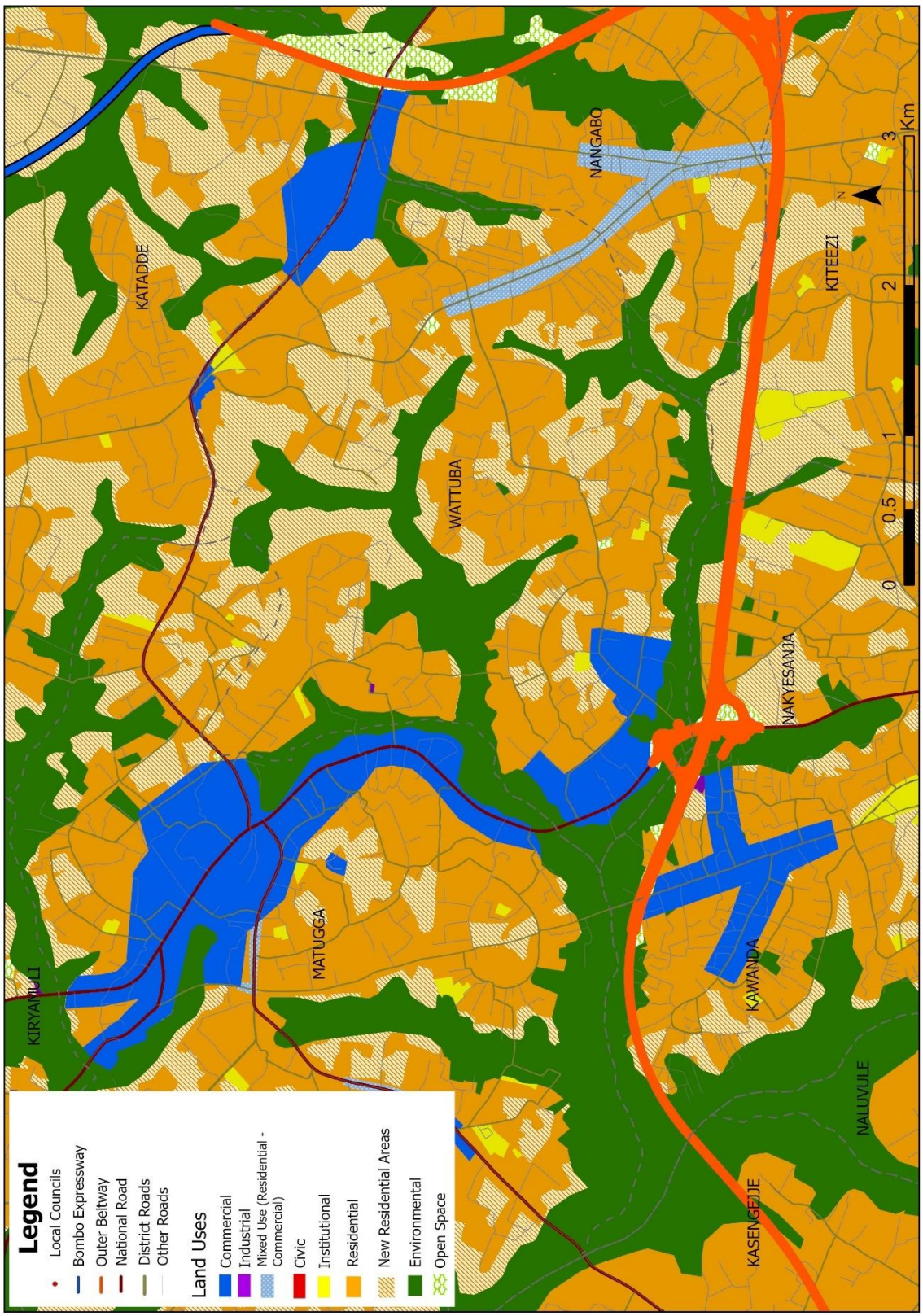
Source: JICA Expert Team

Figure 10.3.5 General Land Use Plan for Mukono Metropolitan Centre Area



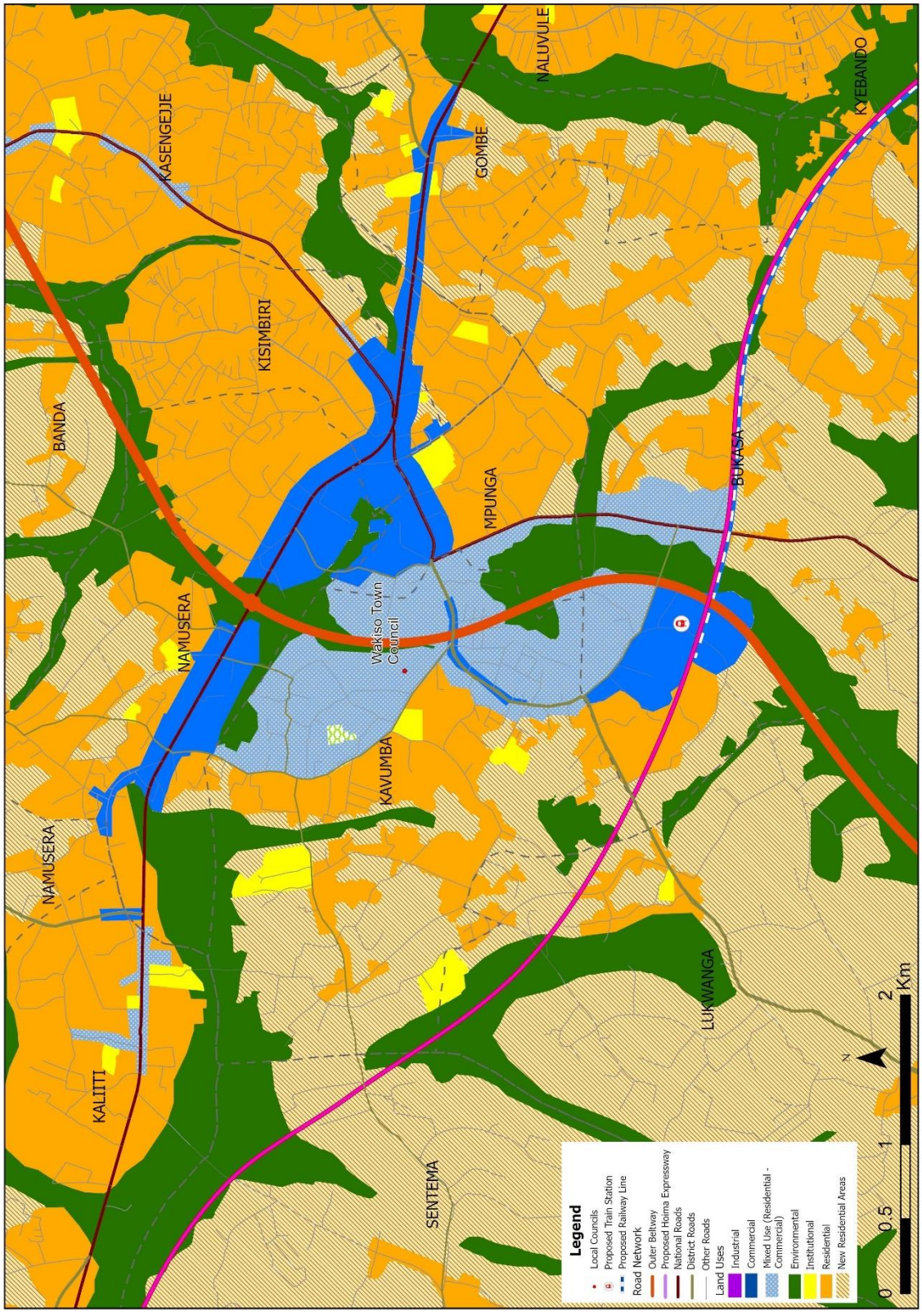
Source: JICA Expert Team

Figure 10.3.6 General Land Use Plan for Gayaza-Kasangati Metropolitan Centre Area



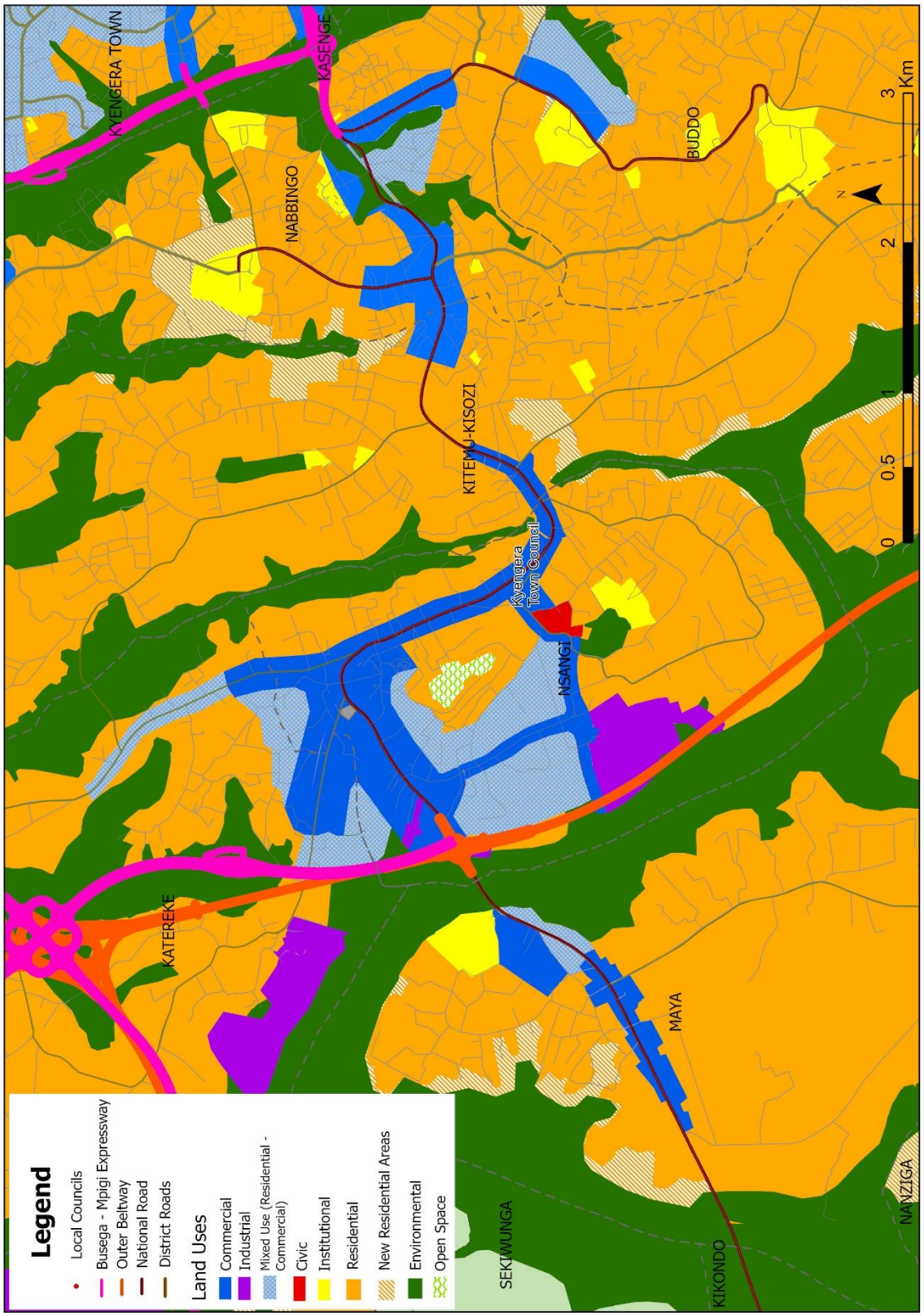
Source: JICA Expert Team

Figure 10.3.7 General Land Use Plan for Matugga Metropolitan Centre Area



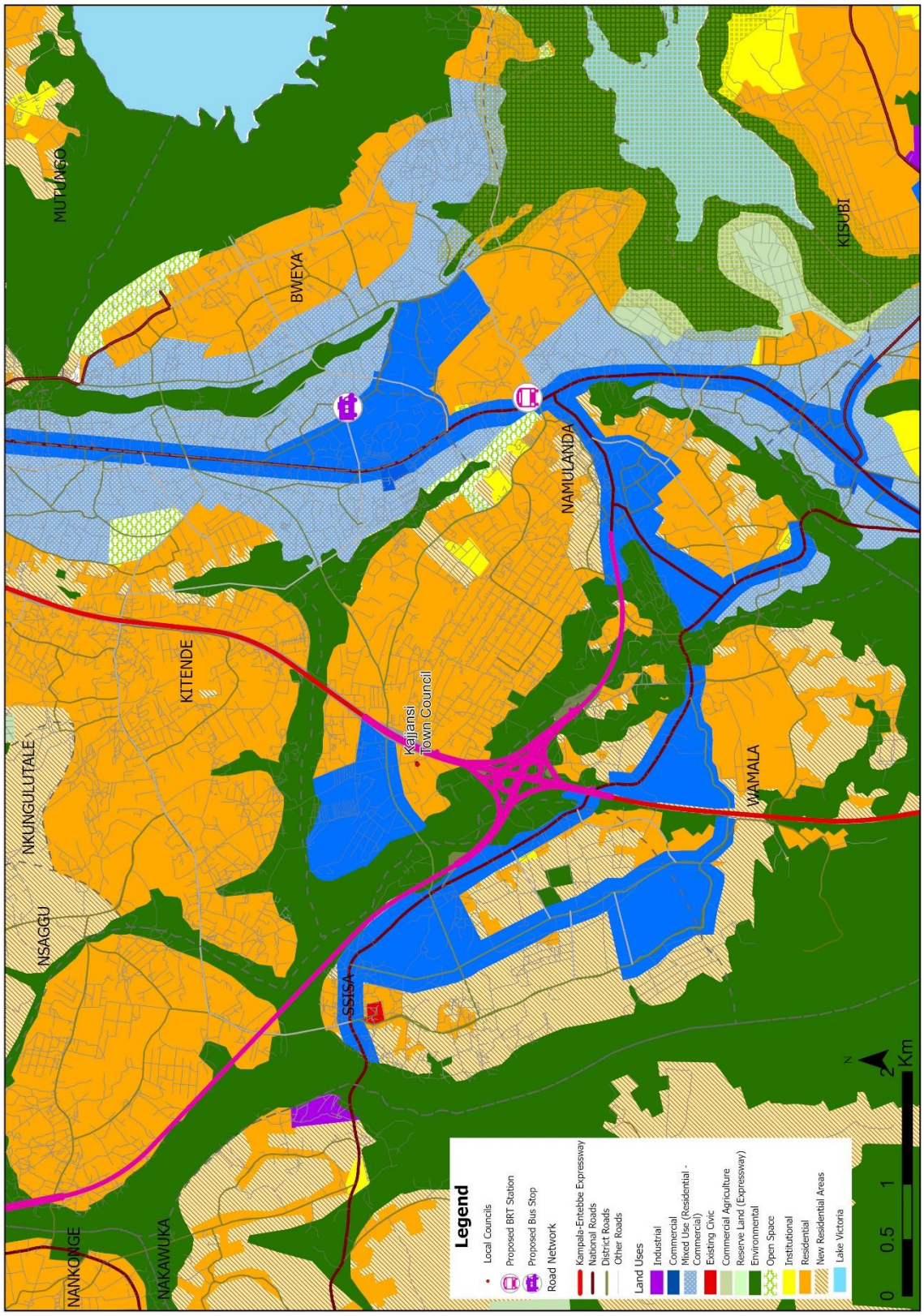
Source: JICA Expert Team

Figure 10.3.8 General Land Use Plan for Wakiso Metropolitan Centre Area



Source: JICA Expert Team

Figure 10.3.9 General Land Use Plan for Nsangi Metropolitan Centre Area

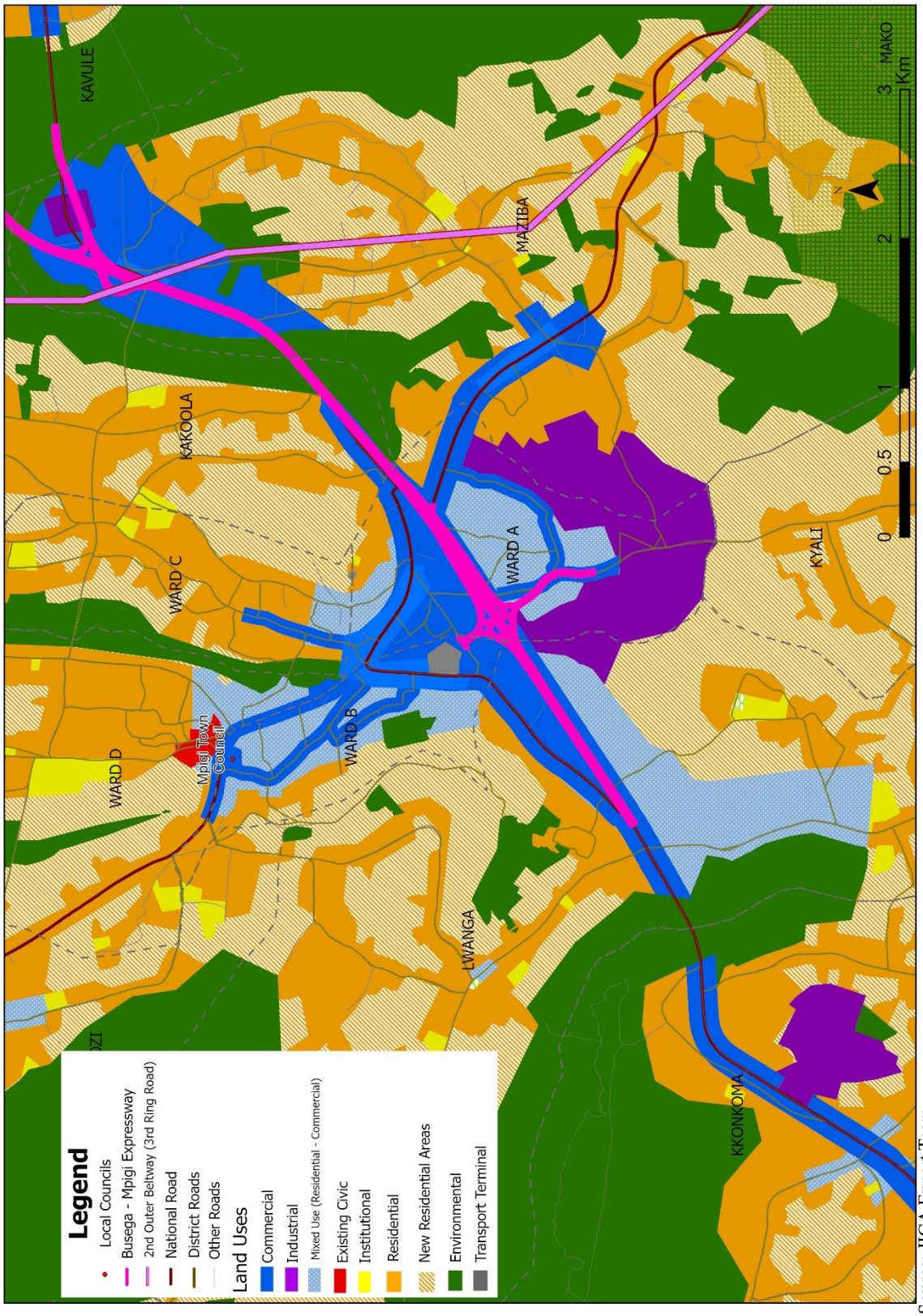


Source: JICA Expert Team

Figure 10.3.10 General Land Use Plan for Kajjansi Metropolitan Centre Area

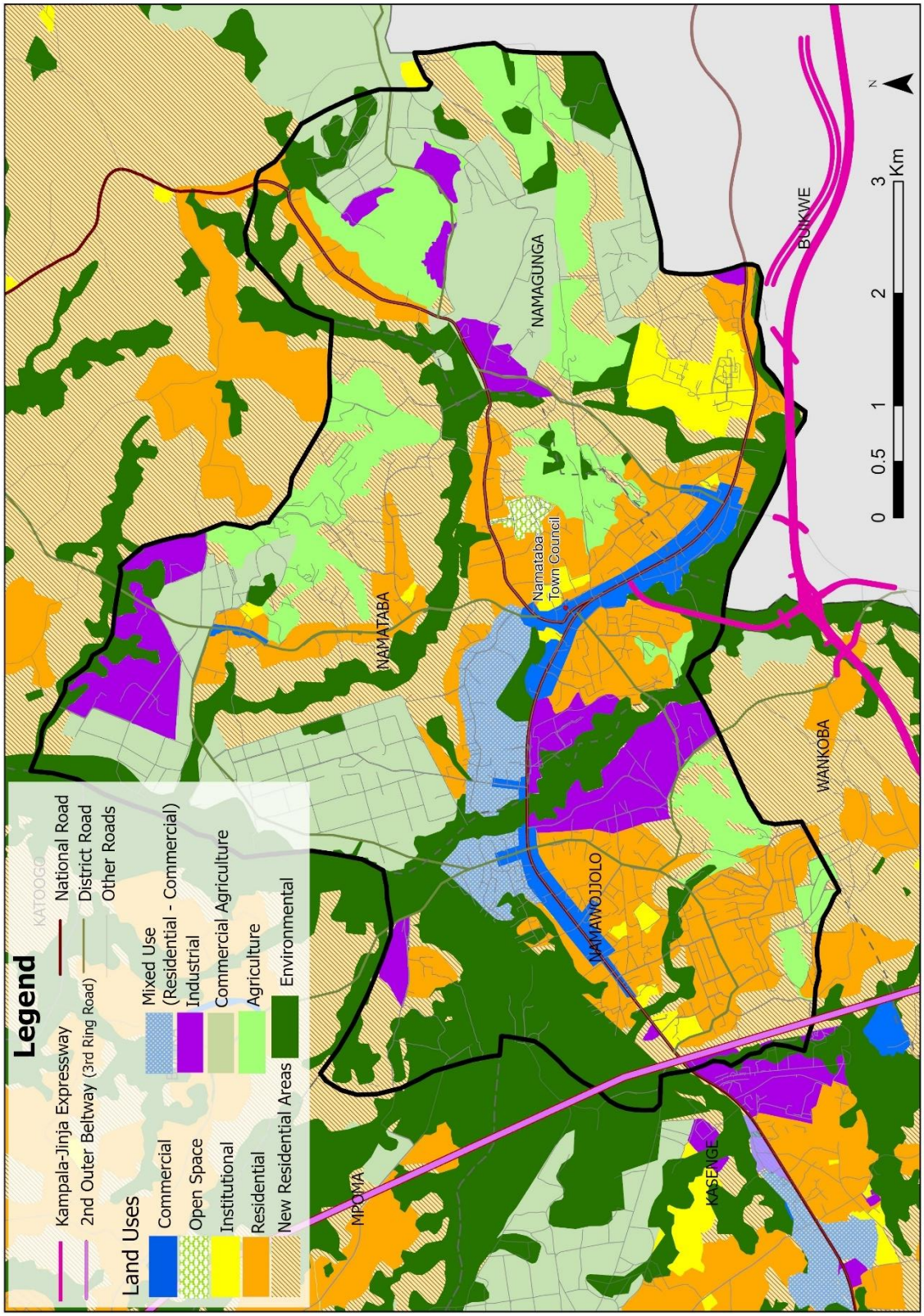
10.3.3 General Land Use Plans for Suburban Centres in GKUGA

While there are seven suburban centres in GKUGA, the General Land Use Plan for Mpigi Suburban Centre and Namataba Suburban Centre, two of the suburban centres are shown in this section,



Source: JICA Expert Team

Figure 10.3.11 General Land Use Plan for Mpigi Suburban Centre Area



Source: JICA Expert Team

Figure 10.3.12 General Land Use Plan for Namataba Suburban Centre Area

10.4 Priority Projects for Urban Centre Development in GKUGA

In order to achieve the polycentric urban spatial structure, it is essential to promote the development of a variety of urban centres discussed in Section 10.1, especially the development of Metropolitan Centres and Secondary Urban Centres, as well as expansion of CBDs.

To implement this strategy, the following programmes and projects are identified:

(1) Programme for Metropolitan Centre Development

The Programme for Metropolitan Centre Development contains the following components and projects:

This programme is composed of the following components:

- Component 1: Formulation of Detailed PDPs for Metropolitan Centre Areas
- Component 2: Local Roads and Drainage Facilities Development for Metropolitan Centre Areas
- Component 3: Multi-Modal Terminal Development Integrating Taxi Park, BRT Station and Other Modes' Stations in Metropolitan Centre Areas
- Component 4: Commercial Centre Development in combination with the Multi-Modal Terminal (PPP) in Metropolitan Centre Areas
- Component 5: Development of Open Space and Pedestrian Ways in Metropolitan Centre Areas
- Component 6: Provision of Basic Infrastructure for Preventing the Growth of Emerging Slums in and around Metropolitan Centre Areas
- Component 7: Other Environmental Management Matters in Metropolitan Centre Areas

This programme is composed of the following projects:

- Project for Kajjansi Metropolitan Centre Development including Buwebajja Government Campus
- Project for Mukono Metropolitan Centre Development
- Project for Nsangi Metropolitan Centre Development
- Project for Wakiso Metropolitan Centre Development
- Project for Matsugga Metropolitan Centre Development
- Project for Gayaza-Kasangati Metropolitan Centre Development

(2) Programme for Secondary Urban Centre Development

The Programme for Metropolitan Centre Development contains the following components and projects:

Projects of this programme consists of the following components:

- Component 1: Formulation of a Detailed PDP for the Secondary Urban Centre Area
- Component 2: Local Roads and Drainage Facilities Development for the Secondary Urban Centre Area
- Component 3: Multi-Modal Terminal Development Integrating Taxi Park, BRT Station and Other Modes' Stations in the Secondary Urban Centre Area
- Component 4: Commercial Centre Development in combination with the Multi-Modal Terminal (PPP) for the Secondary Urban Centre Area
- Component 5: Development of Open Space and Pedestrian Ways within the Secondary Urban Centre Area

- Component 6: Provision of Basic Infrastructure for Preventing the Growth of Emerging Slums in and around Metropolitan Centre Areas
-
- Component 7: Other Environmental Management Matters

This programme is composed of the following projects:

- Project for Busega-Kyengera Secondary Urban Centre Development
- Project for Luzira-Port Bell Secondary Urban Centre Development
- Project for Namanve Secondary Urban Centre Development
- Project for Entebbe-Katabi Secondary Urban Centre Development

(3) Programme for Primary Urban Centre (CBD) Expansion

This programme is composed of the following projects:

- Project for Formulation of a Detailed PDP for the CBD Expansion Area
- Project for Local Roads Development for the CBD Expansion Area
- Project for Multi-Modal Terminal Development Integrating Taxi Park, BRT Station and Other Modes' Stations in the CBD Expansion Area
- Project for Commercial Centre Development in combination with the Multi-Modal Terminal (PPP) for the CBD Expansion Area
- Project for Development of Open Space and Pedestrian Ways for a CBD Expansion Area

(4) Programme for Conservation and Wise Use of Wetlands in GKUGA including KCC

This programme is composed of the following projects:

- Project for Development and Management of Wetland Urban Park in KCC
- Project for Development and Management of Wetland Urban Park in Wakiso District

Chapter 11 Urban Development Strategies for Housing and Residential Area Development, as well as Slum Upgrading in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City (KCC)

11.1 Urban Development Strategies for Promoting Housing and Residential Area Development in GKUGA including Kampala Capital City

11.1.1 Present Situation of Housing in Uganda and GKMA

(1) Housing Deficit in Uganda

According to "National Development Plan (NDP III) 2020/21-2024/25," need for affordable and quality housing units for the country is estimated at 2.2 million units of which 210,000 in urban areas. Due to the rapid annual population growth rate, the backlog is expected to increase to 8 million housing units by 2030 if not intervened.

The supply of housing is left primarily to the private sector and currently only 60,000 housing units are built annually out of an estimated annual need of 200,000 units for the country.

(2) Urban Housing in Uganda

According to the Final Report presentation of Urban Sector Report for Uganda, MoLHUD 2022, the urban housing has the following characteristics:

- The current housing requirement is about 767,000 units, presenting a critical shortage of 54,400 units in Uganda's urban areas.
- About 70% of the urban population live in informal settlements
- Shortage of affordable rental housing leading to the increase of low-income residents in low-quality housing in informal
- Rapid increase of housing demand due to Uganda's high growth of urban population
- High cost of housing due to high mortgage interest rates in the housing market

(3) Housing Deficit in GKUGA

Although housing deficit has been seriously recongnised not only in KCC but also in surrounding districts within GKMA, especially in urbanising areas, GKUGA, due to the rapid in-migration and urbanisation. However, currently there is no reliable data on housing stocks in Uganda. In fact, the Uganda's National Census of Population and Housing in 2014 does not have such housing stock data while a variety of housing characteristics are available in the result of 2014 Census. Therefore, it is difficult to estimate the numbers of housing deficit, especially in each district.

It is estimated that Kampala Capital City's housing deficit is 97,500 units by Habitat for Humanity Uganda (2024). This deficit is exacerbated by the wide prevalence of slums and informal settlements.

Due to the high growth rates of population and high prices of land, Kampala's surrounding districts will have higher housing needs as follows:

- Wakiso District: Estimated annual housing need of 40,000 to 50,000 units.
- Mukono District: Estimated annual housing need of 20,000 to 30,000 units.
- Mpigi District: Estimated annual housing need of 10,000 to 15,000 units.

The large estimates of housing need imply the substantial housing deficits faced by Kampala's surrounding districts.

(4) Issues on Housing in GKUGA

The rapidly increasing urban population within the GKMA has been faced with various issues on housing as follows:

- Unsatisfied demand for housing is already high
- Insufficient volume of housing supply and very low quality of housing supply
- Very low affordability of the majority of GKMA households
- Poor financial system to support unaffordable urban households to get access to proper housing
- Difficult access to land in a complex land tenure system, as well as insufficient provision of infrastructure to support urbanisation

11.1.2 Existing Policies and Strategies on Housing in Uganda and GKUGA

(1) National Housing Policy 2016

By replacing the 1992 National Shelter Strategy (NSS), the National Housing Policy 2016 is intended to respond to the following issues and challenges facing the housing sector:

- Inadequate quality of housing due to inadequate house construction
- Inadequate quantity of housing stock due to increasing population as well as growing housing demand
- Deterioration in housing conditions because of overcrowding
- Development of slums and proliferation of informal settlements characterised by the lack of basic infrastructure and services within all urban centers

(2) National Development Plan II (NDP II) 2015/16 – 2019/20

The annual need for new housing units for the country is estimated at 200,000 units of which 135,000 are rural and **65,000 in urban areas**, due to the annual population growth rate of 3.4 percent in rural areas and 5.2 percent in urban areas.

The estimated construction rate of reasonably good houses is estimated at 40,000 housing units in the rural areas and **20,000 in urban areas**.

This will create a deficit of 135,000 houses nationally of which 95,000 are in rural areas and **45,000 in urban areas**. In line with the projected fertility decline, Uganda will need about 12.6 million new housing units in the next thirty years. This means that:

It is necessary for the government of Uganda to invest in constructing appropriate housing estates and units in planned urban and rural areas to provide decent urban settlements in partnership with the private sectors.

(3) National Development Plan (NDP III) 2020/21-2024/25

The NDP III has identified 18 programmes that have been designed to deliver the required results and address the 13 bottlenecks adopted by the African Union.

The Sustainable Urbanisation and Housing Programme (SUH Programme) is one of them. It aims to attain inclusive, productive, and liveable urban areas for socio-economic transformation. The SUH Programme is reviewed below.

(4) The Sustainable Urbanisation and Housing Programme 2020/2021-2024/25

The Sustainable Urbanisation and Housing Programme (SUH Programme) is chaired by the Ministry of Lands, Housing and Urban Development.

Key expected results include; (i) Decrease the urban unemployment rate from 14.4 percent to 9.4 percent; (ii) Reduce the acute housing deficit of 2.2 million by 20 percent; (iii) Decrease the percentage of urban dwellers living in slums and informal settlements from 60 percent to 40 percent; (iv) Decrease the average travel time per kilometre in GKMA from 4.1 min/km to 3.5 min/km; (v) Increase the proportion of tarmacked roads in the total urban road network from 1,229.7 km (6.1 percent) to 2,459.4 km (12.2 percent); (vi) Improve the efficiency of solid waste collection from 30 percent to 50 percent.

The objectives and interventions of Sustainable Urbanisation and Housing Programme, and the corresponding responsible agencies are as follows:

1) Enhance Economic Opportunities in Cities and Urban Areas

- Support establishment of labour-intensive manufacturing, services, and projects for employment creation, including the development of bankable business plans: MoLHUD, MoLG, NPA, MDA's, private sector, and development partners
- Upgrade accredited institutions to offer certified skilling, entrepreneurship and incubation development in sustainable urbanisation and housing-related fields: MGLSD, MoFPED, MOE, MoLHUD, and MoLG
- Reform and improve business processes in cities and urban areas to facilitate private sector development: MOTIC, URA, MoFPED, MoLHUD MoLG, and private sector
- Develop and implement an integrated rapid mass transport system (Light Railway Transport and Mass Bus Transport) to reduce traffic congestion and improve connectivity in urban areas: MoWT, KCCA, MoLHUD, MDAs, private sector, DPs, CSOs, local communities, and LGs
- Improve urban safe water and waste management services and associated infrastructure for value addition and revenue generation: MoWE, KCCA, MoLHUD, MoLG, MoWT, NWSC, MDAs, private sector, DPs, CSOs, and local communities
- Improve the provision of quality social services to address the peculiar issues of urban settlements: MWE, KCCA, MoLHUD, MoLG, MoWT, MOH, MoES, NEMA, private sector, DPs, CSOs, and local communities

2) Promote Urban Housing Market and Provide Decent Housing for All

- Develop and implement an investment plan for adequate and affordable housing: MLHUD, MoLG, MoFPED, NPA, MDAs, and MTIC
- Develop, promote and enforce building codes/standards: MoLHUD, MoLG, MoFPED, NPA, MDAs, MTIC, and MoWT
- Develop an inclusive housing finance mechanism including capitalisation of Housing Finance Bank to provide affordable mortgages and revisiting the mandate of NHCC to support housing development for all: MOFPED, MKCC&MA, MoLHUD, NPA, DPs, private sectors, Civil Society, and local communities
- Incentivise real estate companies to undertake affordable housing projects to address the housing deficit: UIA, MoLHUD, and private sector
- Address infrastructure in slums and undertake slum upgrading including operationalisation of the Condominium Law in slums and cities: UIA, MTIC, Uganda Free Zones Authority, MoWT, MoLG, MoLHUD, MAAIF, and LGs

- Design and build inclusive housing units for government workers (civil servants, police and army): UNHCC, MoLHUD, MoLG, MKCC&MA, and Housing Finance Bank
- Promote the production and use of sustainable housing materials and technologies: MTIC, MoLHUD, and private sector

3) Promote Green and Inclusive Cities and Urban Areas

- Conserve and restore urban natural resource assets and increase urban carbon sinks: MoLHUD, MWE, NEMA, and private sector
- Undertake waste-to-wealth (including faecal matter) initiatives which promote a circular economy: MLGSD, MoWE, MOEMD, and MoLHUD
- Develop green buildings, risk sensitive building codes and systems to promote energy efficient housing: MoLHUD, MOFPED, OPM, MOEMD, and MKCC&MA
- Promote mass transport and nonmotorized transit in the city: MoWT, MoLHUD, and MoWE
- Increase urban resilience by mitigating risks of accidents, fires, flood, earthquake, landslides and lightning, specifically focusing on (a) Strengthen effective early warning systems; and (b) Improve emergency response: MoLHUD, MoWT, MoWE, and OPM
- Develop and protect green belts: MoLHUD, NEMA, MoWE.
- Establish and develop public open spaces: MoLHUD and MoWE

4) Enable Balanced and Productive National Urban System

- Develop and implement integrated physical and economic development plans in the new cities and other urban areas: MoLHUD, MoLG, other MDAs and private sector
- Implement the Greater Kampala Metropolitan Area Economic Development Strategy: MKCC&MA, MoLHUD, MoLG, other MDAs and private sector

5) Strengthen Urban Policies, Governance, Planning and Finance

- Review, develop and enforce urban development policies, laws, regulations, standards and guidelines: MoLHUD, MWE, PSFU, CSOs, local communities, MoLG, and LGs
- Implement participatory and all-inclusive planning and implementation mechanism to enforce the implementation of land use regulatory and compliance frameworks: MoLHUD, KCCA, MWE, MoLG, PSFU, CSOs, local communities, and LGs
- Scale up the physical planning and urban management information system: MoLHUD, NPA, MoLG, MTIC, DPs, PSFU, CSOs, local communities, and LGs

(5) MoLHUD Strategic Plan 2020/21-2024/25

1) Vision of MoLHUD

Sustainable Land Use, Land Tenure Security, Affordable, Decent Housing and Organized Urban Development

2) Mission of MoLHUD

To ensure Sustainable Land Management, Orderly Development and Adequate Housing for all

3) Objective related to Housing

The objective related to housing is "Promote urban housing market and provide decent housing for all."

The interventions planned for achieving the objective related to housing are as follows:

- To develop and implement an investment plan for adequate and affordable housing

- To develop, promote, and enforce building codes/standards
- To develop an inclusive housing finance mechanism including capitalisation of the Housing Finance Bank to provide affordable mortgages and revisiting the mandate of NHCC to support housing development for all
- To adequately capitalise the National Housing & Construction Co
- To incentivise real estate companies to undertake affordable housing projects to address the housing deficit
- To address infrastructure in slums and undertake slum upgrading including operationalisation of the Condominium Law in slums and cities.
- To design and build inclusive housing units for government workers
- To promote the production and use of sustainable housing materials and technologies

(6) Greater Kampala Economic Development Strategy 2020-2030

The Greater Kampala Economic Development Strategy 2020-2030 has five strategic objectives. One of the strategic objectives is Strategic Objective 1 "World-Class Economic Infrastructure."

Affordable Housing and Land Management Pilot Programme is part of the programmes for this Strategic Objective 1.

- Affordable pilot housing: The fastest growing population centres are in Wakiso District (e.g., Kira, Nansana). Ensuring the planned supply of quality affordable housing in these high growth population centres is needed.
- Slum upgrading: Pilot a high-density affordable housing project in one slum area in Kampala City (e.g., Kisenyi, Kinyala, Kivulu, Katanga, Bwaise, Nsambya, Kikuba Mutwe, Kasaga, Kosovo, Kawaala, Kinawataka, Bukoto- Bwaise-Namungona- Nanasa-Nabweru stretch, Kasokoso)

11.1.3 Objectives for Housing and Residential Area Development in GKUGA

Based on the review of the previous development policies and development plans, the goal for housing and residential area development in GKUGA is set to provide decent housing for all.

In accordance with this goal, the objectives for housing and residential area development in GKUGA are as follows:

- To promote the development of urban housing and land markets for increasing the provision of decent and affordable housing in GKUGA including Kampala Capital City

11.1.4 Urban Development Strategies for Promoting Housing and Residential Area Development

To achieve the identified objectives for housing and residential area development in GKUGA, urban development strategies are considered, and basic infrastructure development is proposed, and the transformation of spatial structures are recommended in GKUGA.

In this section, four sets of urban development strategies are recommended for the four different types of areas in GKUGA including Kampala Capital City.

- Urban Development Strategies for Promoting Housing and Residential Area Development in GKUGA outside Kampala Capital City
- Urban Development Strategies for Promoting Housing and Residential Area Development in Kampala Capital City
- Urban Development Strategies for Promoting the Prevention of Slum Formation in GKUGA outside Kampala Capital City

- Urban Development Strategies for Promoting Slum Upgrading in Kampala Capital City

(1) Urban Development Strategies for Promoting Housing and Residential Area Development in GKUGA outside Kampala Capital City

One of the key strategies for promoting housing and residential area development in GKUGA outside Kampala Capital City is to create a poly-centric spatial structure, whose urban centres would be able to generate jobs and provide services for their surrounding urban areas.

- Promotion of a poly-centric spatial structure for providing jobs and services for developing lands for residential areas
- Provision of strong connectivity between the outside of KCC and the inside KCC by expressways and BRTs for the purpose of attracting jobs and services to be located in urban centres outside Kampala Capital City
- These two strategies are to be integrated as a Transit-Oriented Development.

In response to the formation of a polycentric urban spatial structure with decentralised urban centres outside the Kamapala Capital City within the GKUGA, the following phenomena would take place gradually in the future in GKUGA:

- More suburbanised land with infrastructure will be available for residential areas of middle-income populations in GKUGA.
- At the same time, urban centres (trading centres) with markets, commercial functions and service shops will increase their sizes and agglomerations, which would provide opportunities with low-income populations for trading and service provision. As a result, low-income populations would be able to live and work near such emerging job opportunities near the decentralised urban centres.

In areas near such future decentralised urban centres, unplanned and unordered residential areas would expand and accommodate more low-income populations, resulting in the emergence of informal settlements.

In order to prevent this, some of the strategies which have been developed for slum upgrading, as above, can be deployed in advance.

- Firstly, land ownership and tenure shall be identified/certified advance of any sale, further subdivision and deterioration into the small, unmanageable and unservicable plots. Readjustment of plots to make them serviceable and viable for future development can be part of this process, which will be initiated in areas which can already be identified as near-term growth hotspots.
- Secondly, the planning of these areas must be carried out hand-in-hand with the negotiations with rural landowners, such that agreement can be had with them on allocation of land for services and for different densities of housing, including high density areas for those who would have become slum dwellers. Preferred locations for medium and low-density areas will be identified in this planning process. Land use planning and readjustment must go together in this process, which will take place as far as possible before the acquisition of land by commercial developers, but in partnership with them as most knowledgeable about the best locations for different housing types and markets.

(2) Urban Development Strategies for Promoting Housing and Residential Area Development in Kampala Capital City

Densification of residential areas or vertical housing development is one of the urban development strategies to be applied in Kampala Capital City for creating a more compact city in GKUGA as a whole.

- To promote Transit-Oriented Development along expressways with BRT dedicated lanes in Kampala Capital City by taking following measures:
  - To introduce land use zoning categories particular for enabling vertical housing development and densification of residential area development within Kampala Capital City
  - To establish public transit systems, starting with BRT and then shifting to LRT and MRT for accommodating a large number of passengers by public transportation
  - These two strategies should be implemented in an integrated manner.

11.2 Urban Development Strategies for Slum Upgrading

11.2.1 Present Situation and Past Projects of Slums and Informal Settlements

(1) Present Situation of Slums or Informal Settlements

In the document "A Situation Analysis of Slums in Uganda and National Slum Upgrading Strategy and Action Plan," the reasons and causes for the emergence and growth of slums in Uganda are summarised as follows:

(i) High urbanisation rates

(ii) Increased urban poverty

(iii) Lack of proper implementation of urban planning and development control

(iv) Complex urban land tenure systems making plan formulation, plan implementation and development management intricate

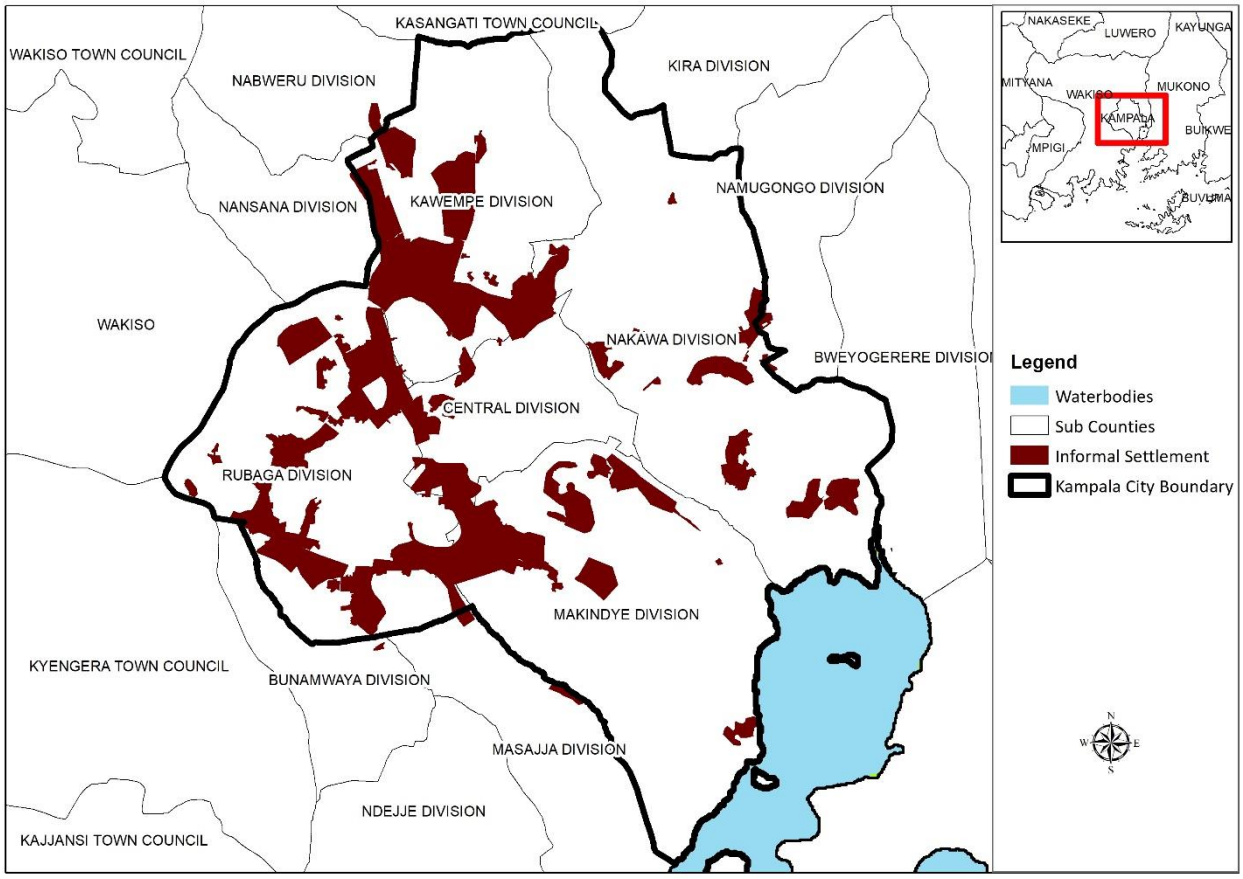
(v) Decentralised local governments' poor capacity of promoting orderly urban development with adequate funding for urban infrastructure and services

(vi) Poor management of privatised urban services

(vii) Extension of boundaries of urban centres along highways and major road junctions

Because of the combination of these causes, slum areas have expanded widely, and their populations increased rapidly. As a result, in 2008, 60 percent of the urban population were residing in slums in urban areas.

It is said that in Kampala City, over 60% of the population lives in slums. The slum areas occupy 17.7% of the land of Kampala City.



Source: JICA Expert Team based on KCCA, 2012, KPDP and ACTogether, 2014,, Uganda Kampala Slum Profiles

Figure 11.2.1 Informal Settlement Areas in Kampala City

(2) Slum Upgrading Projects in the Early 2000s

In the early 2000s, there was an attempt to support the slum upgrading project in Kawala Area, Rubaga Division under the then Kampala City Council (KCC) with the guidance of MoLHUD at that time. However, the community rejected the upgrading project. On the other hand, for "Nsambya slum" along Ggaba Road in Makindye Division, KCCA took a different approach, in which slum dwellers were paid off so as to completely move elsewhere. As a result, different new modern structures have totally replaced the slum landscape.

Using the fund from UNDP, the Namuwongo low-cost housing and slum upgrading project was implemented to improve the living conditions in the Namuwongo slum in Kampala. The land was acquired, subdivided, planned and demarcated into 1,000 plots. Permanent houses were retained, others divided into small plots which were leased out to other residents for self-building with loans for building materials. The prototype plan had a core unit with three rooms, one for sleeping and the other two to rent in order to repay loans.

Besides individual slum upgrading projects, KCCA has secured annual budgets for improving water supply facilities and public toilet facilities in slum areas.

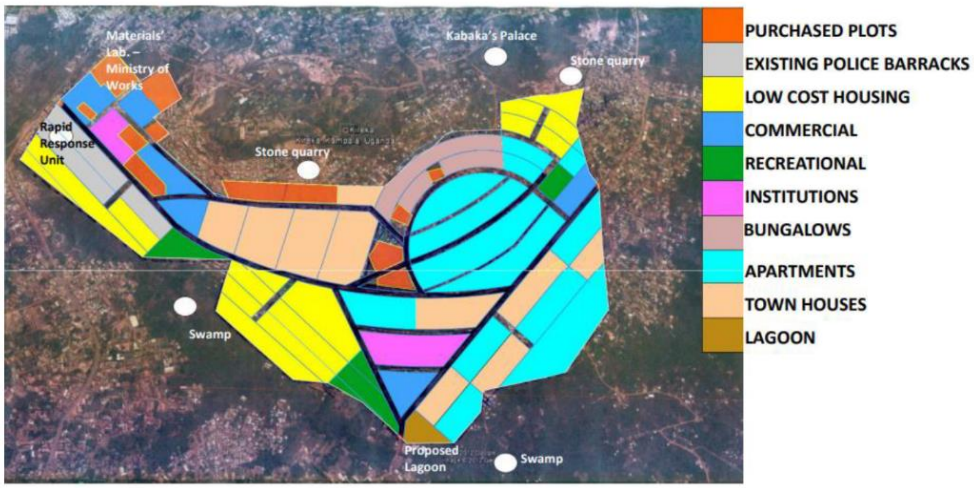
(3) Kireka Slum Redevelopment Project

In partnership with the National Housing Construction Company (NHCC), MoLHUD was planning to implement the Kireka Slum Redevelopment Project in Kireka-Banda slum area. The project adopted an inclusive approach by promoting the participation of the urban poor in the slum area in problem identification, planning, decision making and implementation.

The objective of this project was to improve the informal settlement in Kireka into a well-planned human settlement, using part upgrading of existing structures and part newbuild combined with decanting and clearance. based on the zoning plan shown in Figure 11.2.2.

NHCC was considering adopting a public-private partnership with MoLHUD, Slum Dwellers International, Actogether, and resident communities for the purpose of redeveloping the site.

However, this plan was abandoned after being rejected by people who had heavily squatted the site. In this plan, many of them had been evicted from another area in Nakawa which was cleared for new housing.



Source: Greater Kampala Economic Development Strategy 2019 (MKCC&MA)

Figure 11.2.2 Zoning Plan for Kireka Slum Redevelopment Proposal by NHCC

(4) Slum Upgrading Project for Kampala-Jinja Expressway Development Project

An incremental and comprehensive approach was attempted in the slum relocation for Kasokoso slum and Kinawataka slum, which was planned as an environmental and social safeguard of the Kampala-Jinja Expressway development project. This project provides an interesting case study that touches upon various challenges including land tenure, planning regulations, community involvement, financial arrangement, etc.

1) Special Planning Area (SPA) for Kasokoso and Kinawataka Slum Settlements

Parts of the Kasokoso slum and Kinawataka slum are in both Kira Municipality in Wakiso district and KCCA precincts so slum upgrading planning will have to harmonise with the higher-level plans. The area is currently zoned as high-density residential areas in respective physical development plans, while the current land use includes mixed-use, commercial, open spaces, etc. The existing plan does not recognise the need for relaxation of the Planning Standards for plots and therefore does not allow for the upgrading of the existing informal settlement pattern as opposed to demolition and re-building.

Recognizing the intricacy of the local situation, the wider area of influence of Kampala-Jinja Expressway Development Project and Kasokoso and Kinawataka slum settlements are proposed to be designated as a "Special Planning Area (SPA)" where it is not abiding by the existing regulation and planning standards which do not necessarily serve the needs of the community. Currently, the proposed SPA for Kasokoso and Kinawataka slum settlements is submitted to the National Physical Planning Board under MLHUD for approval. If the area were to be gazetted as the SPA, this approach can be applied to other areas.

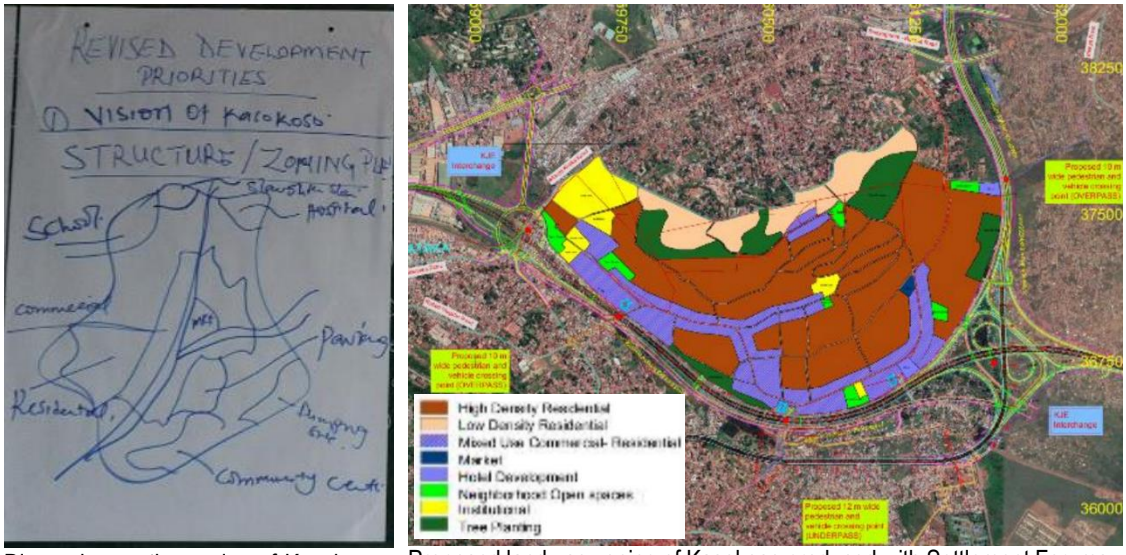
Pink mark: Kampala-Jinja Expressway RoW　　Red mark: Recommended SPA

Source: Slum Upgrading Feasibility Study for Kasokoso & Kinawataka -Studies in support of the KJE No One Worse Off Initiative, Uganda National Roads Authority, 2021

Figure 11.2.3　Proposed Special Planning Area for Kasokoso and Kinawataka Slum Settlements

2) Community Involved Planning

Settlement forums were established in target areas, which functioned as a mechanism for community organizing and participation. Their critical role brings communities together to gather issues, ideas, and plans for their settlements, and collectively communicate with different stakeholders. Representatives from the settlement forums and other special interest groups share and discuss concerns and development priorities of the area through regular workshops and meetings and jointly prepared zoning plans of the target area.



Discussion on the zoning of Kasokoso by Settlement Forums　　Proposed land use zoning of Kasokoso produced with Settlement Forums

Source: Slum Upgrading Feasibility Study for Kasokoso & Kinawataka -Studies in support of the KJE No One Worse Off Initiative, Uganda National Roads Authority, 2021

Figure 11.2.4　Proposed Land Use Zoning Plan for Kasokoso Area

3) Tenure Security

Security of tenure is the key to any shelter initiative in Insitu incremental slum upgrading project. It gives confidence and financing agencies to invest in the housing stock. In this project, the majority of the specific Kasokoso land in question is held under freehold title by the NHCCL, so the following options were proposed based on conversations with the community. Incremental security of tenure forms one of the strongest considerations for the setting up of a special planning area as it is an unconventional way of achieving security of tenure, but it's the most practical solution under the circumstances.

- The government to pay compensation to move from the land at market rates on a willing seller,

willing buyer basis.

- The government through the Land Fund Task Force (under the Uganda Land Commission) pays NHCCL (as an absentee landowner) and redistributes it to the community
- The community to have consolidated ownership of the title by payments in small installments over a long period

4) Financial Arrangement

One of the financial instruments applied for this project is Community Upgrading Fund (CUF) which provides finance for small infrastructure projects selected by the community settlement forums. It was established by Cities Alliance in partnership with MoHLUD. Another financial instrument is a Microcredit Fund specifically designed to provide grant and credit services to the poorest populations for implementing livelihood projects and incremental household upgrading. It is provided by the Micro-Finance Support Center Ltd. Which is a part of the Ministry of Finance, Planning and Economic Development.

11.2.2 Review of Policies, Strategies and Action Plans on Slum Upgrading

The government of Uganda has dealt with slum issues, strategies and action plans in the following two documents. In this section, the slum issues, policies and strategies are reviewed in these two documents.

(1) National Slum Upgrading Strategy and Action Plan 2008

1) Objectives of Slum Upgrading in Uganda

The objectives of slum upgrading in Uganda are as follows:

- To develop affordable and participatory measures for upgrading housing conditions and related support infrastructure in slum areas
- To plan and implement in collaboration with stakeholders' programmes and pilot projects to minimise, eliminate, and curtail the growth of slums
- To harness the Central Government and urban authorities' resources in enhancing the contribution of slum residents to the urban economy
- To ensure an appropriate institutional framework and mechanisms for the effective implementation of slum upgrading programmes by different stakeholders

2) Guiding Principles for Slum Upgrading in Uganda

The National Slum Upgrading Strategy is based on the following guiding principles:

- Provision of land tenure security and housing tenure security to enhance investments in slum areas
- Flexible legal and institutional framework that allows local initiatives in slum upgrading
- Availability of appropriate urban planning framework that recognises slums and slum dwellers / residents as resources.
- It is essential that an integrated approach to slum upgrading is designed.
- Mobilisation and coordination of stakeholders and resources for slum upgrading initiatives locally, nationally and internationally
- Slum upgrading needs to be complemented with preventive actions that stall the emergence of new slums. Hence, the need for a twin-track approach towards existing and potential slums that will emerge in the future.
- Mainstreaming of gender sensitivity and responsiveness

3) Strategies for Slum Upgrading

The following eight sets of strategies are adopted in implementing actions and projects for Uganda's slum upgrading strategy and action plan.

- Strategies for Tenure Regularisation and Affordable Land
- Strategies for Supply of Affordable Housing
- Strategies for Urban Infrastructure and Basic Services
- Strategies for Slum-Sensitive Urban Planning Framework
- Strategies for Financing Slum Upgrading
- Strategies for Inclusion and Participation of Slum Residents
- Strategies for Cost Allocation, Cost Recovery and Affordability
- Strategies for Stakeholder/ Actors Participation and Coordination

(2) National Smart Slum Upgrading, Prevention Strategy and Action Plan 2023

1) Strategy Vision and Goal of Smart Slum Upgrading Strategy in Uganda

The strategy vision of slum upgrading is: "Adequate housing for all", and the goal of it is set as: "Sustainable transformation of exiting slums and prevention of new slum formation".

2) Pillars for Slum Upgrading in Uganda

The following six sets of pillars (dimensions) and objectives are adopted for implementation of strategic initiatives and actions:

(i) Pillar 1: Smart Governance (Participation)

Objective: Strengthen participatory, transparent and accountable governance of slums by improving implementation and enforcement of the policy, strategy, legal and institutional framework.

(ii) Pillar 2: Smart People (Human/Social Capital)

Objective: Empower people and communities living in slums to effectively participate in decision making on and implementation of the Smart Slum Upgrading Strategy and ensure that interventions are inclusive and "leave no one behind (LNOB)".

(iii) Pillar 3: Smart Economy (Competitiveness)

Objective: Enhance local economic development (LED) and livelihoods in slums by harnessing public, private, non-governmental and community resources, and integrate slums into the wider economy.

(iv) Pillar 4: Smart Living (Quality of Life)

Objective: Improve the living conditions and quality of life of slum communities by increasing tenure security and implementing affordable and participatory incremental upgrading of basic infrastructure, services and housing.

(v) Pillar 5: Smart Mobility (Transport, Accessibility and ICT)

Objective: Improve mobility within and between slums and the wider city, and improve ICT connectivity and access to link slums communities with local, national and international resources and opportunities.

(vi) Pillar 6: Smart Environment (Resilience and sustainability)

Objective: Ensure sustainable environmental management and development of upgraded slums, and reduce vulnerability to climate change effects and natural disasters.

3) Guiding Principles for Slum Upgrading

The Smart Slum Upgrading Strategy is based on the following five guiding principles: (1)Participation; (2) Equity; (3) Affordability; (4) Localization; (5) Cooperation.

4) Comparison with previous "2008 National Slum Upgrading Strategy and Action Plan"

The 2023 version of the strategy added as part of its pillars improved mobility and ICT access, as well as a perspective on reducing the vulnerability of slum dwellers to climate change and natural disasters.

For the actions of the strategy, the responsible bodies and budgets for each activity that breaks down the actions, which were shown in the 2008 version, were not presented. This may have reduced the specificity of the strategy and made responsibilities less clear than in the previous strategy.

11.2.3 Objectives for Slum Upgrading in GKUGA

Slum upgrading has been considered and tried for different objectives. Most cases of slum upgrading projects in Kampala Capital City had narrow objectives of releasing Kampala's prime lands which slum dwellers have occupied for more efficient use. However, too much orientation to this narrow objective could result in socially inclusive and diversified development. Furthermore, it could lead to no sustainable development. Therefore, more socially inclusive and sustainable slum upgrading should be pursued by identifying the following objectives:

- To improve the residential environment including slums and informal settlements for the people in GKUA
- At the same time, to seek more efficient utilisation of Kampala's prime lands which slum dwellers have occupied
- To develop affordable and participatory measures for upgrading housing conditions and related support infrastructure in slum areas in GKUGA including Kampala Capital City

11.2.4 Urban Development Strategies for Slum Upgrading

(1) Urban Development Strategies for Preventing Slum Formation in Suburban Areas outside Kampala Capital City in GKUGA

In suburban areas outside Kampala Capital City, it is essential to implement the following strategy as a preventive measure against the formation of slums:

- To take a preventive measure against early stages of slum formation in GKUGA outside Kampala Capital City, by providing basic infrastructure (access roads with roadside drain, public toilets, and water supply) in those areas where densely residential development might occur.

(2) Urban Development Strategies for Promoting Slum Upgrading in Kampala Capital City

1) In-Situ Solutions in Slum Upgrading

The formulation and implementation of slum upgrading strategies based on the guiding principles for in-situ solution (but not relocation from slums) adopted by National Slum Upgrading Strategy and Action Plan 2008 is reasonable for local communities squatting in the slums and implementable.

After the implementation of in-situ solutions of slum upgrading, the land and housing markets of such upgraded slums could gradually transform themselves by shifting to other land uses with economic values. This type of transformative strategies through in-situ intervention is more implementable and conducive to urban environmental improvement.

It is recognised that there are many existing unplanned settlements focussed on emerging trading centres at key road junctions in future urban areas, adjacent to and around the future urban centres. In the case of future urban centres the land and housing markets of such unplanned trading centres gradually transform themselves by agglomerating plots and shifting to other land uses with economic values. This type of transformative strategies through in-situ intervention is more implementable and conducive to urban environmental improvement where extensive unplanned settlements already exist.

2) Relocation Methods in Slum Upgrading

On the other hand, there are opposite ways of thinking to the above in-situ intervention and improvement for slum upgrading, for example, like the following way:

- There are substantial areas of undeveloped land and redundant buildings in Kamapala City which could be considered for a range of housing markets and types, including the high-density low-cost alternatives to slum areas. In some cases, relocation of slums dwellers into truly affordable, mixed use and high-density blocks on vacant land adjacent to them, will make way or slum clearance, redevelopment, and substantial increase in values.

11.2.5 Programme for Slum Upgrading in GKUGA

(1) Projects for Preventing the Formation of Slums in Suburban Areas outside Kampala Capital City in GKUGA

In order to implement the strategies for urban development for slum upgrading as described in Section 11.2.4, it is considered that the following projects to prevent the formation of emerging slums are effective.

- [UD-12] Project for Prevention of Emerging Slums near Kajjansi Metropolitan Centre
- [UD-13] Project for Project for Preventing the Growth of Emerging Slums near Mukono Metropolitan Centre
- [UD-14] Project for Project for Preventing the Growth of Emerging Slums near Nsangi Metropolitan Centre
- [UD-15] Project for Project for Preventing the Growth of Emerging Slums near Wakiso Metropolitan Centre
- [UD-16] Project for Project for Preventing the Growth of Emerging Slums near Matsugga Metropolitan Centre

(2) Projects for Slum Upgrading with Some Relocation Initiatives in KCC

Considering very high economic and financial values of squatted lands in some cases of high population density and land use intensity in KCC, it might be inevitable for the government and landowners to embark on relocating some squatters and utilise the lands for other purposes, especially urban centre functions. However, considering the social sustainability and the importance of improvement of residential environment, it is essential to combine in-situ solutions with the vertical relocation in the same areas. Such initiatives should be utilised for formation of projects for slum upgrading.

Chapter 12 Development Strategies for Open Space and Wetland Management in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City (KCC)

12.1 Strategies for Development of Open Spaces in GKUGA including Kampala Capital City

12.1.1 Background

In this report, open spaces comprised public parks, and open and green spaces.

(1) Present Situation of Open Spaces in GKUGA

The number and area size of open spaces (including parks, sports grounds, and sports stadiums) are limited both in Kampala Capital City and outside Kampala Capital City within GKUGA.

1) Existing Open Spaces in Kampala Capital City

Kampala Capital City has 42 open spaces with total area size of 144 ha, as shown in Table 12.1.1. KCCA has 10 public parks, and their total area size is 19.3 ha. The area of open spaces is about 0.9 m^2 per person.

Table 12.1.1 Open Spaces (Parks, Sports Grounds, and Others) in Kampala Capital City

Division	Open Space (Type)	Name	Category	Area (ha)
Central	Sports Ground	Kitante Primary School Sports Ground	School	1.23
	Sports Ground	Kitante SSS	School	0.93
	Ceremonial Ground	Kololo Independence Ground	Public	16.76
	Golf Course	Kampala Golf Course	Public	55.71
	Sports Ground	Aga Khan School Sports Ground	School	2.27
	Park	Centenary Park	Public	6.12
	Sports Stadia	Nakivubo Stadium	Public	4.01
	Sports Ground	Lohana School	Private	3.41
	Park	Sheraton Gardens	Public	3.18
	Sports Ground	City H.S Sports Ground	School	0.69
	Sports Ground	Lugogo Cricket Oval	Private	3.01
	Park	Uganda Museum	Public	3.57
	Park	Children's Park	Public	0.84
	Sports Ground	Kiira Police Station Sports Ground	Public	1.09
	Park	Airtel Park	Public	1.14
	Sports Ground	Kololo S.S.S	School	0.89
	Sports Ground	Nakasero Primary School Sports Ground	School	0.82
	Park	Constitutional Square	Public	1.41
	Park	Pan African Freedom Park	Public	1.12
	Park	Railway Station Park	Public	0.82
	Park	National Theatre Gardens	Public	0.28
Kawempe	Sports Ground	Makerere University Sports Ground	University	3.45
	Sports Ground	Makerere University Rugby Ground	University	1.22
	Sports Ground	Mulago Hospital Grounds	Public	1.04
	Sports Ground	Katanga Sports Ground	Private	0.55
	Sports Ground	Kampala Quality Sports Ground	School	1.05
	Sports Ground	Komamboga Sports Ground	Private	0.51
	Sports Ground	Mpererwe Primary School Sports Ground	School	0.33
Makindye	Sports Ground	Villa Park	Institutional	1.07
Nakawa	Sports Ground	Makerere University Business School	University	1.25
	Sports Ground	Kyambogo University	University	4.41
	Sports Ground	Legends Sports Ground	Private	1.04
	Sports Ground	Philip Omondi Stadium	Institutional	1.23
	Sports Ground	KCCA Grounds	Public	2.34
	Sports Ground	Kyadondo Rugby Club	Institutional	1.48
	Sports Ground	Makerere University Business School	University	2.30
	Park	UAP Park	Public	0.82
	Sports Ground	Bishop Cipriano Kihangire School Sports Ground	School	1.32
	Sports Ground	Kyambogo University	University	3.09
	Sports Ground	Kampala International School Sports Ground	School	1.85
Rubaga	Sports Ground	Mengo Senior School Sports Ground	School	1.46
	Sports Stadia	Wankulukuku Stadium	Institutional	3.35
Total				**144.47**

Source: JICA Expert Team, based on GIS data provided by the Directorate of Landscape, KCCA, 2023

2) Existing Open Spaces in Wakiso, Mukono and Mpigi Districts

There are no gazetted public open spaces owned by the central and district local governments. However, there are some open spaces that are owned by nongovernment institutions in the neighbouring districts of Wakiso, Mukono and Mpigi. The existing open spaces are owned by

institutions, mostly schools (primary, secondary and tertiary schools). These open spaces are required for schools.[1]

Buganda Kingdom also has some of these open spaces in the three districts, especially at ssaza headquarters, which are commonly known as "ekitawuluzi." This name means open area for resolving public issues, e. g., Coronation Grounds and a number of Ssaza Grounds.

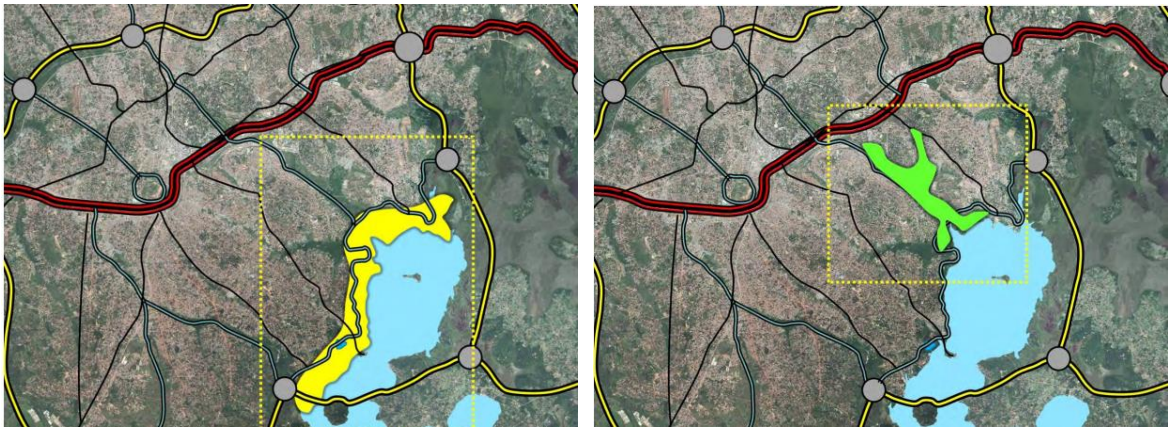
Privately owned public open spaces include Kavumba Recreation Centre in Wakiso District and Kitende Stadium in Kajjansi Town Council. In Mukono District, there is a youth recreation centre and Ssaza Grounds under Buganda Kingdom.

(2) Review of Existing Plans and Progress

KPDP (2012) mentions that KCCA should fulfil the potential of open spaces and landscape resources such as wetlands and lakefront. While hilltops will be developed as tourism and recreation centres, wetlands and lakeshores will be developed as open green spaces. The lakefront development can feature Kampala as a Lakefront City that will connect the lake to the inner city, which can offer green and recreational space at the same time will support controlled development of the lakeshore.

1) Existing Plans

KPDP identifies Nakivubo wetland to be developed as a central park, and the Lake Victoria shoreline as a key asset for lakefront development as shown in the figure below. Nakivubo wetland was selected due to its size, proximity to the city centre, and accessibility to the Lake Victoria shoreline. The project is complementary to the development of the lakefront, offering open space and recreational areas to encourage tourism. It recognises that the development should be consistent with environmental regulations. Drainage planning should be included to ensure the protection of the ecological system.



Lakefront development along Lake Victoria　　Central Urban Park in Nakivubo wetland

Source: KPDP 2012

Figure 12.1.1 Open Space and Park System in KPDP

2) Past Efforts and Progress

According to KCCA, there were a number of studies done on the Nakivubo wetland, mainly for improving the drainage to clean the main waterway in the city. However, they were not implemented because of multiple challenges such as land ownership, encroachment, and lack of finances. In order to mitigate the flooding risk of the area, KCCA constructed drainage channels to improve the flow of stormwater. However, this resulted in the deterioration of water quality downstream the lake. There are no comprehensive plans for Nakivubo wetland to date. For the

[1] Public open spaces of schools, especially government schools, are under the jurisdiction of the Ministry of Education and Sports, and they are also shared with the public/community.

lakefront development, there was a preliminary study on the lakefront of Machison Bay but the same challenges on land ownership and encroachment were highlighted.

12.1.2 Issues on Open Space

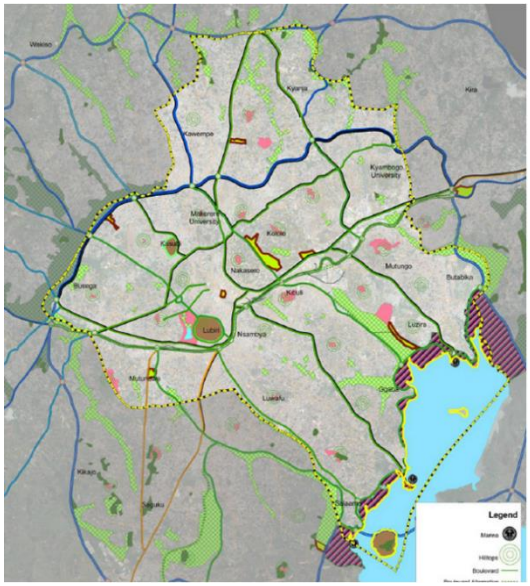
(1) Encroachment into Public Open Spaces

GKMA has a shortage of structured and accessible public open spaces due to the growing population, especially in areas where urbanisation is rapidly progressing. Few existing parks and gardens are concentrated in the city centre, but due to urban pressure, former public open spaces have been converted into areas for urban use, such as Kololo Park into a shopping plaza, and Wandegeya Children's Park for military use.

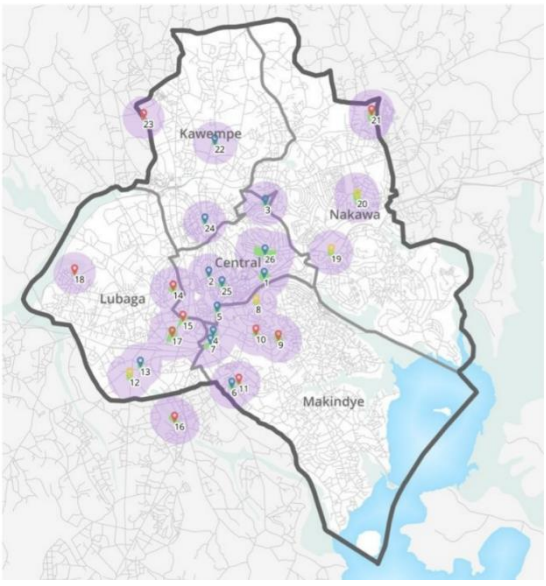
The remaining green spaces that do exist within the city are the wetlands and undeveloped landscape resources which are the lakefronts. However, those areas are also encroached by new developments, and informal settlements are gradually extending into the wetlands. Due to the encroachment, there is a serious environmental deterioration from sewage and industrial wastewater, and from waste disposal of factories and settlements.

(2) Accessibility to Public Parks

Ideally, parks are distributed equally throughout the city so that all citizens have easy access to them and provide play spaces. However, as shown in the figure below, the parks are not distributed equally throughout the city. Most parks are located within or near the Central Division. Also, most residential neighbourhoods lack quality public open spaces and parks. As shown in the figure below, there are fewer parks in the suburbs, and people in these areas need to walk much greater distances to access a park.



Source: KCCA, 2012
Natural Resources and Open Spaces



Source: Availability and Quality of Parks in Kampala
Accessibility to Parks within 800 m

Figure 12.1.2 Existing Open Spaces in Kampala Capital City

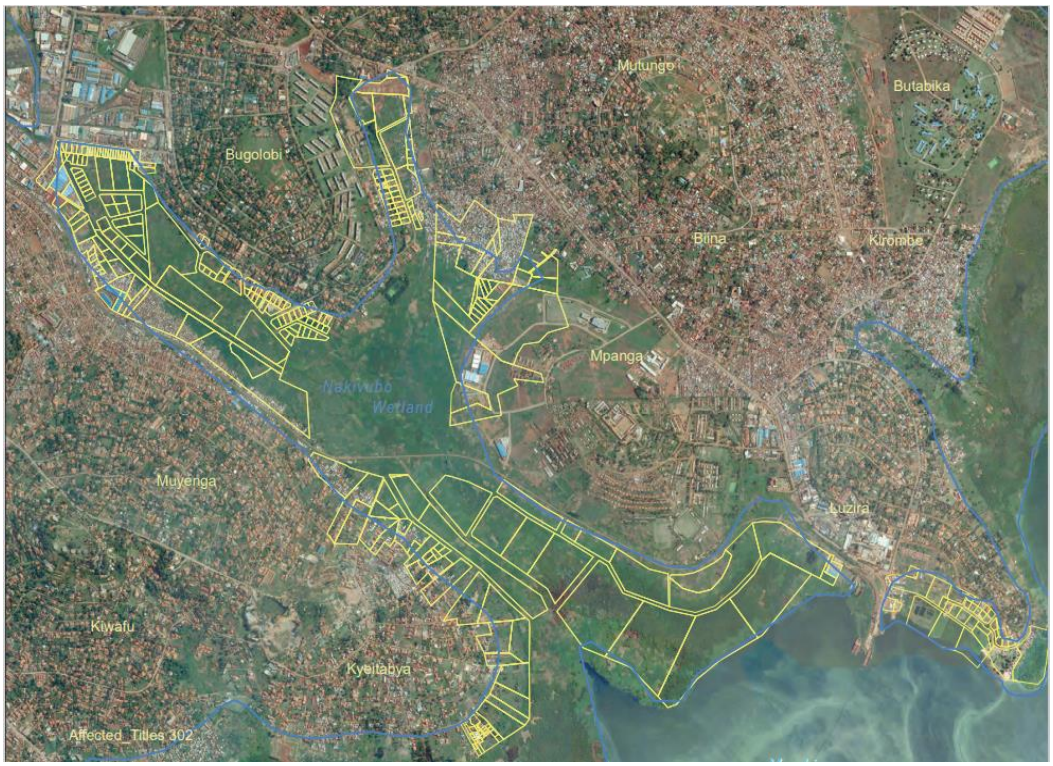
(3) Quality of Public Open Spaces

A shortage of user facilities is a major limitation in majority of the parks. Most of the public open spaces have some green space with no seating, and unpaved surface and unplanned paths. Safety and security of public open spaces are important, especially for safety conscious users, such as women and children. According to the survey, "Availability and Quality of Parks in Kampala", there is a serious concern among some visitors and the surrounding community about the high level of insecurity in parks with poor facilities and landscaping, especially at night. Safety in

accessing the parks is also a major usability factor. Increasing the lighting and improving the paths and the footpaths will also increase safety.

(4) Securing the Land for Public Open Spaces in Wetlands

With rapid urban development, securing the land for public open space is becoming a challenge. GKUGA faces the challenge of various land tenure categories co-existing in the target area managed by different authorities. Even within wetlands, lakeshores and riverbanks, land titles that issued before 1995 are owned by the private sector and some are under the Malio system, which is difficult to control by the government. The following map shows the land titles that should be cancelled in the Nakivubo wetland.



Source: Uganda Wetlands Atlas Volume One, Kampala City, Mukono, and Wakiso District, 2015

Figure 12.1.3 Land Titles Issued in Nakivubo Wetland

In 2018, NEMA issued a directive to cancel a portion of wetland, and also declared some portions as vanquished wetlands, which have lost their ecological functions and can be converted to public use. The following table shows the list of vanquished wetlands and wetlands with cancelled titles. The title cancellation effort is ongoing, but the process is expected to take time as it faces objections and rejections from the title holders. Also, considering the current status of wetlands especially the section declared as vanquished wetlands, the area should be restored before it can be developed. Proper planning and coordination with relevant stakeholders are important for the conversion of wetlands into public open spaces that people can enjoy.

Table 12.1.2 Vanquished and Cancelled Titles in Wetlands in GKUGA

Locations	Actions
Upper Kinawataka wetland (Ntinda and Kyambogo hills to Kampala-Jinja highway)	Indicate buffer zone / Cancel title in a core area
Vubyabirenge wetland (Bukoto, Ntinda, and Naguru hills)	Indicate buffer zone / Cancel title in a core area
Kinawataka wetland (Nakawa-Kinawataka section to railway)	Indicate buffer zone
Kawoya wetland (Kampala-Jinja Road to the railway line)	Indicate buffer zone / Cancel title
Wankolokolo wetland to Kasokoso	Cancel title and restore
Kinawataka wetland (railway line to Lake Victoria)	Cancel title and restore
Namuwongo area	Demolish all structures / Offset / Cancel title
Bugolobi Bangalows	Offset / Cancel title
Kitintale Zone 12	Demolish illegal structure / Offset / Cancel title
Adjacent to Kampala Industrial Park	Vanquished / Cancel title
Port Bell Luzira	Regulate activities / Offset / Cancel title
Namanve Wetland	Cancel title
Between Entebbe Road and Kasanga	Indicate buffer zone
Lower Kasanga Wetland	Demolish upcoming structures
Upper Kyetinda up to Munyonyo Road	Harmonise boundaries
Katongo Village	Demolish illegal structures
Cape Village	Indicate buffer zone / Demolish illegal structures
Wankulukulu to Entebbe road	Indicate buffer zone
Rufuka wetland	Indicate buffer zone
Kalliddubi wetland	Demolish illegal structures
Wankulukulu to Natete market	Indicate buffer zone
Nsooba section	Indicate buffer zone
Nabisasiro	Indicate buffer zone

Source: NEMA/4/2/5, 2018

(5) Funding Arrangements

The development of open spaces in wetlands and lakefront will require financial resources. As mentioned above, the development will require land title arrangements, encroachment management, and restoration of wetlands. Proper planning and stakeholder coordination should be carried out to attract funding from both domestic and international sources.

There are some privately developed green open spaces for recreational purposes. For example, Hakuna Matata Fun City in the Wakiso district is developed by a private landowner making use of a wetland. The wetland was developed into a recreational park where visitors can enjoy the green space and the lake with places to enjoy eating, camping, boat riding, and ziplining. The park is fee-based of which the current entrance fee is Ush 3,000 per person. There are around 20-25 employees in the park including staff in the small restaurants, bars, and maintenance unit, hence providing employment opportunities to the surrounding communities.

The case is not development of a free open space, but the involvement of private developers shall be sought for increasing green open spaces and placing recreational and commercial facilities in some portions of the planned area.

Private development of recreational park using wetland: Hakuna Matata Fun City

Well-maintained wetland in Hakuna Matata Fun City

Source: JICA Expert Team

Figure 12.1.4 Hakuna Matata Fun City has been developed and operated in wetland.

12.1.3 Objectives of Open Space Development

The proposed objectives for the development of open space in GKUGA are as follows:

(1) To maintain and upgrade not only existing relatively large open spaces in urban and peri-urban areas, but also open spaces in the neighbourhoods at GKUGA

The large-scale open spaces can function as recreational spaces for many people in GKUGA. Small-scale open spaces, such as neighbourhood parks, can play a role in satisfying the recreational needs of the local communities.

(2) To increase the number and areas of public open spaces especially outside Kampala Capital City in Wakiso, Mukono, Mpigi Districts

This kind of effort should be made by targeting urbanised areas near urban centres (existing and proposed by GKMA-UDMP) in the surrounding areas of Kampala Capital City, where urban population is rapidly increasing. This effort should be made not only by the central and local governments, but also by mobilising private funds, for example, through selling naming rights of open spaces.

(3) To arrange funds and coordinate stakeholders for promoting green and blue development capitalising on wetlands and waterfront in GKUGA

As wetland and lakefront areas, which are accessible in urbanised areas, can be a signature feature of Kampala and GKUGA, the arrangement for a funding is crucial for development. To materialise by utilising the area, coordination with stakeholders is also important. The development should benefit the city, present economic gains for landowners and developers, and preserve the local economy active in that part of the area.

12.1.4 Strategies for Open Space

The following strategies to achieve the above objectives in GKUGA are proposed:

(1) To maintain and enhance existing green and open areas in urban areas, not only in Kampala Capital City, but also outside Kampala Capital City

The provision of open spaces for citizens is essential in enhancing the urban amenity. To increase the number and area of open spaces, especially outside of Kampala Capital City, is one of the important strategies to enhance the attractiveness of residential areas and the quality of life outside of Kampala Capital City.

(2) Safeguard lands for future open space areas and integrate them into the physical development plan to protect the area from development

It is important to secure the land for public open space in advance. The suitable area for public open spaces shall be identified especially those in public land and integrated or aligned with municipal public space and land management plans.

(3) To rehabilitate degraded wetlands located in urbanised areas to develop public open spaces in GKUGA in coordination with drainage development projects and slum upgrading projects

Wetlands surrounded by urbanised areas have been environmentally degraded by sewage, solid wastes, and encroachment of informal settlements. Therefore, such wetlands can be utilised for public open spaces for citizens through environmental rehabilitation of deteriorated wetlands.

(4) To develop public parks together with recreational facilities by using wetland and lakefront areas

Public parks should be enjoyable to the users. To create attractive recreational spaces, proper facilities should be also provided in the park. The necessary facilities for recreational purposes, such as walking paths and seating areas, can be proposed as long as they do not interfere with the functioning of the wetland, which will be evaluated and approved on a proposal basis.

(5) To arrange financial resources for the development of public open spaces using degraded wetlands and lakefront development

To mobilise financial resources, government coordination is crucial to create enabling environment to invite investments in the area.

- Land arrangement by the government will attract private investment.
- Coordinate a drainage development project.
- Involve private investors where applicable, such as for recreational and commercial facilities.
- There is interest in blue and green solutions by the donors. Development, design, and landscaping of wetlands and waterfront can be funded as donor projects.
- The involvement of the community can be supported by NGOs. Some sections can be designated as the vendor's zone so that local communities can be engaged in income-generating activities.

12.1.5 Programmes and Projects for Open Spaces

(1) Project for Formulating Open Space Plans at the District and Sub-County Level

Develop open space plan in Mukono and Mpigi Districts.

(2) Project for Developing Green Corridors in Urban Centres

- Development of green corridor in Kampala central division in the Nakasero area, connecting institutional square, Jubilee Park/golf course, Sezibwa road near Nakasero primary school and developing walkway along business and commercial shops (figure below)
- Development of Nakivubo-Kitante channels and the two parks on both sides can be made into a green corridor
- Development of green corridor from Kasanga wetland along Ggaba Road. Currently, land ownership is being investigated to develop a possible green park along the road.

The proposed green corridor route

The proposed green corridor plan

Source: KCCA

Figure 12.1.5 Pilot Green Corridor Concept Design

(3) Programme for Development and Management of Wetland Urban Parks (Nakivubo, Lubigi)

1) [OS-01] Project for Development and Management of Nakivubo Wetland Urban Park

KCCA and WMD suggested that the wetlands south of the railroad should be preserved to maintain their water purification function. However, part of the upper side of the railroad can be converted into green open space to prevent further degradation of the wetland and provide recreational space. The conditions for planning the space include maintaining the drainage channel and water flow from the city to Lake Victoria, and considering proper waste management measures in the plan. The first step is to prepare a concept plan to apply for funding for further studies and implementation.

2) [OS-02] Project for Development and Management of Lubigi Wetland Urban Park

Wakiso District has a plan to develop an eco-park using part of the Lubigi wetlands between Busega roundabout and Masanafu roundabout as shown in Figure 12.1.6. Since the site has intact papyrus vegetation, the impact on these areas shall be minimized and the drainage channel and its capacity shall be maintained. As Lubigi is one of the important wetlands on the border of Wakiso District and KCCA, the plan shall be promoted as a pilot project by preparing an implementation plan and seeking funds for implementation.

Source: Wakiso District

Figure 12.1.6 Eco Park Proposal for Lubigi Wetland

(4) Project for Lakefront Development for Lake Victoria

The project should be prepared by conducting a feasibility study and preparing a design concept for lakefront development for increasing the accessibility of citizens to the lakefront areas and lake views.

12.2 Strategies for Utilisation and Conservation of Wetlands in GKUGA including Kampala Capital City

This section discusses the wise use of wetlands related to essential infrastructural development (e.g., highways, railways, infrastructural corridors, water, and sewage plants), urban farming, and ecotourism activities. Wise use means using the bounty from healthy wetlands in a sustainable manner that respects the ecosystem. Conservation and restoration efforts to maintain and rehabilitate the wetlands to a healthy state are also important in this context.

12.2.1 Background

(1) Institutional Framework for Wetland Management

The key stakeholders for wetland management in Uganda are the National Environment Management Authority (NEMA) as the coordination agency, Wetlands Management Department (WMD) as the responsible department, and district local governments as the implementation partners. Wetland management is decentralised to the local governments who are entrusted with the responsibility of ensuring wetland conservation and enforcing legal compliance.

The main mandates of the key stakeholders are as follows:

- NEMA ensures the integration of environmental concerns in overall national planning, and reviews and approves all ESIAs including those for projects in wetlands.
- WMD of the Ministry of Water Resources and Environment (MoWE) develops wetland policy, guidelines, standards, and legislation reviews for ESIAs, and restores and protects wetlands by monitoring and supervision, and law enforcement.
- Local governments conserve wetlands within their locality, enforce legal compliance, and

ensure activities in the catchment area do not affect the wetland.

(2) Review of Existing Legal and Policy Framework

1) Legal and Policy Framework

The Constitution 1995 stipulates that the government shall hold in trust and protect any rivers, natural lakes, wetlands, forest reserves, and national parks. The Uganda National Wetlands Policy 1995 promotes environmentally sound management practices for wetlands and suggests that they must be used wisely while prohibiting and criminalising their deterioration. The National Environment (wetland, riverbank, and lakeshore management) Regulations 2000 guides the protection, conservation, wise use, conduct of inventory of wetlands, and issuance of wetland use permits for regulated activities.

2) Regulated Activities within Wetlands

According to the National Environment Act (2019), a developer desiring to conduct any of the regulated activities in wetlands shall be required to submit an application and carry out an environmental impact assessment (EIA) when identified as necessary.

Regulated activities within wetlands include: a) brick making; b) recreational activities (spot fishing, maintenance of green spaces); c) cultivation; d) sand mining; e) drainage; e) commercial exploitation of wetland resources; f) sewerage filtration; g) fishing using fish gear and weirs, aquaculture; h) construction of transport and communication facilities; i) burning; j) any exploitative activity which is of a commercial or trade nature, such as harvesting of papyrus for commercial purposes.

The Act recognises that traditional uses of wetland resources are not subject to the regulation. These include a) harvesting of papyrus, medicinal plants, and trees; b) cultivation using less than 25% of the wetland; 3) traditional fishing; 3) collection of water for domestic use; and 4) hunting.

According to the Act, NEMA can request to regenerate degraded wetlands and issue a restoration order to the developer. It also has a penalty clause where a person who commits an offense is liable upon conviction to a fine and imprisonment.

3) Land Title in Wetlands

Although natural resources, including wetlands, became public property by the 1995 Constitution, land title within the wetland issued before 1995 is considered legal. Most of the wetlands in GKMA are privately owned, therefore, it is difficult to regulate the activities and development within wetlands, which is one of the main reasons for wetland degradation. Cancellation of those land titles has to be compensated which is difficult in terms of financial and legal reasons.

To improve the situation, the Cabinet intervened and directed the Ministry of Land to cancel titles in wetlands on public land acquired after 1995. If a part of those land titles is leased to others after 1995, it can be cancelled after the lease period expires. The direction also includes declaring vanquished wetlands that have completely lost their ecological function and will not be economically viable to reinstate them. Based on this direction, the order of NEMA (2018) indicates portions of vanquished wetland can be reclaimed and converted to economic activities for public good such as waterworks, ports, roads, and electricity power lines, among others.

4) Demarcation and Gazetting of the Wetlands

The delineation of the wetlands is ongoing in consultation with local leaders and communities supported by MoWE. Concrete pillars, tree markings, and other signages are placed in wetlands. According to the respective district environmental departments in GKMA, the following wetlands were gazetted which give special importance to protecting and conserving the wetlands. Regulation of activities or legal procedures in and around the gazetted wetlands needs further survey.

Table 12.2.1 Demarcated and Gazetted Wetlands

District	Demarcated wetlands	Gazetted wetlands
KCCA	95% of wetlands (Lubigi is not completed)	-
Wakiso District	A part of Lubigi and Mayanja	-
Mukono District	All of the gazetted wetlands	Mwola, Kaasala, Sezbwan, Lwajjani Nakiyanja, Sanga
Mpigi District	-	Katonga

Source: Interviews with District Environmental Officers of KCCA, Wakiso District, Mukono District, and Mpigi District Local Governments

(3) Present Situation of Wetlands

Due to rapid population growth, wetlands are under pressure both in rural and urban areas. In urban areas, particularly Kampala and upcoming urban areas, wetlands are seen as the cheapest areas for infrastructure and industrial development. Many wetlands have been converted for industrial or agricultural use, and there is gradual encroachment of wetland edges by informal settlements and associated uses, such as cultivation and waste disposal sites. The situation has changed the water regime, water quality which impacts the availability of wetlands resources, and public health in the surrounding communities.

1) Kampala Capital City

Wetlands in Kampala has a total area of 197 km^2, or 8.3% of total land coverage (UBOS, 2014). According to the environmental department of KCCA, the most critical wetland systems in Kampala are Kinawataka, Nakivubo, Kitante, Kyetinda, and Kansanga which drain into Lake Victoria, and Lubigi which is a wetland belonging to the Kafu River system.

The main threats to the wetlands in Kampala City are urban and industrial development and pollution. Especially, informal settlements in Kampala are expanding and the biggest coverage of those settlements is in the two main wetland systems of Lubigi and Nakivubo wetlands. Especially, Lubigi-Nsooba channel is the most densely settled and degraded wetland in Kampala suffering severe flooding.

2) Wakiso District

There are 220 wetlands in the Wakiso District, which have an area of 241 km^2, or 8.6% of the total land area (UBOS, 2013). The main wetlands belonging to Lake Victoria are Makanaga, Lufuk, Lumpewo, Kisubi Bay, Entebbe, Tende Bay, and Nambigirwa. River Kafu system of Mayanja Kato, Mayanja Wasswa, and Lubigi border Kampala Capital City. Mayanja-Kato is one of the largest, permanently waterlogged wetlands in Wakiso District bordering Mpigi District. Recently, the upper sections of the wetland have been under severe pressure for settlements and industrial development.

The district hosts two Ramsar sites, Mabamba and Lutembe wetlands. Both sites are designated as Important Bird Areas (IBA) and registered as Ramsar sites in 2006. Large-scale farming in the Lutembe Ramsar site is expanding in wetlands and its effluent poses health concerns in the community.

3) Mukono District

The wetland covers 2% of the total area of the Mukono District (UBOS 2013). The main wetlands include Namanve and Mbalala, and gazetted wetlands are Mwola, Kaasala, Sezbwan, Lwajjani, and Nakiyanja belonging to River Sezibwa, and Sanga.

The district is absorbing the spillover population from Kampala. Especially, Namanve wetlands in the eastern side of Mukono City are highly pressured by industrial development. Consequently, deterioration in water quality in River Sezibwa is largely due to pollution from industrial effluents, solid waste, and erosion. Furthermore, the developments in the wetland have increased run-off, causing frequent flooding at Mbalala Trading Centre along the Kampala-Jinja Highway.

4) Mpigi District

There is limited information on the wetlands in the Mpigi District. According to the information from the Environmental Officer in the district, key wetlands are Katonga Bay, Mayanja, Lwera, Nakyetema, and Kalandazi.

Although urbanisation in Mpigi District is slower than in other districts, the main problems that beset the wetlands are sand mining, crop farming, factory effluent, and housing development. In addition, the district does not have proper waste dumping sites so wastes are dumped in the wetlands, especially in upcoming urbanised areas. It should be noted that the majority of land titles inside wetlands are private lands, therefore, it is difficult to regulate the activities and development within wetlands.

12.2.2 Issues on Wetlands in GKUGA

(1) Illegal Construction and Encroachment of Wetlands

1) Encroachment by Settlements

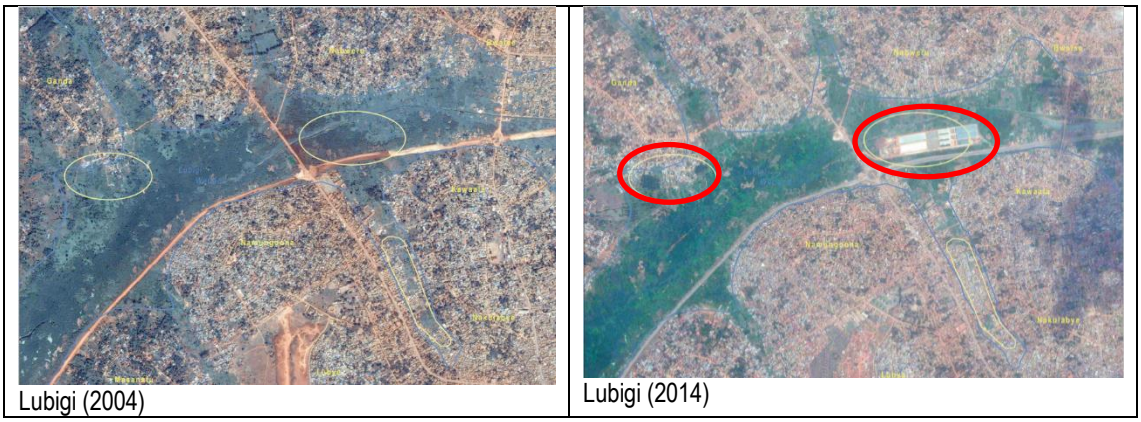
Wetlands in GKUGA are threatened by the encroachment of human settlements. They are seen as the cheapest areas gradually taken over by the slum residential housing and associated uses, such as cultivation, local business, waste disposal, etc. There are some cases where local authorities endorse the encroachment in wetlands for the sake of providing their communities with economic growth opportunities and they are even involved in witnessing and illegal selling of wetlands.

The floods are consequences of the increased conversion of wetlands to different land use and increased generation of poor disposal of solid waste, thereby blocking water drainage. The developments in and around the wetlands have greatly increased the run-off causing frequent flooding, for example, at Mbalala Trading Centre along the Kampala-Jinja Highway.

2) Infrastructure Development on Wetlands

For developers, the wetland is seen as open remaining land for urban and infrastructure development. Oftentimes, infrastructure development provides access to sections of the wetland that are originally not easily reached which leads to forming settlements in the area. Northern bypass construction, and new road development through the wetland at Nansana and Nabweru are some examples.

In 2014, the National Water and Sewerage Corporation established a sewage treatment plant in the middle of Lubigi wetland to serve northern Kampala. It was a part of the Kampala sewerage master plan. The concern was raised by a stakeholder that development in wetlands may send a mixed message to the public where regulation says wetlands should be protected but the government has built infrastructure and facilities in the wetland. The purpose of infrastructure development using the wetlands and environmental management plans shall be effectively communicated to the public.



Lubigi (2004) Lubigi (2014)

Source: Uganda Wetlands Atlas Volume One, 2015

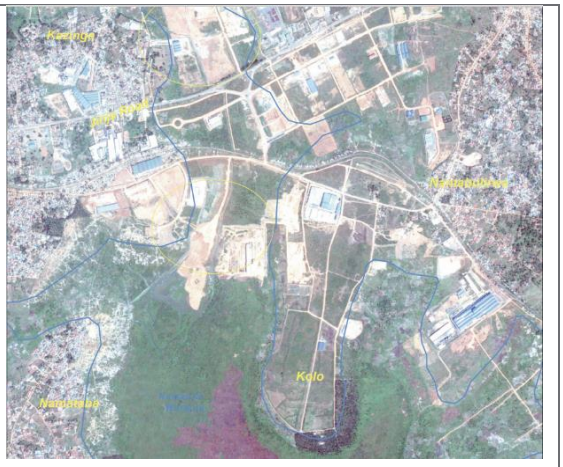
Figure 12.2.1 Encroachment of Residential Areas and Industrial Areas in Wetlands

The Kampala-Entebbe Expressway is elevated on pillars to minimise impacts on wetlands. According to NEMA, this is considered a good practice that allows wetlands to continue playing their functions.

3) Industrial Development on Wetlands

Namanve and Mbalala industrial parks in Mukono District are developed in wetland, and they are still expanding. The land title belongs to the private developer and the area is gazetted as an industrial park. While NEMA ordered to demolish structures established in wetlands, the unclear procedures of EIA and land acquisition led to a conflict between the authorities and developers. For the management of privately owned wetlands, the coordination for the approval process needs to be strengthened.

Source: Uganda Wetlands Atlas Volume One, 2015
Namanvu (2010)



Source: Uganda Wetlands Atlas Volume One, 2015
Namanvu (2014)

Industrial Parks and Factories Developed in Wetland

Wastes and Drainage in Wetland

Figure 12.2.2 Encroachment in Wetlands

The development of industrial farms in wetlands is raising issues of wetland use. For example, large-scale flower farming along the edge of the wetland in the Lutembe Ramsar site not only physically encroaches on the environmentally significant wetland area but also impacted water quality due to the discharge of effluents which raised health concerns in the surrounding community. EIA was approved for the initial development of the factory in which environmental impact mitigation will be done by installing a wastewater treatment facility. However, numerous study suggests that effluents are not treated properly. Even with notice from the local government and also from NEMA, government control has not been effective. Also, gradual physical expansion is difficult to monitor and control with the limited capacity of local government.

Source: Uganda Wetlands Atlas Volume One, 2015
Lutembe Wetland (2007)

Source: Google Earth
Lutembe Wetland (2022)

Source: JICA Expert Team
Expansion of Flower Factory in Wetland

Source: JICA Expert Team
Development of Flower Factory in the Shoreline

Figure 12.2.3 Encroachment in Wetland and Shoreline

4) Sewage Effluent and Waste Disposal in Wetlands

Inappropriate and illegal solid waste disposal and municipal and industrial effluent discharges led to the degradation of wetlands. For example, there are no disposal sites in the Kajjani Sub-county in the Wakiso district. So, waste collection agents registered with the local government come and dump wastes in Lutembe wetland. Similarly, in the Mpigi district, there are no designated waste dumping sites so wastes are dumped in the wetlands, a practice which will worsen due to upcoming urbanisation.

Waste Disposal in Lubigi Wetland

Waste Disposal at Lutembe Ramsar Site

Source: JICA Expert Team

Figure 12.2.4 Waste Disposal in Wetlands

(2) Weak Law Enforcement and Capacity for Wetland Management Administration

1) Complicated Land Ownership of Wetlands

As mentioned above, it is difficult to coordinate the interests of different stakeholders of public lands like wetlands. . Although the cancellation of land titles is carried out by MoWE, the land issue should be coordinated with MoLHD and Buganda Land Board.

2) Lack of Enforcement Capacity and Resources

One of the reasons for inadequate enforcement is the lack of capacity of the environmental officers in terms of the inadequate fund and the number and expertise of the staff at the local governments. There are only a few environmental officers in each district looking after all the environmental matters within their jurisdiction district. So, there is not enough manpower to monitor and regulate illegal activities in wetlands.

There is also political interference by local authorities who approve the development without applying due process required by regulations. The district government informs that when the land title holders are powerful people, it is difficult for officers to give objections. It was also mentioned that there are some cases when the Uganda Land Commission lease wetlands to private owners, contrary to the laws.

To strengthen the enforcement, NEMA proposed to set up National Environmental Protection Force but funding was not secured, and the proposal did not push through.

3) Authorisation Process of Development in Wetlands

According to KCCA, once the developers get clearance from NEMA for the project EIA report, land ownership, or survey report, the development request for clearance is submitted for scrutiny to the development control team, for consideration of the architectural drawing and engineering/ structural aspects of the construction; but not checking and not the environmental impact. In fact, there are cases when projects are not reported to NEMA. The first point of contact for those projects is at the local government level, so there should be input and/or report from environmental officers.

NEMA mentions that there is a section where local government can decide to issue a permit for certain projects. However, the operational guideline is not yet developed. With this in operation, the local government may be able to have more authority and responsibility for monitoring those projects.

(3) Uncoordinated Land Use Planning

NEMA pointed out that in the case of industrial park development in Namabe in the Mukono district, the land use plan prepared in 1997 designated wetland as an industrial zone. Because of this land use, the development of wetland has been difficult to control and now a significant area of it is converted into an industrial area.

(4) Lack of Awareness and Willingness for Wetland Management

Boundary demarcation is done in priority wetlands. However, it was pointed out that some concrete pillars were uprooted by illegal developers in the KCCA jurisdiction. Wetland management requires awareness raising at all levels in the community, developers, local politicians, local government, and other relevant ministries.

The government's regulation and enforcement alone cannot be effective for wetland management. It is important to organise communities surrounding wetlands for sustainable management. In the case of Lutembe Ramsar Sites in the Wakiso district, Wetland Users Association was formed with support from NGOs. The action plan was prepared in consultation with community members, local government, and other stakeholders including land title holders. It specifies allowed activities in some areas and activities that are not suitable for particular areas as well as the role and responsibility of different stakeholders. Now, the community is aware of the importance of

wetlands and community policing has started to work on some illegal activities in the wetland such as waste dumping.

(5) Lack of Financial Resources

Wetland conservation and restoration require funding from national and international resources. According to NEMA, there used to be a National Environment Fund that it managed where 75% of the amount can be used for the lead agencies. For those landowners who already developed the wetland, there is a mechanism of offsets where they, as developers, have to pay Ush.15 million/acre. The fund will be useful to restore or conserve the wetland and strengthen the capacity for wetland management. The current status of said fund will be surveyed in further study.

According to KCCA, there are some ongoing wetland management projects and interested donors mentioned are described in the table below.

Table 12.2.2 Potential Interests by Donors in Wetland Management Projects

Site	District	Characteristics
Nakivubo	Kampala	There have been so many studies on improving the drainage to clean the main waterway in the city. Challenges are mainly land ownership and encroachment. AfDB is interested in a green solution.
Kinawataka	Kampala	GIZ is working on flood-resilient solutions for its projects.
Kyanja/Walufumbe	Kampala	AFD is interested. Now, 1st phase of restoration is ongoing for flora and fauna. 2nd phase will be to develop the area as an eco-tourism site.
Lubigi	Kampala	KCCA is working on a pilot project from Lubigi to Kyanja. Makerere School of Forestry is involved in restoring biodiversity. It is now looking for donor funding.

Source: KCCA

12.2.3 Objectives of Utilisation and Conservation of Wetlands

The objectives of utilisation and conservation of wetlands in GKUGA are as follows:

- To restore and rehabilitate ecologically important wetlands in GKUGA, in which a rapid urbanisation is occuring
- To develop a wetland system management plan around future infrastructure development sites and eco-tourism opportunities, etc. in GKUGA
- To raise awareness on the important role of wetlands and promote best practices of effective wetland management in GKUGA
- To strengthen institutional arrangement and coordination for wetland management in GKUGA
- To mobilise funds and develop mechanisms for sharing of costs and benefits of using wetlands in GKUGA

12.2.4 Policies for Utilisation and Conservation of Wetlands in GKUGA

The following policies to achieve the above objectives in GKUGA are proposed:

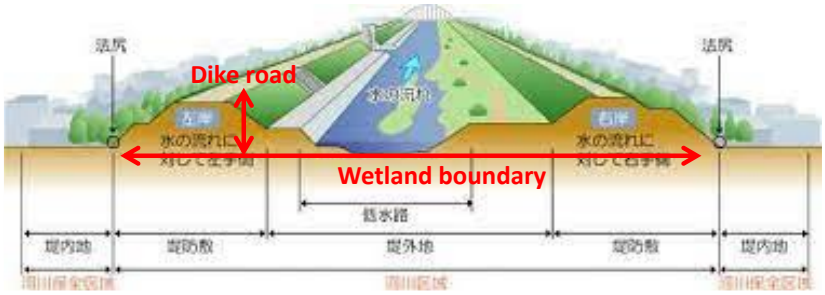
- Identify wetlands that are subject to conservation and wise use and their potential type of use
  - Identify ecologically important and functional wetlands and their core zones and buffer zones.
  - For those wetlands, natural water flow and water purification function, and important ecosystems should not be disturbed. Red flagging the important wetlands and core zone can support the decision-making and mitigation measures of future large-scale infrastructure development.
- Promote the best practice of infrastructure development and wetland improvement

- Prepare Integrated Management Plans and Land Use Plans within wetlands to conserve Core Zones and promote wise use with Community-Based Management
  - ➢ Prepare wetland system management plans and prioritise wise use of key wetlands with potential eco-tourism attractions
  - ➢ Improve drainage, sewerage, and solid waste management systems surrounding identified wetlands
  - ➢ Integrate livelihoods and conservation for sustainable wetland management at the community level
- Building capacity of local governments and strengthening inter-sectoral collaboration of stakeholders to strengthen the enforcement of wetland management
  - ➢ Updated data to be shared among relevant ministries and authorities
  - ➢ Transparency of land transactions in and around the wetland should be monitored.
  - ➢ Raise awareness of the values and roles of wetlands, and wetland wise management measures shall be extended to relevant ministries, local authorities, local leaders, and communities.
- Arrange financial sources for wetland restoration, conservation, and management
  - ➢ Mobilise national and international funds for wetland restoration, conservation, and management of target wetlands.
  - ➢ There should be a mechanism for development in and around wetlands that requires not only EIA but also securing funds for wetland restoration, conservation, and management as a condition for the infrastructure developer and funding agencies.

12.2.5 Strategies for Utilisation and Conservation of Wetlands in GKUGA

(1) Establish Physical Boundary along Wetlands and Development of Green Urban Parks

One of the suggested strategies for wetland conservation is to physically improve wetland boundaries. Uncertain wetland boundaries make encroachment more covert and difficult to control. By constructing dike roads, as shown in the figure below, the physical boundary can be visualised and illegal construction within the wetlands can be easily identified. In addition, the steep slopes of the dike roads make it difficult to access the wetland and develop physical structures.



Source: Image from Niigata Prefectural Government

Figure 12.2.5 Physical Demarcation of Wetland Boundary by Dike Road and Recreational Site Development

This can be promoted by developing green urban parks on the edge of the wetland to provide recreational spaces for the urban population, as shown below. The creation of these nature-based parks will also positively impact conservation awareness. Considering that wetland-dependent communities often live in or use these areas, alternative livelihoods should also be integrated into the development plan.

Source: Image from Niigata Prefectural Government

Figure 12.2.6 Recreational Site Development around wetlands

The table below summarises the responsible agencies and their main roles in the implementation of Strategy 1. Local governments will be responsible for planning, implementing, and monitoring these development projects, and NEMA and MoWE will be responsible for regulating and evaluating the development plans in and around the wetlands.

Table 12.2.3 Responsible Agencies and Their Roles for Strategy 1

Strategy	Responsible agencies	
1. Develop green urban parks	Local government	• **Engage development partners** to prepare urban park plans • Monitoring and supervision of the development in case of private development
	MoWE	• **Maintain the 1995 status** of wetland land use • Evaluate impact of the project • **Regulate activities** in the wetland on project basis • **Seek funds** from the government and development partners
	NEMA	• Evaluate impact of the project and **determine approval status**
	MoLHUD	• **Maintain wetland in land use plans** • Establish standards for park development
	MoWT	• Construct infrastructure of urban park

*Local government: KCCA, 3 districts, 5 municipalities

Source: JICA Expert Team

(2) Promote Climate-Resilient Infrastructure Development Projects

Recognising that roads are potential source of encroachment, the number of roads crossing wetlands shall be limited to those strategic locations where there is a demonstrated need for regional social and economic development. Where roads are necessary and unavoidable, they shall be designed to minimise impacts on wetlands. To this end, climate-resilient design should be promoted based on the hydrological assessment, for example, such as specifying road designs that opt for elevated structures, as shown in the photos below, or constructing culverts to ensure unimpeded water flow. It is also important to mobilise public and private investment for climate-resilient infrastructure. In addition, a cost-benefit analysis shall be included in the development plan that evaluates the viability of elevated roads versus at-grade roads with culverts, taking into account long-term maintenance costs.

Sources: (Left) JICA Project Team / (Right) Ministry of Works and Transport

Figure 12.2.7 Elevated Structure (Entebbe-Kampala Expressway)

The agencies responsible for Strategy 2 are listed in the table below. Regarding road infrastructure development, the Uganda National Roads Authority (UNRA) is responsible for national roads, while local government public works handle local roads. MoWE will intervene to ensure that projects use climate-resilient designs with minimal impact on wetlands. Monitoring the construction activities for both formal and informal local roads is an important task for local governments.

Table 12.2.4 Responsible Agencies and Their Roles for Strategy 2

Strategy	Responsible agencies and thier roles	
2. Promote climate resilient infrastructure development projects	UNRA	• **Plan and design national road** • **Monitor construction activity**
	MoLHUD	• **Regulates land use standards and regulations**
	MoWE	• Evaluate impact of the project • **Ensure climate-resilient infrastructure**
	NEMA	• Evaluate impact of the project and **determine its approval**
	Local government	• **Plan and design local roads** • **Preparation and implementation of land use plan** • **Monitor construction activity** • **Enforcement** of formal and informal local road plan construction

*Local government: KCCA, 3 districts, 5 municipalities

Source: JICA Expert Team

(3) Harmonise Land Management Processes, including Land Registration and Land Cancellation Processes, and Establish Wetland Fund

To regulate and conserve wetlands, the land management system should be harmonised, including land registration and title cancellation, by taking into account the following:

- Cancel private land titles in wetland issued after 1995
- Cancel private land titles in wetland that is not yet developed
- No renewal of permits issued prior to 1995 and cancel illegal permits
- Harmonise land management registration and titles

To implement Strategy 3 effectively, it is important to harmonise the land management processes among the MoLHUD, MoWE and local governments. Each agency has specific roles: MoLHUD is responsible for title cancellation, MoWE manages wetland titles and determines land titles in wetlands, and local governments handle the nonrenewal of land titles in wetlands.

Table 12.2.5 Responsible Agencies and Their Roles for Strategy 3

Strategy	Responsible agencies and their roles	
3. Harmonise land management processes including land registration and land cancellation processes, and establish wetland fund	NEMA	• **Order** land title cancellation
	MoLHUD	• **Implement** land title cancellation
	MoWE	• **Determine** land title in wetland subject to fees • Recommend a law to establish **wetland fund** (including source of fund, use of the fund)
	Local government	• **No renewal** of development licence
	Environmental police	• **Enforce penalty**

*Local government: KCCA, 3 districts, 5 municipalities

Source: JICA Expert Team

(4) Strengthen Regulatory and Monitoring Capacity and Establish Wetland Fund

The environmental impact assessment (EIA) process needs to be strengthened, with particular emphasis on strong enforcement mechanisms. Building the capacity of local governments to thoroughly review and assess development applications and to strengthen the development approval process, including the implementation of restrictions such as the prohibition of licence renewals within wetlands.

For effective monitoring, demarcation of boundaries and the adoption of a digitised wetland map will be useful for enforcement. It can aid environmental officials to identify and assess illegal activities in timely manner even where human resources are lacking at the district and sub-district levels. To further improve monitoring, it is important to strengthen the local monitoring system by working with the district, sub-district, and commune levels as a policing mechanism.

- Demarcate wetland boundary on the ground
- Harmonise and update land information database reflecting wetland boundary and cancelled titles
- Use of digitised wetland map for enforcement and monitoring

It is also proposed to establish a wetland fund by collecting a conservation fee from investors for wetlands that have already been encroached upon. Any development within the wetland should be subject to a fee or tax for the conservation and management of the remaining wetland. This fund could serve as a financial resource for the sustainable management of wetlands including support for the development and maintenance of the physical wetland boundary mentioned in (1) above.

The following table summarises the responsible agencies for Strategy 4. Key aspects include data sharing of wetland boundaries and land information between the Ministry of Lands, Housing, and Urban Development (MoLHUD) and the Ministry of Water and Environment (MoWE), as well as monitoring activities involving local governments and environmental police.

Table 12.2.6 Responsible Agencies and Their Roles for Strategy 4

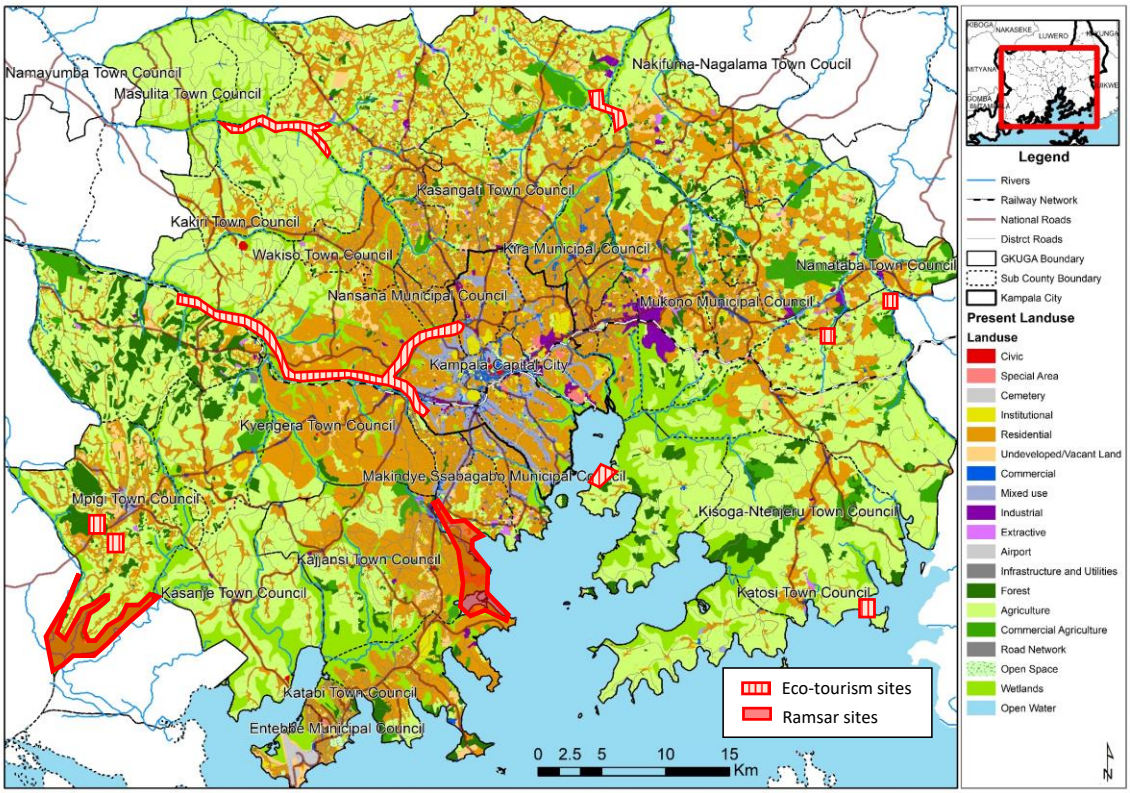
Strategy	Responsible agencies and Their roles	
4. Strengthen regulatory and monitoring capacity	NEMA	• Evaluate projects and determine **environmental approval** • Conduct audit and inspection, and order penalty
	MoLHUD	• Update land information database
	MoWE	• Share wetland boundary data • **Demarcate wetland boundary** on the ground • **Allocate funds** for local government monitoring • Provide capacity building to local government officers to digitise map • **Sensitisation** to the public • Recommend a law to establish **wetland fund** (including source of fund, use of the fund)
	Local government	• Evaluate projects and provide comments/recommendations • **Monitor and report** illegal activities in wetland/Local Forest Reserve (LFR) • Jointly **demarcate wetland boundary** on the ground
	Environmental police	• Monitor illegal activity and **enforce penalty**
	MKCC and MA	• Coordinate agencies within GKMA

*Local government: KCCA, 3 districts, 5 municipalities

Source: JICA Expert Team

(5) Promote Nature-Based Ecotourism Opportunities with Management Plan

To take advantage of nature-based ecotourism assets, ecotourism opportunities should be highlighted and promoted. Ecotourism opportunity sites were identified by the physical development officers and environmental officers of each district based on the criteria of having nature-based tourism resources (wetland, forest, lakeshore) and having relatively good road access. By identifying such areas in advance, they can be supported through integrated planning of infrastructure and facility development, while being protected from uncontrolled development. The proposed sites are shown in Figure 12.2.8 and Table 12.2.7.



Source: JICA Project Team, prepared based on the discussion with each district

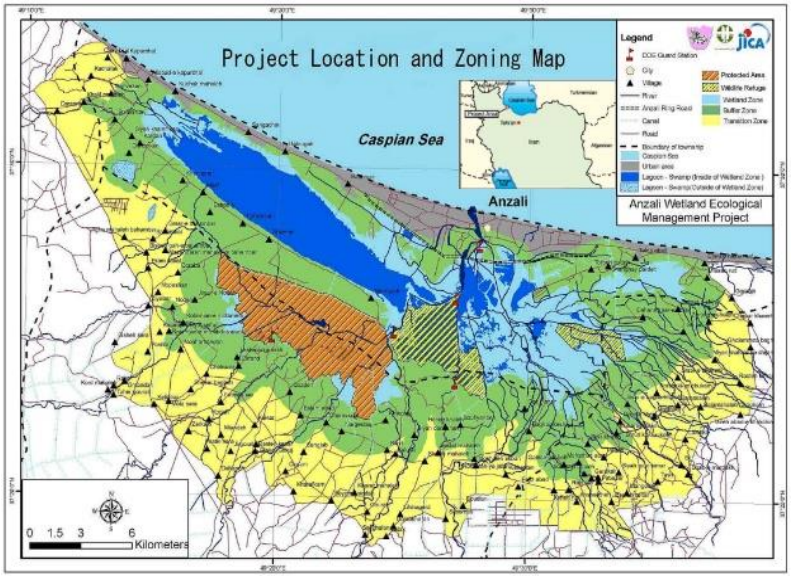
Figure 12.2.8 Proposed Ecotourism Sites in GKUGA

Table 12.2.7 Proposed Location of Ecotourism Sites in GKUGA

District	Location	Characteristics
Mukono	・ Devine Beach at Mpatta Peninsula (developed) ・ Oguzulu Lakeshore (developed) ・ Sezibwa fall ・ Chaking Eco-Tourism Centre (developed)	Lakefront/Beach Lakefront/Beach Waterfall Forest
Wakiso	・ Kijjabijjo ・ A stretch of wetland along River Mayanja ・ A stretch of wetland along River Mayanja Kato (including Lubigi wetland) ・ Lutembe Bay Ramsar Site ・ A part of Mabamba Bay Ramsar Site	Wetland Wetland Wetland Ramsar site Ramsar site
Mpigi	・ A part of Mabamba Bay Ramsar Site ・ Mpanga Forest Reserve ・ Lufuka Forest Reserve	Ramsar site Forest

*Local government: KCCA, 3 districts, 5 municipalities
Source: JICA Expert Team

Regarding the management of ecotourism sites, the preparation of a zoning plan in and around wetlands can clarify and guide the permitted activities of the community and limit the other development activities, especially for two Ramsar sites in GKUGA. Figure 12.2.9 shows the image of zoning plan in and around Ramsar wetland.



Source: JICA Anzali Wetland ecological management project in the Islamic Republic of Iran

Figure 12.2.9 Image of Zoning Plan in and around Ramsar Wetland

For Strategy 5, local governments will be responsible for preparing development and management plans. Coordination with tourism-related ministries and agencies, such as the Ministry of Tourism, Wildlife and Antiquities (MoTWA), will be necessary. Regulatory bodies, including NEMA and the National Forestry Authority (NFA), will be involved depending on the target locations (wetlands or forests). Additionally, the involvement of landowners and NGOs as stakeholders will be crucial in implementing the ecotourism projects.

Table 12.2.8 Responsible Agencies and Their Roles for Strategy 5

Strategy	Responsible agencies and their roles	
5. Promote ecotourism opportunities	MoTWA	• **Coordinate** GKMA ecotourism projects and national tourism development
	MoWT	• **Construct infrastructure** of ecotourism sites
	Local government	• **Engage development partners** to prepare management plan • Approve the plan in case of private development • Periodic monitoring and supervision of ecotourism activity (private/individual) • Coordinate community participation
	NEMA/NFA	• **Evaluate projects and provide licence to developers**
	MoWE	• Evaluate projects and support preparation of wetland management plan
	Landowners	• **Involve as development partners** (e.g., Buganda Kingdom, Catholic Church)
	NGOs	• Support the preparation of community management plans

*Local government: KCCA, 3 districts, 5 municipalities

Source: JICA Expert Team

12.2.6 Programmes and Projects for the Utilisation and Conservation of Wetlands

(1) Pilot Project for Wetland Conservation in Key Wetlands (Nakivubo, Kinawataka, and Lubigi Wetlands)

The pilot project should accompany sewage treatment, waste management, drainage improvement, and slum upgrading projects. Also, coordination with stakeholders including landowners, developers, and local communities is important. The funding should be also secured from government and international donors.

(2) Project for Improving Community-Based Wetland Management (Lutembe Ramsar Site and Mbamba Ramsar Site)

Community-based wetland management is promoted in Ramsar sites. Wetland management should be accompanied by livelihood improvement, and the economic benefits should remain within the area and its host communities, such as the benefits from ecotourism.

Table 12.2.1 Potential Ecotourism Sites in GKMA

Site	District	Characteristics
Lutembe Ramsar site	Wakiso	Identified as IBA which hosts migratory birds.
Mbamba Ramsar site	Wakiso, Mpigi	Identified as IBA which hosts migratory birds that are categorised as globally endangered species. Because of the proximity of the town, the area has great potential to become a famous ecotourism site.
Lubigi wetland	Kampala, Wakiso	The area hosts Antelope which can be a tourist site.
Lwajari wetland	Mukono	Mabira forest that connects Choka wetland is important for the water source in the area. There are also various birds in the wetlands. A study shall be done to assess the importance of the wetland to be recognised and registered as the Ramsar site.

Source: Nature Uganda

(3) Project for Building the Capacity of Land-Related Agencies, Local Governments, and Local Leaders

- Information sharing with relevant stakeholders: With the progress of land demarcation and wetland gazette, the wetland use regulation shall be disseminated at the district and sub-country levels.
- Strengthen data management and approval process: Digitisation of wetland boundary and building permit approval process at the district government level to be promoted to increase the transparency of the approval process and coordination with relevant authorities.
- Strengthen monitoring system for approved projects.

(4) Sensitisation Programme

According to KCCA, there is an environmental grant to local governments and a small budget from MoWE that are used for the sensitisation aspect of the project.

12.2.7 Roadmap and Action Plans to Implement Strategies

This section outlines the roadmap and action plans implementing wetland management strategies.

This section outlines the roadmap and action plans implementing wetland management strategies. The following table also indicates responsible agencies and budget required for each action, totalling UGX 78.59 billion.

- Strategy 1: Actions under the promotion of climate-resilient infrastructure will be implemented on a project-by-project basis, continuing throughout the project period.
- Strategy 2: Actions under promotion of climate-resilient infrastructure will be on a project-by-project basis which continue throughout the project period.
- Strategy 3: Land cancellation and registration are short-term actions, while establishing a wetland fund is envisaged as a long-term action, as it requires legal provisions for its creation.
- Strategy 4: Capacity building on regulatory and monitoring will be a short-term action aimed at preventing further degradation of the wetlands in GKUGA.
- Strategy 5: The promotion of ecotourism is planned as a medium- to long-term action, requiring coordination among various stakeholders and funding sources

Table 12.2.2 Roadmap and Action Plan to Implement Strategies

Strategy	Project/Action	Responsible agencies	Short 2024-29	Medium 2030-34	Long 2035-40	Budget (UGX)
1. Establish physical boundary along wetlands and develop green urban parks	1-1. Piloting green urban park development project in Lubigi, Nakivubo	MoWE, Local governments	X	X		32 billion
	1-2. Expand the green urban park development projects to other major wetlands (Kinawataka, Kansanga)	MoWE, Local governments		X	X	28 billion
	1-3. Establish guidelines for green urban park development	MoWE, MoLHUD	X			100 million
	1-4. Provide alternative livelihood to wetland dependent communities by aligning intervention by national development programs such as Parish development model	Local governments	X	X	X	10 billion
2. Promote climate resilient infrastructure development projects	2-1. Advice climate resilient design based on the hydrological assessment	MoWE, UNRA, Local governments	X	X	X	300 million
	2-2. Mobilize public and private investment for climate resilient infrastructure	MoWE	X	X	X	200 million
	2-3. Ensure close monitoring and supervision of the construction infrastructure investments	MoWE, Local governments	X	X	X	250 million
3. Harmonize land management processes including land registration and land cancelation processes	3-1. Halt issuance of land title in wetlands by responsible institutions and cancel existing land titles in wetlands	MoLHUD , Local governments	X			200 million
	3-2. Harmonize land management registration and titles	MoWE, MoLHUD	X	X		100 million
	3-3. Harmonize land use database and planning	MoWE, MoLHUD	X			100 million
	3-4. Proper land use management through regulation and effective monitoring	Local governments		X	X	1 billion
4. Strengthen regulatory and monitoring capacity and establish wetland fund	4-1. Demarcation of wetland and awareness raising	MoWE	X	X		4 billion
	4-2. Build monitoring capacity of responsible institutions	MoWE	X			150 million
	4-3. Establishment of community-led institutions for monitoring and enforcement	Local governments	X			200 million
	4-4. Equip the responsible institutions with modern tools for monitoring and data management			X		1 billion
	4-5. Support development of the legal framework for establishment of a wetland fund	MoWE		X		250 million
	4-6. Establish wetland fund for sustainable management of wetlands	MoWE			X	100 million
5. Promote eco-tourism opportunities	5-1. Feasibility study of eco-tourism resources	MoTWA, Local governments		X		300 million
	5-2. Develop management plans for Lubigi, Nakivubo, Kansanga and Kinawataka			X		240 million
	5-3. Review and implement management plan for Ramsar sites (Mbamba & Lutembe)	MoWE, NGO		X	X	100 million
	TOTAL					78.59 billion

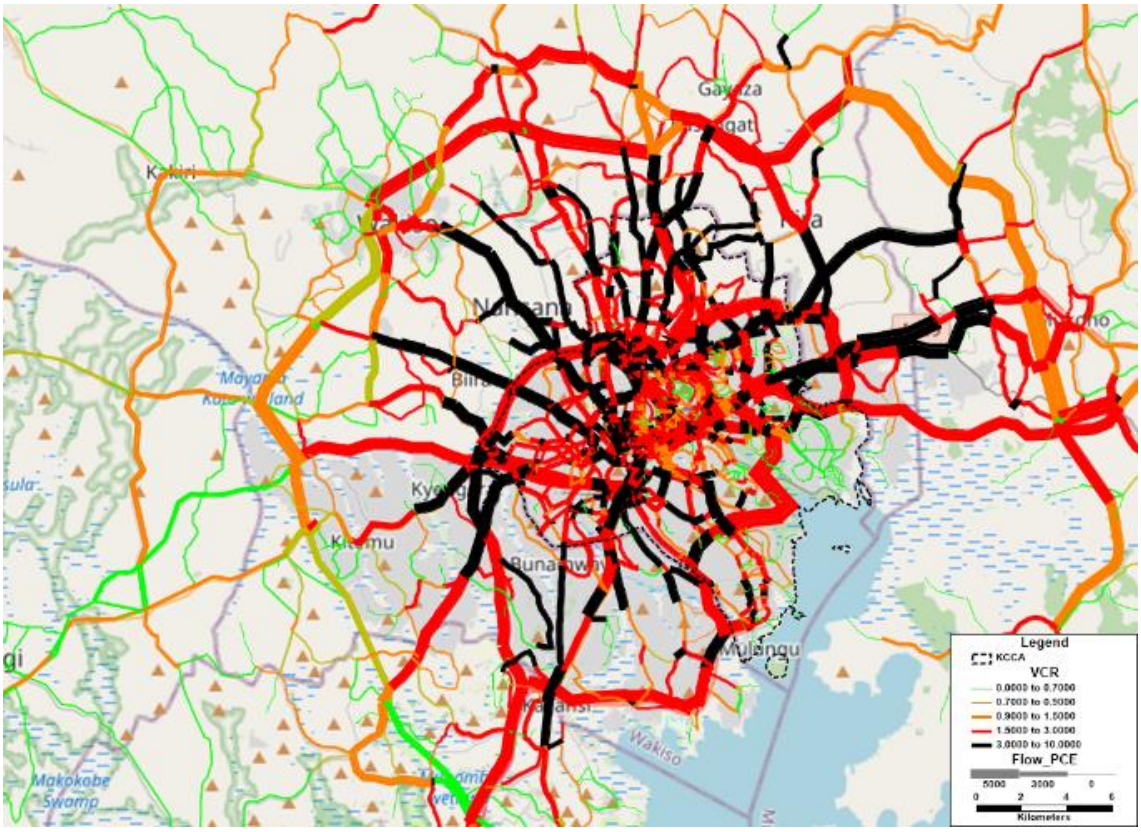
Source: JICA Expert Team

Chapter 13 Development Strategies of the Transport Sector in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City

13.1 Issues in the Transport Sector

(1) Surging Travel Demand

People in the GKUGA are experiencing serious traffic congestion every morning evening, and even during the daytime. It is expected that the situation will further aggravate in 2050 even if the planned expressways and BRT projects are implemented, due to population increase and economic growth (See Figure 13.1.1). Meanwhile, the progress of the projects proposed by MMUTMP is limited while MMUTMP proposed varieties of transit and travel demand management projects. Travel demand, which decreased due to the COVID-19 pandemic, has returned to the pre-pandemic level. Both supply-side and demand-side approaches are essential to catch up with the surging travel demand.



Source: JICA Expert Team (same as Figure 13.5.12. See Sections 13.4 and 13.5 for assumptions of travel demand forecast.)

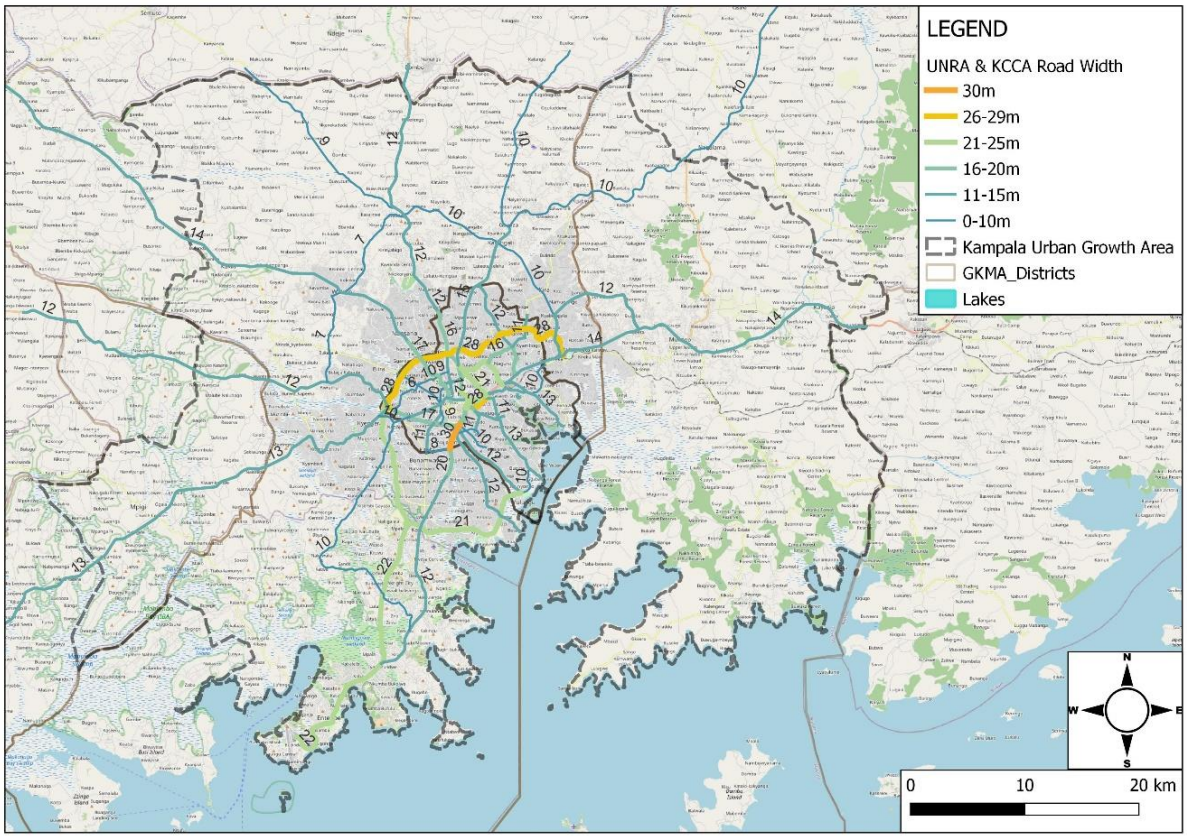
Figure 13.1.1 Volume Capacity Ratio of Do-Minimum Scenario in 2050

(2) Insufficient Road Network

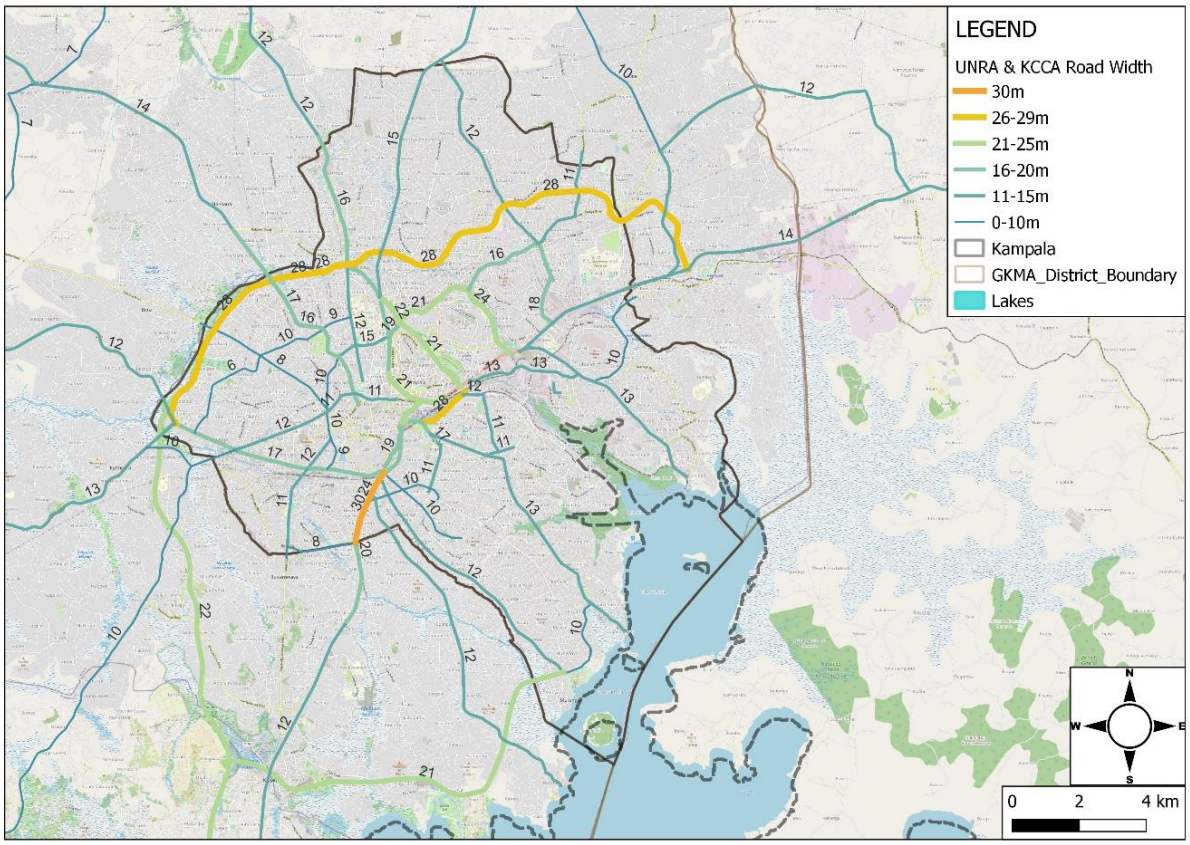
Considering the population size of the GKUGA, especially the area of KCCA, the available space for road development is critically scarce as shown in Figure 13.1.2 and Figure 13.1.3. The width

of most arterial roads in KCC is less than 20m, which means that it cannot accommodate four lanes of the carriageway (two lanes in one direction), median, shoulder and sidewalks. The exceptions are just a part of a few expressways, radial roads, and arterial roads in the CBD. This condition is one of the causes of traffic congestion mentioned above. It should be noted also that the shortage of road space means the shortage of space for public transport. Road space is essential in the case of at-grade and elevated structures with piers and girders to introduce all the transit modes including BRT with dedicated lanes, LRT, and MRT.

GKUGA



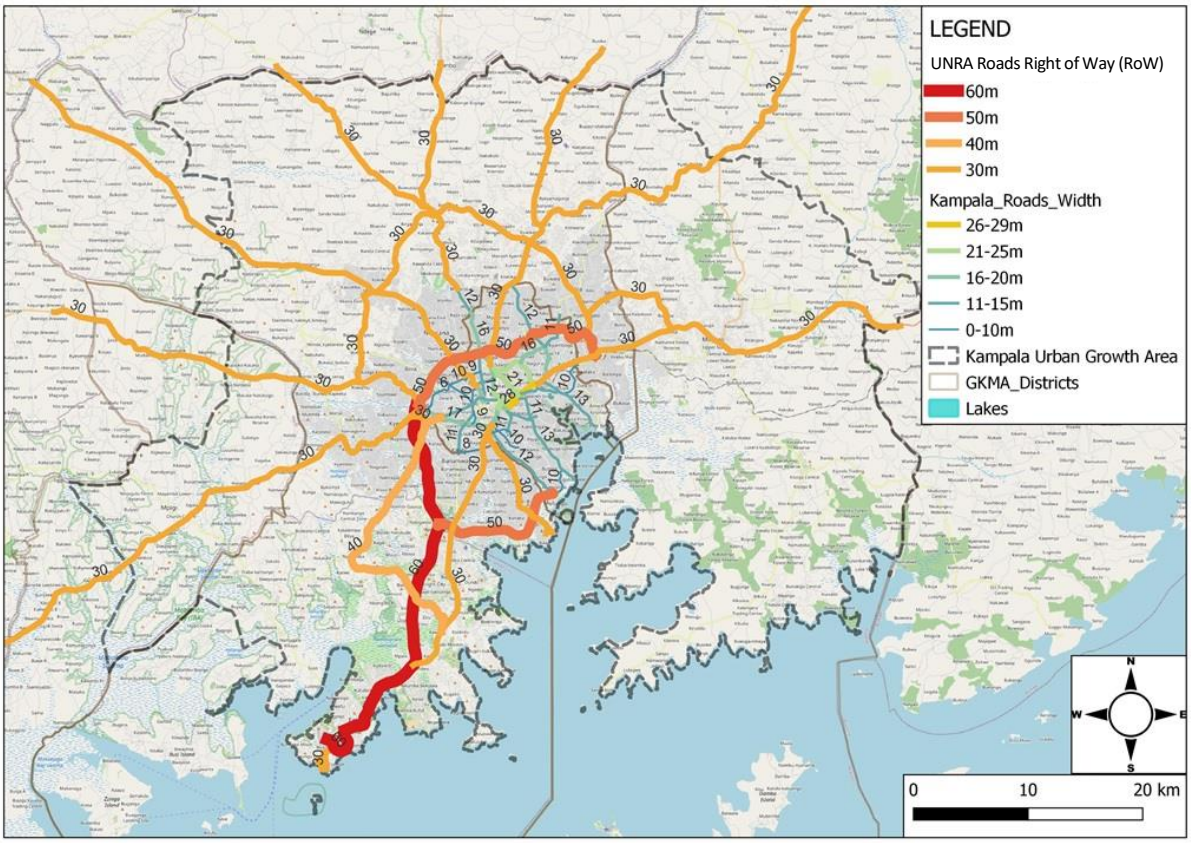
KCC and Surrounding Areas



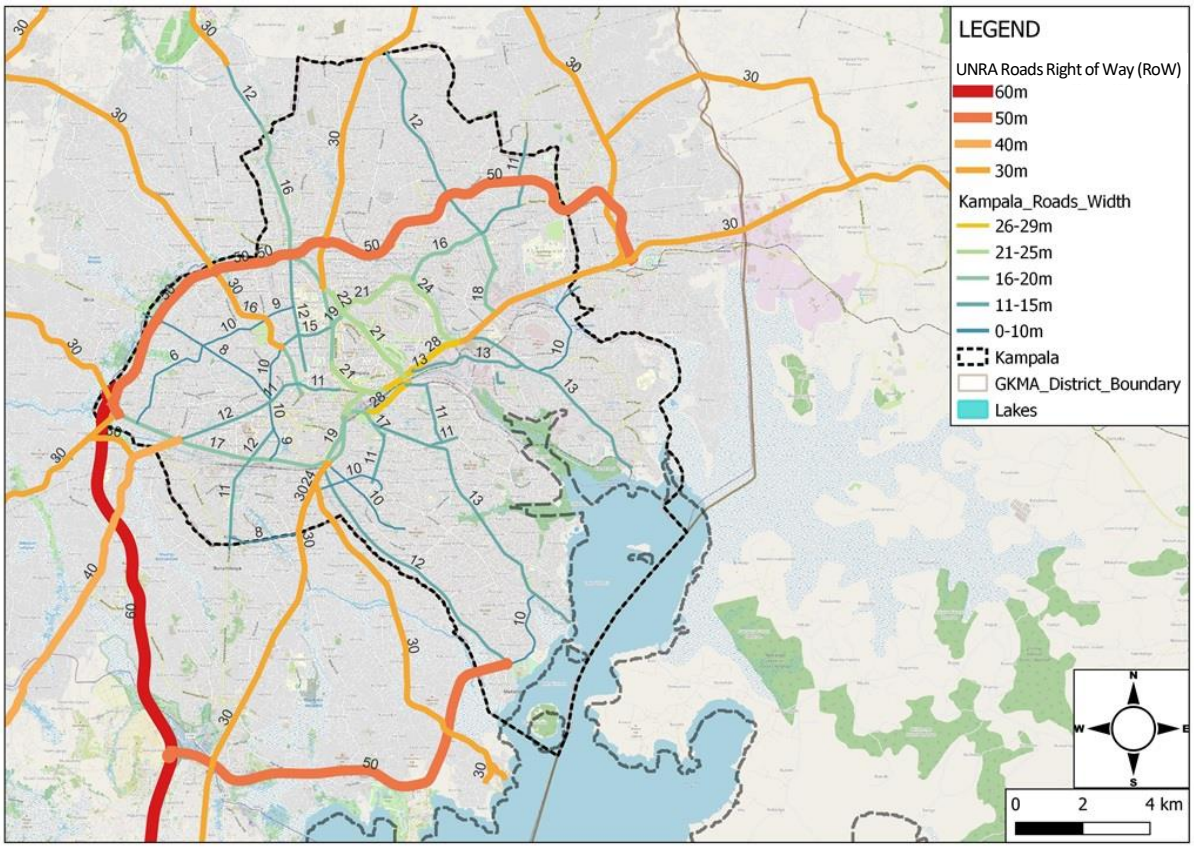
Source: JICA Expert Team Based on Satellite Images

Figure 13.1.2 Road Width of Arterial Roads in the GKUGA and KCC

GKUGA



KCC and Surrounding Areas



Source: JICA Expert Team Based on Interview with UNRA (for UNRA roads) and Satellite Images (Roads in KCC)

Figure 13.1.3 Right-of-Way of UNRA Roads and Road Width of Arterial Roads in GKUGA and KCC

With regard to radial roads which connect urban cores and suburban centres, some radial expressways are being developed such as Kampala – Entebbe Expressway (completed) and Busega – Mpigi Expressway (under construction as of May 2024) while the progress of the other radial expressway plans are stagnant due to financial, land availability and other factors. Development of arterial roads, including road widening and construction of new roads after the formulation of KPDF/KPDP, is much limited compared with expressway development especially in the city centre due to land acquisition issues.

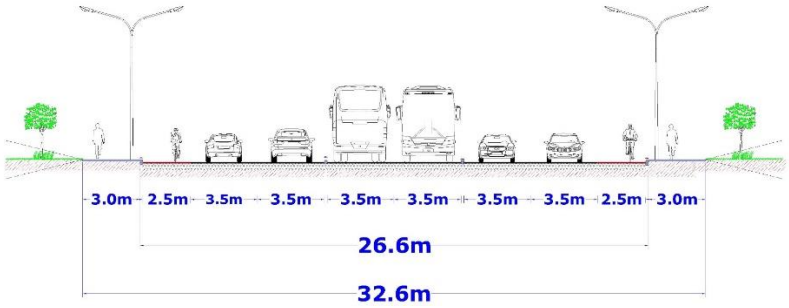
While the inner circular road system composed of the Northern Bypass and Southern Bypass is being developed, there is a missing link in the southeastern section. Although the feasibility study and design of the second circular road system, Kampala Outer Beltway, have been completed, UNRA has sought funds for several years.

Pavement and its maintenance are issues to be taken into account. There are roads without any pavement, especially in suburban areas within GKUGA. Even on roads with pavement, there are issues concerning the budget for road maintenance. The long interval of road maintenance rather increases the lifetime cost of the infrastructure.

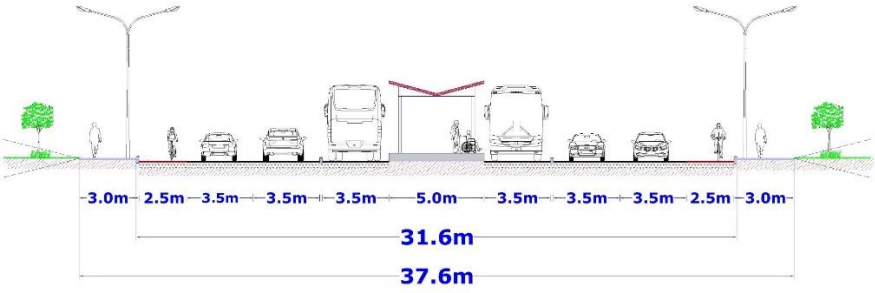
(3) Obstacles in Land Acquisition

The mechanism to reserve lands for road and public transport is essential. However, expanding road space is becoming more difficult for the government, especially in urban areas. Authorities, such as UNRA and KCCA, are facing the issue of land acquisition for implementing new road constructions and road widening. As land acquisition should be completed in a **fair**, **equitable,** and **prompt manner** according to the Ugandan constitution, the compensation for the land acquisition should be based on the market price and it should be made immediately after the acquisition. Because of the first condition (market price for land acquisition), the price of land surges once the road alignment is fixed. This causes delays and additional costs for the road project implementation. On the other hand, the second condition (prompt compensation for land acquisition) tends to weaken the power of officially approved physical development plans which designates the location of planned roads and other infrastructure.

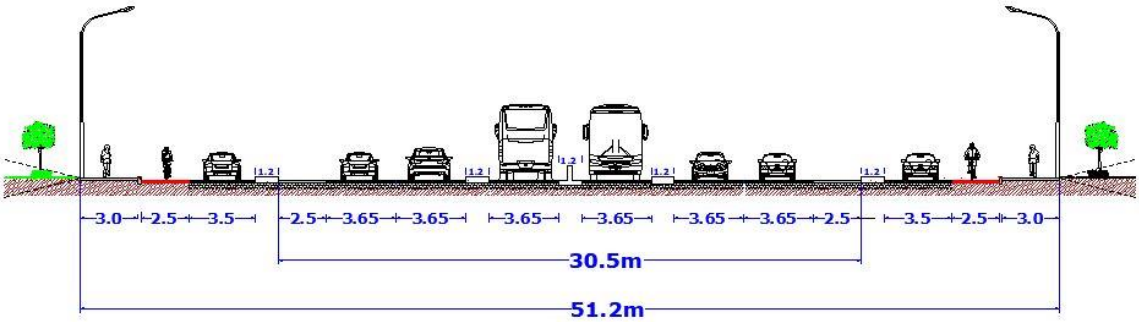
Roads accommodating BRT, sidewalks, and carriageways typically require a right-of-way of around 35 to 40m for urban roads considering Ugandan technical standards as shown in Figure 13.1.4. There are only a few road sections in GKUGA that meet this standard (see Figure 13.1.3).



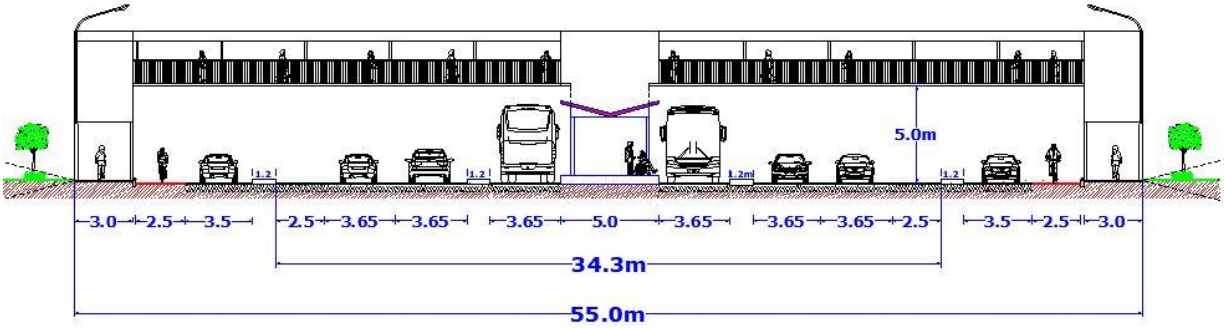
BRT on Urban Road



BRT on Urban Road (at Station)



BRT on Expressway



BRT on Expressway (at Station)

Source: JICA Expert Team Based on Ugandan Technical Standards

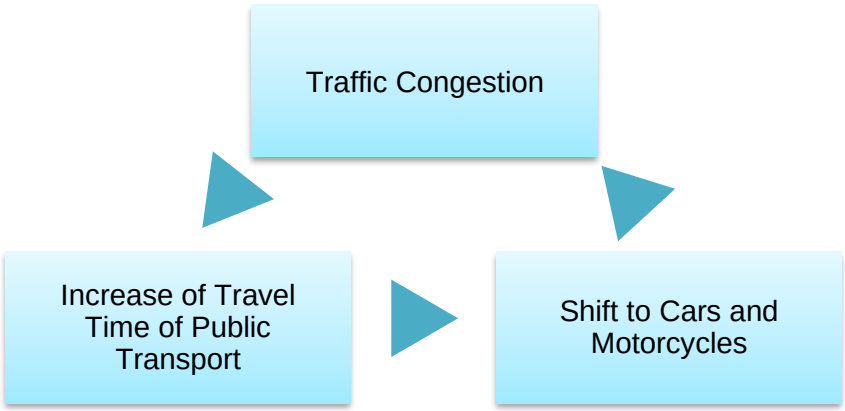
Figure 13.1.4 Conceptual Cross-Section of Road with BRT

(4) Vicious Circle of Road-Based Transport – Social Dilemma of Traffic Congestion of Roads

In many metropolitan areas in developing countries, road-based public transport (i.e., bus), which shares road space with other private modes, is losing patronage due to traffic congestion caused by motorisation. The mechanism is shown in Figure 13.1.5. In line with economic growth, the number of private motorised vehicles increases which causes traffic congestion. Due to road

traffic congestion, the travel time of road-based public transport decreases, and this leads to further motorisation. In addition, the features of "flexible" and "fast" motorcycles, such as driving over walkways, opposite lanes, and space in between other vehicles, further accelerate motorisation.

Even in cities with BRT, this social dilemma has a significant impact on travel behaviour. One of the reasons is that BRT is often affected by road traffic congestion, especially at the roundabout and the intersection without the public transport priority signalling. Therefore, it is critical to provide a public transport system which is not affected by traffic congestion on roads. The introduction of BRT with dedicated lanes can be a breakthrough in addressing this dilemma, in case delays at intersections are properly managed by public transport priority signalling.



Source: JICA Expert Team

Figure 13.1.5 Diagram of Vicious Circle of Motorisation

The passenger railway service can be a breakthrough in addressing this social dilemma as it is not affected by traffic congestion. However, in GKUGA, the existing railway service is operational only around 13 km between Kampala and Namanve, in which only two round trips are provided per day as of May 2024. This is far from being considered as an "urban railway service". Several railway tracks are not utilised for passenger service in GKMA such as Kampala to Port Bell, Namanve to Mukono and Kampala to Nalukolongo workshop. There is also an abandoned railway track from Nalukolongo workshop to Bujjuko via Kyengera. It should be noted that there is a huge potential for railway service expansion by utilising these sections.

(5) Weak Linkage between Physical Development Plan and Transport Infrastructure Development

Despite the proposal of formulating metropolitan zone centres, quartier centres and local centres by KPDF/KPDP almost a decade ago, urban sprawl has been prevalent in suburban areas of the city. While the MMUTMP adopted the urban structure of KPDF/KPDP, the roads for these centres are not clearly indicated in the MMUTMP. While the new expressways are being planned, studied, designed, and constructed, access roads to the proposed centres are merely considered.

The MMUTMP itself does not have any legally binding power to ensure its implementation. As the formulation of the MMUTMP is administrated by the KCCA, officers of surrounding districts and municipalities are not always aware of the detailed contents. Therefore, it is critical to formulate a metropolitan-level physical development plan, including a consistent transport infrastructure development plan, with a legally binding force to formulate a robust, compact, and transit-oriented urban structure which can accommodate the increasing population. Specifically, locations of metropolitan zone centres and their required transport infrastructure should be identified to ensure land for them.

In addition, it is critical to transform the urban structure to have urban centres and metropolitan zone centres with high density and mixed land use areas along the transit lines to achieve a metropolitan area with high transit modal share as mentioned in the previous section.

(6) Lack of Legal Framework for Public Transport

There are plans to create new modes of transport such as a formal bus service, a bus rapid transit (BRT) and modernised rail-based public transport modes such as LRT and MRT. However, the current legal and institutional framework is not designed for such new modes of transport. For instance, which organisation will plan, regulate, implement and operate these new modes of transport is not clearly defined as shown in Table 13.1.1.

With regard to water transport, there is currently no Merchant Shipping Act to organise the port and shipping activities. This means that the Ugandan government has no means to improve private water transport service level and safety at the international level. It should be also noted that annual shipping licence renewal requirements may prevent private ferry operators from investing as there is a risk of cancellation of operation licences.

Table 13.1.1 Urban Mobility Governance Matrix

		PUBLIC TRANSPORT					INDIVIDUAL/PRIVATE MODES	
		Planned Bus Rapid Transit	Planned City Bus Service	Planned Tondeka Metro Bus Service	Taxis and buses (post-reform)	Rail	Boda-bodas (post-reform)	Private vehicles and NMT
Strategic level What are the goals and the strategies/resources for their achievement?	Planning and Design	MoWT	KCCA	Uganda Development Corporation	KCCA (route allocation)	URC / MoWT	N/A	KCCA / Local governments
	Infrastructure Financing	MoWT + donor funding (World Bank, AFD)	KCCA + donor funding (AfDB)	Exim Bank of India	Local governments	URC / MoWT	N/A	Local government
	Infrastructure Development	MoWT or UNRA	KCCA	*MoWT*	Local governments	URC	N/A	KCCA / Local governments
	Procurement of rolling stock	???	???	Tondeka Metro/ Ashok Leyland	Private operators	URC	Private operators	N/A
Tactical level Which services need to be developed to reach the set objectives	Regulation and licencing	*MoWT (Licensing Council) + KCCA*	KCCA	???	MoWT (Licensing Council) + KCCA	N/A	MoWT (Licensing Council) + KCCA	MoWT (Licensing Council) / URA
	Contracting authority	???	KCCA	???	N/A	URC	N/A	N/A
	Enforcement	*Uganda Police Force Metropolitan Police Force*	*Metropolitan Police Force*	*Uganda Police Force Metropolitan Police Force*	Uganda Police Force	N/A	Uganda Police Force	Uganda Police Force
Operational level How to efficiently implement services?	Traffic management	*MoWT*	*KCCA*	???	??? (Uganda Police Force)	N/A	??? (Uganda Police Force)	??? (Uganda Police Force)
	Operations and maintenance	TBD	TBD	Tondeka Metro	Private operators	URC	Private operators	Users

Source: Urban Mobility Governance in GKMA, Paratransit and Street Usage Study, AFD, KCCA and MoWT (2020)

(7) Social Exclusion Due to Inaccessibility

Social exclusion can be defined as the "situation when people are being prevented from participation in the normal activities of the society in which they live or being incapable of functioning"[1]. Previous studies have identified groups of dwellers with relatively poor mobility: low-income households, households without access to private vehicles, women, elderly and youth, and people with disability[2].

In GKUGA, Traffic Analysis Zones (TAZs) with a high population density of very low and low-income groups are concentrated in an area roughly 2 – 10 km from the CBD. These areas are generally consistent with the location of slums. The width of roads in these areas is usually narrow

[1] Atkinson, A. B. (1998). Social exclusion, poverty and unemployment. In A. B. Atkinson and J. Hills (eds), Exclusion, Employment and Opportunity, CASE paper 4, London: CASE, London School of Economics.
[2] Stanley, J., Stanley, J. (2017). The importance of transport for social inclusion. Social Inclusion, 5(4), 108–115.

which allows only one car to pass, or sometimes a car cannot even pass through. These phenomena in conjunction with less regulated traffic flow aggravate the accessibility of people in the area.

Nonmotorised transport (NMT) is the main mode of transport in GKUGA, especially for people with poor mobility. However, the infrastructure for NMT in GKUGA is significantly limited except for a few roads in the NMT corridor renovated by KCCA. The majority of victims of traffic accidents are pedestrians. Walkways are often invaded by motorcyclists. Considering available road spaces, especially in the existing urbanised area, the allocation of space for pedestrians and motorised vehicles should be re-examined. The mechanism to form an NMT network for people with less accessibility and to improve access/ egress to public transport is essential.

(8) Traffic Management and Road Safety Issues

There were only approximately 30 signalised junctions in GKUGA as of September 2021. Another 70 congested junctions and roundabouts in KCCA are controlled by traffic police officers. In line with motorisation, the number of congested intersections and roundabouts is expected to increase. Furthermore, there are problems in the geometry of intersections such as intersections without a right-turn lane/exclusive U-turn lane, too large turning area, intersections lacking or having faded markings, and potholes.

Ignorance of the Highway Code and aggressive driving behaviour tangle junctions and roundabouts without traffic control. The lack of proper enforcement also needs to be looked at. The boda-boda drivers do not usually follow any rules and disturb traffic by ignoring signals. Taxi drivers park their vehicles and wait for the passengers wherever they wish. These practices cause side friction to the general traffic flow and create traffic congestion.

(9) Lack of Coordination for Cross-boundary and Cross-sector Issues

Central government ministries, departments, and authorities implement several transport projects including expressways, medium-sized bus services, NMT projects, and so forth, while districts and municipalities have issues with project implementation in terms of budget and human resources. Each MDA (Ministries, Departments, and Agencies) is, in general, keen to implement projects within its mandate; however, a lot of transport projects often exceed the boundaries of districts and can cover issues of several sectors. A coordination mechanism for cross-boundary and cross-sector issues is expected to be formulated. Needless to say, the Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA) should play a key role in addressing these issues, while its capabilities in terms of human resources and budget need to be enhanced.

(10) Financing Unprofitable Transport Infrastructures

The estimated cost to implement the MMUTMP reaches 18 billion USD including infrastructure development, procurement, operation, maintenance, and land acquisition. Public transport infrastructure development, especially rail-based transit infrastructure development, requires a significant amount of initial investment, and turning the urban railway business is very difficult. As infrastructure development benefits residents and triggers an increase in land value, it is expected to establish a mechanism to capture the increment of land values.

In addition, to find additional financial resources, it is also expected to reduce the investment cost by carefully examining the travel demand and timing of investment.

13.2 Objectives of the Transport Sector

The objectives of the transport sector in GKUGA are as follows:

- To support economic development by providing smooth, reliable and affordable transport infrastructures and services
- To achieve social inclusion for all in GKMA by connecting people, goods and information
- To develop an environmentally sustainable transport system
- To improve the safety and security of transport
- To create an attractive walking environment

13.3 Strategies for the Transport Sector

To achieve the objectives mentioned above, the following strategies are proposed for the transport sector:

(1) Formulating the Backbone of Urban Transportation in Conjunction with Urban Spatial Structure, as well as with Urban Development

- To develop the backbone of urban transportation, which is composed of eight radial roads and three layers of ring roads, integrated with the urban spatial structure for GKUGA
- To upgrade primary, secondary, and service roads considering road hierarchy
- To promote joint development of urban centres and their infrastructure for consistent urban development and land value capture
- To secure lands for transport corridor development by including it in physical development plans
- To accelerate the land acquisition process for transport infrastructure development, and ensure sufficiently wide road space for NMT and public transport including BRT and other modes

(2) Introducing Rapid Transit Services to Terminate Vicious Circle of Road Transport

- To introduce competitive rapid transit service (MRT, LRT, BRT and water transport) with dedicated track/lane toward modal shift to private modes
- To separate functions of trunk services (radial railways and BRT, and circular BRT lines) and feeder services (bus, taxi and boda-boda) for efficient operation of public transport
- To promote transit-oriented development around stations of rapid transit services
- To secure lands for rapid transit development by including it in physical development plans (roads, river, swamp)
- To prioritise cost-effective short- and medium-term projects, such as upgrading of existing railways and BRT, considering constraints in human resources and financing

(3) Managing Travel Demand with ICT

- To shift peak hour traffic by introducing congestion charging and dynamic toll pricing
- To increase road capacity and enhance modal shift through parking control and pricing
- To integrate all public transport services with the MaaS (mobility as a service) platform
- To support e-commuting to reduce commuting travel during peak hours
- To provide information on road traffic and transit

(4) Controlling road traffic and road-based public transport

- To signalise major junctions with advanced traffic control system and region-wide traffic control centre
- To regulate paratransit services (regulations on boda boda and other public transport as feeder transport services)
- To optimise paratransit (taxi) operation with ICT

(5) Improving Walking Environment and Public Transport to Minimise Social Exclusion

- To formulate NMT corridors as the backbone of the NMT network
- To secure NMT space for new roads
- To develop sidewalks and to maintain existing roads
- To form strategic networks for bicycles by using space of water surface and railway track
- To obligate barrier-free facilities for all public transport modes

(6) Achieving Environmentally Sustainable Transport

- To promote low-emission vehicles such as electric vehicles through the provision of tax incentives and implementing regulations to promote them
- To enhance new environmental technologies with PoC (proof of concept) experiment

(7) Working Together with the Residents

- To promote mobility management (MM) to enhance modal shift to public transport and road safety education
- To accelerate pavement with labour-based technology (LBT) in slums and suburban areas
- To communicate closely with residents to understand their needs through public consultation, social media and other media platforms

(8) Ensuring Safety with 3E approach

The Urban Traffic Management Plan (UTMP), which was formulated in 2019 for the Kampala Traffic Management Capacity Building Project, proposed a management plan to achieve smooth flow, safety and shifting demand (3S) through the 3E method of Engineering, Enforcement and Education. The same approach can be applied in this plan.

- To ensure engineering measures include preparation of road/junction design standards, junction geometry improvement, signalisation, central traffic control and improvement of miscellaneous road infrastructure (i.e., signage, road marking)
- To ensure enforcement and legislation for safer and more effective traffic flow
- To ensure the provision of education to raise public awareness of safety

(9) Improving Competitiveness of GKMA by Unlocking Barriers of Logistics

- To develop Greater Kampala Metropolitan Freight Terminal to support logistics demand in GKMA and the Northern Corridor
- To promote a modal shift to rail and inland waterway transport by strengthening functions of intermodal facilities such as rail/road Inland Container Depots (ICDs) and ports
- To provide a bypass to urban centres by constructing three ring roads and the Kampala Rail Bypass (Freight Bypass)

(10) Formulating Institutional Framework and Raising Funds for Transport System Development

- Strategic implementation of Land Value Capture (LVC) to form the proposed urban structure and transport corridors (joint development of the urban centre and its infrastructures including roads and railways)
- Strengthening functions of MKCCMA for coordination among local governments of GKMA
- Vehicle and fuel taxation for infrastructure development
- Preparing legal framework for PPP
- Infrastructure maintenance with ICT technologies to minimise lifetime cost

13.4 Travel Demand Model Development

13.4.1 Changes in Socioeconomic Condition and Transport Infrastructure Development after the Formulation of MMUTMP

The government through UNRA, under the Ministry of Works and Transport, and the different municipalities and local governments had constructed, upgraded and refurbished a number of roads within the GKMA districts as shown by the number of upgraded expressways and arterial roads in Table 13.4.1. At present, it is not enough to alleviate current transport issues like traffic congestion in peak hours. Based on the latest information on the progress of transport infrastructure development, modifications are required in formulating the physical development plan.

It should be mentioned also that several inconsistencies are observed among the development plans of Expressway Development Masterplan (EDMP) and MMUTMP such as in the planning of second ring roads and some radial roads (R3, R6 and R8). The proposed urban centres by KPDF also should be re-examined considering the latest urban development trend. Based on the latest travel demand considering the urbanisation trend and directions of physical development, future road and public transport networks shall be proposed. The impact of COVID-19 also shall be taken into account for formulating the latest travel demand model.

Table 13.4.1 MMUTMP Investment Plan and Progress of the Projects

	Stations	Length (Km)	Cost (M USD)	PILOT (2018-2021)	SHORT (2022-2025)	MID (2026-2030)	LONG (31-35)	HORIZON (36-40)	STATUS (As of July 2022)
Suburban Passenger									
East		40	20	Design+Build	Operation	Operation	Operation	Operation	Design + Build has not yet started.
West		67	101	Design+Build	Operation	Operation	Operation	Operation	Design + Build has not yet started.
Metro Infrastructure									
Metro-Kololo CBD/Nansana	12	12.8	1,076	Design	Build	Operation	Operation	Operation	The design has not yet started.
Metro-Namanve/CBD	7	12.9	1,008		Design	Build	Operation	Operation	
Metro-CBD/Queensway	3	2.3	206			Design	Build	Operation	
Metro-Queensway/Kajjansi	7	9.5	770				Design	Build	
LRT Infrastructure									
LRT-Busega/Port Bell	36	17.94	395	Design	Build	Operation	Operation	Operation	The design has not yet started.
LRT-Kira/Gaba	47	23.5	517		Design	Build	Operation	Operation	
LRT-East Ring	40	19.6	432		Design	Build	Operation	Operation	
LRT-Completion of Ring	71	35.3	777				Design+Build	Operation	
LRT-Extension to a new neighbourhood	18	9	198				Design+Build	Operation	
BRT Infrastructure									
BRT-Pilot		22	330	Design+Build	Operation	Operation	Operation	Operation	The design has not yet started.
Dualization of BRT Corridor		22	330		Design+Build	Operation	Operation	Operation	
BRT-Entebbe Extension		31.6	474		Design+Build	Operation	Operation	Operation	
BRT-Masaka Extension		18.2	273		Design+Build	Operation	Operation	Operation	
BRT-Bombo Extension		5.6	84		Design+Build	Operation	Operation	Operation	
BRT-Gayaza Extension		5.2	78		Design+Build	Operation	Operation	Operation	
BRT-Jinja Extension		13.4	201			Design+Build	Operation	Operation	
Cable Car Infrastructure									
Cable Car-North		4.2	63	Design+Build	Operation	Operation	Operation	Operation	Design + Build has not yet started.
Cable Car-South		6.1	92		Design+Build	Operation	Operation	Operation	
Soft Measures									
Taxi & Bus Fleet Renewal			465	Design+Build	Operation	Operation	Operation	Operation	Design + Build has not yet started.
NMT		100	50	Design+Build	Operation	Operation	Operation	Operation	NMT Pilot Corridor 1.5km from Luwum Street to Bakuli (Namirembe Rd) is completed and operational.
Traffic Management			15	Design+Build	Operation	Operation	Operation	Operation	Traffic signalisation in several junctions installed and operational.

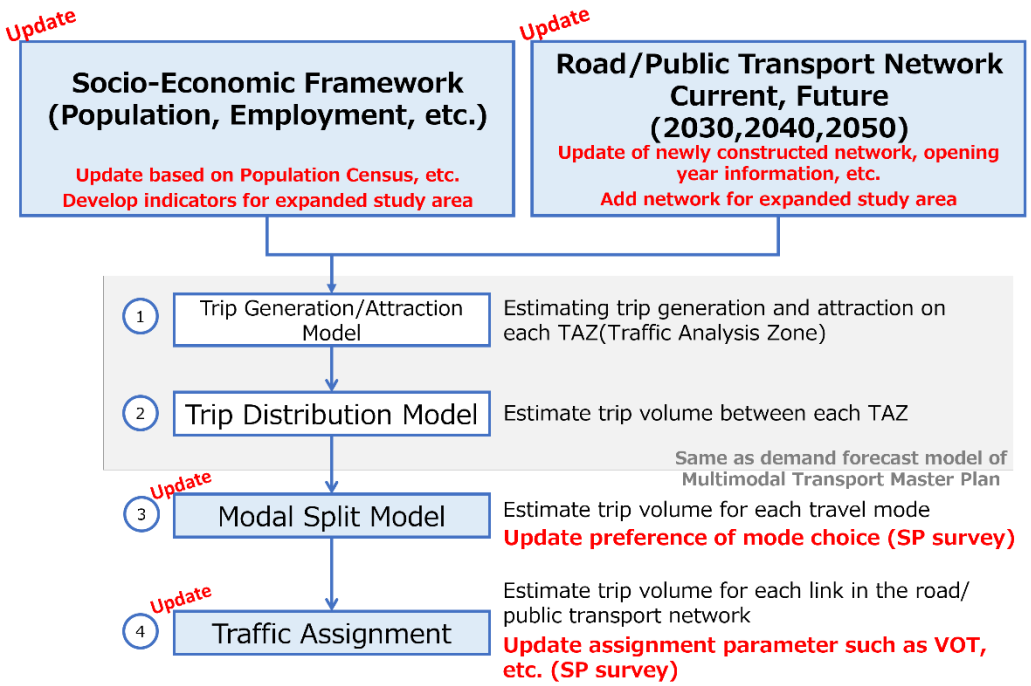
	Stations	Length (Km)	Cost (M USD)	PILOT (2018-2021)	SHORT (2022-2025)	MID (2026-2030)	LONG (31-35)	HORIZON (36-40)	STATUS (As of July 2022)
Control Centre			10	Design+Build	Operation	Operation	Operation	Operation	Design completed and construction to start in 2022.
Parking			20	Design+Build	Operation	Operation	Operation	Operation	Old taxi park rehabilitated
Terminals			20	Design+Build	Operation	Operation	Operation	Operation	Design + Build has not yet started.
Waterways and Ports				Design+Build	Operation	Operation	Operation	Operation	The design + Build of the anticipated Bukasa Port has not yet started.
Roads									
Street Rehabilitation				Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	– Several street roads rehabilitated
Toll Roads				Build / Operation				Operation	– Kampala - Entebbe Expressway toll road completed and operational. – -Busega – Mpigi toll road under construction.
Roads Projects				Build / Operation				Operation	– Northern Bypass Phase 2 completed and operational. – Kampala-Entebbe Road completed and operational. – Busega – Mpigi Expressway under construction. – Kampala Flyover under construction. – Kampala – Busunju Expressway is under procurement for design services. – VVIP Expressway design is completed. – Kampala Jinja Expressway is under procurement. – Kampala Southern Bypass is under procurement. – Northern Bypass 1st Carriageway improvement **maintenance ongoing**

Source: KCCA, 2018, Final Report, Multi-Modal Urban Transport Master Plan, edited by JICA Expert Team

13.4.2 Travel Demand Forecast Model Development for GKMA – IUDMP

(1) Model Type

The travel demand forecast model developed in the GKMA-IUDMP study is a classic four-step model consisting of the trip generation/attraction model, trip distribution model, modal split model, and traffic assignment model. Its basic structure is based on the model developed in the MMUTMP study by TransCAD travel demand forecast software. Figure 13.4.1 illustrates the travel demand forecast model structure and updated section in this study.



Source: JICA Expert Team

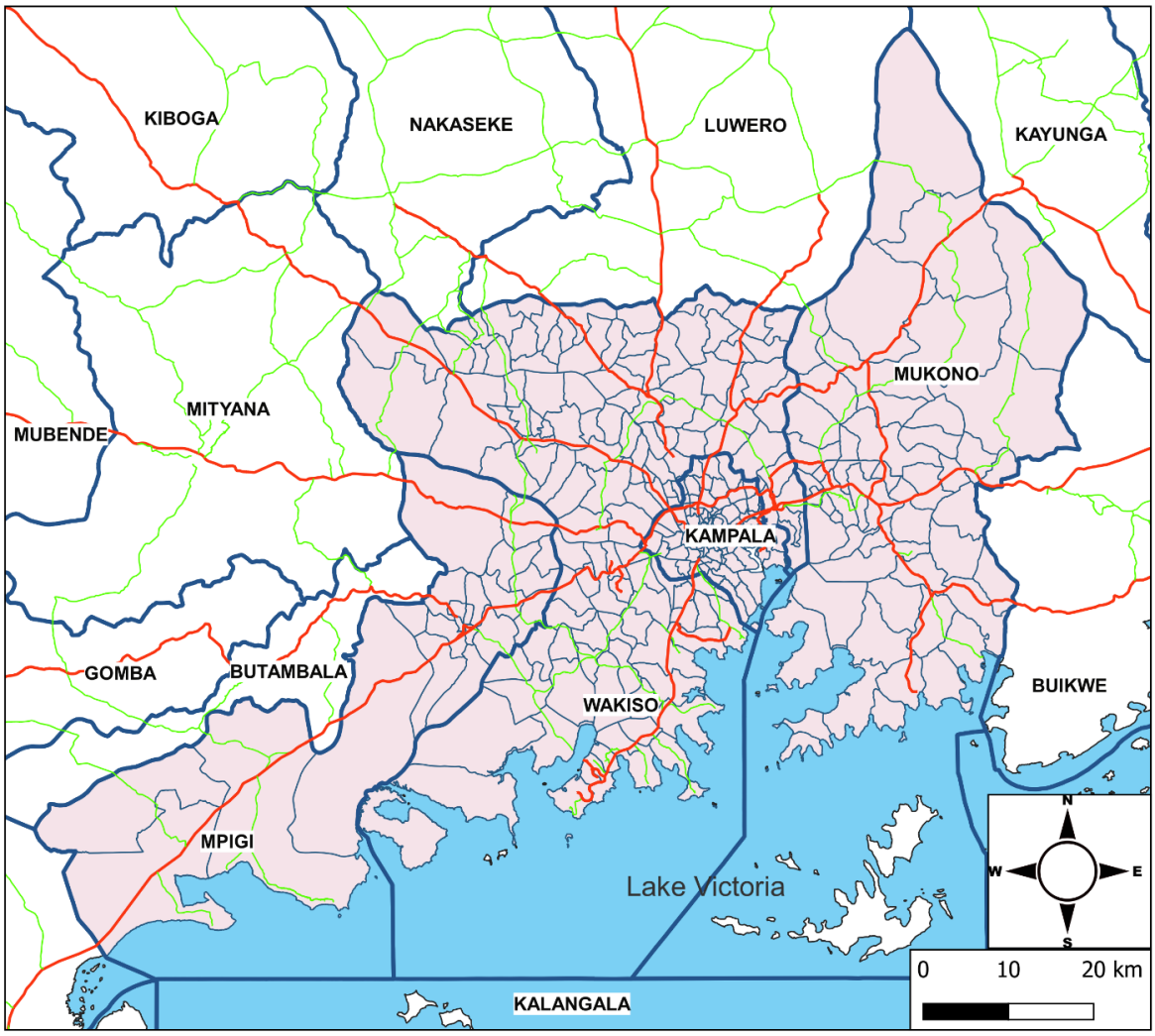
Figure 13.4.1 Travel Demand Forecast Model Structure

(2) Preconditions

1) Study Area and Model Zones

The travel demand forecast model is developed for the entire GKMA including KCC, Wakiso District, Mukono District and Mpigi District. As discussed in Chapter 3, the concept of three layers of PDP is being taken into account.

The Traffic Analysis Zones (TAZs) were developed in GKMA-IUDMP as shown in Figure 13.4.2. Each TAZ represents the aggregate of the travel activities, socioeconomic and land-use demographics. A total of 331 TAZs were developed including 18 external zones. A TAZ was developed based on the administrative parish boundary, with a slight modification. The TAZs inside GKUGA and KCC are smaller than those in areas outside GKUGA as shown in Figure 13.4.2.



Source: JICA Expert Team

Figure 13.4.2 Traffic Analysis Zones of the Travel Demand Forecast Model

2) Socioeconomic Indicators

The following socioeconomic indicators for each Traffic Analysis Zone (TAZ) are included as input data for the travel demand forecast model for this study.

- Population, by income group (Very Low, Low, Medium, High)
- Employment (Workplace Population), by sector (Primary, Manufacture, Trade, Business, Education)
- Land Use Indicators (Urbanised Area, CBD Dummy, Commercial/Industrial/Government Area)
- Education Space (i.e., Number of Student Seats)
- Age Distribution by Age Group (0-4, 5-8, 9-12, 13-18, 19-30, 31-60, over 61)

The socioeconomic framework of the MMUTMP study was updated considering the time frame change from 2016 to 2021. Also, the socioeconomic framework in the expanded study area of the MMUTMP study was developed using the latest available statistics, such as the 2012 population census result of each parish, and Census of Business Establishments (COBE) 2019/2020, obtained from UBOS (Uganda Bureau of Statistics). However, the available statistics are insufficient to develop the necessary socioeconomic attributes for the travel demand forecast model. For example, there are no published data available for the population by income class of each TAZ (Traffic Analysis Zone). Thus, various methodologies for estimating the necessary socioeconomic attributes of each TAZ were examined to develop the socioeconomic framework for the entire

GKMA area. The detailed methodology for estimating each socioeconomic attribute will be discussed and described in the technical working paper.

3) Time Period

The AM peak hour model that represents 40% of the trips generated within a 3-hour AM peak hour period (6:30-9:30) is developed.

4) Planning Horizon

Considering consistency with other plans and the planning horizon of the physical development plans, base year (2021), short-term (2030), mid-term (2040) and long-term (2050) models are being developed.

5) Vehicle Categories

The base year (2021) demand forecast model includes private cars, boda boda, trucks, metre-gauge railway, buses, taxis, and NMT (non-motorised transport) as vehicle categories. Future year models include additional public transport modes, namely, MRT, BRT and ferry.

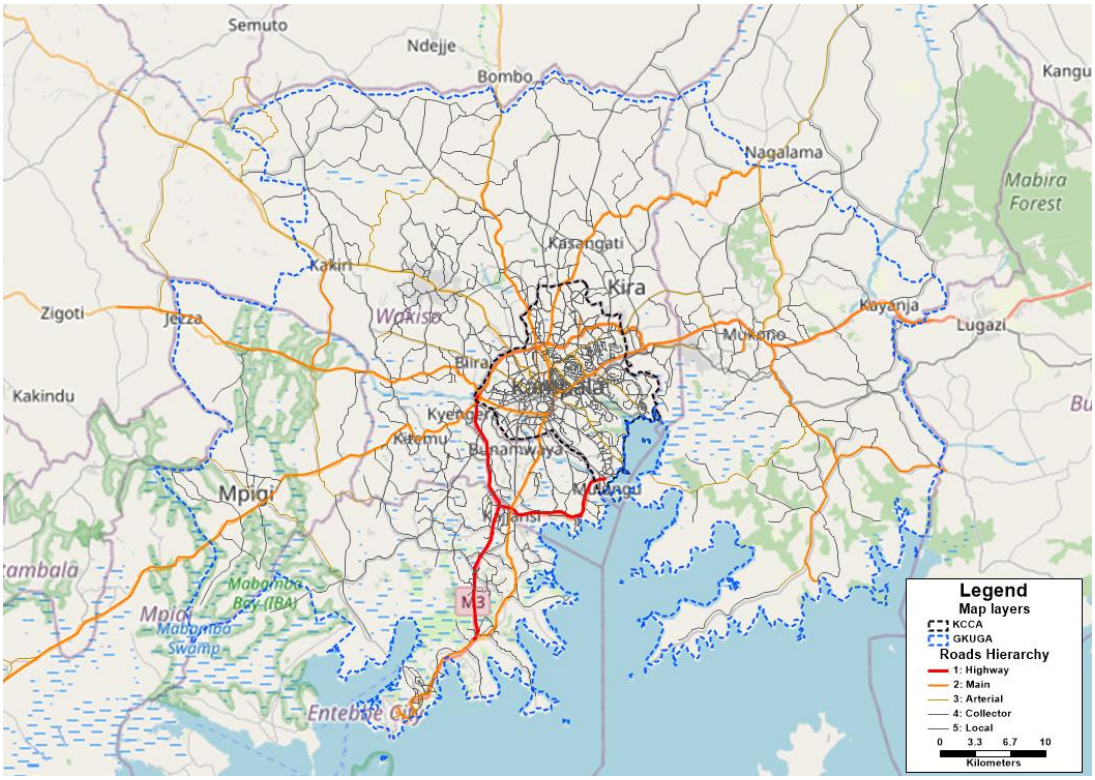
6) Trip Purpose Classification

Trip purposes are categorised by income level for home-based work and home-based educational trips. The detailed classification of trip purposes and income class is described below:

- HBW_L (Home-Based Work, Low income)
- HBW_M (Home-Based Work, Medium income)
- HBW_H (Home-Based Work, High income)
- HBE_L (Home-Based Education, Low income)
- HBE_M (Home-Based Education, Medium income)
- HBE_H (Home-Based Education, High income)
- HBO (Home-Based Other)
- NHB (Non-Home-Based)

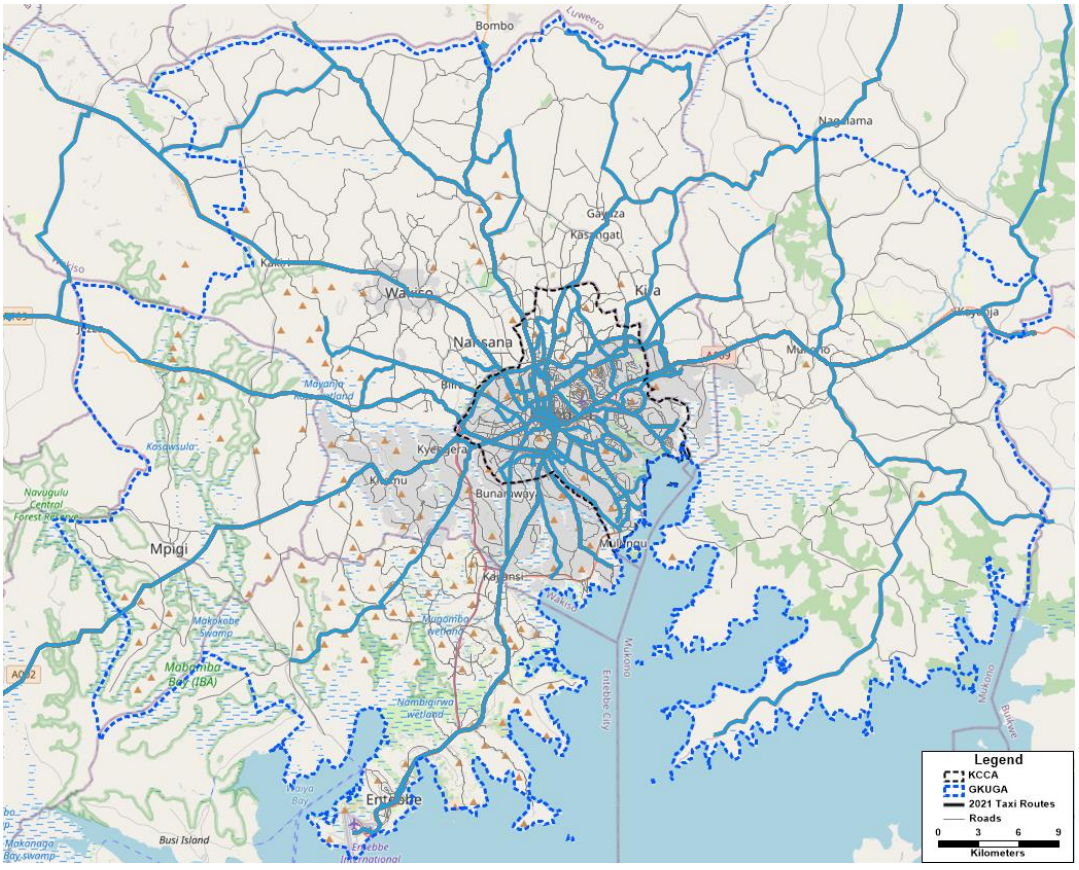
(3) Road and Public Transport Network

The road and public transport network for the base year 2021 is illustrated in Figure 13.4.3 and Figure 13.4.4.



Source: JICA Expert Team

Figure 13.4.3 Road Network for Base Year 2021



Source: JICA Expert Team

Figure 13.4.4 Public Transport Network for Base Year 2021

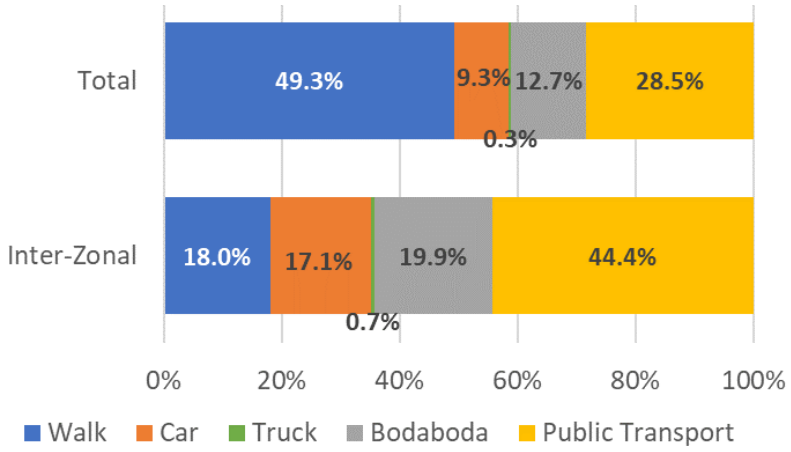
(4) The Model Structure

As described in 13.4.2 (1), the structure of the travel demand forecast model in the GKMA-IUDMP study is based on the model developed in the MMUTMP study. The details of the model structure can be found in "Multi-Modal Urban Transport Master Plan for Greater Kampala Metropolitan Area (GKMA) Final Report", and "Multi-Modal Urban Transport Master Plan for Greater Kampala Metropolitan Area (GKMA) Travel Demand Model Report".

As shown in Figure 13.4.1, the modal split model was updated based on the SP (Stated Preference) survey conducted in this study from October 2021 to May 2022, to reflect the citizens' latest preference on their transport mode choice in the travel demand forecast model, and to understand their preference on new transport modes such as BRT and LRT. Using the survey result, the modal choice model was redeveloped considering various explanatory variables, such as travel time and travel cost, for the utility function of the logit model.

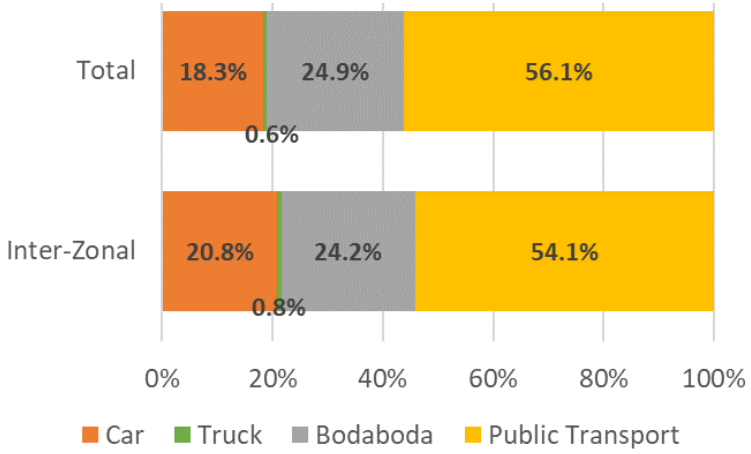
(5) Assignment Result for Base Year Scenario

Figure 13.4.5 illustrates the modal share of the 2021 base scenario including NMT (walking) trips, estimated from the travel demand forecast model. Although approximately 50% of total trips in GKMA were walking trips during the AM peak period, the composition of walking decreased to 18% in inter-zonal trips, implying that walking was not chosen for long-distance trips. Figure 13.4.6 shows the modal share of motorised transport. Based on the travel demand forecast model result, 21% of inter-zonal person trips during the AM peak period were completed by private car, 24% by boda boda and 54% by public transportation such as taxis and buses.



Source: JICA Expert Team

Figure 13.4.5 AM Peak Modal Share, 2021 Base Scenario

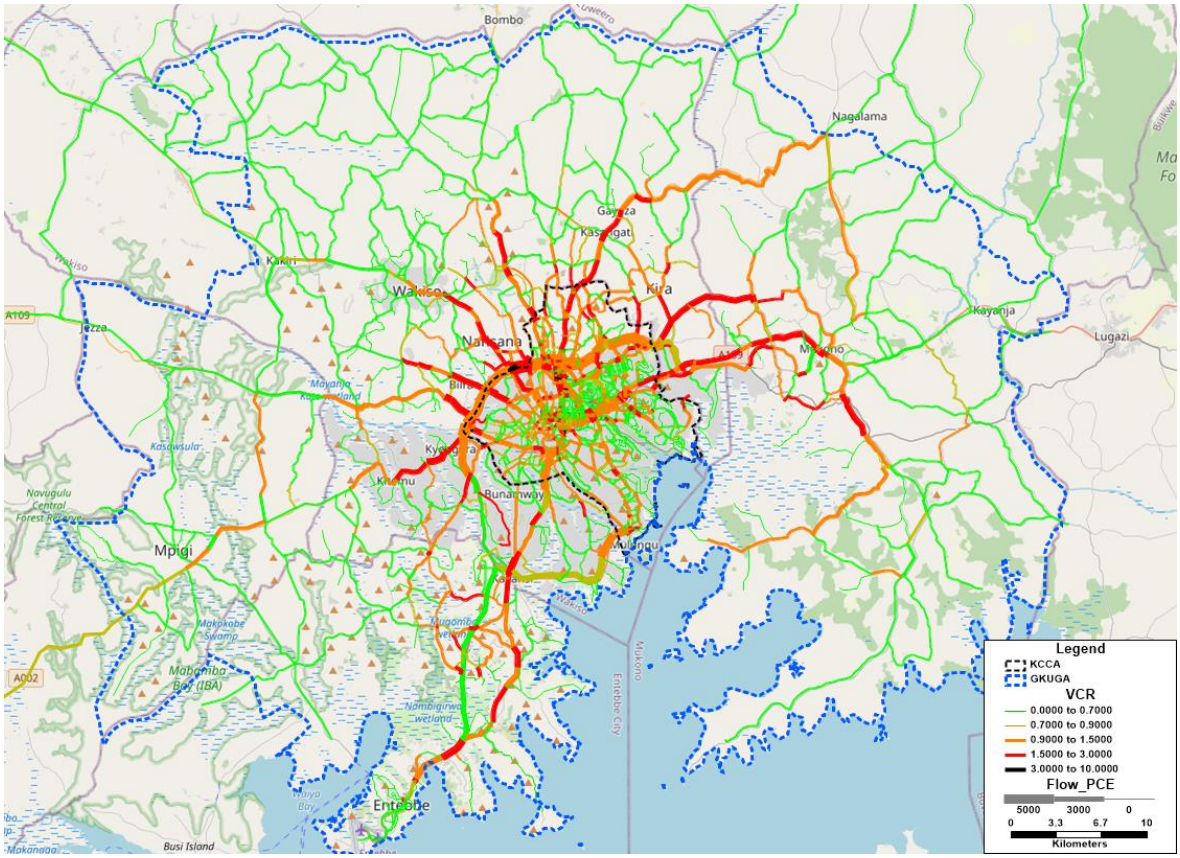


Source: JICA Expert Team

Figure 13.4.6 AM Peak Motorised Modal Share, 2021 Base Scenario

1) Volume to Capacity Ratio (VCR) and Traffic Flow

Figure 13.4.7 and Figure 13.4.8 illustrates volume to capacity ratio (VCR) and traffic flow of private vehicles in AM peak hour as an assignment result of the travel demand forecast model in the 2021 base scenario. Most of the major radial roads in the GKUGA area are currently congested, with a VCR over 1.5. A large volume of traffic flow was observed along the Northern Bypass and Jinja Road.



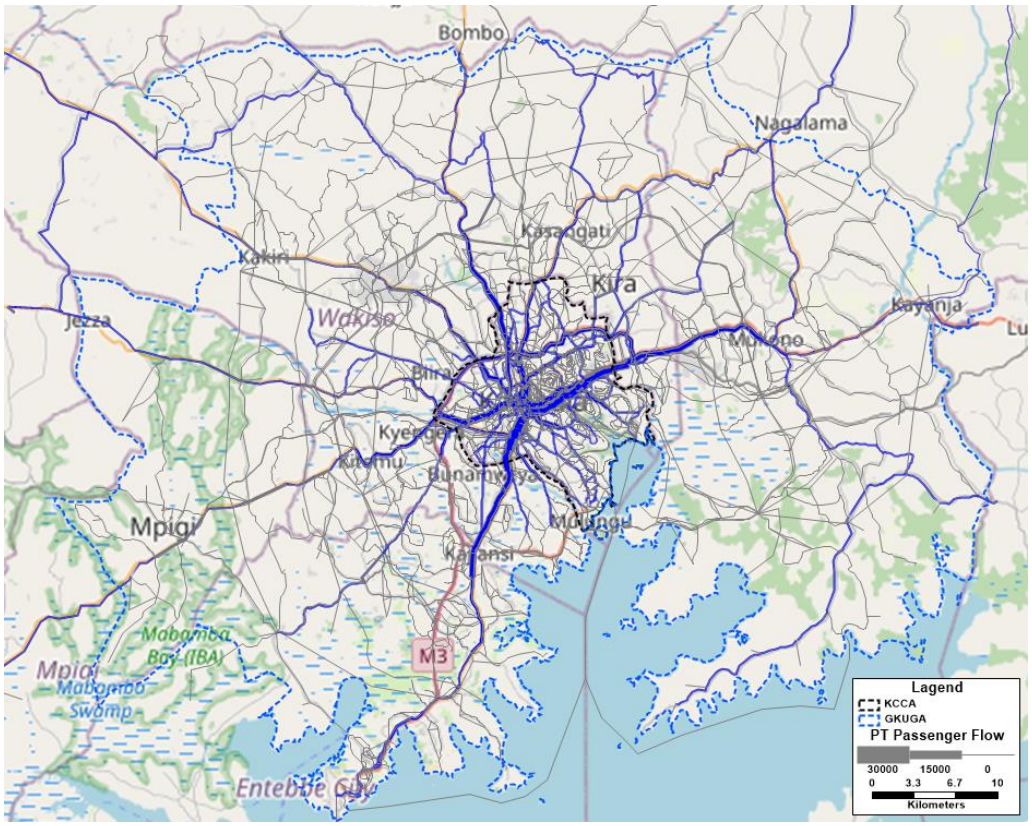
Source: JICA Expert Team

Figure 13.4.7 AM Peak Private Vehicle Volume to Capacity Ratio and Flow Volume in GKUGA, 2021 Base Scenario

Source: JICA Expert Team

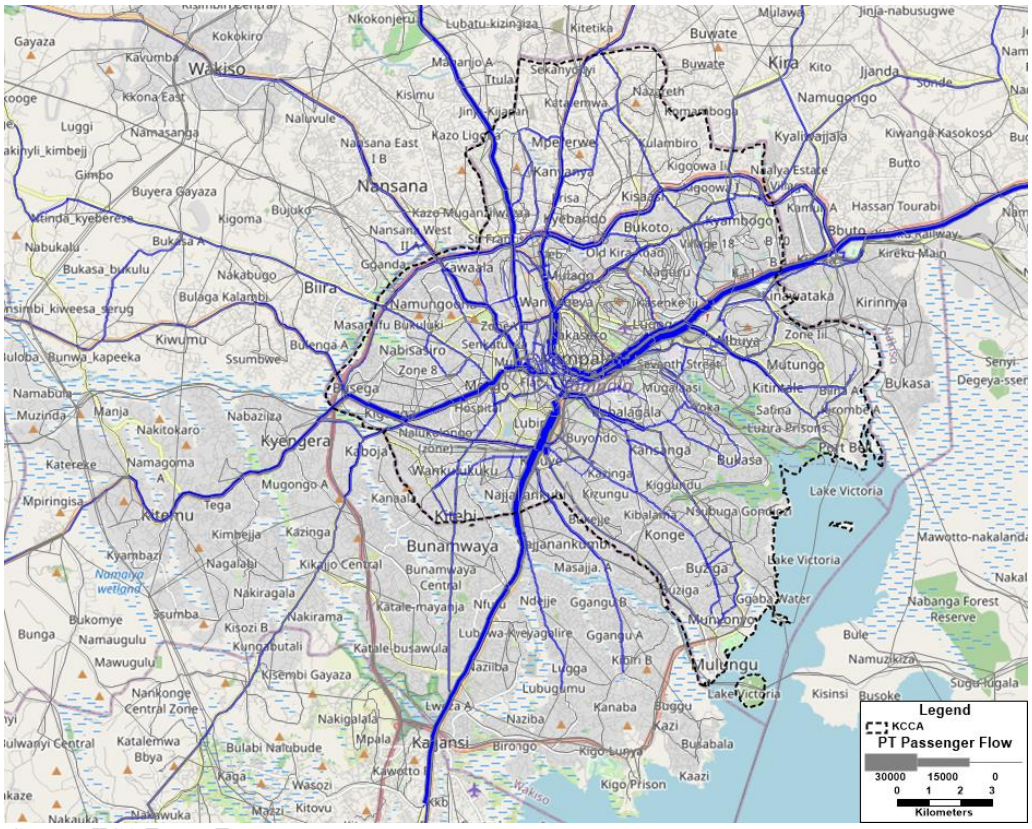
Figure 13.4.8 AM Peak Private Vehicle Volume to Capacity Ratio and Flow Volume in KCC, 2021 Base Scenario

Figure 13.4.9 and Figure 13.4.10 illustrate the demand for public transport during the AM peak period in the GKMA through the public transport passenger flow on the road network. As the current taxi service is a radial-based network, the majority of passenger flows can be seen along the main radial corridors, namely, Jinja Road and Entebbe Road, which connect to the centre of Kampala.



Source: JICA Expert Team

Figure 13.4.9 AM Peak Public Transport Passenger Flow in GKUGA, 2021 Base Scenario

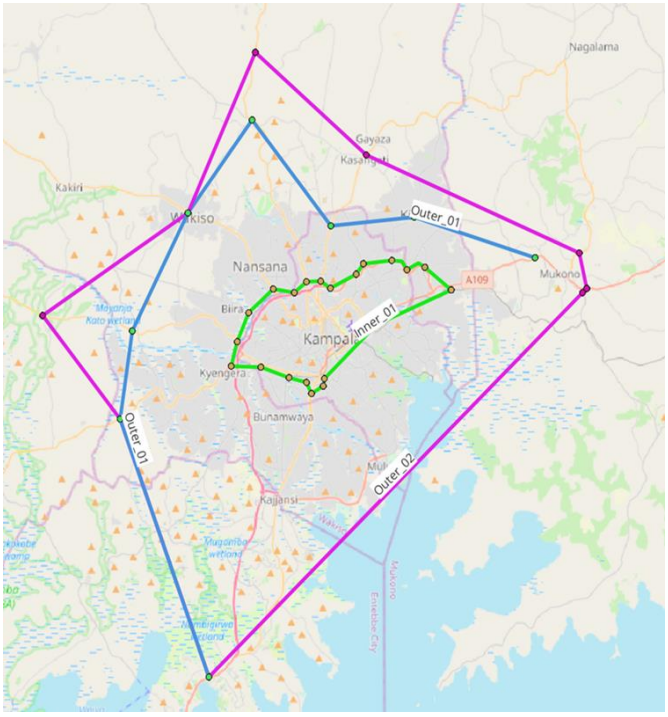


Source: JICA Expert Team

Figure 13.4.10 AM Peak Public Transport Passenger Flow in KCCA, 2021 Base Scenario

2) Model Validation

The validity of the travel demand forecast model was checked by comparing the model-estimated link volume with the link volume of traffic count survey data. Considering the availability of traffic count data, three screen lines (Inner-01, Outer-01 and Outer-02) showing the distance of Kampala's city centre were drawn for this comparison purpose, as illustrated in Figure 13.4.11.



Source: JICA Expert Team

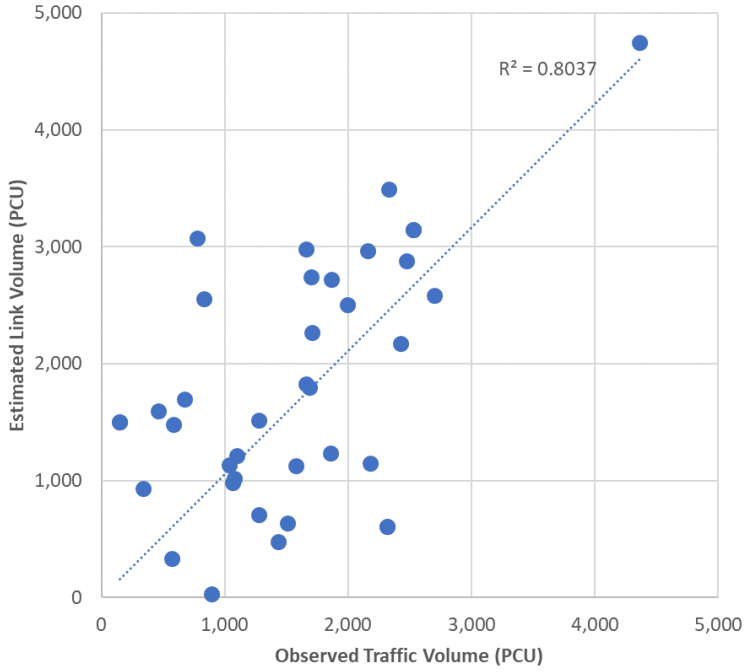
Figure 13.4.11 Location of Screen Lines

The traffic count data for volume comparison with the model-estimated volume were obtained from the Expressway Development Masterplan (EDMP) and National Integrated Transport Masterplan (NITMP), surveys which were conducted between July 2019 to January 2020 and August 2019, respectively. Table 13.4.2 illustrates the result of link volume comparison by screen line, and Figure 13.4.12 shows the scatterplot of observed traffic volume and model-estimated link volume. The ratio between model-estimated volume and traffic-count volume by screen line is in the range of 83% to 114%. The coefficient of determination (R^2) of the model-estimated volume and observed volume is 0.8037. Through this validation, it was confirmed that the developed travel demand forecast model replicates the current traffic condition in the study area.

Table 13.4.2 Comparison of Model-Estimated Link Flow and Traffic Count Link Flow by Screen Line

Screen Line	Model Estimated Link Flow (PCU)(A)	Traffic Count Link Flow (PCU)(B)	Match Rate (B)/(A)
Inner-01	42,355	35,182	83%
Outer-01	13,612	9,549	70%
Outer-02	7,786	8,872	114%

Source: JICA Expert Team



Source: JICA Expert Team

Figure 13.4.12 Scatterplot of Observed Traffic Volume and Estimated Link Volume

13.5 Transport Infrastructure Development Scenarios and Evaluations

To formulate road and public transport network plans, travel demand projection is one of the key references to be looked at. Since it is not practical to test hundreds of cases to evaluate network alternatives, three transport network scenarios have been selected to be tested with the travel demand projection model.

13.5.1 Transport Infrastructure Development Scenarios

Through discussions with MDAs and local governments, three alternatives for the transport network and urban development scenarios have been identified. The three scenarios with different transport project investment plans over the planning period are to be tested with the travel demand model as summarised in Table 13.5.1. Assumptions of each scenario are described in the following sections. The socioeconomic frameworks are also to be developed by the three scenarios.

Table 13.5.1 Summary of Assumed Projects in Each Traffic Demand Forecast Scenario

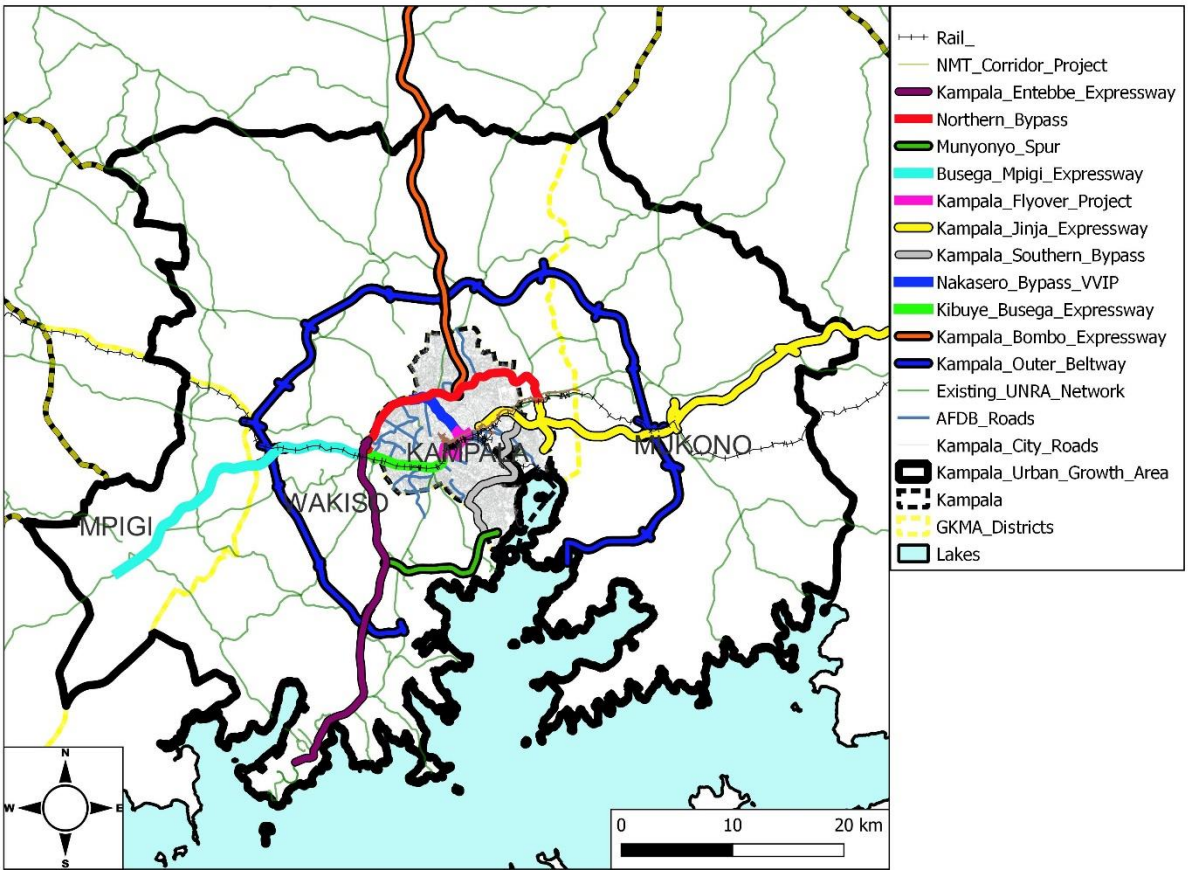
No.	Project Name	Do Minimum Scenario	MMUTMP Scenario (Intensive Transit Development)	Urban Centre TOD Scenario
	Road Infrastructure			
1	Ongoing and Committed Road Projects (See Figure 13.5.1 and Table 13.5.2 for details)	X	X	X
2	Expressway R4 (Nansana – Wakiso – Kakiri)			X
3	Expressway R6 (Kira – Kasaayi – Ngalama - Kigogola)			X
4	Urban Expressway (VVIP Southern Bypass)			X
5	Kampala - Mukonoe Expressway (bypass of Jinja Road and Kampala - Jinja Expressway)			X
6	Railway Station Access Roads Development			X
	Rail-Based Transport Infrastructure			
7	Upgrading of existing metre gauge railway service (See Section 13.6.2 for details)	X	X	X
8	Metre Gauge Railway along Kampala Outer Beltway			X
9	MRT (Kololo-CBD-Nansana)		X	
10	MRT (Kyengera – Namungoona – Bujuko - Kakiri) along Expressway R4			X
11	MRT (Namanve-CBD)		X	
12	MRT (CBD-Queensway)		X	
13	MRT (Queensway – Kajjansi)		X	
14	LRT (Busega-CBD-Port Bell)		X	
15	LRT (Kira - CBD - Gaba)		X	
16	LRT East Ring (Kiwatule-Butabika-Portbell)		X	
17	LRT-Completion of Ring (Kiwatule-Busega-Kajjansi-Ggaba)		X	
18	LRT (CBD- Kajjansi - Entebbe Airport)			X
19	Water Transport (Port Bell - Ggaba - Kigungu (Entebbe), Katosi - Port Bell)			X
	Bus Rapid Transit (BRT)			
20	BRT Pilot Project (See Section 13.6.2 for details)	X	X	X
21	Dualisation of BRT Corridor		X	X
22	BRT Entebbe Road Extension (Zana-Entebbe)		X	X
23	BRT Kampala-Entebbe (along Expressway)			X
24	BRT-Masaka Extension (CBD-Mpigi)		X	X
25	BRT-Bombo Extension (CBD-Bombo)		X	
26	BRT-Gayaza Extension (CBD-Kalagi)		X	X
27	BRT-Jinja Extension (CBD-Mukono)		X	X
28	BRT Inner-Beltway - Ring Road (Along Northern Bypass - Kampala Entebbe Expressway - Southern Bypass)			X
29	BRT (CBD-Portbell)			X
30	BRT (Busega-Mpigi) along Busega-Mpigi Expressway			X
31	BRT (Nansana-Wakiso-Kakiri)			X
32	BRT (Namboole-Namugongo-Seeta)			X
33	BRT (Busega-Buloba) along Fort Portal Road			X
34	BRT (CBD-Bombo) along Bombo Expressway			X
35	BRT (Masooli-Kagoma-Matugga) along Bombo Road			X
36	BRT (Kampala- Kasanje) along Nakawuka Road			X
	Urban Development Policies			
37	Policentric Urban Spatial Structure			X
38	Transit-Oriented Development		X	X
	Traffic Management Policies			
39	Boda-Boda Restriction	X	X	X
40	Parking Restrictions and Tax in CBD		X	X

Source: JICA Expert Team based on interviews with the Ministry of Works and Transport, UNRA, URC and KCCA

(1) Do Minimum Scenario

Reference Scenario - An important first step in the scenario procedure is to ascertain the "Committed/Approved Projects," which are slated for implementation regardless of the findings or recommendations of the master plan as shown in Figure 13.5.1 and Table 13.5.2. These projects, collected from the project inventory list compiled in cooperation with all stakeholders, include infrastructure and operational upgrades as well as new infrastructure building projects. These projects, and their impacts, must be considered when evaluating the alternative-specific projects tested in the 2040 comprehensive transport scenarios.

The socioeconomic framework including population, working population and student population of this scenario is to be developed assuming that the current urbanisation trend continues.



Source: JICA Expert Team based on interviews with the Ministry of Works and Transport, UNRA and KCCA

Figure 13.5.1 Major Ongoing and Committed Road Projects in GKUGA

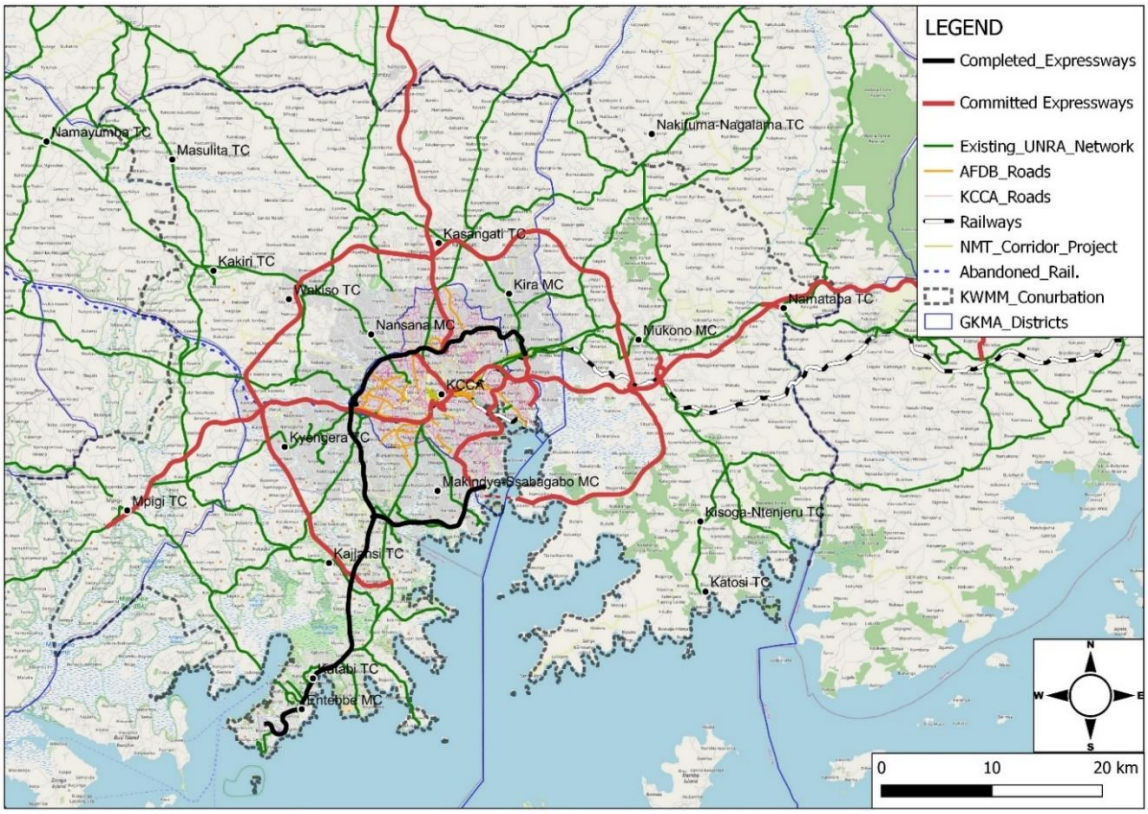
Table 13.5.2 Summary of Assumed Ongoing and Committed Projects in Each Traffic Demand Forecast Scenario

Project Name	Funding Agencies	Situation As of May 2024	Responsible Agency
Kampala Flyover	JICA	Lot 2 design completed Procurement to start end of 2024 Civil works to start 2025	UNRA
Central Traffic Control Centre (junction)	JICA	Construction ongoing Completion expected in 2024	KCCA
NMT Corridor Project	GoU	Design of 4km road in CBD and 16 km corridor along railway completed.	KCCA
Kampala City Road Rehabilitation Project (including drainage works, 2 big drainage works)	AfDB	Construction of roads ongoing	KCCA
GKMA-Urban Development Programme	World Bank	Procurement and design ongoing	MKCC & MA

Project Name	Funding Agencies	Situation As of May 2024	Responsible Agency
Upgrading of Northern Bypass	EU, GoU	Construction is ongoing, and capacity improvement completed Maintenance of 1st carriageway ongoing.	UNRA
Kampala Southern Bypass	AfDB, AFD and EU, GoU	Procurement is ongoing Construction to start in 2026	UNRA
Kibuye-Busega Expressway	China Exim Bank (UNRA Expectation)	The design update is ongoing and seeking funds. Construction expected to start in 2026	UNRA
Busega-Mpigi Expressway	AfDB	Construction ongoing (To be completed in 2026)	UNRA
Kampala-Jinja Expressway	AfDB, AFD and EU, GoU	Procurement ongoing. Construction to start in 2026	UNRA
Kampala-Bombo Expressway	Seeking funds	Finished F/S and design	UNRA
Kampala Outer Beltway	Seeking funds	Finished F/S and design	UNRA
VVIP Expressway (Nakasero-Northern Bypass Expressway)	China Exim Bank (UNRA Expectation)	Finished F/S and design completed by 2019. Civil works expected to start in 2026	UNRA
Capacity improvement and signalisation of Kampala – Gayaza Road	GoU	Design is ongoing, expected completion by Dec 2024 Construction works to begin end of 2025	UNRA
Capacity improvement and signalisation of Kampala – Buloba Road	GoU	Detailed design to be carried out by Dec 2025	UNRA
Capacity improvement and signalisation of Namungona – Kakiri Road	AfDB	The design study will start once the contract is signed.	UNRA
Upgrading of Kyaliwajala – Kira – Matuga Road (including junctions along the roads)	GoU	Construction commenced, completion expected in 2026	UNRA
Upgrading of Najjanankumbi – Busabala (including junction signalisation)	GoU	Construction works ongoing, completion expected in 2026	UNRA
Upgrading of Matuga – Wakiso – Buloba	GoU	Detailed design ongoing, to be completed in Dec 2024, commencement of civil works in 2026 and completion in 2030	UNRA
Upgrading of Jokas – Namanve – Mukono	Seeking funds	Finished design. Procuring contractor for works.	UNRA
Upgrading of Natete – Nakawuka – Kisubi – Maya - Nakiwuogo	Contractor facilitated financing	Construction commenced in April 2024	UNRA
Uganda Railways Corporation Capacity Building Project	GoU and AfDB	Finished F/S in 2020 Construction is ongoing	URC
Bus Rapid Transit (BRT) for GKMA Phase 1: CBD to Kalerwe, Banda and Kibuye Phase 2: CBD to Mukono Phase 3: CBD to Kasangati Phase 4: CBD to Kajjansi	AFD and the World Bank	Finished F/S and design in 2012 A design review is being conducted.	MoWT

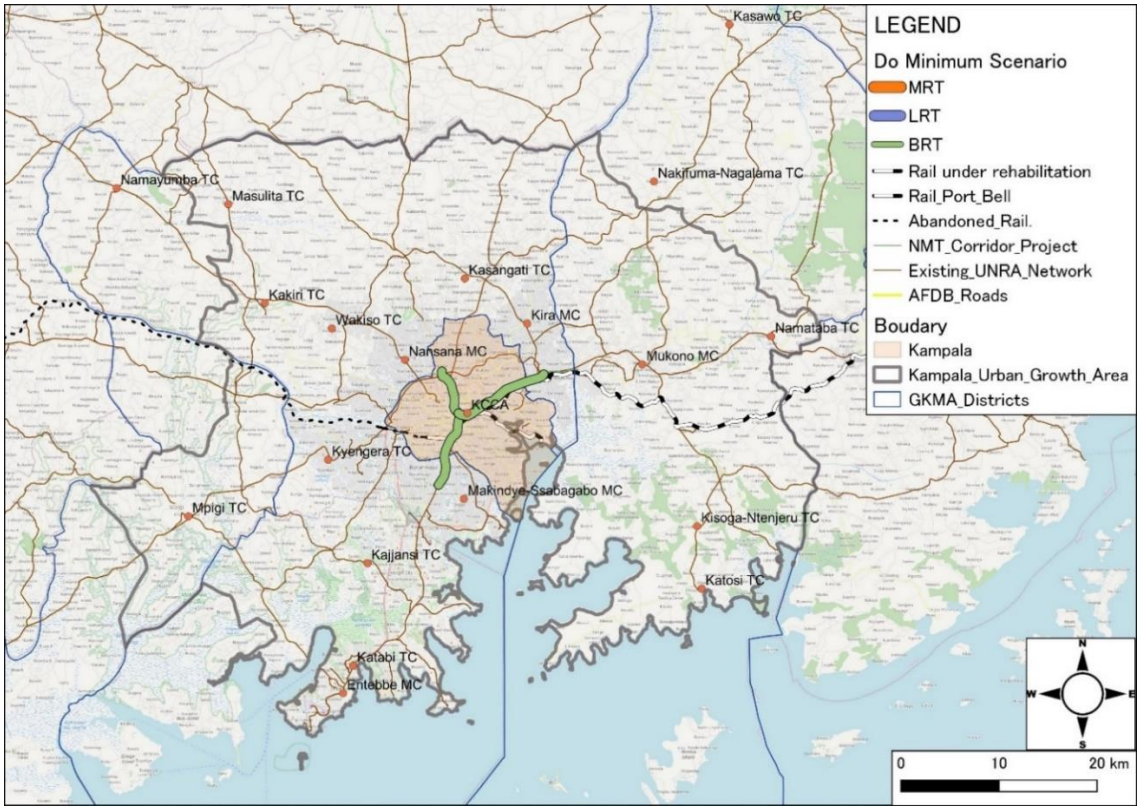
Source: JICA Expert Team based on interview with Ministry of Works and Transport, UNRA and KCCA in May 2024

The road network and public transport network of the Do Minimum scenario are shown in Figure 13.5.2 and Figure 13.5.3.



Source: JICA Expert Team

Figure 13.5.2 Road Network of Do Minimum Scenario



Source: JICA Expert Team

Figure 13.5.3 Public Transport Network of Do Minimum Scenario

(2) MMUTMP Scenario (Intensive Transit Development)

The MMUTMP scenario in this project is based on the Metro Plus Plus scenario of the MMUTMP TDM. The Metro Plus Plus scenario is the recommended scenario of the MMUTMP to achieve all objectives of the plan. This scenario provides significant improvements in parameters of accessibility and mobility due to infrastructural upgrades, while minor revisions are made considering the changes in travel behaviour and infrastructure development after the formulation of the MMUTMP. The socioeconomic framework of the MMUTMP project will be fully utilised for this scenario, while zonal indicators such as population, working population and student population for TAZs outside of KSPA are estimated based on the Do Minimum scenario. The MMUTMP scenario includes the following projects:

1) Mass Transit Improvements

With the increasing population within the GKUGA, investments for improved mass transit systems like MRT, LRT and BRT are to be implemented to achieve a sound and satisfactory transport system within the GKUGA. Therefore, an intensive rail-based transport network is proposed as shown in Figure 13.5.5. However, railway network development is mainly focused on KCC and adjacent areas.

2) Other Public Transport Improvements

There are two principal informal modes of public transport operating in the GKUGA, taxis and boda boda. Both modes are part of the daily mobility paradigm of the GKUGA. Thus, those two modes are included in this scenario.

A water-based transport on Lake Victoria provides other options for commuters in the GKUGA. The Nakiwogo ferry demonstrates that there is, in fact, a demand for water-based transport when there is an availability of scheduled, operational and intermodal transportation.

3) Boda Boda Restriction

The registration of boda-boda units operating within Kampala was carried out in September 2022 by KCCA and the Ministry of KCC&MA. The registration was done to organise and regulate the boda-boda sector, with only the 35,000 registered boda-boda riders permitted to operate within Kampala Capital City. The remaining unregistered boda-boda units are to operate outside Kampala Capital City.

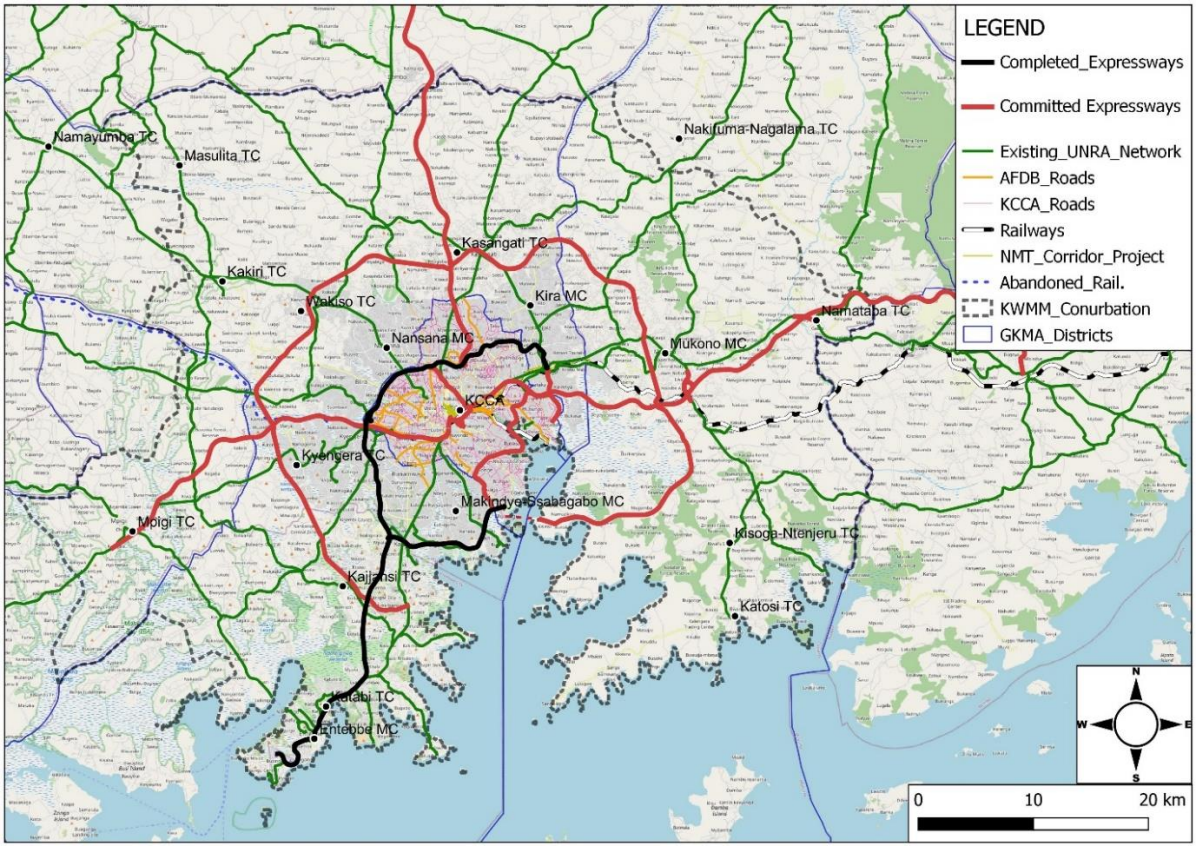
"Boda-boda free zones" that limit the movement of boda-boda within a given area may be implemented. Other restrictions to be considered are limiting boda-boda operations within a specified period during peak hours to encourage road users to adopt other public transport modes like taxis, buses like Pioneer and Tondeka and the existing train transport by URC from Namanve to Mukono.

4) Parking Restrictions in CBD

This can aid in reducing traffic within the CBD and can provide income for KCCA if charges are collected. In addition, parking management can be utilised to increase public transport ridership as well as road safety and decrease noise and air pollution. Similar to the boda-boda free zone policy, there is a need to implement parking restrictions within the CBD to reduce demand for daily private vehicle commuting and to simultaneously increase public transportation demand.

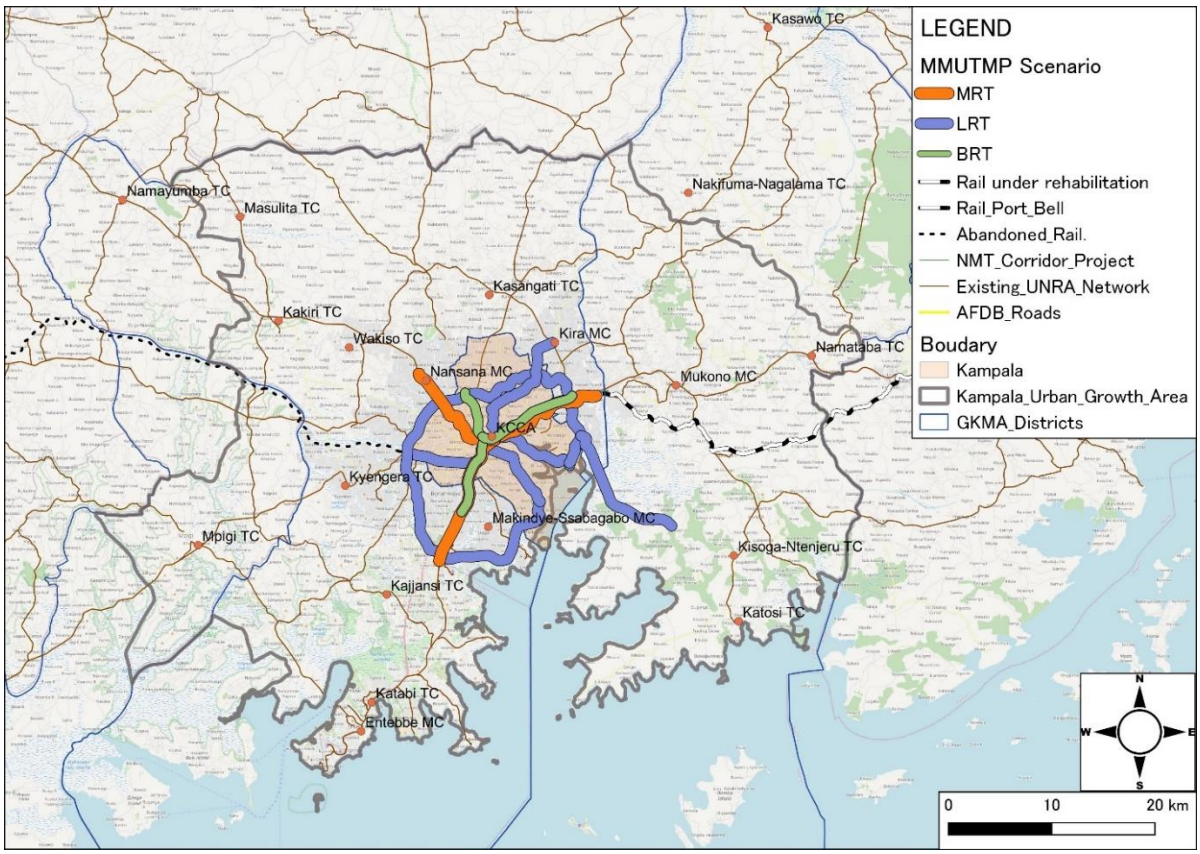
5) Transport-Oriented Development (TOD)

The application of TOD planning principles aims to provide sustainable transport to populations with varying socioeconomic levels in newly developed and developing urban spaces. This will minimise dependence on motor vehicles and the marginalisation of residents in lower socioeconomic levels.



Source: JICA Expert Team

Figure 13.5.4 Road Network of MMUTMP Scenario (Same as Do Minimum Scenario)

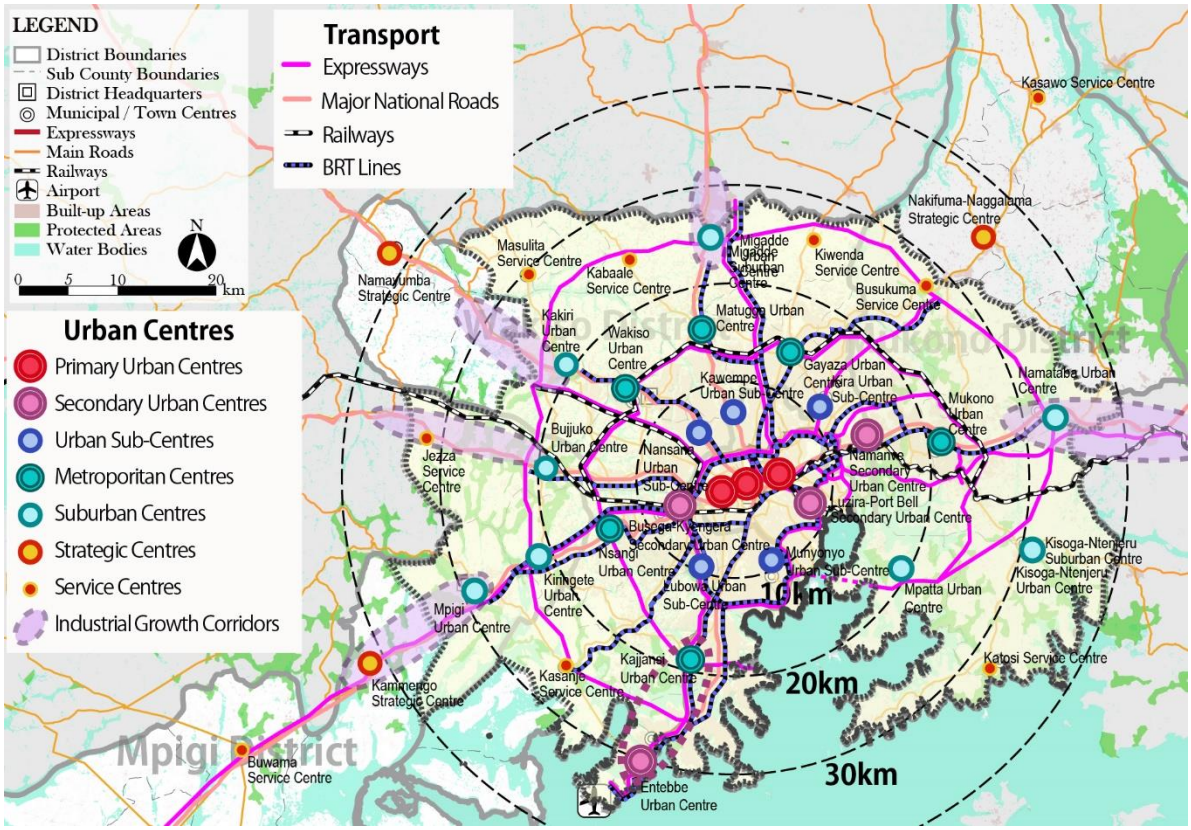


Source: JICA Expert Team

Figure 13.5.5 Public Transport Network of MMUTMP Scenario

(3) Urban Centre TOD Scenario (Moderate Transit Development and Joint Development of Urban Centres and Transport Infrastructures)

In this Project, development strategies, in which the urban centres to be developed outside Kampala City are integrated with the transport networks consisting of roads, BRT, LRT, MRT and transit-oriented development (TOD), will be considered and formulated for renewing the KPDF/KPDP. In this scenario, urban structures proposed in Chapter 10 are utilised as a basis for formulating a transport network. The conceptual urban structure and transport network are shown in Figure 13.5.6.



Source: JICA Expert Team

Figure 13.5.6 Conceptual Urban Structure and Urban Road Network Including Public Transport Network

Transit-oriented development (TOD) is a concept of urban development that introduces dense and mixed land use within walking distance of a transit station, along with improving the walking environment in the area. To prevent urban sprawl and formulate sustainable urban structure, TOD can be a key concept to break through the current urban issues in the GKUGA. As discussed in Chapter 10, several urban centres are proposed. To attract workers and residents in the proposed urban centres, it is critical to connect those urban centres. Thus, a significant number of new transit lines are proposed to connect those urban centres as shown in Figure 13.5.6.

Meanwhile, it is also critical to consider financial feasibility and sustainability in implementing transit projects as these kinds of projects, especially rail-based transit modes, require significant capital investments. Land availability is also a critical factor for project implementation. To overcome financial constraints and land availability problems, bus rapid transit (BRT) can play a key role as it can be implemented with less capital investment. BRT is also a flexible mode of transport. It can utilise a dedicated lane for high-speed operation for a certain section while also utilising a mixed traffic lane in case the road width is not sufficient to accommodate a dedicated lane for BRT. It can also utilise expressways. During the time before the traffic volume of the expressway reaches a high congestion level, BRT can be operated on an expressway with or without a dedicated lane. Thus, the travel time of BRT can be significantly reduced. It is also assumed that BRT and expressways can be developed jointly to achieve transit-oriented

development. The design of an expressway where the use of BRT is expected can accommodate space for bus stops.

1) Policentric Urban Spatial Structure

Through intensive development of existing railways, the use of MRTs and BRTs in conjunction with urban centre development along the corridor aims to synchronise the timing of transport infrastructure development and green and brownfield urban developments along the transit corridor. Specifically, three corridors are focused on: Kampala-Kakiri (Nansana-Wakiso-Kakiri), Kampala-Mukono (Kireka-Bweyogerere-Mukono) and Kampala-Entebbe (Kajjansi-Katabi-Entebbe). The joint development of urban centres and transit lines enables development-based Land Value Capture (LVC).

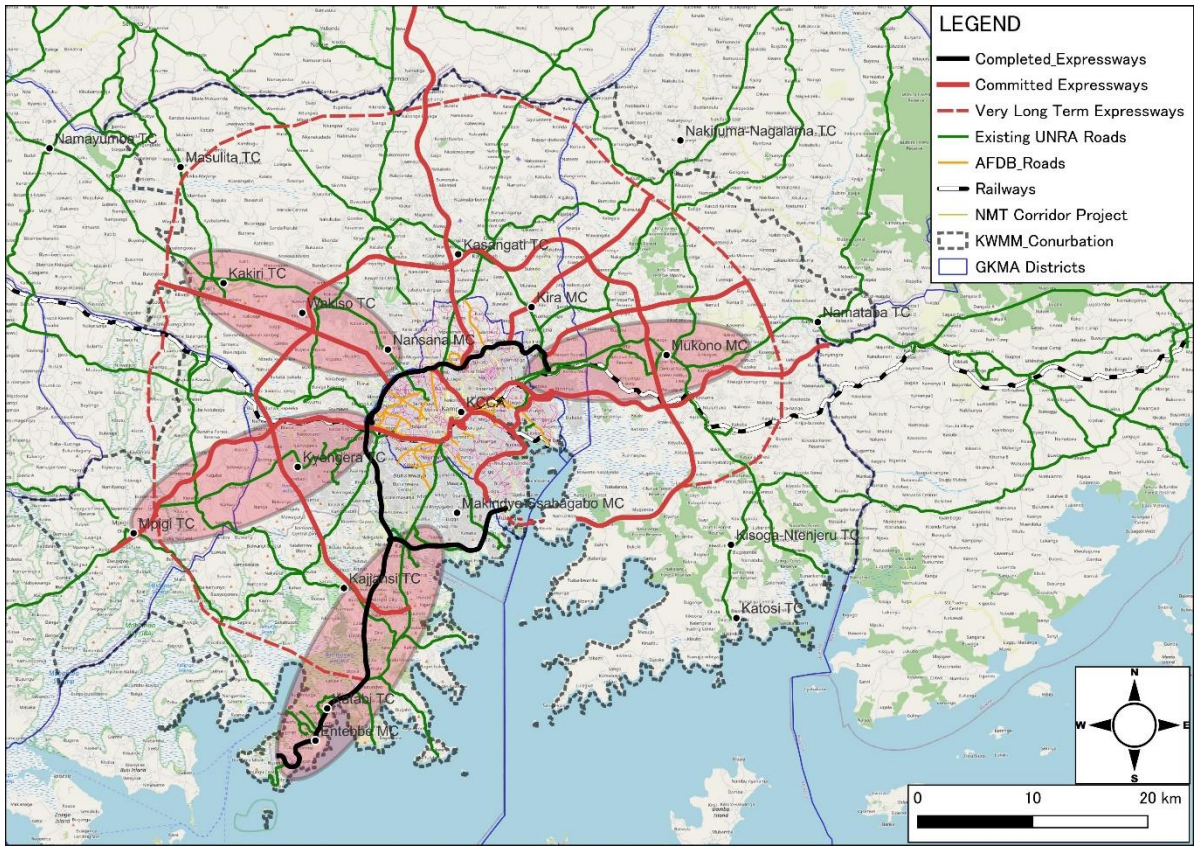
Aerial Photo of Construction Stage in 1985

Image of Current Railway Station and the Access-Controlled Roads

Image of Mixed-Use Urban Development Around Railway Station

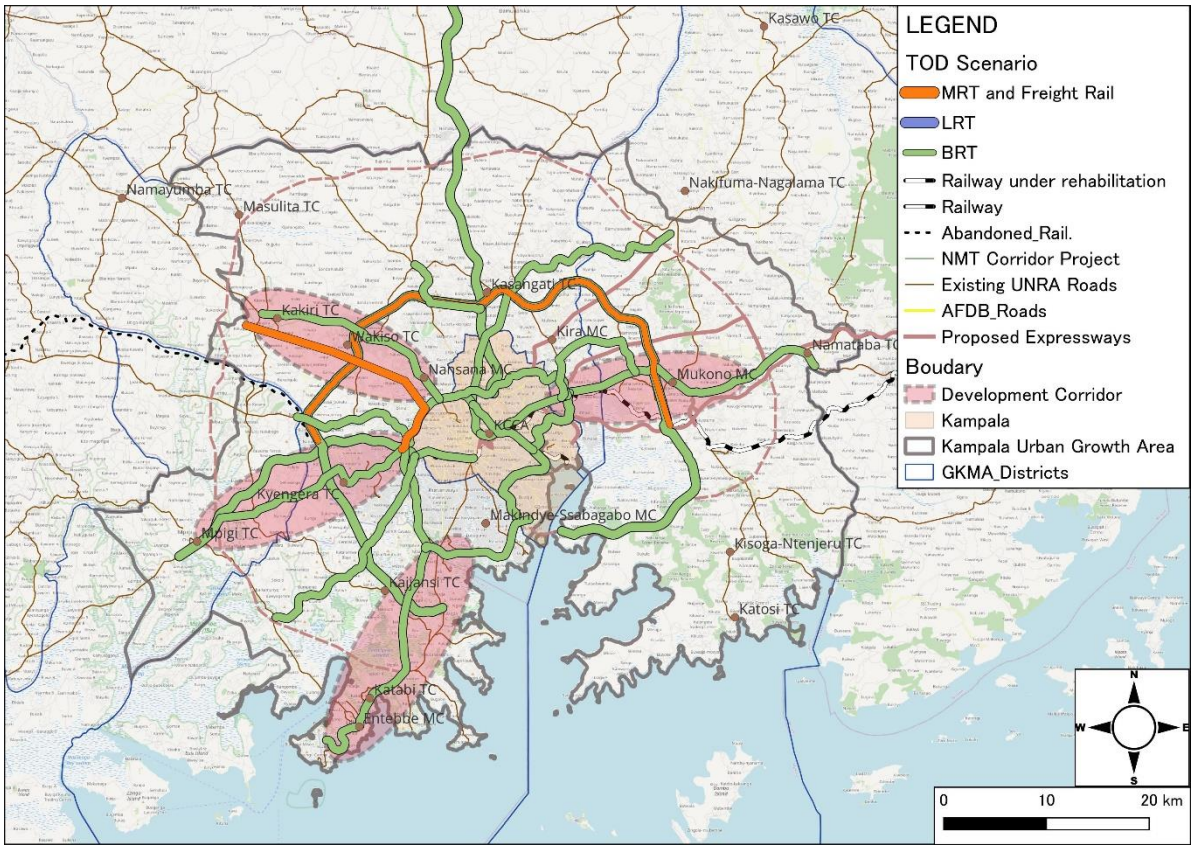
Source of top left image: KOBECCO https://kobecco.hpg.co.jp/14514/
Source of top right image: https://ameblo.jp/s-limited-express/entry-12669474259.html
Source of bottom image: Geospatial Information Authority of Japan
https://maps.gsi.go.jp/#16/34.681841/135.057456/&base=ort&ls=ort&disp=1&vs=c0g1j0h0k0l0u0t0z0r0s0m0f0

Figure 13.5.7 Example of Joint Development of a New Town and Transport Infrastructures in Kobe Gakuentoshi, Japan



Source: JICA Expert Team

Figure 13.5.8 Road Network of Urban Centre TOD Scenario



Source: JICA Expert Team

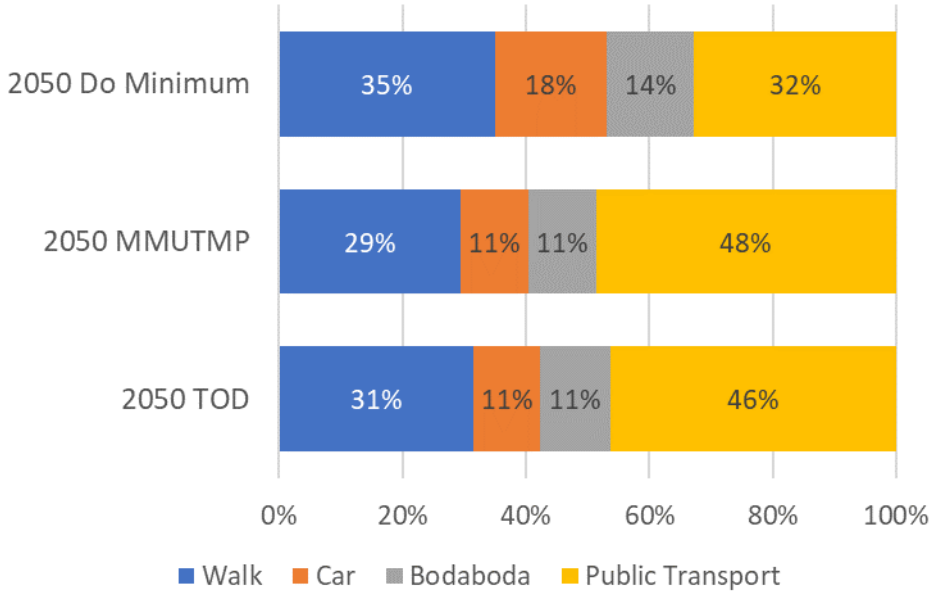
Figure 13.5.9 Public Transport Network of Urban Centre TOD Scenario

13.5.2 Travel Demand Forecast Result

The travel demand forecast for future year three scenarios (Do Minimum, MMUTMP, and TOD) was examined by applying the transport network and socioeconomic framework of each one as described in Section 13.5.1.

(1) Modal Share

Figure 13.5.10 illustrates a comparison of modal share by scenario. Do Minimum scenario has the highest private cars and boda-boda modal share compared to the other two scenarios due to insufficient public transport network.



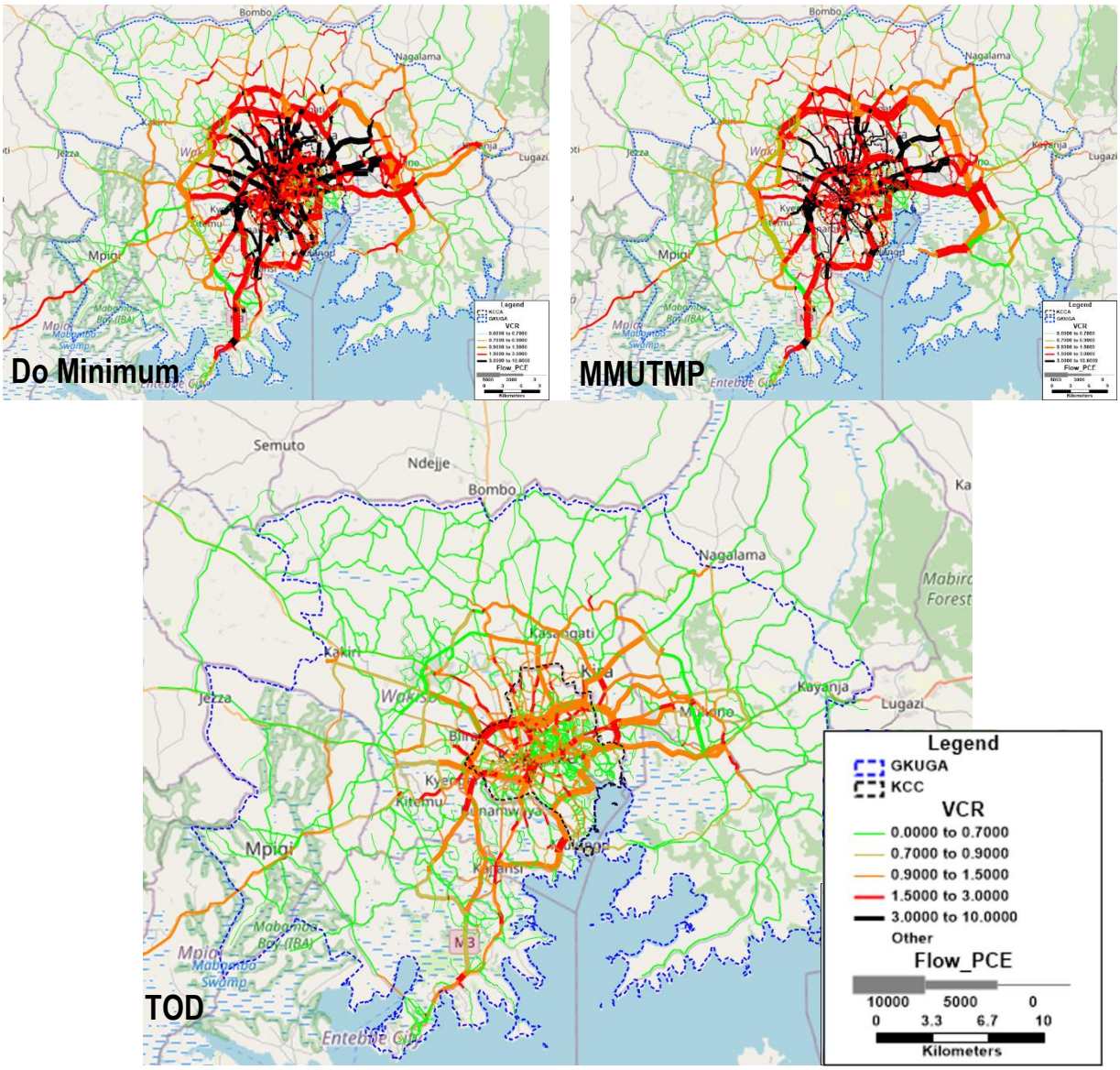
Source: JICA Expert Team

Figure 13.5.10 Comparison of Modal Share by 2050 AM Peak Scenarios

(2) Private Vehicle Volume to Capacity Ratio (VCR) and Traffic Volume Flow

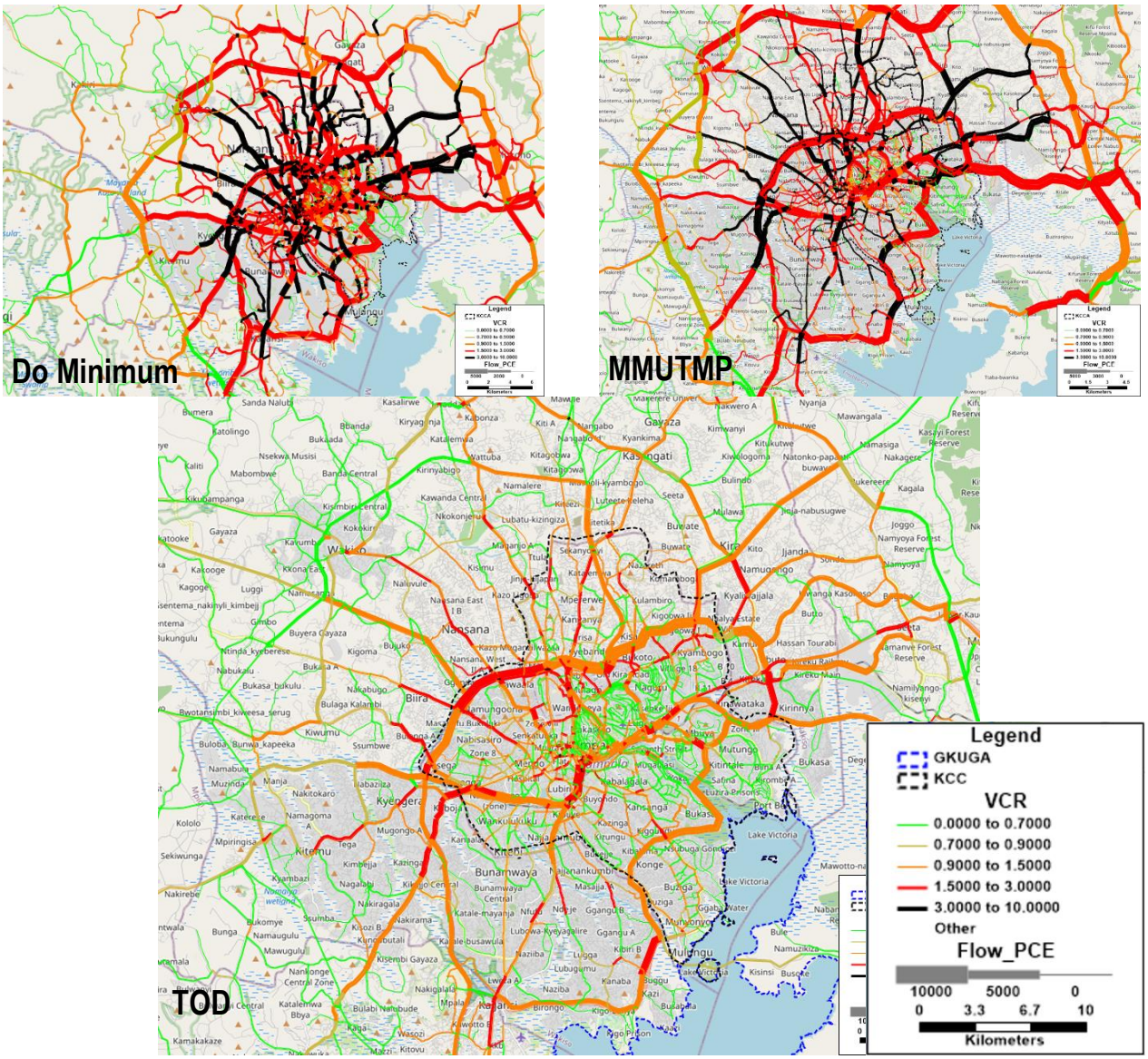
Figure 13.5.11 and Figure 13.5.12 show the volume to capacity ratio (VCR) in each scenario. The roads with VCR higher than 3 are observed in most of the major radial roads in Kampala, due to the centralisation of workplaces in Kampala city centre, and the sprawl of residential area in the sub-urban area.

TOD scenario has a lower VCR compared with the other two scenarios, having fewer roads that have a VCR higher than 3. The large traffic flow volume can be observed along the inner ring road (Northern Bypass – Kampala Entebbe Expressway – Southern Bypass). However, roads with VCR higher than 1.5 indicated in red colour are still existing in the main radial corridors connecting to Kampala's city centre area, namely, Entebbe Road, Jinja Road and Kibuye-Busega Expressways.



Source: JICA Expert Team

Figure 13.5.11 AM Peak Private Vehicle Volume to Capacity Ratio and Flow Volume in GKUGA, 2050

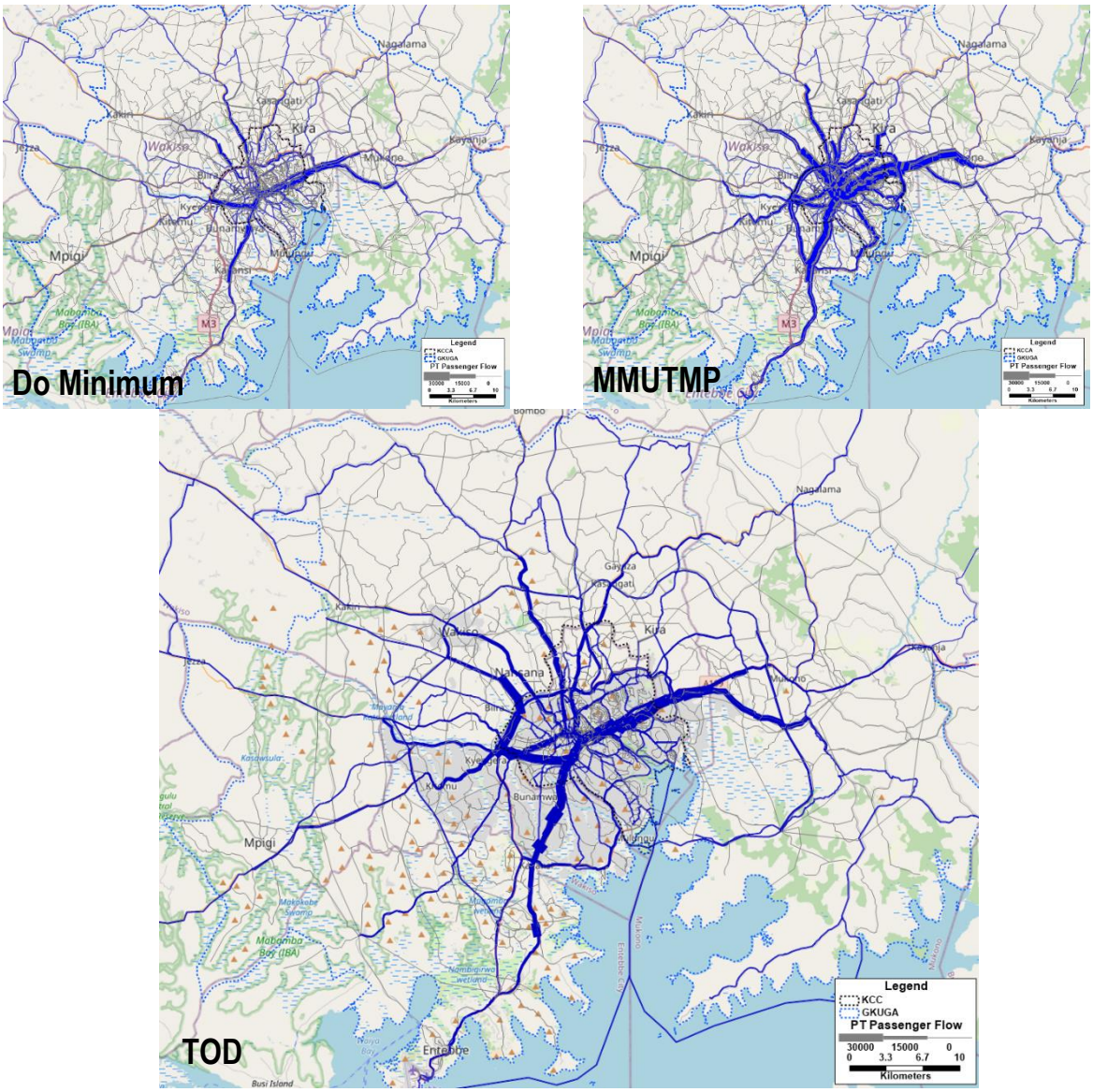


Source: JICA Expert Team

Figure 13.5.12 AM Peak Private Vehicle Volume to Capacity Ratio and Flow Volume in KCC, 2050

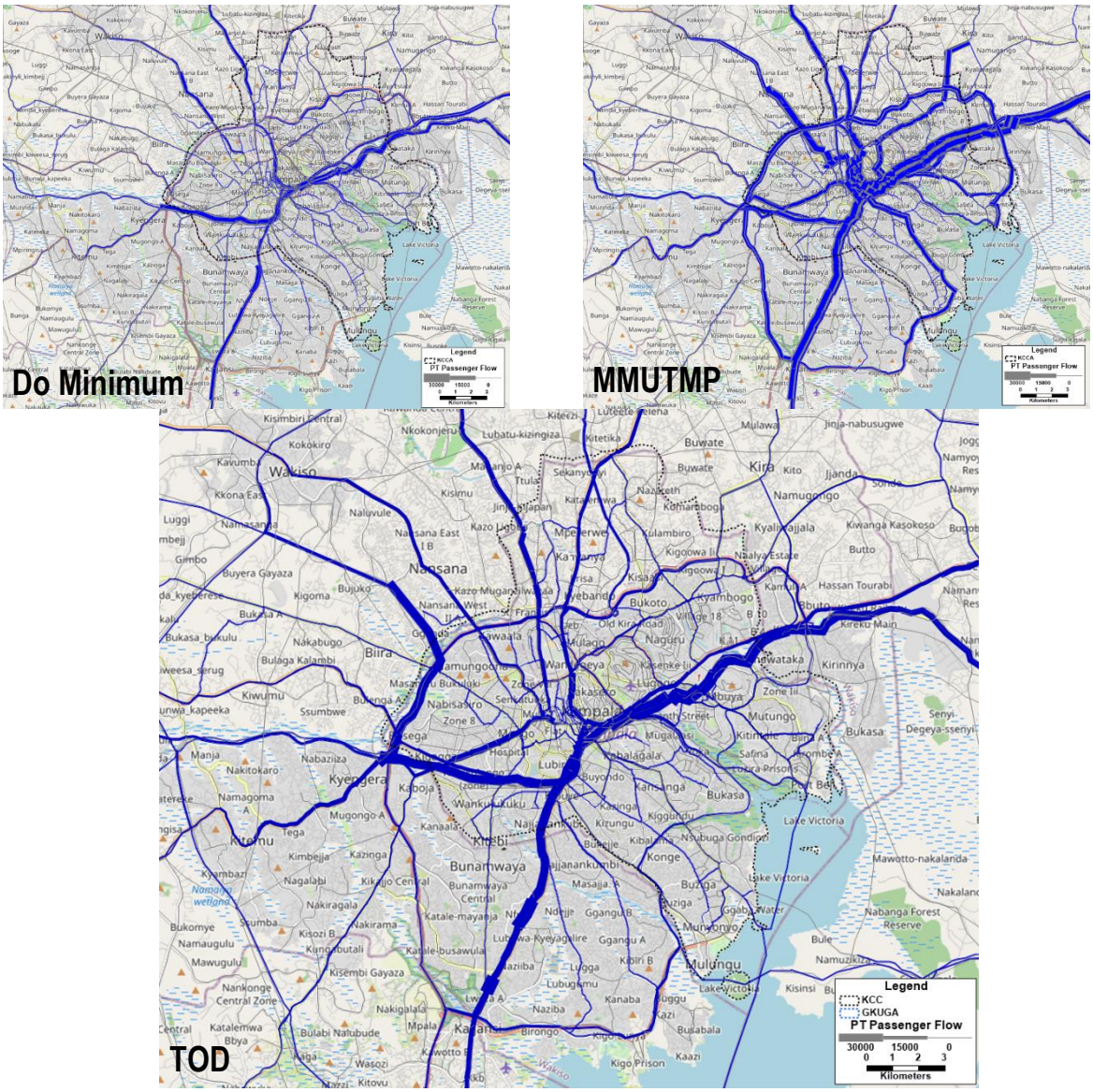
(3) Public Transport Passenger Flow

Figure 13.5.13 and Figure 13.5.14 illustrate the public transport passenger flow in each scenario. The Do Minimum scenario has the least passenger flow volume due to insufficient network compared with the other two scenarios. The large passenger flow volume can be expected for the metre gauge railway from Kampala to Mukono, and from Kampala to Kyengera.



Source: JICA Expert Team

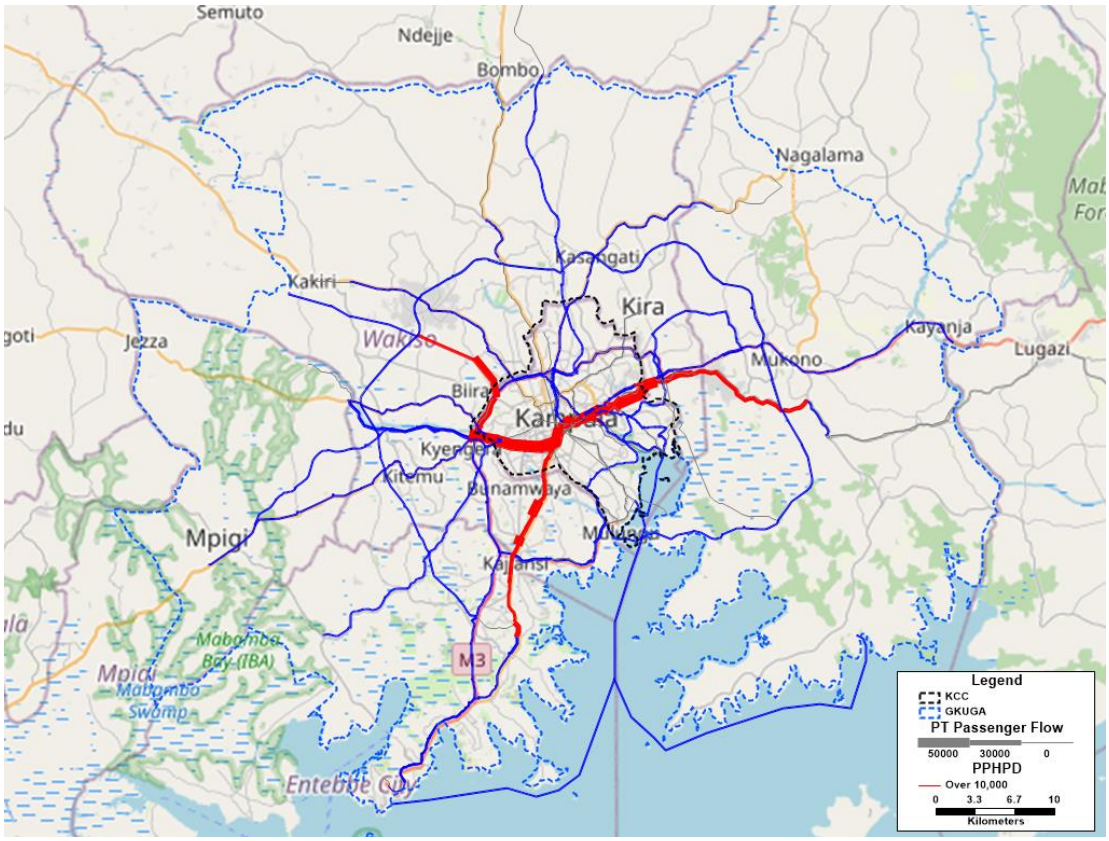
Figure 13.5.13 AM Peak Public Transport Passenger Flow in GKUGA, 2050 Future Scenarios



Source: JICA Expert Team

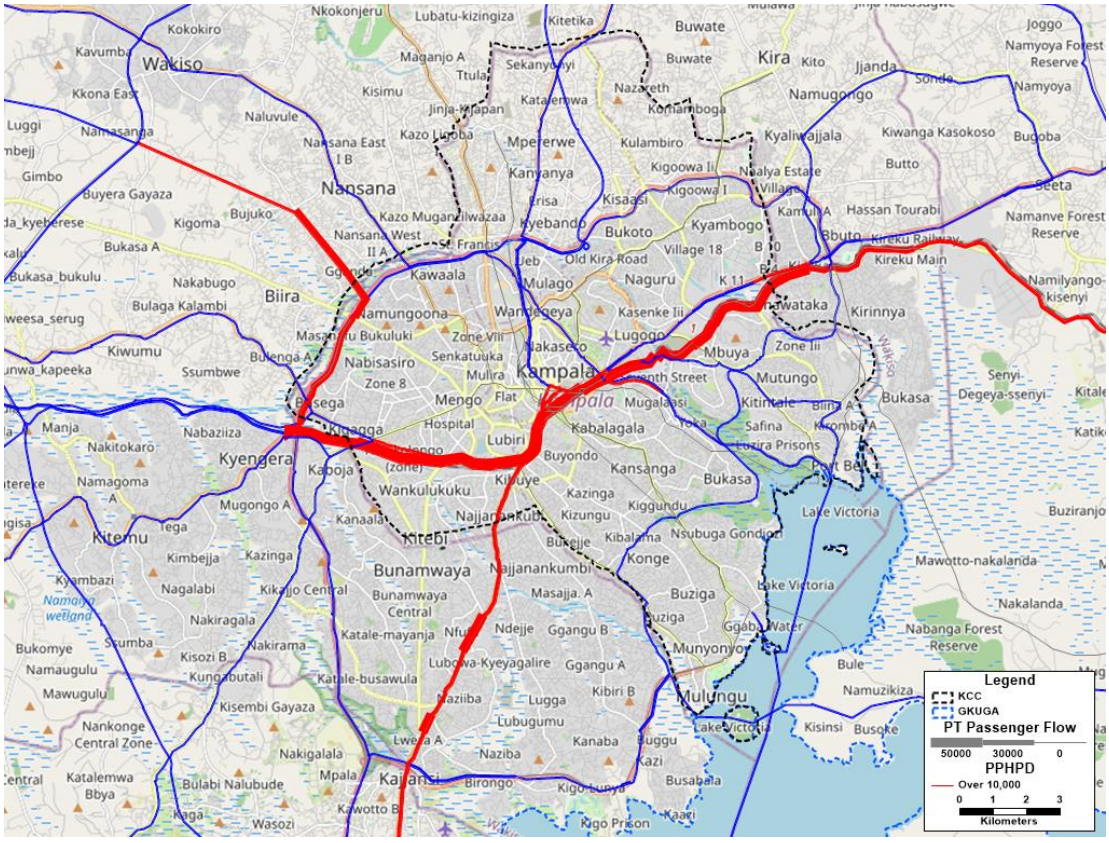
Figure 13.5.14 AM Peak Public Transport Passenger Flow in KCC, 2050 Future Scenarios

The PPHPD (passengers per hour per direction) was calculated to check whether the hourly capacity of each mode was not exceeding the passenger demand. Considering its capacity of one BRT vehicle and the frequency that can service within an hour, the hourly maximum capacity of the BRT was assumed as 10,000 passengers/hour/direction. As illustrated in Figure 13.5.15, and Figure 13.5.16 illustrates the public transport passenger flow of MRT, BRT and Rail, showing the section that exceeds 10,000 passengers/hour/direction in red colour. As illustrated in the figures, in the 2050 TOD scenario, most of the section that exceeds BRT capacity are those which can carry more passengers than BRT, such as the LRT line from Kampala to Entebbe, and improved railway lines from Mukono to Kyengera, and MRT line from Kyengera to Wakiso.



Source: JICA Expert Team

Figure 13.5.15 AM Peak Public Transport Flow (Excluding Taxis) in GKUGA, 2050 TOD Scenario



Source: JICA Expert Team

Figure 13.5.16 AM Peak Public Transport Flow (Excluding Taxis) in KCC, 2050 TOD Scenario

(4) Assignment Statistics

Table 13.5.3 Assignment Statistics by Traffic Demand Forecast Scenario

Indicator	Do Minimum 2050	MMUTMP 2050	TOD 2050
Vehicle Km Travelled	9,056,455	7,031,474	5,010,444
Passenger Hour Travelled	88,412,063	40,828,660	8,324,327
Vehicle Operation Cost (Mil. $/year)	3,924	2,876	1,898
Travel Cost (Mil. $/year)	133,602	34,653	5,829

Source: JICA Expert Team

13.5.3 Multicriteria Analysis (MCA)

(1) Criteria of MCA

Three alternative scenarios of transport network development were evaluated using multi-criteria analysis (MCA) considering various criteria shown in Table 13.5.4.

Table 13.5.4 Result of MCA

Criterion	Indicator	Unit	Base 2021	Do Minimum 2050		MMUTMP 2050		TOD 2050	
			Value	Value	Score	Value	Score	Value	Score
Economic Benefit	Travel Time	Passenger-billion hour/year (Passenger hour/ person/year)	7.66 (1,324)	132.62 (7,936)	D	61.24 (3,665)	D	12.49 (892)	A
	Vehicle Operation Cost	Million $/year ($ /person/year)	1,386 (239.5)	3,924 (234.8)	C	2,876 (172.1)	B	1,898 (135.6)	A
Equity	Population coverage of high service level public transport*1 station within 1km	Percentage	0%*2	7.5%	B	22.3%	A	30.2%	A
Environmental Sustainability	CO2 emissions from vehicles	Million ton/year (ton/person/year)	1,235 (213.5)	3,476 (209.0)	D	2,571 (153.8)	C	1,767 (126.3)	A
Safety and Security	Traffic accident risk	N/A	Baseline	Significant increase	D	Reduction of risk	B	Reduction of risk	B
Attractiveness	Walkability of NMT Infrastructures	N/A	Baseline	Same as the base year	C	Improved walkability	B	Improved walkability	B
Feasibility	Issues of land acquisition, technical issues and financial constraint	N/A	Baseline	Minimum land acquisition & investment	B	Highest initial cost and significant land	D	Moderate initial cost and significant land	C

Criterion	Indicator	Unit	Base 2021	Do Minimum 2050		MMUTMP 2050		TOD 2050	
			Value	Value	Score	Value	Score	Value	Score
						acquisition		acquisition	
Total					**C**		**B**		**A**

Note: Explanation of the Scores

A: The value of the indicator becomes a lot better than that of the base year.

B: The value of the indicator becomes a little better than that of the base year.

C: The value of the indicator will be the same as that of the base year.

D: The value of the indicator becomes worse than that of the base year.

*[1]: High-service level public transport is BRT, LRT, MRT and railway

*[2]: Although URC currently operates the metre-gauge railway service from Kampala to Namanve Industrial Park, the service level is not high considering its frequency and operation speed, as described in the present situation of the transport sector (Section 13.4). Thus, it was not counted as high-service level public transport.

Source: JICA Expert Team

(2) Method of Estimating Indicators

The following quantitative indicators were estimated using the methodologies below.

- Travel Time (passenger-billion hour /year): Calculated based on the travel time and the traffic flow volume in each link of road and public transport network, obtained from the result of the traffic assignment model in the travel demand forecast model.
- Population coverage that can access high-service level public transport (BRT, LRT, MRT and railway) station within 1km: Calculated based on spatial analysis using public transportation station buffer coverage and population by TAZ (Traffic Analysis Zone).
- CO_2 emission from vehicles (million tons/year): The unit CO_2 emission volume (grams/vehicle-km) by speed range by vehicle type was estimated based on the Highway Development and Management Model Four (HDM-4) developed by the World Bank. The total CO_2 emission was calculated by multiplying the unit CO_2 emission volume with the vehicle flow volume and travel distance.

(3) Results of Multicriteria Analysis

As a result of MCA, it was found that the TOD scenario is the best among the three scenarios evaluating various criteria and indicators. However, the traffic congestion inside the GKMA area continues and grows compared with the current traffic condition. The result of the travel demand forecast shows the capacity of public transport exceeds its capacity in the critical sections. Considering the above result, the study team is now examining the revision of the TOD scenario by applying various transport-related countermeasures such as the application of road-pricing in the CBD area, utilisation of inland waterway network, road-widening of major radial roads, to alleviate the traffic congestion in the TOD scenario. The details of the estimation result will be shown in the next report.

13.6 Projects for the Transport Sector

13.6.1 Tactics of Staged Network Development

(1) Land Acquisition and Development Control at an Earlier Timing

Transport network infrastructure development such as roads and railways requires huge costs and time. Limited lands in urbanised areas lead to expensive elevated and underground structures and land acquisition.

Financial capacity is limited for the government sector in the short term. On the other hand, land price increases due to price escalation, and transport infrastructure development induce land price increases in the long-term. Land price is a significant financial burden in the long term.

In suburban areas, infrastructure development should be included in a new town development project as its future residents will utilise infrastructures.

By utilising a limited budget for land acquisition in the short term, it can avoid huge land acquisition costs in the long term. Meanwhile, minimum transport infrastructure such as pavement and bus rapid transit can be enough for short-term travel demand. This approach can avoid future "gridlock" of increased travel demand and increased land prices. Land acquisition at an earlier stage of network infrastructure development can also enhance investment from the private sector as it is one of the key risk factors for investment.

(2) Joint Development of Road and Public Transport Network Infrastructures

New transport network infrastructure development is implemented independently by each organisation such as the MoWT, UNRA and URC. This means that land acquisition has to be done by each organisation. For instance, the Outer Beltway Expressway is to be implemented by UNRA while the National Integrated Transport Master Plan proposed that the Kampala Rail Bypass shall be developed by URC.

By joint development of both road and public transport infrastructure adjacently in a single right-of-way, reduces the number of land parcels. It also should be noted that the MDAs with vast experiences in land acquisition such as UNRA can transfer their knowledge of land acquisition to other MDAs and LGs.

(3) Step-by-Step Upgrading of Infrastructures

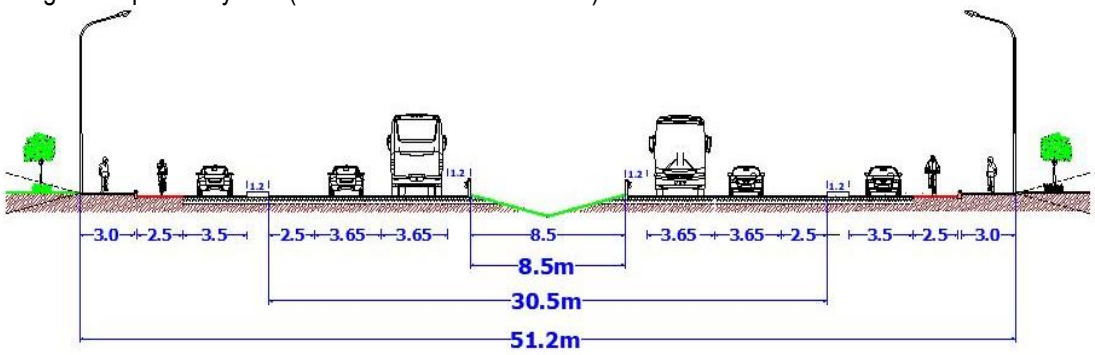
Even before the formulation of a detailed physical development plan, land acquisition for the entire stretch of the planned corridor of a road and public transport shall commence. Lands are recommended to be purchased as early as possible considering future land price increases due to the expected infrastructure development.

After the land acquisition, the minimum infrastructures for the short-term shall be developed such as the 4 lanes of an expressway. An express bus can share lanes with other traffic. It should be noted that lands for a bus stop and its approach should be kept. Vacant land can be left in the middle of the carriageway for future infrastructure development and to avoid illegal settlement (upper image of Figure 13.6.1). The express bus service can share the lane with other traffic. An example of a bus stop for expressway bus service in Japan is shown in Figure 13.6.2.

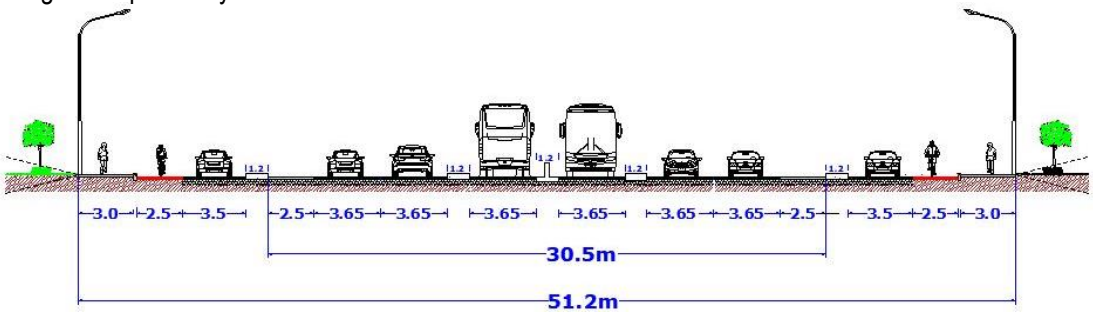
For the medium term, the Bus Rapid Transit (BRT) system can be developed in the middle of the section to provide rapid public transport services (middle image of Figure 13.6.1).

Finally, the elevated public transport system such as mass rapid transit or light rail transit in the median and additional lanes can be developed in case travel demand cannot be handled by the BRT (bottom image of Figure 13.6.1).

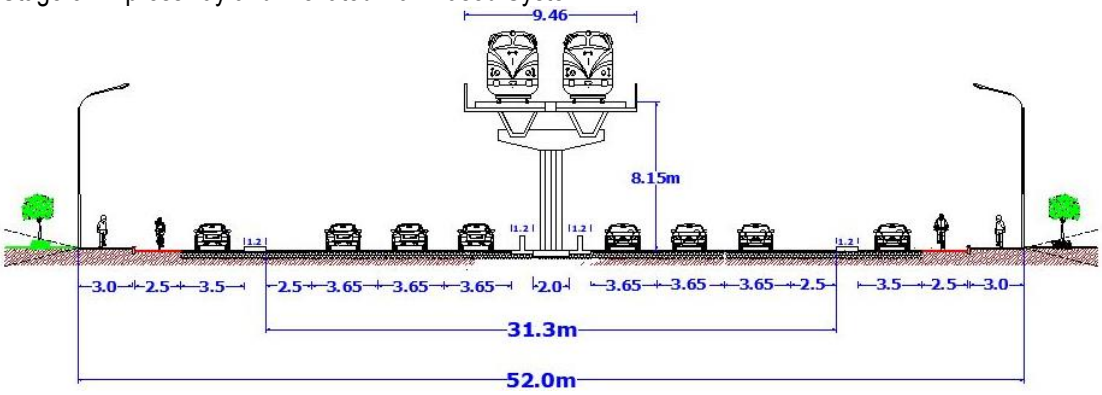
Stage 1: Expressway Bus (no dedicated lane for buses)



Stage 2: Expressway and BRT with dedicated lane

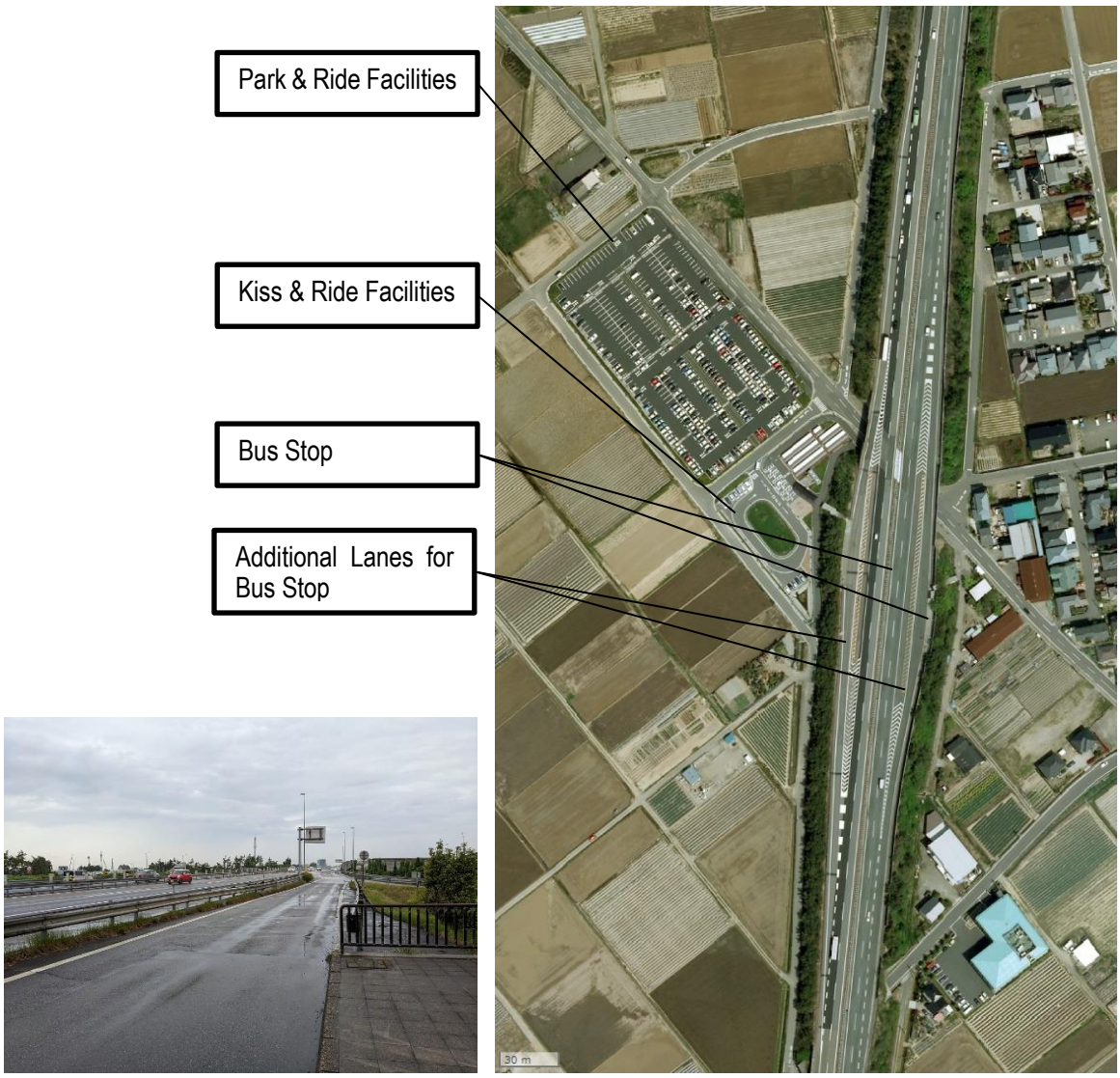


Stage 3: Expressway and Elevated Rail-Based System



Source: JICA Expert Team

Figure 13.6.1 Example of Staged Development of Expressway and BRT Corridor



Maki Katahigashi Bus Stop

Torihara Bus Stop

Nagaokakyo Bus Stop

Hino Bus Stop

Source of top left image (Maki Katahigashi Bus Stop): JICA Expert Team

Source of top right image (Torihara Bus Stop): Geospatial Information Authority of Japan
https://maps.gsi.go.jp/#17/37.850300/139.003687/&base=ort&ls=ort&disp=1&vs=c1g1j0h0k0l0u0t0z0r0s0m0f1&d=m

Source of bottom right image (Hino Bus Stop):
https://contents.trafficnews.jp/image/000/061/711/large_220916_bs_01.jpg

Source of bottom left image (Nagaokakyo Bus Stop): https://smatra.jp/blog/wp-content/uploads/2016/02/kousokunagaokakyo.jpg

Figure 13.6.2 Examples of Bus Stop on Expressway in Japan

13.6.2 Policies for Transport in CBD

In the central business district (CBD) defined in Chapter 10, transport problems are evident due to the concentration of people and goods. Special tactics are, therefore, required to alleviate them. Comprehensive approaches including push and pull policies are essential to solve the tangled transport problems in the CBD. The overall policy of urban transport in the CBD is as below.

(1) Accessible CBD with Transit and Active Transport Modes

As a centre of GKUGA, GKMA, Uganda and East Africa, the CBD should be accessible to all the people and shall attract people regardless of attributes such as gender, disabilities and vehicle ownership. Thus, all the CBD areas should be accessible by either public transport or active transport modes such as bicycles and walking. By strategically locating railway stations, BRT stations and feeder bus/taxi stops, all the CBD areas can be covered by a 1 km buffer from the stations and stops which means around 15 minutes walking distance. Improvement of the walking environment is also essential to achieve an accessible, safe, attractive and efficient urban centre.

In terms of the capacity of transport modes, transit with active transport modes has the highest capacity. Considering the land availability in the CBD area, transit and active transport modes are the only feasible options.

The challenge of GKUGA is hilly geography. Slopes are obstacles for pedestrians, bicycle riders and wheelchair users. Electric Vehicles (EVs) including electric bicycles and battery-assisted bicycles together with infrastructures such as charging stations and bike lanes will be a solution.

Figure 13.6.3 shows the conceptual public transport network in the CBD. By providing feeder services, new railway stations and BRT stops, all the CBD areas can be accessible with a 1 km walk.

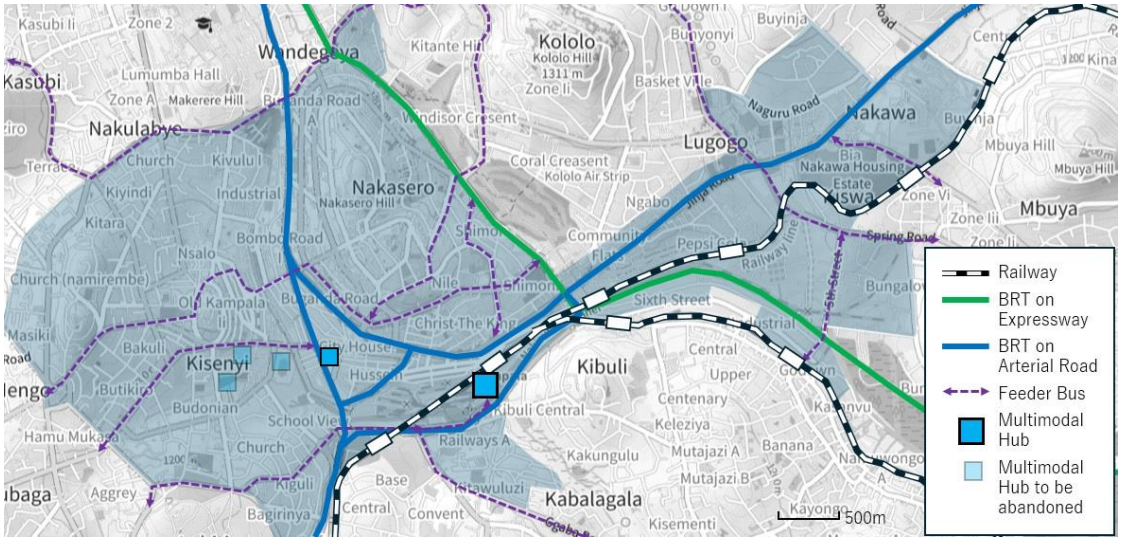


Figure 13.6.3 Concept of Public Transport Routes in CBD

(2) Trunk and Feeder Services

Taking efficiency and capacity into consideration, functions of high-capacity modes such as rail-based transit and BRT and medium-capacity modes such as buses and shared taxis should be clarified. The trunk routes should be serviced by high-capacity modes while the feeder service can be covered by the medium-capacity modes as shown in Figure 13.6.3. In addition to the conventional "taxi", medium-sized buses can be served for the relatively high-demand feeder routes while the modernized on-demand taxi service and ride-hailing service also can play a role of feeder services for the area. It is expected that the current taxi service serving the expected feeder routes can be converted to medium-sized buses while the remaining taxi service is expected to be modernized by strictly applying the service standard.

(3) Maximum Utilization of Road Space with Intelligent Traffic Management

As discussed in Section 11.1, land acquisition is expensive and time-consuming due to the constitution and legal framework of land ownership in Uganda. The feasibility of road widening and construction of new roads in the CBD is limited in GKUGA. It is, therefore, important to increase the capacities of existing road spaces with intelligent traffic management such as intelligent traffic signalling. Management of on-street parking also can prevent the reduction of road capacities.

(4) Improvement Connectivity and Efficient Public Transport Operation with the Multimodal hubs

The existing "Taxi Parks" are utilized not only for boarding and alighting of passengers but also for a depot of taxi vehicles and a rest area for taxi drivers. Large-scale taxi parks such as Old Taxi Park, New Taxi Park, Kisenyi Taxi Park and Namirembe Taxi Park are located in the centre of the CBD. Besides, long-distance bus parks are located in the CBD. This is aggravating the traffic congestion in the CBD. The location of the depot and rest area can be shifted to the suburbs to avoid the concentration of vehicles in the CBD. Some taxi parks can be shifted to the planned Multimodal Hub at the central railway station of Kampala. The multimodal hub will play a key role in connecting serval transport modes and in providing efficient fleet operation of taxis and buses.

(5) Travel Demand Management to Enhance Modal Shift

The application of parking tax together with strict enforcement of codes on parking will enhance the modal shift to public transport. By minimizing illegal on-street parking, it also contributes to increasing road capacities. It should be mentioned that the revenue from the parking tax can be a source of infrastructure development.

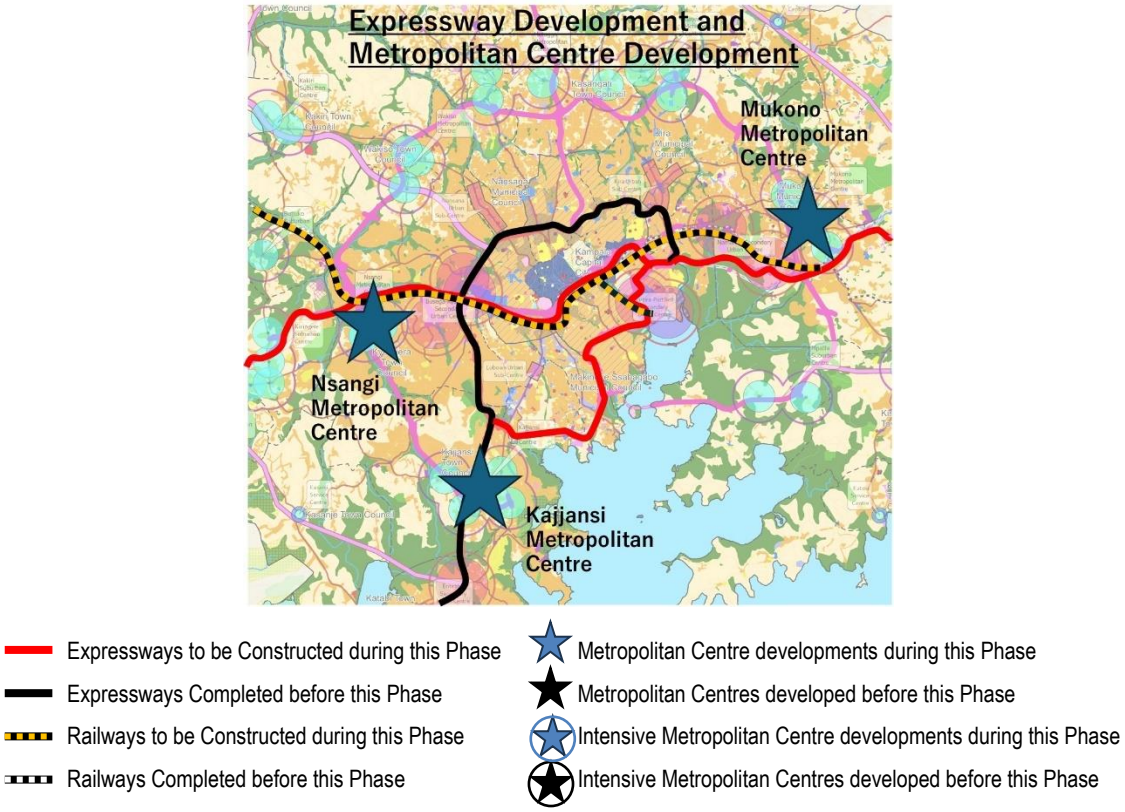
Mobility Management is a communication-oriented measure to encourage more smart and appropriate ways of using travel modes for solving travel issues such as traffic congestion. In contrast to conventional transport policies, such as building transport infrastructure or improving transport services, MM aims at helping targeted individuals think about their communities and change travel behaviour by themselves, leading to more sustainable transport systems for society.

13.6.3 Short-Term Projects (2024– 2030)

This section describes the list of projects to be implemented in the short term. Needless to say, ongoing projects should be included in the list. In addition, feasibility in terms of finance and land availability is one of the key points to be taken into account for the selection of projects for short-term implementation. Considering the available funding and cost-effectiveness, some key network infrastructure projects connecting the CBD and the proposed urban centres are included as shown in Figure 13.6.4.

Parking restrictions in CBD to collect parking tax revenue is critical, not only to regulate traffic but also to generate revenues for the implementation of other projects.

The list of projects for short-term implementation is shown in Table 13.6.1. The total estimated cost of these projects under the transport sector is estimated at 4,072 million USD.



Source: JICA Expert Team

Figure 13.6.4 Concept of Transport Network in 2030

Table 13.6.1 List of Short-Term Projects of the Transport Sector

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area(ha)
RD-S1	Road	On-going	Capacity Improvement and Signalisation of Kampala – Gayaza Road	Seeking funds	UNRA	4	15	18.0	-	-
RD-S2	Road	On-going	Capacity Improvement and Signalisation of Kampala – Buloba Road	Seeking funds	UNRA	4	12	15.0	-	-
RD-S3	Road	On-going	Capacity Improvement and Signalisation of Namungona – Kakiri Road	AfDB	UNRA	4	30	25.0	-	-
RD-S4	Road	On-going	Kampala Flyover	JICA	UNRA	4	7	153.7	40	0.7
RD-S5	Road	On-going	Kampala City Road Rehabilitation Project (including drainage works, 2 big drainage works)	AfDB	KCCA	4 & 2	76	246.0	-	-
RD-S6	Road	On-going	GKMA-Urban Development Programme	World Bank	MKCC&MA	2	610	-	-	-
RD-S7	Road	On-going	Upgrading of Northern Bypass	EU, GoU	UNRA	2	21	141.1	-	-
RD-S8	Road	On-going	Kampala Southern Bypass	AfDB, AFD & EU, GoU	UNRA	4	18	200.0	1,837	9.9

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area(ha)
RD-S9	Road	On-going	Kibuye-Busega Expressway	China Exim Bank (Expected)	UNRA	4	10	229.0	1,132	7.1
RD-S10	Road	On-going	Busega-Mpigi Expressway	AfDB	UNRA	4	27	196.8	-	-
RD-S11	Road	On-going	Kampala-Jinja Expressway	AfDB, AFD & EU, GoU	UNRA	8, 6 & 4	77	800.0	57	0.3
RD-S12	Road	On-going	VVIP Expressway (Nakasero-Northern Bypass Expressway)	China Exim Bank (Expected)	UNRA	4	5	200.0	465	2.7
RD-S13	Road	On-going	Upgrading of Kyaliwajala – Kira – Matuga Road (including junctions along the road)	GoU	UNRA	2	21	54.3	-	-
RD-S14	Road	On-going	Upgrading of Najjanankumbi – Busabala (including junction signalisation)	GoU	UNRA	2	11	70.1	-	-
RD-S15	Road	On-going	Upgrading of Matuga – Wakiso – Buloba	GoU	UNRA	2	19	30.4	-	-
RD-S16	Road	On-going	Upgrading of Jokas – Namanve – Mukono	Seeking Funds	UNRA	2	14	13.0	-	-
RD-S17	Road	On-going	Upgrading of Natete – Nakawuka – Kisubi – Maya - Nakiwuogo	Seeking Funds	UNRA	2	71	91.9	-	-
RD-S18	Road	Proposed	Railway Station Access Roads Development	Seeking Funds	Local Gov.	2	30	111.0	-	-
TM-S1	Traffic Mng	On-going	Central Traffic Control Centre (junction)	JICA	KCCA	-	-	18.8	-	-
TM-S2	Traffic Mng	On-going	Parking Restrictions and Tax in CBD	Private Fund	KCCA	-	-	0.5	-	-
PT-S1	Public Transport	On-going	Uganda Railways Corporation Capacity Building Project	GoU and AfDB	URC	-	92	366.3	-	-
PT-S2	Public Transport	On-going	BRT-Pilot1 (CBD-Kajjansi)	AFD and the World Bank	MoWT	-	14	172.4	231	1.7
PT-S3	Public Transport	On-going	BRT-Pilot2 (CBD-Mukono)	AFD and the World Bank	MoWT	-	22	270.9	104	1.0
PT-S4	Public Transport	On-going	BRT-Pilot3 (CBD-Kasangati)	AFD and the World Bank	MoWT	-	15	184.7	357	2.2
PT-S5	Public Transport	Proposed	BRT Kampala-Entebbe (along Expressway) Mixed Lane	Donor & Private Fund	MoWT	-	33	7.0	-	-
PT-S6	Public Transport	Proposed	BRT Busega-Mpigi (along Busega-Mpigi Expressway) Mixed Lane	Donor & Private Fund	MoWT	-	27	6.2	-	-

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area(ha)
PT-S7	Public Transport	Proposed	BRT Inner-Beltway - Ring Road (Along Northern BP - Kampala Entebbe Expressway - Southern BP) Mixed Lane	Donor & Private Fund	MoWT	-	45	9.6	-	-
PT-S8	Public Transport	Proposed	Bus and Taxi Service Improvement (Introduction of New Large or Middle size buses)	Donor & Private Fund	KCCA	-	-	20.0	-	-
PT-S9	Public Transport	Proposed	Development of Multi-modal Transport Hubs	Donor & Private Fund	URC/KCCA	-	-	400.0	-	-
PT-S10	Public Transport	Proposed	Development of Platform for Mobility-as-a-Service (MaaS)	Donor & Private Fund	MKCC&MA	-	-	20.0	-	-
NM-S1	NMT	On-going	NMT Corridor Project	GoU	KCCA	-	16		-	-

Source: JICA Expert Team

Major short-term projects in the list are summarised below.

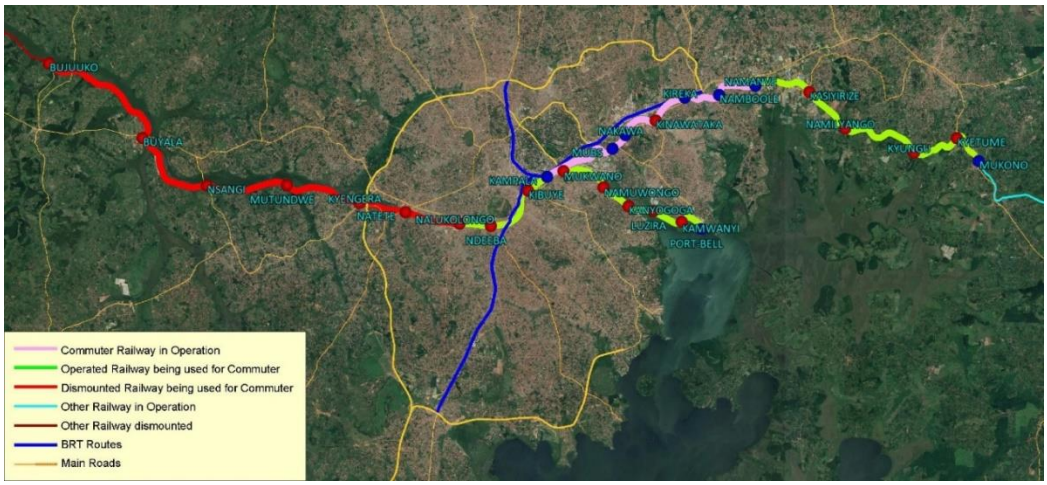
(1) Ongoing and Committed Road Projects

As shown in Table 13.5.2 and Figure 13.5.1, radial and circular expressways are being designed and constructed. The projects under construction are assumed to be completed in the short term. It is also assumed that these projects' completed design and started procurement will be completed in the short term. However, for expressway projects seeking funds that require huge capital investment such as the Kampala – Bombo Expressway and Kampala Outer Beltway, only a part of the works is expected to be completed in the short term.

(2) Uganda Railways Corporation Capacity Building Project (Improvement of Existing Railways and Rehabilitation of Abandoned Railways)

With a fund from the EU, the feasibility study on the improvement of passenger service in GKMA was conducted in 2020. It is proposed to improve the existing railway lines of Kampala – Namanve and Kampala – Port Bell and to rehabilitate the abandoned railway track of Kampala – Kyengera – Bujjuko. The following four types of trains are planned to be operated twice during peak hours for a scenario tested in the feasibility study. The African Development Bank (AfDB) showed interest in this project.

- Bujjuko – Kampala – Port Bell
- Kyengera – Kampala
- Kampala – Namanve
- Kampala – Mukono



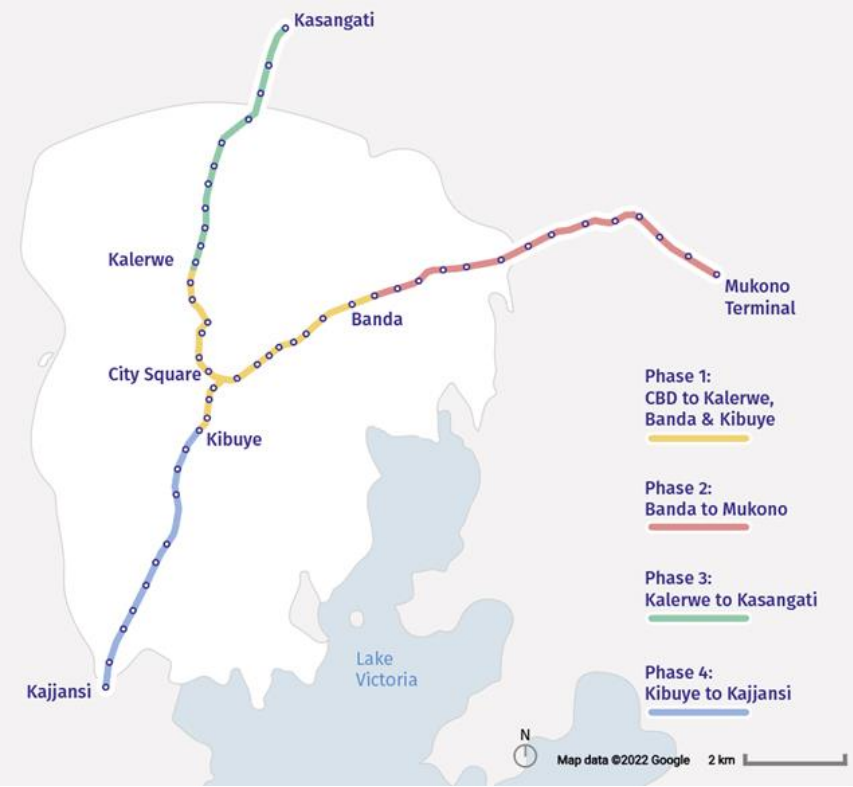
Source: Feasibility Study of Expansion of Uganda Railways Passenger Services in Greater Kampala Metropolitan Area (2020)

Figure 13.6.5 Target Railway Sections for Improvement

To further improve railway transport with a more stable track, increased train operating speeds, passenger comfort and efficient freight and passenger transport services, as of April 2023 Uganda Railways Corporation under the Capacity Building Program commenced with replacing the old steel sleeper line with concrete sleepers from Kampala to Namanve. The same development will during the second phase be implemented on Namanve to Tororo, Kampala to Port Bell and Kampala to Kyengera railway lines.

(3) Kampala BRT (Kampala to Mukono, Kampala to Kasangati, Kampala to Kajjansi)

A feasibility study and design of Bus Rapid Transit (BRT) for GKMA was conducted in 2012. Nine corridors of the BRT full network with 88 km in length were proposed. Among the nine corridors, three corridors with 25 km length have been selected for a Pilot BRT. The Pilot BRT routes include Kampala to Kireka, Kampala to Kalerwe and Kampala to Zana. The estimated cost for the Pilot BRT is 490 million USD. Three corridors are designed to connect feeder services. In order to evaluate whether the existing design is still adequate and up to date as well as to ensure participation and ownership of all key stakeholders, a strategic review was conducted and the ToR for the detailed design review and preparation of the required contract bidding documents were drafted. The detailed design review/update is to be undertaken using funding from the African Development Bank (AfDB). The BRT infrastructure is to be financed by the Government of Uganda through consolidated funds and development partner concessional loans and grants such as the World Bank. The phased approach will be applied as shown in Figure 13.6.6. The first phase will be the Y-shaped corridor that comprises the Kalerwe (Bwaise) to Kibuye with a link to Banda along Jinja Road, all within the KCCA area of jurisdiction. The total length of the four phases will be around 42km.



Source: KCCA (2023)

Figure 13.6.6 Phasing Plan of Kampala Bus Rapid Transit

(4) BRT on Expressway along Inner Beltway, Kampala – Entebbe Expressway and Busega – Mpigi Expressway

In addition to the Pilot BRT, the formation of a circular BRT line is expected to utilise existing and committed expressways of Kampala Northern Bypass, part of the Entebbe Expressway via the Munyonyo spur through the planned Southern Bypass. As this BRT utilises sharing lanes with other traffic, it does not require additional land acquisition except for the bus stops. By slightly modifying the design of the expressway, the bus stops can be incorporated for passenger boarding and alighting.

(5) Development of Multi-modal Transport Hubs

Public transport is not a door-to-door service. To provide a seamless public transport service, improvement of connectivity at railway and major BRT stations and bus/taxi terminals is essential. A station square including bus and taxi stops should be provided at all passenger railway stations. The multi-modal transport hub (MmTH) where a number of passengers depart and arrive has a high potential for urban development. The MmTH can be developed with the public-private partnership (PPP) scheme which reduces funding from the public sector. The MmTH development is planned at Kampala Railway Station. Besides, it is recommended to develop station plazas with bus and taxi stops at all passenger railway stations to improve connectivity.

(6) Parking Restrictions and Imposition of Tax in CBD

Parking restrictions in CBD in conjunction with the collection of parking tax from on-street and off-street parking in CBD can contribute to reducing inflow traffic during peak hours and maximise the capacity of roads. Revenue from parking tax can be utilised for other infrastructure projects. However, it should be noted that parking restrictions should be implemented along with public transport improvement as visitors will have no alternative modes to choose from.

(7) Improvement of Walking Environment around Transit Stations and NMT Corridor Development

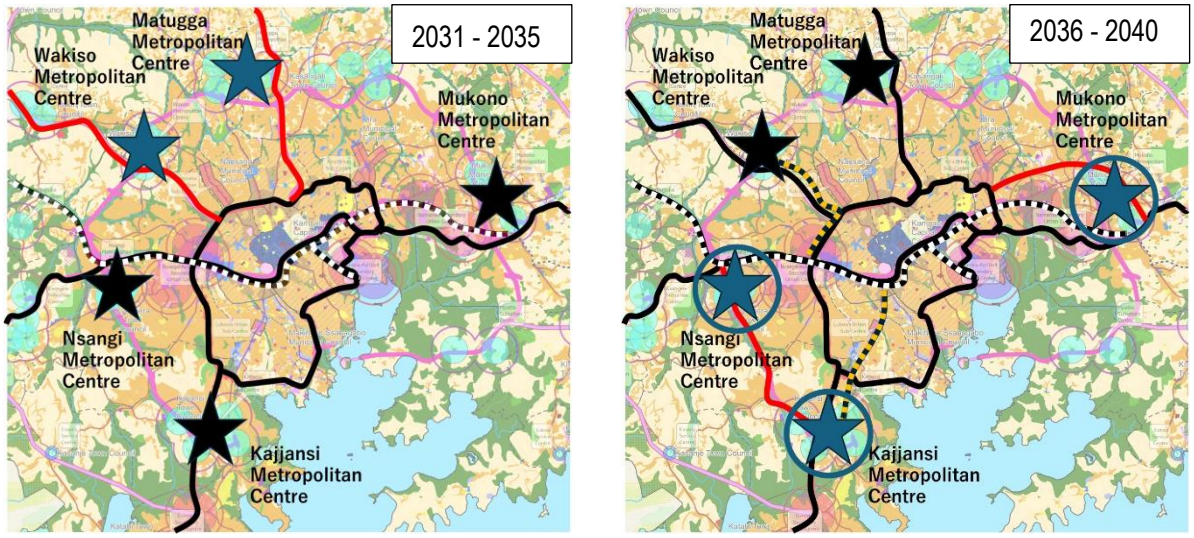
Nonmotorised transport (NMT) is one of the main modes of transport in the GKUGA. As NMT is an emission-free, congestion-free healthy mode of transport, a lot of metropolitan areas in both developed and developing countries implemented policies to enhance the use of NMT.

NMT is also a critical factor in promoting TOD to solve the first-mile last-mile problem of public transport. In line with railway and BRT improvement, NMT infrastructures are essential, including the installation and improvement of walkways, pedestrian crossings and lighting. It is also important to form a network of bicycle roads/lanes to serve the medium-distance trips.

13.6.4 Mid-Term Projects (2031 – 2040)

In the medium-term 2031 – 2040, urban centre development in conjunction with transport network development is expected to serve the increasing population and alleviate urban problems such as congestion. During the period 2031 and 2035, new radial corridors of Kampala – Nansana – Wakiso – Kakiri and Kampala – Matugga – Bombo, and a part of the circular corridor of the Outer Beltway, are proposed to be developed. Both expressways and BRTs should be developed jointly as discussed in Section 13.6.1. The concept of phased corridor development is shown in Figure 13.6.7, and the list of midterm projects is shown in Table 13.6.2.

Selection of public transport mode shall be made after further examination of travel demand forecast results in the Draft Final Report. In case BRT is not enough to serve the increasing travel demand for a certain corridor, it can be converted to other rail-based transport modes, such as LRT and MRT, depending on the travel demand and technical specifications.



Note: See Figure 13.6.4 for the legend. Source: JICA Expert Team

Figure 13.6.7 Concept of Transport Network to be Developed in 2031 – 2035 and 2036 – 2040

Table 13.6.2 List of Mid-Term Projects of the Transport Sector

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area (ha)
RD-M1	Road	On-going	Kampala-Bombo Expressway	Seeking Funds	UNRA	4	50	559.9	949	6.3
RD-M2	Road	On-going	Kampala Outer Beltway Phase 1 (Kajjansi-Nsangi)	Seeking Funds	UNRA	4	22	246.4	35	0.4

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area (ha)
RD-M3	Road	Proposed	Expressway R4 (Kampala – Wakiso – Kakiri)	Donor & Private Fund	UNRA	4	20	256.9	330	2.3
RD-M4	Road	Proposed	Kampala - Mukono Expressway (Bypass of Jinja Road and Kampala - Jinja Expressway)	Donor & Private Fund	UNRA	4	14	191.2	564	6.0
RD-M5	Road	Proposed	Urban Expressway (VVIP-Southern Bypass)	Donor & Private	UNRA	4	6	110.9	582	5.0
TM-M1	Traffic Mng	On-going	Boda-Boda Restriction	GoU	KCCA	-	-	2.0	-	-
PT-M1	Public Transport	Proposed	Upgrading of Existing Metre Gauge Railway Service	GoU & AfDB	URC	-	92	3865.4	-	-
PT-M2	Public Transport	Proposed	Dualisation of BRT Corridor	Donor & Private Fund	MoWT	-	22	270.9	-	-
PT-M3	Public Transport	Proposed	BRT Kampala-Entebbe (along Expressway) Dedicated Lane	Donor & Private	MoWT	-	26	317.6	-	-
PT-M4	Public Transport	Proposed	BRT-Masaka Extension (CBD-Mpigi) Dedicated Lane	Donor & Private Fund	MoWT	-	30	374.3	425	1.7
PT-M5	Public Transport	Proposed	BRT -CBD-Portbell	Donor & Private Fund	MoWT	-	12	149.0	-	-
PT-M6	Public Transport	Proposed	BRT-Gayaza Extension (CBD-Kalagi)	Donor & Private Fund	MoWT	-	32	395.2	483	1.1
PT-M7	Public Transport	Proposed	BRT-Jinja Extension (CBD-Mukono)	Donor & Private Fund	MoWT	-	13	161.3	324	1.7
PT-M8	Public Transport	Proposed	BRT -Nansana-Wakiso-Kakiri	Donor & Private Fund	MoWT	-	20	249.9	-	-
PT-M9	Public Transport	Proposed	BRT Busega-Mpigi (along Busega-Mpigi Expressway) Dedicated Lane	Donor & Private Fund	MoWT	-	27	330.0	-	-
PT-M10	Public Transport	Proposed	BRT -Nansana-Wakiso-Kakiri (along Expressway R4, Namungoona-Bujuko-Kakiri)	Donor & Private Fund	MoWT	-	20	246.2	-	-
PT-M11	Public Transport	Proposed	BRT CBD-Bombo (Along Bombo Expressway) Mixed Lane	Donor & Private	MoWT	-	-	10.8	-	-
PT-M12	Public Transport	Proposed	BRT Inner-Beltway - Ring Road (Along Northern BP - Kampala Entebbe Expressway - Southern BP) Dedicated Lane	Donor & Private Fund	MoWT	-	63	776.9	-	-
PT-M13	Public Transport	Proposed	BRT Kampala- Kasanje (along Nakawuka Road)	Donor & Private Fund	MoWT	-	25	307.8	567	3.0
PT-M14	Public Transport	Proposed	BRT Masooli-Kagoma-Matugga (along Bombo Road)	Donor & Private Fund	MoWT	-	20	251.2	488	2.4
PT-M15	Public Transport	Proposed	BRT Namboole-Namugongo-Seeta	Donor & Private Fund	MoWT	-	14	176.1	332	1.0

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area (ha)
PT-M16	Public Transport	Proposed	Water Transport, Port Bell - Ggaba - Kigungu (Entebbe), Katosi - Port Bell	Donor & Private Fund	MoWT	-	-	270.0	-	-
PT-M17	Public Transport	Proposed	MRT (Kyengera-Namungoona-Bujuko-Kakiri) (along Expressway R4)	Donor & Private Fund	MoWT		24	1,861.9	750	4.7
PT-M18	Public Transport	Proposed	LRT (Kampala-Kajjansi Metropolitan Centre)	Donor & Private Fund	MoWT		18	552.0	253	1.1

Source: JICA Expert Team

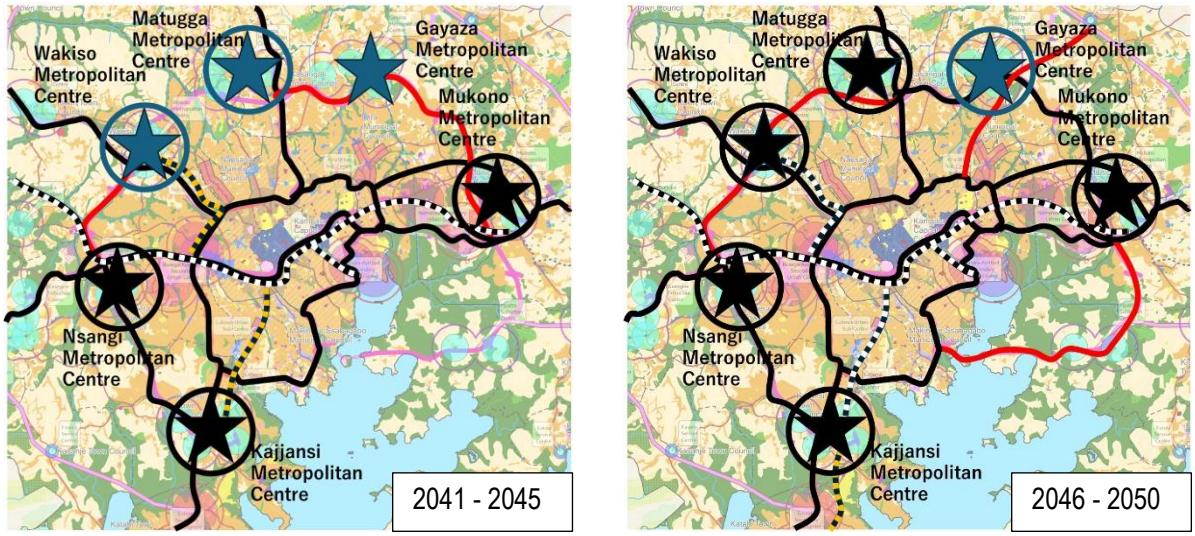
13.6.5 Long-Term Projects (2041-2050)

Population growth brings traffic congestion in the long term. A modal shift to public transport and transit-oriented urban development is critical to achieving sustainability in urban areas. Hence, a dense radial and ring transport network shall be formulated. Urban centres are located at the junctions of these corridors. It should also be noted that the Government of Uganda can finance large infrastructure projects in the long-term due to economic development.

Selection of public transport mode shall be made after further examination of travel demand forecast results in the Draft Final Report.

In terms of freight transport, traffic in the Northern Corridor can be affected by congestion in the CBD. It is critical to separate through traffic and intracity traffic with the Kampala Freight Rail Bypass project which utilises the right-of-way of the Kampala Outer Beltway.

The provisional list of long-term projects is shown in Table 13.6.3.



Note: See Figure 13.6.4 for the legend. Source: JICA Expert Team

Figure 13.6.8 Concept of Transport Network to be Developed in 2041 – 2045 and 2046 – 2050

Table 13.6.3 Provisional List of Long-Term Projects of the Transport Sector

ID	Sector	Status	Project Name	Funding Agencies	Responsible Agency	Lanes	Dist. (km)	Cost (million. USD)	Est. No. of Affected Buildings	Est. Affected Building Area (ha)
RD-L1	Road	On-going	Kampala Outer Beltway Phase 2 (Nsangi-Wakiso-Gayaza-Mukono-Muknyonyo)	Seeking Funds	UNRA	4	85	951.9	345	2.8
RD-L2	Road	Proposed	Expressway R6 (Kira – Kasaayi – Ngalama - Kigogola)	Donor & Private Fund	UNRA	4	20	260.0	337	2.7
PT-L1	Public Transport	Proposed	LRT (Kajjansi Metropolitan Centre – Entebbe Airport)	Donor & Private Fund	MoWT		30	900.0	93	0.2
PT-L2	Public Transport	Proposed	Heavy Rail - Outer Beltway Ring Road, Along 1st Outer Belt Expressway (Kampala Freight Rail Bypass)	Donor & Private Fund	MoWT		56	841.5	-	-
PT-L3	Public Transport	Proposed	BRT Busega-Buloba (along Fort Portal Road)	Donor & Private Fund	MoWT		32	395.2	140	0.4
PT-L4	Public Transport	Proposed	BRT CBD-Bombo (Along Bombo Expressway) Dedicated Lane	Donor & Private Fund	MoWT		47	582.3	488	2.4

Source: JICA Expert Team

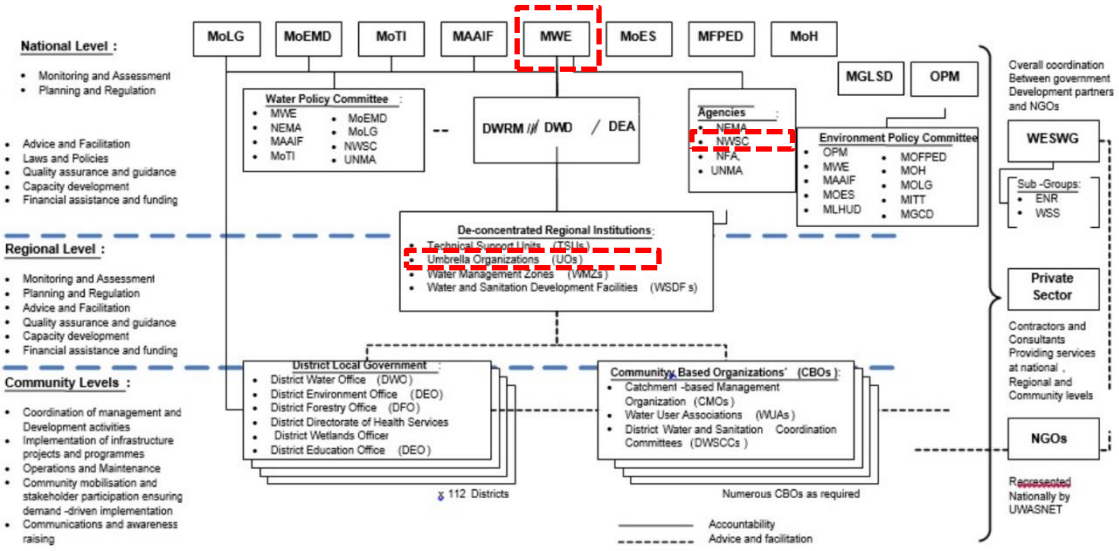
Chapter 14 Development Strategies for Infrastructure Sectors in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City

14.1 Water Supply

14.1.1 Background of Water Supply Sector (Summary of Present Situation)

(1) Organisations and Jurisdiction Areas

Water supply services in Uganda are mainly administrated by the National Water and Sewerage Corporation (NWSC) and Umbrella Organisations (UOs) under the Ministry of Water and Environment (MWE), and are partially organised by local governments under the Ministry of Local Governments.



Source： NWSC Corporate Plan 2021-2024

Figure 14.1.1 Organisational Chart of the Ministry of Water and Environment

The NWSC was established in 1972 as a public corporation owned by the Government of Uganda to provide water and sewerage services in urban areas.

The NWSC served in Uganda more than 887,000 water subscribers at the end of 2022, of which 28,000 connections were pro-poor Public Stand Posts (PSPs) for low-income households, whose tariff is subsidised. NWSC is endowed with 4,467 skilled, experienced, and motivated staff. Its core business is the provision of water and sewerage services in urban centres in Uganda.

The UOs, established in August 2017, comprised of association of Water Supply and Sewerage Boards in a particular region installed voluntarily basis, to pool resources and ideas for achieving sustainable water and sanitation services. UOs cover places that are out of NWSC's service areas. The typical activities of UOs offered to their members are training, advice, support, and services. The six Ugandan UOs (North, East, Central, South-west, Mid-west, and Kramoja) are supported by the MWE.

In GKUGA, NWSC and UOs are divided by region such as urban areas and suburban areas. In urban areas, NWSC are primarily responsible for piped water supply from water treatment plants

(WTPs) and deep groundwater supply. In suburban areas, the Central Umbrella Organisation (CUO) of UOs manages deep groundwater supply. The CUO controls eight water supply schemes in GKUGA as of 2020.

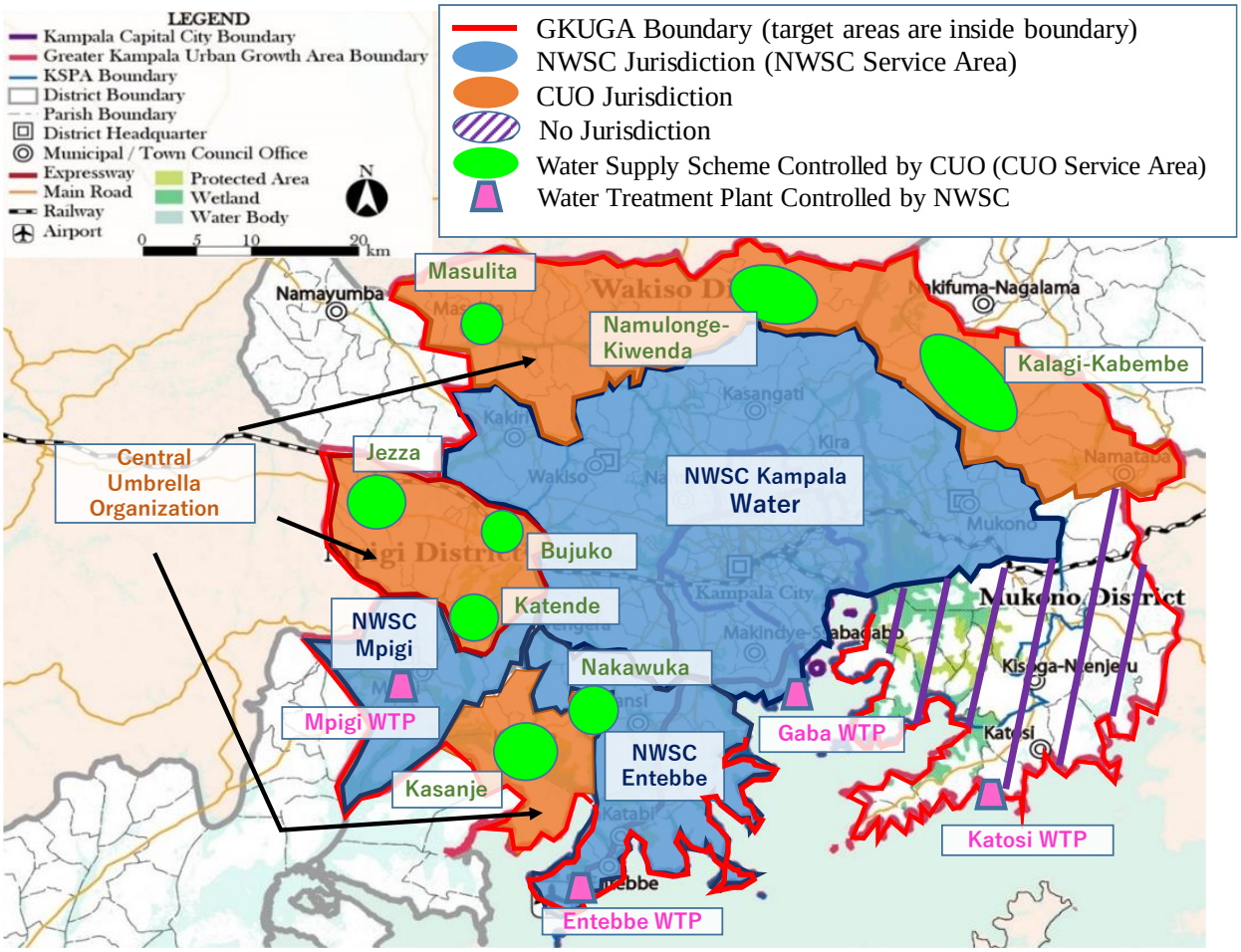
The jurisdiction of water supply facilities in each subcounty is shown in Table 14.1.1 and Figure 14.1.2. As shown in Figure 14.1.2 NWSC provides services to KCC, the central-east GKUGA in Mukono District, and the south-west GKUGA in Mpigi District. Additionally, NWSC provides services in the south Wakiso District, where the international airport is located, specifically in Entebbe City. On the other hand, the CUO's jurisdiction area is in the suburban, and the operated water supply facilities are limited.

Furthermore, in the south-east GKUGA in Mukono District, where forested areas are extensive and the population is sparse, there is currently not part of the jurisdiction of NWSC and CUO. As a result, water supply primarily relies on facilities established and maintained by local government, NGOs, and individual households. Such water supply facilities exist throughout GKUGA beyond the service areas of NWSC and CUO.

Table 14.1.1 Jurisdiction of Service Areas in GKUGA

Jurisdiction Organisation	District	Subcounty (Service Areas)
NWSC Kampala Water	Kampala Capital City (KCC)	Central Division, Kawempe Division, Rubaga Division, Makindye Division, Nakawa Division
	Mukono District	Nakisunga (Kyetume, Namuyenje), Nama (Namubiru), Mukono Central Division, Mukono Goma Division
	Wakiso District	Kakiri (Luwunga, Buwanuka), Kakiri Town (Busujja, Kakiri, Kikubampanga, Nakyelongoosa), Kyengera Town, Wakiso, Wakiso Town, Mende (Banda, Namusera, Mende, Kaliiti)、Kira Municipality (Bweyogerere Division, Kira Division, Namugongo Division), Kasangati Town, Makindye-Ssabagabo Municipality (Bunamwaya Division, Masajja Division, Ndejje Division), Nansana Municipality (Busukuma Division (Magigye), Gombe Division (Matugga), Nabweru Division, Nansana Division)
NWSC Entebbe	Wakiso District	Kajjansi Town (except for Nakawuka), Katabi Town, Entebbe Division A, Entebbe Division B
NWSC Mpigi	Mpigi District	Kiringente, Mpigi Town
Central Umbrella Organisation	Mukono District	Kyampisi, Nama (except for Namubiru)
	Wakiso District	Kakiri (except for Luwunga and Buwanuka), Kakiri Town (except for Busujja, Kakiri, Kikubampanga, and Nakyelongoosa), Kasanje、Kajjansi Town (Nakawuka) , Masuliita、Masulita Town, Nansana Busukuma Division (except for Magigye), Nansana Municipality Gombe Division (except for Matugga)
	Mpigi District	Muduuma
No Jurisdiction Note)	Mukono District	Nakisunga (except for Kyetume, Namuyenje), Ntenjeru, Mpatta, Mpunge

Note) There are water supply facilities being operated by local government, NGOs, and individual households only in areas where NWSC and CUO have no juridication.
Source: JICA Expert Team



Source: JICA Expert Team

Figure 14.1.2 Current NWSC and CUO's Jurisdiction Areas in GKUGA

The NWSC's branch offices by NWSC's jurisdiction areas are as shown in Table 14.1.2 .

Table 14.1.2 HQ and Branch Offices of NWSC in GKUGA

NWSC Administrative Region	NWSC HQ	NWSC Branch
Kampala Metropolitan	NWSC Kampala Water	Kampala City Centre, Nakawa, Nkulabye, Kasanga, Ntinda, Bwaise, Msanafu, Nateete, Salaama, Bulenga, Luzira, Kireka, Najjanankumbi, Udejje, Wakiso, Matugga, Nasana, Kasangati, Kyaliwajjala, Bulenga, Kyengera, Mukono, Seeta
Central Region	NWSC Entebbe	Entebbe, Kajjansi
	NWSC Mpigi	Mpigi

Source: JICA Expert Team

Urbanisation is progressing in the peripheral area outside KCC. According to the 2014 population census, KCC had a population of approximately 1.5 million, while population of whole GKUGA was 3.9 million. The projected population for 2050 is around 2.2 million in KCC and approximately 13 million in whole GKUGA. The Kampala Water Lake Victoria Water and Sanitation Project (KW LV WatSan Project) was planned in 2015 focusing on service area of NWSC Kampala Water Head Quarter, aiming for a target year of 2040. The future demand used in this project was based on population forecasts from the 2002 census and underestimated the population growth rate in the peripheral areas of KCC. Therefore, it targeted approximately 7.5 million people as a service population by 2040.

Subsequently, the master plan was revised before the start of detailed design (DD) of part of KW LV WatSan Project in 2021, considering the population growth rate from the 2014 population census. The revised plan targets around 8.3 million people by 2040 considering financial reason. However, even including the CUO's water supply schemes, around 13 million people (projected population in 2050) comprising whole GKUGA is not covered by the master plan. Even considering other planned projects, only 80% of the per capita design water supply is secured which is 79 litres per capita per day targeted by NWSC in 2040.

(2) Planned and Ongoing Project

1) Kampala Water Lake Victoria Water and Sanitation Project

Kampala Water Lake Victoria Water and Sanitation Project (KW LV WatSan Project) targets service areas which are controlled by NWSC Kampala Water HQ in GKUGA. KW LV WatSan Project consists of the following six packages:

- Package 1: Upgrading and rehabilitation of the Gaba WTP
- Package 2 : Transmission, primary distribution system, and water network modeling and master planning, rezoning and extension
- Package 3 : Refurbishment and optimisation of Gaba WTP
- Package 4 : Construction of Katosi WTP and water quality measurement
- Package 5 : Improvement of water supply and sanitation services in informal settlements
- Package 6 : Accompanying measures including asset management and capacity building

The budget for this project is approximately 212 million euros, funded jointly by the Government of Uganda, Kreditanstalt für Wiederaufbau (KfW), Agence Française de Développement (AFD), European Investment Bank (EIB), and the European Union Infrastructure Trust Fund (EU-ITF). The project aims to expand sustainable water supply and sanitation services around KCC, and provide stable water supply services by 2040.

The master plan, mentioned in Package 2, was initially planned in 2003 (updated in 2010) based on a long-term water supply expansion strategy for the peri-urban areas around KCC. It was officially issued as the master plan in 2015. This project is closely linked to the ongoing and future implementation of the Kampala Sanitation Master Plan (2004).

The master plan covers the period from the intermediate year 2025 to the final year 2040. The target areas include parts of Wakiso District and Mukono District, and KCC covering approximately 1,300 km². Population projections were based on the 2002 population census by the Uganda Bureau of Statistics, estimating around 4.6 million people by 2025 and reaching 7.5 million by 2040. These projections closely aligned with the population estimates from the Kampala Physical Development Plan (KPDF) 2012. Additionally, water demand was estimated to increase from 210,000 m³/day in 2010 to 325,000 m³/day by 2025 and 525,000 m³/day by 2040. However, these figures were based on the 2002 population census, and an Optioneering Report reflecting the 2014 population census was issued in November 2021 during the DD stage. Subsequently, DD was completed, and the Detailed Design Report for Component-1 (GKMA) was issued in June 2023. The updated projected water demand was estimated to 345,863 m³/day by 2025 and 577,269 m³/day by 2040 in Optioneering Report is shown in Table 14.1.3.

Table 14.1.3 Updated Projected Water Demand in KW LV WatSan Project

District	Sub-County	Projected Population		Projected Domestic Consumption (m^3/day)		Projected Non-Domestic Consumption (m^3/day)		Projected Total Water Demand (m^3/day)		Non-Revenue Water (%)	Total Water Demand/Supplied to Network (m^3/day)	
		2025	2040	2025	2040	2025	2040	2025	2040		2025	2040
Kampala Capital City	Central Division	90,707	104,428	3,990	4,593	2,016	2,322	6,006	6,915	25%	8,008	9,219
	Kawempe Division	408,668	470,489	17,108	19,696	8,131	9,361	25,239	29,057	25%	33,652	38,742
	Rubaga Division	462,430	532,384	25,686	29,571	1,423	1,639	27,109	31,210	25%	36,145	41,613
	Makindye Division	474,245	545,988	22,401	25,790	6,617	7,618	29,018	33,408	25%	38,691	44,544
	Nakawa Division	382,552	440,423	24,611	28,335	7,005	8,064	31,616	36,399	25%	42,155	48,532
Mukono	Mukono Central Division	92,421	122,054	4,043	5,340	1,820	2,403	5,863	7,743	25%	7,817	10,324
	Mukono Goma Division	123,421	162,994	5,534	7,308	2,706	3,573	8,239	10,881	25%	10,986	14,508
Wakiso	Kakiri (Luwunga, Buwanuka)	21,328	46,832	1,090	2,393	22	48	1,112	2,441	25%	1,482	3,254
	Kakiri Town Council (Busujja, Kakiri, Kikubampanga, Nakyelongoosa)	30,445	66,848	1,556	3,415	31	69	1,587	3,484	25%	2,116	4,645
	Kajjansi Town Council (Bweya, Kitende,Nsaggu)	23,956	52,602	984	2,160	37	81	1,021	2,241	25%	1,361	2,988
	Kyengera Town Council (except for Kyengera) Nsangi	289,602	635,894	10,447	22,938	272	599	10,719	23,537	25%	14,292	31,382
	Wakiso	249,670	548,215	9,875	21,684	82	180	9,958	21,864	25%	13,277	29,152
	Wakiso Town Council	110,268	242,123	4,162	9,138	83	182	4,245	9,320	25%	5,659	12,427
	Mende (Banda, Namusera Ward, Kaliiti, Mende)	24,792	54,437	938	2,060	27	60	966	2,120	25%	1,287	2,827
	Kira Division	611,413	1,342,515	29,415	64,589	8,420	18,488	37,835	83,077	25%	50,447	110,769
	Kasangati Town Council	260,720	572,479	10,188	22,371	285	625	10,473	22,996	25%	13,964	30,661
	Makindye-Ssabagabo Division	546,091	1,199,084	25,532	56,063	815	1,790	26,348	57,853	25%	35,130	77,137
	Nansana Busukuma Division (Magigye)	12,668	27,816	475	1,043	10	21	485	1,064	25%	646	1,419
	Nansana Gombe Division (Matugga)	60,924	133,774	2,665	5,853	133	292	2,799	6,145	25%	3,732	8,194
	Nansana Nabweru Division	194,615	427,329	6,082	13,354	1,783	3,914	7,864	17,268	25%	10,486	23,025
	Nansana Nansana Division	278,548	611,624	8,705	19,113	2,194	4,817	10,898	23,930	25%	14,531	31,906
Total		**4,749,484**	**8,340,332**	**215,487**	**366,807**	**43,910**	**66,146**	**259,398**	**432,953**		**345,863**	**577,269**

Source : Artelia and Gauff Consultants (U) Ltd., 2021, Kampala Water – Lake Victoria WatSan Project: Consulting Services for the Preparation of Detailed Design, Tendering and Works Supervision for the Rehabilitation, Restructuring and the Extension of Kampala Water Supply Network, Optioneering Report Component- 1 Greater Kampala Area, NWSC

In the Detailed Design Report for Component-1, due to increasing water demand in the suburb, the target area was divided into Component-1 (GKMA) and Component-2 (Mukono and Buikwe Districts), covering a total of 2,356 km² (as shown in Figure 14.1.3).The outline of Component-1 and 2 are as follows:

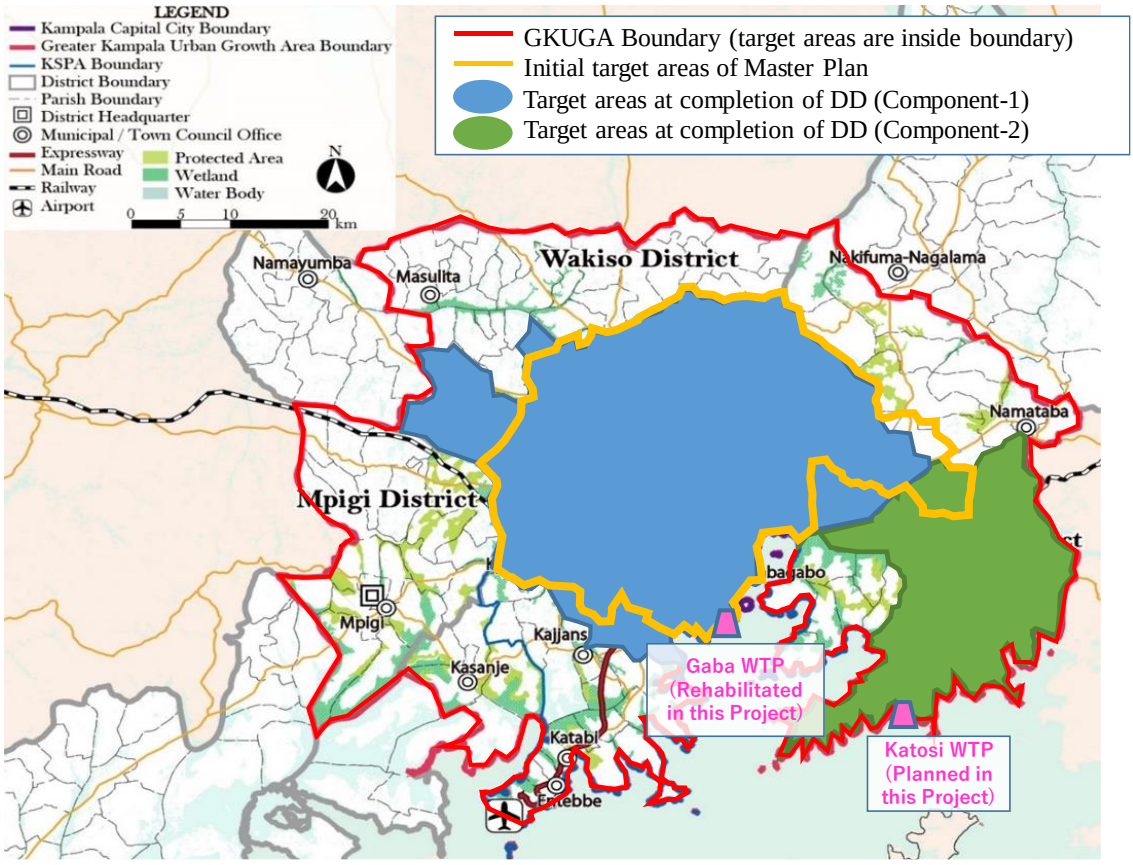
Component-1: Greater Kampala Metropolitan Area (GKMA)

Installation of main water supply pipelines in GKMA [total length: 313 km, including 259 km of new pipelines, 29 km of replacements, and 25 km of pipeline of District Metering Areas (DMA)] and installation of booster pumping stations.

DD was completed in June 2023, and construction contracts are planned to be signed in April 2024.

Component-2: Mukono and Buikwe Counties

Construction of a new 60 km main water supply pipeline from Nsumba Reservoir to Luhazi in order to provide water supply to Lugazi town with the aim of providing future water supply provision to several parishes located within Mukono and Buikwe Districts (including Lugazi Municipality). Development of reservoirs and booster pumping stations is also planned. As of 2024, DD is ongoing, and donor has not been determined.



Source: JICA Expert Team based on Optioneering Report, Detailed Design Report for Component-1 (GKMA)

Figure 14.1.3 Target Areas of KW LV WatSan Project

2) Wakiso West Water and Sanitation Project

Wakiso West Water and Sanitation Project (Wakiso West WatSan Project) targets service areas in South Wakiso District, West Wakiso District, and Central Mpigi District in GKUGA.

Wakiso West WatSan Project consists of three components:

- Component-1 of the project will expand the access to drinking water for the population in West Wakiso and North Mpigi districts as well as to provide bulk water transfers especially

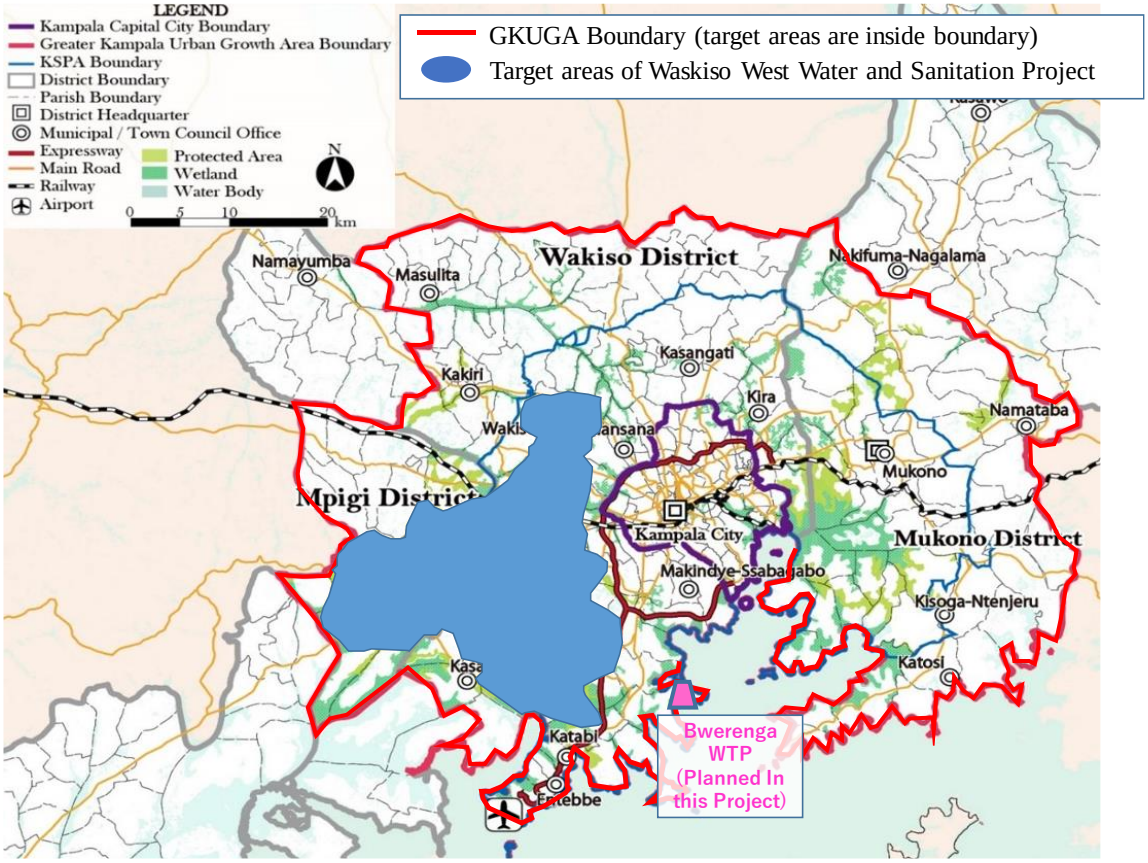
to the existing networks of the Entebbe - Kajjansi – Kampala arterial which experience shortfalls of supply.

- Component-2 of the project aims at improving the faecal sludge treatment and disposal in the project area by the construction of a decentralised faecal sludge treatment plant (FSTP) with a capacity of 400 m^3/day.
- Component-3 will be centred on network expansion for the establishment of community water dispensers (CWDs) and yard taps with electronic pre-paid meters to improve access to water in informal settlements at an affordable cost.

The project design horizon is 2040. However, constructing the required infrastructure to meet 2040 demands exceeds the currently available budget.

As for water supply facilities, the new WTP is planned at Bwerega in this project and its capacity is planned to be 62,500m^3/day for Phase I, and another 62,500m^3/day for Phase II. Therefore, the new WTP has planned water production capacity of 125,000m^3/day in total by 2040. The target service areas are as shown in Figure 14.1.4. As current progress in 2024, the feasibility study of Phase I has been completed and NWSC is undergoing procurement of consultancy for DD.

As for overall budget, the total project cost is 182.4 million euros, of which Danida Business Finance may provide 129.8 million euros as a subsidised loan. The feasibility study assumed the project tertiary networks for Phase I cover a large area but within the capacity of NWSC to rapidly connect these networks to consumers. This will result in an early high uptake of water.



Source：JICA Expert Team based on Wakiso West WatSan Project

Figure 14.1.4 Target Areas of Wakiso West WatSan Project

(3) Tariff System

In GKUGA, different tariff systems are available, as shown in Table 14.1.4.

The NWSC implements a uniform tariff with a cross subsidy in all towns and consumer categories. Since there were insignificant changes on the indexation parameters, the tariff structure has been maintained. Item No.1 in Table 14.1.4 shows the NWSC tariff implemented for the various consumer categories during the Financial Year 2021/22.

Water supply facilities outside of NWSC's controlled areas are established by CUO. The pro-poor public stand posts (PSPs), installed by NWSC's urban pro-poor branch, aim to provide facilities with affordable tariffs to low-income households. These are pre-paid systems using electronic billing generated by token, and the water tariff is UGX 25 for a jerrycan (20-litre poly tank). However, tokens are often out of stock, and private vendors who have tokens resell water to poor people at UGX 100 per jerrycan. Therefore, some poor people have no option but to purchase water at a high cost. Due to this circumstance, the resell tariff was corrected from UGX 100 to UGX 50 per jerrycan by NWSC in January 2021. Additionally, it is not easy to maintain PSPs and most of them are out of order; therefore, the government has begun rehabilitating them since 2022.

Table 14.1.4 Water Supply Tariff Systems in GKUGA

No.	Facility Type	Organisation	Water Tariff
1	Piped water through NWSC water supply system from Gaba WTP, Katosi WTP, deep ground water, and surface water with treatment 1) Pro-poor Public Stand Posts (PSPs) 2) House connection supply/yard tap 3) Institution/ Government 4) Commercial 5) Industrial	・ NWSC ・ MWE	1) Pro-poor Public Stand Posts: UGX 25 for a jerrycan (20 litres) or UGX1,060 / m^3 2) House connection supply (domestic customers): UGX 83 for a jerrycan (20 litres) or UGX3,516 / m^3 3) Institution/Government: UGX 84 for a jerrycan (20 litres) or UGX3,558 / m^3 4-1) Commercial (500m3/month): UGX 99 for a jerrycan (20 litres) or UGX4,220 / m^3 4-2) Commercial (500-1,500 m^3/month): UGX 79 for a jerrycan (20 litres) or UGX3,373 / m^3 5-1) Industrial (1,000 m^3/month or less): UGX 99 for a jerrycan (20 litres) or UGX4,220 / m^3 5-2) Industrial (more than 1,000 m^3/month): UGX 59 for a jerrycan (20 litres) or UGX2,500 / m^3
2	Public stand post and house connection supply using deep groundwater, shallow well and protected spring with/without treatment	・ CUO ・ MWE ・ District local government	Public stand post: UGX 100 for a jerrycan (20 litres) <Tariff depends on the county> House connection supply: UGX 3,400/m^3 <Tariff depends on the county> Commercial supply: UGX2,120/m^3 <Tariff depends on the county>
3	Purchasing water from vender such as domestic user described in No.1	Private	UGX100 for a jerrycan (20 litres)
4	1) Shallow well and borehole without any treatment 2) Protected / unprotected spring 3) Water from rainwater harvest tank	Private	Free of charge

Source: Compiled by JICA Expert Team based on NWSC Integrated Annual Report 2021-2022

	
Pro-poor public stand posts (PSPs) at Kyamga in Kampala	Token for PSPs
	
House connection supply/yard tap at Kyamga in Kampala Capital City	Public stand post organised by District Local Government in Wakiso subcounty, Wakiso District (Lukwanga Solar Powered Piped Water Supply System)

Source: JICA Expert Team

Figure 14.1.5 Facility by Tariff Systems in GKUGA

As for house connection supply by NWSC, the following connection costs were covered by the government until September 2020; however, these costs had been borne by residents from October 2020 due to financial difficulties of the government. Accordingly, most house connections are installed in medium-income and high-income households.

- Cost of pipe materials between distribution pipe and house connection points
- Installation cost of connection pipe depends on diameter of intermediary distribution pipes
- Cost of water meter

(4) Water Supply Facilities

As major water supply facilities in GKUGA, there are WTPs and deep groundwater facilities which are controlled by NWSC, and deep groundwater facilities controlled by CUO. However, deep groundwater facilities controlled by NWSC are limited.

In GKUGA, Katosi WTP and Gaba WTP are main WTPs that supply water to KCC, as well as in the central-east Mukono and from central-west to central-east Wakiso district. Additionally, there are two more water treatment plants: Entebbe WTP in the south Wakiso district and Mpigi WTP in Mpigi district. There are four WTPs in total to provide water supply in GKUGA.

Table 14.1.5 shows some details of each facility. The Katosi WTP, shown in Table 14.1.5, was constructed as the master plan known as the KW LV WatSan Project. The master plan includes expansion works to achieve a production capacity of 240,000 m³/day by 2040. Currently, the four WTPs in GKUGA have an estimated surplus water production capacity of around 90,000 m³/day.

Regarding Katosi WTP's surplus portion of 70,000 m^3/day out of 90,000 m^3/day, is planned to be provided to the major water supply facilities under construction starting in 2024 as component-1 of KW LV WatSan Project.

CUO's water supply facilities operate exclusively using deep groundwater sources. However, there is a possibility that the CUO's facilities have no potential of surplus water production capacity due to decrease in pumped water volume since construction in Jezza as basis. The details of water supply facilities of CUO in GKUGA are shown in Table 14.1.6.

Table 14.1.5 Water Supply Facilities of NWSC in GKUGA (as of 2021)

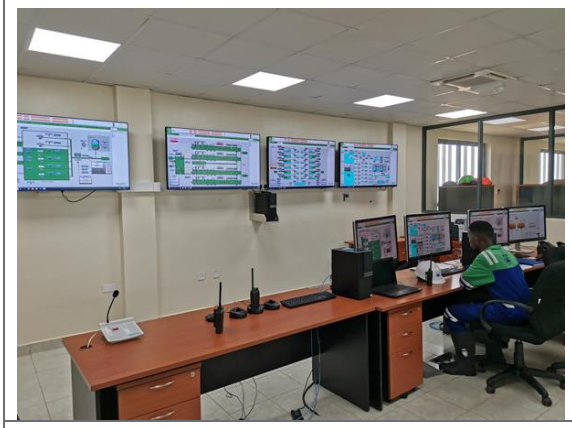
NWSC HQ	NWSC Kampala		NWSC Entebbe	NWSC Mpigi
WTP	Gaba I, II, III WTP	Katosi Ia, Ib WTP	Entebbe WTP	Mpigi WTP
Construction Year	Gaba I：1929 （rehabilitated in 2017） Gaba II： 1993 Gaba III：2007	Katosi Ia：2021 Katosi Ib：2021	2007	2007
Intake Facility and Raw Water Transmission Pipe	Water source: Lake Victoria Intake pump: 4,000 m^3/hr x 4 units （standby: 1 unit） Raw water transmission pipe: Approx. 220 m (intake point is 220 m offshore from the lake shore)	Water source: Lake Victoria Intake pump: 1,950 m^3/hr x6 units (standby: 2 units) Raw water transmission pipe: Approx. 530 m (intake point is 530 m offshore from the lake shore)	Water source: Lake Victoria Intake pump: 700 m^3/hr x 1 unit, 400 m^3/hr x 1 unit Raw water transmission pipe: Approx. 330 m (intake point is 330 m offshore from the lake shore)	Water source：Makokobe wetland Intake pump:50 m^3/hr x 2 units Raw water transmission pipe: PN150, Approx. 500 m
Design Capacity	Gaba I：72,000 m^3/day Gaba II：80,000 m^3/day Gaba III：80,000 m^3/day	Katosi Ia：80,000 m^3/day Katosi Ib：80,000 m^3/day Total 160,000 m^3/day	26,000 m^3/day (1,000 m^3/day is used inside WTP for operation) 2)	1,200 m^3/day
Total	419,200 m^3/day			
Average Water Production	Total: 232,000 m^3/day	Total:70,000 m^3/day 1)	26,000 m^3/day	1,200 m^3/day
Total	329,200 m^3/day			
Surplus Water Production Capacity	Total: 0 m^3/day	Total: 90,000 m^3/day	0 m^3/day	0 m^3/day
Total	90,000 m^3/day			
Water Treatment Process	Receiving well→ Flocculation basin→ Sedimentation →Rapid sand filter→Clear water reservoir→Transmission main	Receiving well→ Flocculation basin→ Sedimentation→Dissolved-air flotation→Rapid sand filter→Clear water reservoir →Transmission main	Receiving well→ Flocculation basin→ Sedimentation →Rapid sand filter→Clear water reservoir→ Transmission main	Receiving well→ Aeration→ Flocculation basin→ Sedimentation → Rapid sand filter→ Clear water reservoir →Transmission main

Note1) Average water production in Katosi WTP in February 2024 was 85,000 m^3/day.
Note2) 1,000 m^3/day as WTP internal use was included in average water production in Entebbe WTP
Source: JICA Expert Team based on interview survey

Table 14.1.6 Water Supply Facilities of CUO in GKUGA (as of 2020)

Scheme	Kalagi-Kabembe	Masulita	Namulonge-Kiwenda	Nakawuka	Kasanje	Jezza	Bujuko	Katende
District	Mukono	Wakiso	Wakiso	Wakiso	Wakiso	Mpigi	Mpigi	Mpigi
Division/Town/ Subcounty	Kyampisi and Nama	Masulita & Masulita TC	Busukuma	Kajjansi	Kasanje	Mudduma	Mudduma	Kiringente
Construction Year	2018	-	2018	2004	2013	2014	2009	2016
Power [1)]	Commercial power supply/ diesel	Commercial power supply	Commercial power supply/ diesel	Commercial power supply	Commercial power supply/diesel	Commercial power supply	Commercial power supply	Commercial power supply
Design Capacity	768 m^3/day	44 m^3/day	460 m^3/day	106 m^3/day	175 m^3/day	150 m^3/day	45 m^3/day	112 m^3/day
Total	1,860 m^3/day							
Average Water Production	379 m^3/day	44 m^3/day	348 m^3/day	106 m^3/day	177 m^3/day	110 m^3/day	21 m^3/day	112 m^3/day
Total	1,297 m^3/day							
Surplus Water Product ion Capacity	379 m^3/day	0 m^3/day	112 m^3/day	0 m^3/day	0 m^3/day	0 m^3/day [2)]	24 m^3/day	0 m^3/day
Total	515 m^3/day							
Water Treatment System	Pump up from deep groundwater → Collection tank → Elevated tank → Distribution to each household and PSPs (without chlorine injection)							

Note1) Diesel power generation was introduced for emergency
Note2) At the time of site survey in 2024, actual water production capacity in Jezza was decreased, and there was no surpus production capacity
Source: Umbrella Authorities 2020



SCADA system in Katosi WTP (centralised management system)

Rapid sand filter in Entebbe WTP

Aeration facility in Mpigi WTP

Transmission pump in Gaba WTP

Water collection tank at Namulonge-Kiwenda scheme

Elevated tank at Kalagi-Kabembe scheme

Source: JICA Expert Team

Figure 14.1.6 Water Suply Facilities in GKUGA

(5) Water Demand

Table 14.1.7 indicates the estimated per capita water supply and population served in NWSC's service areas.

The estimated service population in the whole NWSC's service areas in GKUGA is approximately 2,578 thousand people, with an actual per capita water supply of approximately 68.5 litres per capita per day. The lower water supply volume in NWSC Mpigi is attributed to the fact that Mpigi's water treatment plant follows a conventional system designed for small urban areas, relying primarily on PSPs for water distribution.

Table 14.1.7 Actual per Capita Water Supply of NWSC Service Areas in GKUGA (2021-2022)

NWSC HQ	A. Water consumption (m^3/day)	B. Active connection accounts (connection)	C. Active PSPs (unit)	D. Service population (unit) <B x average households size + C x 200 persons> 1)	Actual per capita water supply (L/capita/day) < A / D >
NWSC Kampala Water	159,267	340,753	4,761	2,281,137	69.8
NWSC Entebbe	16,383	37,265	410	227,334	72.1
NWSC Mpigi	1,020	5,018	252	69,970	14.6
Total	**176,670**	**383,036**	**5,423**	**2,578,440**	**68.5**

Note1) Accoding to the National Population and Housing Census 2014, the number of average households is calculated to 3.9 with consideration of 3.5 in KCC, 3.9 in Wakiso district, 4.0 in Mukono district, and 4.1 in Mpigi district. Regarding covered population by PSPs, 200 persons per PSP which is indicator of NWSC is applied.
Source: NWSC Integrated Annual Report 2021-2022

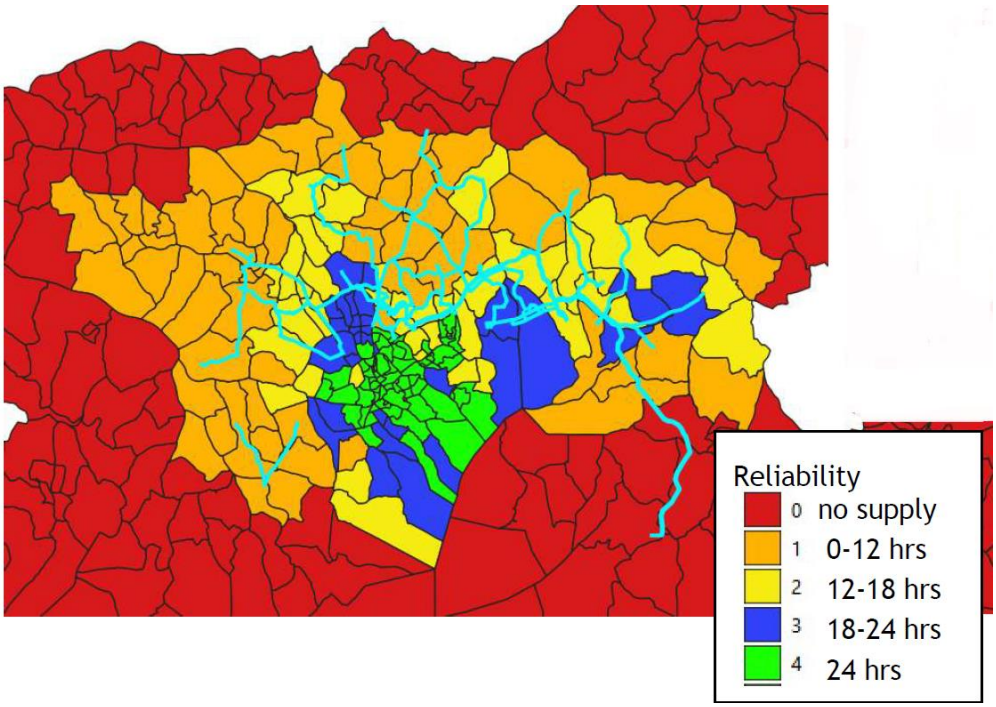
Based on the 2014 population census and population growth rate, the total population in NWSC's service areas in GKUGA was estimated to be 4,711 thousand as of 2021 as shown in Figure 14.1.7. Consequently, approximately 2,133 thousand people in the whole NWSC's service areas were not receiving water supply from NWSC. Therefore, service coverage rate was approximately 55% in 2021.

Figure 14.1.7 Population Forecast for NWSC's Service Areas in GKUGA

NWSC HQ	Year 2014	Year 2021	Year 2025
NWSC Kampala Water	3,193,486	4,232,000	4,860,000
NWSC Entebbe	262,112	392,000	463,000
NWSC Mpigi	66,085	87,000	106,000
Total	**3,521,683**	**4,711,000**	**5,429,000**

Source: Compiled by JICA Expert Team based on National Population and Housing Census 2014

Furthermore, the per capita design water supply of NWSC which is mentioned in the master plan aims for 68 litres per capita per day by 2025. This includes 66 litres per capita per day for household use and 2 litres per capita per day for commercial use. Therefore, the service areas currently receiving water supply from NWSC are, on the average, meeting the per capita design water supply. However, in NWSC Mpigi's service areas, the actual per capita water supply is 14.6 litres per capita per day, falling short of the per capita design water supply. Variations in water supply volume occur across different service areas, with NWSC Kampala Water's service areas showing significant disparities. In the central part of KCC, there is 24-hour water supply; while in the peripheral, water supply ranges from 0 to 12 hours per day as shown in Figure 14.1.8.



Source: Optioneering Report- Component-1 (Greater Kampala Metropolitan Area) prepared by NWSC

Figure 14.1.8 Reliability of NWSC's Kampala Water in Its Service Areas （as of December 2020）

The population in CUO's service areas in GKUGA was 107,300 in 2020 as shown in Table 14.1.8. The actual per capita water supply was 7.4 litres per capita per day calculation with billed water amount.

Table 14.1.8 Actual per Capita Water Supply in CUO's Service Area in GKUGA (as of 2020)

Scheme	District / Subcounty	Population in 2020	Service population	C. Billed water amount (m^3/day)	Actual per capita water supply (L/capita/day) < C / B >
Kalagi-Kabembe	Mujkono District/ Kyampisi Subcounty	62,000	25,075	244	9.7
	Mukono District/ Nama Subcounty	56,000			
Masulita	Wakiso District/ Musulita subcounty	12,000	10,560	39	3.7
	Wakiso District/ Musulita Town	20,000			
Namulonge-Kiwenda	Wakiso District/ Nansana Busukuma Division	40,000	16,367	209	12.8
Nakawuka	Wakiso District/ Kajjansi Town	12,000	15,987	53	3.3
Kasanje	Wakiso District/ Kasanje Subcounty	35,000	13,452	91	6.8
Jezza	Mpigi District/ Muduuma Subcounty	37,000	9,900	71	7.2
Bujuko			10,000	16	1.6
Katende	Mpigi District/ Kiringente Subcounty	22,000	5,689	68	12.0
Inside Scheme Sub-Total		296,000	107,030	791	7.4
Outside Scheme Note)		104,000	-	-	-
Total		**400,000**	-	-	-

Note) Subcounties of the outside scheme are Kakiri (except for Luwunga, Buwanuka), Kakiri Town Council (except for Busujja, Kakiri, Kikubampanga, and Nakyelongoosa), Nansana Gombe Division (except for Matugga)
Population of Nakawuka in 2020 is reference value.
Source: Compiled by JICA Expert Team based on Umbrella Authority 2020 and National Population and Housing Census 2014

According to the 2nd edition of *Uganda Water Supply Design Manual* issued in 2013 by MWE, the per capita minimum design water supply in CUO's controlled areas in GKUGA is 20 litres per capita per day (average value is 37 litres per person per day). Consequently, the actual per capita water supply in CUO's service areas is approximately 30% of the per capita minimum design water supply. It shows shortage of water supply significantly.

The total population in CUO's service areas in GKUGA was estimated to be 400 thousand as of 2020, based on the 2014 population census and population growth rate as shown in Table 12.1.8. Therefore, approximately 293 thousand people in the whole CUO's controlled areas in GKUGA were not receiving water supply from CUO's water supply facilities. Therefore, service coverage rate was approximately 27% in 2020.

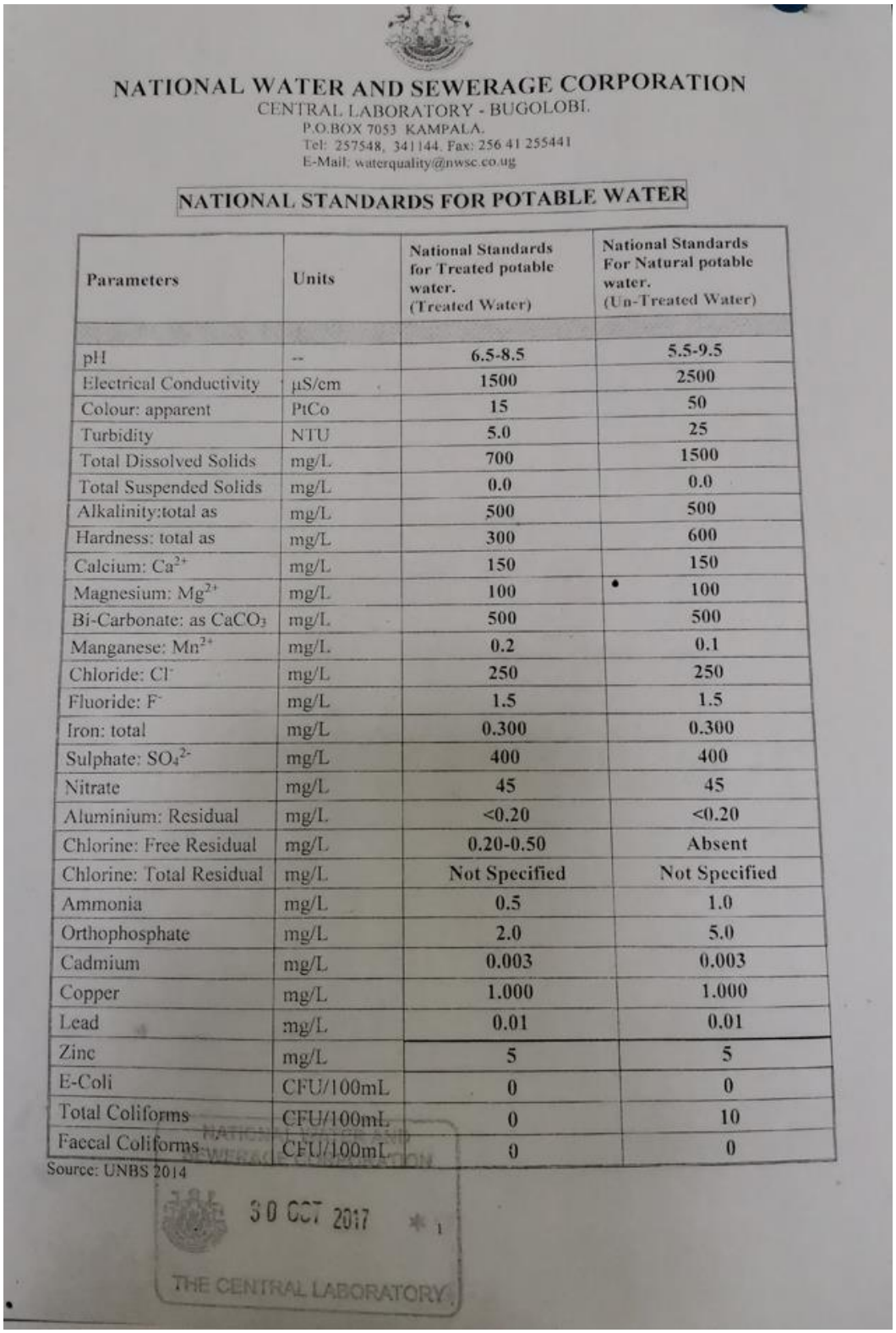
The primary water supply facilities in uncontrolled areas of NWSC and CUO are operated by local government, NGOs, and individual households through independently developed water supply facilities.

(6) Water Quality

NWSC has established laboratories for water quality tests which adhere to international standards. These are the Central Laboratory, Regional Laboratory, and Area Laboratory, where water quality tests are conducted. Additionally, collaborative water quality monitoring is conducted involving information sharing with the Kampala Capital City Authority (KCCA), the Uganda National Bureau of Standards (UNBS), and MWE. Furthermore, the Central Laboratory provides water quality testing services to external clients.

Regarding NWSC's service areas, a water quality test is conducted regularly (once a week to once a month) by NWSC, with varying testing frequencies depending on the sampling locations. These sampling points include reservoirs, booster pumps, hospitals, markets, public taps, private taps, and deep groundwater wells. According to the NWSC Integrated Annual Report 2020-2021, 98% of water samples nationwide met the national standards for potable water, achieving the target set for the 2020 fiscal year mentioned in the NWSC Corporate Plan 2021-2024. Therefore, an achievement rate on water quality was 100%. It can be assumed that achievement rate on water quality was similar in GKUGA.

For instance, examining the test results from the Katosi WTP for the period July to September 2021, out of a total of 952 samples, only two samples exceeded the standard for color, while 950 samples remained within the standard (99.8% compliance).



NATIONAL WATER AND SEWERAGE CORPORATION
CENTRAL LABORATORY - BUGOLOBI.
P.O.BOX 7053 KAMPALA.
Tel: 257548, 341144. Fax: 256 41 255441
E-Mail: waterquality@nwsc.co.ug

NATIONAL STANDARDS FOR POTABLE WATER

Parameters	Units	National Standards for Treated potable water. (Treated Water)	National Standards For Natural potable water. (Un-Treated Water)
pH	--	6.5-8.5	5.5-9.5
Electrical Conductivity	µS/cm	1500	2500
Colour: apparent	PtCo	15	50
Turbidity	NTU	5.0	25
Total Dissolved Solids	mg/L	700	1500
Total Suspended Solids	mg/L	0.0	0.0
Alkalinity:total as	mg/L	500	500
Hardness: total as	mg/L	300	600
Calcium: Ca^{2+}	mg/L	150	150
Magnesium: Mg^{2+}	mg/L	100	100
Bi-Carbonate: as $CaCO_3$	mg/L	500	500
Manganese: Mn^{2+}	mg/L	0.2	0.1
Chloride: Cl^-	mg/L	250	250
Fluoride: F^-	mg/L	1.5	1.5
Iron: total	mg/L	0.300	0.300
Sulphate: SO_4^{2-}	mg/L	400	400
Nitrate	mg/L	45	45
Aluminium: Residual	mg/L	<0.20	<0.20
Chlorine: Free Residual	mg/L	0.20-0.50	Absent
Chlorine: Total Residual	mg/L	Not Specified	Not Specified
Ammonia	mg/L	0.5	1.0
Orthophosphate	mg/L	2.0	5.0
Cadmium	mg/L	0.003	0.003
Copper	mg/L	1.000	1.000
Lead	mg/L	0.01	0.01
Zinc	mg/L	5	5
E-Coli	CFU/100mL	0	0
Total Coliforms	CFU/100mL	0	10
Faecal Coliforms	CFU/100mL	0	0

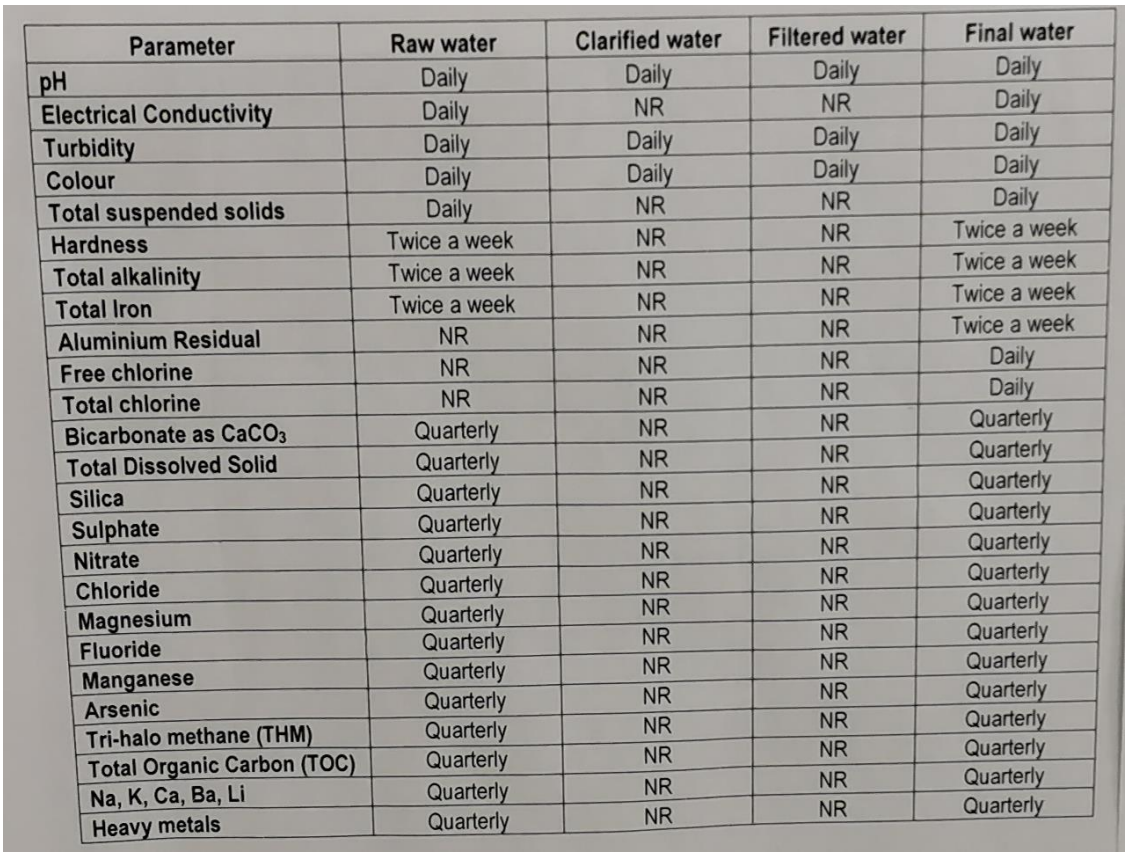
Source: UNBS 2014

30 OCT 2017

THE CENTRAL LABORATORY

Source: NWSC

Figure 14.1.9 National Standards for Potable Water



Parameter	Raw water	Clarified water	Filtered water	Final water
pH	Daily	Daily	Daily	Daily
Electrical Conductivity	Daily	NR	NR	Daily
Turbidity	Daily	Daily	Daily	Daily
Colour	Daily	Daily	Daily	Daily
Total suspended solids	Daily	NR	NR	Daily
Hardness	Twice a week	NR	NR	Twice a week
Total alkalinity	Twice a week	NR	NR	Twice a week
Total Iron	Twice a week	NR	NR	Twice a week
Aluminium Residual	NR	NR	NR	Twice a week
Free chlorine	NR	NR	NR	Daily
Total chlorine	NR	NR	NR	Daily
Bicarbonate as $CaCO_3$	Quarterly	NR	NR	Quarterly
Total Dissolved Solid	Quarterly	NR	NR	Quarterly
Silica	Quarterly	NR	NR	Quarterly
Sulphate	Quarterly	NR	NR	Quarterly
Nitrate	Quarterly	NR	NR	Quarterly
Chloride	Quarterly	NR	NR	Quarterly
Magnesium	Quarterly	NR	NR	Quarterly
Fluoride	Quarterly	NR	NR	Quarterly
Manganese	Quarterly	NR	NR	Quarterly
Arsenic	Quarterly	NR	NR	Quarterly
Tri-halo methane (THM)	Quarterly	NR	NR	Quarterly
Total Organic Carbon (TOC)	Quarterly	NR	NR	Quarterly
Na, K, Ca, Ba, Li	Quarterly	NR	NR	Quarterly
Heavy metals	Quarterly	NR	NR	Quarterly

Note) NR is “not applicable”
Source: NWSC

Figure 14.1.10 Test Items at WTPs Controlled by NWSC

In the CUO, water quality test is conducted every three months using mobile laboratories and water quality testing facilities owned by the MWE. The sampling points include public taps, private taps, elevated tanks, and office buildings. Additionally, water quality standards applied are consistent with those used by NWSC, following the National Standards for Potable Water.

Based on the water quality test results conducted by CUO in 2020 (specifically focusing on microbiological tests), approximately half of the water supply facilities in GKUGA showed the detection of microorganisms such as *E. coli*, Total Coliforms, and Faecal Coliforms as shown in Table 14.1.9.

Table 14.1.9 Results of Water Quality Test for CUO’s Water Supply Facilities in GKUGA (2020)

Scheme	% of Microbiology Tests complying with criteria	National Standards Criteria (CFU/100 ml) Note)
Kalagi-Kabembe	80	0
Masulita	100	0
Namulonge-Kiwenda	No data	0
Nakawuka	No data	0
Kasanje	100	0
Jezza	67	0
Bujuko	50	0
Katende	No data	0

Note) CFU/100 ml（Colony Forming Unit/100 ml）is number of bacteria per 100 ml
Source: Umbrella Authorities 2020

(7) Non-Revenue Water

The non-revenue water (NRW) rates of each NWSC's service area in GKUGA from fiscal years 2018 to 2021 are shown in Table 14.1.10. Over the past four years, there had been a trend of increasing NRW rates, with approximately 40% for the whole NWSC's controlled areas in GKUGA.

Notably, NWSC Kampala Water, which control the central part of GKUGA, had a high NRW rate of 41%, while NWSC Mpigi's NRW rate was approximately 18%.

There are many ageing pipelines, and high internal pressure inside the pipes leads to water leakage in the central part of GKUGA. On the other hand, for NWSC Mpigi's service areas, leakage is relatively found easier due to the smaller population served and shorter total pipeline length. Therefore, it is assumed that NWSC Mpigi's service areas have a lower non-revenue water rate.

The main reasons for NRW are the following:

- Damages to the pipe network arising from road works
- Aged pipe network which is prone to leaks and bursts and requires replacement
- Under registering of some meters mainly due to old age
- Water theft through illegal connections and meter bypasses

Table 14.1.10 NRW Rates in NWSC's Service Areas in GKUGA (2018-2022)

NWSC HQ	FY2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022
NWSC Kampala Water	35%	40%	41%	41%
NWSC Entebbe	26%	36%	38%	30%
NWSC Mpigi	21%	17%	19%	18%
Total	**34%**	**39%**	**40%**	**40%**

Note) Total value was calculated based on average water production and billed water amount
Source: NWSC Integrated Annual Report 2018-2019, 2019-2020, 2020-2021, and 2021-2022

NRW rate in CUO's service areas in GKUGA is shown in Table 14.1.11. In 2020, the NRW rate of the whole CUO's service areas was approximately 39%. However, during the site survey in 2024, NRW rate had increased significantly, except for some areas, resulting in a high rate of 49% for the whole CUO's service areas in GKUGA.

Table 14.1.11 NRW Rate in NWSC's Service Areas in GKUGA (2018-2022)

Scheme	District/ Subcounty	Year 2020			Year 2024
		Average water production (m^3/day)	Billed water volume (m^3/day)	NRW rate <(A - B) /A>	NRW rate
Kalagi-Kabembe	Mujkono District/ Kyampisi and Nama subcounty	379	244	36%	41%
Masulita	Wakiso District/ Musulita Subcounty and Musulita Town	44	39	10%	No data
Namulonge-Kiwenda	Wakiso District/ Nansana Municipality Busukuma Division	348	209	40%	49%
Nakawuka	Wakiso District/ Kajjansi Town	106	53	50%	53%
Kasanje	Wakiso District/ Kasanje Subcounty	177	91	49%	62%
Jezza	Mpigi District/ Muduuma Subcounty	110	71	36%	No data
Bujuko		21	16	23%	No data
Katende	Mpigi District/ Kiringente Subcounty	112	68	39%	53%
Total		**1,297**	**791**	**39%**	**49%**

Sources: Umbrella Authorities 2020 and Central Umbrella Organisation

14.1.2 Issues on Water Supply Sector

(1) Balance of Future Water Demand with Water Supply

NWSC has planned water production volume for the water treatment plants, including those newly established under the Master Plan (KW LV WatSan Project) and the Wakiso West WatSan Project, up to year 2040 as shown in Table 14.1.12. As of 2021, the average water production was 329,200 m³/day, while the planned design capacity for 2040 was 624,200 m³/day. Therefore, the surplus water production capacity by 2040 will be 295,000 m³/day.

Table 14.1.12 Planned Design Capacity of WTP in GKUGA (2040)

WTP	A. Planned design capacity in 2040 (m³/day)	B. Average water production in 2021 (m³/day)	C. Surplus water production capacity in 2040 (m³/day) <A – B>	Implementation of the future project [1)]	NWSC HQ to be controlled
Gaba I	232,000	232,000	0	-	NWSC Kampala Water
Gaba II					
Gaba III					
Katosi IA Katosi IB	160,000	70,000 [2)]	90,000	KW LV WatSan Project (component-1)	NWSC Kampala Water
Entebbe	26,000	26,000	0	-	NWSC Entebbe
Mpigi	1,200	1,200	0	-	NWSC Mpigi
Katosi II	80,000	0	80,000	KW LV WatSan Project (component-2)	No Jurisdiction [3)]
Bwerenga	125,000	0	125,000	Wakiso West Watsan Project	NWSC Kampala Water, NWSC Entebbe and NWSC Mpigi
Total	624,200	329,200	295,000	-	-

Note 1) Gaba WTP, Entebbe WTP, and Mpigi WTP are existing WTPs in 2024.
Note 2) Operation water production is 85,000m³/day in 2024.
Note 3) None of controlled HQ for service areas of Katoshi II WTP in 2024; therefore, NWSC Kampala Water is planned to take control in the future.
Source: Compiled by JICA Expert Team based on Optioneering Report, DD Report – Component-1 (GKMA) and Wakiso West Water and Sanitation Project Feasibility Study Report

The projected population and water demand for the master plan's target year of 2040 and the project's target year of 2050 are shown in Table 14.1.13. According to the Master Plan, the per capita design water supply up to 2025 is 68 litres per person per day, with an estimated 1% increase in water supply beyond 2025. Therefore, the estimated per capita design water supply for 2040 and 2050, combining residential and commercial use, is 79 litres per capita per day and 88 litres per capita per day, respectively.

As a result, in the NWSC's controlled areas, the water demand is projected to be 745,605 m³/day in 2040 and 1,035,672 m³/day in 2050. However, the planned design capacity for 2040 is 624,200 m³/day as shown in Table 14.1.12. Considering the target non-revenue water rate of 25% from the Optioneering Report at the start of the DD, the estimated water supply volume is 468,150 m³/day in 2040. Therefore, even with the implementation of the Master Plan (KW LV WatSan Project) and the Wakiso West WatSan Project, only about 60% of the water demand will be satisfied in 2040.

There are currently no plans to expand WTP beyond 2040. Therefore, with a water projected demand of 1,035,672 m³/day in 2050, the covered water supply volume will be approximately 45% of the required amount based on the water supply volume of 468,150 m³/day in 2040.

Table 14.1.13 Projected Water Demand in NWSC's Service Areas in GKUGA

NWSC HQ	A. Population in 2021	B. Population in 2040	C. Population in 2050	Water demand in 2021 (m^3/day) <A x68L per capita per day>	Water demand 2040 (m^3/day) <B x79L per capita per day>	Water demand 2050 (m^3/day) <C x88L per capita per day>
NWSC Kampala Water	4,232,000	8,283,000 1)	10,083,000 1)	287,776	654,357	887,304
NWSC Entebbe	392,000	930,000	1,294,000	26,656	73,470	113,872
NWSC Mpigi	87,000	225,000	392,000	5,916	17,775	34,496
Total	**4,711,000**	**9,438,000**	**11,769,000**	**320,348**	**745,602**	**1,035,672**

Note 1) Projected population of NWSC's Kampala Water in 2040 and in 2050 include KW LV WatSan Project component-2. Each population was estimated by JICA Expert Team based on National Population and Housing Census 2014.
Source: JICA Expert Team

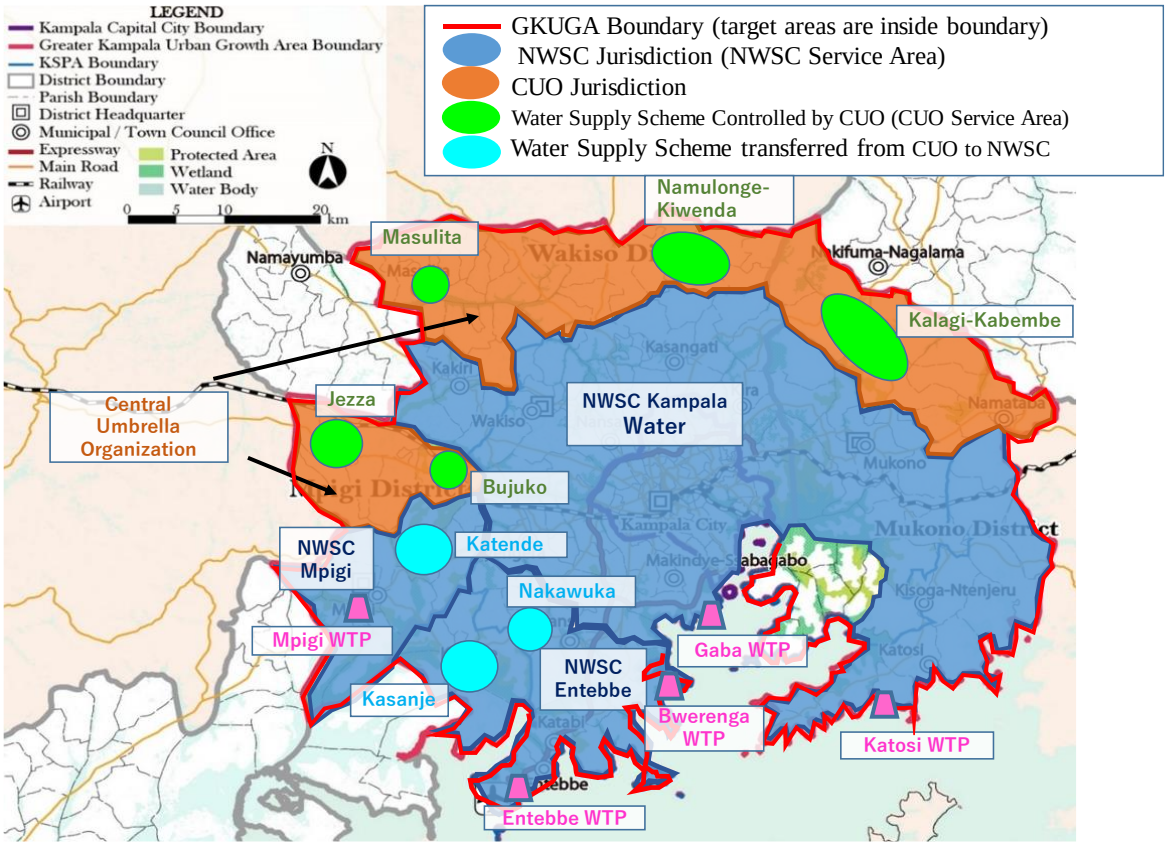
In the areas controlled by CUO in GKUGA, there are currently no medium and long-term projects planned for expanding water supply facilities. Therefore, CUO is actively seeking donors. The projected population and water demand for GKUGA in 2040 and 2050 are shown in Table 14.1.14. The per capita design water supply is set at the minimum volume of 20 litres per capita per day in Table 14.1.14.

As of 2020, the total actual water production capacity of all water supply facilities in CUO's service areas in GKUGA was 1,860 m^3/day as shown in Table 14.1.6. However, since no major projects are planned for the future, it is assumed that significant increase in production capacity will be low. Assuming a NRW rate of 25% in 2050, the water supply volume will be 1,395 m^3/day against the existing production capacity of 1,860 m^3/day. According to Table 14.1.14, the water demand for the whole CUO's service area in 2050 will be 26,040 m^3/day, resulting in an approximate 5% service coverage rate, which indicates that almost the whole region will lack adequate water supply. The water supply areas by scheme in 2040 are shown in Figure 14.1.11.

Table 14.1.14 Projected Water Demand in CUO's Service Areas in GKUGA

Scheme	A. Population in 2021 1)	B. Population in 2040 1))	C. Population in 2050 1)	Water demand in 2021 (m^3/day) <A x20 L per capita per day>	Water demand 2040 (m^3/day) <B x20 L per capita per day>	Water demand 2050)m^3/day) <C x20 L per capita per day>
Kalagi-Kabembe	118,000	268,000	378,000	2,360	5,360	7,560
Masulita	32,000	86,000	138,000	640	1,720	2,760
Namulonge-Kiwenda	40,000	105,000	176,000	800	2,100	3,520
Nakawuka	12,000	- 2)	- 2)	240	- 2)	- 2)
Kasanje	35,000	- 2)	- 2)	700	- 2)	- 2)
Jezza	37,000	96,000	149,000	740	1,920	2,980
Bujuko						
Katende	22,000	- 2)	- 2)	440	- 2)	- 2)
All Scheme sub-total	**296,000**	**555,000**	**841,000**	**5,920**	**11,100**	**16,820**
Outside of scheme 1)	**104,000**	**309,000**	**461,000**	**2,080**	**6,180**	**9,220**
Total	**400,000**	**864,000**	**1,302,000**	**8,000**	**17,280**	**26,040**

Note 1) The areas with no scheme are Kakiri (except for Luwunga, Buwanuka), Kakiri Town (except for Busujja, Kakiri, Kikubampanga, Nakyelongoosa), Nansana Gombe Division (except for Matugga).
Note 2) After completion of KW LV WatSan Project and Wakiso West WatSan Project, the water supply scheme of CUO is transferred to NWSC.
Source: JICA Expert Team



Source: JICA Expert Team

Figure 14.1.11 Water Supply Jurisdiction Areas in GKUGA (until 2040)

(2) Decreased Water Supply Volume Due to High NRW Rate

NRW refers to the water lost in the water distribution system that cannot be billed to customers, making it a significant challenge for water utility companies. In the areas controlled by NWSC and CUO in GKUGA, the NRW rate generally exceeds 40%, indicating a very high level of water loss. NWSC has NRW-related departments and leak detection equipment, but their effectiveness appears to be insufficient.

Additionally, the water production capacity of Katosi WTP designed by Component-1 of the KW LV WatSan Project was completed in 2021. However, construction of new major water distribution pipelines is scheduled to begin after 2024. Katosi WTP has been gradually operated since 2021, and existing pipeline connections have led to increased internal pressure. There are concerns that this will contribute to further water leakage in the future.

While there are currently no specific projects focused on NRW reduction, in the master plan as for reduction of NRW, installation of District Metered Areas (DMAs), implementation of SCADA systems at WTP, upgrade of pipeline, and the establishment of an NRW Management Department are described.

The projected NRW rates of 33% by 2025 and 27% by 2040 are given in the master plan. During the review of the master plan in 2021, a projected water supply volume was calculated with a target NRW rate of 25% for 2040. NWSC's Annual Report 2021-2024 sets a long-term goal of achieving a 15% NRW rate. Challenges will arise if the NRW rate cannot be reduced as planned, such that it will not be able to satisfy the water demand planned at DD.

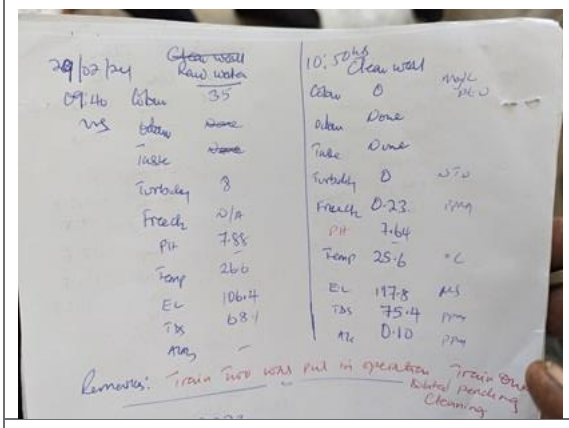
Regarding NRW reduction of water supply schemes managed by CUO, the plumber just conduct patrol for ground surface leakage periodically.

To significantly reduce NRW, proactive measures are necessary, including organised underground leak management.

(3) Water Quality Management by CUO

As mentioned in Section 14.1.1 (3) 4), approximately half of the water schemes managed by CUO in GKUGA do not meet water quality standards. Additionally, outside of GKUGA, there is one scheme, Katunga-Busaana Water Supply and Sanitation System established in 2021, which has WTP managed by CUO. An evaluation of water quality management revealed the following inadequacies at the WTP:

- No water quality management forms are available.
- Only minimal testing is conducted using simple water quality test kits.
- Lack of proper equipment for water quality management.
- Jar tests are performed only twice a year.

	
【Water quality management sheet】 Form of water quality management sheet is not prepared.	【Water quality test kits】 Only simplified measurement is conducted by test kits. This kit is used for mobile laboratory as well.
	
【Sampling bottles】 Pet bottles are used instead of sampling bottles.	【jar tester】 Jar tester is used only twice a year. When season changes, jar test is conducted.

Source: JICA Expert Team

Figure 14.1.12 Current Situation of Water Quality Management in WTP Being Managed by CUO

Currently, there is no WTP managed by CUO in GKUGA. However, if the water quality of the new scheme in GKUGA is planned to be managed by CUO in the future, it will be necessary to strengthen its management system.

(4) Role of NWSC in the Development of Water Supply Facilities

As the current project only deals with the primary distribution network (also called transmission network in the master plan), it is assumed that NWSC will carry out the necessary works on the secondary and tertiary networks so that water supply reach to people.

It is important to highlight that the current project focuses on primary distribution formulated by NWSC HQ. But of course, additional works are needed to make sure the secondary and tertiary networks will be able to supply water to the customers in an appropriate way (in particular, regarding the creation of proper District Metered Areas) and will be conducted by NWSC Branch.

In NWSC Mukono Branch, the primary distribution was installed from Katosi WTP, and the water supply volume has a sufficient capacity to supply water to all design service areas. However, the budget in NWSC Mukono Branch is inadequate and 15% of design service areas still have not been covered.

Therefore, in case NWSC Branch is not able to secure budget to install secondary and tertiary networks including house connections, it will be difficult to achieve the design criteria in 2040.

14.1.3 Objectives for the Water Supply Sector

(1) To Secure Adequate Water Supply in the GKUGA

GKUGA is surrounded by the urban growth boundaries and an integrated urban development master plan will be formulated. The area functions to promote urbanisation with integration with Kampala City in the Greater Kampala Metropolitan Area: Kampala Capital City, Wakiso District, Mukono District, and Mpigi District. Adequate water supply has to be secured for residents in GKUGA based on the projected water demand escalation. Otherwise, it will hinder the integrated urban development and suburbanisation of the area due to inadequate water supply inside urban growth boundaries.

In GKUGA, some areas needing water supply are not covered by existing projects as shown in Figure 14.1.13. Most of the service areas are inside the KSPA boundary. The north-west to north-east Wakiso District, the north Mukono District, and the north Mpigi District in GKUGA are not part of existing projects (LV WatSan Project and Wakiso West WatSan Project). Consequently, in these areas, it will not be possible to ensure sufficient water supply by the planned annual target of 2040 due to out of existing projects. Additionally, the planned design capacity of existing projects does not fully cover the water demand until 2040. Particularly beyond 2040, there are no projects currently planned, so it is assumed that there will be a shortage of water supply volume of 567,522 m³/day by the target year 2050 (Table 14.1.15).

In addition, for areas other than those of existing projects, if the per capita minimum design for rural water supply is assumed to be 20 litres per capita per day, it is assumed that there will be a shortage of 24,645 m³/day of water supply volume by 2050 as shown in Table 14.1.16. If the 88 litres per capita per day (the per capita design water supply of the master plan) is considered, the shortage volume will be 113,181 m³/day. Considering the future urbanisation of the suburb in GKUGA, it is necessary to gradually secure the water supply volume of 113,181 m³/day. Particularly urgent is the need to achieve the per capita minimum design water supply of 20 litres per capita per day for rural water supply, so early construction of water supply facilities to meet this requirement should be considered.

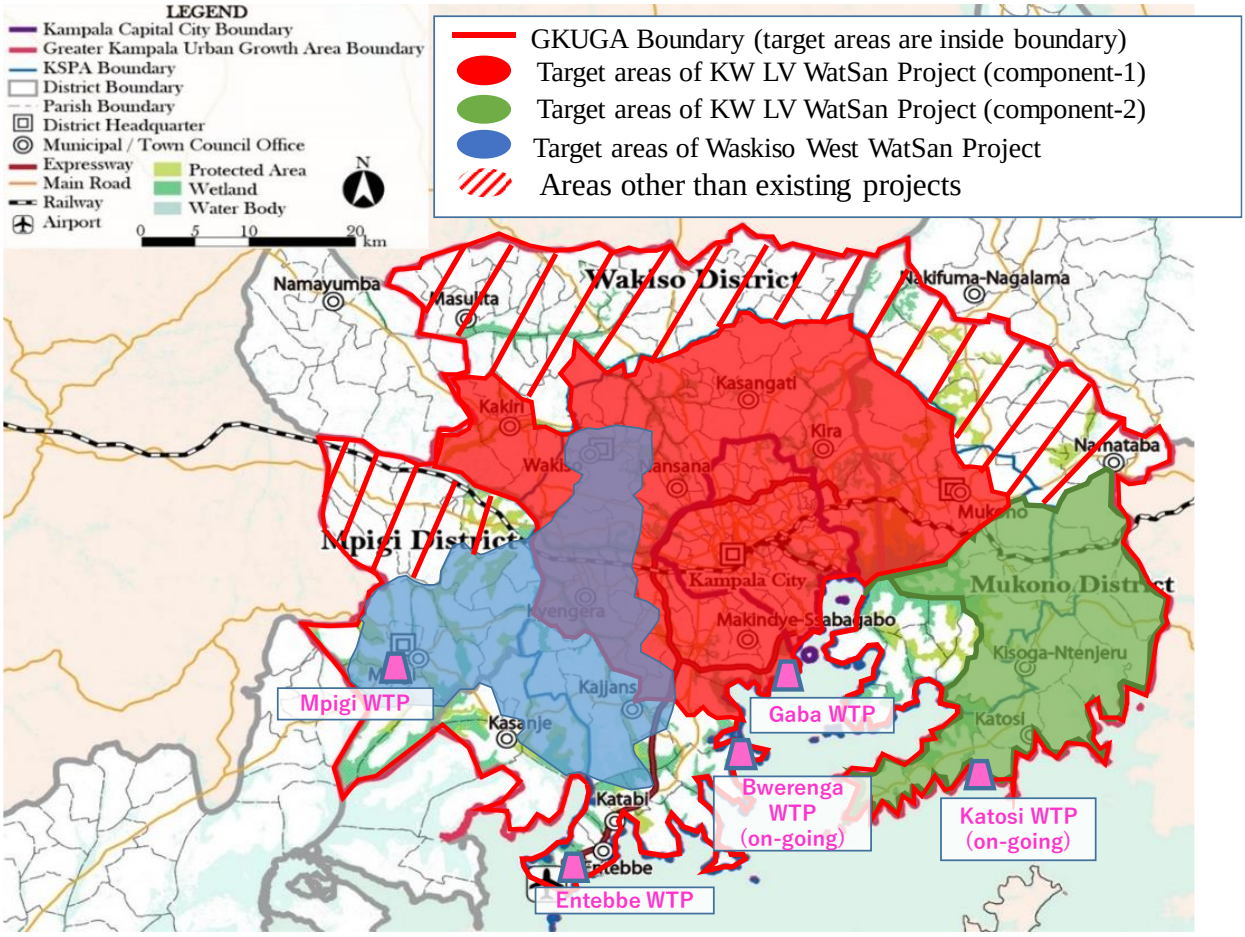
GKUGA has three existing WTPs managed by NWSC, and there are a total of five WTPs planned to be operated by 2050, including one under construction (Katosi WTP) and one planned (Bwerenga WTP). Katosi WTP is located in the south Mukono District, where there are no residential areas around the WTP, making land acquisition relatively easy for its expansion. However, for Bwerenga WTP, the surrounding area is a recreational area with residential zones, which will have challenges for expanding the plant (Table 14.1.13). Additionally, recent water

quality pollution in Murchison Bay due to algae has raised concerns about the raw water quality near Bwerenga WTP in the future.

In case of water transmission from Katosi WTP to west Wakiso District and Mpigi District, the length of water distribution pipeline is longer, and quantities of booster pump and reservoirs are increased since Katosi WTP is located in south Mukono District. As a result, water supply systems will be inefficient.

Furthermore, expanding the WTP and connecting it to existing water supply pipelines can lead to changes in water head pressure from the original design, potentially affecting water delivery to the endpoints.

Therefore, it is considered that WTP is expanded and newly constructed, and the water transmission pipe is newly installed in order to achieve 88 litres per capita per day (the per capita design water supply) finally, with division into water distribution areas such as west Wakiso District and Mpigi District, as well as east Wakiso District and north Mukono District.



Source: JICA Expert Team

Figure 14.1.13 Target Areas of Water Supply in Existing Projects

Table 14.1.15 Balance of Water Demand with Water Supply Volume in GKUGA in 2040 and 2050 (Existing Project Areas)

Target areas in GKUGA	A. Projected population Note 1)		B. The per capita design water supply (L/capita/day)		C. Water demand (m^3/day) < A x B>		D. Planned design capacity (m^3/day) Note 2)	E. NRW rate Note3)	F. Water supply volume (m^3/day) < D x (100%-E) >	G. Required water supply volume (m^3/day) < C – F >	
	2040	2050	2040	2050	2040	2050	2040 and 2050	2040 and 2050	2040 and 2050	2040	2050
Existing project areas (areas controlled by NWSC)	9,438,000	11,769,000	79	88	745,602	1,035,672	624,200	25%	468,150	277,452	567,522

Note 1) Calculated by JICA Expert Team based on National Population and Housing Census 2014
Note 2) Refer to Table 14.1.12
Note 3) NRW rate at DD in master plan
Source: JICA Expert Team

Table 14.1.16 Balance of Water Demand with Water Supply Volume in GKUGA in 2040 and 2050 (Areas Other than Those Covered by Existing Project)

Target areas in GKUGA	A. Projected population Note1)		B. The per capita design water supply (L/capita/day)		C. Water demand (m^3/day) < A x B>		D. Planned design capacity (m^3/day) Note 2)	E. NRW rate Note3)	F. Water supply volume (m^3/day) < D x (100%-E) >	G. Required water supply volume (m^3/day) < C – F >	
	2040	2050	2040	2050	2040	2050	2040 and 2050	2040 and 2050	2040 and 2050	2040	2050
Areas other than those covered by existing project (areas controlled by CUO)	864,000	1,302,000	20	20	17,280	26,040	1,860	25%	1,395	15,885	24,645
			79	88	68,256	114,576				66,861	113,181

Note 1) Calculated by JICA Expert Team based on National Population and Housing Census 2014
Note 2) Refer to Table 14.1.6
Note 3) NRW rate at DD in master plan
Source: JICA Expert Team

Katosi WTP

Candidate construction site of Bwerenga WTP

Note: Location and candidate construction site of WTP inside dotted line
Source: JICA Expert Team

Figure 14.1.14 Photos of Surroundings of WTPs of Existing Project

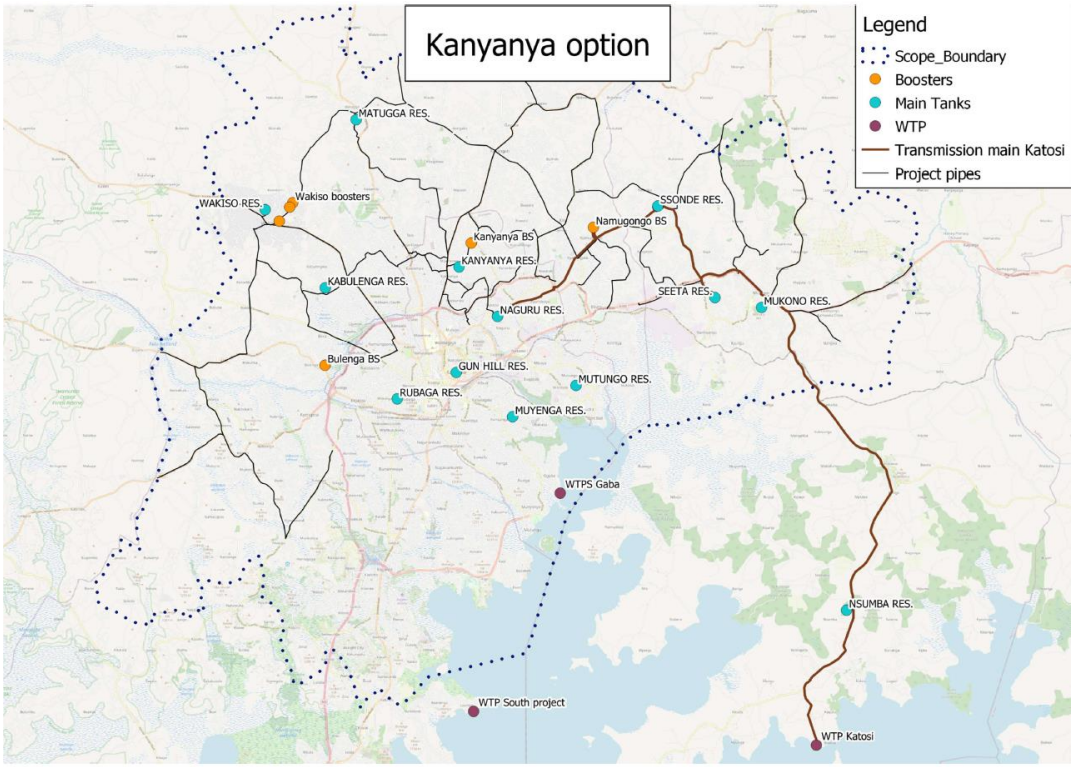
(2) To Ensure Distribution of Water Supply to Customers in a Sustainable and Continuous Manner in NWSC Branch Level

Planned water distribution pipe in each component by 2040 according to DD Component-1 Report (GKMA) is shown in Figure 14.1.15.

- Component-1 – Parishes within the Greater Kampala Metropolitan Area- GKMA which include consideration of approximately 313 km pipeline provision comprising of new pipelines (259km), rehabilitation/ replacement pipelines (29km) and DMA pipelines (25 km).
- Component-2 – Parishes within the Districts of Mukono and Buikwe which include consideration of approximately 60 km pipeline provision for new primary distribution from Nsumba Reservoir to supply Lugazi town and other parishes within the project area.

These planned pipelines are a primary distribution network; therefore, in order to secure water supply to residents, NWSC has to carry out the necessary works on the secondary and tertiary networks by each NWSC Branch. Otherwise, water will not be supplied to end users and reliability of the water supply will not improve. Therefore, it is necessary that NWSC Branch formulates the secondary and tertiary network installation plan to be carried out in GKUGA.

The budget allocation for installation had been confirmed to be planned to secure budget from MWE during the site survey in 2024.



Source: JICA Expert Team

Figure 14.1.15 Layout of Primary Distribution Networks at DD in the Master Plan (Component-1)

14.1.4 Strategies for the Water Supply Sector

The strategies to achieve the objectives are listed below.

(1) Securement of water supply to meet water demand in potential areas of urban development in GKUGA, especially outside Kampala Capital City, in which water supply is considered inadequate

- In the suburban areas of GKUGA, due to high urgency to secure water supply, it is essential to secure a water supply of at least 20 litres per capita per day as the per capita minimum design water supply at the earliest. The CUO's controlled areas are targeted, and they utilises deep groundwater supply facilities similar to existing facilities.
- New construction and expansion of WTP, along with the installation of new water distribution pipelines, are planned to achieve the per capita design water supply of 88 litres per capita per day by 2050 in the whole GKUGA.

14.1.5 Projects for the Water Supply Sector

(1) [WS-01] Development of Deep Groundwater Supply System for Suburban Areas in GKUGA in Short and Medium-Term (North Mukono, North-West and North-East Wakiso and West Mpigi)

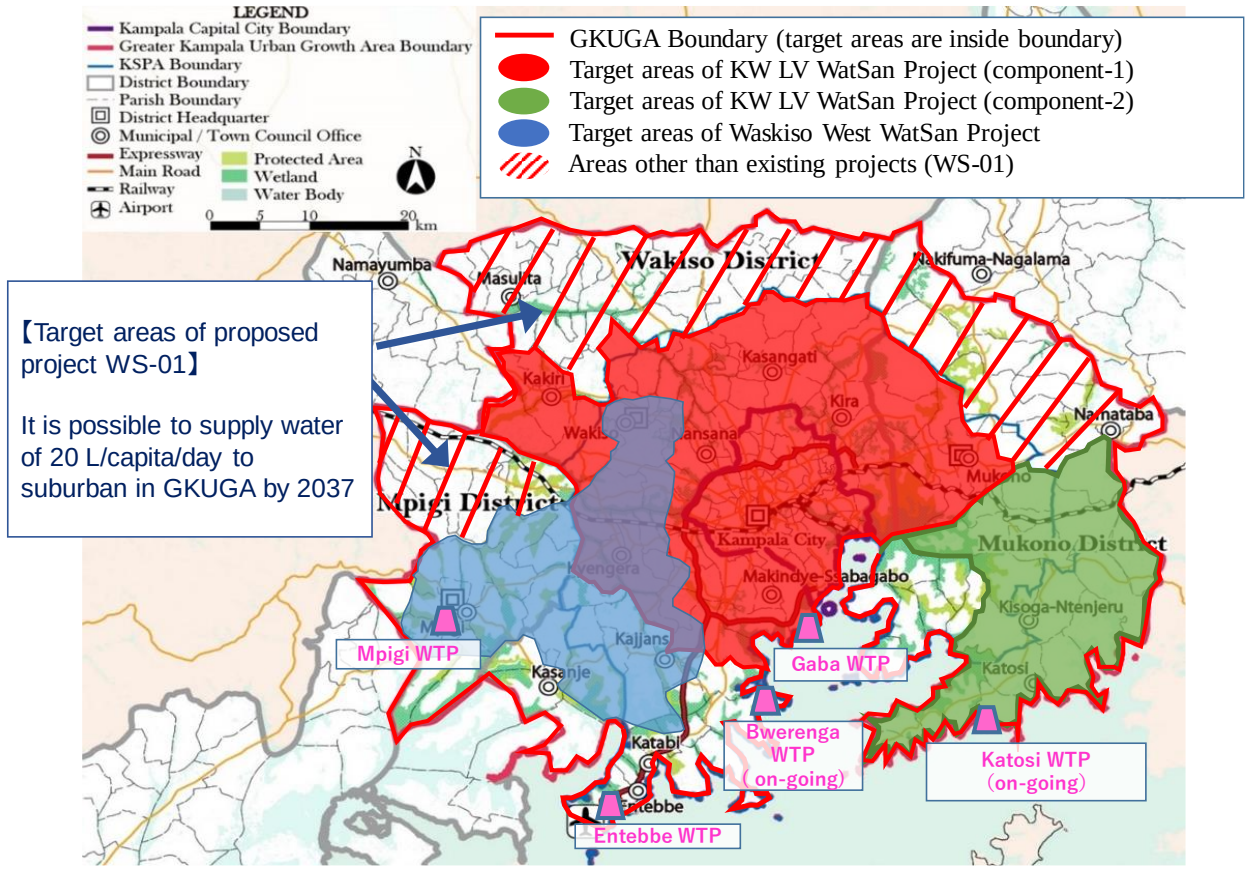
As shown in Figure 14.1.13, water supply volume will be increased in GKUGA except for parts of GKUGA due to by 2040 implementation of existing projects.

However, for areas not covered by existing projects, meeting the per capita per minimum design water supply of 20 litres per capita per day by 2050 will require a water supply of 24,645 m³/day, as shown in Table 14.1.16. Considering a planned NRW rate of 25%, a water supply facility with a capacity of 32,860 m³/day will be necessary.

The areas other than those covered by existing projects are controlled by CUO, and currently deep groundwater supply facilities are operated.

As for consideration of costs, the cost of deep groundwater supply facilities is estimated at approximately 13 billion JPY (USD 85 million), while cost of WTP supply facilities is estimated at 26 billion JPY (USD 172 million). Therefore, prioritising cost effectiveness, the deep groundwater facilities similar to existing facilities are planned as proposed project until 2037. The deep groundwater supply facilities, they can be commissioned gradually after completion of construction, allowing prioritised areas to receive water supply.

Launching this proposed project will enable early provision of the per capita per minimum design water supply of 20 litres per capita per day to the suburban areas in GKUGA, serving the projected population of 1,302 thousand by 2050.



Source: JICA Expert Team

Figure 14.1.16 Proposed Project for Water Supply in Suburban Areas of GKUGA (Short and Medium-Term)

(2) [WS-02] Development of Water Supply System Piped from WTP in Medium and Long-Term (West GKUGA)

Even with the implementation of existing projects, the per capita design water supply of 88 litres per capita per day is not being met. As shown in Table 14.1.15, to achieve the per capita design water supply of 88 litres per capita per day by 2050, a water supply volume of 567,522 m³/day will be necessary. Additionally, for areas not covered by existing projects, as shown in Table 14.1.16, to achieve the per capita design water supply of 88 litres per capita per day by 2050, a water supply volume of 113,181 m³/day will be necessary.

Considering a planned NRW rate of 25% for each required water supply volume, and taking into account the water production capacity of water supply facilities established under proposed project WS-01, a facility with a design capacity of 874,744 m³/day will be necessary as shown in Table 14.1.17.

Table 14.1.17 Proposed Design Capacity of WTP (Whole GKUGA)

Target areas in GKUGA	A. Per capita design water supply (L/capita/day)	B. Required water supply volume (m^3/day)	C. Planned NRW rate	D. Proposed design capacity of WTPs (m^3/day) < B / (100%-C) >
1. Existing project areas (areas controlled by NWSC)	88	567,522	25%	756,696
2. Areas other than those covered by existing project (areas controlled by CUO)	88	113,181	25%	150,908
3. WS-01 proposed deep groundwater supply facilities	20	24,645	25%	32,860
<Except for WS-01 proposed deep groundwater supply facilities> Total (1+2-3)				874,744

Source: JICA Expert Team

However, in terms of capital investment plan in NWSC, annual budget for project inside GKUGA is approximately 3 billion JPY. Therefore, budget for 25 years by 2050 is estimated to approximately 75 billion JPY in NWSC. If whole GKUGA is targeted for proposed project, project cost is estimated to 144 billion JPY (USD 950 million) and it is not within budget by 2050. Therefore, target areas of proposed project WS-02 are needed to select within 75 billion JPY.

In 2050, water coverage rate of NWSC Mpigi is estimated to 33% as lowest in the NWSC HQ in GKUGA as shown in Table 14.1.18. Therefore, west GKUGA which is located Mpigi district is high priority for water supply in GKUGA. In terms of reliability, north-west Wakiso district is high priority as well.

Table 14.1.18 Service Coverage Rate in NWSC's Service Areas in GKUGA in 2050

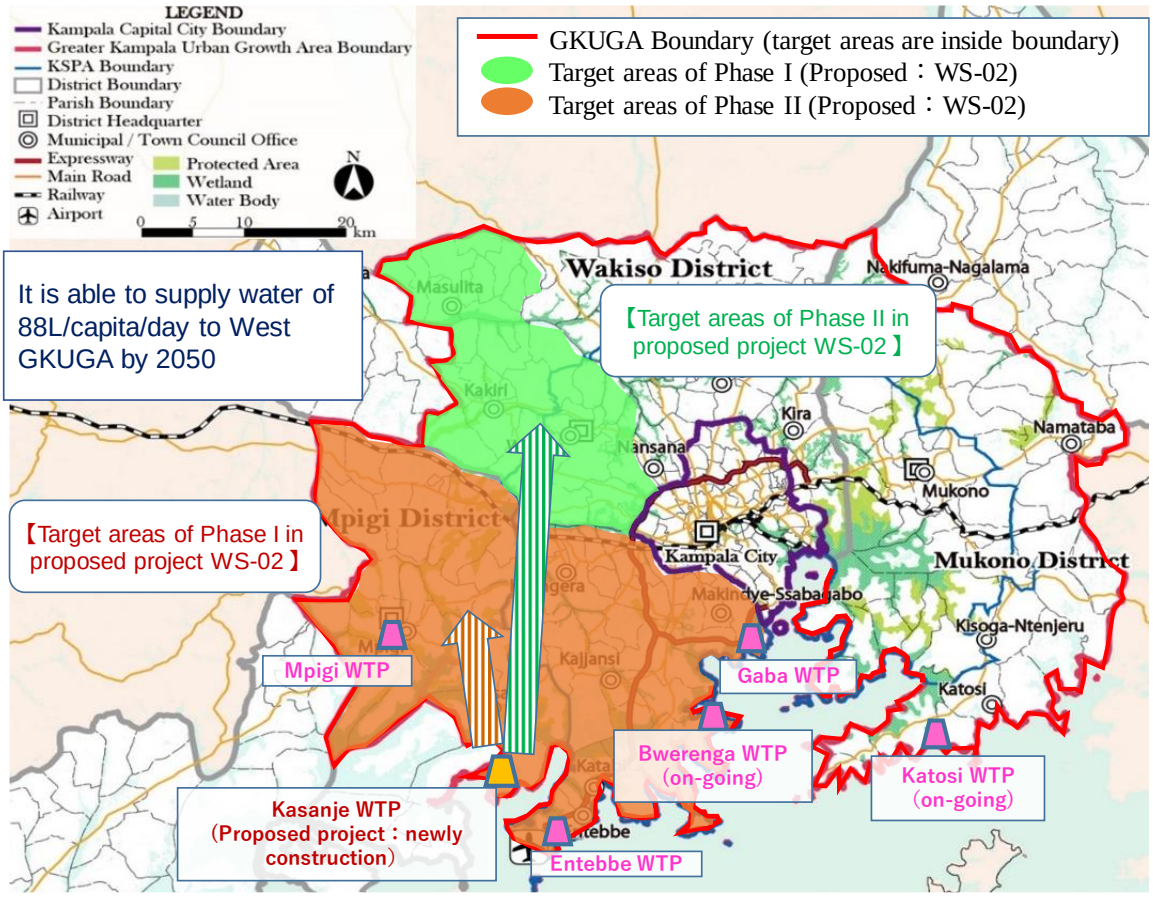
NWSC HQ	B. Water demand in 2050 (m^3/day)[1)]	C. Average water production in 2021 (m^3/day)	D. Planned design capacity of WTPs after 2021 by existing project (m^3/day) [2)]	E. Total water production in 2050 <C+D>	F. Water supply volume in 2050 (m^3/day) < E x (100%-NRW25%)>	G. Service coverage rate in 2050 <F /B x 100>
NWSC Kampala Water	887,304	302,000	250,385	552,385	414,289	47%
NWSC Entebbe	113,872	26,000	30,746	56,746	42,559	37%
NWSC Mpigi	34,496	1,200	13,869	15,069	11,302	33%
Total	**1,035,672**	**329,200**	**295,000**	**624,200**	**468,150**	**45%**

Note 1) 88 litres per capita per day is applied
Note 2) Planned design capacity is calculated proportionally based on projected population
Source: JICA Expert Team

In 2024, during the site survey, NWSC was considering plans to develop reliable water supply facilities in the future. Therefore, water supply facilities utilising Lake Victoria as the water source is proposed in WS-02.

For this proposed project WS-02, a new WTP is proposed in Kasanje, located outside Murchison Bay. The target areas are divided into two phases as shown in Figure 14.1.17:

- Phase I: Establishing a new WTP (tentatively named Kasanje WTP) along the Lake Victoria coast in Kasanje for Mpigi and South Wakiso (around Entebbe) areas
- Phase II: Expanding Kasanje WTP for North-West Wakiso areas



Source: JICA Expert Team

Figure 14.1.17 Proposed Project for Water Supply in West GKUGA over the Medium and Long-Term

In target areas of proposed project WS-02, there are NWSC's and CUO's controlled areas. As shown in Table 14.1.19, considering proposed project WS-01, and required water supply volume in proposed project WS-02 is estimated to 301,610 m^3/day.

Considering a planned NRW rate of 25% for required water supply volume, a facility with design capacity of 402,145 m^3/day will be necessary.

Table 14.1.19 Required Water Supply Volume in Proposed Project WS-02 in 2050

Target areas in proposed project (WS-02)	A. Projected Population in 2050	B. The per capita design water supply in 2050 (L/capita/day)	C. Water demand in 2050 (m^3/day)	D. Planned design capacity in 2050 (m^3/day) Note	E. NRW rate in 2050	F. Water supply volume (m^3/day) <D x (100%-E)>	G. Required water supply volume (m^3/day) <C-F>
1.【Phase I】 Mpigi and South Wakiso	3,706,000	88	326,128	196,478	25%	147,359	178,770
2.【Phase II】 North-West Wakiso	2,278,000	88	200,464	90,112	25%	67,584	132,880
3. WS-01 proposed deep groundwater supply facilities Note	502,000	20	10,040	-	-	-	10,040
<Except for WS-01 proposed deep groundwater supply facilities> Total (1+2-3)							301,610

Note) Design capacity of water supply facilities in proposed project WS-01 in target areas of proposed project WS-02
Source: JICA Expert Team

Launching this proposed project will enable the supply of the per capita per design water supply of 88 litres per capita per day to the west GKUGA, serving the projected population of 5,984 thousand by 2050.

14.2 Sewerage

14.2.1 Background of Sewerage

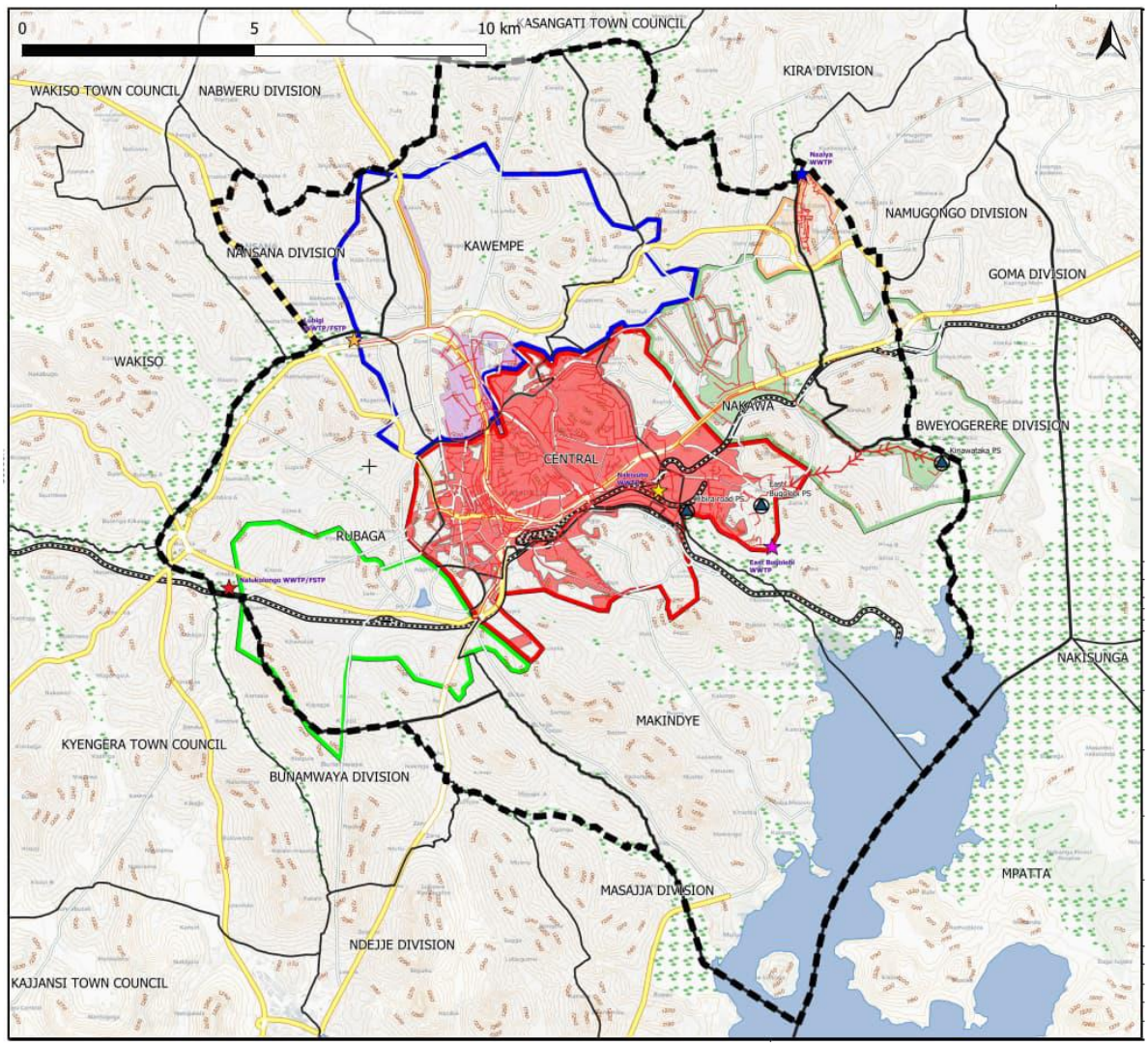
(1) Existing Sewerage Infrastructure in GKUGA

1) Sewerage Network

Sewerage system in Uganda exists in limited areas in 18 cities, municipalities and towns, including Kampala and Entebbe, and the service is provided by the National Water and Sewerage Corporation (NWSC).

The jurisdiction of NWSC in charge of Kampala Metropolitan Area covers mainly Kampala Capital City, Mukono Municipality, Kira Municipality, Makindye-Ssabagabo Municipality, Nansana Municipality, Wakiso Town, Kakiri Town and the surrounding sub-counties.

It is estimated that within the jurisdiction area of Kampala Metropolitan of NWSC, the sanitary sewerage system serves 4% of the estimated total population. The current sewerage network in Kampala Metropolitan Area is shown in Figure 14.2.1. The sewerage connection is concentrated in Kampala Capital City, and in 2022/23 the number of connections was 12,782 with a total of 252 km of sewer network.



Source: Fichtner Water & Transportation Engineering + Consulting, 2022, Review of the Kampala Sanitation Master Plan and the Preparation of Climate Related Investments and Improvements Work Package A Report Volume 1: Report Update of Master Plan and Indentification of Investment Clusters

Figure 14.2.1 Existing Sewerage Network in Kampala City as of 2022

Other areas outside Kampala Capital City in the jurisdiction area of NWSC's Kampala Metropolitan Area are not connected with the sewer network operated by NWSC yet, but some sites such as Naalya Housing Estate and Nambole National Stadium in Kira Municipality are connected to waste stabilisation ponds.

The southern part of Wakiso District, including Entebbe Municipality and Kajjansi Town, are under the jurisdiction of the office in charge of Entebbe. In Entebbe Municipality, there is a sewer system covering part of the city centre, which is connected to the waste stabilisation ponds at Kitooro. In addition, NWSC serves the Fire Quarters, Survey Quarters, Windsor Lake Victoria Hotel and State House by the sewer services. In 2022/23 the number of connections was 465.

Mpigi Town and Kirringete Subcounty in Mpigi District, which is in the service area of NWSC Mpigi, does not have any sewerage infrastructure.

2) Sewerage Treatment Facilities

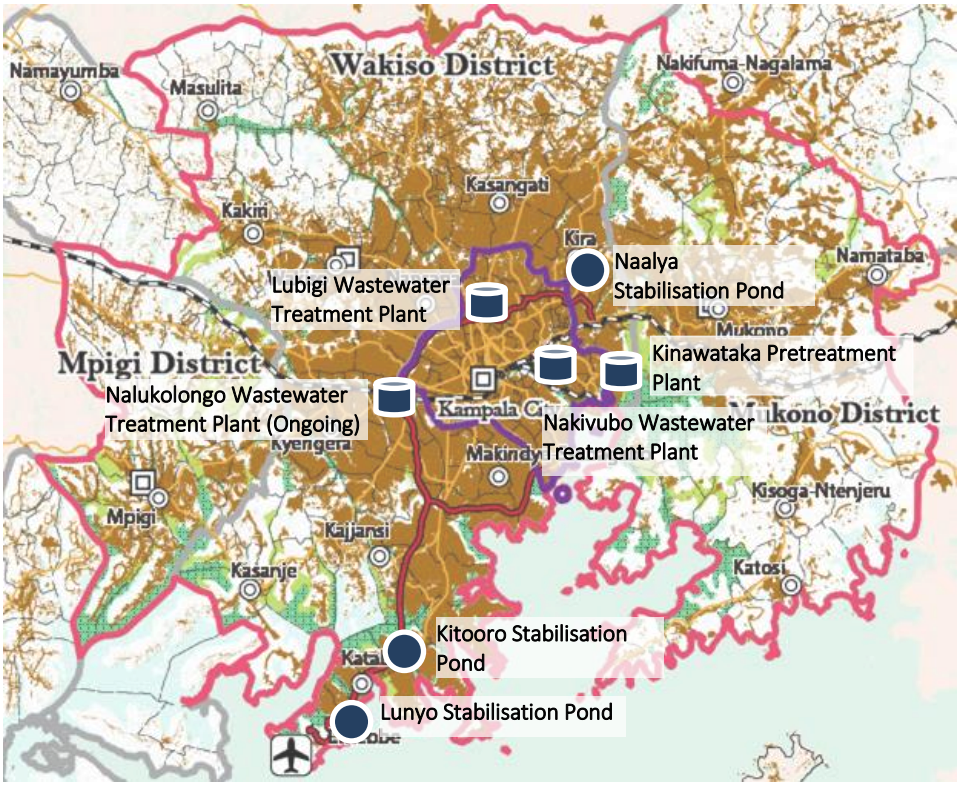
There are three operational wastewater treatment plants in GKUGA as shown in Figure 14.2.2.

Nakivubo Wastewater Treatment Plant is the largest wastewater treatment plant in East Africa, which completed its construction in 2021. It has the capacity of processing 45,000 m^3 of wastewater per day. Approximately wastewater generated by the population of 380,000 can be treated in this plant.

Lubigi Wastewater Treatment Plant was constructed under the Lake Victoria Project Phase I and was commissioned in May 2014. It has the capacity to treat 5,000 m^3 of wastewater per day. The wastewater generated by a population of approximately 50,000 goes to this plant.

Kinawataka Pretreatment Plant has the capacity to treat 45,000 m^3 of wastewater per day. It was constructed in 2020 and is now in operation.

In addition to the above three sewerage treatment plants, Nalukolongo Wastewater Treatment Plant is under implementation.



Source: JICA Expert Team based on information from NWSC

Figure 14.2.2 Locations of Wastewater Treatment Facilities in GKUGA

NWSC also operates stabilisation ponds at Naalya and East Bugolobi within Kampala Metropolitan jurisdiction area, and within Entebbe jurisdiction area there are stabilisation ponds at Kitooro and Lunyo.

3) Faecal Sludge Treatment Facilities

There are two faecal sludge treatment facilities serving NWSC's Greater Kampala jurisdiction area. Lubigi Faecal Sludge Treatment Plant with the capacity of 400m^3/day is functioning since 2014. However, the actual average amount of faecal sludge collected as of 2022 is 515m^3/day and exceed the design capacity of Lubigi Faecal Sludge Treatment Plant. Therefore, Bugolobi Sewerage Treatment Plant is now used for the treatment of faecal sludge to cope with the lack of faecal sludge treatment capacity since the role of sewerage treatment plant was taken over by Nakivubo Wastewater Treatment Plant and.

Furthermore, Nalukolongo Faecal Sludge Treatment Plant with a capacity of 400m^3/day is being implemented under Package 5B: Improvement of Water Supply and Sanitation Services in Informal Settlements in Kampala Water Lake Victoria WatSan Project. In addition, another faecal sludge treatment plant with the capacity of 400m^3/day is planned to be implemented in Kajjansi under Wakiso West WatSan Project.

In Mpigi District, the existing faecal sludge treatment facility is at Kayabwe in Buwama Subcounty, approximately 35km west of Mpigi Town. Although this faecal sludge treatment facility has the capacity of 1,000 m^3/day, due to the distance, most faecal sludge from Mpigi Town and the surrounding areas are taken to Lubigi Faecal Sludge Treatment Plant, and the plant at Buwama receives approximately 20m^3 of faecal sludge per day.

Other ongoing faecal sludge treatment projects in GKUGA are listed in Table 14.2.1.

Table 14.2.1 Ongoing Faecal Sludge Treatment Projects in GKUGA

Projects	Organisation in Charge	Funding	Contents	Implementation Schedule
Kira Faecal Sludge Management and Treatment Project	MWE	AfDB	Proposes as part of 5 town clusters in central and southwestern Uganda, the construction of a FSTP with a capacity of 172 m^3/d in Kira.	Feasibility study completed in September 2020. Detailed Design completed in March 2021.
Kikoko Faecal Sludge Treatment Facility	MWE	KEITI	Construction of a FSTP with a capacity of 60 m^3/d to serve 200,000 people by 2040 in Nansana Municipality, Wakiso District.	Project implementation scheduled in the period 2022 - 2025.
Faecal Sludge Treatment Plant for the Greater Kampala Metropolitan Area (GKMA)	MWE	GGGI	Development of a faecal sludge management system in GKMA including the identification of a site for a new FSTP and design and construction of the FSTP including development of business and O&M models.	Consulting services tendered in 2022.
Mukono Faecal Sludge Treatment Plant	MWE	UNICEF Finland	Implementation of a FSTP with a capacity of 15 m^3/d in Mukono District for the production of briquettes to be used as fuel. The FSTP was established in Mukono District at the site of the municipal organic waste management plant.	Under Implementation

Source: Fichtner Water & Transportation, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, August 2022, NWSC-KfW

4) Onsite Sanitation

Onsite sanitation is implemented in buildings that are not connected to the sewerage network. Most households in GKUGA use pit latrines. It is said that most of these pit latrines do not meet adequate standards, and almost 45% of them are abandoned just after five years once they are full or broken.

Furthermore, in Kampala Capital City, approximately 1.8% of households do not have access to toilet facilities at all.

A citywide sanitation survey in Kampala Capital City was carried out in 2017 in Kampala Faecal Sludge Management Programme supported by KCCA with the support of UK's Department for International Development (DFID). The result showed that although 99% of the population in Kampala Capital City have access to sanitation, only 20% of the population have access to improved sanitation[1].

Also, there is a survey result that shows 30% of the latrines in the informal settlements are emptied by discharging the waste to the environment.

In Mpigi District, it is estimated that approximately 65% of the onsite sanitation is pit latrines, and NWSC is encouraging the use of biodigesters since it is not necessary to empty.

There are 189 cesspool emptier trucks servicing Kampala Capital City. These trucks are registered at NEMA and KCCA.

5) Industrial Area

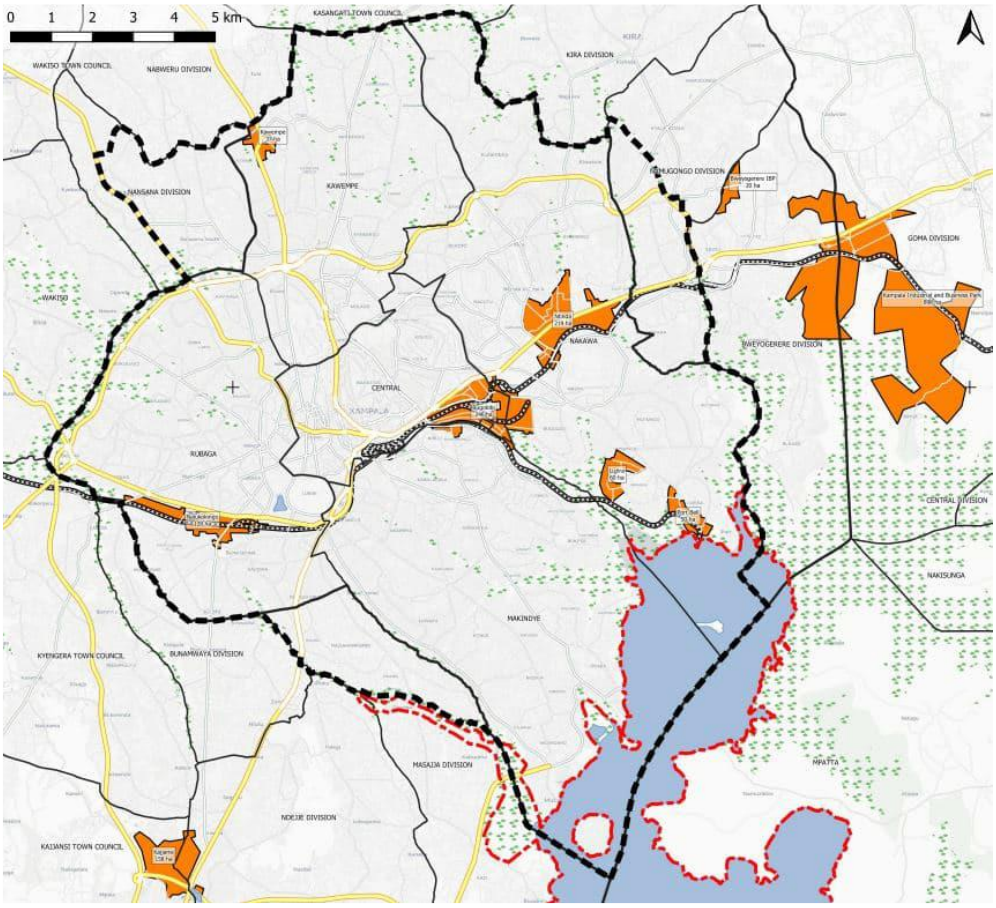
The industries connected to NWSC's sewer system in GKUGA are limited to four industries as of February 2022.

To improve this situation, NWSC has been working closely with the Uganda Investment Authority (UIA) which operates the industrial parks including Kampala Industrial and Business Park in Namanve and Luzira Industrial and Business Park. Based on the discussion, Kampala Industrial and Business Park, Bweyogerere Industrial Business Park and Luzira Industrial and Business Park are to be served by wastewater treatment plant to be constructed by UIA.

The Sewerage Service Department (SSD) of NWSC oversees industrial pollution control and monitoring. The monitoring activities are to be implemented through activity plans of Pollution Task Force that was established by KCCA in 2020. However, due to COVID-19 pandemic, the task force activities could not be conducted, and by March 2022, the task force had exit of active members.

The nine industrial areas acknowledged by NWSC's Kampala Sanitation Masterplan are shown in Figure 14.2.3.

[1] Improved sanitation facility includes flush/pour flush to piped sewer, septic tank or pit lined latrine or lined/ composting toilet.



Source: Fichtner Water & Transportation GmbH, 2022, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, NWSC-KfW

Figure 14.2.3 Industrial Areas Acknowledged in Kampala Sanitation Master Plan to Provide Sewerage Service

(2) Organisation

The Ministry of Water and Environment (MWE) is the overall responsible body for sewerage services and appoints NWSC and Umbrella Organisations for Water and Sanitation (UOs) as the orgainsations in charge of sewerage.

The jurisdiction area of sewerage service in GKUGA is as shown in Table 14.1.1.

NWSC is the sewerage authority which has the mandate to collect, transport and treat the sewage. The services provided in GKUGA by NWSC are covered by three separate zones, namely: Kampala Metropolitan, Entebbe and Mpigi. However, as written previously, NWSC Mpigi does not provide sewerage service in their jurisdiction area as of now.

Central Umbrella Organisation in charge of water supply and sewerage in part of Wakiso, Mukono and Mpigi Districts as in Table 14.1.1. However, CUO does not manage a pipped sewerage network. Where there are faecal sludge treatment plants, the CUO is responsible for the management of the plant.

On the other hand, there is no clear organization fully taking charge of onsite sanitation. The responsibilities for onsite sanitation are shared among the following ministries:

- Ministry of Water and Environment for public sanitation and promotion of good practices of hygiene and sanitation
- Ministry of Health for promotion of household hygiene and sanitation
- Ministry of Education and Sports for school sanitation and hygiene education
- Ministry of Kampala and Ministry of Local Government for sanitation in public facilities, for

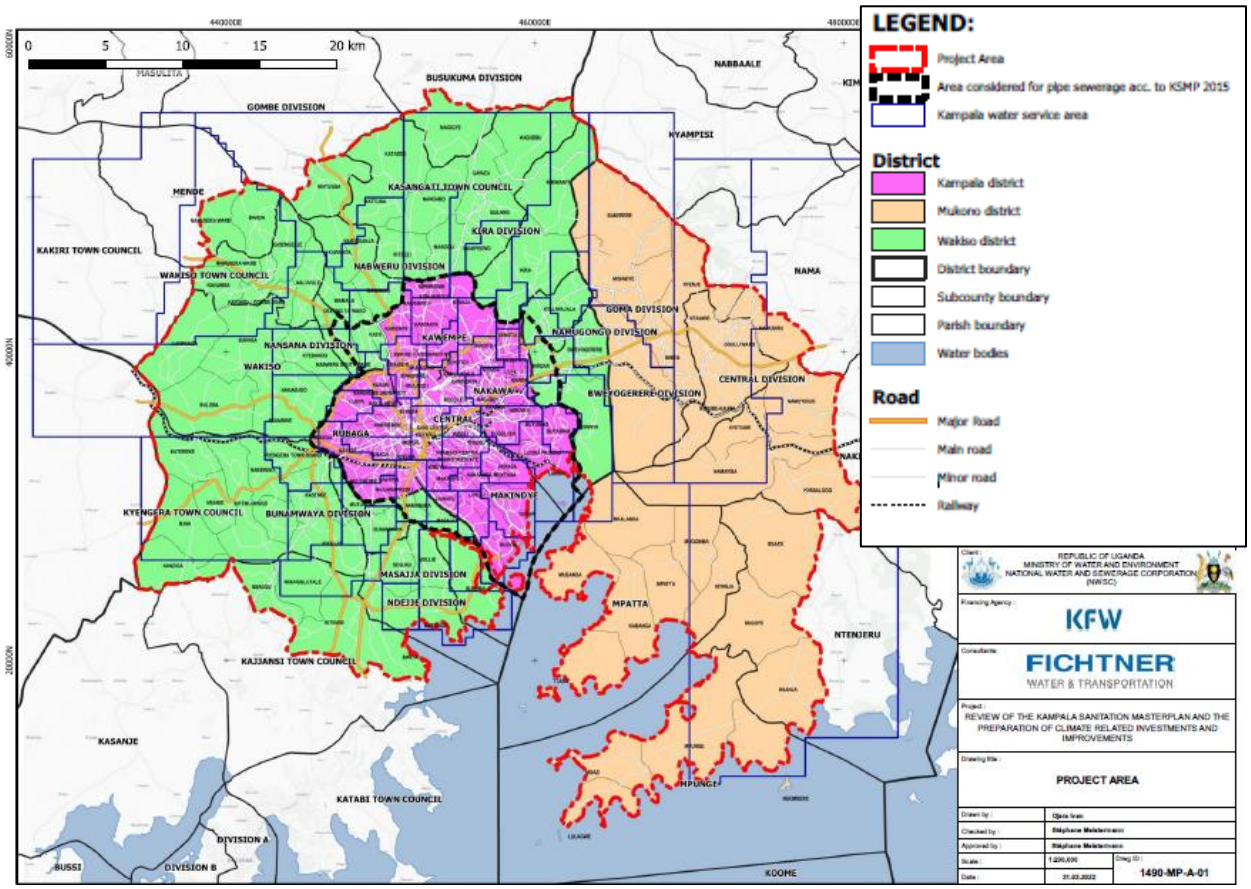
policy, regulation and enforcement

(3) Kampala Sanitation Master Plan and Updated Kampala Sanitation Master Plan

Kampala Sanitation Master Plan was prepared in 2003 as a 30-year plan to improve the sanitation in Kampala City with the support of KfW Development Bank. The plan was revised in 2015 and was updated again in 2022.

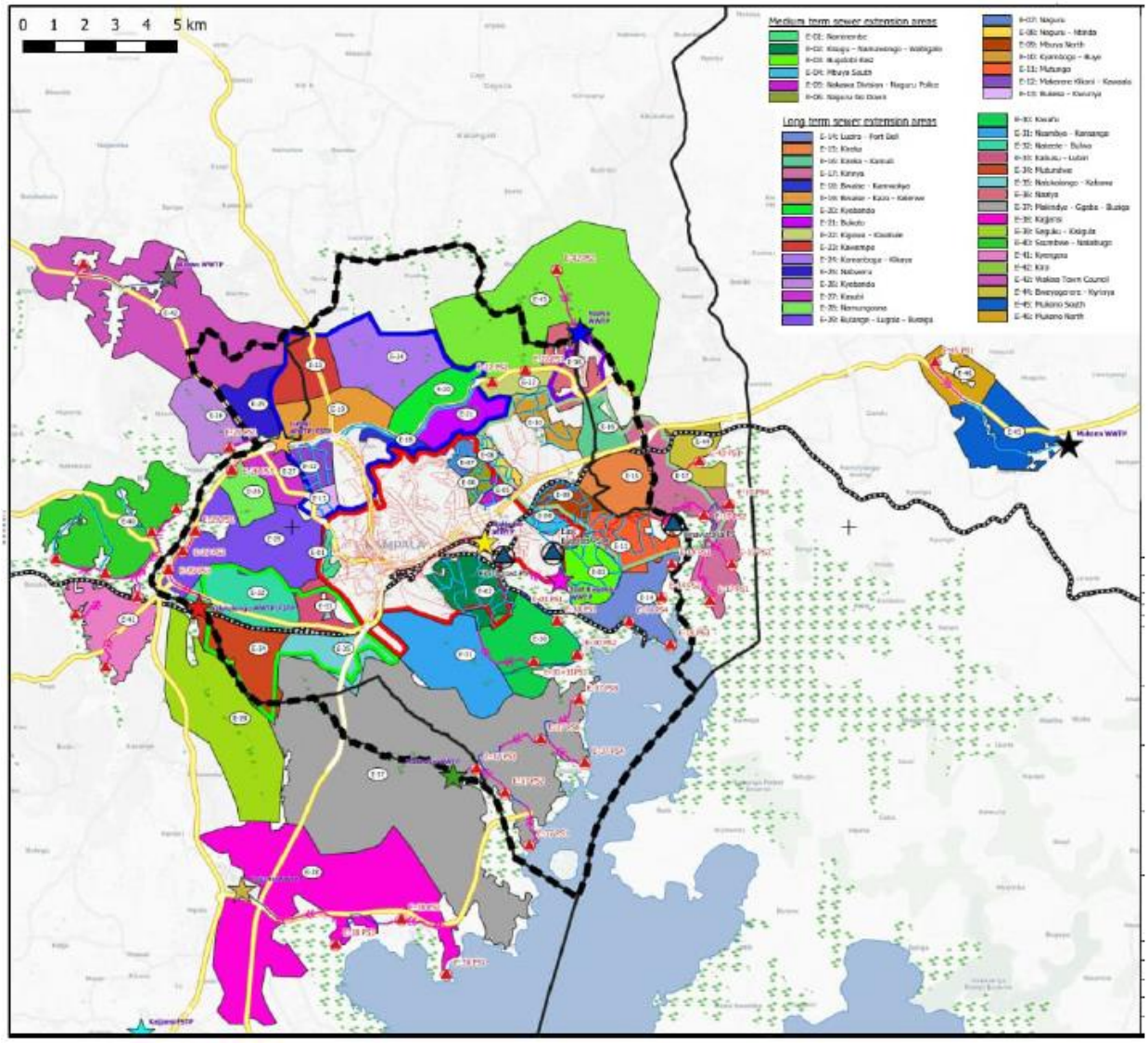
The main objective of the recent plan updating is to consider the recent developments in the sanitation situation in Kampala and identify priorities to be reviewed. It focuses mainly on the development of a sustainable piped sewerage system to be operated and maintained by NWSC.

The original planning area covered in this master plan in 2015 includes the area currently covered with sewer services as well as, Kampala Capital City and very small areas in Nansana Municipality, Kira Municipality and Makindye-Ssabagabo Municipality as shown in Figure 14.2.4. In the revision of the master plan conducted in 2022, the sewerage service area has been reconsidered based on future urban structure of GKUGA and population distribution. The service area has been expanded to part of Mukono Municipality, part of Wakiso Town, part of Kyengera Town and part of Kajjansi Town as shown in Figure 14.2.5.



Source: Fichtner Water & Transportation GmbH, 2022, Review of the Kampala Sanitation Masterplan and the Preparation of Climate Related Investments and Improvements Volume 2: Drawings Update of Master Plan and Identification of Investment Clusters, NWSC

Figure 14.2.4 Planning Area of Kampala Sanitation Master Plan and Present Sewerage Service Area



Source: Fichtner Water & Transportation GmbH, 2022, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, NWSC-KfW

Figure 14.2.5 Sewerage Service Area by NWSC Kampala Metropolitan in 2050

The forecasted volumes of wastewater to be generated in the four catchment areas in Kampala Capital City to be treated by wastewater treatment plans was estimated as 102,300 m^3/day for a population of approximately 900,000 by 2040 in the update of the Kampala Sanitation Masterplan in 2015.

This future forecast has been revised in the revision of the master plan in 2022 and the number of treatment plant to serve the NWSC's Kampala Metropolitan jurisdiction area has increased to 10 from four, and the forecasted volumes of wastewater to be treated by wastewater treatment plants is projected to be 288,294 m^3/day in 2040 and 396,988 m^3/day in 2050. The projected volumes of wastewater to be treated by wastewater treatment plant is summarised in Table 14.2.2. This forecast is estimated to serve the population of approximately 4.2 million and all industrial area by 2050.

This forecast is based on the assumption that 90% of the inhabitants and 90% of the industries are connected to sewer networks by 2030.

Table 14.2.2 Forecast of Wastewater Generation by Catchment Area in the Kampala Sanitation Master Plan Updated in 2022 (2030, 2040, 2050)

Wastewater Treatment Plant	2022	2030	2040	2050
Nakivubo	14,987 m³/day	43,242 m³/day	53,017 m³/day	61,810 m³/day
Kinawataka	1,332 m³/day	22,095 m³/day	28,988 m³/day	37,215 m³/day
Lubigi	1,298 m³/day	40,027 m³/day	55,888 m³/day	70,062 m³/day
Nalukolongo	6 m³/day	23,483 m³/day	36,048 m³/day	51,656 m³/day
Naalya	654 m³/day	11,467 m³/day	19,974 m³/day	32,585 m³/day
Makindye	0 m³/day	28,635 m³/day	45,454 m³/day	68,181 m³/day
Kajjansi	0 m³/day	6,221 m³/day	12,273 m³/day	21,826 m³/day
Ssumbwe	0 m³/day	7,779 m³/day	13,413 m³/day	21,160 m³/day
Wakiso	0 m³/day	12,637 m³/day	21,557 m³/day	30,359 m³/day
Mukono	0 m³/day	1,288 m³/day	1,682 m³/day	2,135 m³/day
Total	18,277 m³/day	196,874 m³/day	288,294 m³/day	396,988 m³/day

Source: Fichtner Water & Transportation GmbH, 2022, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, NWSC-KfW

The following measures are proposed in the 2022 Kampala Sanitation Master Plan Update:

- Rehabilitation of the existing sewer network
- Densification of the sewer network
- Extension of the sewer network beyond Kampala Capital City
- Implementation of simplified sewerage for densely populated areas located near to existing sewer connecting to the sewer by gravity
- Extension of sewerage treatment capacities of the existing wastewater treatment plant
- Connection of sewer system to the industries in the industrial areas

The direction for the implementation of wastewater treatment plant to satisfy the future forecasted wastewater generated by approximately 4.2 million inhabitants are proposed as in Table 14.2.3.

Table 14.2.3 Proposed Direction for Implementation of New Wastewater Treatment Plants by Kampala Sanitation Masterplan

New Wastewater Treatment Plants	Proposed Direction for Implementation
Makindye Wastewater Treatment Plant	Very large area including the southern part of the Makindye and Rubaga Divisions of Kampala Capital City as well as a relevant part of Wakiso District. The major part of this extension area drains by gravity to a central WWTP which is located in Gangu. Only the eastern part of this extension area including Ggaba, Buziga, Mawanga and Munyonyo will require several pumping stations for the transfer of the wastewater to the central WWTP. Treated effluents will be discharged into Lake Victoria via the existing swamp
Kajjansi Wastewater Treatment Plant	Extension area located east of the Kampala-Entebbe Expressway. This extension area shall be connected to a separate WWTP located close to the Kajjansi expressway toll station. The major part of the area can be drained by gravity to the proposed WWTP. Pumping stations would be required to connect the areas in the east of the extension area and the lows lying areas close to Victoria Lake. The location of the planned Kajjansi FSTP is not considered suitable as it is too from the extension area and would require pumping of the totality of the wastewater. Construction of a WWTP at the site of the Kajjansi FSTP could however be considered in case this WWTP would serve a bigger area, notably the Akright city and other important urban development area which are outside of the project area of the present Kampala Sanitation Master Plan.
Ssumbwe Wastewater Treatment Plant	The proposed concept is in line with Wakiso Water Supply and Sanitation Master Plan which foresees to build a centralised sewerage system in the densely currently or in future densely urbanised areas of Wakiso Subcounty and Kyengera Town in Wakiso District.

	The two extension areas E-40 Ssumbwe-Nakabugo and E-41 Kyengera delineate the densely urbanised areas of the above indicated zones. The future centralised sewerage system of these two extension areas shall be connected to a central WWTP in Ssumbwe. The location of the WTTP is as proposed in the Wakiso Master Plan.
Wakiso Wastewater Treatment Plant	Wakiso Town and densely urbanised areas around Wakiso Town shall be served in future by a centralized sewerage system connected to a central WWTP located close to the Kampala - Hoima Road. A pumping station will be required for the transfer of the effluents from the north-western part of the extension area to the Wakiso WWTP.
Mukono Wastewater Treatment Plant	The proposed concept is in line with the design developed for Mukono Town in 2002. The two extension areas E-45 Mukono South and E-46 Mukono North are larger than the areas proposed for piped sewerage in the above design. Instead of two WWTPs with one for each sewer extension area, it is proposed to transfer the effluents from the smaller area (E-46) by pumping to one single central WWTP located downstream of Mukono.

Source: Fichtner Water & Transportation GmbH, 2022, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, NWSC-KfW

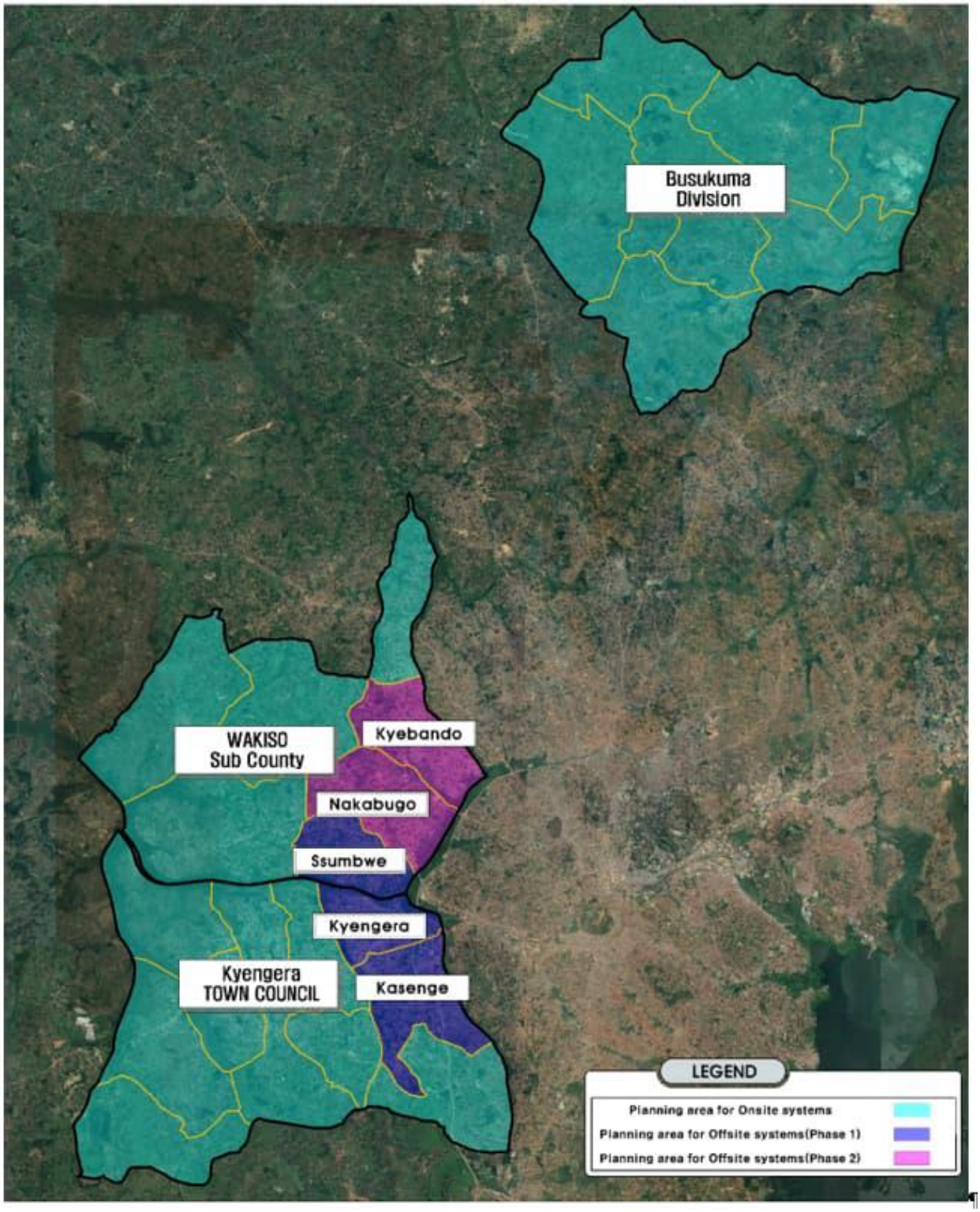
(4) Water Supply and Sanitation Master Plan for Wakiso Town

Water Supply and Sanitation Master Plan for Wakiso Town in implemented by MWE with the support of Korea Environmental Industry & Technology Institute (KEITI). The actual planning area of this master plan is Kyengera Town, Wakiso Subcounty and Busukuma Division in Wakiso District as shown in Figure 14.2.6.

The formulation of the master plan was launched in May 2019 and is now completed. Within the planning area, the master plan proposes a centralised sewerage system for three densely populated wards and parishes, namely Ssumbwe, Nakabugo and Kyebando Parishes in Wakiso Subcounty and Kasenge and Kyengera Wards in Kyengera Town. To treat the wastewater, Ssumbwe Wastewater Treatment Plant is proposed in Ssumbwe Parish. The implementation is to be done in two phases and the capacity of the treatment plant for the target year 2040 (Phase 1) is 14,000 m^3/day. The initial implementation is to be completed by 2030 with the capacity of 6,500 m^3/day.

The target year of Phase 2 is 2050 and an additional treatment capacity of 56,000 m3/day shall be provided.

The treatment plant plans to have a combined treatment of sewage and faecal sludge with a capacity of 482 m^3/d in Phase 1 and an additional capacity of 814 m^3/d in Phase 2.



Source: Sungil Entech, 2020, Water Supply and Wastewater Management Master Plan for Wakiso District, Uganda. Final Report.
Saman - K Water

Figure 14.2.6 Planning Areas for Water Supply and Sewer Service in Water Supply and Sanitation Master Plan for Wakiso Town

(5) Feasibility Study and Design a Faecal Sludge Treatment Plant for the Greater Kampala Metropolitan Area (GKMA).

The MWE has conducted a feasibility study for the implementation of faecal sludge treatment plant for GKMA with the support of Global Green Growth Institute (GGGI) in 2022.

The study includes the following activities:

- Conducting a feasibility study to identify suitable sites and preparation of site-specific engineering designs for one Faecal Sludge Treatment Plant (FSTP) in the GKMA
- Development of financially viable Business and Operations & Maintenance (O&M) model for the FSTP
- Identification and study of potential sludge valorisation options
- Identification of sustainable governance structure and supporting the selection process of public or private operator for the FSTP

GGGI has selected Mukoo Faecal Sludge Treatment Plant to conduct the feasibility study.

(6) Kampala Physical Development Plan

The goal of the sewerage sector for Kampala City in 2022 as stated in the KPDP is as follows:

"All residential areas should have either piped sewers with treatment plants of sufficient capacity or, as a temporary solution only, regular collection of faecal sludge from latrines and other facilities; with the sludge being treated in a scientific manner which prevents pollution of ecological systems, and allows for recycling of the end product. In addition, all industrial areas should be connected to proper sewerage systems, with pretreatment as appropriate, and, if necessary, specialised treatment facilities."

In the KPDP, the following strategies are recommended:

- Future planning for the sewerage sector is to be based on the long-term capacity projections of the KPDP.
- Set and work towards the following goals:
  - 2002 Target: 100% coverage of primary employment centres, 80% coverage of Inner City Zone, and 50% coverage of adjoining towns and sub-counties of Kampala City
  - Long Target: 100% coverage of primary employment centres, Inner City Zone, adjoining towns and sub-counties of Kampala City, and 80% coverage of planned urbanised areas
- Commence the planning of a piped sewer network for the Lubigi catchment and for other catchments in addition to those of Kinawatka and Nakivubo, and undertake planning for additional sections of the Nakivubo system
- Accelerate the upgrading, rehabilitation or augmentation of the existing network and treatment plants and the commissioning of new water treatment plants
- Require all industries and formal commercial establishments and institutions to have appropriate connections or pretreatment facilities as a condition for building plan approval, and make authorisation of occupancy and implementation of water supply as condition to the implementation of those connections / facilities, while also strengthening enforcement capabilities
- Adopt and implement appropriate progressive fee structure to ensure development and proper maintenance of the sewage network on an economic basis
- Adequate interim financing for capital investment

(7) Wakiso District Physical Development Plan

The following action plans are considered in Wakiso District PDP as the guiding principles for the future sanitation system:

- Priority to gravity sewers by following the natural topography to avoid pumping stations
- Priority to major polluters such as densely populated areas, industrial areas, commercial and

institutional facilities

- Priority to increase sewer connections in already sewered areas compared to major extension of sewer network
- New Nalukolongo Sewerage System to be operated and maintained by NWSC by 2040
- New Kajjansi Sewerage System to be operated and maintained by NWSC by 2040

14.2.2 Issues on the Sewerage Sector

(1) Low Coverage Rate of the Sewerage Network System and Insufficient Pipes in the Existing Network

The coverage rate of the sewerage system in the already urbanised area in Kampala Capital City, especially in the commercial are still low despite the existence of sewer network. One of the reasons is due to the low performance in the installation of new sewer connections because the water customers are reluctant to connect to the sewerage system due to the cost. Most water costomers have already invested in their onsite sanitation facilities and it is also cheaper to continue to use the onsite sanitation than connect to the NWSC sewer network. For example, residential house with a waterborne toilet which uses septic tank needs to empty every two to five years and will cost around 300,000 UGX per emptying. On the other hand, the cost of sewerage is estimated to cost around 385,000 UGX per year. It is also said that most customers are favouring a connection to the sewer, in comparison to on-site sanitation options if the financial aspect is not considered.

For NWSC to sustainably provide the sewerage services, it is necessary to increase the number of sewerage connection especially in the existing service coverage area.

In addition to the low coverage rate of the sewerage network system, approximately 43.4% of the existing sewer network in Kampala was installed over 50 years ago, and 36.6% of the pipe are not sure of the installed year as shown in Table 14.2.4.

Table 14.2.4 Age of Sewer Pipes Installed in Kampala Capital City

No	Pipe Installation Year	Pipe Length [m]	Age [years]	Percent
1	Unknown	92,501	Unknown	36.6%
2	2020	1,550	2	0.6%
3	2019	436	3	0.2%
4	2018	19,400	4	7.7%
5	2014	14,452	8	5.7%
6	2007	221	15	0.1%
7	1998	14,486	24	5.7%
8	1967	449	55	0.2%
9	1958	20,842	64	8.2%
10	1940	88,437	82	35.0%
Total		**252,774**		**100%**

Source: Fichtner Water & Transportation GmbH, 2022, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, NWSC-KfW

Assuming that the lifetime of the sewer pipes are 50 years, at least 43 % of the existing sewer with a total length of approximately 110 km need to be replaced.

Furthermore, approximately 40% of the sewer pipelines installed currently have less than 200 mm diameters. A size of 200mm is considered as minimum diameter for a state-of-the-art communal sewer. The distribution of the sewer length by diameters of installed pipes is shown in Table 14.2.5.

Table 14.2.5 Diameters of Sewer Pipes Installed in Kampala Capital City

No	Pipe Size	Pipe Length [m]	Percent
1	DN 1500	1,566	0.6%
2	DN 1200	1,116	0.4%
3	DN 900	1,647	0.7%
4	DN 800	3,289	1.3%
5	DN 675	313	0.1%
6	DN 600	6,024	2.4%
7	DN 525	249	0.1%
8	DN 500	4,900	1.9%
9	DN 450	5,530	2.2%
10	DN 400	3,462	1.4%
11	DN 375	3,081	1.2%
12	DN 300	11,413	4.5%
13	DN 250	7,592	3.0%
14	DN 225	6,624	2.6%
15	DN 200	6,598	2.6%
16	DN 175	100,618	39.8%

Souce: Fichtner Water & Transportation GmbH, 2022, Review of the Kampal Sanitation Masterplan and Preparation of Sanitation Investments and Improvements Work Package A Report Volume 1: Report, NWSC-KfW

(2) Lack of Sewerage and Sanitation Infrastructure in GKUGA Outside KCC

The urban population in GKUGA living outside KCC is larger than the population in KCC, and commercial activities and industrial development in the area outside KCC is emerging rapidly. However, the only area outside KCC that has sewerage infrastructure in GKUGA is Entebbe.

In the revision of the Kampala Sanitation Master Plan conducted in 2022, sewerage infrastructure for areas outside KCC were considered, which includes some of the urban centres in the GKUGA's future urban structure, namely Busega-Kyengera Secondary Urban Centre, Namanve Secondary Urban Centre, Wakiso Metropolitan Centre, Mukono Metropolitan Centre and part of Kajjansi Metropolitan Centre. (The remaining part of Kajjansi Metropolitan Centre is within the NWSC's jurisdiction area of Entebbe.) On the other hand, Nsangi Metropolitan Centre, Gayaza Metropolitan Centre and Matugga Metropolitan Centre were not included as part of the sewerage network to be implemented by 2050.

The existing capacity of faecal sludge treatment plant considering the ongoing projects is also not sufficient for the future urban population in GKUGA.

(3) Wastewater from Industrial Areas

Most of the industrial facilities in GKUGA are not connected to sewerage system. This is due to the lack of willingness to connect to the sewer network.

In addition, pollution control and monitoring system of the industrial pollution is not functioning.

(4) Degraded Wetland due to Improper Onsite Sanitation Situation

Besides KCCA, the responsibility for on-site sanitation is unclear in GKUGA. Therefore, due to improper onsite sanitation situation, wetland are degraded.

14.2.3 Objectives for the Sewerage Sector

The objectives of sewerage sector development are as follows:

- Increase the capacity of sewerage treatment and faecal sludge treatment facilities
- Increase the number of sewer connection by prioritising the sewer network service area to Kampala Capital City, Secondary Urban Centres and six Metropolitan Centres by 2050
- Improve the onsite satiation situation
- Legalise industrial facilities in GKUGA to connect to sewer network or have adequate onsite sanitation facilities

14.2.4 Strategies for the Sewerage Sector

Strategies for Increasing the Capacity of Sewerage Treatment and Increase the Coverage Rate of Sewerage System in Kampala Capital City

For improving the situation of sewerage and sanitation in Kampala Capital City the following set of strategies are necessary:

- To promote business, commercial, manufacturing and public facilities in Kampala Capital City to connect to sewer network (Short Term)
- To implement Nalukolongo Wastewater Treatment Plant and Faecal Sludge Treatment Plant (Short Term)
- To densify the sewer network for the areas with existing sewer network following the implementation plan of Updated Kampala Sanitation Master Plan 2022 (Short – Medium Term)
- To replace the old sewer pipes (over 50 years old) and pipes that have less than 200 mm diameter (Short - Medium Term)
- To extend the sewer network to cover the whole of Kampala Capital City following the implementation plan of Updated Kampala Sanitation Master Plan 2022 (Medium – Long Term)
- To upgrade the capacity of Nakivubo Wastewater Treatment Plant and Lubigi Wastewater Treatment Plant to prepare for the future wastewater to be generated (Medium – Long Term)

(1) Strategies for Expanding the Sewerage System to Secondary Urban Centres

For improving the situation of sewerage and sanitation in the secondary urban centres the following set of strategies are necessary:

- To implement Namanve Wastewater Treatment Plant planned by UIA for Namanve Secondary Urban Cetnre (Short Term)
- To expand the sewerage system to cover the four secondary urban centres following the implementation plan of Updated Kampala Sanitation Master Plan 2022 (Short Term)
- To implement Ssumbwe Wastewater Treatment Plant and Ssumbwe Faecal Sludge Treatment Plant under Water and Sanitation Master Plan for Wakiso Town for Busega-Kyengera Secondary Urban Centre (Short - Long Term)
- To implement Entebbe Wastewater Treatment Plant (New Proposal) for Entebbe-Katabi Secondary Urban Centre (Medium – Long Term)

(2) Strategies Preparing Sewerage System for Metropolitan Centres

In the short to medium term, the metropolitan centres are expected to use faecal sludge treatment. The sewer services in the metropolitan centres should be implemented in accordance to the phase development of the metropolitan centres. Mukono, Kjjansi and Nsangi are the first metropolitan centres expected to develop followed by Wakiso, Mattuga and Gayaza.

For improving the situation of sewerage and sanitation in the six metropolitan centres the following set of strategies are necessary:

- To implement Mukono Faecal Sludge Treatment Plant and Kajjansi Faecal Sludge Treatment Plant (Short Term)
- To review and update the sanitation plan prepared by Support to Rural Towns Water and Sanitation Project for Mukono Town and Seeta Urban Centre in 2002 (Short Term)
- To prepare sanitation plan for providing sewerage system in Wakiso, Kajjansi, Nsangi, Matugga and Gayaza Metropolitan Centres (Short Term)
- To expand sewerage network to Mukono, Kajjansi, Nsangi and Wakiso Metropolitan Centres (Medium Term)
- To implement Mukono Wastewater Treatment Plant proposed in Updated Kampala Sanitation Master Plan 2022 for Mukono Metropolitan Centre (Medium Term)
- To implement Kajjansi Wastewater Treatment Plant proposed in Updated Kampala Sanitation Master Plan 2022 for Kajjansi Metropolitan Centre (Medium Term)
- To implement Nsangi Wastewater Treatment Plant (New Proposal) for Nsangi Metropolitan Centre (Medium Term)
- To implement Wakiso Wastewater Treatment Plant proposed in Updated Kampala Sanitation Master Plan 2022 for Wakiso Metropolitan Centre (Medium Term)
- To expand sewerage network to Matugga and Gayaza Metropolitan Centres (New Proposal) (Long Term)
- To implement Matugga Wastewater Treatment Plant or Waste Stabilisation Pond (New Proposal) for Matugga Metropolitan Centre (Long Term)
- To implement Gayaza Wastewater Treatment Plant or Waste Stabilisation Pond (New Proposal) for Gayaza Metropolitan Centre (Long Term)

(3) Strategies for Developing Faecal Sludge Treatment Plants in GKUGA and Sewerage Infrastructure for Urban Sub-Centres and Suburban Centres

While the sewer network is expected to expand to 20km radius from Kampala city centre by 2050, it is assumed that the area outside the 20km radius will not have limited sewer network in 2050. Furthermore, t is assumed that not all household within the area of 20km radius from Kampala city centre will be connected to sewer network by 2050.

For some suburban centres such as Mpigi and Kakiri, sewer system utilising waste stabilisation ponds could be considered to be implemented in the long term.

The following strategies are considered for improving the situation of sanitation in the other areas in GKUGA:

- To implement faecal sludge Treatment Plants for Nansana and Kira Urban Sub-centres (Short Term)
- To conduct a study on waste stabilisation pond and faecal sludge treatment plants in GKUGA for providing sanitation infrastructure especially for the suburban centres designated in GKUGA future spatial structure (Short Term)
- To implement Makindye Wastewater Treatment Plant (Medium Term)

- To implement necessary faecal sludge treatment plant based on the study conducted for GKUGA (Medium – Long Term)
- To implement waste stabilisation ponds and sewer network to serve suburban centres if necessary (Long Term)

(4) Strategies for Improving Onsite Sanitation in GKUGA

For improving onsite sanitation in GKUGA, the following strategies are considered:

- To strengthen the monitoring system of onsite sanitation and determine the role of responsibilities for onsite sanitation in GKUGA among the stakeholders
- To upgrading unlined pit latrines to lined toilets to ensure minimum standards for onsite sanitation technologies
- To increase the capacity of faecal sludge collection

(5) Strategies for Industrial Areas

The following strategies should be implemented for the industrial areas based on Updated Kampala Sanitation Master Plan 2022:

- To legalise industrial facilities in GKUGA to connect to sewer network or have adequate onsite sanitation facilities
- To setup of an efficient industrial pollution control structure and policy within NWSC aiming at connecting the highest possible number of industries to the sewerage system, however in a controlled manner with the issuance of discharge permits and establishment of efficient monitoring and control procedures
- To coordinate with UIA for the wastewater treatment plants to be implemented for Kampala Industrial and Business Park, Bweyogerere Industrial and Business Park and Luzira Industrial and Business Park

14.2.5 Projects for the Sewerage Sector

(1) Short-Term Projects

The following are the project for sewerage sector in short term (2024-2030):

- [WW-01] Project for Rehabilitation of Existing Sewer Network in Kampala Capital City
- [WW-02] Project for Implementation of Nalukolongo Wastewater Treatment Plant and Faecal Sludge Treatment Plan
- [WW-03] Project for Sewer Network Densification in Kampala Capital City
- [WW-04] Project for Implementation of Ssumbwe Wastewater Treatment Plant and Ssumbwe Faecal Sludge Treatment Plant (Phase 1)
- [WW-05] Project for Implementation of Namanve Wastewater Treatment Plant
- [WW-06] Project for Expansion of Sewerage System (Phase 1)
- [WW-07] Project for Implementation of Mukono Faecal Sludge Treatment Plant
- [WW-08] Project for Implementation of Kajjansi Faecal Sludge Treatment Plant
- [WW-09] Project for Implementation of Nansana Faecal Sludge Treatment Plant
- [WW-10] Project for Implementation of Kira Faecal Sludge Treatment Plant
- [WW-11] Project for Formulation of Sanitation Implementation Plans for Metropolitan Centres in GKUGA (Including review and Update of sanitation plan prepared by Support to Rural Towns Water and Sanitation Project for Mukono Town and Seeta Urban Centre)
- [WW-12] Project for Study on Road Map for Sanitation Improvement in GKUGA for

Suburban Centres

- [WW-13] Project for Strengthening the Capacity of NWSC to Promote Connecting to Sewer Network

(2) Medium-Term Projects

The following are the project for sewerage sector in medium term (2031-2040):

- [WW-01] Project for Rehabilitation of Existing Sewer Network in Kampala Capital City
- [WW-03] Project for Sewer Network Densification in Kampala Capital City
- [WW-04] Project for Implementation of Ssumbwe Wastewater Treatment Plant and Ssumbwe Faecal Sludge Treatment Plant (Phase 1)
- [WW-06] Project for Expansion of Sewerage System (Phase 2)
- [WW-14] Project for Upgrading Lubigi Wastewater Treatment Plant
- [WW-15] Project for Implementation of Entebbe Wastewater Treatment Plant (Phase 1)
- [WW-16] Project for Implementation of Mukono Wastewater Treatment Plant
- [WW-17] Project for Implementation of Kajjansi Wastewater Treatment Plant
- [WW-18] Project for Implementation of Nsangi Wastewater Treatment Plant
- [WW-19] Project for Implementation of Wakiso Wastewater Treatment Plant
- [WW-20] Project for Implementation of Makindye Wastewater Treatment Plant
- [WW-21] Project for Implementation of Faecal Sludge Treatment Plants for Suburban Centres in GKUGA (Phase 1)
- [WW-22] Project for Strengthening the Capacity of CUO for O&M of Faecal Sludge Treatment Plants

(3) Long-Term Projects

The following are the project for sewerage sector in medium term (2041-2050):

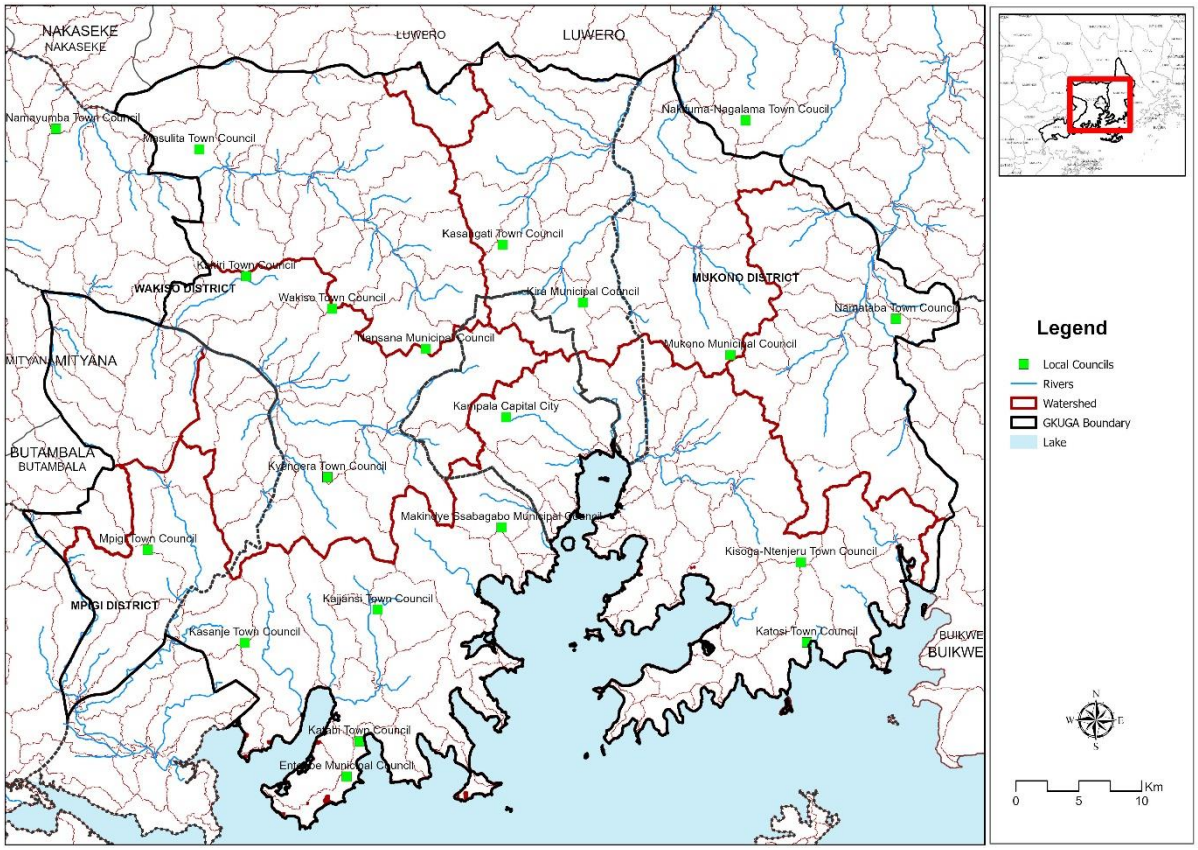
- [WW-04] Project for Implementation of Ssumbwe Wastewater Treatment Plant and Ssumbwe Faecal Sludge Treatment Plant (Phase 2)
- [WW-06] Project for Expansion of Sewerage System (Phase 3)
- [WW-15] Project for Implementation of Entebbe Wastewater Treatment Plant (Phase 2)
- [WW-21] Project for Implementation of Faecal Sludge Treatment Plants for Suburban Centres in GKUGA (Phase 2)
- [WW-23] Project for Upgrade of Nakivubo Wastewater Treatment Plant
- [WW-24] Project for Implementation of Sewerage Treatment Facility for Matugga
- [WW-25] Project for Implementation of Sewerage Treatment Facility for Gayaza
- [WW-26] Project for Implementation of Sewer Infrastructure for Suburban Centres in GKUGA
- [WW-27] Project for Implementation of Kalukolongo Wastewater Treatment Plant

14.3 Drainage Sector in GKUGA

14.3.1 Background of Drainage Sector in GKUGA

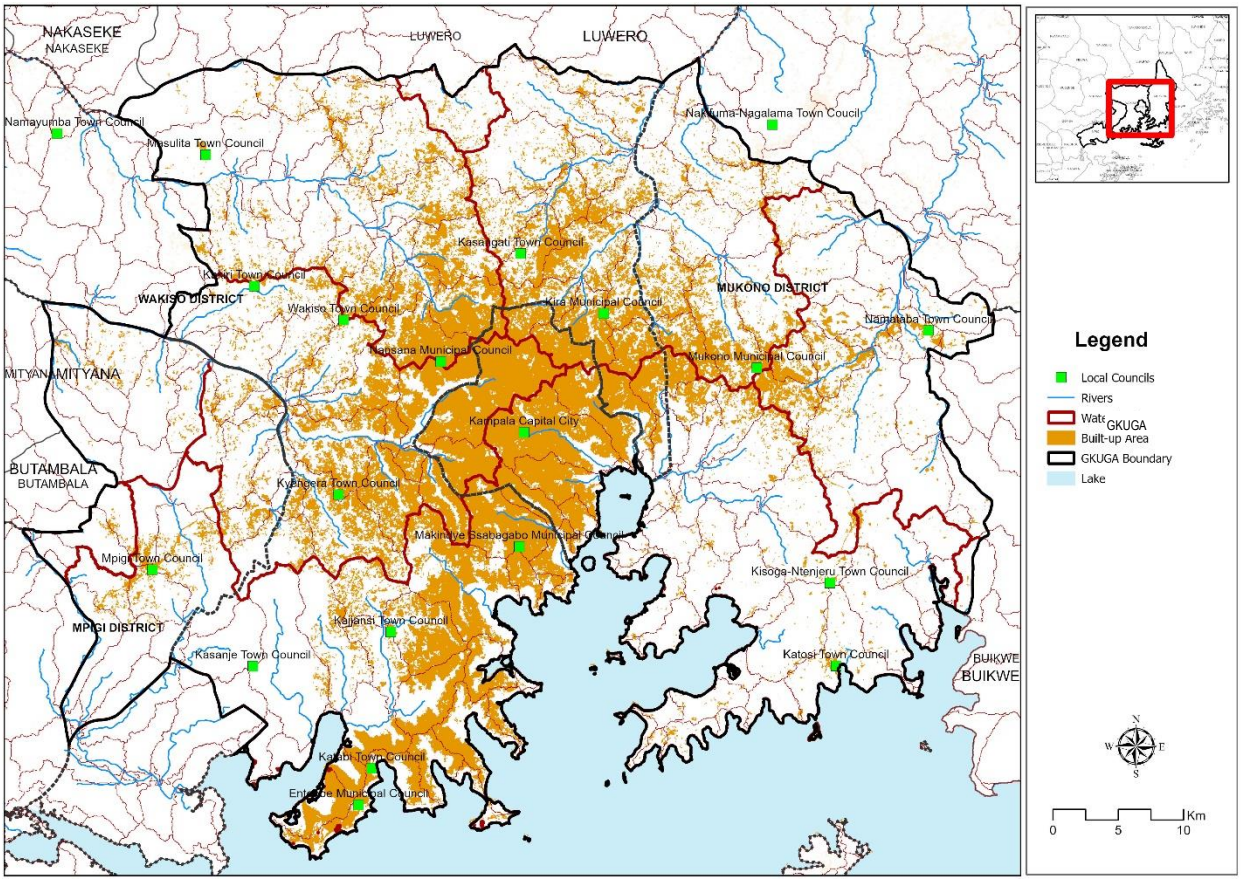
The background summary of the problems in Greater Kampala Metropolitan Area (GKMA), such as flooding and its causes, are shown below.

- In Kampala Capital City and its neighbouring districts (Wakiso, Mukono and Mpigi Districts), flooding (inundation and overflow of river water) is a frequent occurrence.
- The northeastern and northern part of Kampala Capital City is upstream of Wakiso District, as shown in Figure 14.3.1. The central, eastern and southern part of Kampala Capital City is the watershed of the Lake Victoria, as shown in Figure 14.3.1.
- For Kampala Capital City, the Kampala Drainage Master Plan 2016 shows flood control policy and measures. On the other hand, in GKUGA outside of Kampala Capital City, neither the flooding situation nor flood control measures have been studied.
- Kampala Capital City and its neighbouring districts have undergone land use changes (increased impervious area, reduced storage effects) due to rapid population growth and urbanisation with economic development. See Figure 14.3.2.
- There is no documentation on the present situation of drainage channels in the three districts (Wakiso, Mukono, Mpigi Districts). There are also no records of flooding disasters in these three districts. To collect this information, interviews were carried out by the JICA Expert Team with staff from each district local government.



Source: JICA Expert Team

Figure 14.3.1 Watershed Areas in the GKUGA



Source: JICA Expert Team

Figure 14.3.2 Urbanisation Areas and Watershed Areas in the GKUGA

(1) Kampala Capital City

The reduction of surface infiltration capacity due to rapid urbanisation and reduction of wetlands as floodplains have led to the reduction of the rainwater retention and retention functions of the watershed. In addition to the problem of inadequate flow capacity (bottlenecks) at road intersections, sediment accumulation and blockage due to the collapse of drainage channel slopes and the reduction of flow capacity due to solid wastes have resulted in frequent flooding. In Kampala City, flooding is inundation, with a scale of about 30 cm in depth, and it lasts for 1 to 3 hours in the case of short-period heavy rainfall.

Source: KDMP 2016 LR (Photo by Daily Monitor)

Source: KDMP 2016 LR (Photo by Daily Monitor)

Source: JICA Expert Team（23rd Oct. 2021）

Source: JICA Expert Team（23rd Oct.2021）

Figure 14.3.3 Past Flood Damage in Kampala Capital City

Source: KDMP 2016 LR

Source: KDMP 2016 LR

Figure 14.3.4 Poor Drainage Conditions due to Insufficient Flow Capacity of Drainage Infrastructure

Source: KDMP 2016 LR

Source: KDMP 2016 LR

Figure 14.3.5 Collapse of Drainage Channel Slopes in Kampala Capital City

Source: KDMP 2016 LR

Source: JICA Expert Team

Figure 14.3.6 Dumping of Solid Wastes in Drainage Channels

Source KDMP 2016 LR

Figure 14.3.7 Deposit of Sediment in Drainage Channel

KCCA has been constructing new and improved drainage channels with KCCA funds based on the Drainage Master Plan, mainly in the secondary channels, although the planned WB-funded improvement works in the primary channels (Kansanga, Gaba and Kinawataka channel) have been cancelled. For example, about 4,000 m of drainage channels have been improved since 2018. In addition, the design of the primary channel in Kansanga, Gaba and Kinawataka and the secondary channel in Lubigi, Kansanga, Gaba and Kinawataka have already been carried out in 2016.

Table 14.3.1 Record of Drainage Channel Improvement Works

Division name	Length of Construction Work for Drainage Channel (m)	Location
Makindye	1,128	St. Denis, Kabaluka and Nakinyuguzi
Lubaga	981	St. Nabunya, Kimera, Kabaawo and Sebanja
Central	1,951	Kitamanyangamba and Nabulagala

Source: KCCA Management Executive Committee Report, on the 25th March, 2022

(2) Wakiso District

The summary of the results of the interviews in Wakiso District is shown below:

- In Wakiso District, flooding occurs after heavy rains and during the rainy season. In Wakiso, there is a tendency for flooding to occur mainly around roads constructed in low-lying areas and wetlands. In some cases, flooding occurs due to lack of capacity of roadside drainage channels.
- Figure 14.3.8 shows the photos of flooding conditions and Figure 14.3.9 shows a location map of flooding hotspots.
- Flood depths are generally 50 cm. The duration of flooding is about 24 hours.
- Damage caused by flooding mainly consists of inundation of buildings, damage to agricultural fields, and traffic jams on roads. There were no reports of injuries or loss of life.
- The cause of the flooding was the lack of capacity of the drainage channels (box culverts and concrete pipes) installed under the road that crosses the wetland. Another problem is the installation of infrastructure facilities and housing on low land, such as wetlands where rainwater easily collects.
- In Wakiso, the area of wetlands has decreased from 11% to 9% in recent years; however, it is important to conserve wetlands.
- Smaller scale works, such as improvement of drainage channels in wetlands, can be carried out with Wikiso funds. In the event of a serious disaster, the Ministry of Works will provide support for large-scale construction work.

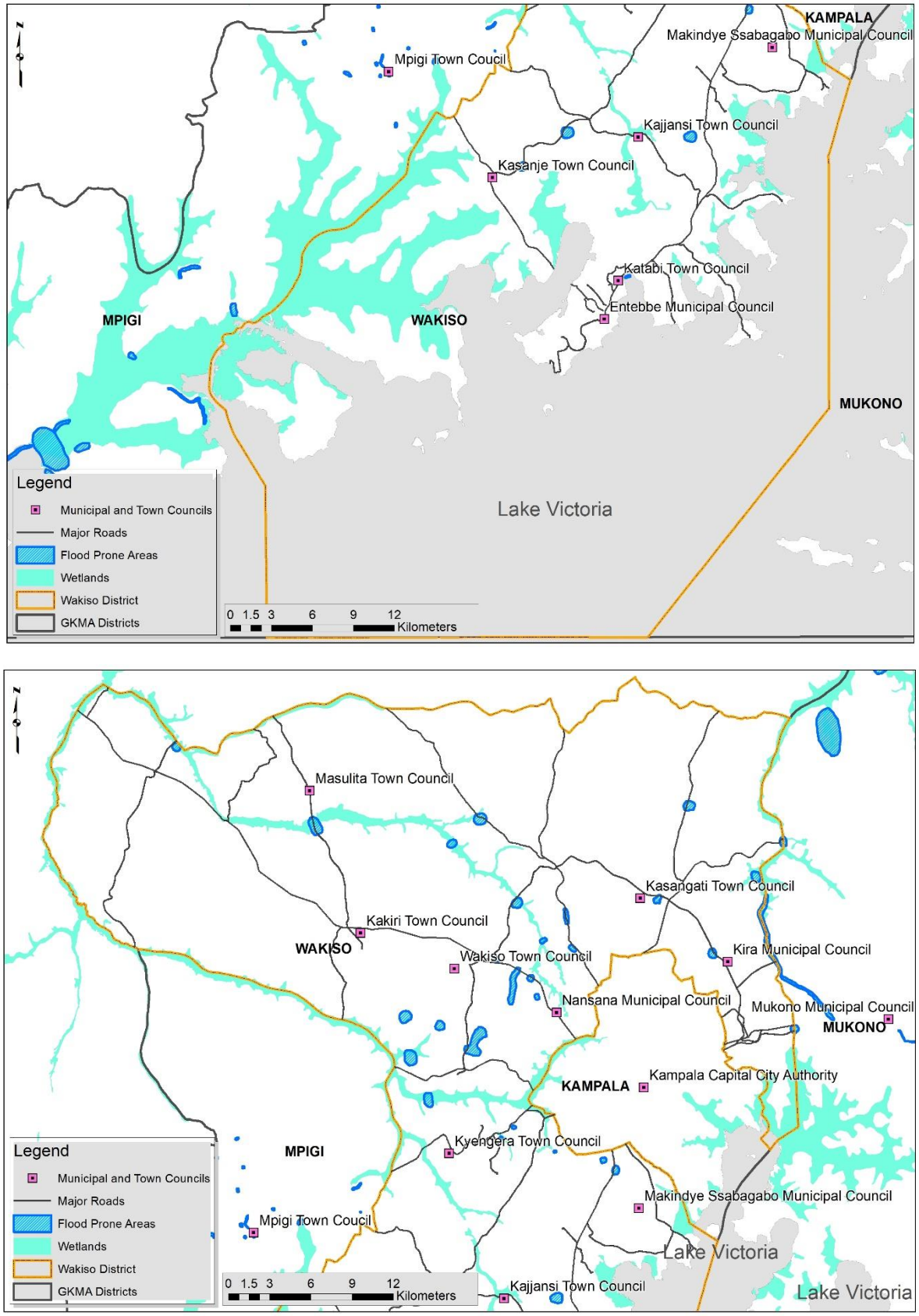
Flooding Situation at Mende_Sanga_Wetland

Bulenga_Lubanyi_Road_Flooding

Flooding in Nakiduduma Swamp

Source: JICA Expert Team

Figure 14.3.8 Past Flood Damage in Wakiso District



Source: JICA Expert Team based on the hearing from Wakiso District Local Government

Figure 14.3.9 Location Map of Flooding Hotspots in Wakiso District

Source: JICA Expert Team

Figure 14.3.10 Interview at Wakiso District Local Government

(3) Mukono District

The summary of the results of the interviews in Mukono District is shown below.

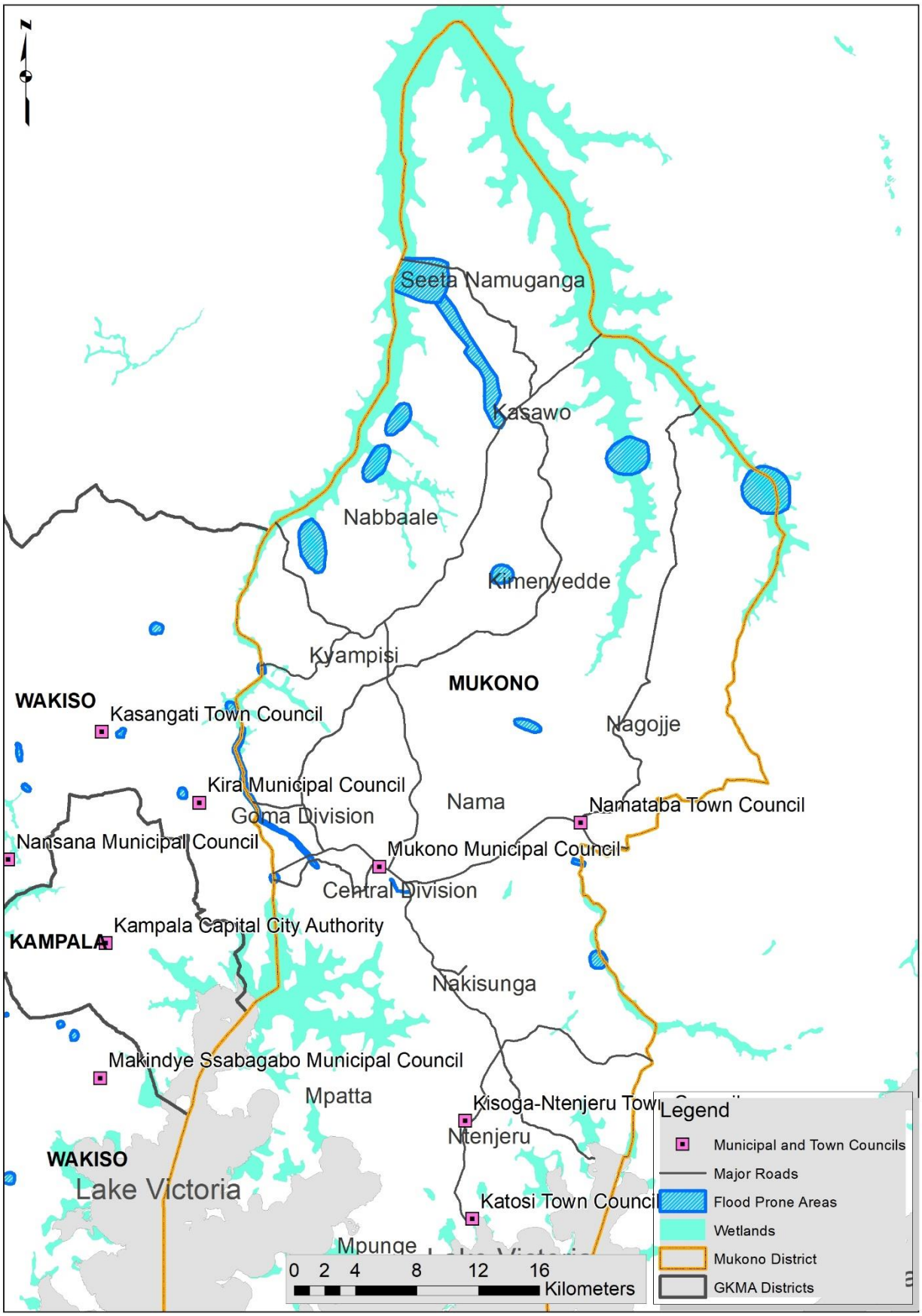
- In Mukono district, flooding occurs during the very rainy season. In Mukono, there is a tendency for flooding to occur mainly at low-lying areas within wetlands. In some cases, flooding occurs due to lack of capacity of roadside drainage channels.
- Figure 14.3.11 shows the photos of flooding conditions and Figure 14.3.12 shows a location map of flooding hotspots.
- Flood depths are generally 50 cm.
- Flooding may continue upstream of the inundated area for 1-2 days but may continue for 1-2 weeks in the downstream areas.
- Flooding is caused by lack of drainage channel capacity and backwater from narrowed areas in the lower reaches of wetlands.
- Floods cause damage to buildings, agricultural land, and traffic congestion.
- In one case, two people died when their motorcycles were crossing a road through a wetland during flooding. They drove the bike incorrectly and fell into the wetland, where they were swept away and killed. This is not a case where flooding was the direct cause.
- To improve the drainage channel, three box culverts were installed in the wetland in Mukono District. The work was funded under the budget of Mukono District and planned and designed by an engineer of Mukono District.

Matumbwe swamp along Nacyeke – Gimbi Road

Sezibwa River Along Kyabazala – Nkooko – Kabimbiri Road

Source: JICA Expert Team

Figure 14.3.11 Past Flood Damage in Mukono District



Source: JICA Expert Team based on the hearing from Mukono District Local Government

Figure 14.3.12 Location Map of Flooding Hotspots in Mukono District

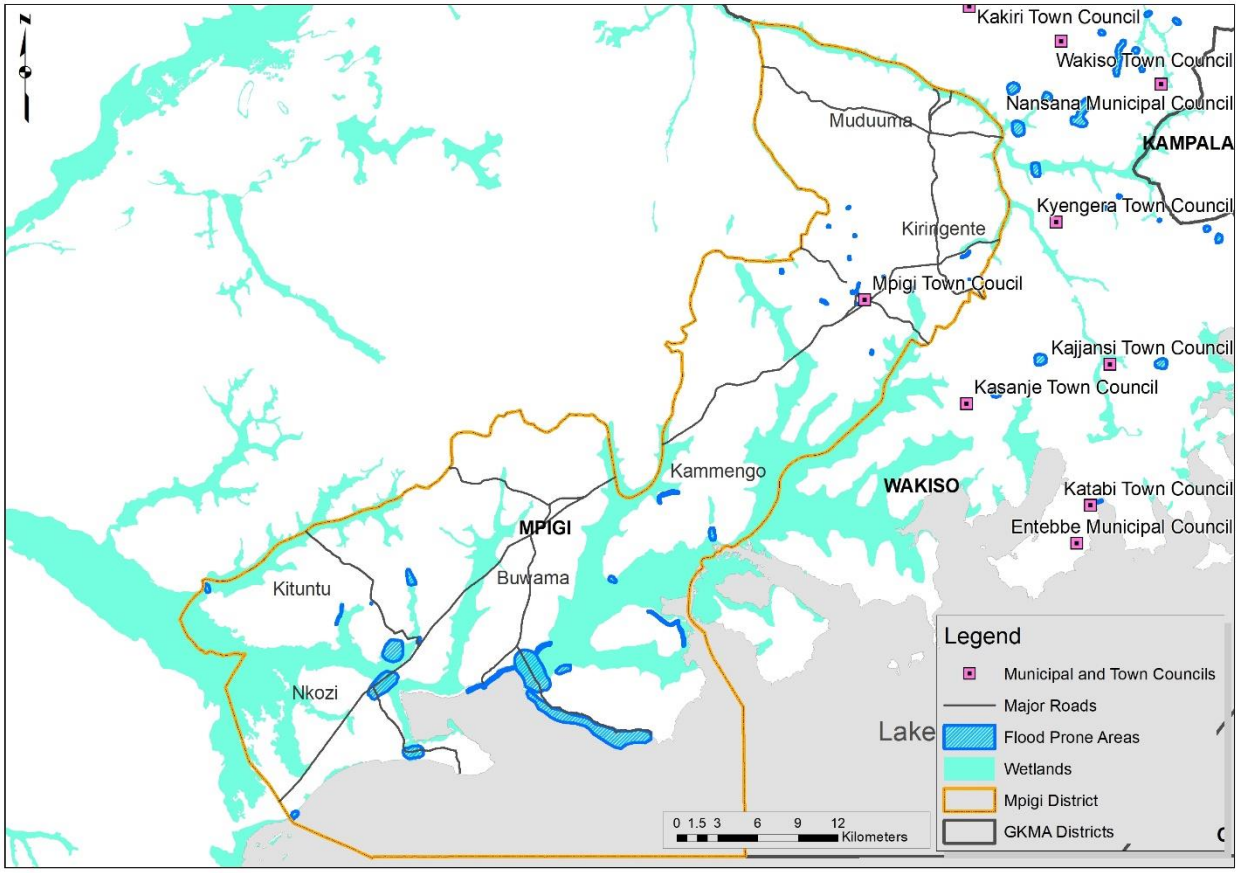
Source: JICA Expert Team

Figure 14.3.13 Interview at Mukono District Local Government

(4) Mpigi District

The summary of the results of the interviews in Mpigi District is shown below.

- Flooding occurs with every heavy rainfall event. Figure 14.3.12 shows a location map of flooding hotspots. Flooding is more likely to occur along roads or around Lake Victoria and wetlands.
- The inundation area ranges from the road periphery to 10 km2 and varies.
- The flood depth is usually around 20 cm - 1 m.
- The duration of the flooding varied greatly from place to place, ranging from a few hours to a week or two, with flooding lasting up to a month around Lake Victoria.
- Flooding has mainly affected crops, livestock, fisheries and movement of people and goods. In some cases, the only road connecting the outlying islands in Lake Victoria was inaccessible for several days due to flooding, and although there were no direct human casualties, there is concern about secondary damage. Five people died during the 2020 floods while passing on the roads in the flooded Luloio wetland.
- One of the causes of flooding is the lack of drainage channel capacity and the tendency for more silt to run off into the drainage channels due to land erosion caused by rainfall. This reduces the capacity of drainage channels.



Source: JICA Expert Team

Figure 14.3.14 Location Map of Flooding Hotspots in Mpigi District

Source: JICA Expert Team

Figure 14.3.15 Interview at Mpigi District Local Government

14.3.2 Issues on Drainage Sector in GKUGA

From the background described above and considering future urban development, the issues related to drainage are identified as follows:

(1) Increasing Flooding and Inundation due to Expanding Urbanised Areas in GKUGA

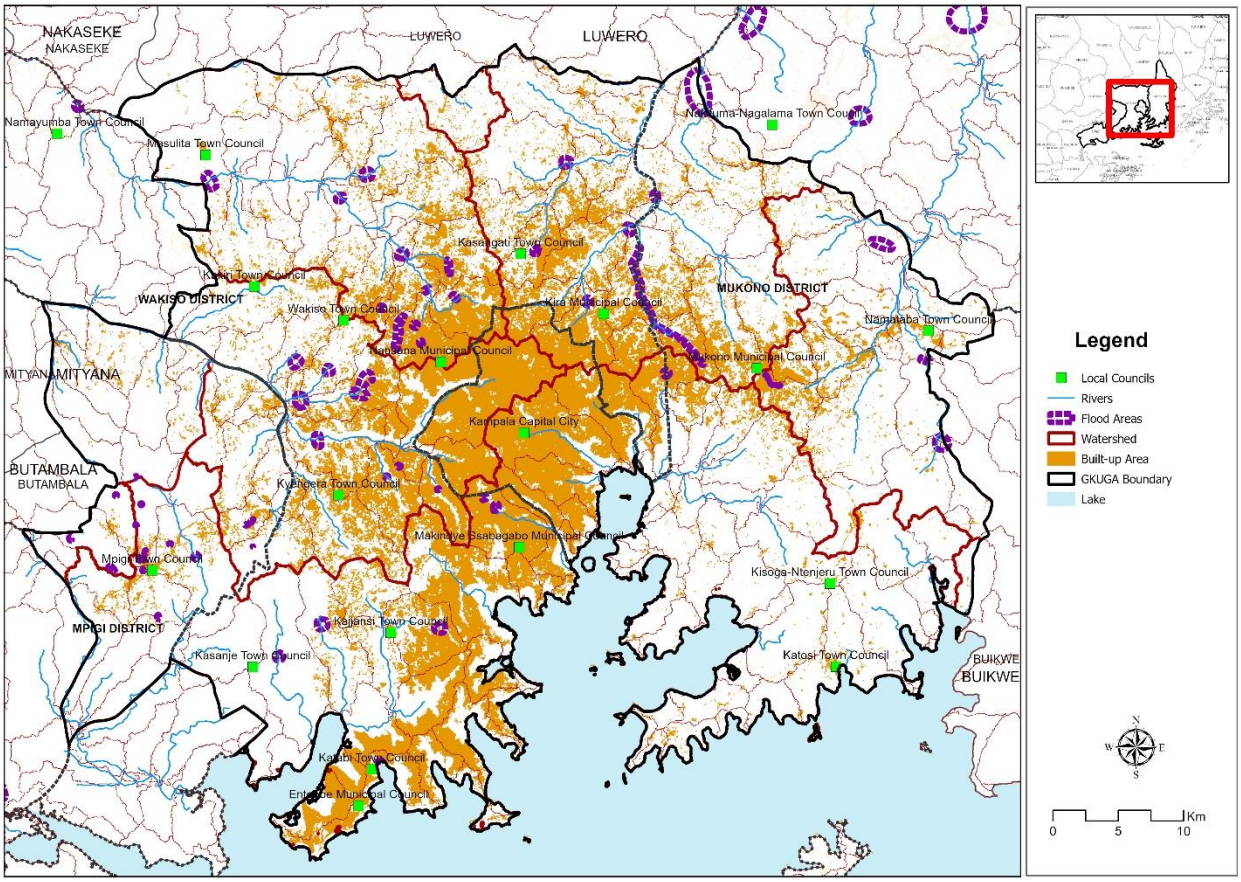
The decreased size of floodplain areas including wetlands and the reduced infiltration capacities of the ground in expanding urbanised areas have caused flooding and inundation in wider areas, damaging the following:

- People's residential buildings, commercial and industrial properties
- Road pavements
- Drainage facilities
- Economic activities
- Road traffic conditions

(2) Increasing Risk of Flooding in GKUGA outside of Kampala Capital City

Urbanisation is taking place in GKUGA outside Kampala Capital City, and flood hot spots are found near wetlands and low lying areas, as shown in Figure 14.3.16.

Intensive urbanisation within Kampala Capital City would increase the rate of rainfall runoff due to land use change (increased impervious areas, reduced effect of storage due to reduced wetlands, etc.). The implementation of drainage infrastructure within Kampala Capital City, which would increase the flood risk in GKUGA outside Kampala Capital City, which are downstream to Kampala Capital City.



Source: JICA Expert Team

Figure 14.3.16 Interview at Mpigi District Local Government

(3) Drainage Systems

The capacities of drainage systems have been reduced due to sediment accumulation, dumping of solid waste, and crossing of water pipes as follows:

- Sedimentation: Sediments generated by excavation earth works for infrastructure enter open drains, resulting in reduced capacities of drainage.
- Dumping of solid waste: Densely populated areas generally have poor solid waste management services; therefore, people tend to dispose of domestic solid waste directly into drainage channels and roadside drains, resulting in reduced capacities of drainage channels.

(4) Drainage Master Plans for GKUGA outside Kampala Capital City

The surrounding districts (Wakiso, Mukono and Mpigi) of Kampala Capital City are located downstream of Kampala Capital City. More urbanisation and expanding concrete pavement of roads and building lots would generate quick and massive run-off towards downstream areas in GKUGA.

However, GKUGA does not have any master plans for drainage systems. As a result, their plans for drainage improvement, maintenance plans for drainage channels, and flood control policies are unclear.

(5) Organisations

While KCCA has established a manager position and a supervisor position in charge of drainage under the Deputy Director of Directorate of Engineering and Technical Services, the neighbouring district local governments do not have any special positions or staff in charge of drainage.

There is insufficient information sharing and collaboration between KCCA and the surrounding district local governments and municipalities with respect to drainage issues.

(6) Documentation of Drainage Systems and Record Taking of Flooding Occurrence

The three district local governments do not have any documents of flooding records within the district area, nor documents or maps of drainage facilities. It is fundamental for governments to have basic records of drainage facilities and flooding occurrence to conduct flood risk analysis, as well as rainfall data and river flow data.

(7) Construction Implementation

In Kampala Capital City, the implementation of construction works in accordance with KDMP 2016 has been postponed or cancelled due to problems related to the Resettlement Action Plan (RAP), which provides for the resettlement of people who will be physically displaced due to the construction of drainage systems. In particular, the high cost of resettlement compensation and the difficulties in negotiations have caused delays and cancellations of project implementation.

14.3.3 Objectives for Drainage Sector in GKUGA

The objectives for the drainage sector in GKUGA are set as follows:

- To reduce risks of flooding (inundation and overflow of river water) in the rapid urban development in GKUGA
- To strengthen the institutional framework for enhancing the resilience against flooding both in Kampala Capital City and in GKUGA outside Kampala Capital City.

14.3.4 Strategies for Drainage Sector in GKUGA

In GKUGA where urban development is being promoted in tandem with Kampala Capital City, it is essential to implement structural measures for drainage necessary to reduce damage risk from flooding, which may hinder urban development and economic sector development.

The strategies to achieve the objectives are as follows:

- The Kampala Drainage Master Plan 2016 guides the design and construction of several drainage and flood management systems in the city. The master plan recommends structural measures (such as construction of new drains and crossings) and non-structural measures (such as improving solid waste management and promoting use green/ pervious compounds for new developments), etc. Kampala Capital City will promote measures to solve drainage challenges based on this master plan. In addition, in "Final Detailed Design Report/ Lubigi, Kansanga/Gaba & Kinawtaka Drainage Systemsreport 2016" there is a design for the improvement of the drainage channels in the Lubigi, Kansanga, Gaba and Kinawtaka watersheds. So, based on the results of these studies, it is appropriate to proceed with the

improvement work.

- In GKUGA, it is necessary to prepare basic data on drainage problems, including the mapping of flood risk areas, in order to understand the current state of risk. Then, drainage problem measures will be studied.
- At the same time, it is necessary to add personnel in charge of drainage within each district local government, as well as each municipal council.
- In GKUGA, priority is given to flood control studies such as planning and design in the Nalukolongo and Kinawataka watersheds. See Figure 14.3.17.
- At the same time, it is necessary to promote waste management and wetland protection, which are related strategies.

14.3.5 Projects for Drainage Sector in GKUGA

(1) [DR-01] Capacity Development for Collecting and Measuring Drainage-Related Data and Formulation of Drainage Master Plan for GKUGA

Since urbanisation and population increase have occurred not only in Kampala Capital City (KCC) but also outside the KCC, and the KCC occupies the upstream areas of the GKUGA, it is necessary to formulate strategies and measures for preventing flooding and inundation in all over the GKUGA. However, the existing Drainage Master Plan prepared for the KCC and surrounding watershed areas in 2016 does not cover the wide areas of GKUGA.

As more urbanisation proceeds in the upstream KCC and concrete covered areas increase, higher runoff coefficients in the KCC increase the risk of flooding to downstream areas. Furthermore, as drainage facilities are developed in the KCC, faster rainfall will flow into the GKUGA outside the KCC.

To prepare a drainage master plan for the whole area of the GKUGA, first, it is important to collect and measure basic data, such as rainfall, river levels and flooding conditions (flood area, flood frequency, flood depth, etc.). Prior to the formulation of a drainage master plan for a metropolitan area, it is necessary to conduct a project component to design and instal basic data collection facilities and equipment.

In addition to the basic drainage-related data collection and measurement mentioned in [DR-01], it is essential to analyse detailed topography including low-laying lands, wetlands, other water body and agricultural lands for assessing the necessary volume of water necessary to retain in the GKMA in case of certain probability of rainfall amount and existing and planned instalment of drainage capacity. The Kampala Drainage Master Plan's Flooding Situation and Hotspot Analysis Report are useful as references for hydrologic analysis methods.

(2) [DR-02] Improvement of Basic Drainage Facilities in GKUGA outside KCC

Such a data-informed simulation analysis mentioned in [DR-01] is required for drainage master planning. However, until the data collection facilities and equipment are ready, it is necessary to start with the implementation of basic measures to improve drainage channels in areas that are becoming more suburbanised and in areas that are developing suburban urban centres.

(3) [DR-03] Strengthening of Institutional Capacity for Drainage Sector for GKUGA outside KCC

Currently there are no government officers in charge of drainage in District Local Governments, Municipality and Town Council Administrations outside KCC within GKMA. Therefore, there are no official records of flooding and inundation. There are no local government budgets for drainage problems. To address these issues, it is necessary for the central government to take action for introducing a new mandate and personnel, as well as budgets, for drainage issues firstly in District Local Governments

(4) [DR-04] Continued Implementation of Projects Identified by Kampala Drainage Master Plan for Kampala Capital City

In Kampala Capital City, drainage channel improvement works in Lubigi, Kansanga, Gaba, and Kinawataka areas, which have already been identified by the Kampala Drainage Master Plan 2016. The identified and designed works have been done in accordance with the Kampala Drainage Master Plan 2016 with the support of the World Bank. It is necessary to continue implementing remaining works.

Additionally, the Greater Kampala Integrated Flood Resilience Partnership (GKIFRP) started support in identification of flood hotspots and the designing and implementation of drainage channel improvement works. This kind of works should be continued.

Source: Flooding Situation and Hotspot Analysis Report 2021

Figure 14.3.17 Drainage Network and Sub Catchments covered by the Greater Kampala Integrated Flood Resilience Partnership (GKIFRP)

14.4 Power Supply

14.4.1 Background of Power Supply Sector (Summary of Present Situation)

(1) Power Generation in Uganda

Uganda is benefitted by hydraulic resources. Table 14.4.1 shows the forecasted power generation mix in Uganda up to 2040. More than 60% of power in respect of energy (GWh) is generated by hydro power plants.

Table 14.4.1 Forecast of Power Generation Mix in Uganda

YEAR	2021		2025		2030		2035		2040	
	GWh	%	GWh	%	GWh	%	GWh	%	GWh	%
Hydro power	13,566	60	24,697	71	24,697	70	30,536	75	33,164	77
Thermal power	784	3	616	2	691	2	434	1	434	1
Geothermal	0	0	0	0	0	0	0	0	0	0
Solar/Wind	7,753	34	9,067	26	9,067	26	9,067	22	9,067	21
Cogeneration, Bagasse	585	3	585	1	585	2	585	2	585	1
Total	22,688	100	34,965	100	35,040	100	40,622	100	43,250	100

Source: Prepared by JICA Expert Team based on Grid Development Plan 2018-2040 (GDevP)

Table 14.4.2 shows existing and under construction hydro power plants. At present, Kiira Nalubaale (Owen-Falls complex) Hydro Power Plant (HPP) (Installed capacity: 380MW), Bujagali HPP (Eskom) (Generation capacity: 250MW) and Ishimba HPP (183MW) are three large hydro power plants in operation. Other hydro power plants such as Karuma, Oriang, Ayago and Kiba are expected to be commissioned in 2025. As a result, the power generated by hydro power is expected to increase.

Table 14.4.2 Large Hydro Power Plants (HPPs) in Uganda

Plant	Installed capacity (MW)	Status
Kiira-Nalubaale (Eskom)	380	In Operation
Bujagali	250	In Operation
Ishimba	183	In Operation
Karuma	600	To be commissioned in 2022
Oriang	392	To be commissioned in 2025
Ayago	840	To be commissioned in 2025
Kiba	330	To be commissioned in 2025
Uhuru	600	To be commissioned in 2035

Source: JICA Expert Team based on Grid Development Plan 2018-2040 (GDevP)

The power generated is used not only for Uganda's consumption, but also, exported to neighbouring countries through a 132kV international transmission line. The power generated is forecasted to be greater than the load forecast for Uganda and international uses as shown in Table 14.4.3. The power excess is expected to be generated up to 2040.

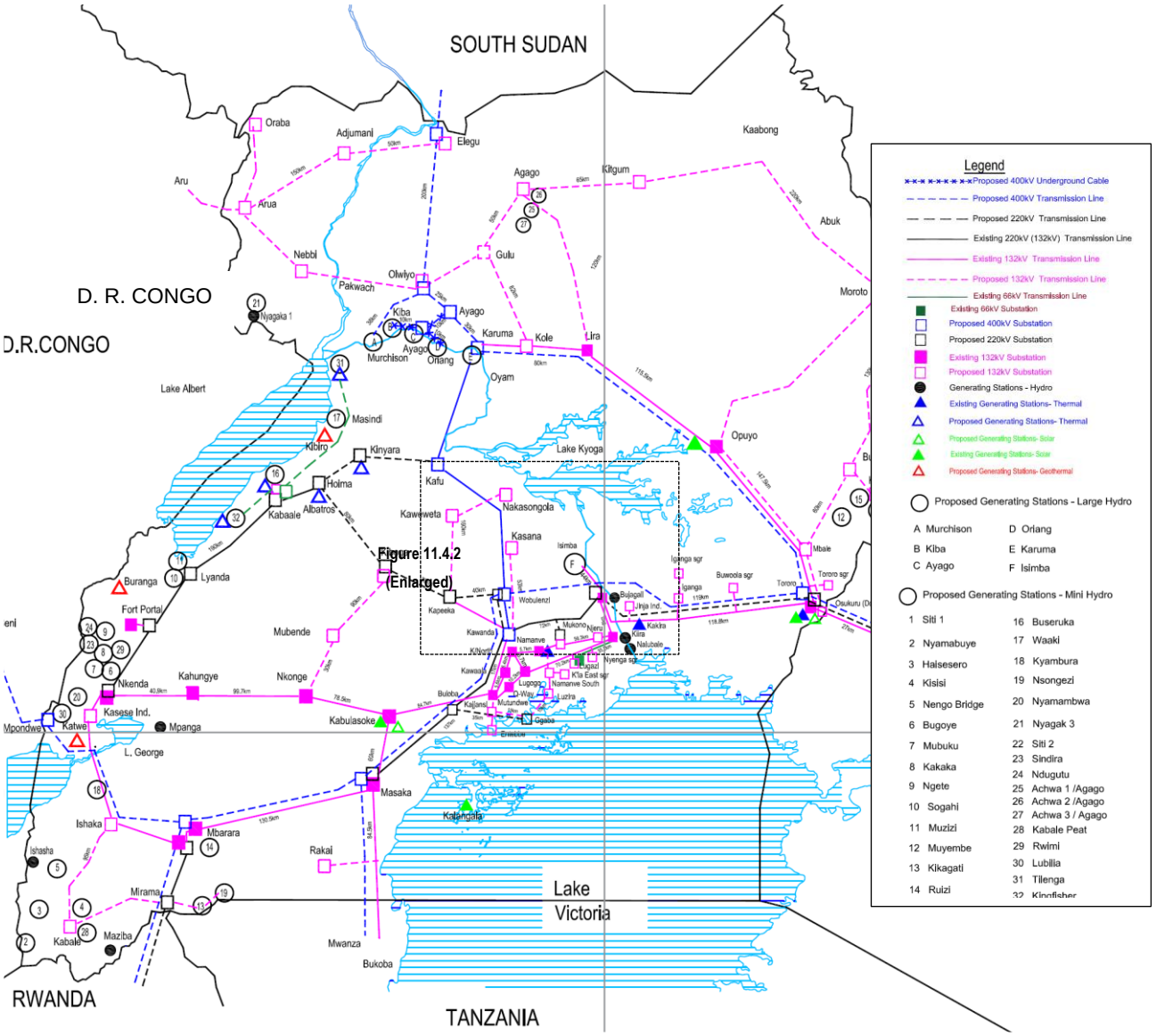
Table 14.4.3 Generation Power Excess Project in Uganda

YEAR	2021	2025	2030	2035	2040
Power Excess (Domestic + Export) (GWh)	12,154	21,954	17,596	18,307	15,329

Source: JICA Expert Team based on Grid Development Plan 2018-2040 (GdevP)

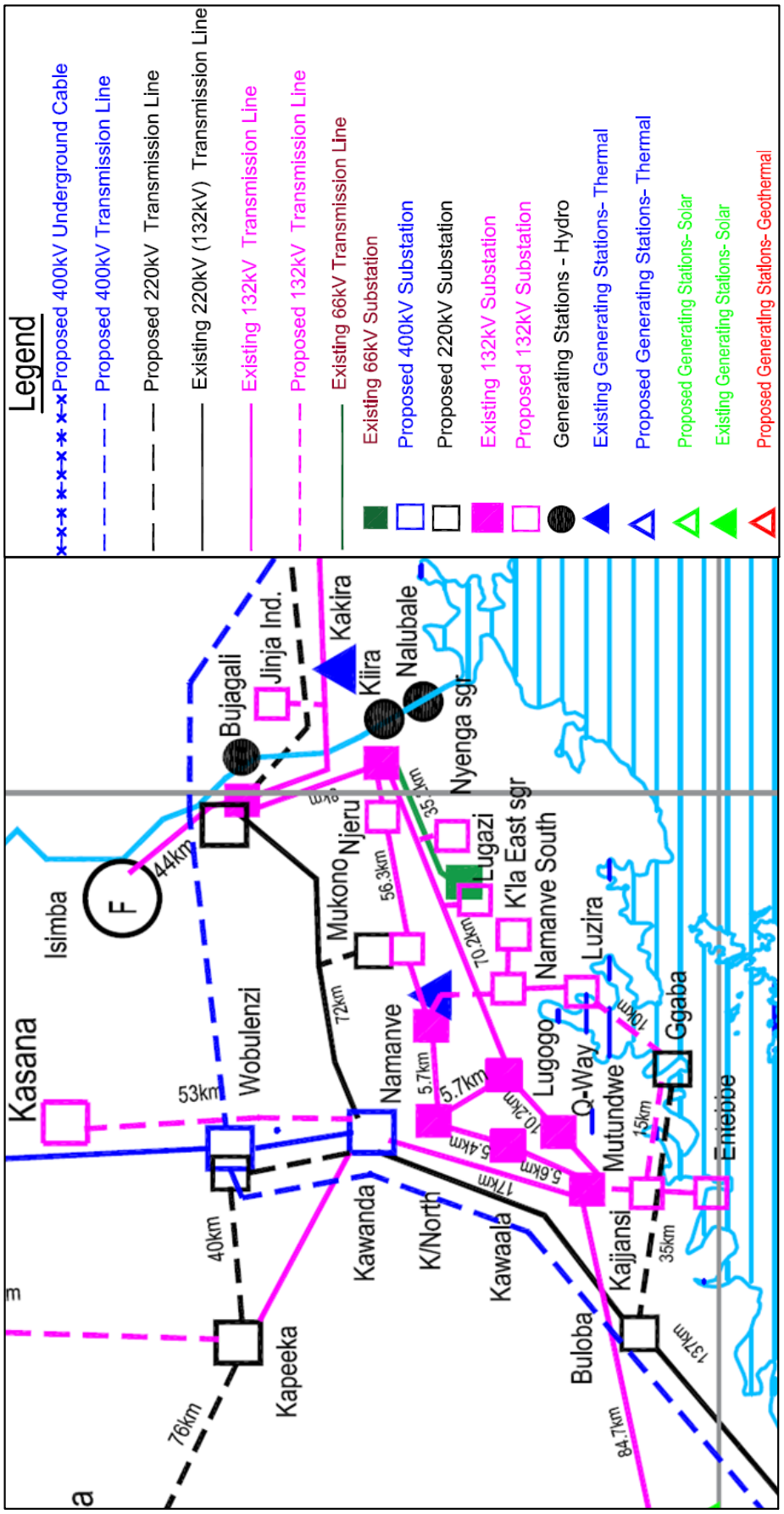
(2) Transmission Network in Uganda

Figure 14.4.1 shows the national grid in Uganda. The national grid is designed to transmit power generated by hydro power plants to the whole of the country. The hydro power plants (HPPs) in operation are namely Kiira-Nalubaale, Bujagali and Ishimba HPPs, which are located to the east of Greater Kampala Metropolitan Area (GKMA) along with the Nile River. The power is evacuated after being stepped-up to either 132kV or 220kV through overhead transmission lines as shown in Figure 14.4.2. Hydro power plants which are expected to be operational in the future, such as Karuma, Orian, Ayago, Kiba, etc., are in the northern part of Uganda as shown in Figure 14.4.1. In 2021, 400kV transmission lines were commissioned and connected from Karuma Substation to Kawanda Substation, which is located in the northern part of GKMA. Evacuated 400kV power to Kawanda Substation will be stepped down to 220kV, and sent to Buloba Substation and New Mukono Substation. In addition, power will be stepped down to 132kV and evacuated to 132/33kV and 132/11kV substations in GKMA, namely, Lugogo, Mutundwe, Kampala North, Queensway, Kawaala and Kapeeka Transmission Substations.



Source: JICA Expert Team based on Grid Development Plan 2018-2040 (GDevP)

Figure 14.4.1 Power System in Uganda

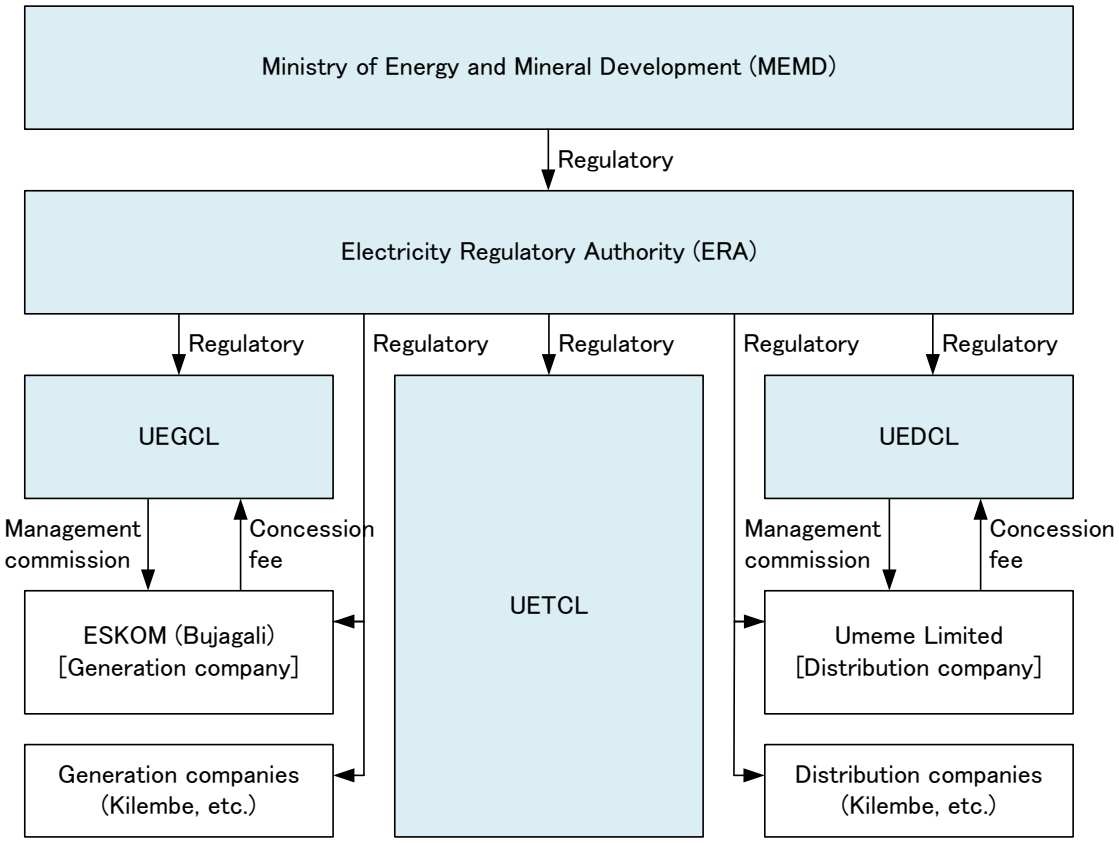


Source: Prepared by JICA Expert Team based on Grid Development Plan 2018-2040 (GDevP)

Figure 14.4.2 Transmission Network in GKMA

(3) Organisation Structure of Power Sector in Uganda

The structure of the power sector is shown in Figure 14.4.3. The Ministry of Energy and Mineral Development (MEMD) is the line ministry, and Electricity Regulatory Authority (ERA) is responsible for the overall regulation and supervision of the power sector. At present, generation, transmission and distribution services are managed by three governmental entities, Uganda Electricity Generation Company Ltd. (UEGCL), Uganda Electricity Transmission Company Ltd. (UETCL) and Uganda Electricity Distribution Company Ltd (UEDCL). A major hydroelectric company, ESKOM, concluded a concession agreement with UEGCL in 2002. The transmission sector manages facilities 66kV or above. Facilities are operated and maintained by UETCL.



Blue: governmental entities, white: private entities
Source: JICA Expert Team based on JICA, 2016, Final Report for Preparatory Survey on Greater Kampala Metropolitan Area Transmission Systems Improvement Project in the Republic of Uganda

Figure 14.4.3 Organisation Structure of the Power Sector in Uganda

As for distribution, Umeme Limited (UMEME), a private company, is responsible based on the concession agreement concluded between the Government of Uganda (mainly UEDCL) and UMEME in March 2005. The agreement is in effect until 2025, and extension of the concession period is under negotiation. UMEME is the concessionaire of the distribution network, and it covers 85% of Uganda's distribution network.

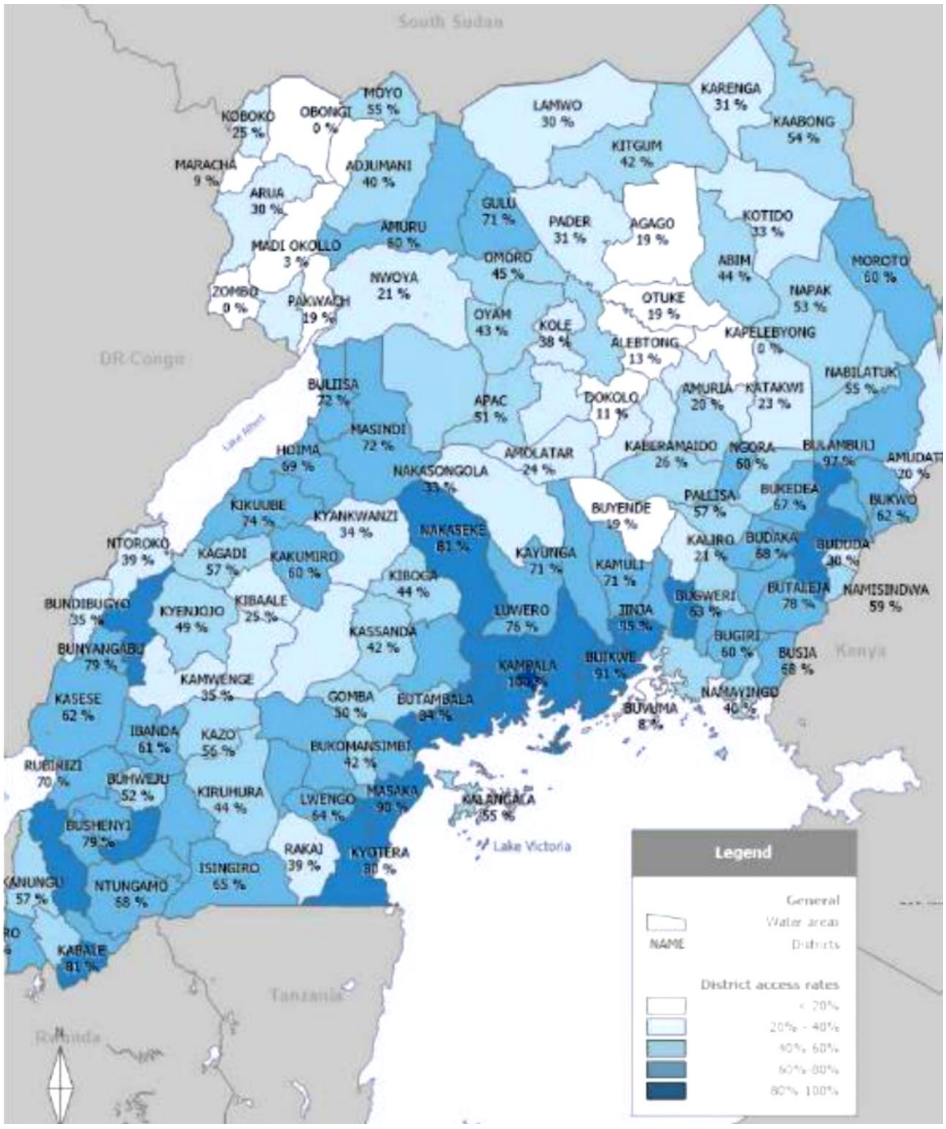
UMEME is licensed to distribute and supply electricity to customers, operating 33kV, 11kV and LV facilities. Under the power sector monitoring by Electricity Regulatory Authority (ERA), the mandate of UMEME, a private sector organisation, involves operation, maintenance, and upgrading of the distribution network.

To plan the distribution network, UMEME has formulated two planning periods: a middle-term plan and a long-term plan. The planning period of the middle-term plan is 3-5 years. Under this plan, UMEME also prepared the budget and proposed an upgrading facilities plan. The long-term plan is for the next 10 years. This plan is used to foresee the long-term trends of power demand growth, etc.

(4) Electrification in Uganda

MEMD is the ministry which supervises electricity related policies and activities. MEMD launched the Uganda's Sustainable Energy for All (SE4All) initiative action agenda in June 2015. This initiative aims to provide over 98% of the population with access to electricity by 2030. As of 2012, the rate of electrification access was 26.1%. To achieve the goal, the required number of people gaining new access to electricity per year is 670,000. However, the actual number is less than 100,000 per year. The rate of electricity access[1] reached 28% in 2019[2].

Figure 14.4.4 shows the map of electrification rate in Uganda. As for neighbouring areas to the Greater Kampala Metropolitan Area, the rate of population with electricity access in Butanbala is 83%, Luwero is 75%, and Buikwe is 91%. The electricity access rate is 100% for all the districts named as Kampala, mainly comprised of Kampala Capital City, Wakiso District and Mukono District. This means the distribution network has already been extended to nearby consumers in the Greater Kampala Metropolitan Area. However, it differs from the rate of actual connection to consumers, which is represented as connectivity rate.



Source: National Electrification Strategy for Uganda Draft Report (July 2020)

Figure 14.4.4 Rate of Population with Electricity Access in Uganda (2020)

[1] Electricity access refers to the connectivity, i.e., the population being directly served by either grid-based electricity services or stand-alone systems (National Electrification Strategy for Uganda Draft Report (July 2020))

[2] Draft National Energy Policy (October 2019)

According to the Energy for Rural Transformation (ERT) baseline survey conducted based on the Uganda Population and Housing Census 2014, the national level grid access percentage is 24%. 64% of urban residences have access to the national grid, while only 8% of rural residences have that access. This baseline survey targets households, communities, etc. Referring to the result of the ERT baseline survey, the connectivity rate in Greater Kampala Metropolitan Area is less than 64%.

(5) Future Demand for Power in Uganda

According to discussions with the distribution company, the demand forecast in GKUGA is calculated by addition of two different forecasted values: 'load projection' and 'additional load.'

- Load projection: The distribution company records peak loads of incomers, feeders and transformers by SCADA. The distribution company forecasts future demand by applying annual growth rates to respective scenarios: low growth scenario, middle growth scenario, and high growth scenario. Normally, the distribution company applies 3% as the annual growth rate in GKMA.
- Additional load: UMEME obtains the information on any industrial and/or major commercial development. The information is obtained from external sources such as Uganda Investment Authority (UIA).

According to JICA Report (2015)[3], the peak demand of UETCL substations located in GKMA in 2013 is 348MW. If the above growth rate is applied, the load projection in 2030 is approximately 600MW, and that in 2040 is approximately 800MW.

14.4.2 Issues on Power Supply Sector

(1) Transmission Substations (T/S) Forecast

The total capacity of transmission substation (T/S) of each district, as shown from Table 14.4.4 to Table 14.4.7, may not correspond to loads forecasted in each area. The total loads will be 800MW in 2040 as shown in 14.4.1 (5) Future Demand for Power.

Kampala North Transmission Substation (T/S), Queensway T/S, Lugogo T/S, Mutundwe T/S and existing Kawaala T/S are main power supply sources to Kampala City.

Kawaala T/S currently has one 20MVA power transformer (132/11kV) unit and serves power mainly to Kawempe Division. Kawaala T/S will be upgraded and shall have four transformers (One unit of 20MVA 132/11kV transformer and three units of 40MVA 132/33kV transformer), reaching 140MVA substation capacity in total.

Due to a delay in the project, Luzira T/S has not yet been commissioned. This substation is expected to supply power to the southern part of Nakawa Division (Luzira and surrounding area).

New construction of Gaba T/S is planned in 2026. This substation is expected to supply power to the southern part of Makindye-Ssabagabo and neighbouring areas. These areas are economically important areas since infrastructure such as a water treatment plant and resort hotels exist there. Also, the population growth around this substation is remarkable. In addition, as shown in Figure 14.4.2, Gaba T/S is planned to be interconnected to Luzira T/S by a 132kV transmission line. This will increase the power supply reliability to Namanve South T/S.

Table 14.4.4 shows the transmission substations in Kampala City.

[3] Preparatory survey report on the Project for Improvement of Queensway Substation in the Republic of Uganda (January 2015, JICA)

Table 14.4.4 Transmission Substations in Kampala City

Unit: MVA

Substation	Division	Ratio (kV)	2020	2021	2022	2023	2024	2025	2026
Luzira	Nakawa	132/33	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
Mutundwe	Rubaga	132/33	40	40	60	60	60	60	60
		132/33	40	40	60	60	60	60	60
		132/11	20	20	60	60	60	60	60
		132/11	20	20	60	60	60	60	60
Queensway	Kampala Central	132/33	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
Lugogo	Kampala Central	132/11	40	40	60	60	60	60	60
		132/33	40	40	60	60	60	60	60
		132/33	40	40	60	60	60	60	60
		132/11	40	40	60	60	60	60	60
Kampala North	Kawempe	132/33	40	40	40	40	40	40	40
		132/11	40	40	40	40	40	40	40
		132/11	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
Kawaala	Rubaga	132/11	20	20	20	20	20	20	20
		132/33					40	40	40
		132/33					40	40	40
		132/33					40	40	40
Gaba	Makindye	132/33						40	40
		220/132/33							60
		220/132/33							60
TOTAL			700	700	900	900	1,020	1,060	1,180

Source: GDevP

Table 14.4.5 shows substations located in Wakiso District. Namanve Substation and Namanve South Substation are located in Kira Municipality where development in industrial areas is progressing. Entebbe Substation is expected to supply power to Entebbe Municipality and Busiro South constituency.

Table 14.4.5 Transmission Substation Capacities in Wakiso District

Unit: MVA

Substation	Division	Ratio (kV)	2020	2021	2022	2023	2024	2025	2026
Namanve	Kira Municipality	132/33	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
		132/33	40	40	40	40	40	40	40
Namanve South	Kira Municipality	132/33	63	63	63	63	63	63	63
		132/33	63	63	63	63	63	63	63
		132/33	63	63	63	63	63	63	63
Entebbe	Entebbe Municipality	132/33		80	80	80	80	80	80
		132/33		80	80	80	80	80	80
Kawanda*1	Nansana	132/33	20	20	20	20	20	20	20
		132/33	40	40	40	40	40	40	40
Kapeeka	Nansana	132/33	20	20	20	20	20	20	20
TOTAL			389	549	549	549	549	549	549

Note *1: Transmission transformers (220/132kV, 400/220kV) are omitted from the table.
Source: GDevP

Table 14.4.6 shows a substation located in Mukono District. Mukono Substation covers Mbalala and surrounding areas. At present, this area has two factories for manufacturing mattress/steel and paper. This area also has potential to develop as an industrial area.

Table 14.4.6 Distribution Substations in Mukono District

Unit: MVA

Substation	Division	Ratio (kV)	2020	2021	2022	2023	2024	2025	2026
Mukono	Mukono	132/33	63	63	63	63	63	63	63
		132/33	63	63	63	63	63	63	63
		132/33	63	63	63	63	63	63	63
TOTAL			189	189	189	189	189	189	189

Source: GDevP

Table 14.4.7 shows a substation located in Mpigi District. Buloba Substation, which will be located around the boundary of Mpigi District and Wakiso District along Masaka Road, is expected to be completed in 2024. According to the JICA Report (2016)[4], three 33kV feeders will be extended toward Mityana, Sentema and Masaka. Buloba Substation is expected to supply electricity to Busiro North, Busiro East and Mpigi constituencies.

Table 14.4.7 Distribution Substations in Mpigi District

Unit: MVA

Substation	Division	Ratio (kV)	2020	2021	2022	2023	2024	2025	2026
Buloba *1	Mawokota North	132/33					40	40	40
		132/33					40	40	40
TOTAL			0	0	0	0	80	80	80

Note *1: Transmission transformers (220/132kV, 400/220kV) are omitted from the table.
Source: JICA Expert Team based on GDevP and latest information

(2) Present Distribution Substations

Present distribution substations may not correspond to the loads forecasted in each area. This is the reason why the priority projects described in Section 14.4.6 have been selected.

A distribution substation (D/S), which is also called a 'zone substation,' functions by stepping down the electricity from 33kV to 11kV in the distribution network. Distribution substations are operated and maintained by the distribution company. Table 14.4.8 to Table 14.4.10 list the distribution substations locating in Kampala City, Wakiso District and Mukono District. The total capacity is 455MVA. Distribution substations are not located in Mpigi District at present.

Table 14.4.8 Existing Distribution Substations in Kampala City

Substation	Division	Ratio (kV)	Rated Capacity (MVA)	Maximum Capacity (MVA)	Year of Implementation
Waligo	Kawempe	33/11	10/14	14	2016
		33/11	10/14	14	2016
Nakawa	Nakawa	33/11	15/20	20	2021
Ntinda	Nakawa	33/11	10/14	14	1990
		33/11	10/14	14	2015
Port bell	Nakawa	33/11	10/14	14	2015
		33/11	5	5	1990
Kitante	Kampala Central	33/11	10/14	14	2006
		33/11	10/14	14	2006
Queensway Old		33/11	15/20	20	1992

[4] Final Report for Preparatory Survey on Greater Kampala Metropolitan Area Transmission Systems Improvement Project in the Republic of Uganda (Sep. 2016)

Substation	Division	Ratio (kV)	Rated Capacity (MVA)	Maximum Capacity (MVA)	Year of Implementation
	Kampala Central	33/11	15/20	20	1992
Queensway New	Kampala Central	33/11	15/20	20	2013
		33/11	15/20	20	2013
Kampala South	Rubaga	33/11	15/20	20	2011
Kisugu	Makindye	33/11	10/14	14	2006
Gaba	Makindye	33/11	10/14	14	2006
		33/11	10/14	14	2006
TOTAL				265	

Source: JICA Expert Team

Table 14.4.9 Existing Distribution Substations in Wakiso District

Substation	Division	Ratio (kV)	Rated Capacity (MVA)	Maximum Capacity (MVA)	Year of Implementation
Kawanda Umeme	Nansana	33/11	10/14	14	2006
		33/11	5	5	1972
Namugongo	Kira	33/11	10/14	14	2015
		33/11	10/14	14	2015
Kireka	Kira	33/11	10/14	14	2008
		33/11	10/14	14	2008
Kajjansi	Makindye-Ssabagabo	33/11	5/7	7	1995
Lubowa	Makindye-Ssabagabo	33/11	10/14	14	2012
		33/11	10/14	14	2012
Kakiri	Busiro South	33/11	10/14	14	2021
Kisubi	Entebbe	33/11	5	5	1990
Entebbe	Entebbe	33/11	10/14	14	2005
		33/11	10/14	14	2005
TOTAL				157	

Source: JICA Expert Team

Table 14.4.10 Existing Distribution Substations in Mukono District

Substation	Division	Ratio (kV)	Rated Capacity (MVA)	Maximum Capacity (MVA)	Year of Implementation
Nakifuma	Nakifuma	33/11	5	5	2017
Mukono	Mukono	33/11	10/14	14	2015
		33/11	10/14	14	2012
TOTAL				33	

Source: JICA Expert Team

14.4.3 Objectives for Power Supply Sector

The objectives for the Power Supply Sector area are as follows:

- To improve the overall reliability of power supply in GKUGA including Kampala Capital City
- To expand the areas of power supply in response to future urbanised areas in GKUGA
- To rehabilitate or upgrade the power supply facilities within Kampala Capital City and its immediate surrounding areas.

14.4.4 Strategies for Power Supply Sector

To improve the reliability of the power supply while satisfying the increasing demand for power supply not only due to urban development within GKUGA outside Kampala Capital City, but also due to industrial development within GKUGA outside Kampala Capital City, especially along the JKM Corridor, the following strategies are necessary.

(1) Strengthening of Distribution Network by Upgrading 11kV Facilities to 33kV Facilities

The distribution network applies 33kV and 11kV as Medium Voltage (MV) facilities. MV is used for power distribution (supply) to distribution transformers (33kV/LV or 11kV/LV). 11kV equipment are advantageous in respect of initial installation (equipment) cost, safety and required design criteria such as clearance. 33kV facilities are advantageous in respect of less line loss.

For the criteria of MV class selection, the distribution company sets the reference values of various loads and the corresponding preferred supply voltage as Table 14.4.11 shows. For distribution (MV) lines with loads more than 5MW, it is considered that the application of 33kV is preferable.

Table 14.4.11 Loads and Corresponding Distribution Supply Characteristics

Connected load	Supply voltage	Remarks
≤ 1.5kW	1-phase, 240V	Residential low tension (LT)
2kW ≤ 50kW	3-phase, 415V	Secondary distribution LT supply
50kW ≤ 500kW	3-phase, 11/33kV	From dedicated distribution system
500kW ≤ 3MW	3-phase, 11/33kV	From 11/33kV line with an high tension (HT) metering unit
3MW ≤ 5MW	3-phase, 11/33kV	From dedicated loop in loop out 11/33kV line with an HT metering unit
5MW ≤	3-phase, 33kV	From a substation

Source: Prepared based on P.131, Asset Management Plan (2019) (AMP)

In GKMA, major 11kV facilities have been installed based on the design criteria of 33kV facilities. 11kV distribution lines are predominant as feeders. However, as the load increases in the future, these 11kV facilities are expected to be upgraded to 33kV facilities.

(2) Introduction of 15/20MVA Transformer Capacity per Unit for Distribution Substation (Zone Substation)

The distribution company standardises the transformer capacity as 5MVA, 10/14MVA and 15/20MVA (P.54, AMP). According to Table 11.4.4 through Table 11.4.7, the total capacity of transmission substations will be 1,998MVA by 2026, whilst the total capacity of distribution substations at present is 455MVA as the total values of Table 14.4.8 through Table 14.4.10 show. The gap between these substation capacities remains large.

In the master plan study, for the purpose of securing the sufficient 11kV power sources for distribution, the application of 15/20MVA transformers is recommended for newly constructed distribution substations to catch up with the total substation capacity of transmission substations.

(3) Establishment of Two Circuits of Incomers (Interconnection Lines) Connecting to Distribution Substations

AMP (P.124) states that all distribution substations (zone substations) with a load greater than 10MVA have two supply transformers and two incoming 33kV circuits. Under N-1 criteria, even if a fault on either one circuit of a distribution line or one unit of power transformer occurs, the power supply is expected to be maintained or the power outage period will be remarkably minimised.

All the distribution substations in GKUGA will consider this criterion.

(4) Introduction of Underground Cables by Replacing Overhead Line Conductors Distribution Network

Application of overhead line conductors is advantageous with respect to initial cost and maintenance. Also, when fault occurs, as fault detection on overhead lines is less difficult than underground cables, the time required to repair an overhead line conductor is expected to be greatly shortened compared to that of underground cables. Finally, the installation cost of overhead lines is lower than that of underground cables.

Moreover, the distribution company finds the least cost approach is valuable for distribution network development. For construction of new distribution networks, the application of overhead line conductors will be prioritized, especially for the outskirts of Kampala City.

Under special conditions, the use of underground cables will be considered. Such conditions may include line extension at congested (densely populated) areas, limitation of traffic conditions (i.e., entrance of car parks, road crossings, etc.) and line connections to distribution substations. Figure 14.4.5 shows an example of cable use. This 33kV cable is connected from the overhead line to the Nakawa D/S premises.

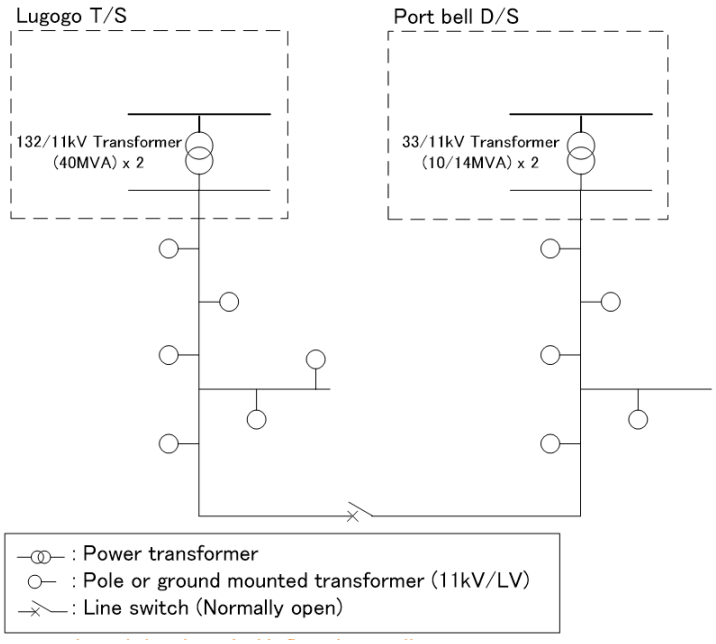
Source: JICA Expert Team

Figure 14.4.5 33kV Underground Cable Application to Nakawa D/S

(5) Improvement of the Reliability of the Distribution Network by Securing Two Circuits of Two Different Substations

Figure 14.4.6 shows a typically applied distribution network. Two circuits of 11kV lines are arranged from two different substations. The two circuits are isolated by line switch on this 11kV feeder. Using this alignment, these two circuits are in a form of radial arrangement.

This arrangement is expected to shorten the power outage period in case of fault occurrence in the line by switching this line switch. This arrangement secures relatively high reliability of power supply. Thus, it is mainly applied in GKMA.



Source: Prepared by JICA Expert Team

Figure 14.4.6 Main Line Standby Power Supply System applied in GKMA

(6) Power Supply to Large Customers (Industrial Area)

The distribution company defines customers with a maximum demand greater than 1MVA as large customers.

The following equipment will be required to deliver power to such large customers:

- SF6 or vacuum circuit breakers for the incoming lines sufficient for the fault levels
- Ring type connections (line in line out)

(7) Power Supply to Important Infrastructures

For power supply to important infrastructures, two or more power supply sources should be secured.

In case of Gaba Water Treatment Plant, power supply to Gaba D/S, which supplies power to the plant, is secured mainly by two 33kV lines: one is from Lugogo T/S and the other is Port bell D/S. The power supply to Port Bell D/S is physically connected to Namanve T/S via Kireka D/S. This means that the power supply to Gaba D/S from two different T/S is established.

In addition to the above two 33kV lines, an 11kV feeder from Queensway D/S (Queensway T/S) is also connected to Gaba D/S as indicated in Figure 14.4.7.

The above shows Gaba Water Treatment Plant receives power from three different transmission substations to secure high redundancy. For important infrastructures, more than two distribution lines from different transmission substations are recommended.

Note: Green line: 33kV line, red line: 11kV line
Source: JICA Expert team

Figure 14.4.7 11kV Feeder and 33kV Trunk Lines to Gaba D/S

(8) Transmission Lines and Transmission Substations to Strengthen the Reliability of Power Supply in GKGUA

To prepare for the future population growth and economic development, transmission substations and transmission lines to strengthen not only the capacity but also to strengthen the reliability of power supply to GKUGA is necessary. To increase the reliability of power supply, the redundancy in the transmission network should be considered.

In Grid Development Plan 2018-2040, Mukono 220/132 kV Transmission Substation, Gaba 220/132 Transmission Substation and Buloba 220/132 kV Transmission Substation along with new 220 kV transmission lines are proposed.

14.4.5 Development Plan for Providing New Distribution Substations in GKUGA

The Asset Management Plan (2019) (AMP) prepared by the distribution company states the locations of new distribution substations. Also, the distribution company has a list of planned distribution substations. However, the information and the list provided do not specify any capacities of transformers. Considering the strategies stated in (1) to (7) above, the JICA Expert Team prepared lists of planned development (by 2040) of distribution substations as shown in Table 14.4.12 to Table 14.4.15.

Table 14.4.12 Planned Zone Substations (33/11kV) in Kampala Capital City

Substation	Division	Ratio (kV)	Rated capacity (MVA)	Maximum capacity (MVA)	Remark
Kawempe	Kawempe	33/11	15/20	20	*1
		33/11	15/20	20	
Nakawa	Nakawa	33/11	15/20	20	Upgrade
Bugolobi	Nakawa	33/11	15/20	20	*1
		33/11	15/20	20	
Sir Apollo Kaggwa	Kampala Central	33/11	15/20	20	*1
		33/11	15/20	20	
Nakasero-Rwenzori	Kampala Central	33/11	15/20	20	*1
		33/11	15/20	20	
Kampala South	Rubaga	33/11	15/20	20	Upgrade
Lungujja	Rubaga	33/11	15/20	20	*2
		33/11	15/20	20	
Ndeeba	Rubaga	33/11	15/20	20	*1
		33/11	15/20	20	
Kisugu	Makindye	33/11	10/14	14	Upgrade
Nsambya/ Kansanga	Makindye	33/11	15/20	20	*1
		33/11	15/20	20	
Munyonyo	Makindye	33/11	15/20	20	*2
		33/11	15/20	20	
Total				374	

Note *1: Transformer capacity is proposed by the distribution company.
*2: Transformer capacity is proposed by the consultant.
Source: JICA Expert Team

Table 14.4.13 Planned Zone Substations (33/11kV) in Wakiso District

Substation	Division	Ratio (kV)	Rated capacity (MVA)	Maximum capacity (MVA)	Remark
Magigye	Kyadondo East	33/11	10/14	14	*1
		33/11	10/14	14	
Nantabulirwa	Kira	33/11	15/20	20	*1
		33/11	15/20	20	
Kajjansi	Makindye-Ssabagabo	33/11	15/20	20	Upgrade
		33/11	15/20	20	
Kigo	Makindye-Ssabagabo	33/11	15/20	20	*1
		33/11	15/20	20	
Kakiri	Busiro South	33/11	10/14	14	Upgrade
Sida	Busiro South	33/11	15/20	20	*1
		33/11	15/20	20	
Kisubi	Entebbe	33/11	5	5	Upgrade
Bwebajja	Entebbe	33/11	15/20	20	*1
		33/11	15/20	20	
Nakasamba	Entebbe	33/11	15/20	20	*1
		33/11	15/20	20	
Total				280	

Note *1: Transformer capacity is proposed by the distribution company.
*2: Transformer capacity is proposed by the consultant.
Source: JICA Expert Team

Table 14.4.14 Planned Zone Substations (33/11kV) in Mukono District

Substation	Division	Ratio (kV)	Rated capacity (MVA)	Maximum capacity (MVA)	Remark
MUKONO DISTRICT					
Nakifuma	Nakifuma	33/11	15/20	20	Upgrade from 5MVA to 20MVA. Addition of one unit.
		33/11	15/20	20	
Mukono	Mukono	33/11	15/20	20	Upgrade from 14MVA to 20MVA
		33/11	15/20	20	
Total				80	

Source: JICA Expert Team

Table 14.4.15 Planned Zone Substations (33/11kV) in Mpigi District

Substation	Division	Ratio (kV)	Rated capacity (MVA)	Maximum capacity (MVA)	Remark
Mpigi	Mpigi	33/11	15/20	20	*1
		33/11	15/20	20	
Total				40	

Note *1: Transformer capacity is proposed by the consultant based on the strategy.
Source: JICA Expert Team

14.4.6 Projects for Power Supply Sector

This section describes prioritized projects in the power sector. In principle, these projects are proposed to satisfy the strategies in section 12.3.4.

(1) [PS-01] Construction of 33/11kV Nantabulirwa D/S with Connected 33kV Incomers (for Namnve Secondary Urban Centre and Mukono Metropolitan Centre of GKUGA)

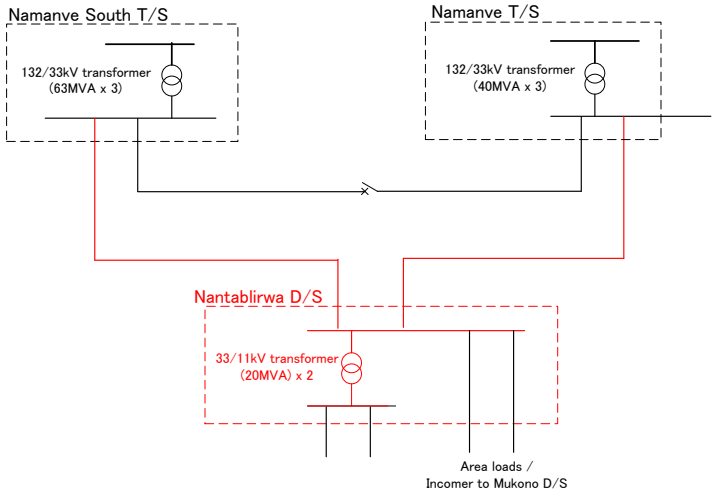
Mukono Area has high potential to develop economic sectors and urban centres, as well as residential areas. To supply 11kV power to large power users, a new distribution substation is necessary. The purpose of Nantabulirwa D/S is to secure the capacity of 11kV power supply to these potential customers.

Figure 14.4.8 shows the preliminary location for the distribution substation at Nantabulirwa. Nantabulirwa area is in Goma Subcounty, Mukono District.

As Figure 14.4.9 shows, new 33kV lines are connected from Namanve T/S and Namanve South T/S. Since two 33kV power evacuation lines are secured, power reliability is expected to increase.

Source: JICA Expert Team

Figure 14.4.8 Preliminary Location of Nantabulirwa D/S



Source: JICA Expert Team

Figure 14.4.9 Preliminary System Diagram of Nantabulirwa D/S

(2) [PS-02] Construction of 33/11kV Mpigi Substation and 33kV Incomers (for Mpigi Suburban Centre of GKUGA)

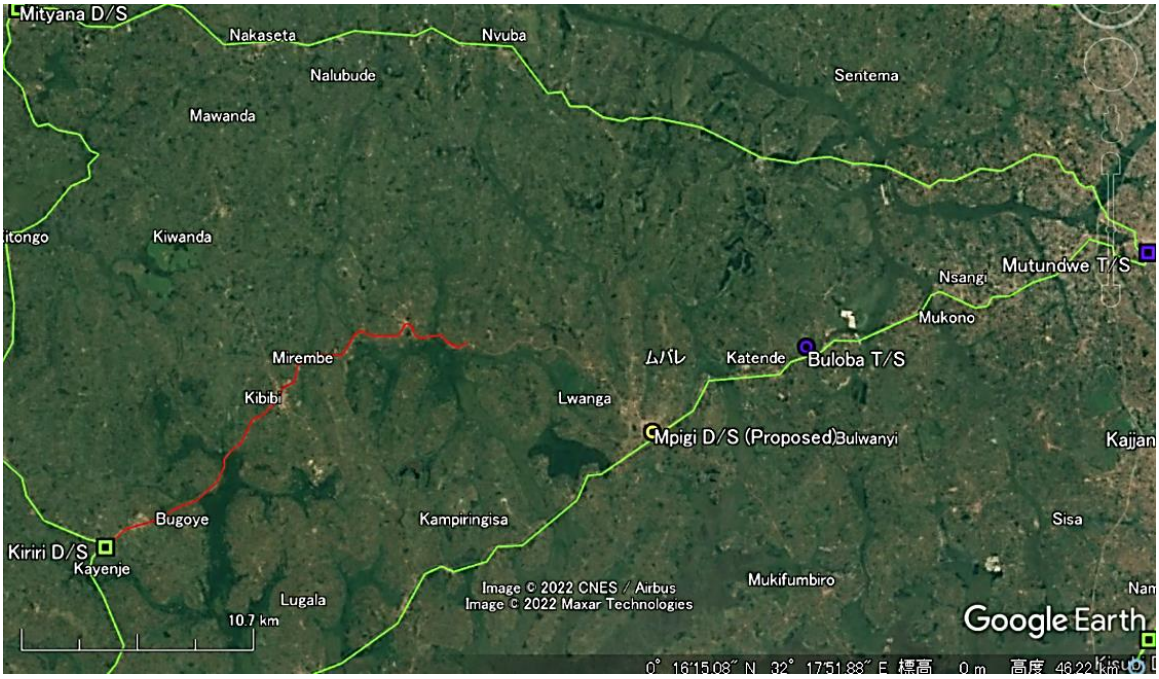
According to Asset Management Plan (2019), the 33kV line from Mutundwe to Masaka Central (total length is 180.04 km) records the System Average Interruption Duration Index (SAIDI) as 5.00 and the System Average Interruption Frequency Index (SAIFI) as 3.91, showing a highly unreliable power supply situation.

This line was designed as the interconnection line between Mutundwe T/S and Masaka Central D/S. However, due to the increase of power demand in the area along this line, this line provides power. Electric power is distributed to the Mpigi area through this 33kV line by stepping down 33kV to LV by quite a few distribution transformers. Under this situation, the distribution line

faults could extend, and the isolation of fault area will lead to the power outage of this area as well as the main 33kV line.

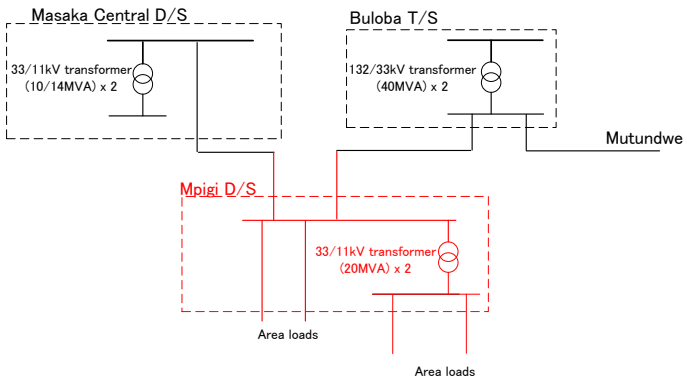
Therefore, this project will establish a new distribution substation, new construction of 11kV feeders for power supply, and upgrading existing 33kV distribution networks.

Figure 14.4.10 shows a preliminary location of the distribution substation in Mpigi. The red colour shows the existing 11kV feeder from Kiriri D/S (Butambala District). Figure 14.4.11 shows the system diagram. This substation will be interconnected to Masaka Central D/S and Buloba T/S, which will be commissioned in 2024.



Note: Green line: Existing 33kV incomers. Red line: existing 11kV feeder
Source: JICA Expert Team

Figure 14.4.10 Proposed Location of Mpigi D/S and Connected Lines



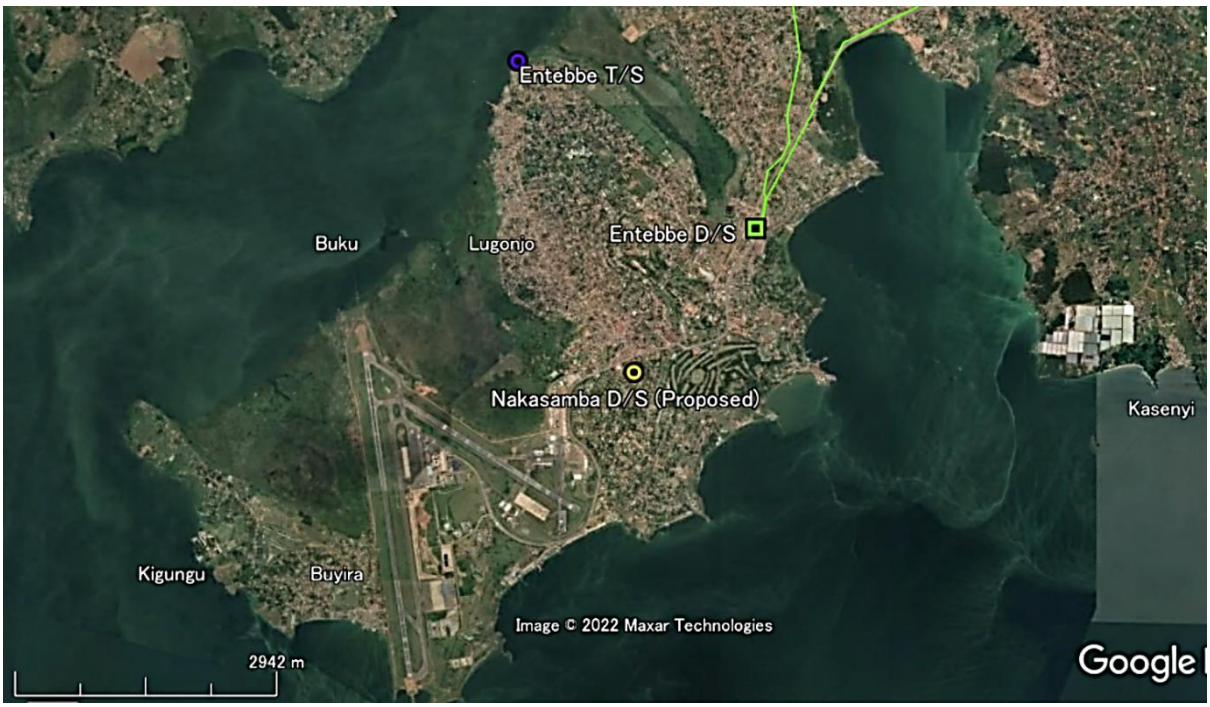
Source: JICA Expert Team

Figure 14.4.11 System Diagram of Mpigi D/S

(3) [PS-03] Construction of Nakasamba D/S and Connected 33kV Incomers (for Entebbe-Katabi Secondary Urban Centre of GKUGA)

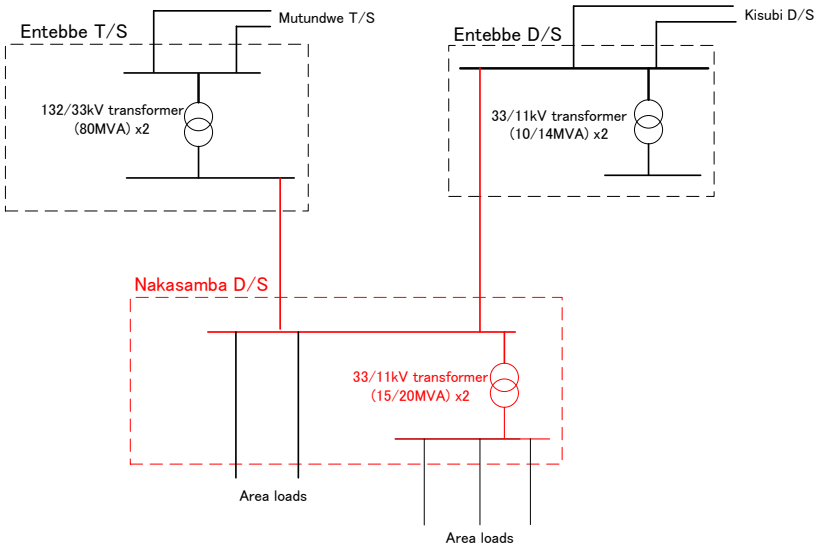
The scope of this project is the construction of a new distribution substation in Nakasamba with connected 33kV incomers. Figure 14.4.12 shows the preliminary location of the distribution substation at Nakasamba. Figure 14.4.13 shows the preliminary system diagram. 33kV incomers

will be connected from two power susbstations: Entebbe T/S and Entebbe D/S. From the view of reliability, improvement of line loss, and securing the sufficient supply capacity of existing 33kV lines to Entebbe D/S from Lubowa D/S, the line from Entebbe T/S is recommended to be used as main and the other line is to be used as backup.



Note: Green line: Existing 33kV incomers
Source: JICA Expert Team

Figure 14.4.12 Proposed Location of Nakasamba D/S



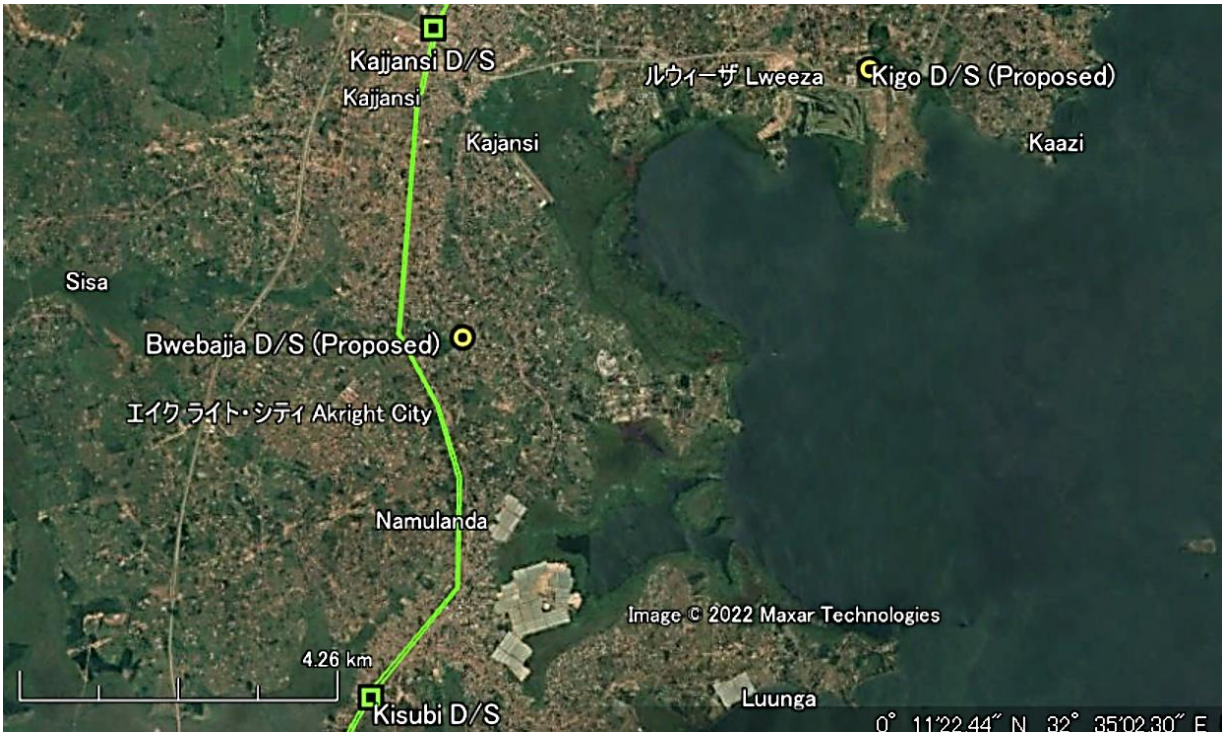
Source: JICA Expert Team

Figure 14.4.13 System Diagram of Nakasamba D/S

(4) [PS-04] Construction of Bwebajja D/S and Connected 33kV Incomers for Bwebajja Area (for Kajjansi Metropolitan Centre of GKUGA)

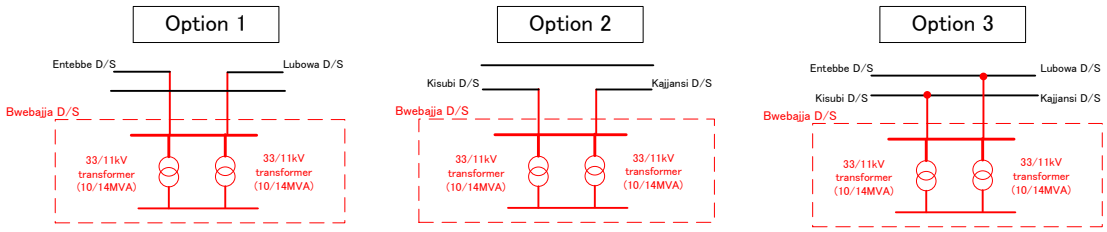
The scope of this project is construction of a new distribution substation in Bwebajja with connected 33kV incomers. Figure 14.4.14 shows the preliminary location of the distribution substation at Bwebajja. There are three options for the 33kV incomer connection: Entebbe-Lubowa (Line-in Line-out), Kisubi-Kajjansi (Line-in Line-out), or a T-branch from the existing

two lines as Figure 14.4.15 shows. This will be determined in the outline design stage considering factors such as the distribution company's operation method, line capacity, etc.



Note: Green line: Existing 33kV incomers.
Source: JICA Expert Team

Figure 14.4.14 Proposed Location of Bwebajja



Source: JICA Expert Team

Figure 14.4.15 Options of Connection to Bwebajja D/S

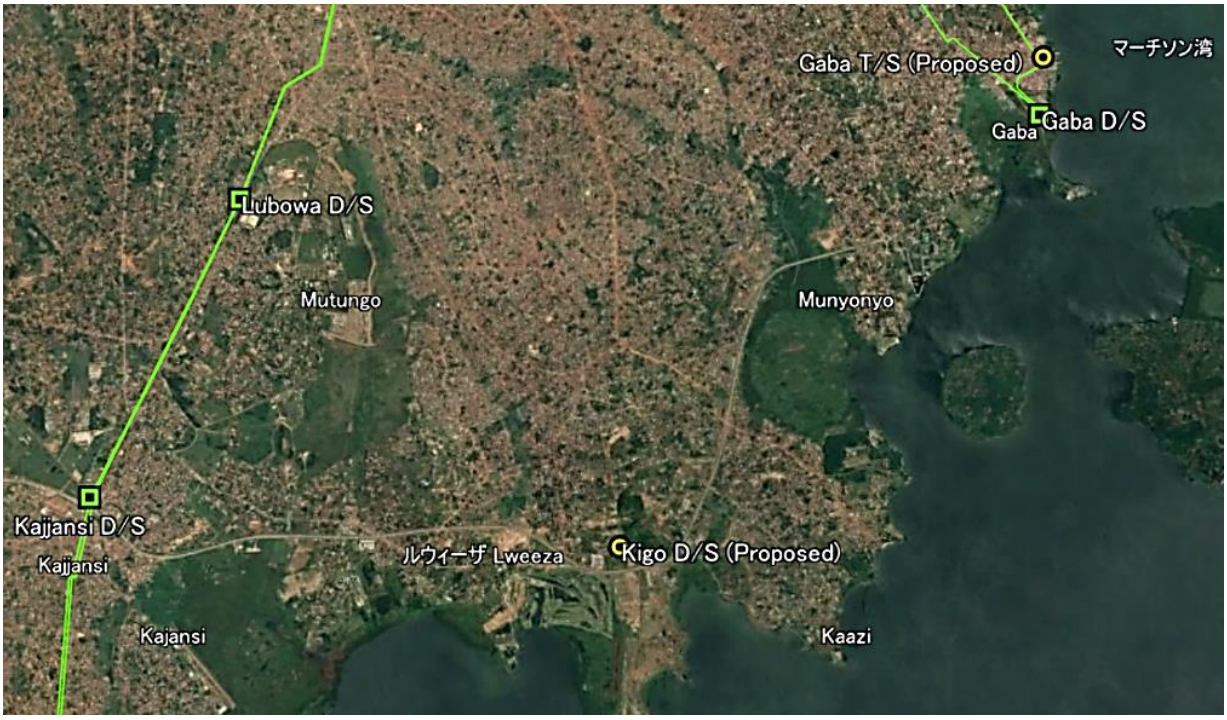
(5) [PS-05] Construction of Kigo D/S and Connected 33kV Incomers (for Kajjansi Metropolitan Centre of GKUGA)

Kajjansi D/S has one unit of 33/11kV transformer (5/7.5MVA). Also, Kajjansi D/S is connected by T branch from the Kampala South – Kisubi line. These two conditions may imply two bottlenecks of the present Kajjansi D/S as explained below:

- The number of transformers is only one. It does not satisfy N-1 criteria. Also, the capacity is 5/7.5MVA, which is smaller than other substations around Kajjansi. There is a high risk of supplying insufficient power considering expected loads in the future.
- The number of lines connected to Kajjansi D/S is only one from Kampala South – Kisubi line. When a fault occurs in this range (Kampala South – Kajjansi – Kisubi), Kajjansi D/S shall experience power outage.

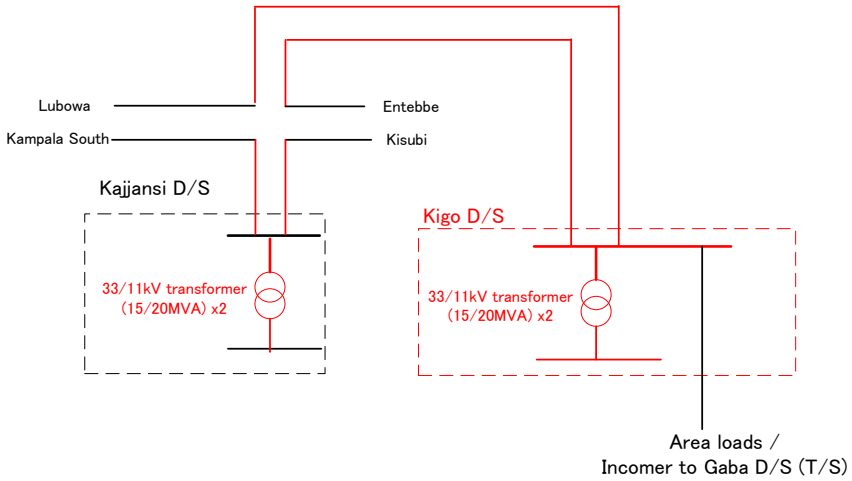
The scope of this project is construction of a new distribution substation in Kigo with connected 33kV incomers. Figure 14.4.16 shows the preliminary location. Figure 14.4.17 shows the system

diagram in the case of upgrading Kajjansi D/S for preliminary study purposes. The optimized design shall require further study (upgrading, decommissioning, etc.).



Note: Green line: Existing 33kV incomers.
Source: Prepared by JICA Expert Team

Figure 14.4.16 Proposed Location of Kigo D/S



Note: Line arrangement shall need further study.
Source: Prepared by JICA Expert Team

Figure 14.4.17 System Diagram of Kigo D/S and Kajjansi D/S

(6) [PS-06] Upgrading of Kakiri D/S and New Construction of 33kV Incomer from Kawaala T/S to Kakiri D/S (in Northwest Area of GKUGA)

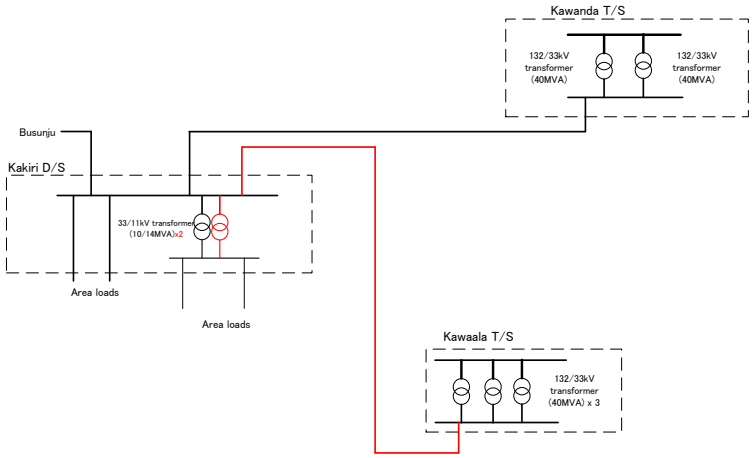
According to the JICA Report (2016)[5], a 33kV feeder will be extended to Kakiri, Busiro North constituency, approximately 20 km away in a north-west direction from this substation. Therefore, the upgraded Kawaala Substation is expected to supply electricity to Nansana, Busiro North, and Busiro East constituencies.

[5] Final Report for Preparatory Survey on Greater Kampala Metropolitan Area Transmission Systems Improvement Project in the Republic of Uganda (Sep. 2016)

The scope of this project is to construct a new 33kV line from Kawaala T/S to Kakiri D/S. To decreasing the utilization rate of 132/33kV transformers in Kawanda T/S, this new incomer will be used as the main line whilst the existing line from Kawanda T/S to Kakiri D/S will be used as a backup line. Figure 14.4.18 shows the preliminary route of the 33kV line. In addition, since Kakiri D/S has only one transformer unit, an additional transformer will be installed for redundancy. Figure 14.4.19 shows the preliminary system diagram.

Note: Green line: Existing 33kV incomers. Yellow line: New 33kV incomer route.
Source: Prepared by JICA Expert Team

Figure 14.4.18 Proposed Location of Kakiri D/S and Connected Lines



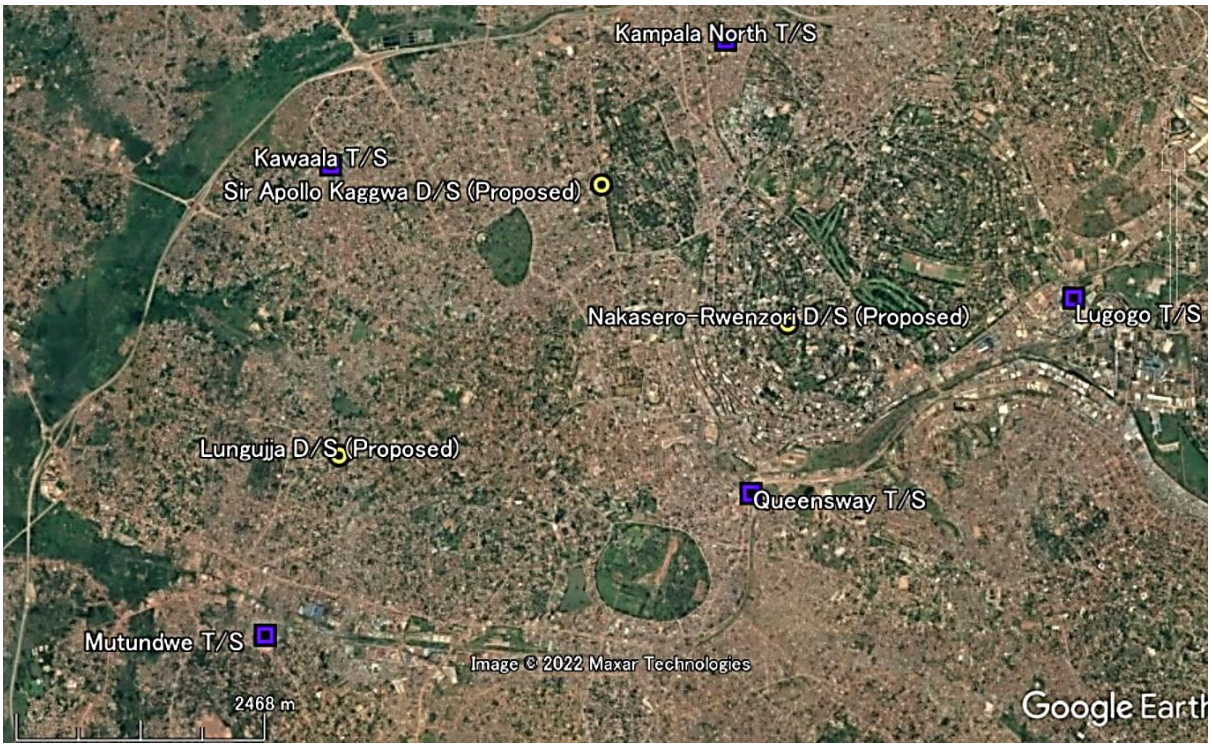
Source: Prepared by JICA Expert Team

Figure 14.4.19 System Diagram of Kakiri D/S

(7) [PS-07] Load Shifting from Kampala North T/S & Muutndwe T/S to Upgraded Kawaala T/S (in Central Area of GKUGA)

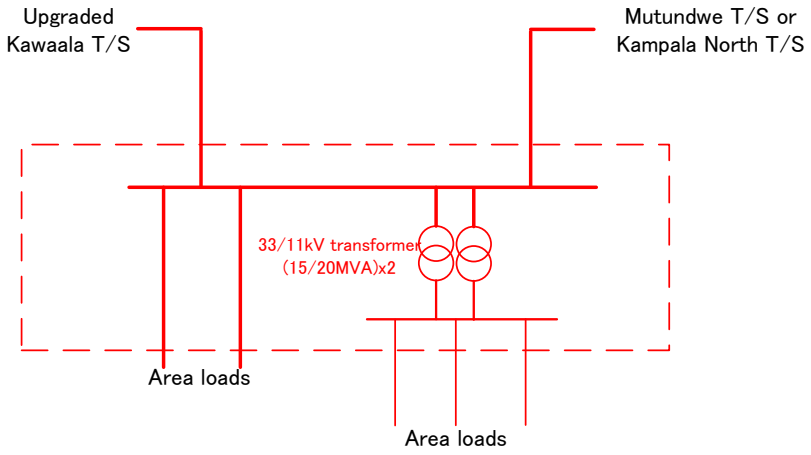
33kV feeders from the upgraded Kawaala T/S will be also connected to Mutundwe T/S and Kampala North T/S. The scope of this project will include new construction of 33kV incomers from upgraded Kawaala T/S to the existing Mutundwe T/S and Kampala North T/S in line with construction of new distribution substations in and around Kampala Central Division. These new distribution substations will be Sir Appolo Kaggwa D/S (Kampala Central Division), Nakasero-Rwenzori D/S (Kampala Central Division) and Lungujja D/S (Lugaba Division).

Figure 14.4.20 shows the proposed location of new distribution substations. Like the other projects, a 33kV route survey will be necessary. Figure 14.4.21 shows the basic system diagram applied to common substations.



Source: Prepared by JICA Expert Team

Figure 14.4.20 Proposed Location of Lungujja D/S, Sir Apollo Kagwa D/S and Nakasero-Rwenzori D/S



Source: JICA Expert Team

Figure 14.4.21 System Diagram of Lungujja D/S, Sir Apollo Kagwa D/S and Nakasero-Rwenzori D/S

14.5 Information and Communication Technology (ICT)

14.5.1 Background of ICT Sector (Summary of Present Situation)

(1) National Infrastructure

Uganda is connected by land cable through 10 different cross-border connections which are connected to national backbone infrastructure of the country. The map of international internet cable connections are shown in Figure 14.5.1 as red coloured arrow.

Source: NITA-U

Figure 14.5.1 Map of NBI Showing Existing Cross Border Connection Points

NITA-U is setting the National Data Backbone Infrastructure (NBI) across the country and has a plan of setting more than 3,500 kilometre of fibre optics cable. Phase wise plan is shown in Table 14.5.1 and the completed status is showing in Figure 14.5.2. Phase I, II and III of the NBI have been successfully implemented. With 2400kms of fibre laid out and 414 MDA/LG Government sites connected to the NBI.

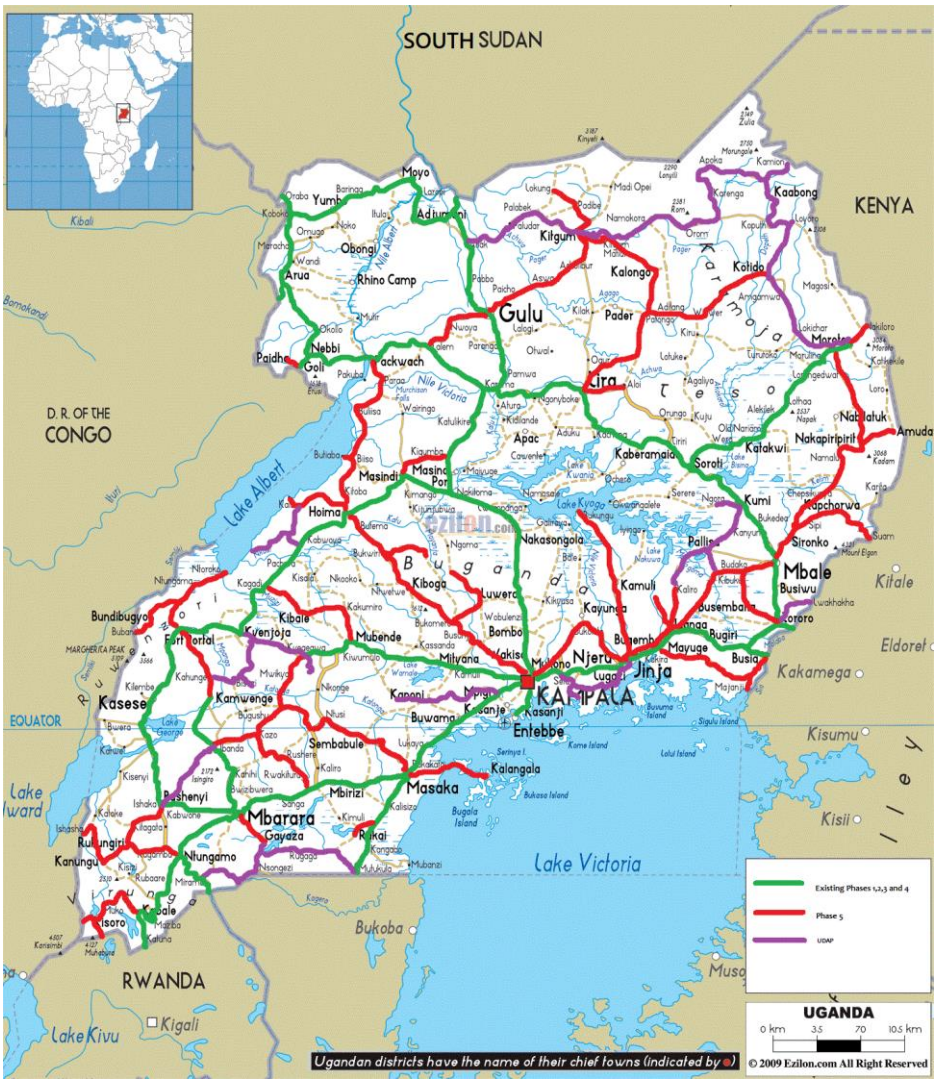
Table 14.5.1 Phasing of NBI set up Across Uganda

Phase	Optical Fibre Connections (OFC)
Phase 1	168 km
Phase 2	1400 km
Phase 3	756 km of
Phase 4	842 km of
Last Mile RCIP (Regional Communications Infrastructure Program)	350 km of
Total	3,516 km

Source: NITA-U

Source: NITA-U

Figure 14.5.2 Map of Current Status of the National Backbone Infrastructure



Source: NITA-U

Figure 14.5.3 Existing and Future Plans of the National Backbone Infrastructure in Uganda

(2) Present Status of the ICT Facilities and Users

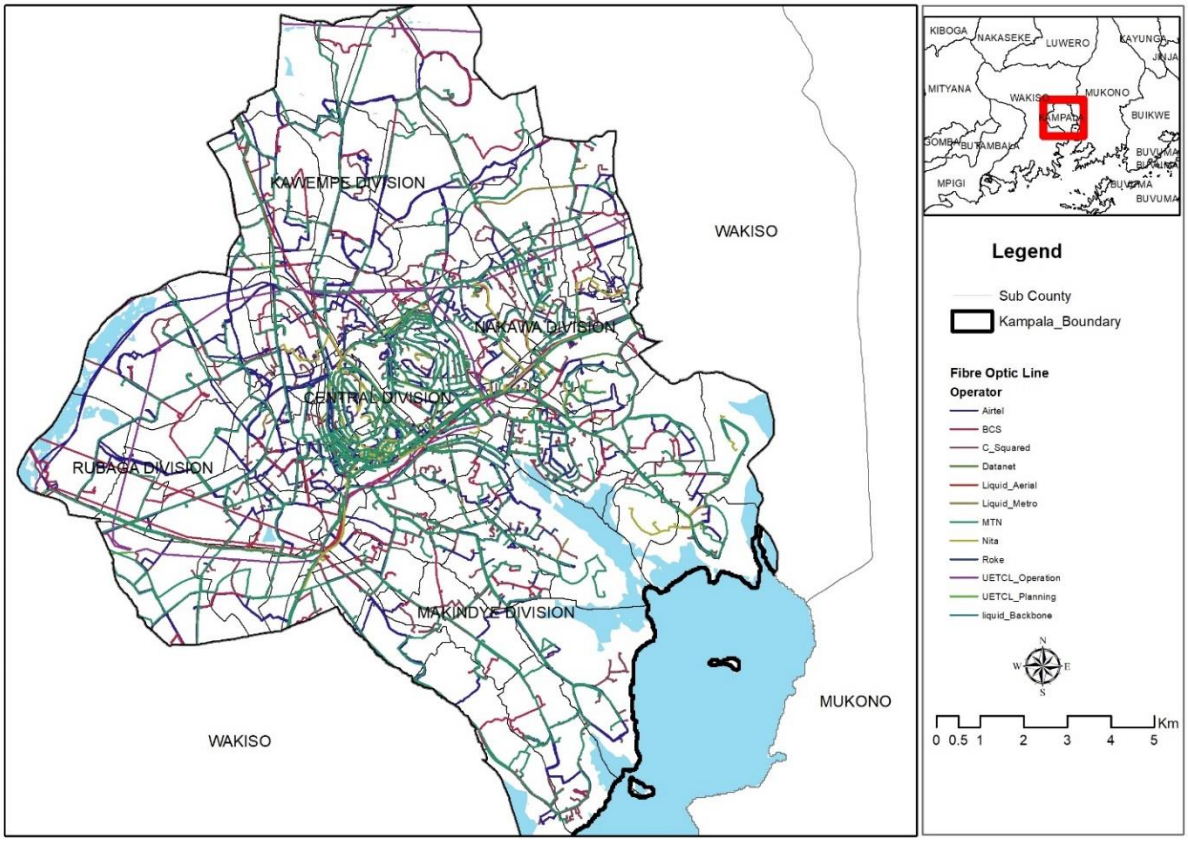
1) Bandwidth Capacity of NBI

The capacity of the NBI is 100Gbps and the Government has so far procured 10Gbps of internet bandwidth under an IRU. To date 640 Government entities connected to the National Back Bone Infrastructure (NBI) are utilizing Internet Bandwidth through the NBI at USD 70 per Mbps per month compared to FY2012-13 when Government entities would procure internet Bandwidth at USD 1200.

2) Optical Fibre Network

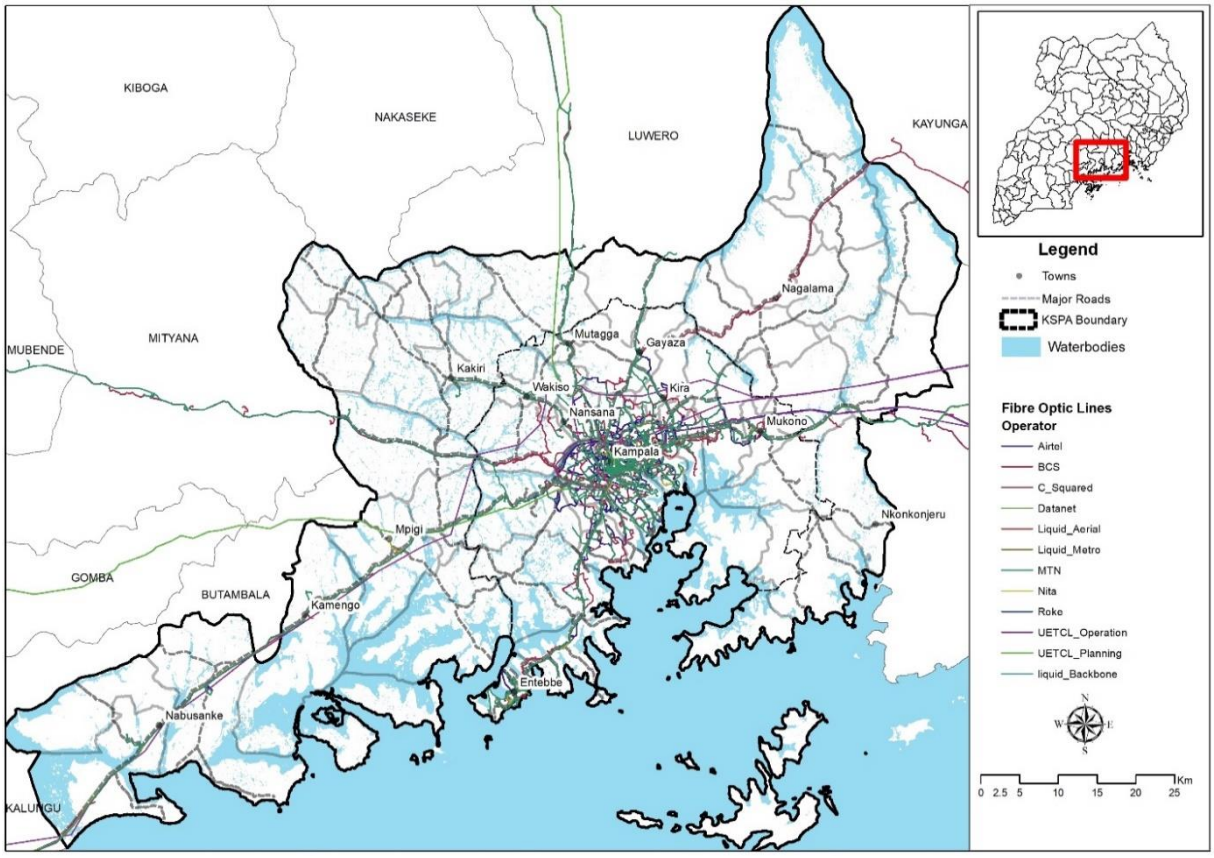
All the major mobile phone operators and broadband operators in Uganda had placed Optical Fibre in all over Kampala as shown in Figure 14.5.4.

Compared to Kampala, outside area inside the study area is still not fully covered by these operators (Figure 14.5.5).



Source: UCC

Figure 14.5.4 Optical Network in Kampala Capital City

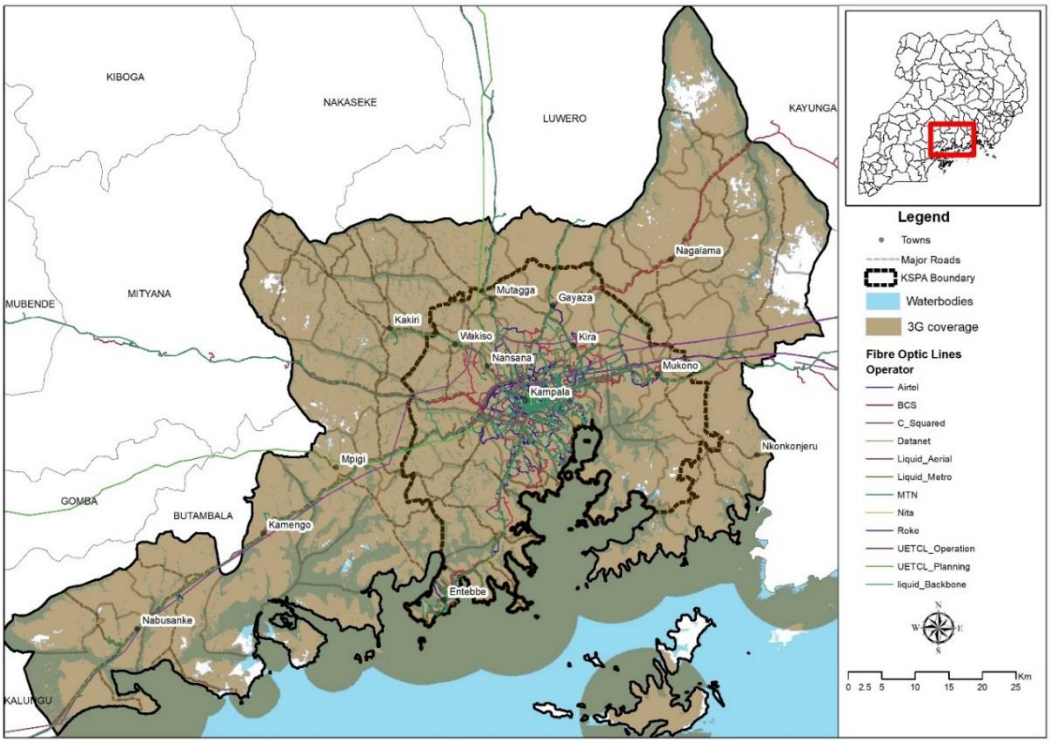


Source: UCC

Figure 14.5.5 Optical Network in GKMA

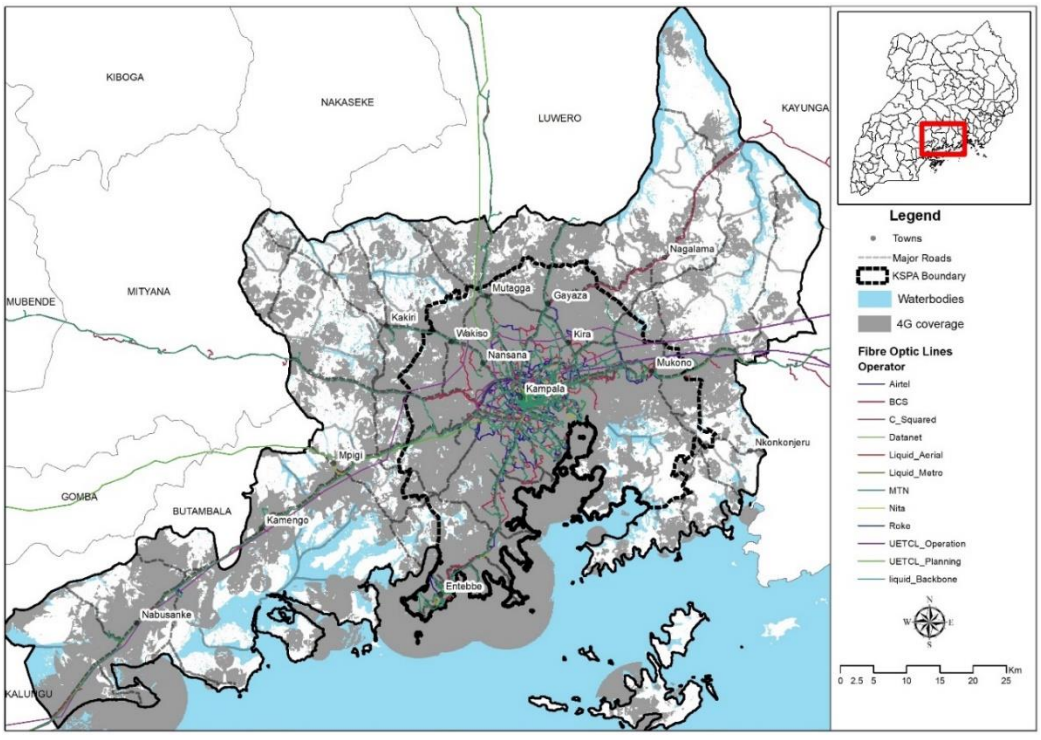
3) 3G and 4G Coverage

According to the Digital Development Data based on ITU (International Telecommunication Union), country's 74% area has already been covered by 3G and 40% by 4G mobile network. 3G mobile network has been under coverage in almost all over the study area as shown in Figure 14.5.6. However, area outside Kampala are still far behind the 4G coverage (Figure 14.5.7).



Source: UCC

Figure 14.5.6 3G Coverage Area in GKMA



Source: UCC

Figure 14.5.7 4G Coverage Area in GKMA

4) Users of Mobile Phone and Internet

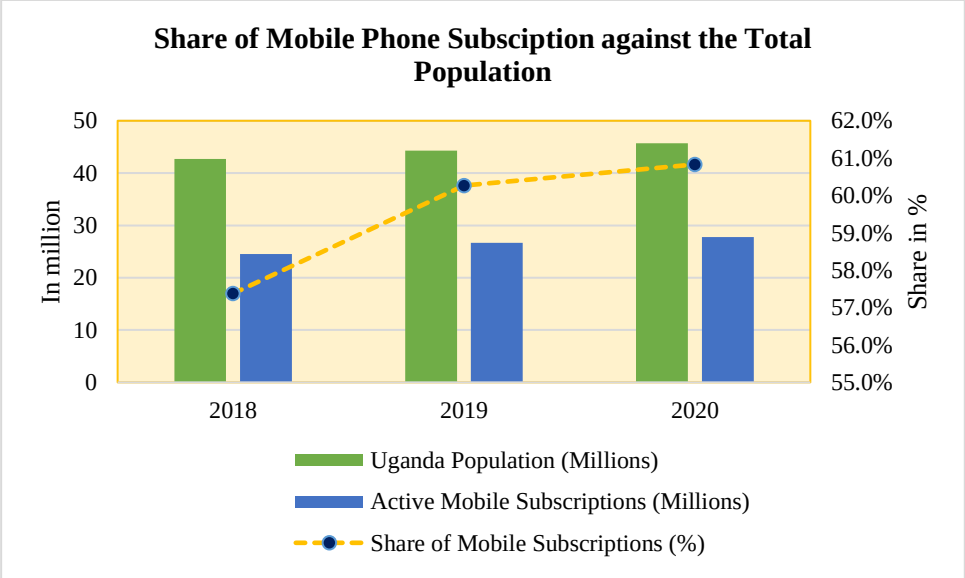
The number of mobile phone subscription is increasing year by year gradually as shown in Table 14.5.2. According to UCC the subscription is more in Kampala compared to the rest of the country. However, as the users feel free to move across the country and can purchase the connection from anywhere, the data of users in Kampala Capital City, GKUGA, or GKMA is not available.

Table 14.5.2 Users of Mobile Phone and Internet Across Uganda

	2018	2019	2020	Jun-21
(a) Active Mobile Suscriptions (Millions)	24.5	26.7	27.8	29.1
(b) Mobile Internet Suscriptions (Millions)	14.3	17.1	21.4	22
(c) Share of Mobile Internet Users (%) [b/a]	58%	64%	77%	76%
(d) Fixed Internet Subscriptions	-	32307	34596	32889
(e) Internet Subscriptions Fixed & Mobile (Millions) [b+d]	14.3	17.2	21.4	22

Source: UCC

For Uganda there are total 29.1 million subscription of mobile sim card and out of these 22 million also use internet using their mobile phone. The number of fixed internet subscription using broadband optical fibre connection is 32,889 only which is not so high compared to the mobile internet users. Almost 60% of the population has a sim card as shown in Figure 14.5.8. However, it should be noted that many people use more than one sim card, so the actual share is a bit lower.

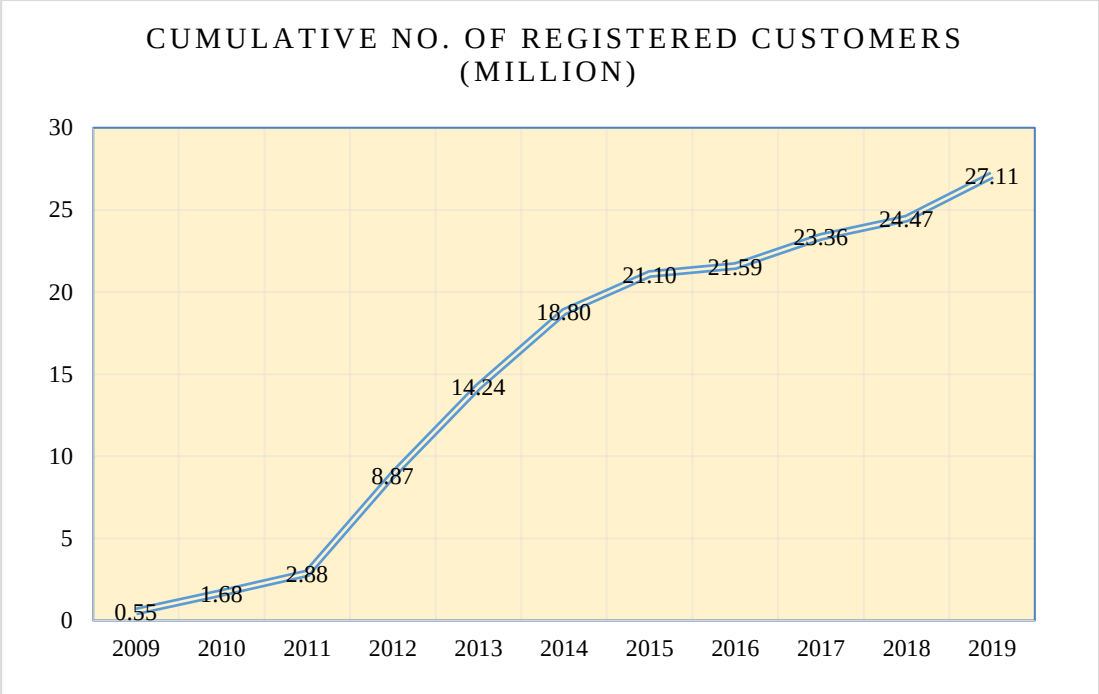


Note: Some people use more than one mobile connection which is difficult to differentiate
Source: Population Data from https://data.worldbank.org; Mobile Subscription Data from UCC

Figure 14.5.8 Share of Mobile Phone Subscription against the Total Population

5) No of Mobile Money Users

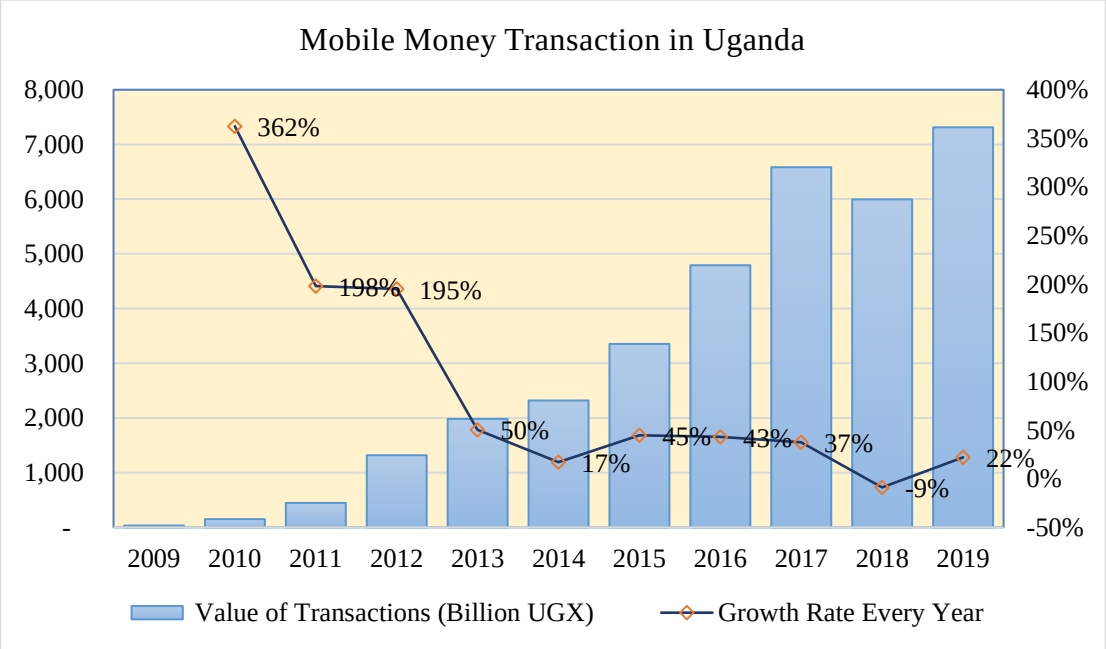
In Uganda mobile money transaction is quite popular. Especially as many of the people are not covered under the traditional banking sector, people in rural area do prefer to use mobile money for easy, fast and reliable financial transaction. According to UBOS the number of registered mobile money users are 27 million as of 2019 which was almost 62% of the total population.



Source: Uganda Bureau of Statistics (UBOS)

Figure 14.5.9 Cumulative Number of Registered Mobile Money Customers in Uganda

In 2019, the total mobile money transaction has reached up to 7300 billion UGX (5.2% of the country's current GDP), which was equivalent to about 2 billion USD.



Source: Uganda Bureau of Statistics (UBOS)

Figure 14.5.10 Value of Transaction using Mobile Money 2009-2019

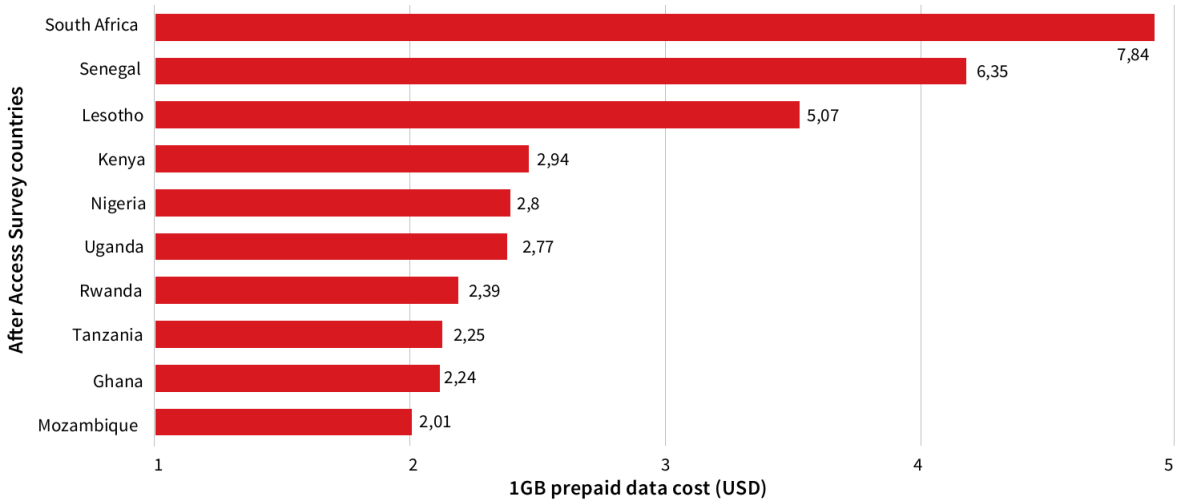
(3) Cost of Various ICT Sector Products

1) Mobile Phone Call Rate

Mobile phone call rate in Uganda is almost stable from 2017 to till today, which is 4 UGX/ second (240UGX/minute) for both on net and off net (Source: UCC).

2) Mobile Internet Cost

According to the report After-Access-The-State-of-ICT-in-Uganda, a large proportion (89%) of individuals with a maximum income of USD 100 per month, did not use the internet, while about 65 percent of those with a disposable income between USD 101 and USD 1,000 did not use the Internet in 2018. The cost of 1GB of data in Uganda was USD 4.18 (accounting for social media tax) in 2018. According to the website named Techjaja (https://techjaja.com/) the average cost of 1GB internet is 1.56USD in 2021. They also mentioned that, out of the 51 existing data plans, Uganda's cheapest 1GB, data package costs UGX 1,500 (USD 0.45) and can be as expensive as UGX 80,000 (USD 22.71).

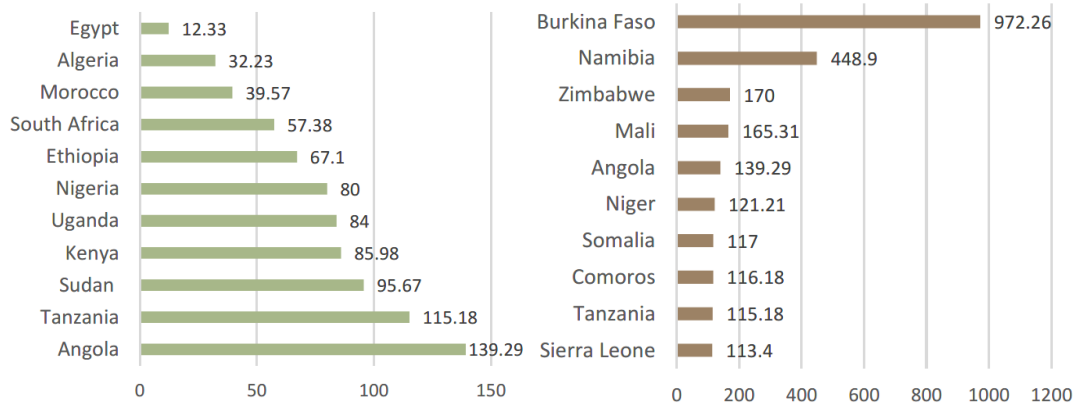


Source: After-Access-The-State-of-ICT-in-Uganda (2019), Research ICT Africa

Figure 14.5.11 Cost of 1 GB internet in African Countries in 2018

3) Broadband Internet Cost

Latest broadband internet cost in Uganda is varying from UGX 260,000 (2MBPS)[1] to 650,000 (for 5MPS unlimited) now a days. However, as of Oct 2017, the cost for unlimited broadband internet was around UGX 300,000 with limited speed. As shown in Figure 14.5.12, Uganda stands in the middle of the African countries as the cost of the internet in this region seems expensive compared to the Asian countries.



Source: National Broadband Policy (2018)

Figure 14.5.12 Price of Broadband Internet (Average Monthly Cost in USD as of Oct 2017) in Some African Economies

[1] https://techpointmag.com/broadband-internet-in-uganda-what-providers-offer/

(4) ICT related Stakeholders in Government Sector

1) Overall

The key stakeholders of ICT sectors in National level are the Ministry of Information and Communications Technology, Uganda Communications Commission (UCC) and National Information Technology Authority Uganda (NITA-U). These are the organizations who are in charge of law preparation, policy preparation and promoting ICT related initiatives to the government and non-government sectors.

Uganda Institute of Information and Communications Technology (UICT) founded in 2000 is the only government institution specialising in skills-based middle-level ICT training. It offers practical-oriented ICT training at certificate and diploma levels as an alternative to the theoretically-grounded degrees offered by universities and other tertiary institutions in this same professional area. Apart from these, Research and Education Network for Uganda (RENU) is a not-for-profit National Research and Education Network established in 2006.

In the local government level, KCCA already incorporated an ICT Department in its organisational structure. The ICT Department headed by a Deputy Director (DD) who reports to the Deputy Executive Director of Executive Director's Office. The mandate of the ICT Department is to plan the development, implementation and support of all ICT Systems and Infrastructure of the Authority.

Other local authorities, such as Wakiso District, Mukono District, Mpigi District, Entebbe Municipality etc. do not have a separate department for ICT or smart city initiatives. However, they do have an IT officer posted under the Administrative Department.

2) KCCA's Initiative towards Smart City

In GKMA, KCCA is the main LG who is taking some initiatives towards Smart City. Some of its initiatives towards Smart City are described in this part.

Parish Development Model

According to the Executive Director of KCCA, the new strategy of the Parish Development Model (PDM) is emphasising the agricultural value chain, and everybody needs a gazetted workplace and a licence. As city administrators, it is incumbent upon us to organise all our people to benefit from government programmes. KCCA has set up the Parish Development Committees, completed the enterprise identification and formation of SACCOS, and had the ministerial sensitisation drive to inform people about PDM.

Decongestion and Organisation

KCCA is taking initiatives to make the city road clear and traffic signals are installed. KCCA team has removed illegal structures and relocated street vendors, creating organised and dignified spaces for trade. The process of organising and having the bodaboda sector regulated is ongoing,

Economic Empowerment

KCCA has prioritised skilling programmes for the youth and women, offering training in fields such as carpentry, tailoring, and hairdressing, hence fostering entrepreneurship. According to the ED, good numbers of smart young people are now part of the city's workforce, cleaning drainages and sweeping streets.

Markets

KCCA is also taking initiatives to improve the trading environment and in addition to current 16 markets is working with the central government to open additional trading spaces in all five divisions. The focus on creating working spaces for vendors, for example the Smart City Bazaar in Kisenyi and the vendor's market in Kalerwe, aligns with the country's vision of supporting grassroots businesses. It is understood that, the Smart City Bazaar market in Kisenyi has over

1,000 former street vendors currently operating therein, while Kalerwe Market boasts several hundreds.

Illumination

Kampala's road network, however, suffered from a lack of adequate lighting, with only 8% of roads having streetlights. KCCA recognised this challenge and embarked on the Kampala Street Lighting Masterplan project. KCCA sought additional funding from sources such as the French Development Agency and the European Union to install 20,000 lights. These lights will be strategically placed in areas lacking illumination, including asphalt carriageways, pedestrian crossing points, roadside markets and informal settlements.

Technology

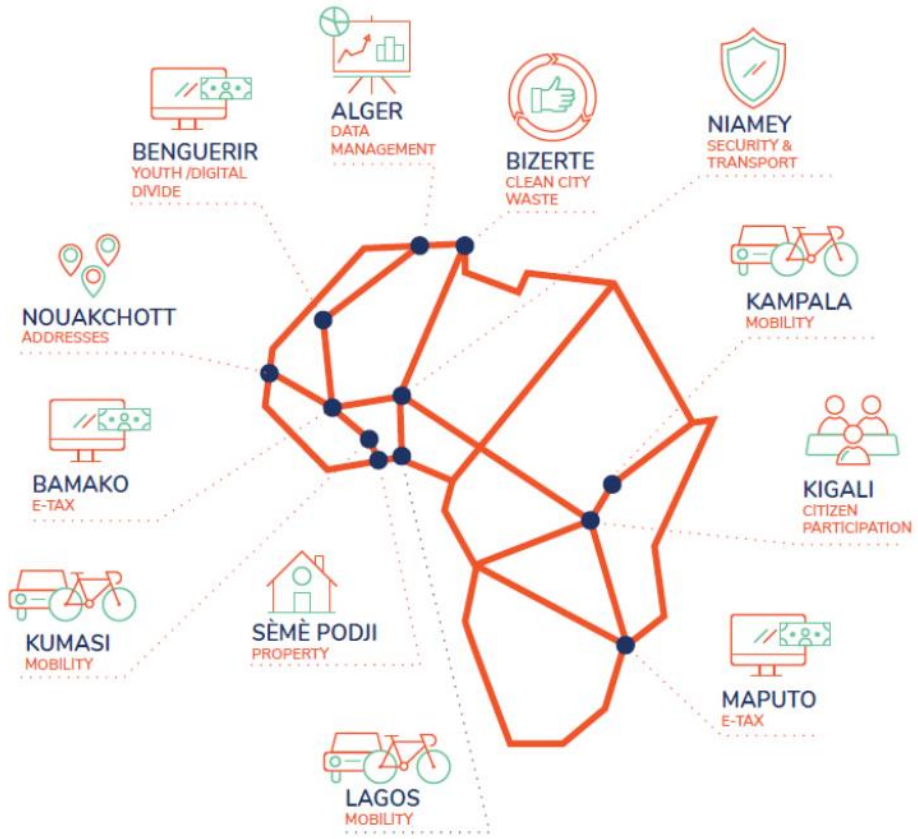
KCCA has launched the Smart Permit online system, through which property developers can submit and get their building plans approved online. One can transact from the comfort of their home. Other services online are Smart Permit, Weyonje, building permits, CAMV, house numbering and travel info, among others.

3) Kampala in Africa Smart Towns Network (ASToN)

ASToN is a flagship programme financed by the French Development Agency (AFD), managed by the French National Urban Renovation Agency (ANRU) and inspired by URBACT [2] knowledge and tools. ASToN is a network of 12 African cities using digital tools to overcome local and global challenges. The idea is that by creating a cohort of cities and collaborating in this way, ASToN cities can become leading digital actors, faster, and in a way which is appropriate and sustainable for each city's local context.

Kampala City edged 12 African Cities to claim a lead City role in the Africa Smart Towns Network. It was selected as the lead City among the Twelve (12) African cities in the Africa Smart Towns Network (ASToN). Each of the cities has its own theme and Kampala chose mobility as its theme.

[2] URBACT is a European exchange and learning programme promoting sustainable urban development. For 17 years, URBACT has worked with more than 1000 cities in Europe building city-to-city cooperation networks.



Source: ASToN, 2021, https://aston-network.org/cities/

Figure 14.5.13 ASToN Thematic Areas from Different Cities

(5) Opportunities of ICT Study in the Universities

1) Makerere University

Makerere University embarked on an ambitious project, with the support of external partners, to integrate information and communication technology (ICT) in all its functions as one of the critical elements of its strategic plan. Within the context of this plan, the vision of ICT is "University wide access to, and utilisation of Information and communication Technology to enhance the position of Makerere University as a centre of academic excellence and its contribution to the sustainable development of society."

2) Ugandan Technology and Management University (UTAMU)

Ugandan Technology and Management University (UTAMU) is a private university that was established by the National Council for Higher Education in March 2013, in accordance with the laws of Uganda. UTAMU is accredited to run academic programmes at all levels of the Higher education system. UTAMU consists of several schools including a School of Computing & Engineering. The school has the mission to provide quality education through relevant academic programmes and research in computing and engineering disciplines for economic and human development.

(6) Initiative for New ICT Hub in Entebbe

Uganda Investment Authority (UIA) is going to establish a Business Process Outsourcing (BPO) Park in Lunyo, Entebbe. The ICT hub is going to be situated on an 18-acre piece of land which is expected to employ about 20,000 people directly with more than 40,000 others employed indirectly. The project has been proposed to be developed under Public Private Partnership (PPP) mode and NITA-U is the authority from Ugandan Government.

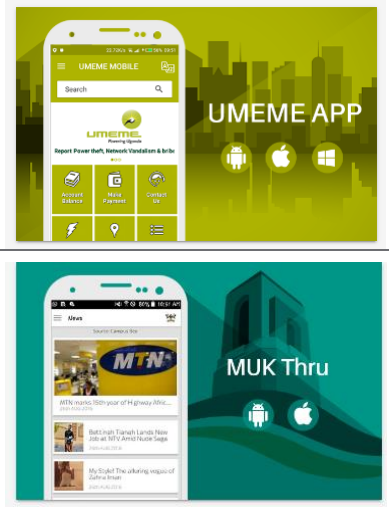
Source: https://www.mitconindia.com/development-of-ict-parks-at-entebbe-by-government-of-uganda/Figure

Figure 14.5.14 Skeleton Diagram of Planned ICT Parks in Entebbe

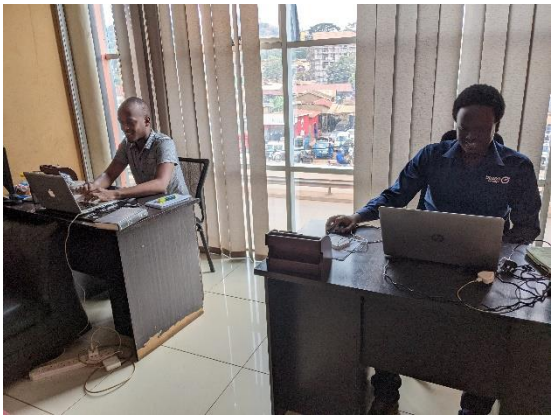
(7) Private Sector in ICT Sector

In Uganda there are some start-up initiatives who are trying to prove their capabilities.

One of the companies called 'Buzen Technologies Co., Ltd' who describes themselves as a Uganda based International Technology Company specialising in IT-related services, products and solutions. The company designs and develops quality mobile applications for the android, iOS and windows platforms, in addition to static websites to dynamic websites. According to the IT engineers who started the company, still people in Uganda do not rely on the IT engineers of Uganda. As a result, many of the customers want to pay more to an international company, rather than procure this from a local IT firm.



Mobile Applications developed by Buzen Technologies



View of the Workstations at Buzen Technologies

Figure 14.5.15 Initiatives of a Start-up IT Company in Uganda

14.5.2 Issues on ICT Sector

Major issues for ICT sectors in Uganda and GKUGA are identified and described in this section.

(1) Insufficient Infrastructure

To develop an ICT oriented society, one of the prerequisites is to have sufficient ICT infrastructure. It is understood that even if all the organizations are working hard, the ICT infrastructure is still not sufficient in GKUGA. In particular, a good share of the areas outside of Kampala City are not covered by fibreoptics. In addition to the lack of ICT infrastructure, a shortage of electricity supply also affects the service.

(2) High Cost of Internet and ICT Equipment

Like many countries in Africa, the cost of internet in Uganda is still quite high and is not affordable by most of the residents in GKUGA. According to all the stakeholders, the ICT equipment is also costly as most equipment is imported from abroad and is not exempt from tax.

(3) Insufficient ICT Budget

Out of all the districts and municipalities in the GKMA area, except for KCCA, all the districts and municipalities do not have sufficient budget to expand their ICT infrastructure.

(4) Shortage of ICT Manpower

Except for KCCA, all the districts and municipalities have only one ICT officer, who is in charge of all the ICT related matters, including computer set up, LAN connection, ICT procurement, etc. in the office. As ICT is not practised well in Uganda, one ICT officer is not sufficient to deliver the service to the residents.

(5) Lack of Understanding to Recognise the Importance of ICT Sector

Some of the public officials in the public offices and even most of the residents still do not recognise the importance of the ICT sector.

(6) Lack of Confidence in Ugandan IT Engineers' Ability

Most of the people in Uganda do not have enough confidence in the ability of the Ugandan IT Engineers. The private sector also relies on IT engineers from abroad and are ready to pay a higher amount for the same quality work in Uganda.

(7) Lack of Coordination between the Government Agencies

Even if the government agencies are working their best at each level, coordination and information sharing is lacking.

14.5.3 Objectives for ICT Sector

The objectives of the ICT sector in GKUGA are set as:

- To build strong ICT infrastructure at lower administrative levels
- To provide affordable internet and ICT Equipment to stimulate ICT use
- To increase the ICT budget for the LGs to build a strong, knowledgeable productive local government
- To reform institutional setup and to recruit more ICT Manpower in LGs to improve local government service delivery
- To sensitise the citizens and provide proper training for the public officials
- To enhance ICT industries by supporting incubation of start-up companies and coordination with universities
- To improve information sharing between different stakeholders

14.5.4 Strategies for ICT Sector

To achieve the objectives mentioned above, the strategies considered for ICT sector are:

(1) Infrastructure Development

Expanding ICT Infrastructure (network connectivity, system security, etc.) up to the local level to provide access to the internet

(2) Tax Exemption for the ICT Products

Exemption of tax for the ICT products to encourage start-up ICT firms and to make ICT products affordable to the citizens

(3) Support Growth of ICT Sectors

Supporting the growth of ICT sectors by establishing an ICT industrial park and introducing financial assistance/ incentives for start-up companies

(4) Institutional Development

Strengthening the Institutions (such as, reforming/ restructuring the institutions by introducing ICT departments and recruit skilled ICT Manpower in each LG and allocate a proper budget) for districts and municipalities, especially for those that are still lacking proper infrastructure outside Kampala Capital City

(5) Capacity Development of the Public Staff

Enhancing the capacity of the LG staff (in-house training) for use and support of ICT services to the citizens

(6) Easy Access for the Citizens

Supporting for inclusion and accessibility to public services through digital technology to sensitise the citizens

(7) Cooperation between the Government Agencies

Developing collaborative activities within the government agencies to realise quality ICT services for the citizens

14.5.5 Projects for ICT Sector

The proposed projects for GKUGA are described below.

No	Priority	ICT Sector	Organization in Charge	Estimated Cost (USD)
IT-01	High	Expansion of Wi-Fi Hotspots (for 10 locations)	NITA-U KCCA and Each municipality Internet Service Providers	3.0 million
IT-02	High	Smartphone Application Easy Access of Citizens' Service	KCCA and Each municipality Private Software Companies	0.2 million
IT-03	High	Smartphone Application for Problem Reporting by the Citizens	KCCA and Each municipality Private Software Companies	0.2 million
IT-04	High	Cashless Payment for Public Transport (set up in 1,000 vehicles)	Ministry of ICT; Ministry of Finance Ministry of Works and Transport NITA-U; KCCA and Each municipality	3.0 million

IT-05	Middle	Revenue Monitoring System	Ministry of ICT KCCA and Each municipality Private Software Companies	0.3 million
IT-06	Middle	Establishment of Start-up Support Centre	Ministry of ICT NITA-U: Uganda Investment Authority	1.2 million
IT-07	High	Strengthening Online Learning Platform	NITA-U Ministry of Education	1.2 million
IT-08	High	Establishment of a Resource Centre	Ministry of ICT NITA-U; Uganda Investment Authority	1.2 million
IT-09	High	Establishment of Mini/Cottage ICT industry	Ministry of ICT NITA-U; Uganda Investment Authority	0.6 million

(1) [IT-01] Expansion of Wi-Fi Hotspots

At present, there are some Wi-Fi hotspots in public spaces; however, they are not sufficient to provide free internet to most of the citizens. Therefore, it is necessary to set up more Wi-Fi hotspots in public spaces and on public transport to improve people's access to the internet.

(2) [IT-02] Smartphone Application Easy Access of Citizens' Service

Development of a mobile application as a one-stop centre, which citizens can access and use the necessary services linked to the application.

(3) [IT-03] Smartphone Application for Problem Reporting by the Citizens

Development of a mobile application for a participatory problem identification system (such as road problems, service interruption, etc.) to improve the services.

(4) [IT-04] Cashless Payment for Public Transport

Introduction of cashless payments for public transport and expansion to other services (such as road pricing in the city centre, parking payment, etc.) in the future to realise a sustainable public transport system in the long run. The process will also ensure the smooth operation of public transportation and will provide base data for service improvement.

(5) [IT-05] Revenue Monitoring System

Local government authorities in GKUGA area are collecting revenue from the citizens and in some cases (such as in Kampala), this can be paid using a mobile application. In addition, if a real-time revenue collection monitoring (integrated with cashless payment) system can be developed, the local government can plan the revenue collection monitoring system more accordingly.

(6) [IT-06] Establishment of Start-up Support Centre

As ICT is underdeveloped in Uganda and there are many potential IT engineers who are struggling without proper support, the establishment of a start-up Support Centre is proposed. Facilities such as low-cost office space, free high-speed internet, shared meeting facilities, etc. could be provided.

(7) [IT-07] Strengthening Online Learning Platform

At present, there is an initiative by NITA-U to develop an online learning platform. To strengthen the platform, online education curriculum development for students is proposed.

(8) [IT-08] Establishment of a Resource Centre

A resource centre can be established where young people, especially school children, could be given exposure to research and knowledge of different countries. Use of the internet from a much

earlier age could create a high sense of curiosity and passion for sciences, which is necessary for innovation and problem solving, skills which Uganda and Africa as a continent need urgently.

(9) [IT-09] Establishment of Mini/Cottage ICT industry:

Some of the ICT products are in high demand, yet the cost of production as well as the knowledge and skills needed to produce them locally is tenable. These include: laptop batteries, screens, power adaptors, etc. With the right knowledge, training and guidance, these can be assembled in the mini/cottage ICT industry.

14.6 Solid Waste Management

14.6.1 Background of Solid Waste Management Sector

In order to establish proper waste management, the Kampala Physical Development Plan, KPDP, recommends that KCCA and surrounding local governments cooperate and take a wide-area approach as GKUGA. This can be evaluated in terms of reduction of waste disposal costs due to the economy of scale, improvement of resilience of urban functions by joint utilisation of multiple disposal sites, and improvement of waste management capacity through collaboration between local governments.

On the other hand, in such an approach, problems often arise regarding where to construct the waste facility. In particular, it is difficult to form an agreement among the parties concerned on the location of a landfill disposal site. Since final disposal is the basis of proper waste management, delays in the development of a final disposal site affect overall waste management.

KPDP proposes the following projects.

- Integrated Waste Management System Study
- New Landfills and Treatment Plants (Stage I – III)
- Kiteezi Rehabilitation Plan
- Kiteezi Rehabilitation
- Waste Vehicle Fleet for KCCA
- Waste Vehicle Fleet for Kampala Metropolitan Towns and Counties (KMTC)
- Waste Handling Infrastructure for KCCA
- Waste Handling Infrastructure for KMTC

Of the above eight projects, only "2. New Landfills and Treatment Plants (Stage I – III)" is in progress. KPDP does not specifically mention the number or location of disposal sites and treatment facilities, but the Ddundu Project seems to follow this proposal. As for Kiteezi, no concrete work such as a closure plan has been started because there is no schedule for moving to a new disposal site. Originally, it was intended that "1. Integrated Waste Management System Study" would formulate a future plan for waste management for the entire GKUGA, and other projects would be consistently developed under the plan. However, no such plan has been developed. In other words, although progress has been made for KCCA, the wide-area approach for GKUGA, which KPDF/KPDP has set as an issue, remains unclear.

KPDP mentioned that a wide-area approach, such as that for GKUGA, is necessary because there is a growing need for waste management due to the rapid progress of urbanisation beyond the boundaries of Kampala Capital City. Although there has been no major change in the amount of waste collected in Kampala Capital City[1], the increasing need for waste collection has been raised as an issue in the surrounding local governments[2].

14.6.2 Issues on Solid Waste Management in GKUGA

Based on the analysis of the current situation 10 years after the creation of KPDF/KPDP, the issues that are foreseen for the future are explained below.

(1) Concerns about Deterioration of Sanitary Environment

In recent years, the population of GKUGA has been increasing at a rate higher than the national average, and this trend is expected to continue in the future. A remarkable increase is expected in the municipalities adjacent to Kampala Capital City, where provision of waste collection service has recently started. Therefore, the local governments and the private waste collectors have not fully established their capability to properly provide waste collection service like KCCA. For final disposal, many local governments rely on the KCCA Kiteezi disposal site but do not pay the

[1] Source: Kampala City Statistical Abstract, 2019, p. 76
[2] Source: Interview Survey by JICA Expert Team in December 2021

disposal fee. In this way, if the amount of waste increases rapidly in the surrounding municipalities, there is a concern that uncollected waste may cause environmental and human health damage.

The increase in the amount of waste is caused not only by the increase in population, but also by the increase in the amount of waste generated per capita due to economic development. Taking into account existing information such as the amount of waste disposed of in Kiteezi, the population, and the percentage of households that dispose of waste properly (88%)[3], in this report, amounts of waste generated per person are assumed as follows: 0.85 kg / person / day for Kampala Capital City and 0.33 kg / person / day for other local governments. In addition, it is presumed that the rate of increase associated with economic growth was set at 1% per year for Kampala Capital City and 3% per year for others. Under this assumption, the estimated amount of waste generated is shown in the table below.

Table 14.6.1 Projection of Waste Amount Generated in GKUGA

Area	Unit	2020	2030	2040	2050
Kampala	kg/person/day	0.850	0.939	1.037	1.146
Others total		0.330	0.443	0.596	0.801
Kampala	ton/day	1,437	1,850	2,261	2,555
Others total		1,125	2,412	4,816	8,691
Kampala	ton/year	524,505	675,250	825,265	932,575
Others total		410,625	880,380	1,757,840	3,172,215

Note: Future waste amount generated in this table is projected based on information available in June 2022. A field survey was not carried out for the purpose. It is recommendable to review the projection here based on more reliable information such as data obtained by field surveys and weighbridges.

(2) Impact of the Transition from the Kiteezi Disposal Site to the Ddundu Disposal Site

There are plans to move waste disposal from the current Kiteezi disposal site to the new Ddundu disposal site. The distance from the Kiteezi disposal site to the Ddundu disposal site is about 17 km in a straight line, about 30 km on road, and about 1 hour by vehicle.

Source: JICA Expert Team based on Google Earth

Figure 14.6.1 Distance between Kiteezi and Ddundu

As mentioned above, the waste management capacity of the surrounding municipalities outside of Kampala Capital City is still weak; however, collection services are still being developed. If the Kiteezi disposal site is closed, tractors used in some local governments cannot transport the waste to the Ddundu disposal site. Even if waste is transported by truck, it will be time consuming

[3] Source: Kampala City Statistical Abstract, 2019, p. 27

and costly. The current collection service system in those municipalities will collapse. Furthermore, if they use the Ddundu disposal site, they might have to pay the disposal fee.

According to the plan of the Ddundu Project, the disposal site should have been in service in December 2021, while at the same time, the Kiteezi disposal site should have been closed, which may have caused the problems mentioned above. Concerns about the occurrence of such problems were raised by some local governments during the interview survey in October 2021. In addition, they expressed the necessity of transfer stations. Although some donors are working on this issue, no concrete measures have been taken.

In the rapidly urbanising local governments adjacent to Kampala Capital City, it is hoped that concrete measures for the above-mentioned problems will be formulated and implemented as early as possible.

(3) Lack of Direction in Solid Waste Management for the Entire GKUGA

Although symptomatic measures are necessary to overcome the drastic change from Kiteezi Final Disposal Site to Ddundu, it should be presented with the aim of establishing sustainable solid waste management to maintain the sanitary environment of GKUGA, which is facing a rapid increase of waste generation.

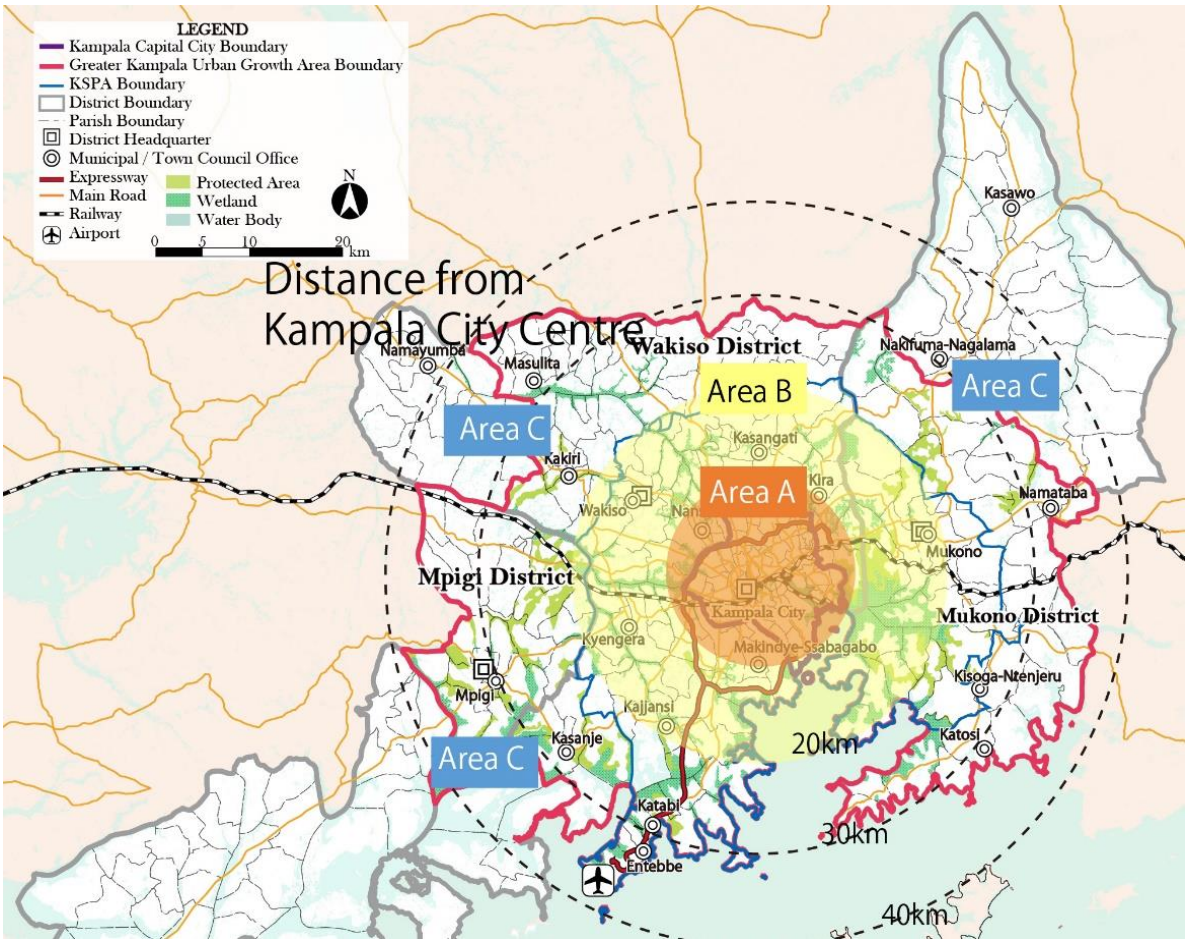
Assuming that the waste of the municipalities on the east side of GKUGA and Kampala Capital City will be disposed of at the Ddundu disposal site, the realisation of proper disposal of the waste of the municipalities on the west side of GKUGA will be an issue. In addition, it will be necessary to take measures when the amount of waste generated on the east side exceeds the planned amount received at the Ddundu disposal site. Furthermore, it is required that multiple disposal sites function organically so as not to adversely affect the function of GKUGA. Such a long-term and comprehensive plan must be drawn, and laws, policies, facility installation and operation, public awareness, etc. must be considered in the plan.

While looking at the problems that are foreseen in the future as shown in the table below, it is required to formulate a plan which shows the direction of waste management for GKUGA. Such a plan also should take into consideration the current needs of each local government and the differences in waste management capacity.

Table 14.6.2 Solid Waste Management Problems foreseen in GKUGA in the Future

Area	Description	Predicted problems
Area A	• Kampala Capital City that has been already urbanised and is currently using the Kiteezi disposal site.	• Increased transportation costs due to the transition from Kiteezi to Ddundu. • Incurred disposal costs for using the Ddundu disposal site. • An increase in the amount of waste that exceeds the capacity of the Ddundu disposal site.
Area B	• Local governments located outside Area A and are undergoing rapid urbanization.	• Deterioration of the environment at the disposal site currently in use due to an increase in the amount of waste. • Illegal dumping and environmental pollution due to lack of disposal site.
Area C	• Local governments located outside Area B and expected to gradually become urbanised.	• Deterioration of the environment at the disposal site currently in use due to an increase in the amount of waste. • Illegal dumping and environmental pollution due to lack of disposal site.

Source: JICA Expert Team



Source: JICA Expert Team

Figure 14.6.2 Division of Areas from the Viewpoint of Solid Waste Management in GKUGA

14.6.3 Needs on Solid Waste Management Sector in Different Areas

The challenges for avoiding future problems and building sound sustainable waste management are listed below:

(1) Conservation of Sanitary Environment

- Area A: to build a transfer transport system to the Ddundu disposal site, and to improve the collection service.
- Area B: to build a transfer transport system to the Entebbe disposal site or the Ddundu disposal site, and to improve the collection service.
- Area C: to improve the collection capacity and the sanitary environment.

(2) Realisation of Proper Waste Disposal

- Area A: to appropriately dispose of municipal waste that is currently disposed of at the Kiteezi disposal site at the Ddundu disposal site.
- Area B: to appropriately dispose of waste at the Entebbe disposal site or at the Ddundu disposal site.
- Area C: to improve the disposal site currently being used and reduce the environmental impact.
- West side in GKUGA: A new sanitary landfill will be developed to realise proper disposal of waste from local governments on the west side of GKUGA, and to increase the resilience of the entire solid waste management in GKUGA (in case operation of the Ddundu disposal site is interrupted due to an accident, etc.).

(3) Reduction of Final Disposal Amount

- Area A: to carry out waste diversion such as MRF at the Ddundu disposal site and/or at transfer station(s).
- Area B: to carry out waste diversion such as MRF at transfer station(s).
- Area C: to mainly work on the conversion of organic waste, such as by composting, to reduce the disposal amount.
- Difficult-to-treat materials (E-waste, construction and demolition waste, hazardous materials, etc.): to take measures for such waste by applying EPR.

14.6.4 Objectives for Solid Waste Management Sector

(1) Objectives

- To harmonise the solid waste management sector with the urban development in GKUGA; Metropolitan Core and Six Metropolitan Centres.
- To establish a flexible and sustainable waste management system that supports the conservation of the sanitary environment in GKUGA.
- To establish a system of mutual support among local governments and the central government through gradual development in consideration of the waste management capacity of each local government in GKUGA.
- To aim for establishing a low carbon waste management system.

(2) Goals and Targets

1) Increase of Waste Collection Rates

- Metropolitan Core: to achieve 100% by 2030
- Metropolitan Centres: to achieve 60% by 2030 and 80% by 2040

2) Realisation of Proper Waste Disposal

- Metropolitan Core: to achieve 100% of proper waste disposal, disposing of waste in sanitary landfill, by 2030
- Metropolitan Centres: to achieve 60% by 2030 and 80% by 2040

3) Waste Reduction

- Metropolitan Core: to achieve 35% of waste reduction by 2030[4]
- Metropolitan Centres: to achieve 22% by 2030 and 35% by 2040

Note: The numerical targets shown here are proposed by the JICA Expert Team based on the current situation and existing plans. At this time, a plan for the entire GKUGA has not been confirmed.[5] It is expected that the numerical targets shown here will open a discussion.

14.6.5 Strategies for Solid Waste Management Sector

(1) To Locate Wide-Area Disposal Sites and Transfer Stations in Consideration of Future Urbanisation

Based on future urban centres, road networks, environmental protection areas, etc., disposal sites and transfer stations will be set up in locations taking into consideration efficiency and environment.

By arranging multiple wide-area disposal sites, the resilience of GKUGA's urban functions is to be increased by dealing with risks such as the outage of disposal sites due to fires and accidents

[4] The Ddundu Project plans at least 35% of waste diversion.
[5] In June 2022, GGGI is preparing a solid waste management strategy in GKMA. GGGI, Greening Uganda's Urbanization and Industrialization, https://gggi.org/site/assets/uploads/2021/01/Brochure-Greening-Ugandas-Urbanization-and-Industrialization.pdf

on access roads. At the disposal site, methane gas incineration or a power generation facility will be installed to reduce GHG emissions.

The installation of transfer stations will reduce transportation costs and improve the efficiency of collection services, and the buffer function of the transfer stations that separates collection and transportation will reduce the risk of interruption of collection services due to accidents. In addition, the introduction of transfer transport can be expected to reduce CO^2 emissions.

The shorter the transportation distance, the more likely micro enterprises with limited capacity can participate in the collection service. For example, in slums, where residents cannot pay a fee and enjoy sufficient collection services, a community-based organisation (CBO) may be able to function with the support of the government and donors.

The following photos show examples of transfer stations and landfills.

Transfer Station (large scale)

Trailer for Transport

Transfer Station (small scale)

Collection vehicles (small type)

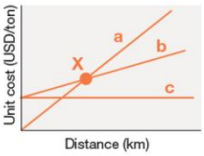
Source: JICA Expert Team

Figure 14.6.3 Example of Transfer Transport of Solid Waste

Approach of Transfer Transport Introduction

First step to consider introduction of transfer transport is to compare the current cost of direct transportation by your collection vehicle with estimated cost of a transfer transport system as shown on the right.

When considering introduction of transfer transport, it is important to compare the cost of waste transport to the disposal site directly by collection vehicle with the cost of transfer transport (transport vehicles and transfer stations).



If a < b + c,
there is no need to introduce transfer transport.
If a > b + c,
the introduction of transfer transport is recommended.

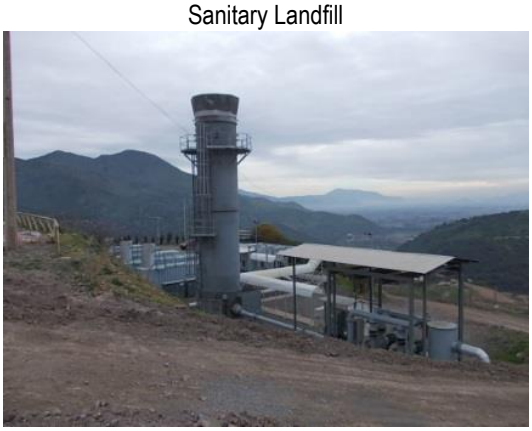
a: Collection cost line
b: Transport cost line
c: Transfer cost line
X: Cost breakeven point

Source: Basics of Municipal Solid Waste Management in Africa, https://africancleancities.org/library/

Figure 14.6.4 Approach for Introduction of Transfer Transport of Solid Waste

Sanitary Landfill

Leachate Treatment Facility



Landfill Gas Incineration

Landfill Gas Power Generation

Source: JICA Expert Team

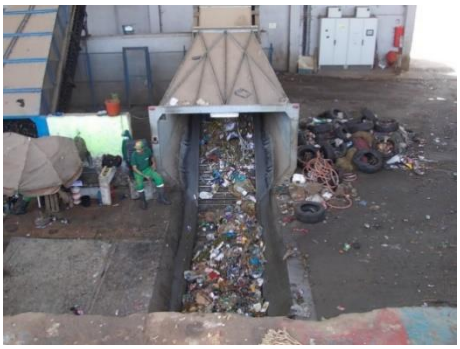
Figure 14.6.5 Examples of GHGs Reduction at Landfill

(2) To Improve Efficiency of the Entire Waste Treatment System by Installing Material Recovery Facilities (MRF) with Transfer Stations, and To Promote Waste Reduction through Various Resource Recovery

Due to the difficulty of securing land and the amount of waste that makes recycling feasible, there are cases where MRFs are installed on the disposal sites. However, this strategy recommends installing MRF with a transfer station. This will improve efficiency of the entire waste management system through the reduction of waste amount transported by recycling and/or treatment.

In selecting resource recovery technology, not only current needs such as plastic waste collection, but also markets that may be cultivated in the future shall be considered. For example, RDF (Refuse Derived Fuel) or RPF (Refuse Paper & Plastic Fuel) can be considered as an alternative fuel in cement manufacturing processes and industrial boilers.

There is a plan to use the site of Kiteezi as a transfer station and MRF. If there is land adjacent to a slum, etc. where the environment has already deteriorated, it might be an idea to use such land for a transfer station and/or MRF aiming at improving the deteriorated environment and job creation. However, it should be carefully considered by stakeholders because such facilities continuously generate environmental pollution and may cause labour accidents.




Source: JICA Team

Figure 14.6.6 Example of Material Recovery Facility


	低位発熱量
φ40mm φ20mm φ 8mm	6,000kcal／kg級：石炭相当 8,000kcal／kg級：コークス相当

Source: https://www.jrpf.gr.jp/rpf-1

Figure 14.6.7 Example of Reuse Paper and Plastic Fuel


Source: JICA Team

Figure 14.6.8 Example of Composting

(3) To Respond to the Needs of Less Urbanised Local Governments

The above-mentioned wide-area disposal sites, transfer stations and material recovery facilities are assumed to be used for local governments located in Area A (within about 10 km from the centre of Kampala Capital City) which has already become a city, and in Area B (within about 20 km from the centre of Kampala Capital City) where urbanisation is progressing rapidly.

On the other hand, there are scattered cities in Area C (out of about 20 km from the centre of Kampala Capital City) where the need for proper waste management is not as high as in Area A and in Area B. In these cities, solid waste management must take their current needs and capacity into consideration. The strategy for local governments in Area C is shown below.

1) Community-Friendly Solid Waste Management Facility

Waste treatment facilities are often shunned as unpleasant facilities. In order to be accepted by the community, these can be developed as places to create employment opportunities, a drop-off facility for resource waste and a meeting / educational facility to raise the environmental awareness of residents.

Education / Meeting Space

Recycle Art Gallery

Resource waste drop-off facility

Sales of compost

Source: JICA Team

Figure 14.6.9 Example of Community-friendly Solid Waste Management Facilities

2) Home Composting

There are many houses with gardens in Area C, and promotion of home composting can be one of the measures for waste reduction. Plastic containers are often used, but some countries use natural materials. Through composting activities, it is expected that residents will become more aware of the environment.

Composting Container Made of Woods (Sri Lanka)

Plastic Composting Container (Fiji)

Source: JICA Expert Team

Figure 14.6.10 Example of Home Composting

3) Open Dump to Controlled Dump

Ideally, a sanitary landfill should be used for waste disposal, but Kiteezi is the only sanitary landfill site in GKUGA, and it is planned that the Kiteezi disposal site will be moved to Ddundu in the near future. In towns located far from these disposal sites, it is not possible to transport waste due to financial restrictions, and some sites use pits and quarry sites as disposal sites. It may be recommended to improve such open dumps to control the disposal sites with gates, fences,

etc. in the interim until a sanitary landfill is available. However, such an idea should be discussed among stakeholders as to whether it is compliant with the current regulations.

Source: Basics of Municipal Solid Waste Management in Africa, https://africancleancities.org/library/

Figure 14.6.11 From Open Dump to Controlled Dump

(4) To Manage Waste other than Municipal Solid Waste Applying Polluter Pays Principle

It is desirable to basically apply the polluters pays principle to industrial waste and build a system in which the discharger bears the cost of proper disposal. The application of this principle is also a means of inducing reductions in waste disposal and promotion of recycling.

For hazardous waste, dedicated hazardous waste treatment and establishment / operation of disposal sites must be planned. Measures, such as installing a facility in an industrial complex or using a cement factory around GKUGA, can be considered.

Currently, regardless of whether it is urban waste or hazardous waste (including infectious medical waste), those who are engaged in the transportation, treatment, and disposal of waste must obtain NEMA approval. It is hoped that hazardous waste will be continuously and properly treated and disposed of under this system in the future.

(5) To Establish an Institutional System to Discuss about the Solid Waste Management in GKUGA

Municipal solid waste management is basically left to the local government. It is required to take necessary measures in the collection, transportation, treatment and disposal of urban waste generated in the jurisdiction area.

If municipal solid waste management is completed within the jurisdiction area, it may be possible for the local government to deal with it appropriately. However, in GKUGA, waste is moving beyond the borders of local governments, and the cooperation of related local governments is required. The waste management capacity of local governments other than KCCA is limited, and it is difficult to deal with the waste problem across the borders without the involvement of the central government.

The lack of waste management capacity of local governments has led to environmental pollution of wetlands due to illegal dumping. Wetlands spread out in the lowlands of GKUGA, and they function as flood control and purification of urban wastewater. Downstream of these wetlands is Lake Victoria, which is important not only to Uganda, but also to East African countries. Uncollected slum waste and illegal dumping by collectors pose a risk of contamination of GKUGA's wetlands as well as Lake Victoria.

As mentioned above, the waste problem of one local government related to GKUGA also affects the entire GKUGA and the international water area of Lake Victoria. The central government should take the initiative to build an institutional mechanism for continuous discussion.

14.6.6 Waste Stream

The amount of waste from generation to disposal in GKUGA in the future is estimated as shown in the table below. The amount of waste is estimated for each metropolitan area (see the Figure 10.1.11 Population of Influential Areas (Service Areas) of Metropolitan Centres).

Table 14.6.3 Estimated Waste Stream in GKUGA in the Future

Unit: tonne per day

Waste stream	Name	2030	2040	2050
Amount Generated	Metro core	1,850	2,261	2,555
	Mukono Metropolitan Centre	355	1,067	1,979
	Gayaza-Kasangati Metropolitan Centre	177	685	1,169
	Matugga Metropolitan Centre	133	364	593
	Wakiso Metropolitan Centre	195	691	1,314
	Nsangi-Nakirebe Metropolitan Centre	293	995	1,938
	Kajjansi Metropolitan Centre	359	1,013	1,698
	Others	900	0	0
	Total	4,262	7,077	11,246
Self-disposal	Metro core	0	0	0
	Mukono Metropolitan Centre	35	53	99
	Gayaza-Kasangati Metropolitan Centre	18	34	59
	Matugga Metropolitan Centre	13	18	30
	Wakiso Metropolitan Centre	19	35	66
	Nsangi-Nakirebe Metropolitan Centre	29	50	97
	Kajjansi Metropolitan Centre	36	51	85
	Others	90	0	0
	Total	241	241	435
Collection	Metro core	1,850	2,261	2,555
	Mukono Metropolitan Centre	213	854	1,979
	Gayaza-Kasangati Metropolitan Centre	106	548	1,169
	Matugga Metropolitan Centre	80	291	593
	Wakiso Metropolitan Centre	117	553	1,314
	Nsangi-Nakirebe Metropolitan Centre	176	796	1,938
	Kajjansi Metropolitan Centre	215	811	1,698
	Others	540	0	0
	Total	3,297	6,114	11,246
Waste diversion	Metro core	648	791	894
	Mukono Metropolitan Centre	78	373	693
	Gayaza-Kasangati Metropolitan Centre	39	240	409
	Matugga Metropolitan Centre	29	127	207
	Wakiso Metropolitan Centre	43	242	460
	Nsangi-Nakirebe Metropolitan Centre	64	348	678
	Kajjansi Metropolitan Centre	79	355	594
	Others	198	0	0
	Total	1,178	2,476	3,936
Transport	Metro core	1,202	1,470	1,661
	Mukono Metropolitan Centre	135	480	1,286
	Gayaza-Kasangati Metropolitan Centre	67	309	760
	Matugga Metropolitan Centre	51	164	385
	Wakiso Metropolitan Centre	74	311	854
	Nsangi-Nakirebe Metropolitan Centre	111	448	1,260
	Kajjansi Metropolitan Centre	137	456	1,104

Waste stream	Name	2030	2040	2050
	Others	342	0	0
	Total	2,119	3,638	7,310
Final Disposal	Metro core	1,202	1,470	1,661
	Mukono Metropolitan Centre	135	480	1,286
	Gayaza-Kasangati Metropolitan Centre	67	309	760
	Matugga Metropolitan Centre	51	164	385
	Wakiso Metropolitan Centre	74	311	854
	Nsangi-Nakirebe Metropolitan Centre	111	448	1,260
	Kajjansi Metropolitan Centre	137	456	1,104
	Others	342	0	0
	Total	2,119	3,638	7,310

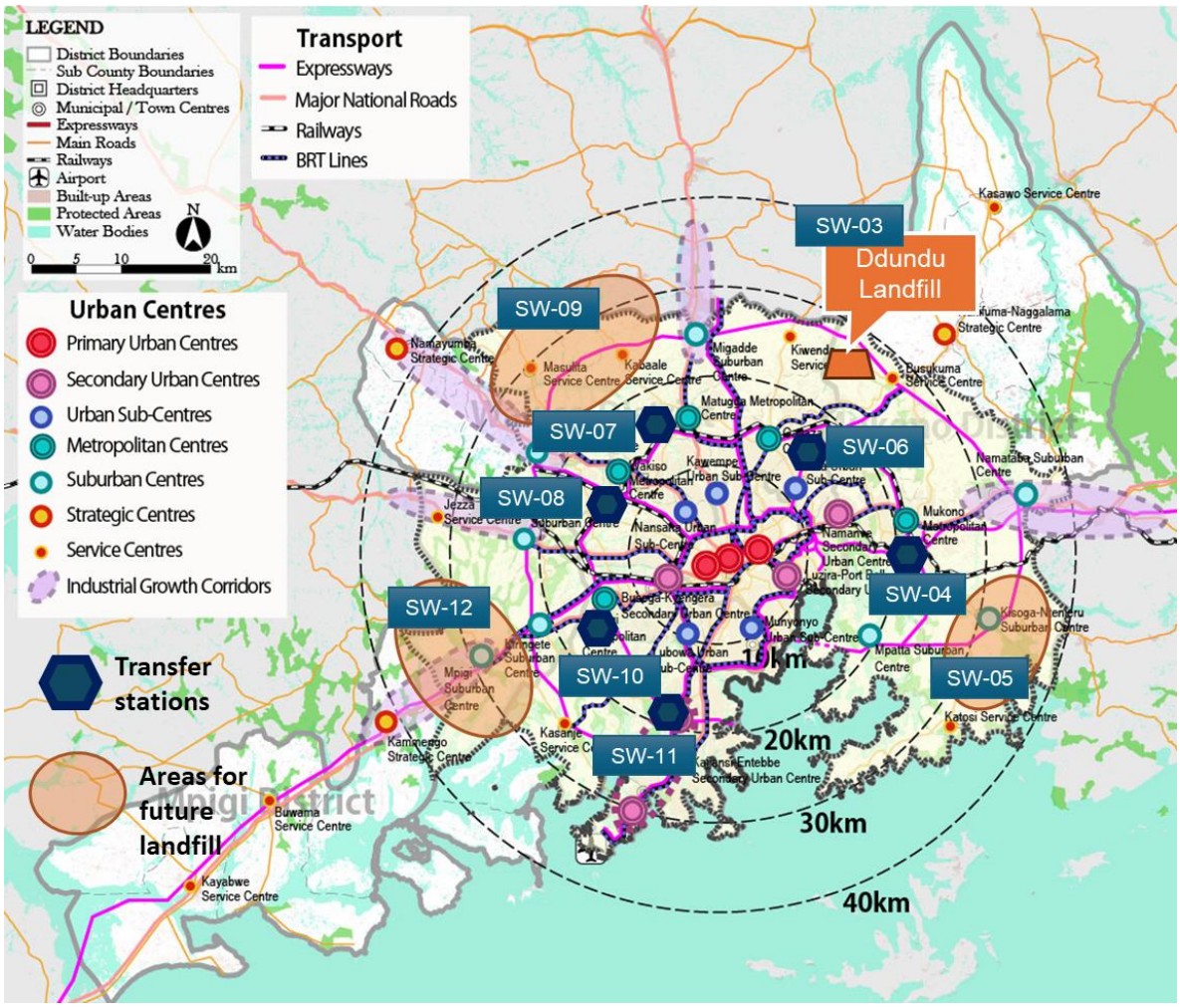
Source: JICA Expert Team

14.6.7 Projects for Solid Waste Management Sector

(1) Proposed Projects

Based on the integrated strategies for solid waste management in GKUGA described in Section 14.5.5, a master plan formulation, capacity development and actual establishment of transfer stations and sanitary disposal sites should be implemented as below.

- [SW-01] Formulation of Master Plan for Solid Waste Management System for GKUGA
- [SW-02] Capacity Development of Local Governments in Solid Waste Management System and Implementation of Master Plan for Solid Waste Management System
- [SW-03] Kampala Waste PPP Project: Ddundu landfill + Kiteezi TS and Waste Diversion Facility for KCC
- [SW-04] Establishment of Transfer Station and Waste Diversion Facility for Mukono Metropolitan Centre
- [SW-05] Establishment of Sanitary Landfill for Mukono Metropolitan Centre
- [SW-06] Establishment of Transfer Station and Waste Diversion Facility for Gayaza-Kasangati Metropolitan Centre
- [SW-07] Establishment of Transfer Station and Waste Diversion Facility for Matugga Metropolitan Centre
- [SW-08] Establishment of Transfer Station and Waste Diversion Facility for Wakiso Metropolitan Centre
- [SW-09] Establishment of Sanitary Landfill for Gayaza-Kasangati, Matugga and Wakiso Metropolitan Centres
- [SW-10] Establishment of Transfer Station and Waste Diversion Facility for Nsangi-Nakirebe Metropolitan Centre
- [SW-11] Establishment of Transfer Station and Waste Diversion Facility for Kajjansi Metropolitan Centre
- [SW-12] Establishment of Sanitary Landfill for Nsangi-Nakirebe and Kajjansi Metropolitan Centres



Source: JICA Expert Team

Figure 14.6.12 An Image of Location of Landfills and Transfer Stations in GKUGA and GKMA in the Future

(2) Estimated Project Cost

The table below shows estimated cost for solid waste management projects. Waste management services have a higher ratio of operation and maintenance costs to capital investment costs than other public services. It is recommended that all facilities are gradually expanded as waste volumes increase, rather than building large facilities from the outset. Note that the estimates below do not include land costs.

Table 14.6.4 Estimated Cost for Solid Waste Management Projects

Unit: million USD

Project	Facility/Service	Item	2025-30	2031-40	2041-50	Total
SW-1	Master Plan	-	1.0	-	-	1.0
SW-2	Capacity Dev.	-	2.0	-	-	2.0
SW-3	Collection	Capital	32.4	60.0	70.3	162.7
		O&M	109.4	202.6	237.3	549.3
	Transfer	Capital	7.9	14.6	17.1	39.7
		O&M	18.4	34.1	40.0	92.6
	Waste diversion	Capital	7.1	13.1	15.4	35.6
		O&M	14.2	26.3	30.8	71.2
	Landfill	Capital	13.2	24.4	28.6	66.1
		O&M	26.3	48.8	57.1	132.2
SW-4	Collection	Capital	3.7	15.6	41.3	60.6

Project	Facility/Service	Item	2025-30	2031-40	2041-50	Total
		O&M	12.6	52.5	139.6	204.7
	Transfer	Capital	0.89	3.37	9.67	13.9
		O&M	2.07	7.86	22.56	32.5
	Waste diversion	Capital	0.85	4.12	9.73	14.7
		O&M	1.71	8.23	19.45	29.4
SW-5	Landfill	Capital	1.48	5.61	16.12	23.2
		O&M	2.95	11.23	32.23	46.4
SW-6	Collection	Capital	1.86	9.56	25.08	36.5
		O&M	6.29	32.26	84.65	123.2
	Transfer	Capital	0.44	2.06	5.85	8.4
		O&M	1.03	4.80	13.65	19.5
	Waste diversion	Capital	0.43	2.54	5.92	8.9
		O&M	0.85	5.09	11.85	17.8
SW-7	Collection	Capital	1.40	5.41	12.90	19.7
		O&M	4.72	18.27	43.54	66.5
	Transfer	Capital	0.33	1.17	3.01	4.5
		O&M	0.78	2.74	7.01	10.5
	Waste diversion	Capital	0.32	1.43	3.05	4.8
		O&M	0.64	2.85	6.11	9.6
SW-8	Collection	Capital	2.05	9.78	27.26	39.1
		O&M	6.92	33.02	91.99	131.9
	Transfer	Capital	0.49	2.11	6.38	9.0
		O&M	1.14	4.92	14.88	20.9
	Waste diversion	Capital	0.47	2.60	6.40	9.5
		O&M	0.94	5.20	12.81	18.9
SW-9	Landfill	Capital	2.10	8.90	25.39	36.4
		O&M	4.21	17.81	50.79	72.8
SW-10	Collection	Capital	3.08	14.19	39.93	57.2
		O&M	10.38	47.89	134.76	193.0
	Transfer	Capital	0.73	3.06	9.35	13.1
		O&M	1.71	7.15	21.82	30.7
	Waste diversion	Capital	0.70	3.76	9.37	13.8
		O&M	1.41	7.53	18.74	27.7
SW-11	Collection	Capital	3.77	14.98	36.63	55.4
		O&M	12.74	50.56	123.62	186.9
	Transfer	Capital	0.90	3.25	8.54	12.7
		O&M	2.09	7.57	19.93	29.6
	Waste diversion	Capital	0.86	3.95	8.66	13.5
		O&M	1.73	7.91	17.32	27.0
SW-12	Landfill	Capital	2.71	10.51	29.82	43.0
		O&M	5.43	21.03	59.64	86.1

Source: JICA Expert Team

(3) Unit Cost

It is crucial if the society can bear the cost of the solid waste management services. The table below shows estimated total cost and unit cost per ton of waste to be collected for the entire GKUGA. The unit cost falls in approximately 50 USD/ton of waste to be collected. This would be beard by the society of GKUGA considering the typical cost well known in the solid waste management sector. (See Table 14.6.6)

Table 14.6.5 Estimated Unit Cost for Solid Waste Management in GKUGA

Item		Unit	2025-30	2031-40	2041-50
Waste collection amount		Ton per day	3,297	6,114	11,246
		Ton per period	7,220,430	22,316,1000	41,047,900
Total cost	Capital	million USD	90.17	240.11	471.81
	O&M	million USD	250.64	668.19	1,312.09
	Total	million USD	340.81	908.30	1,783.90
Unit cost	Capital	USD/collection ton	12.49	13.98	14.89
	O&M	USD/collection ton	34.71	38.90	41.41
	Total	USD/collection ton	47.20	52.88	56.31

Source: JICA Expert Team

Table 14.6.6 Typical Solid Waste Management Cost

Table 5.2 **Typical Waste Management Costs by Disposal Type**
US$/tonne

	Low-income countries	Lower-middle-income countries	Upper-middle-income countries	High-income countries
Collection and transfer	20–50	30–75	50–100	90–200
Controlled landfill to sanitary landfill	10–20	15–40	20–65	40–100
Open dumping	2–8	3–10	—	—
Recycling	0–25	5–30	5–50	30–80
Composting	5–30	10–40	20–75	35–90

Source: World Bank Solid Waste Community of Practice and Climate and Clean Air Coalition.
Note: — = not available.

Source: Word Bank, 2018, What a Waste

Chapter 15 Climate Change Strategies in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City

15.1 Introduction

This chapter gives an overview of the climate change context for the many climate change issues that have already been mentioned in other chapters above

Climate change, like Social Inclusion, is often taken as a cross-cutting issue. It affects nearly all other aspects of the GKMA-IUDMP. It is a cross-cutting issue in NDPIII, but it is managed overall under Program 9: Natural resources, environment, climate change, land and water management which recognizes the importance of addressing climate-related disasters by promoting inclusive, climate-resilient, and low-emissions development at all levels.

15.2 Uganda National Meteorological Authority (UNMA) State of Climate Report

The UNMA delivers "State of Climate Report", the most recently available being for the State of Climate in Uganda 2021. The report shows how average temperature in Uganda has been increasing between 1981 and 2021. It is projected to continue to increase, more so on the western side of the country with GKMA being in the middle. In regard to rainfall, levels are increasing more on the east side, but the intensity of the bi-annual rainfall cycles is increasing.

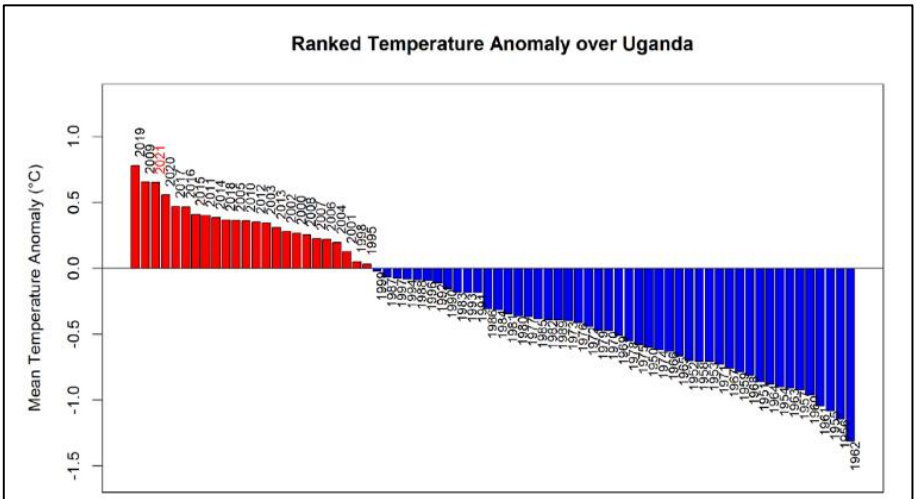


Figure 1: Ranked mean annual temperature anomalies (°C) over Uganda for the period 1950 - 2021 relative to 1981-2010. Red color represents years with temperature anomalies more than the long-term mean value (climatology) and blue represents years with temperature anomalies less than the climatology.

Source UNMA State of Climate Report 2022

Figure 15.2.1 Mean Annual Temperature Increase 1982-2019

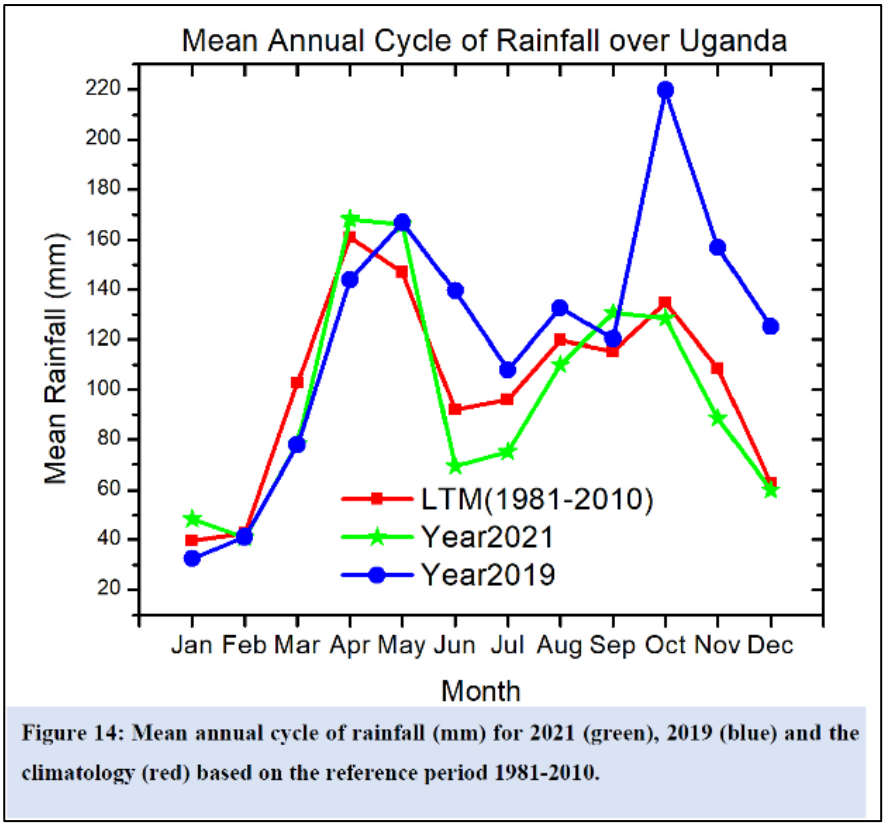


Figure 14: Mean annual cycle of rainfall (mm) for 2021 (green), 2019 (blue) and the climatology (red) based on the reference period 1981-2010.

Source UNMA State of Climate Report 2022

Figure 15.2.2 Mean annual rainfall 1981-2021

On the global level, Uganda's contribution to emissions is less than 5.05%, not least due to the fact that most of its electrical energy is from hydro power. Uganda can claim to suffer disproportionately from the impact of Climate Change which requires adaptation measures to be taken. Although this may make Uganda more eligible for funds for adaptation, nevertheless all funding now requires justification in terms of its having taken impact of climate change, and contribution to emissions, into account.

15.3 Uganda's Greenhouse Gas (GHG) Emissions Profile

Uganda's Greenhouse Gas (GHG) emissions have slowly increased from 53.4 MtCO2e in 2005 to 90.1 MtCO2e in 2015 (Figure 15.3.1).

The Land Use and Land Use Change and Forestry category was dominant, accounting for 59.5% (53.6 MtCO2e) of the total emissions. The Land sector was estimated to be a source of emissions instead of a sink. Agriculture is the second largest, contributing 26.9%, followed by energy (10.7%) and waste (2.3%). The Industrial Processes and Product use (IPPU) sector accounted for the least emissions.

At the time of preparation of the GKMA-IUDMP, the specific climate impact and emissions issues regarding urbanization were not well developed; cities were not even included in the NDC Report prior to 2022. The implementation of the GKMA-IUDMP presents a challenge and an opportunity to improve on this, the understanding and measurement of adaptation and mitigation specifically across urban development as represented by this Plan.

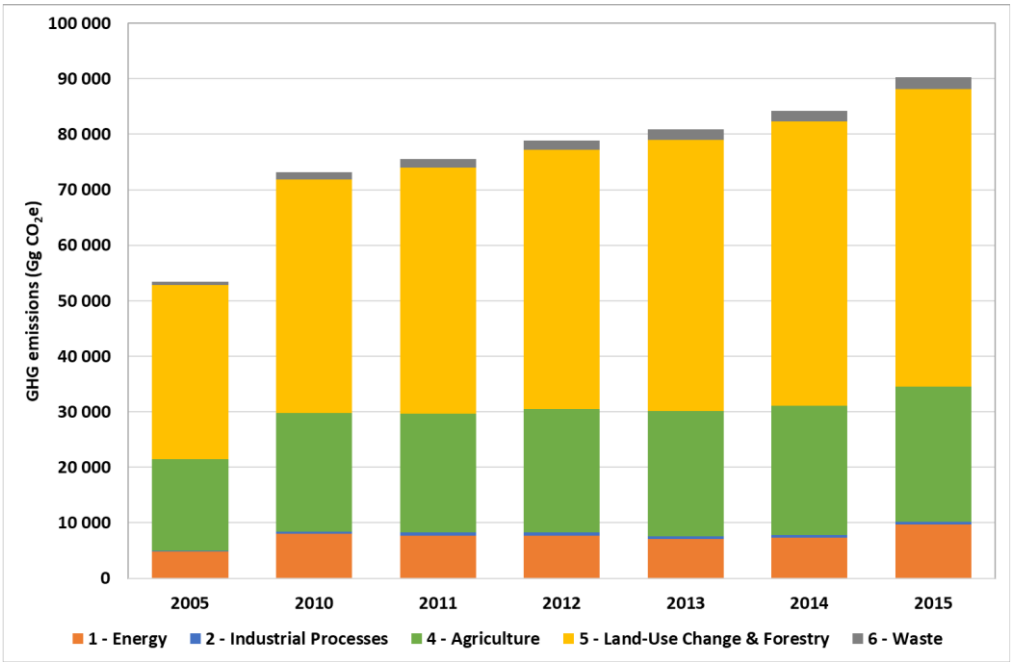


Figure 15.3.1 Changes in Uganda's GHG Emissions

15.4 Existing Government of Uganda Agencies, Law, Frameworks and Strategies for Dealing with Climate Change.

15.4.1 Agencies dealing with Climate Change

The Climate Change Department was set up in 2008 directly under the office of the Permanent Secretary within the Ministry of Water and Environment. The main objective for the establishment of the CCD was to strengthen Uganda's implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol (KP).

Considering the cross-sectoral nature of climate change interventions and the broad functions and tasks under the mandate of the Climate Change Department, the following have been created:

(1) The Climate Change Policy Committee (CCPC)

The CCPC, chaired by the Permanent Secretary, Ministry of Water and Environment, has 14 members from various public and private institutions.

The main functions of the CCPC are as follows:

- To offer policy guidance to the Minister of Water and Environment on matters related to Climate Change
- To assist the Minister of Water and Environment to take decisions on carbon finance activities in her capacity as the Designated National Authority (DNA) for Uganda.
- To re-constitute themselves into a Project Steering Committee to guide implementation of Climate Change Projects in the Ministry

(2) The Inter-institutional Climate Change Technical Committee (ICCTC)

The ICCTC is constituted by the Climate Change Desk Officers from various public and private institutions. The main functions include;

- To bridge the gap between the Climate Change Department and the respective institutions, facilitating exchange of information.
- To assist in technical activities of the Department including Climate Change Project

development and reviews.

Current Priorities and efforts are focused on:

- Technical capacity of the CCD, including through increased numbers and skills of personnel as well as equipping the office and scaled up facilitation of operations
- Development of climate change policy and mainstreaming guidelines to facilitate harmonized national action
- Development of climate change awareness raising materials and the associated strategic awareness creation at all levels (Centre, local governments and community levels),
- Piloting and rolling out National Adaptation Plan Aactivities implementation.
- Climate change related research.

15.4.2 Legal and other Frameworks and Strategies

(1) National Climate Change Policy 2015

Uganda developed the National Climate Change Policy in 2015 to guide efforts towards achieving Vision 2040 and moving towards low-carbon development. The policy aims to ensure that stakeholders address climate change impacts and causes through appropriate measures while promoting sustainable development and a green economy. The policy emphasizes climate change adaptation as the top priority for Uganda, given that the country's greenhouse gas emissions are still relatively very low and yet the country is experiencing climate change risks, impacts, and vulnerabilities.

(2) National Climate Change Act, 2021

Assented to on 14 August 2021, the Act gave the force of law in Uganda to the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement;

- To provide for climate change response measures;
- To provide for participation in climate change mechanisms;
- To provide for measuring of emissions, reporting and verification of information;
- To provide for institutional arrangements for coordinating and implementing climate change response measures;
- To provide for financing for climate change; and for related matters.

Under Part II, Section 7 and 8, Cities and Urban Authorities of the National Climate Change Act 2021 are required to develop their Climate Change Action Plans.

(3) Strategies, Action Plans and Programmes

Other strategies, Action Plans and Programs include the Uganda Green Growth Development Strategy 2017/18-2030/31; Uganda National Climate Change Communication Strategy 2017-2021; the Strategic Program for Climate Resilience, 2017; the National REDD+ Strategy, and Action Plan, 2017; National Biodiversity Strategy and Action Plan II 2015 -2025; Uganda Sustainable Land Management Strategic Investment Framework (2010-2020); the Climate Smart Agriculture Program (2015 – 2025), and the National Adaptation Plan (2023), supported by UNEP to make climate risk assessments and develop district-level adaptation strategies.

(4) Paris Agreement, Uganda's Nationally Determined Contribution and strategic pillars

Article 4 of the Paris Agreement requires that Uganda produces an updated Nationally Determined Contribution (NDC). As part of the 2022 NDC update process, the sectoral scope for adaptation was broadened from agriculture, forestry, water, infrastructure, energy, risk management, and health to also include ecosystems (wetlands, biodiversity, and mountains), water and sanitation, fisheries, transport, manufacturing, industry, and mining, cities and built

environment, disaster risk reduction, tourism, and education. Thirteen (13) pillars were identified "to transform Uganda into a climate- resilient and low-carbon society by 2050 that is prosperous and inclusive". The strategic pillars, nearly all of which are relevant to GKMA-IUDMP are:

1. Promote climate-resilient and low-carbon agricultural development

2. Promote and apply land management practices that support sustainable and productive use

3. Promote climate-resilient water supply systems, increase water supply capacity and use efficiency.

4. Promote sustainable management of ecosystems and the use of nature-based solutions, including through community engagement

5. Strengthen climate information services through improved data collection and sharing infrastructure

6. Develop and promote a clean and resilient energy system

7. Promote climate resilient and low-carbon urban planning and development

8. Increase availability and promote access to finance for climate-resilience, low-carbon investments and climate impacts recovery

9. Promote education and training on climate change science, and sharing of indigenous knowledge

10. Mainstream and institutionalize climate change responses in policies, plans, programmes and budgets at all levels of governance

11. Promote a multimodal shift to low carbon mobility and create climate-resilient transport infrastructure to support economic growth

12. Promote a resource-efficient circular economy

13. Further develop a resilient and "fit for future" health systems

15.5 Specific Application of Climate Change Strategies to the GKMA-IUDMP

The NDC, which is updated annually and the basis of report to the COP global series of annual meetings, lists priority actions for Adaptation and Mitigation (the most recent being COP28 in UAE).

15.5.1 Priority Actions for Adaptation

The Priority Adaptation Actions in the NDC that are specifically relevant to the IUDMP are listed below (also with reference to the relevant sections of the GKMA-IUMDP).

Major adaptation strategies to be promoted by the GKMA-IUMDP are as follows:

- Promotion of provision of adequate drainage facilities, especially outside Kampala Capital City, based on the appropriate data collection on rainfall and water level of rivers and wetlands
- Enforcement of land use regulation, especially for preventing encroachment of buildings into wetlands
- Preventing the growth of emerging slums near urban centres outside Kampala Capital City
- Planned provision of piped water supply in fringe areas of GKUGA, where ground water levels are unstable due to the climate change
- At the same time, promoting the formation of polycentric urban structure by developing urban

centres outside Kampala Capital City within the GKUGA

Table 15.5.1 Relevants Priority Adaptation Actions from Tables 2-1 to 15 of the NDC, 2022

Ref	Priority Actions		GKMA-IUDMP Reference	
Table 2-3 Priority Adaptation Actions for the Eco-System Sector				
	Enhance and restore wetlands, peatlands, riverbanks and lakeshores		Wetland Management in Chapter 6	
	Enhance biodiversity conservation and management		Forest Reserve in Chapter 6	
Table 2-4 Priority Adaptation Actions for Water and Sanitation				
	Water harvesting and storage		-	
	Catchment Management Plans compliance with climate change adaptation		Greater Kampala Urban Growth Boundaries in Chapter 6	
Table 2-5 Priority Adaptation Actions for Transport				
	Climate resilient transport infrastructure		Chapter 13	
	National road reserves with green infrastructure		Chapter 13	
Table 2-6 Priority Adaptation Actions for Energy				
	Increased access to clean energy for cooking		-	
	Climate-proof electricity transmission infrastructure including renewable off-grid solutions		Section 14.4 in Chapter 14	
Table 2-11 Priority Adaptation Actions for Cities and Built Environment				
	Sustainable Urbanisation and Housing		Chapter 11	
	Drainage channels constructed and improved in GKMA		Section 14.3 in Chapter 14	
	Expand and maintain cities with green belts (measured by % of preserved areas/parks of total urban area)		Chapter 12	
	Km of NMT		Chapter 13	
	Sustainable facilities and efficiency of collection of solid waste		Section 14.6 in Chapter 14	
Table 2-15 Priority Adaptation Actions for Tourism				
	Prioritise natural and cultural heritage		Chapter 6, Chapter 19	
	Rehabilitate wildlife corridors		Chapter 6	

Source: NDC and JICA Expert Team

15.5.2 Priority Actions for Mitigation

Uganda's greenhouse gas (GHG) emissions are projected to increase from 90.1 MtCO2e in 2015 to 148.8 MtCO2e in 2030 and 235.7 MtCO2e by 2050 under the BAU Scenario. The NDC proposes that unconditional and conditional actions could give a 25% reduction by 2030.

GKMA-IUDMP's emphasis on mitigation contribution to Climate Change include the following urban development strategies:

- Promotion of Formation of Polycentric Urban Spatial Structure by Development of Urban Centres outside Kampala Capital City
- Promotion of Transit-Oriented Development along BRT, LRT and MRT paying attention not only to the CBD of Kampala Capital City, but also to urban centres outside Kampala Capital City
- Promotion of Utilisation of Public Transportation including BRT, LRT and MRT
- Promotion of Conservation and Wise Use of Wetlands

Table 15.5.2 of the NDC, below, presents the absolute mitigation contribution of each sector towards the full economy wide target.

Table 15.5.2 Mitigation Potential of the Priority Mitigation Policies and Measures

Sector	Mitigation Contribution of Each Sector
Agriculture, Forestry and Land Use Sector	30.4 MtCO2e
Energy Sector (Excl. Transport)	2.34 MtCO2e
Transport Sector	2.78 MtCO2e
Waste Sector	1.10 MtCO2e
Industrial Processes and Product Use Sector	0.14 MtCO2e
TOTAL	**36.76 MtCO2e**

Source: NDC

Table 15.5.2 is in itself indicative of how "Urban" as a sector needs to be better represented (on basis of research) Key mitigation issues that are listed below which are relevant to the GKMA-IUDMP are to some extent the similar to the adaptation measures, covering:

- Improved charcoal production, and switching to clean energy use:
- Natural Forest regeneration/restoration
- Wetland management
- Increased household access to the grid, reduction in use of biomass for cooking and kerosene for lighting
- Energy efficiency in buildings
- Transport orientated development, planning and design; remote working; to reduce travel needs
- Modal shift to mass transit and NMT including water transport
- Provision of 'complete streets' or dedicated NMT corridors (100km in GKMA by 2030)
- Electric vehicles and more efficient, cleaner fuels
- Control Center for public transport in GKMA
- Reduction, recycling and re-use of solid waste

15.6 Climate Change Objectives, Strategies and Programmes

15.6.1 Climate Change Objectives

The following are the main objectives of the IUDMP regarding Climate Change:

- To understand the climate issues, impact and emissions of the IUDMP planning and projects
- To ensure that the design of all plans and programs takes projected Climate Change into account
- To create a GKMA that is fully able to withstand the impact of climate change as projected
- To carry out all planning and design of projects by being able to measure their impact on GHG emission levels and aim for net zero carbon emissions as soon as practically achievable
- To understand more about the issue of climate change in urban development

15.6.2 Climate Change Strategies

The following strategies need to be taken for the IUDMP to meet the above objectives:

- To work with the CCD to improve knowledge and actions to be taken on climate change and urbanisation
- To carry out studies of the impact of projected climate changes as they will apply to each

aspect of urban development that is included in the IUDMP

- To carry out studies of the impact of the CO2 emmission levels of each aspect of urban development that is included in the IUDMP and take steps to minimise them, and to incorporate them into the NDC Framework

15.6.3 Climate Change Projects

Project to be undertaken by the MoKCCMA with the CDD of MoWE to

- research and measure climate change impacts and emissions from urbanisation in GKMA, and
- establish priority areas, identify strategic multi stakeholder partnerships for action
- Create the tools for support for capacity building and awareness raising.
- Strengthening monitoring, reporting to contribute towards the verification of the implementation and achievement of the updated NDC

Chapter 16 Priority Projects and Phased Development Plan in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City

16.1 Introduction

Section 16.2 shows a Phased Development Plan (Scenario) of Urban Centres, Expressways, Public Transportation and Other Infrastructure in an integrated manner.

Furthermore, Sections 16.2, 16.3, and 16.4 compile the lists of priority projects by sector which are included in Chapter 10 "Urban Development", Chapter 13 "Transport", Chapter 14 "Other Infrastructures", and Chapter 24 "Institutional Development" containing priority projects for GKUGA.

16.2 Phased Development Plan of Urban Centres, Expressways, Public Transportation and Other Infrastructure Sectors

16.2.1 Phased Development Scenario of Urban Centre Development in Accordance with Expressway Development

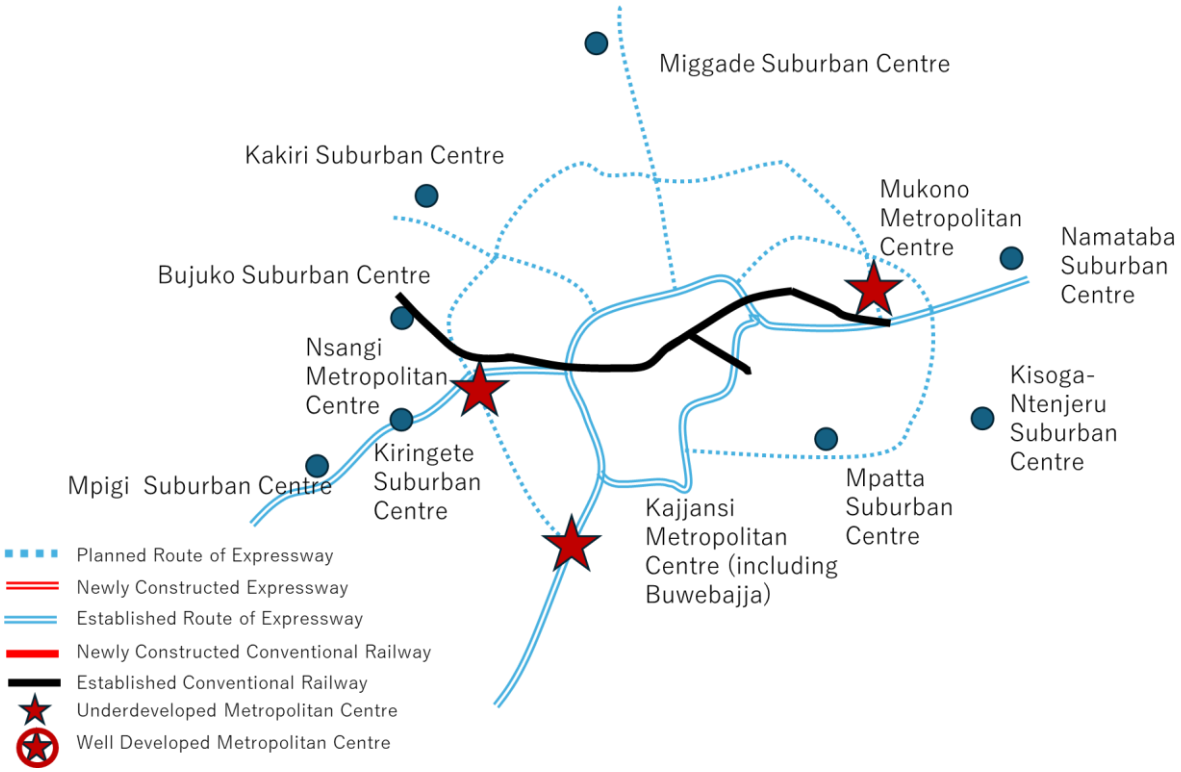
Paying attention to the present severely congested road traffic situation, urban development outside KCC should be promoted together with urban centre development for seeking poly-centric and distributed spatial structure.

Especially urban centre development could be promoted by developing strong connectivity through expressways, since mostly urban mobility measures depend on roads. Such strong connectivity can be attained only by constructing a good and wide-coverage of expressway network to smoothen road traffic. At the same time, BRT operation should be promoted on such expressways in the first 15-20 years.

Therefore, a phased scenario of formation of spatial structure is composed considering the combination of urban centre development (especially Metropolitan Centres) and expressway development.

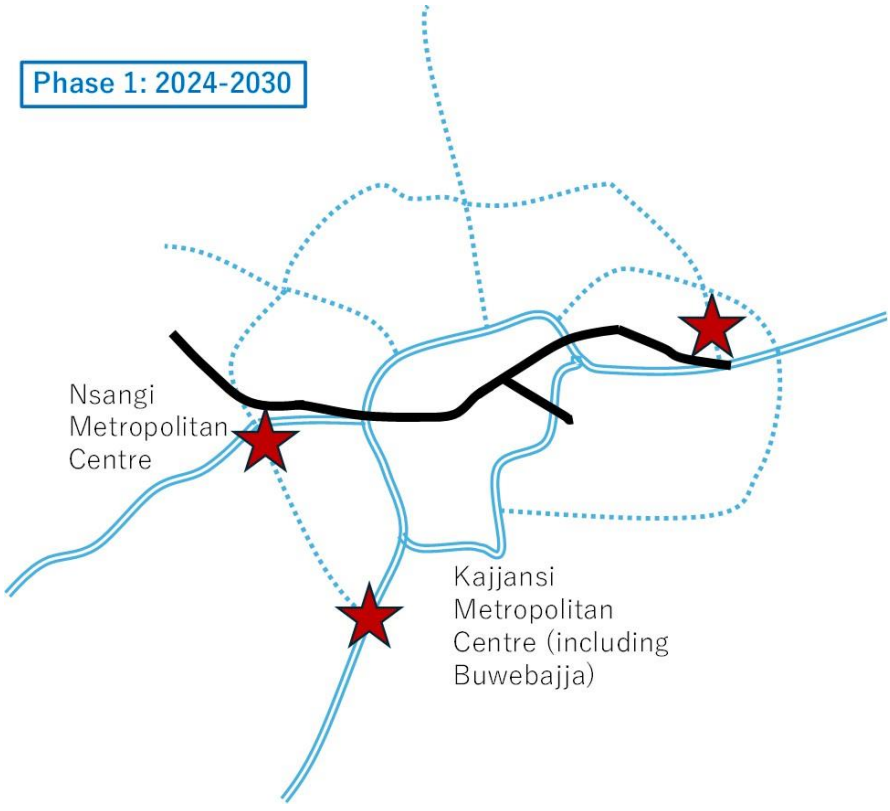
Figure 16.2.1 shows the present situation of GKUGA's spatial structure.

Figure 16.2.2, Figure 16.2.3, Figure 16.2.4, Figure 16.2.5, and Figure 16.2.6 shows the phased development situation of Phases 1, 2, 3, 4 and 5.



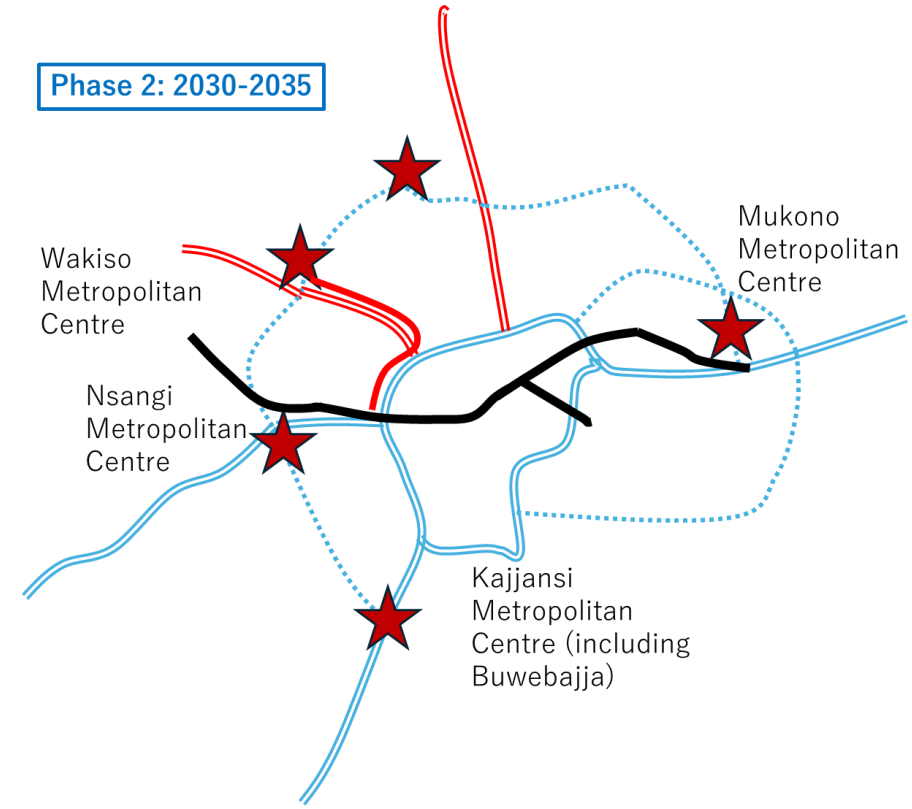
Source: JICA Expert Team

Figure 16.2.1 Present Situation of Metropolitan Centres and Expressways



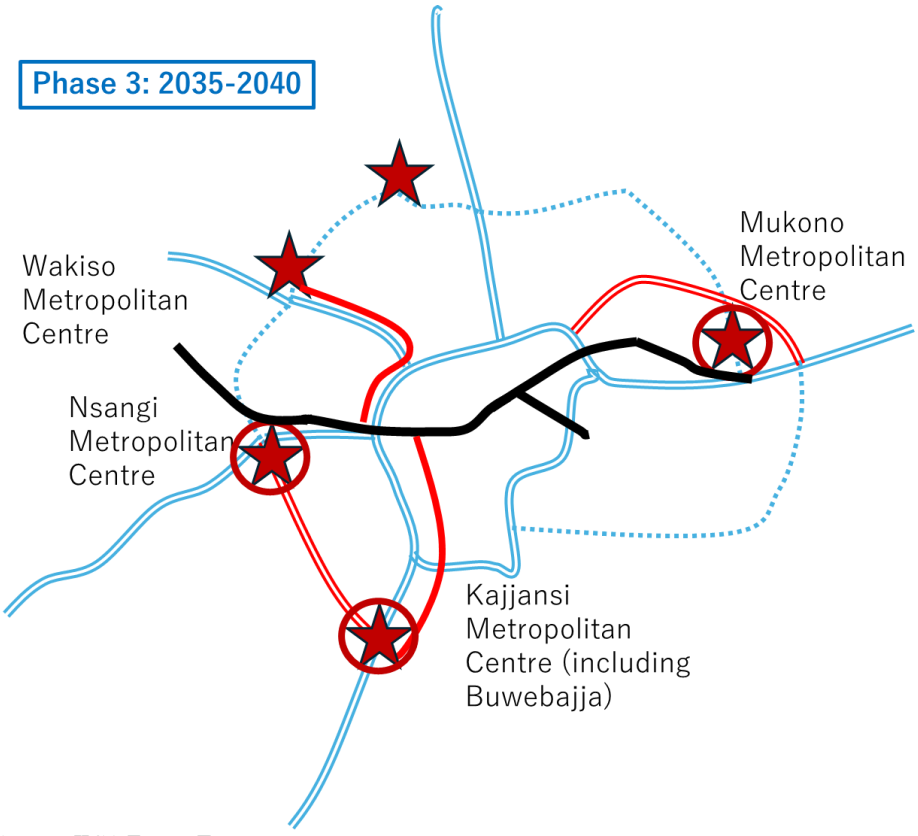
Source: JICA Expert Team

Figure 16.2.2 Phase 1 (2024-2030): Phased Development Scenario of Metropolitan Centres and Expressways



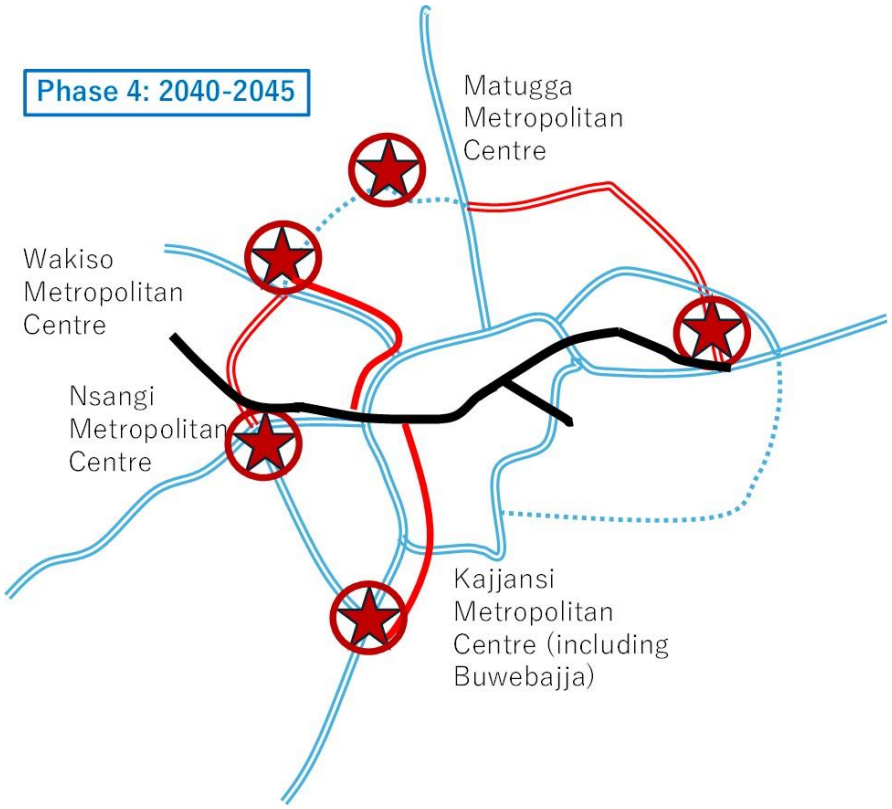
Source: JICA Expert Team

Figure 16.2.3 Phase 2 (2030-2035): Phased Development Scenario of Metropolitan Centres and Expressways



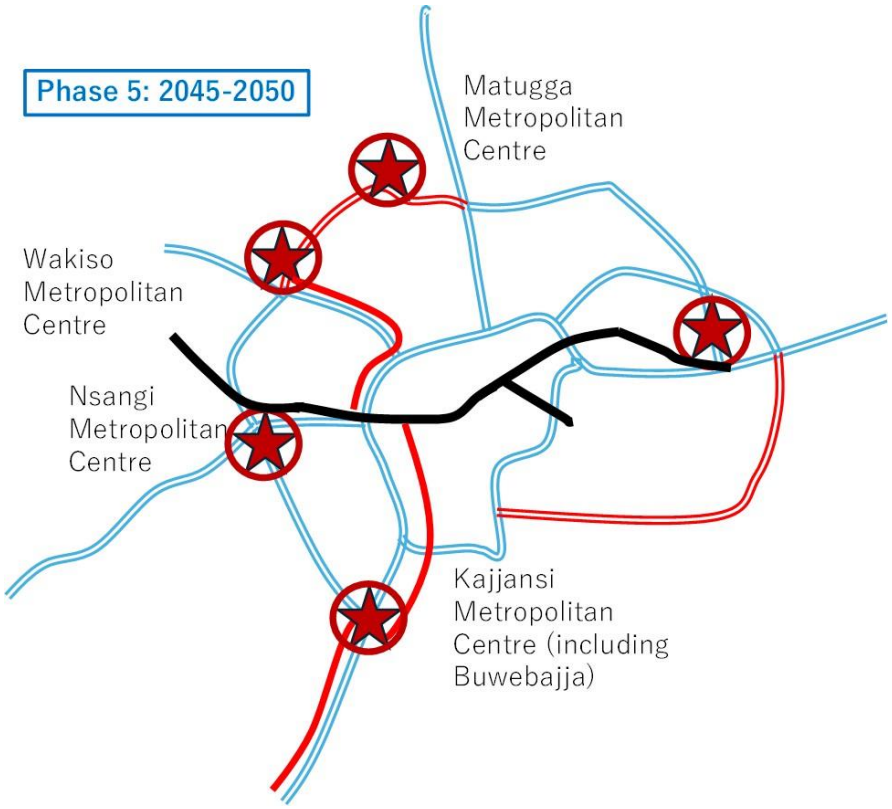
Source: JICA Expert Team

Figure 16.2.4 Phase 3 (2035-2040): Phased Development Scenario of Metropolitan Centres and Expressways



Source: JICA Expert Team

Figure 16.2.5 Phase 4 (2040-2045): Phased Development Scenario of Metropolitan Centres and Expressways



Source JICA Expert Team

Figure 16.2.6 Phase 5 (2045-2050): Phased Development Scenario of Metropolitan Centres and Expressways

16.3 List of Priority Projects for Urban Development Sector

The urban development sector has the following programmes:

- GKMA Master Plan Implementation Programme
- Metropolitan Centre Development Programme
- Secondary Urban Centre Development Programme
- Primary Urban Centre (CBD) Expansion Programme
- Programme for Prevention of Growth of Emerging Slums
- Programme for Development and Management of Wetland Urban Parks
- Programme for Land Use Management of Victoria Lakeshores

Table 16.3.1 List of Priority Projects for Urban Development

No	Priority	Urban Development Sector GKMA MP Implementation Programme	Status	Organizations in Charge	Schedule					Cost (million USD)
					Phase1	Phase2	Phase3	Phase4	Phase5	
UD-01	High	Capacity Development for Implementation of GKMA Integrated Urban Development Master Plan	Proposed	MKCC&MC, MoLHUD, KCCA, Wakiso District, Mukono District, Mpigi District	■					3.0
No	**Priority**	**Urban Development Sector Metropolitan Centre Development Programme**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
UD-02	High	Project for Kajjansi Metropolitan Centre Development including Buwebajja Government Campus	Proposed	MKCC&MA, Wakiso District	■	■				14.9
UD-03	High	Project for Mukono Metropolitan Centre Development	Proposed	MKCC&MA Mukono District	■	■				9.7
UD-04	High	Project for Nsangi Metropolitan Centre Development	Proposed	MKCC&MA Wakiso District	■	■				9.7
UD-05	High	Project for Wakiso Metropolitan Centre Development	Proposed	MKCC&MA Wakiso District		■	■			13.9
UD-06	High	Project for Matsuga Metropolitan Centre Development	Proposed	MKCC&MA Wakiso District		■	■			10.8
No	**Priority**	**Urban Development Sector Secondary Urban Centre Development Programme**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
UD-07	High	Project for Busega-Kyengera Secondary Urban Centre Development	Proposed	MKCC&MA, Wakiso District, KCCA	■	■				14.4
UD-08	High	Project for Luzira-Port Bell Secondary Urban Centre Development	Proposed	MKCC&MA, KCCA		■	■			9.4
UD-09	High	Project for Namanve Secondary Urban Centre Development	Proposed	MKCC&MA, UIA, Mukono District	■	■				12.4
UD-10	Middle	Project for Entebbe-Katabi Secondary Urban Centre Development	Proposed	MKCC&MA, Wakiso District, KCCA			■	■		11.3
No	**Priority**	**Urban Development Sector Primary Urban Centre (CBD) Expansion Programme**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
UD-11	High	Project for CBD Expansion	Proposed	KCCA, MoLHUD		■	■			3.0
No	**Priority**	**Urban Development Sector Programme for Prevention of Growth of Emerging Slums**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	

UD-12	High	Project for Prevention of Emerging Slums near Kajjansi Metropolitan Centre	Proposed	Wakiso District MoLHUD		■				2.0
UD-13	High	Project for Project for Preventing the Growth of Emerging Slums near Mukono Metropolitan Centre	Proposed	Mukono District MoLHUD		■				2.0
UD-14	High	Project for Project for Preventing the Growth of Emerging Slums near Nsangi Metropolitan Centre	Proposed	Wakiso District MoLHUD		■				2.0
UD-15	High	Project for Project for Preventing the Growth of Emerging Slums near Wakiso Metropolitan Centre	Proposed	Wakiso District MoLHUD			■			2.0
UD-16	High	Project for Project for Preventing the Growth of Emerging Slums near Matsuga Metropolitan Centre	Proposed	Wakiso District MoLHUD			■			2.0
No	**Priority**	**Urban Development Sector Programme for Development and Management of Wetland**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
OS-01	High	Project for Development and Management of Nakivubo Wetland Urban Park	Proposed	KCC MoWE		■				3.2
OS-02	High	Project for Development and Management of Lubigi Wetland Urban Park	Proposed	Wakiso District MoWE		■				5.5
OS-03	High	Project for Strengthening of Enforcement Effort at Development Control for Wetlands	Proposed	MoLHUD, MoWE, KCCA, Wakiso District, Mukono District, Mpigi District	■					-
No	**Priority**	**Urban Development Sector Programme for Land Use Management of Victoria Lakeshores**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
LS-01	High	Project for Land Use Suitability Study of Victoria Lakeshores and Formulation of Land Use Management System for Victoria Lakeshores in GKMA	Proposed	MoWE, MoLHUD, KCC, Mpigi, Mukono, Wakiso		■				-
LS-02	Middle	Project for Project for Land Use Management of Victoria Lakeshores in KCC	Proposed	KCCA, MoWE, MoLHUD			■	■		-
LS-03	Middle	Project for Land Use Management of Victoria Lakeshores in Mpigi	Proposed	Mpigi District, MoWE, MoLHUD			■	■		-
LS-04	Middle	Project for Land Use Management of Victoria Lakeshores in Mukono	Proposed	Mukono District, MoWE, MoLHUD			■	■		-
LS-05	Middle	Project for Land Use Management of Victoria Lakeshores in Wakiso District	Proposed	Wakiso District, MoWE, MoLHUD		■				-

Source: JICA Expert Team

16.4 List of Priority Projects for Transport Sector

The transport sector contains the following three subsectors of priority projects:

- Road Subsector
- Traffic Management Subsector
- Public Transportation Subsector

This section shows three lists for short-term, middle-term and long-term projects. Each list includes priority projects of the above three subsectors.

Table 16.4.1 List of Priority Projects for Transport Sector

No	Priority	Road Subsector	Status	Organizations in Charge	Schedule					Cost (million USD)
					Phase1	Phase2	Phase3	Phase4	Phase5	
RD-S1	High	Capacity Improvement and Signalisation of Kampala – Gayaza Road	On-going	UNRA						18.0
RD-S2	High	Capacity Improvement and Signalisation of Kampala – Buloba Road	On-going	UNRA						15.0
RD-S3	Middle	Capacity Improvement and Signalisation of Namungona – Kakiri Road	On-going	UNRA						25.0
RD-S4	High	Kampala Flyover	On-going	UNRA						153.7
RD-S5	High	Kampala City Road Rehabilitation Project (including drainage works, 2 big drainage works)	On-going	KCCA						246.0
RD-S6	High	GKMA-Urban Development Programme	On-going	MKCC&MA						-
RD-S7	High	Upgrading of Northern Bypass	On-going	UNRA						141.1
RD-S8	High	Kampala Southern Bypass	On-going	UNRA						200.0
RD-S9	High	Kibuye-Busega Expressway	On-going	UNRA						229.0
RD-S10	High	Busega-Mpigi Expressway	On-going	UNRA						196.8
RD-S11	High	Kampala-Jinja Expressway	On-going	UNRA						800.0
RD-S12	High	VVIP Expressway (Nakasero-Northern Bypass Expressway)	On-going	UNRA						200.0
RD-S13	Middle	Upgrading of Kyaliwajala – Kira – Matuga Road (including junctions along the road)	On-going	UNRA						54.3
RD-S14	Middle	Upgrading of Najjanankumbi – Busabala (including junction signalisation)	On-going	UNRA						70.1
RD-S15	Middle	Upgrading of Matuga – Wakiso – Buloba	On-going	UNRA						30.4
RD-S16	High	Upgrading of Jokas – Namanve – Mukono	On-going	UNRA						13.0
RD-S17	Middle	Upgrading of Natete – Nakawuka – Kisubi – Maya - Nakiwuogo	On-going	UNRA						91.9
RD-S18	High	Railway Station Access Roads Development	Proposed	Local Gov.						111.0
RD-M1	High	Kampala-Bombo Expressway	On-going	UNRA						559.9
RD-M2	High	Kampala Outer Beltway Phase 1 (Kajjansi-Nsangi)	On-going	UNRA						246.4
RD-M3	High	Expressway R4 (Kampala – Wakiso – Kakiri)	Proposed	UNRA						256.9
RD-M4	High	Kampala - Mukono Expressway (Bypass of Jinja Road and Kampala - Jinja Expressway)	Proposed	UNRA						191.2
RD-M5	High	Urban Expressway (VVIP-Southern Bypass)	Proposed	UNRA						110.9
RD-L1	High	Kampala Outer Beltway Phase 2 (Nsangi-Wakiso-Gayaza-Mukono-Muknyonyo)	On-going	UNRA						951.9
RD-L2	High	Expressway R6 (Kira – Kasaayi – Ngalama - Kigogola)	Proposed	UNRA						260.0

No	Priority	Traffic Management Subsector	Status	Organizations in Charge	Schedule					Cost (million USD)
					Phase1	Phase2	Phase3	Phase4	Phase5	
TM-S1	High	Central Traffic Control Centre (junction)	On-going	KCCA						18.8
TM-S2	High	Parking Restrictions and Tax in CBD	On-going	KCCA						0.5
TM-M1	Middle	Boda-Boda Restriction	On-going	KCCA						2.0
No	**Priority**	**Public Transport Subsector**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	Phase2	Phase3	Phase4	Phase5	
PT-S1	High	Uganda Railways Corporation Capacity Building Project	On-going	URC						366.3
PT-S2	High	BRT-Pilot1 (CBD-Kajjansi)	On-going	MoWT						172.4
PT-S3	High	BRT-Pilot2 (CBD-Mukono)	On-going	MoWT						270.9
PT-S4	High	BRT-Pilot3 (CBD-Kasangati)	On-going	MoWT						184.7
PT-S5	High	BRT Kampala-Entebbe (along Expressway) Mixed Lane	Proposed	MoWT						7.0
PT-S6	High	BRT Busega-Mpigi (along Busega-Mpigi Expressway) Mixed Lane	Proposed	MoWT						6.2
PT-S7	High	BRT Inner-Beltway - Ring Road (Along Northern BP - Kampala Entebbe Expressway - Southern BP) Mixed Lane	Proposed	MoWT						9.6
PT-S8	High	Bus and Taxi Service Improvement (Introduction of New Large or Middle size buses)	Proposed	KCCA						20.0
PT-S9	High	Development of Multi-modal Transport Hubs	Proposed	URC/KCCA						400.0
PT-S10	Middle	Development of Platform for Mobility-as-a-Service (MaaS)	Proposed	MKCC&MA						20.0
PT-M1	High	Upgrading of Existing Metre Gauge Railway Service	Proposed	URC						3865.4
PT-M2	Middle	Dualisation of BRT Corridor	Proposed	MoWT						270.9
PT-M3	Middle	BRT Kampala-Entebbe (along Expressway) Dedicated Lane	Proposed	MoWT						317.6
PT-M4	Middle	BRT-Masaka Extension (CBD-Mpigi) Dedicated Lane	Proposed	MoWT						374.3
PT-M5	Middle	BRT -CBD-Portbell	Proposed	MoWT						149.0
PT-M6	Middle	BRT-Gayaza Extension (CBD-Kalagi)	Proposed	MoWT						395.2
PT-M7	Middle	BRT-Jinja Extension (CBD-Mukono)	Proposed	MoWT						161.3
PT-M8	Middle	BRT -Nansana-Wakiso-Kakiri	Proposed	MoWT						249.9

PT-M9	Middle	BRT Busega-Mpigi (along Busega-Mpigi Expressway) Dedicated Lane	Proposed	MoWT						330.0
PT-M10	Middle	BRT -Nansana-Wakiso-Kakiri (along Expressway R4, Namungoona-Bujuko-Kakiri)	Proposed	MoWT						246.2
PT-M11	Middle	BRT CBD-Bombo (Along Bombo Expressway) Mixed Lane	Proposed	MoWT						10.8
PT-M12	Middle	BRT Inner-Beltway - Ring Road (Along Northern BP - Kampala Entebbe Expressway - Southern BP) Dedicated Lane	Proposed	MoWT						776.9
PT-M13	Middle	BRT Kampala- Kasanje (along Nakawuka Road)	Proposed	MoWT						307.8
PT-M14	Middle	BRT Masooli-Kagoma-Matugga (along Bombo Road)	Proposed	MoWT						251.2
PT-M15	Middle	BRT Namboole-Namugongo-Seeta	Proposed	MoWT						176.1
PT-M16	Middle	Water Transport, Port Bell - Ggaba - Kigungu (Entebbe), Katosi - Port Bell	Proposed	MoWT						270.0
PT-M17	High	MRT (Kyengera-Namungoona-Bujuko-Kakiri) (along Expressway R4)	Proposed	MoWT						1,861.9
PT-M18	High	LRT (Kampala-Kajjansi Metropolitan Centre)	Proposed	MoWT						552.0
PT-L1	Middle	LRT (Kajjansi Metropolitan Centre – Entebbe Airport)	Proposed	MoWT						900.0
PT-L2	Middle	Heavy Rail - Outer Beltway Ring Road, Along 1st Outer Belt Expressway (Kampala Freight Rail Bypass)	Proposed	MoWT						841.5
PT-L3	Middle	BRT Busega-Buloba (along Fort Portal Road)	Proposed	MoWT						395.2
PT-L4	Middle	BRT CBD-Bombo (Along Bombo Expressway) Dedicated Lane	Proposed	MoWT						582.3
No	**Priority**	**Nonmotorised transport Subsector**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
NM-S1	High	NMT Corridor Project	On-going	KCCA						366.3

Source: JICA Expert Team

16.5 List of Priority Projects for Infrastructure Sectors

The Infrastructure Sectors include water supply, sewerage, drainage, power supply, ICT and solid waste management. Table 16.5.1 contains priority projects identified by sector.

Table 16.5.1 List of Priority Projects of Infrastructure Sectors

No	**Priority**	**Water Supply Sector**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
WS-01	High	Kampala Water Lake Victoria Water and Sanitation Project	On-going	NWSC						225
WS-02	High	Wakiso West Water and Sanitation Project	On-going	NWSC						195
WS-03	High	Development of Water Supply System Piped from Deep Groundwater and Surface Water in Short and Medium-Term	Proposed	NWSC						85

WS-04	High	Establishment of Water Supply System Piped from WTP for Suburban Areas in South-West Wakiso and East Mpigi	Proposed	MoWE						330
WS-05	High	Establishment of Water Supply System Piped from WTP for Suburban Areas in Mukono	Proposed	NWSC						377
WS-06	Middle	Establishment of Water Supply System Piped from WTP for Suburban Areas in North Mpigi, North-Wakiso and North Mukono	Proposed	NWSC						205
WS-07	High	Connecting Primary Pipelines with Secondary and Tertiary Pipelines by NWSC Branch	Proposed	NWSC						-

No	Priority	Sewerage Sector	Status	Organizations in Charge	Schedule					Cost (million USD)
					Phase1	Phase2	Phase3	Phase4	Phase5	
WW-01	High	Project for Rehabilitation of Existing Sewer Network in Kampala Capital City	Proposed	MoEW MKCC&MA						--
WW-02	High	Project for Implementation of Nalukolongo Wastewater Treatment Plant and Faecal Sludge Treatment Plan	On-going	District Local Governments						--
WW-03	High	Project for Sewer Network Densification in Kampala Capital City	Proposed							-
WW-04	High	Project for Implementation of Ssumbwe Wastewater Treatment Plant and Ssumbwe Faecal Sludge Treatment Plant	Proposed							-
WW-05	High	Project for Implementation of Namanve Wastewater Treatment Plant	Proposed							-
WW-07	High	Project for Implementation of Mukono Faecal Sludge Treatment Plant	On-going							-
WW-08	Middle	Project for Implementation of Kajjansi Faecal Sludge Treatment Plant	Proposed							-
WW-09	Middle	Project for Implementation of Nansana Faecal Sludge Treatment Plant	Proposed							-
WW-10	Middle	Project for Implementation of Kira Faecal Sludge Treatment Plant	On-going							-
WW-11	Middle	Project for Formulation of Sanitation Implementation Plans for Metropolitan Centres in GKUGA (Including review and Update of sanitation plan prepared by Support to Rural Towns Water and Sanitation Project for Mukono Town and Seeta Urban Centre)	Proposed							-
WW-14	Middle	Project for Upgrading Lubigi Wastewater Treatment Plant	Proposed							-
WW-15	Middle	Project for Implementation of Entebbe Wastewater Treatment Plant	Proposed							-
WW-16	Middle	Project for Implementation of Mukono Wastewater Treatment Plant	Proposed							-
WW-17	Middle	Project for Implementation of Kajjansi Wastewater Treatment Plant	Proposed							-
WW-18	Middle	Project for Implementation of Nsangi Wastewater Treatment Plant	Proposed							-
WW-19	Middle	Project for Implementation of Wakiso Wastewater Treatment Plant	Proposed							-
WW-20	Middle	Project for Implementation of Makindye Wastewater Treatment Plant	Proposed							-

WW-23	Middle	Project for Upgrade of Nakivubo Wastewater Treatment Plant	Proposed							-
No	**Priority**	**Drainage Sector**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
DR-01	High	Capacity Development for Collecting and Measuring Drainage-Related Data and Formulation of Drainage Master Plan for GKUGA	Proposed	MoEW MKCC&MA						3.0
DR-02	High	Improvement of Basic Drainage Facilities in GKUGA outside KCC	Proposed	District Local Governments						10.0-
DR-03	High	Strengthening of Institutional Capacity for Drainage Sector for GKUGA outside KCC	Proposed	MoPS						3.0-
DR-04	High	Continued Implementation of Projects Identified by Kampala Drainage Master Plan for Kampala Capital City	On-going	KCCA						-
No	**Priority**	**Power Supply Subsector**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
PS-01	High	Construction of 33/11kV Nantabulirwa D/S with Connected 33kV Incomers (for Namanve Secondary Urban Centre of GKUGA)	Proposed	The Uganda Electricity Distribution Company Limited (UEDCL)						366.3
PS-02	Middle	Construction of 33/11kV Mpigi Substation and 33kV Incomers (for Mpigi Suburban Centre of GKUGA)	Proposed	UEDCL						172.4
PS-03	Middle	Construction of Nakasamba D/S and Connected 33kV Incomers for Entebbe Area (for Entebbe Secondary Urban Centre of GKUGA)	Proposed	UEDCL						270.9
PW-04	High	Construction of Bwebajja D/S and Connected 33kV Incomers for Bwebajja Area (for Kajjansi Metropolitan Centre of GKUGA)	Proposed	UEDCL						184.7
PS-05	High	Construction of Kigo D/S and Connected 33kV Incomers (for Kajjansi Metropolitan Centre of GKUGA)	Proposed	UEDCL						7.0
PS-06	High	Upgrading of Kakiri D/S and New Construction of 33kV Incomer from Kawaala T/S to Kakiri D/S (in Northwest Area of GKUGA)	Proposed	UEDCL						6.2
PS-07	Middle	Load Shifting from Kampala North T/S & Muutndwe T/S to Upgraded Kawaala T/S (in Central Area of GKUGA)	Proposed	UEDCL						9.6
No	**Priority**	**ICT Sector**	**Status**	**Organizations in Charge**	**Schedule**					**Cost (million USD)**
					Phase1	**Phase2**	**Phase3**	**Phase4**	**Phase5**	
IT-01	High	Expansion of Wi-Fi Hotspots	On-going	Wi-Fi Service Providers						3.0
IT-02	High	Smartphone Application Easy Access of Citizens' Service	On-going (only KCCA)	MDAs, Local Governments						0.2
IT-03	High	Smartphone Application for Problem Reporting by the Citizens	Proposed	MDAs, Local Governments						0.2

IT-04	High	Cashless Payment for Public Transport	Proposed	Public Transport Companies						3.0
IT-05	Middle	Revenue Monitoring System	On-going (only KCCA)	Local Governments						0.3
IT-06	Middle	Establishment of Start-up Support Centre	Proposed	Ministry of Trade, Industry and Cooperatives						1.2
IT-07	High	Strengthening Online Learning Platform	On-going	National Information Technology (NITA-U) Ministry of Education						1.2
IT-08	Middle	Establishment of a Resource Centre	Proposed	NITA-U						1.2
IT-09	High	Establishment of Mini/Cottage ICT industry	Proposed	Ministry of Trade, Industry and Cooperatives						0.6

No	Priority	Solid Waste Sector	Status	Organizations in Charge	Schedule					Cost (million USD)
					Phase1	Phase2	Phase3	Phase4	Phase5	
SW-01	High	Formulation of Master Plan for Solid Waste Management System for GKUGA	Proposed	NPA, MKCC&MA, MoLG, MoEW, KCCA, Wakiso District, Mukono District, Mpigi District						1.0
SW-02	High	Capacity Development of Local Governments in Solid Waste Management System and Implementation of Master Plan for Solid Waste Management System	Proposed	NPA, MKCC&MA, MoLG, MoEW, KCCA, Wakiso District, Mukono District, Mpigi District						2.0
SW-03	High	Kampala Waste PPP Project: Ddundu landfill + Kiteezi TS and Waste Diversion Facility for KCC	On-going	KCCA, Wakiso District, Mukono District						2025-2030: 60.6 2031-2040: 112.1 2041-2050: 131.4
SW-04	Middle	Establishment of Transfer Station and Waste Diversion Facility for Mukono Metropolitan Centre	Proposed	Mukono District, Mukono Municipality						2025-2030: 5.44 2031-2040:23.09 2041-2050:60.7
SW-05	High	Establishment of Sanitary Landfill for East GKUGA	Proposed	Mukono District, Mukono Municipality						2025-2030: 1.48 2031-2040: 5.61 2041-2050: 16.12
SW-06	Middle	Establishment of Transfer Station and Waste Diversion Facility for Gayaza-Kasangati Metropolitan Centre	Proposed	Wakiso District, Kasangati Town						2025-2030: 2.73 2031-2040:14.16 2041-2050: 36.85
SW-07	Middle	Establishment of Transfer Station and Waste Diversion Facility for Matugga Metropolitan Centre	Proposed	Wakiso District, Nansana Municipality						2025-2030: 2.05 2031-2040:8.01 2041-2050:18.96

SW-08	Middle	Establishment of Transfer Station and Waste Diversion Facility for Wakiso Metropolitan Centre	Proposed	Wakiso District, Wakiso Town						2025-2030: 3.01 2031-2040: 14.39 2041-2050: 40.04
SW-09	High	Establishment of New Sanitary Landfill Disposal Site for Northwest GKUGA	Proposed	Wakiso District						2025-2030: 2.10 2031-2040: 8.90 2041-2050: 25.39
SW-10	Middle	Establishment of Transfer Station and Waste Diversion Facility for Nsangi-Nakirebe Metropolitan Centre	Proposed	Wakiso District, Kyengera Town						2025-2030:4.51 2031-2040:21.80 2041-2050:58.65
SW-11	Middle	Establishment of Transfer Station and Waste Diversion Facility for Kajjansi Metropolitan Centre	Proposed	Wakiso District, Kajjansi Town						2025-2030: 5.53 2031-2040:22.18 2041-2050:53.83
SW-12	High	Establishment of New Sanitary Landfill Disposal Site for Southwest GKUGA	Proposed	Wakiso District, Mpigi District						2025-2030: 2.71 2031-2040: 10.51 2041-2050: 59.64

Note: The cost for SW-03 to SW-12 are capital costs and O&M cost are not included.
Source: JICA Expert Team

Chapter 17 Profiles of Priority Projects in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City

17.1 Profiles of Priority Projects for Urban Development

17.1.1 Project for Capacity Development in Implementation of GKMA Integrated Urban Development Master Plan [UD-01]

(1) Rational

By the middle of year 2024, the Integrated Urban Development Master Plan for GKMA will be finaliesd and hopefully approved by appropriate government authorities. After the approval, it is time for a variety of local governments and MDAs to utilise the master plan and monitor the results of using the master plan.

In order to use the master plan, certain types of knowledges and skills are required. The master plan is multi-sectoral one, containing new initiatives. It is necessary for concerned local government officers and MDA officers to learn the knowledge and skills and at the same time, to try to use such knowledge and skills for actual improvement of the urban situations in GKUGA. Therefore, training for concerned government officers need to be trained through lectures and exercises, but also conducting pilot projects in real settings.

(2) Objectives

- To enhance the capacity of local government officers, as well as MDA officers in understanding and utilising the master plan for sustainable urban development
- To enhance the capacity of local government officers in GKMA in formulating local-level detailed physical development plans (PDPs) in urban centres proposed by the master plan for promoting polycentric urban spatial structure of GKUGA
- To acquire the capacity of concerned government officers in improving public transportation situations by implementing experimental operation in selected areas
- To strengthen the capacity of local government officers and concerned MDA officers in implementing the enforcement activities against encroachment into wetlands by using the detailed PDPs and other available regulations on wetlands
- To improve the capacity of local government officers and concerned MDA officers in preventing the growth of emerging slums in suburban areas outside Kampala Capital City

(3) Project Description

Project for Capacity Development in Implementation of GKMA Integrated Urban Development Master Plan is to have the following components:

- Component 1: Enhancement of the Capacity for Coordination and Collaboration (through Activities of Technical Coordination Committee)
- Component 2: Enhancement of the Capacity for Formulation of Detailed Physical Development Plans (PDPs) for Metropolitan Centres (Kajjansi Metropolitan Centre, Mukono Metropolitan Centre, and Wakiso Metropolitan Centre), as well as Secondary Urban Centres (Luzira-Port Bell Secondary Urban Centre, Namanve Secondary Urban Centre and

Entebbe-Katabi Secondary Urban Centre)

- Component 3: Enhancement of the Capacity for Introducing BRT Operation on Expressways (including Pilot Projects) including Coordination with ongoing BRT Pilot Project
- Component 4: Enhancement of the Capacity for Identification of Areas of Emerging Slums and Action Planning for Prevention of Growth of Emerging Slums (including Pilot Projects)
- Component 5: Enhancement of the Capacity for Enforcement of Development Control for Wetlands (District Office, Sub County Office in Wakiso, Mukono and Mpigi)

Capacity development activities will be organised by providing lectures to trainees but also by conducting hands-on pilot activities in real settings.

The formulated local-level detailed PDPs for urban centres will be used for implementing various infrastructure and service development.

The BRT operation on expressways will be experimented on Busega-Mpigi Expressway under the coordination of Ministry of Works and Transport and Mpigi District, Wakiso District and KCCA.

(4) Expected Benefits

The project will attract more investment and technical support to the effort of promoting the implementation of various priority projects in the master plan.

The project will increase the number of job opportunities, commercial facilities and service providers in targeted urban centres, so that local residents could rely not only on nearby urban centres for getting commercial facilities and service providers, but also on getting job opportunities.

The project will promote the betterment of the quality of life in terms of less dependence on the urban core of Kampala, utilisation of convenient and comfortable public transportation (BRT) in GKUGA.

The project will reduce the risk of growing slums near urban centres outside the Kampala Capital City within GKUGA.

The project will reduce the risk of encroachment of people and businesses into wetlands near urban centers near urban centres outside Kampala Capital City

(5) Executing Agency and Related Institute

- Ministry of Kampala Capital City & Metropolitan Affairs (Leader)
- Ministry of Lands, Housing and Urban Development (Co-Leader)
- Ministry of Works and Transport
- Ministry of Water and Environment
- Kampala Capital City Authority (KCCA)
- Mukono District Local Government
- Wakiso District Local Government
- Mpigi District Local Government
- Other Related Municipalities

(6) Estimated Project Cost

3.0 million USD

(7) Implementation Schedule

2025-2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Approval of the GKMA-IUDMP by National Physical Planning Board
- Approval of the GKMA-IUDMP by the Cabinet of Ugandan Government
- Continued activities of Technical Coordination Committee for promoting the implementation of the GKMA-IUDMP

(9) Related Plans and Projects

- World Bank Supported "GKMA Urban Development Programme"

(10) Social and Environmental Impacts

The following social impacts could arise:

- Potential impacts on affected communities by promotion of urban centre development

The following environmental impacts could arise:

- Potential impacts on nearby water sources by urban centre development

17.1.2 Programme for Urban Centre Development in Greater Kampala Urban Growth Area (GKUGA) : Combining [UD-02][UD-03][UD-04][UD-07][UD-15]

(1) Rational

In accordance with a road map shown by the Integrated Urban Development Master Plan for GKMA, concerned government officers (local governments and MDA officers) related to GKMA need obtain necessary knowledge and skills for implementing various actions and projects proposed by the master plan. At the same time, to increase the impact of using the master plan, it is necessary to implement relatively larger scale of projects including capital investment. This programme is composed of different types of projects to realise the development of urban centers and eventually leading to the formation of polycentric urban spatial structure.

By 2040, the GKUGA will reach 10 million population. Then it would become very difficult for the GKUGA to maintain comfortable social life activities and efficient economic activities without proper intervention in the formation of urban centres outside the Kampala Capital City.

It is necessary to implement effective and substantial interventions in promotion of urban centre development outside the Kampala Capital City for the formulation of polycentric urban spatial structure in the GKUGA.

(2) Objectives

- To embark on the development of urban centrs, especially metropolitan centres and secondary urban centres, and CBD expansion in GKUGA

(3) Project Description

This Urban Centre Development Programme has target urban centres and target components of intervention.

1) Target Urban Centres

The target urban centres of this programme are two kinds. The ones are Secondary Urban Centres. The others are Metropolitan Centres. In the first phase of this programme, the following Secondary Urban Centres and Metropolitan Centres are targeted:

Secondary Urban Centre: Busega-Kyengera Secondary Urban Centre

Metropolitan Centres: Kajjansi Metropoitan Centre, Mukono Metropolitan Centre, and Wakiso Metroplitan Centre

2) Target Components

This programme has the following seven target components of interventions:

- Component 1: Formulation of a Detailed PDP for Urban Centre Areas
- Component 2: Local Roads and Drainage Facilities Development for Urban Centre Areas
- Component 3: Multi-Modal Terminal Development Integrating Taxi Park, BRT Station and Other Modes' Stations in Urban Centre Areas
- Component 4: Commercial Centre Development in combination with the Multi-Modal Terminal (PPP)P) in Urban Centre Areas
- Component 5: Development of Open Space and Pedestrian Ways in Urban Centre Areas
- Component 6: Provision of Basic Infrastructure for Preventing the Growth of Emerging Slums in and around Urba Centre Areass
- Component 7: Other Environmental Management Matters

(4) Expected Benefits

The project will increase the number of job opportunities, commercial facilities and service providers in targeted urban centres, so that local residents could rely not only on nearby urban centres for getting commercial facilities and service providers, but also on getting job opportunities.

The project will promote the betterment of the quality of life in terms of less dependence on the urban core of Kampala, utilisation of convenient and comfortable public transportation (BRT) in GKUGA.

(5) Executing Agency and Related Institute

- Ministry of Kampala Capital City & Metropolitan Affairs (Leader)
- Ministry of Works and Transport (Co-Leader)
- Ministry of Lands, Housing and Urban Development (Co-Leader)
- Ministry of Water and Environment
- Kampala Capital City Authority (KCCA)
- Mukono District Local Government
- Wakiso District Local Government
- Mpigi District Local Government
- Other Related Municipalities

(6) Estimated Project Cost

36.0~50.0 million USD

(7) Implementation Schedule

2026-2031 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Design and plan local road betterment and new construction
- Acquire necessary land and relocate affected utilities.

(9) Related Plans and Projects

- World Bank Supported "GKMA Urban Development Programme"

(10) Social and Environmental Impacts

The following social impacts could arise:

- Potential impacts on affected communities by promotion of urban centre development

The following environmental impacts could arise:

- Potential impacts on nearby water sources by urban centre development

17.2 Profiles of Priority Projects for Transport Sector

17.2.1 Project for Capacity Improvement and Signalisation of Kampala – Gayaza Road [RD-S1]

(1) Rational

The Project for capacity improvement and signalisation of Kampala-Gayaza Road aims to enhance the road's infrastructure and traffic management systems, addressing increased traffic volume, capacity enhancement, improved safety, efficient traffic management, economic benefits, environmental considerations, and social benefits. By widening the road, adding lanes, and installing a signalization system, the project will reduce congestion and travel times, minimize accidents, and prioritize pedestrian and public transport movements. The project will also promote economic growth, mitigate environmental impacts, and improve access to social services, education, and employment opportunities, ultimately creating a safer, more efficient, and sustainable transportation system that supports the region's development.

(2) Objectives

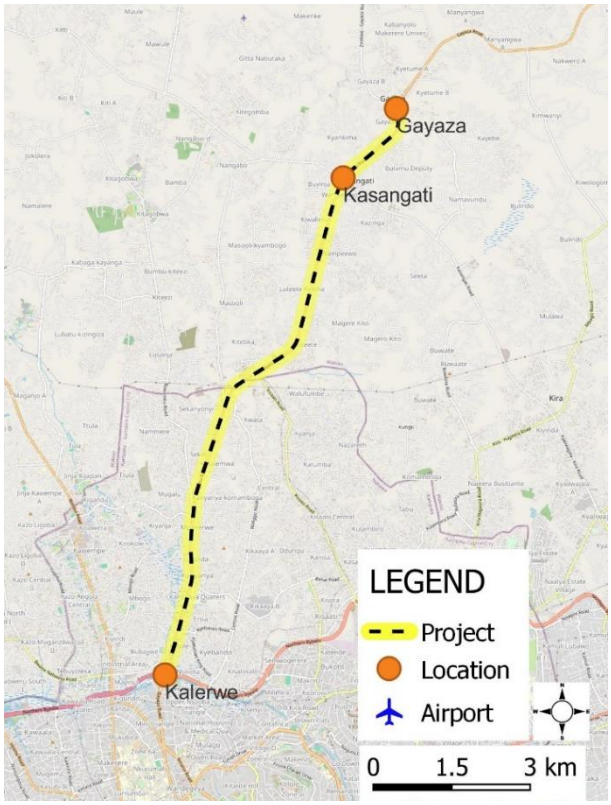
- To enhance the road's capacity to accommodate the growing traffic volume, reducing congestion and travel times.
- To enhance safety features to minimize accidents, ensuring a safer environment for all road users, including pedestrians, cyclists, and motorists.
- To implement an intelligent signalization system to regulate traffic flow, prioritize pedestrian and public transport movements, and reduce conflicts between different road users.
- To reduce travel times and improve journey reliability, making the road more attractive for commuters, public transport, and freight operators.
- To facilitate economic development by improving connectivity, enhancing trade, and promoting business growth in the region.
- To incorporate environmental mitigation measures to minimize the impact on surrounding ecosystems and communities.
- To improve access to social services, education, and employment opportunities, enhancing the overall quality of life for residents and commuters.
- To enhance pedestrian and cyclist facilities, promoting a more inclusive and sustainable transportation system.

(3) Project Description

The project for Capacity Improvement and Signalisation of Kampala-Gayaza Road aims to upgrade and enhance the existing road infrastructure to address growing traffic demands, improve safety, and promote economic growth.

The target road is as shown in Figure 17.2.1 with the total length of 15km.

The project involves: Widening the road from 2 to 4 lanes, installing an intelligent signalization system, constructing pedestrian and cyclist infrastructure, enhancing safety features and implementing environmental mitigation measures and Improving drainage and utility services.



Source: JICA Expert Team

Figure 17.2.1 Project Location of the Project for Capacity Improvement and Signalisation of Kampala – Gayaza Road [RD-S1]

(4) Expected Benefits

The project will reduce congestion, travel times, and accidents, while increasing capacity, safety of both car users and NMT users, and economic opportunities, ultimately enhancing the overall quality of life for commuters and residents.

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

18.0 million USD

(7) Implementation Schedule

2024-2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Design and plan the road widening and signalization system.
- Acquire necessary land and relocate affected utilities.
- Construct new lanes, pedestrian, and cyclist infrastructure.
- Install intelligent signalization systems and safety features.

- Implement environmental mitigation measures.
- Coordinate with stakeholders, including local communities and businesses.
- Ensure adequate funding and resource allocation.
- Establish a robust project management and monitoring system.
- Conduct regular maintenance and evaluation.
- Ensuring synergy with existing infrastructure and future development plans.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- Potential impacts on affected communities with displacement.
- Increased traffic noise.
- Potential increase in air pollution.

The following environmental impacts could arise:

- Potential increase in air pollution.
- Increased traffic noise.
- Potential impacts on nearby water sources.
- Acquisition of land and potential displacement of natural habitats.
- Potential increase in greenhouse gas emissions.

17.2.2 Project for Capacity Improvement and Signalisation of Kampala – Buloba Road [RD-S2]

(1) Rational

The Project for Capacity Improvement and Signalisation of Kampala-Buloba Road is a crucial transportation infrastructure development that aims to address the growing traffic demands, safety concerns, and economic importance of the route. With a significant increase in traffic volume, poor road design, and inadequate safety features, the road has become a concern for the users. The project will widen the road, improve safety features, and install an intelligent signalization system, reducing travel times, congestion, and accidents, while enhancing mobility and accessibility for all road users. By incorporating green technologies and sustainable practices, the project will mitigate environmental impacts, ensuring a safer, more efficient and sustainable transportation system that supports urbanization, economic development, and long-term sustainability.

(2) Objectives

- To increase the road's capacity to accommodate growing traffic demands, reducing congestion and travel times.
- To improve road safety by enhancing safety features, reducing accident rates, and minimizing risks to all road users.
- To enhance mobility and accessibility for all road users, including pedestrians, cyclists, and public transport users.
- To reduce travel times and delays, making the road more efficient and attractive for commuters and businesses.
- To support economic growth and development in the region by improving connectivity and

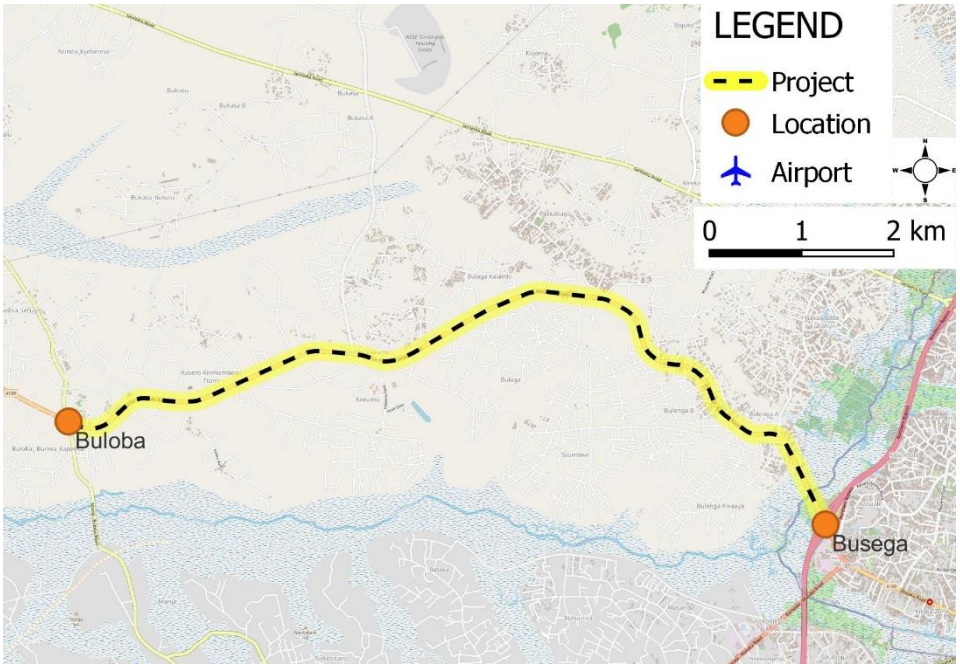
facilitating trade.

- To mitigate environmental impacts by incorporating green technologies and sustainable practices.

(3) Project Description

The Project for Capacity Improvement and Signalisation of Kampala-Buloba Road is a vital transportation infrastructure upgrade aimed at enhancing the safety, efficiency, and sustainability of the critical Kampala-Buloba route. The target road section is as shown in Figure 17.2.2 with a length of 12km.

The project includes widening the road, installing an intelligent signalisation system, and constructing pedestrian and cyclist infrastructure.



Source: JICA Expert Team

Figure 17.2.2 Project Location of the Capacity Improvement and Signalisation of Kampala – Buloba Road [RD-S2]

(4) Expected Benefits

The project will significantly reduce congestion and travel times, minimize accidents, and promote economic growth and development in the region. There will be increase in business and employment opportunities. With a focus on environmental sustainability, the project incorporates green technologies and pollution reduction measures, ensuring a safer and more efficient transportation system for users. Upon completion, the project will support the country's rapid urbanization and economic development while improving the overall quality of life for citizens.

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

15.0 million USD

(7) Implementation Schedule

2024-2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Design and plan the road widening and signalisation system.
- Acquire necessary land and relocate affected utilities.
- Construct new lanes, pedestrian, and cyclist infrastructure.
- Install intelligent signalisation systems and safety features.
- Implement environmental mitigation measures.
- Coordinate with stakeholders, including local communities and businesses.
- Ensure adequate funding and resource allocation.
- Establish a robust project management and monitoring system.
- Ensuring synergy with existing infrastructure and future development plans.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- Potential impacts on affected communities.
- Increased traffic noise.
- Potential increase in air pollution.

The following environmental impacts could arise:

- Potential increase in air pollution.
- Increased traffic noise.
- Potential impacts on nearby water sources.
- Acquisition of land and potential displacement of natural habitats.

17.2.3 Project for Implementation of Kibuye-Busega Expressway [RD-S9]

(1) Rational

The construction of the Kibuye-Busega Expressway is a crucial infrastructure project that will revolutionize the connectivity and development of the primary urban centres/CBD of Kampala, as well as the secondary urban centre of Busega-Kyengera, Nsangi Metropolitan Centre, Kiringente Suburban Centre, Mpigi Suburban Centre, Buwama Service Centre, Bujuko Suburban Centre and Zana Urban Sub-Centre. By providing a high-speed transportation link between these urban centres, the expressway will enhance economic opportunities, reduce travel time, and improve the quality of life for residents. The project will also support urbanization, promote regional integration, and create jobs while incorporating safety features and environmental considerations. The expressway will also improve access to the primary urban centre/CBD, making it easier for people to access amenities, services, and opportunities, and strengthening its position as the economic and commercial hub of the region.

(2) Objectives

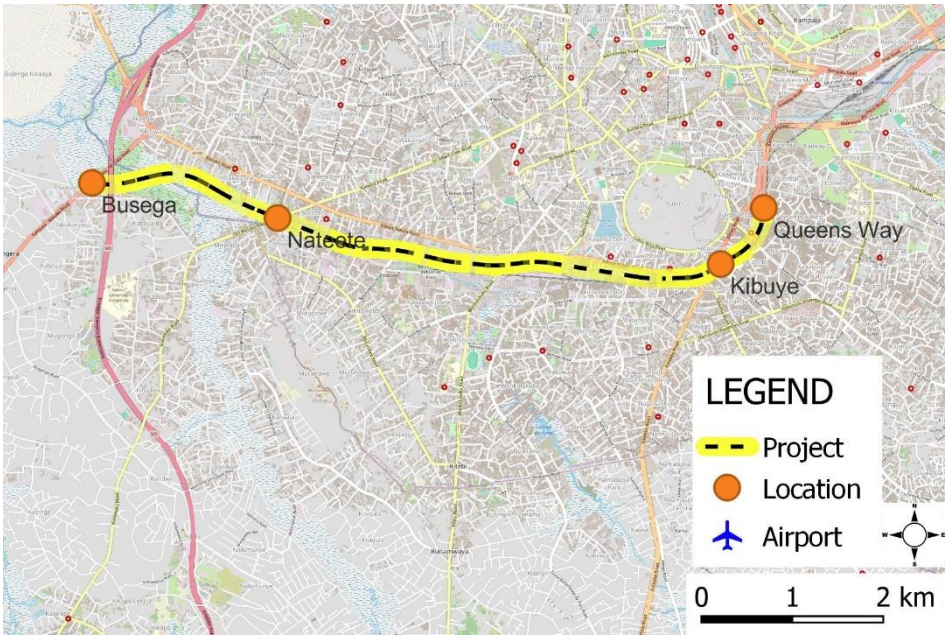
- To ease the flow of traffic in the metropolitan areas by connecting the CBD to the expressways of Busega Mpigi, Kampala – Entebbe and Kampala Northern Bypass hence reducing traffic congestion.
- To facilitate trade and commerce by providing a faster and more efficient route for goods and services.
- To reduce travel time allowing people to spend more time on productive activities.

- To contribute to economic growth by providing a modern and efficient transportation infrastructure.

(3) Project Description

The Kibuye-Busega Expressway is a project that will connect Kampala Capital City and the surrounding suburbs to a network of expressways at Busega Roundabout. (See Figure 17.2.3.) The length of the expressway is 8km along Masaka Road and is designed with a dual carriageway.

The implementing institutions are still soliciting a funder.



Source: JICA Expert Team

Figure 17.2.3 Project Location of Kibuye-Busega Expressway [RD-S9]

(4) Expected Benefit

The project is intended to ease traffic flow and reduce the usually heavy traffic through the metropolitan areas along the Kampala - Masaka routes.

The following benefits are also expected:

- The project may create jobs and stimulate local economic growth.
- The expressway will enhance connectivity and accessibility for residents, businesses, and services.
- Property values may increase due to improved infrastructure and connectivity.
- The expressway may reduce travel time, improving the quality of life for commuters.
- The expressway may reduce congestion and emissions from vehicles, improving air quality.
- Proper waste management and disposal practices may be implemented during construction and operation.
- The project may lead to increased environmental monitoring and awareness.

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

229.0 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Government commitment and support are crucial for the project's success.
- Thorough planning and design are necessary to ensure a safe, efficient, and sustainable expressway.
- Fair and transparent land acquisition and resettlement processes are critical for affected communities.
- Securing sufficient funding from government, private investors, or international agencies is vital.
- Identifying and addressing potential environmental impacts is essential.
- Open communication and engagement with affected communities and stakeholders are crucial.
- Ensuring high-quality construction and materials is vital for the expressway's durability and safety.
- Implementing effective traffic management and safety measures is critical during construction and operation.
- Regular monitoring and evaluation are necessary to assess the project's progress, impact, and performance.
- Effective collaboration among government agencies, contractors, and stakeholders is essential.
- Leveraging modern technologies, such as intelligent transportation systems, can enhance the expressway's efficiency and safety.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- Affected communities may be displaced, requiring fair resettlement and compensation.
- Noise pollution from the expressway may affect nearby residents' health and quality of life.
- Construction may disrupt community activities and social structures.

The following environmental impacts could arise:

- The project may disrupt natural habitats and lead to biodiversity loss.
- Construction and traffic may generate air and noise pollution.
- Construction and runoff may contaminate nearby water sources.
- The project may contribute to greenhouse gas emissions and climate change.

17.2.4 Project for Implementation of VVIP Expressway (Nakasero-Northern Bypass Expressway) [RD-S12]

(1) Rational

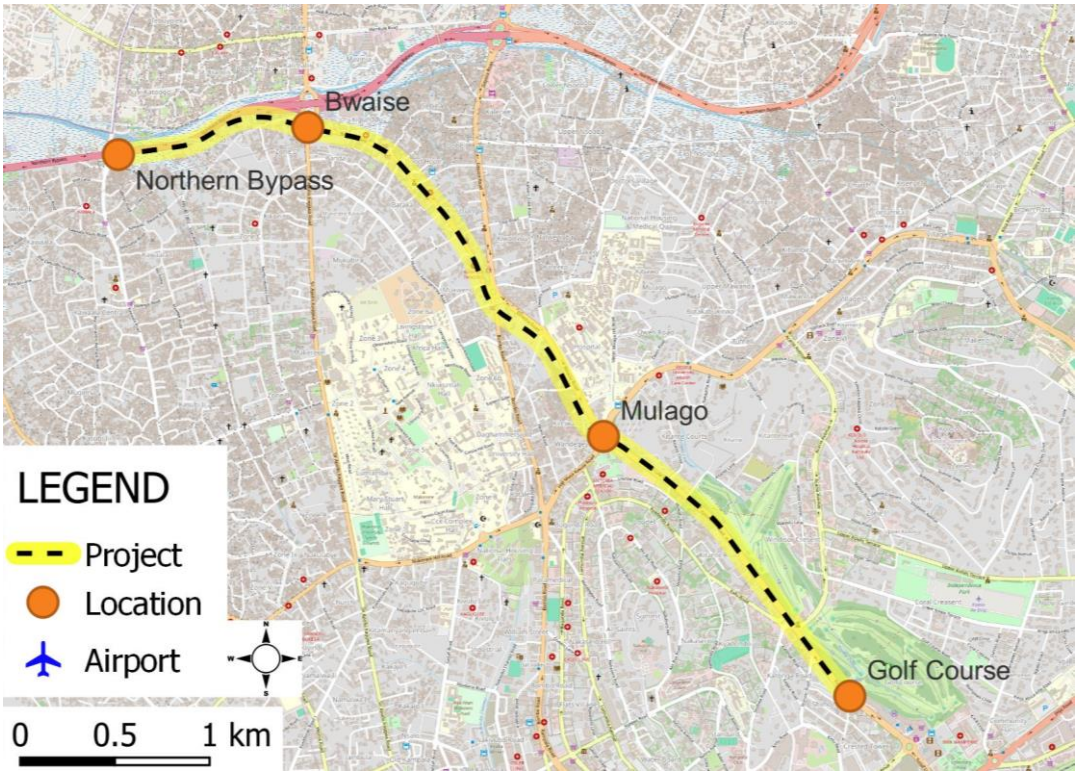
The project's rationale is to alleviate congestion in Kampala city towards the North. The Nakasero-Northern Bypass Expressway, also known as the VVIP Expressway, is a planned road project that aims to connect the primary urban centres in Kampala to the Nansana Urban Sub-Centre, Kawempe Urban Sub-Centre, Wakiso Metropolitan Centre, Matugga Metropolitan Centre, Gayaza Metropolitan Centre, Kakiri Suburban Centre and Migadde Suburban Centre. The expressway also can be utilized for the bus on expressway which strategically serves the north-south passenger movement of the CBD.

(2) Objectives

- To reduce traffic congestion in Kampala by providing an alternative route to the city centre.
- To reduce travel time for commuters travelling from the northern parts of the city to the city centre.
- To stimulate trade and economic development by providing a faster and more efficient route for goods and services.
- To enhance regional integration by providing a faster and more efficient route for goods and services between Kampala and other regional cities.

(3) Project Description

The VVIP Expressway in Kampala, also known as the Nakasero-Northern Bypass Express Route, is a planned expressway that will start at Garden City Roundabout along Yusuf Lule Road and connect through Fairway junction to Mulago then Northern Bypass at Bwaise. (See Figure 17.2.4.) The expressway is a four-lane road with a total length of 5km.



Source: JICA Expert Team

Figure 17.2.4 VIP Expressway (Nakasero-Northern Bypass Expressway) [RD-S12]

The project's design is completed, and it is awaiting funding.

(4) Expected Benefits

The following benefits are expected:

- Improved connectivity and accessibility to key destinations.
- Enhanced economic growth and development through increased mobility and trade.
- Creation of jobs and stimulation of local businesses.
- Reduced travel times and increased productivity.
- Improved safety and reduced congestion on existing roads.
- Elevated structures to reduce environmental negative impacts.

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

200.0 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Secure funding and financing arrangements.
- Acquire necessary land and properties.
- Obtain necessary permits and approvals.
- Install intelligent transportation systems (ITS) for monitoring and management.
- Conduct public awareness and stakeholder engagement campaigns.
- Political will and government support.
- Environmental and social impact considerations.
- Long-term maintenance and sustainability plans.

(9) Related Plans and Projects

- BRT – CBD – Portbell [PT-M5]

(10) Social and Environmental Impacts

The following social impacts could arise:

- Displacement of communities and businesses due to land acquisition.
- Increased air and noise pollution from vehicle emissions.
- Impact on traditional livelihoods and cultural heritage through relocations and displacement.

The following environmental impacts could arise:

- Loss of natural habitats and biodiversity due to land acquisition.
- Increased greenhouse gas emissions and contribution to climate change.
- Impact on local ecosystems and wildlife.

17.2.5 Project for Upgrading of Jokas-Namanve-Mukono Road [RD-S16]

(1) Rational

The upgraded Jokas-Namanve Road will serve as a strategic alternative route to the existing Jinja-Kampala Highway, from Bweyogerere through Namanve to Mukono Town offering a reliable and efficient option for commuters, freight transporters, and tourists. By alleviating traffic pressure on the main highway, the new route will reduce congestion and travel times, while also enhancing regional accessibility and promoting economic development. As a vital transportation artery, the upgraded road will ensure the region remains connected during road maintenance or disruptions, unlocking economic potential and supporting the growth of industries, agriculture, and tourism. This route will enhance connectivity of Primary Urban Centres to Namanve Secondary Urban Centre, Mukono Metropolitan Centre and Namataba Suburban Centre.

(2) Objectives

- To provide a strategic alternative route to the existing Jinja-Kampala highway.
- To offer a reliable and efficient transportation option for commuters, freight transporters, and tourists.
- To alleviate traffic pressure on the main highway and reduce congestion and travel times.
- To enhance regional accessibility and connectivity.
- To promote economic development and unlock economic potential.
- To support the growth of industries, especially in Namanve Industrial Park.
- To ensure the region remains connected during road maintenance or disruptions.
- To improve the overall quality of life for residents and users.

(3) Project Description

The Project for Upgrading of Jokas-Namanve Road aims to transform the existing road into a modern, efficient, and safe transportation artery, providing a strategic alternative route to the Mukono/Jinja-Kampala Highway. (See Figure 17.2.5.) The total length of the target road is 14km.

Source: JICA Expert Team

Figure 17.2.5 Project Location of Project for Upgrading of Jokas-Namanve-Mukono Road [RD-S16]

(4) Expected Benefits

The project will enhance regional connectivity, reduce travel times, and promote economic development, supporting the growth of industries, agriculture, and tourism in the region.

The following benefits are expected:

- The project will generate employment opportunities for residents.
- The upgraded road will enhance connectivity and access to social services, markets, and employment opportunities.
- Improved road conditions and reduced travel time will reduce the fuel cost of vehicles which leads to a reduction of CO_2 emissions from vehicles.

(5) Executing Agency and Related Institute

Uganda National Roads Authority and Ministry of Works and Transport

(6) Estimated Project Cost

13.0 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Have a detailed design and engineering study.
- Secure funding and financing arrangements.
- Acquire necessary land and properties.
- Upgrade existing infrastructure.
- Install safety features and traffic management systems.
- Implement efficient drainage and erosion control measures.
- Implement environmental and social impact mitigation measures.
- Political will and government support.
- Effective project management and coordination.
- Public engagement and stakeholder participation.
- Long-term maintenance and upkeep plans.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- Residents and businesses in the project area will be displaced or affected by the construction process.
- Construction and increased traffic may lead to higher noise levels along this road.

The following environmental impacts could arise:

- The project may affect the Namanve Wetland, potentially leading to habitat loss, biodiversity reduction, and water pollution.

17.2.6 Project for Uganda Railways Corporation Capacity Building [PT-S1]

(1) Rational

The Project for Uganda Railways Corporation Capacity Building is a strategic initiative aimed at enhancing the capacity and efficiency of the national railway network, thereby boosting economic growth, regional integration, and sustainable development. By upgrading infrastructure, improving safety standards, and developing staff skills, the project will increase cargo volume, reduce transportation costs, and enhance Uganda's competitiveness in the regional rail transport market.

This project will improve rail transport while linking the primary urban centres to Namanve Secondary Urban Centres Mukono Metropolitan Centre in the east direction and Luzira-Port Bell Secondary Urban Centre in the southeast direction and Busega-Kyengera Secondary Urban Centre in the west direction. It is expected that this improved rail transport will provide reliable urban transport connecting these urban centres. This project will also create new employment opportunities, generate government revenue, and contribute to environmental sustainability by reducing reliance on road transport.

The project is set to revolutionize the country's rail transport sector, positioning Uganda as a regional hub for trade and commerce. Ultimately, the project will play a vital role in supporting Uganda's economic development and regional integration, aligning with the East African Community's (EAC) goals and promoting sustainable development.

(2) Objectives

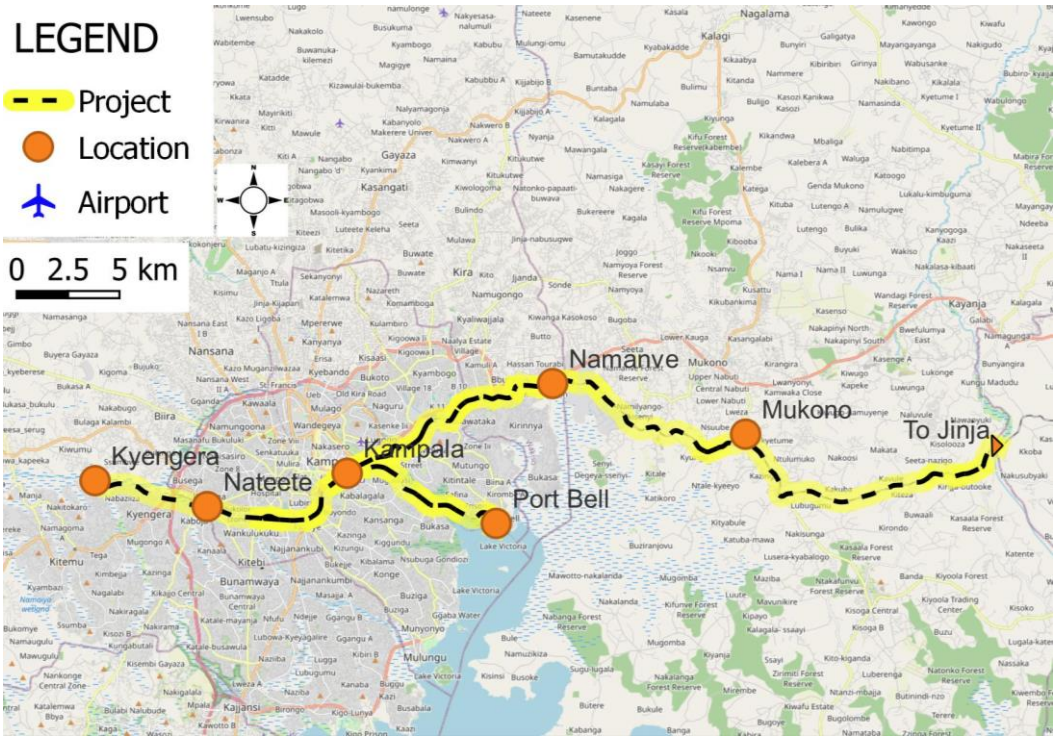
- To increase the capacity of Uganda Railways Corporation (URC) to handle cargo and passenger traffic.
- To improve the efficiency and effectiveness of URC's operations.
- To enhance the safety standards of URC's operations.
- To develop the skills and competencies of URC staff.
- To upgrade and modernize URC's infrastructure and equipment.
- To reduce transportation costs and increase competitiveness.
- To increase government revenue through increased cargo volumes and improved operational efficiency.
- To promote regional integration and trade through improved rail connectivity.

(3) Project Description

The Project for Uganda Railways Corporation Capacity Building is a comprehensive initiative aimed at transforming the national railway network into a modern, efficient, and safe transportation system.

The project entails the refurbishment of the Namanve - Kampala, Namanve – Tororo, Kampala - Port Bell and Kampala – Kyengera Railway line. The total length is 92km. (See Figure 17.2.6.)

The project will upgrade and modernize infrastructure, equipment, and human resources, increasing cargo handling capacity, improving safety standards, and reducing transportation costs.



Source: JICA Expert Team

Figure 17.2.6 Project Location of Railway Lines to be Uganda in the Project for Railways Corporation Capacity Building

(4) Expected Benefits

By providing sufficient and efficient urban public transport system, the transportation services and accessibility within GKUGA will be improved contributing to enhanced economic growth and development which can create employment opportunities.

By enhancing regional integration and trade, the project will promote economic growth, competitiveness, and customer satisfaction, ultimately contributing to Uganda's sustainable development.

(5) Executing Agency and Related Institute

- Uganda Railways Corporation
- Ministry of Works and Transport

(6) Estimated Project Cost

366.3 million US dollars

(7) Implementation Schedule

2024-2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Conduct a thorough needs assessment and feasibility study.
- Develop a comprehensive project plan and timeline.
- Establish a dedicated project management team.
- Secure funding and resources.
- Upgrade and modernize infrastructure (tracks, signals, bridges).
- Procure new rolling stock and equipment.

- Develop and implement a staff training and development program.
- Enhance safety standards and protocols.
- Implement efficient operating procedures and systems.
- Monitor and evaluate project progress and impact.
- Strong political will and support.
- Effective project management and coordination.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- Potential displacement of small-scale farmers and artisans

The following environmental impacts could arise:

- Disruption of natural water sources and drainage systems
- Potential destruction of natural habitats and ecosystems

17.2.7 Project for BRT-Pilots (CBD-Kajjansi, CBD-Mukono and CBD-Kasangati) [PT-S2], [PT-S3] and [PT-S4]

(1) Rational

The Bus Rapid Transit (BRT) system aims to provide efficient public transportation and reduce congestion in the GKMA with the BRT – Pilot 1, (CBD-Kajjansi) linking the Primary urban centres to the direction of Kajjansi Metropolitan Centre, Zana Urban Sub Centre and Munyonyo Urban Sub-centre, the BRT-Pilot 2 (CBD-Mukono) linking the Primary Urban Centres to Namanve Secondary Urban Centre, Kira Urban Sub centres and Mukono Metropolitan Centre, the BRT-Pilot 3 (CBD-Kasangati) linking the Primary Urban Centres to Kawempe Urban Sub-Centre and Matugga Metropolitan Centre.

(2) Objectives

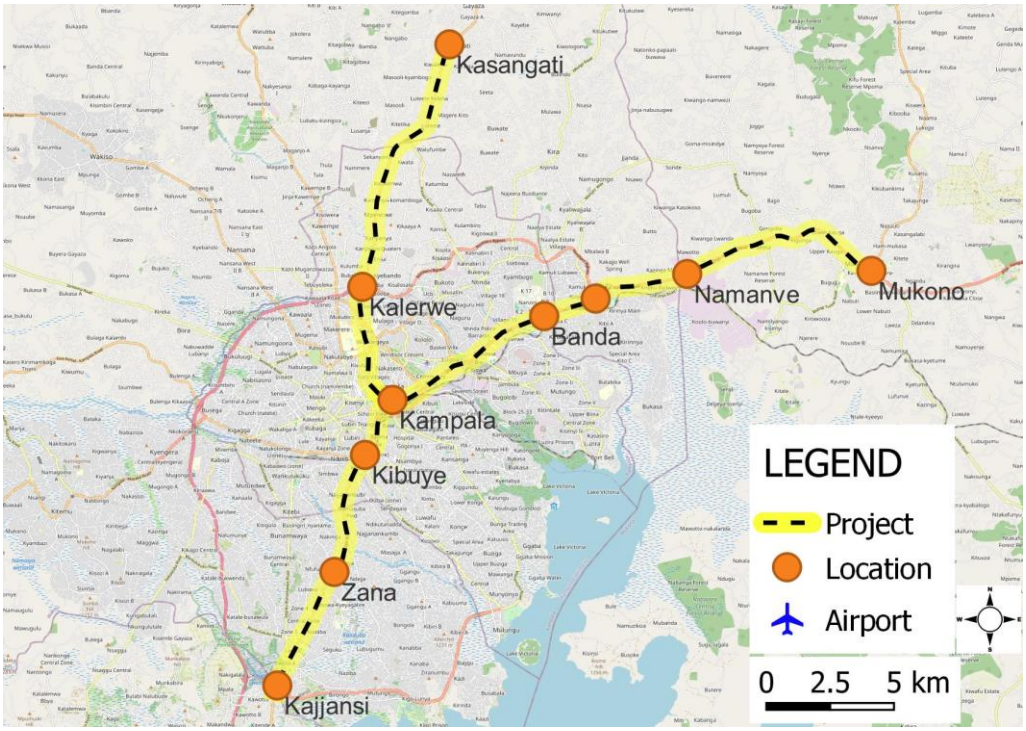
- To reduce carbon emissions and promote sustainable transportation in Kampala.
- To reduce traffic congestion in Kampala by providing an efficient and reliable public transportation system.
- To provide mass transportation to de-congest the city, at lower transport fares.
- To implement a pilot project to test the feasibility and effectiveness of the BRT system in Kampala.

(3) Project Description

The BRT system for Kampala City aims to alleviate congestion in the Greater Kampala Metropolitan Area (GKMA) by providing efficient public transportation and reducing congestion. The system will be designed to reflect current and expected travel needs in GKMA, with a detailed design update previously prepared in 2014. The government of Uganda has invited consultants to express interest in updating the detailed design of the BRT system, which will feature dedicated bus lanes, modern buses, and efficient payment systems.

The main objective of the BRT system is to provide a reliable, safe, and comfortable transportation service, reducing travel times while also promoting economic growth and development in the GKMA. 14km of the BRT only within the jurisdiction area of KCCA will be implemented during the pilot phase (Phase 1) with the phase considering the routes of Pilot 1

(CBD-Kajjansi), Pilot 2 (CBD-Mukono) and Pilot 3 (CBD-Kasangati). 42km of dedicated BRT is foreseen after the implementation of all four phases are implemented. (See Figure 17.2.7.)



Source:JICA Expert Team

Figure 17.2.7 Project Location for BRT-Pilots (CBD-Kajjansi, CBD-Mukono and CBD-Kasangati) [PT-S2], [PT-S3] and [PT-S4]

(4) Expected Benefits

The following benefits are expected:

- The BRT system will create new job opportunities and stimulate local economic growth.
- The BRT system will provide efficient public transportation, improving mobility and accessibility for residents, especially those with disabilities.
- The BRT system will reduce travel times and congestion, improving the overall quality of life for commuters.
- The BRT system will reduce noise pollution by promoting the use of modern and efficient buses.
- The BRT system will reduce greenhouse gas emissions by promoting the use of modern and efficient buses.

(5) Executing Agency and Related Institute

- Kampala Capital City Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

- BRT – Pilot (CBD-Kajansi) 172.4 million US dollars
- BRT – Pilot (CBD-Mukono) 270.9 million US dollars
- BRT – Pilot (CBD-Kasangati) 184.7 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Update the detailed design and planning of the BRT system to reflect current and expected travel needs in Kampala.
- Engage with stakeholders, including residents, businesses, and transport operators, to ensure a smooth implementation process.
- Establish a clear institutional framework for the management and operation of the BRT system.
- Secure sufficient funding and financing for the implementation and operation of the BRT system.
- Acquire the necessary land and relocate affected residents and businesses.
- Develop the necessary infrastructure, including bus lanes, stations, and depots.
- Procure modern and efficient buses for the BRT system.
- Implement an efficient payment system for the BRT system.
- Conduct public awareness and education campaigns to inform residents and transport operators about the BRT system.
- Regularly monitor and evaluate the implementation and operation of the BRT system to ensure its effectiveness.
- Build the capacity of the implementing agency and other stakeholders to manage and operate the BRT system effectively.
- Leverage technology and innovation to improve the efficiency and effectiveness of the BRT system.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- The BRT system may require the relocation of residents and businesses, potentially leading to displacement and social disruption.

17.2.8 Project for Implementation of Mixed Lane for BRT Kampala-Entebbe (along Expressway) [PT-S5]

(1) Rational

The Bus Rapid Transit (BRT) system aims to provide efficient public transportation with reduced travel time and reduce congestion along Kampala-Entebbe direction with the BRT – linking Busega – Kyengera Secondary Urban Centre and the Primary urban centres to Zana Urban Sub centre, Kajjansi Metropolitan Centre and Entebbe Secondary Urban Centre.

(2) Objectives

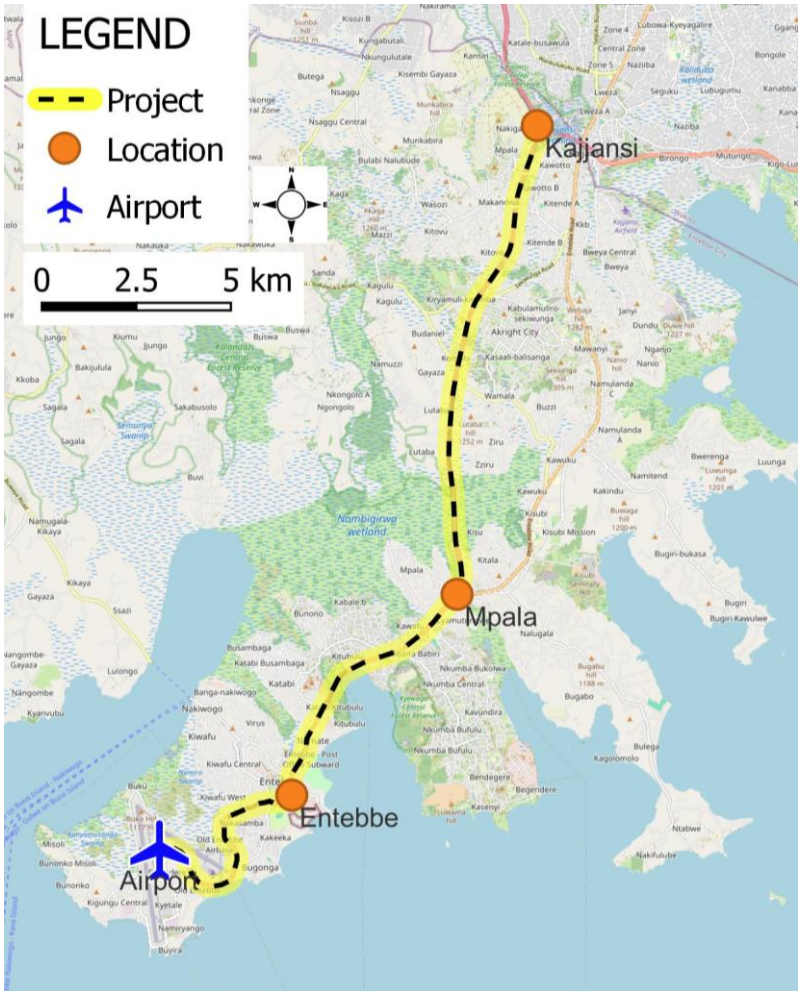
- To reduce the travel time of public transport between Kampala and Entebbe.
- To provide scheduled public transport services between Kampala and Entebbe.
- To reduce traffic congestion along Kampala Entebbe roads by providing an efficient and reliable public transportation system.

- To provide high-capacity transport that can carry more people and is cheaper on a large scale.
- To reduce carbon emissions and promote sustainable transportation between Kampala and Entebbe.

(3) Project Description

The Project for the Implementation of Mixed Lane BRT Kampala-Entebbe aims to develop an efficient and sustainable public transportation system along the Kampala-Entebbe Expressway. (See Figure 17.2.8.) The total length of this BRT route is 26km. The project will integrate BRT lanes with existing traffic lanes, enhancing mobility and reducing congestion.

The design of the expressway will be slightly modified to incorporate bus stops along the expressway for passenger boarding and alighting.



Source: JICA Expert Team

Figure 17.2.8 Project Location of Mixed Lane for BRT Kampala-Entebbe (along Expressway) [PT-S5]

(4) Expected Benefits

The following benefits are expected:

- Improved mobility for residents and commuters
- Reduced travel times and increased reliability
- Enhanced quality of life and economic opportunities
- Increased safety and security features
- Reduced greenhouse gas emissions and air pollution

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

7.0 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Develop a comprehensive BRT plan and design.
- Secure funding and financing arrangements.
- Acquire necessary land and properties for BRT bus stations.
- Construct bus stations.
- Procure BRT-compatible buses and equipment.
- Implement intelligent transportation systems (ITS) and fare collection systems.
- Develop and implement operational plans and schedules.
- Provide public education and awareness campaigns.
- Ensure effective maintenance and upkeep arrangements.
- Political will and government support.
- Effective project management and coordination.
- Technical expertise and capacity building.
- Safety and security considerations.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following social impacts could arise:

- Displacement of informal settlements and businesses at station locations along the expressway
- Potential job losses among informal transport operators like taxi drivers

17.2.9 Project for Implementation of Mixed Lane for BRT Busega-Mpigi (along Busega-Mpigi Expressway) [PT-S6]

(1) Rational

The implementation of a mixed-lane BRT system along the Busega-Mpigi Expressway offers a cost-effective and efficient solution to enhance public transportation along the Kampala Mpigi direction. By allowing buses and other vehicles to share lanes, the capacity of the road is increased, reducing congestion and travel times. This approach also promotes flexibility in traffic management, accommodates changing traffic patterns, and enhances connectivity between Busega Kyengera Secondary Urban Centre and Primary Urban Centres to Nsangi Metropolitan Centre, Kiringente Suburban Centre and Mpigi Suburban Centre with connection to Kammengo Strategic Centre and Buwama Service Centre.

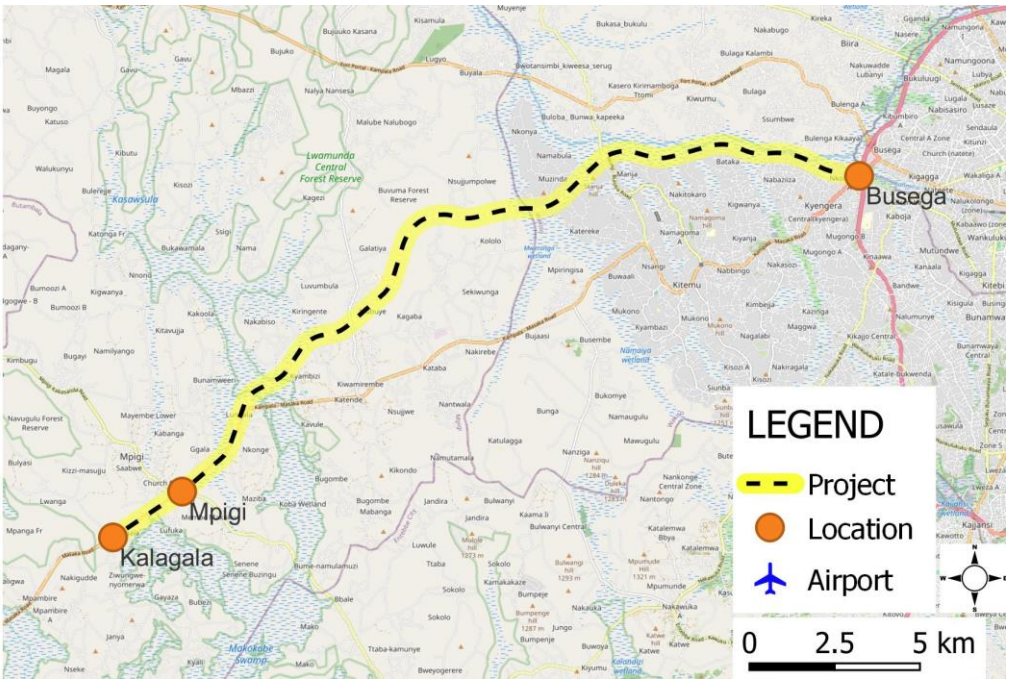
(2) Objectives

- To reduce travel times for commuters along the Kampala, Busega to Mpigi directions.
- To ensure reliable and consistent bus services with regular frequencies.
- To increase the capacity of the expressway to accommodate at least 10,000 passengers per hour.
- To decrease congestion in the Busega Kyengera area.
- To reduce greenhouse gas emissions and air pollution by promoting public transportation.
- To maintain affordable fares to ensure public transportation remains accessible to all.
- To ensure seamless integration with existing transportation modes, such as taxis and ride-hailing services.
- To design the system to be sustainable, with plans for future expansion and upgrades.

(3) Project Description

The Project for Mixed Lane BRT Busega-Mpigi aims to develop an efficient and sustainable public transportation system along the Busega-Mpigi Expressway. (See Figure 17.2.9.) The project will integrate Bus BRT lanes with existing traffic lanes, enhancing mobility and reducing congestion.

The design of the expressway will be slightly modified to incorporate bus stops along the expressway for passenger boarding and alighting.



Source: JICA Expert Team

Figure 17.2.9 Project Location of Mixed Lane for BRT Busega-Mpigi (along Busega-Mpigi Expressway) [PT-S6]

(4) Expected Benefits

The following benefits are expected:

- Improved mobility for residents and commuters
- Reduced travel times and increased reliability
- Enhanced quality of life and economic opportunities
- Increased safety and security features
- Reduced greenhouse gas emissions and air pollution

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

6.2 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Conduct a feasibility study and transport demand analysis.
- Develop a comprehensive BRT plan and design.
- Secure funding and financing arrangements.
- Acquire necessary land and properties for BRT bus stations.
- Construct bus stations.
- Procure BRT-compatible buses and equipment.
- Implement intelligent transportation systems (ITS) and fare collection systems.
- Develop and implement operational plans and schedules.
- Provide public education and awareness campaigns.
- Ensure effective maintenance and upkeep arrangements.
- Political will and government support.
- Safety and security considerations.

(9) Related Plans and Projects

- Busega-Mpigi Expressway [RD-S10]

(10) Social and Environmental Impacts

The following social impacts could arise:

- Displacement of informal settlements and businesses at station locations along the expressway
- Potential job losses among informal transport operators like taxi drivers

17.2.10 Project for Implementation of Mixed Lane for BRT Inner-Ring Road (Along Northern BP – Kampala Entebbe Expressway – Southern BP) [PT-S7]

(1) Rational

A mixed-lane BRT system along the Inner-Ring Road offers a rational solution for efficient public transportation in Kampala. The system integrates buses into the existing road infrastructure, leveraging the comprehensive network connecting key urban areas and suburbs This BRT provides direct connectivity from the Primary Urban Centres to the Busega Kyengera Secondary Urban Centre, Zana Urban Sub-Centre, Munyonyo Urban Sub-Centre and Luzira-Port Bell Secondary Urban Centre to the other urban centres outward. By operating buses in mixed traffic, the system maximizes resource utilization and minimizes additional construction costs. This approach provides flexible operations, accommodating various bus types and capacities, and enables adjustments to meet changing demands.

(2) Objectives

- To improve public transportation efficiency in Kampala by providing a reliable and faster bus service.
- To increase passenger capacity along the route, reducing the demand for private vehicles and alleviating congestion.
- To enhance mobility for citizens, providing a reliable, efficient, and affordable transportation option.
- To reduce travel times for passengers, making public transportation a more attractive option.
- To improve air quality by reducing the number of private vehicles on the road.
- To support economic growth and productivity by providing a reliable transportation system.
- To integrate the BRT system with existing road infrastructure, maximizing resource utilization.
- To allow for flexible operations and adjustments to meet changing demand and evolving transportation needs.
- To enhance the overall quality of life for citizens by reducing congestion, air pollution, and travel times.

(3) Project Description

This BRT system utilises modern buses and intelligent transportation systems to provide reliable and efficient services, prioritizing buses at intersections and junctions, and offering an enhanced passenger experience.

The design of the expressway will be slightly modified to incorporate bus stops along the expressway for passenger boarding and alighting.

Source: JICA Expert Team

Figure 17.2.10 Project Location of Mixed Lane for BRT Inner-Beltway-Ring Road (Along Northern BP – Kampala Entebbe Expressway – Southern BP) [PT-S7]

(4) Expected Benefits

By combining buses and private vehicles on the same lanes, the system maximizes resource utilization and minimizes additional infrastructure costs, making it a cost-effective solution for sustainable public transportation in GKUGA.

The BRT system will also improve air quality by reducing private vehicles, enhances mobility, and supports economic growth.

(5) Executing Agency and Related Institute

- Uganda National Roads Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

9.6 million US dollars

(7) Implementation Schedule

2024 – 2030 Short Term Projects

(8) Necessary Actions for Implementation / Critical Factor

- Conduct a thorough study to assess demand, infrastructure, and potential impacts.
- Optimize the route to cover high-demand areas, minimize conflicts with private vehicles, and ensure efficient operations.
- Improve road conditions and construct bus stops and terminals.
- Purchase modern, high-capacity buses with efficient emission standards.
- Install ITS infrastructure for real-time monitoring, scheduling, and passenger information.
- Educate the public about the benefits and changes associated with the BRT system.
- Establish clear policies, laws, and regulations to govern BRT operations.
- Train drivers and staff on BRT operations, customer service, and safety procedures.
- Implement an efficient fare collection system, such as a cashless payment system.
- Continuously monitor and evaluate the system's performance, making adjustments as needed.
- Support from government and stakeholders is crucial for successful implementation.
- Secure reliable funding sources for operations, maintenance, and upgrades.
- Effective coordination among government agencies, operators, and stakeholders.
- Ensure the safety and security of passengers, staff, and infrastructure.

(9) Related Plans and Projects

- N/A

(10) Social and Environmental Impacts

The following impacts could arise:

- The construction of BRT infrastructure may lead to the destruction of wetland habitats, disrupting ecosystems and biodiversity since the expressways are built along or on the wetlands. Especially during the implementation of bus stations.
- The project may require the relocation of residents and businesses

17.2.11 Project for Bus and Taxi Service Improvement (Introduction of New Large or Middle Size Buses) [PT-S8]

(1) Rational

The Project for Bus and Taxi Service Improvement for GKMA is aimed at modernizing and upgrading the public transportation system, addressing the growing demand for efficient and reliable transport. The introduction of new large or middle-size buses will significantly enhance the capacity, safety, and comfort of public transportation, reducing traffic congestion, air pollution, and greenhouse gas emissions. By providing a reliable and comfortable service, the project will improve the overall passenger experience, stimulate economic growth and provide safety to passengers while connecting the primary urban centres to secondary urban centres, urban sub-centres and metropolitan centres within the GKMA.

(2) Objectives

- To improve the efficiency and reliability of public transportation in the Greater Kampala Metropolitan Area.
- To increase the capacity of public transportation, reducing congestion and travel times.
- To enhance the safety and comfort of passengers, introducing modern and well-maintained buses.
- To reduce air pollution and greenhouse gas emissions, promoting a more environmentally friendly transportation system.
- To promote sustainable transportation, encouraging the use of public transportation over private vehicles.
- To support economic growth, creating jobs and stimulating local economic development.
- To improve the overall passenger experience, providing a comfortable, reliable, and affordable transportation service.
- To integrate the bus system with other transportation modes, promoting a more efficient and sustainable transportation network.
- To reduce the number of accidents and incidents, improving road safety.
- To increase government revenue through taxes, fees, and advertising.

(3) Project Description

The Project for Bus and Taxi Service Improvement is a transformative initiative aimed at revolutionizing the public transportation system by introducing modern, safe, and comfortable large and middle-size buses. This project will not only replace outdated and inefficient vehicles but also increase vehicle size, optimize route planning, and enhance safety features and passenger amenities.

(4) Expected Benefits

The following benefits are expected:

- Job creation and employment opportunities for drivers, maintenance staff, and administrators.
- Enhanced mobility and connectivity for passengers.
- Reduced travel times and increased productivity.
- Increased safety and security for passengers.
- Reduced greenhouse gas emissions and air pollution from newer, more efficient buses.
- Decreased noise pollution from newer buses.
- Increased use of sustainable transportation options.

By promoting sustainable transportation and reducing environmental impact, the project will contribute to the region's economic growth and provide a reliable and efficient travel experience for commuters, ultimately improving the overall quality of life in the GKUGA.

(5) Executing Agency and Related Institute

- Kampala Capital City Authority
- Wakiso District Local Government
- Mukono District Local Government
- Mpigi District Local Government
- Ministry of Works and Transport

(6) Estimated Project Cost

20.0 million US dollars

(7) Implementation Schedule

2024-2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Conduct a thorough feasibility study and needs assessment.
- Develop a comprehensive project plan and timeline.
- Establish a dedicated project management team.
- Secure funding and resources.
- Procure new buses and equipment.
- Upgrade and modernize existing infrastructure (terminals, stations.).
- Develop and implement new route plans and schedules.
- Train and capacitate bus drivers and staff.
- Implement safety and security measures.
- Launch a public awareness and education campaign.
- Strong political will and support.

(9) Related Plans and Projects

- Multi-Modal Urban Transport Master Plan

(10) Social and Environmental Impacts

The following social impact could arise:

- Potential displacement of existing taxi and bus operators.

17.2.12 Project for Development of Kampala Multi-Modal Transport Hub [PT-S9]

(1) Rational

The development of a multi-modal transport hub by Uganda Railways Corporation at Kampala Station is a strategic move to revolutionize the city's transportation landscape. By integrating rail, bus, taxi, and private vehicle transportation under one roof, the hub will offer a seamless travel experience, reducing congestion and providing a one-stop transfer location for passengers while promoting economic growth and urban development. The modern facility will provide comfortable waiting areas, amenities like shopping points and restaurants and advanced safety features, making it an attractive option for passengers. Additionally, the hub will stimulate local economic development, create jobs, and connect Primary Urban Centres in Kampala to other

urban centres in GKMA and other regions, fostering regional integration and sustainability. By future-proofing the transportation system, the multi-modal transport hub will be a game-changer for Kampala's transportation needs, enhancing the overall quality of life for citizens and supporting the city's growth and development.

(2) Objectives

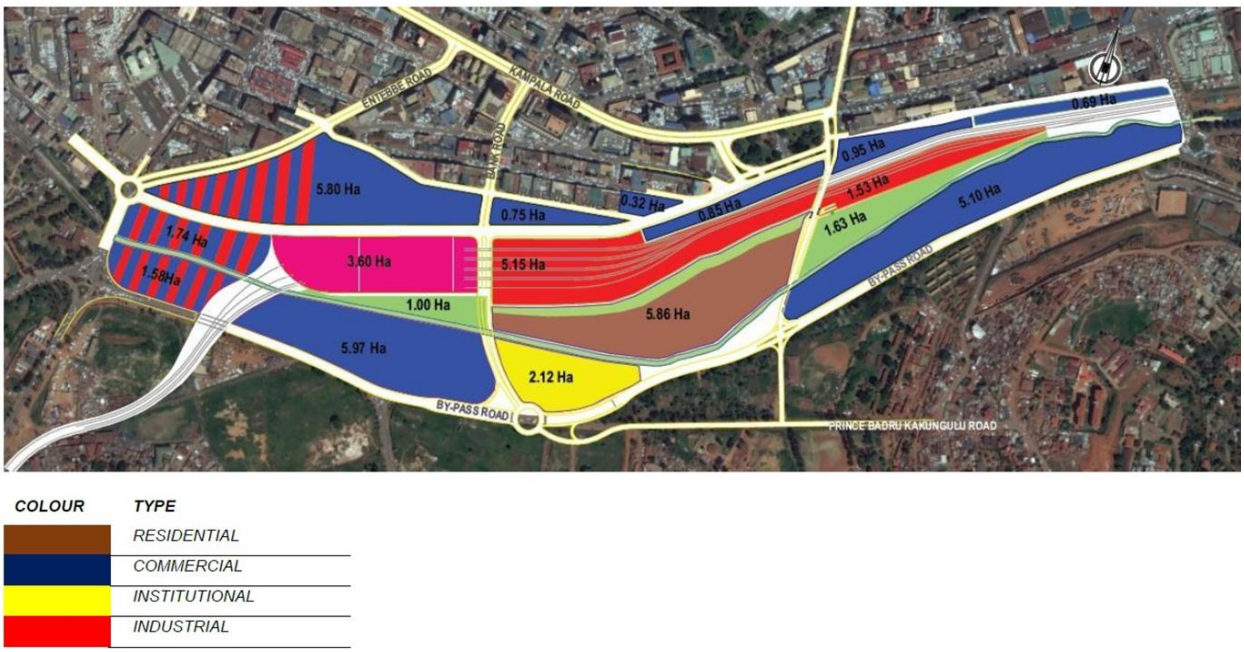
- To create an integrated transportation system, combining rail, bus, taxi, and private vehicle transportation, for a seamless passenger experience.
- To reduce congestion and pollution in Kampala by promoting public transportation and reducing private vehicle usage.
- To enhance passenger comfort and convenience by providing modern amenities and facilities.
- To increase efficiency and reduce travel times by streamlining transportation modes and transfers.
- To stimulate economic growth and development in Kampala by attracting businesses, creating jobs, and increasing accessibility.
- To improve safety and security for passengers through advanced safety features and robust security measures.
- To promote sustainable transportation and reduce environmental impact.
- To increase accessibility and inclusivity for people with disabilities and low-income communities.
- To revitalize the surrounding area through urban regeneration and development.
- To create a transportation hub that can adapt to emerging transportation technologies and modes, ensuring a resilient and future-proof transportation system.
- To reduce the transportation cost and increase the efficiency of goods transportation.

(3) Project Description

The Uganda Railways Corporation's Multi-Modal Transport Hub at Kampala Station is a cutting-edge transportation facility that seamlessly integrates rail, bus, taxi, and private vehicle transportation, offering a modern and efficient travel experience. This hub features a spacious terminal building with amenities like restaurants, retail, and entertainment options, as well as comfortable waiting areas and lounges. With efficient passenger information and ticketing systems, secure and accessible facilities for people with disabilities, and advanced safety and security measures, the hub streamlines transportation, reduces congestion and pollution, and enhances passenger experience, making it a convenient and comfortable one-stop transfer location.

In addition to the terminal building, station plaza is necessary for smooth transfer among the various transport modes.

For the development of Kampala Station’s multi-modal transport hub, the land owned by URC will be utilised to develop its surrounding area to a commercial activity centre including residential development. (See Figure 17.2.11.)



Source: Final Report, Preliminary Design of the Kampala Multi Modal Hub, URC, 2022

Figure 17.2.11 Project Plan of Kampala Multi-Modal Transport Hub

(4) Expected Benefits

The following benefits are expected:

- Job creation and employment opportunities for residents through increased economic activity and local investment, and improved access to education, employment, and healthcare for surrounding communities.
- Enhanced mobility and connectivity for people with disabilities.
- Reduced travel times and increased productivity.
- Improved safety and security for passengers and locals.
- Reduced air pollution and greenhouse gas emissions from decreased private vehicle usage.
- Increased use of sustainable transportation options.

(5) Executing Agency and Related Institute

- Uganda Railways Corporation
- Kampala Capital City Authority
- Ministry of Works and Transport

(6) Estimated Project Cost

400.0 million US dollars

(7) Implementation Schedule

2024-2030 Short Term Project

(8) Necessary Actions for Implementation / Critical Factor

- Conduct feasibility studies and needs assessments.
- Develop a comprehensive project plan and timeline.
- Secure funding and resources.
- Acquire land and relocate existing facilities.

- Design and construct the hub's infrastructure (terminal building, platforms, rails, roads, etc.).
- Install modern passenger information and ticketing systems.
- Implement efficient transportation management systems.
- Integrate different transportation modes (rail, bus, taxi, private vehicles).
- Develop and implement safety and security protocols.
- Train staff and conduct public awareness campaigns.
- Strong political will and support.

(9) Related Plans and Projects

- Kampala Central (KACE) passenger multi-modal hub proposed by National Integrated Transport Master Plan (2021-2040) to be implemented by KCCA

(10) Social and Environmental Impacts

The following social impacts could arise:

- Potential displacement of existing businesses and residents.

The following environmental impacts could arise:

- Potential impact on natural habitats and ecosystems from infrastructure development.

17.3 Profiles of Priority Projects for Infrastructure Sectors

17.3.1 Project for Development of Deep Groundwater Supply System for Suburban Areas in North GKUGA [WS-01]

(1) Rational

As of 2020, in north of Wakiso District and Mpigi District which are part of the suburban area in GKUGA, only 107,030 people out of a total population of 400,000 is covered by water supply facilities. In addition, only 791m^3/day is supplied from water supply facilities.

Therefore, the water supply coverage rate in this part of GKUGA is 27%, and the amount of water supply is 7.4 litters/capita/day. Furthermore, the population of this area is projected to be 1,302,000 in 2050, and water shortages is an urgent issue since there are no future projects planned for this area as of now.

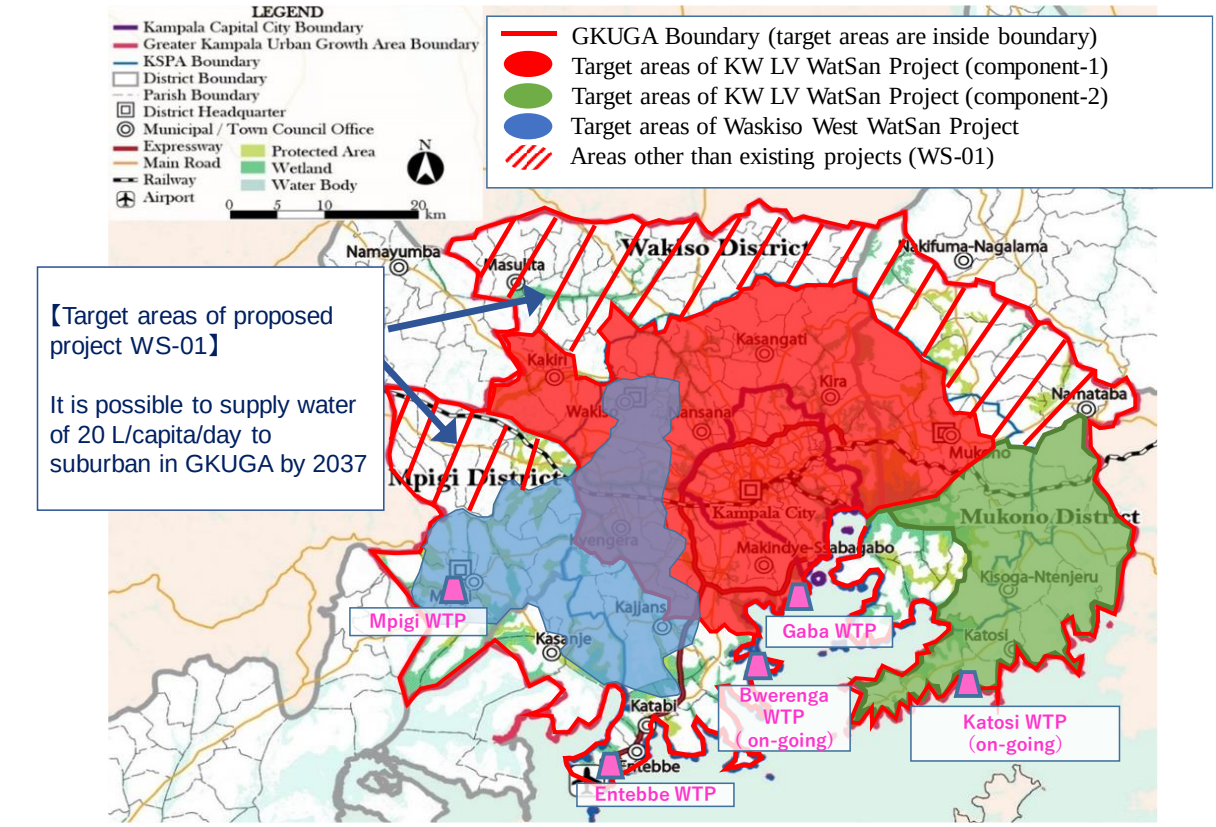
By establishing the water supply facility in this Project, it will be possible to secure a water supply volume of 32,860 m^3/day, and secure 20 litters/capita/day as minimum design water supply of rural area targeted by NWSC.

(2) Objectives

To provide a safe and stable water supply of the minimum amount of water necessary for the population of 1,302,000 as the projected population in 2050 in the suburban area of north GKUGA.

(3) Project Description

The project target area is shown in Figure 17.3.1.



Source: JICA Expert Team

Figure 17.3.1 Target Area of Project for Deep Groundwater Supply System for Suburban Areas in North GKUGA [WS-01]

The following facilities will be implemented:

- Deep wells: 20 units, Elevated water tanks: 11,000 m^3
- Water transmission main and distribution pipeline (DI and uPVC ϕ 100mm-1,000mm): 304 km
- Booster pump: 10 units
- Chlorine injection equipment: 1 set
- Public stand post: 175 units

(4) Expected Benefits

In the suburban area of GKUGA, it will be possible to supply 20 litres/capita/day, which is the minimum design water supply of rural area targeted by NWSC, to the 1,302,000 as the projected population in 2050. In addition, since it is a deep ground water supply system, it is possible to handover and operate facilities one by one upon completion of construction, and it is possible to supply water from high-priority areas.

(5) Executing Agency and Related Institute

- National Water and Sanitation Corporation
- Ministry of Water and Environment

(6) Estimated Project Cost

Estimated project cost is shown in Table 17.3.1.

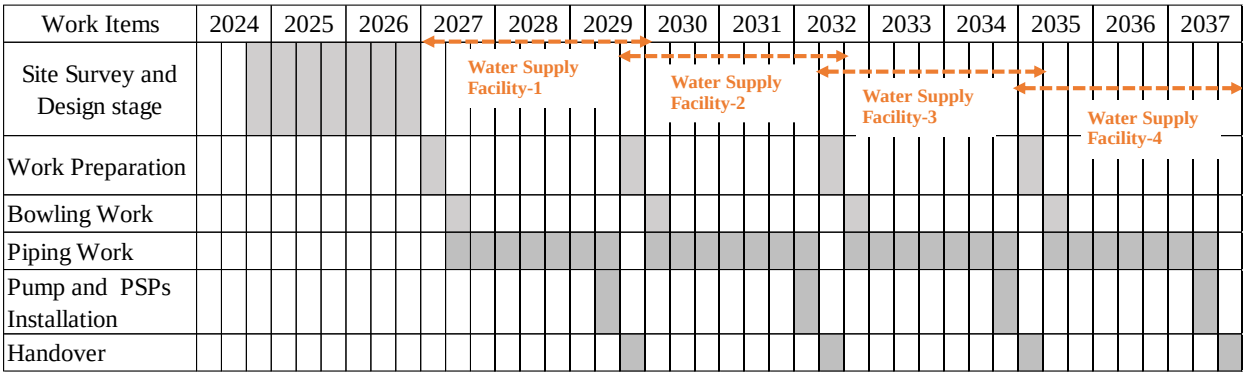
Table 17.3.1 Estimated Project Cost for the Project for Development of Deep Groundwater Supply System for Suburban Areas in North GKUGA [WS-01]

Items	Quantity	Unit	Unit Cost (USD)	Total Cost (thousand USD)
Bowling	20	no.	79,276	1,586
Elevated Water Tank	11.000	m^3	73	799
Water Transmission Main DI ND≧400 mm	40,000	m	522	20,876
Water Distribution Pipeline DI uPVC ND <400 mm	263,699	m	126	33,100
Booster Pump	10	no.	264,253	2,643
Chlorine Injection Equipment	1	set	872,035	872
Public Stand Posts	175	no.	6,606	1,156
Administration, Overhead Cost	40	%	-	24,412
			Total Cost	85,444

Note: JICA rate on April 2024 is applied for the estimation.
Source: JICA Expert Team

(7) Implementation Schedule

Implementation schedule is considered as shown in Figure 17.3.2.



Note: Four deep ground water facilities in total are planned to construct in target area
Source: JICA Expert Team

Figure 17.3.2 Implementation Schedule of the Project for Development of Deep Groundwater Supply System for Suburban Areas in North GKUGA [WS-01]

(8) Necessary Actions for Implementation / Critical Factor

Prior to the boring work, it is necessary to conduct pumping tests and thoroughly and investigate the surrounding environment to confirm for variation of future pumped water amount due to climate change, etc. In addition, since the target area is under the jurisdiction area of the CUO, coordination will be required for NWSC to implement the project.

(9) Related Plans and Projects

Currently, there are no medium and long-term projects planned in the target area, but if a new project is formulated in the future, clear demarcation will be necessary.

(10) Social and Environmental Impacts

It is necessary to secure the land for the installation of water supply facilities (elevated water tanks, water transmission main and distribution pipeline, public stand posts, etc.). In addition, in order to reduce the labour burden of water collection for women and children, location of installation of public stand posts should be considered and in order to secure water supply to low-income household, set of water rates should be considered.

17.3.2 Project for Development of Water Supply System Piped from WTP (West GKUGA) [WS-02]

(1) Rational

KW LV WatSan Project is currently ongoing in GKUGA, but it is limited to the NWSC jurisdictional area. The target year for this project is 2040, and to achieve the 79 litters/capita/day as design water supply targeted by NWSC for 2040, the NWSC jurisdiction area needs an additional water supply of 277,452 m³/day.

Furthermore, considering the target of 88 litters/capita/day which is water supply targeted by NWSC for 2050, the whole GKUGA faces a water shortage of 656,058 m³/day. Especially, in west GKUGA, service coverage rate is lower. Therefore, west GKUGA is selected as the target for service area in this project. Taking into account of NRW rates, water supply facilities which has a planned water production capacity of 402,145 m³/day is necessary to be implemented in the project.

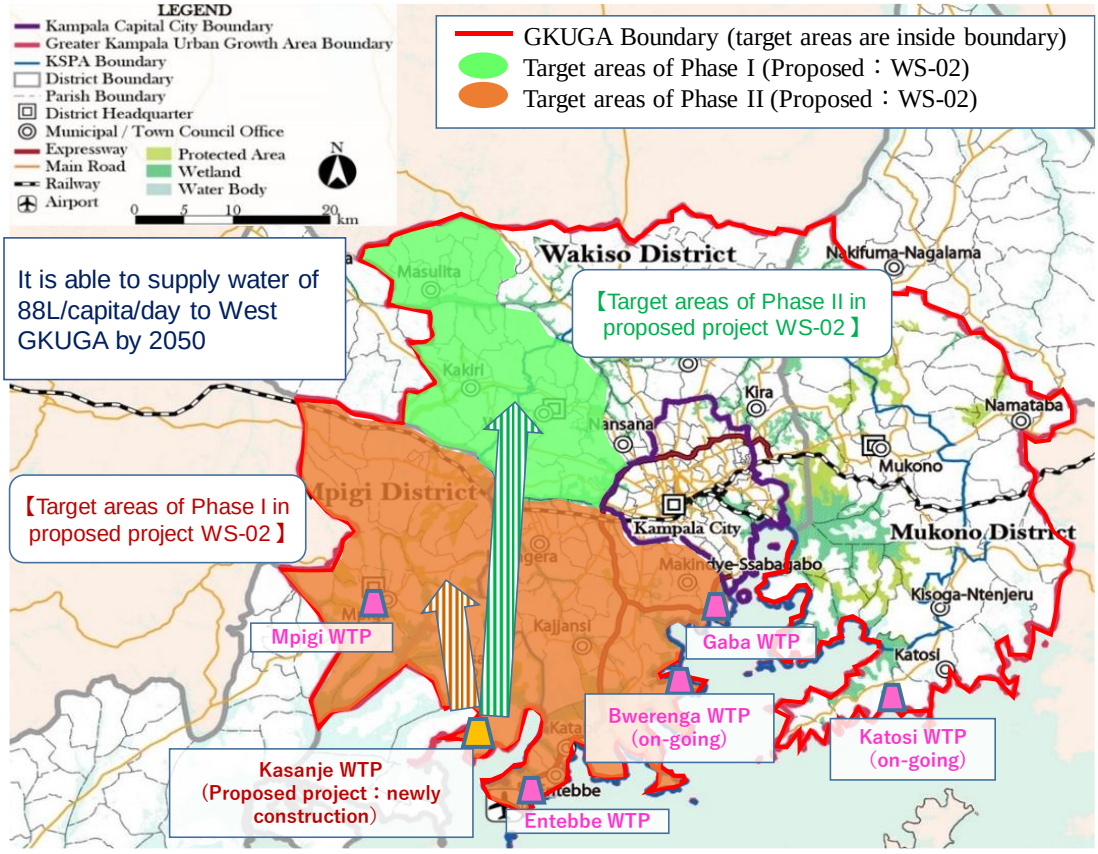
Expanding and establishing new WTP will allow us to secure the required water supply of 301,610 m³/day, enabling the NWSC to meet the targeted water supply of 88 litters/capita/day by 2050 in west GKUGA.

(2) Objectives

To provide a safe and stable water supply of 88 litters/capita/day as targeted design water supply to 5,948,000 as the projected population in 2050 in the west GKUGA.

(3) Project Description

The project target area is shown in Figure 17.3.1.



Source: JICA Expert Team

Figure 17.3.3 Project Location for Development of Water Supply System Piped from WTP (West GKUGA) [WS-02]

The following facilities will be implemented:

- Water Treatment Plant: 1 unit (Design capacity: 403,000 m^3/day)
- Reservoir: 134,100 m^3
- Water transmission main and distribution pipeline (DI and uPVC ϕ 100 mm-1,000 mm): 644 km
- Booster pump: 14 units
- SCADA system (remote monitoring system): 30 units

(4) Expected Benefits

In whole GKUGA, it will be possible to supply 88 litters/capita/day, which is the design water supply targeted by NWSC, to the 5,948,000 as the projected population in 2050. In addition, since piped water supply from water treatment plant, it is possible to supply safe and stable water.

(5) Executing Agency and Related Institute

National Water and Sanitation Corporation, Ministry of Water and Environment

(6) Estimated Project Cost

Estimated project cost is as below.

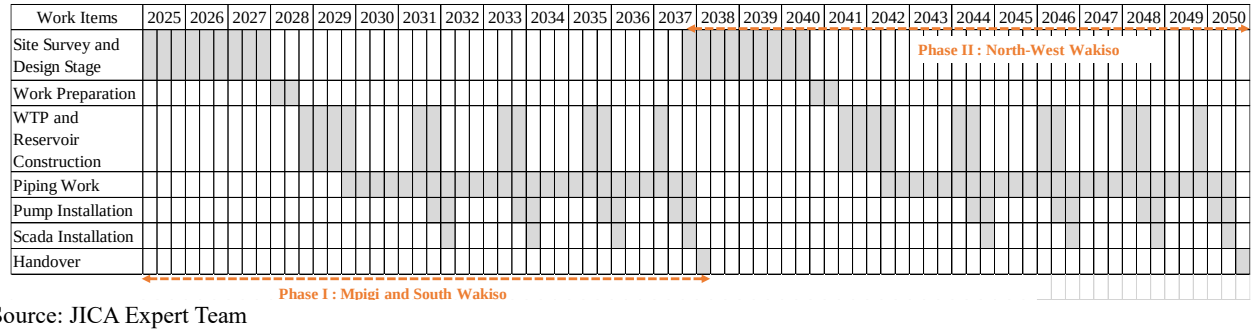
Table 17.3.2 Estimated Project Cost for the Project for Improvement of Water Supply System in GKUGA

Items	Quantity	Unit	Unit Cost (USD)	Total Cost (thousand USD)
Water Treatment Plant	403,000	m^3/day.	73	29,286
Reservoir	134,100	m^3	258	34,550
Water Transmission Main DI ND≧400 mm	160,694	m	522	83,866
Water Distribution Pipeline DI uPVC ND <400 mm	483,402	m	126	60,677
Booster Pump	14	no.	264,253	3,700
SCADA system	30	unit	9,909	297
Administration, Overhead Cost	40	%	-	212,376
			Total Cost	424,752

Note) JICA rate on April 2024 is applied to estimation
Source: JICA Expert Team

(7) Implementation Schedule

Implementation schedule is considered as shown in Figure 17.3.4.



Source: JICA Expert Team

Figure 17.3.4 Implementation Schedule

(8) Necessary Actions for Implementation / Critical Factor

As for land necessary for construction of water supply facilities, permission for land acquisition is necessary from the landowner. In addition, as for location of new water treatment plant, it is considered that contamination of the water source in order to determine location.

(9) Related Plans and Projects

As for implementation plan, it is necessary to consider the progress of the Wakiso West WatSan Project. Specially, if construction of pipeline interferes with major roads, coordination will be necessary.

(10) Social and Environmental Impacts

It is necessary to secure the land for the installation of water supply facilities (Water treatment plant, reservoirs, water transmission main and distribution pipeline, etc.). During the construction of water treatment plants, it is concerned that construction site wastewater combines with rainwater runoff and its discharge into Lake Victoria.

17.3.3 Project for the Improvement of Basic Drainage Facilities in GKUGA Outside KCC [DR-02]

(1) Rational

Since urbanisation and population increase have occurred not only in Kampala Capital City (KCC) but also outside the KCC, and the KCC occupies the upstream areas of the GKUGA, it is necessary to formulate strategies and measures for preventing flooding and inundation in all over the GKUGA. However, the existing Drainage Master Plan prepared for the KCC and surrounding watershed areas in 2016 does not cover the wide areas of GKUGA.

As more urbanisation proceeds in the upstream KCC and concrete covered areas increase, higher runoff coefficients in the KCC increase the risk of flooding to downstream areas. Furthermore, as drainage facilities are developed in the KCC, faster rainfall will flow into the GKUGA outside the KCC.

To consider necessary drainage infrastructure in GKUGA, a drainage master plan for the whole area of the GKUGA is necessary. However, prior to the formulation of a drainage master plan for a metropolitan area, it is necessary to conduct a project component to design and instal basic data collection facilities and equipment.

Furthermore, until the data collection facilities and equipment are ready, it is necessary to start with the implementation of basic measures to improve drainage channels in areas that are becoming more suburbanised and in areas that are developing suburban urban centres.

(2) Objectives

- To mitigate flood related disasters that are caused due to urbanisation
- To collect and record basic data to prepare for necessary actions against water related disasters

(3) Project Description

Necessary equipment for collecting and measuring basic data, such as rainfall, river levels and flooding conditions (flood area, flood frequency, flood depth, etc.) will be installed in adequate location across GKUGA.

In addition, basic measures to improve drainage channels

(4) Expected Benefits

Mitigation of the flooding.

(5) Executing Agency and Related Institute

- MWE
- NEMA
- Uganda National Metrological Authority

- MoWT

(6) Estimated Project Cost

To be considered

(7) Implementation Schedule

Short Term (2024-2030)

(8) Necessary Actions for Implementation / Critical Factor

Currently the responsibility for drainage sector is unclear in Uganda. It is necessary to determine the responsibility of roles necessary to implement drainage facilities and facilities to measure and record necessary equipment among the relevant stakeholders.

Furthermore, human resources and capacity for drainage at the local government level are also necessary.

(9) Related Plans and Projects

- [DR-01] Capacity Development for Collecting and Measuring Drainage-Related Data and Formulation of Drainage Master Plan for GKUGA
- [DR-03] Strengthening of Institutional Capacity for Drainage Sector for GKUGA outside KCC

(10) Social and Environmental Impacts

- N/A

17.3.4 Project for Construction of 33/11kV Nantabulirwa D/S with Connected 33kV Incomers (for Namanve Secondary Urban Centre and Mukono Metropolitan Centre of GKUGA) [PS-01]

(1) Rational

Mukono Municipality has high potentiality to develop urban centres for GKUGA and within Mukono Municipality, part of Namanve Secondary Urban Centra and Mukono Metropolitan Centre are designated which will attract business and commercial activities. To prepare for the future demand it is necessary to provide sufficient basic infrastructure including power supply in this area.

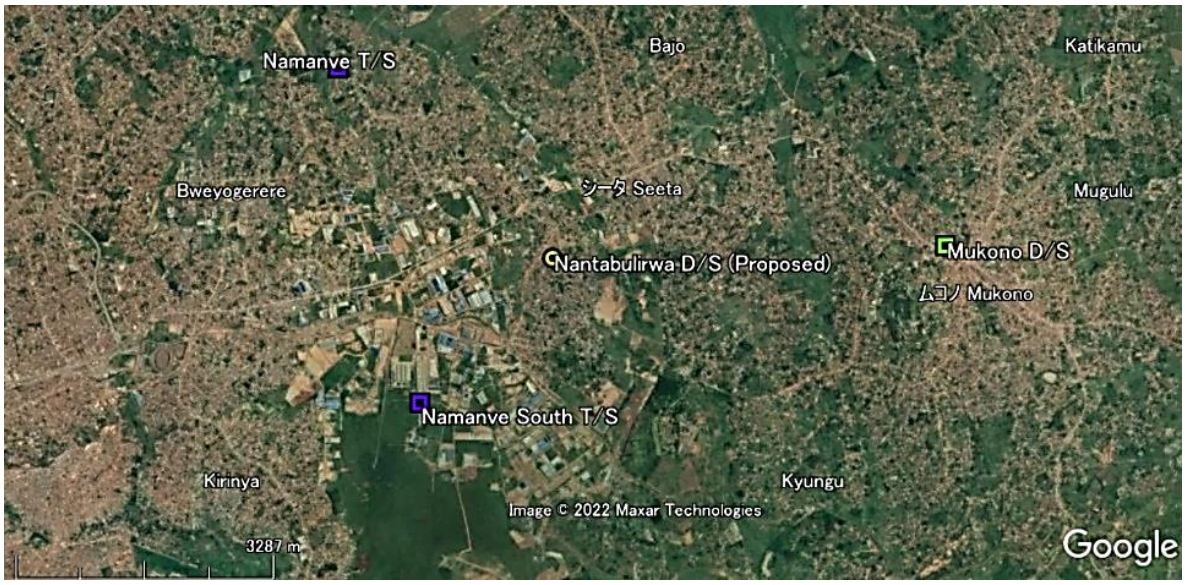
(2) Objectives

For supplying 11kV power to large power users, new distribution substation is necessary. The purpose of Nantabulirwa D/S is to secure the capacity of 11kV power supply to these potential customers.

(3) Project Description

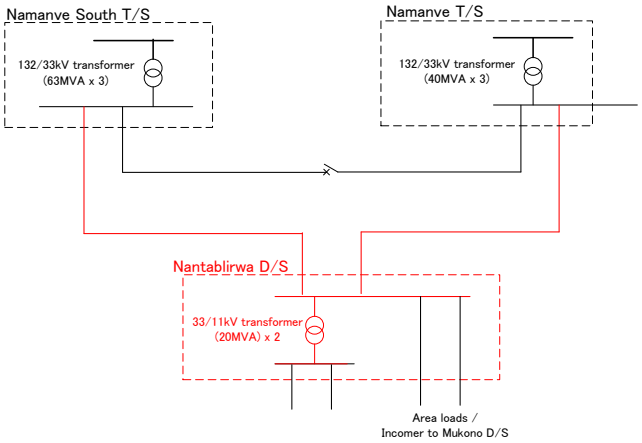
Figure 17.3.5 shows the potential location for the distribution substation at Nantabulirwa. Nantabulirwa is in Goma Division of Mukono Municipality.

Figure 17.3.6 shows new 33kV lines connecting from Namanve T/S to Namanve South T/S. Since two 33kV power evacuation lines are secured, power reliability is expected to increase.



Source: JICA Expert Team

Figure 17.3.5 Location Considered for Nantabulirwa D/S



Source: JICA Expert Team

Figure 17.3.6 Preliminary System Diagram of Nantabulirwa D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

- UMEME Limited.
- Uganda Electricity Distribution Company Limited (UEDCL)
- Electricity Regulatory Authority (ERA)

(6) Estimated Project Cost

3 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME**'s** master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement.

17.3.5 Project for Construction of 33/11kV Mpigi Substation and 33kV Incomers (for Mpigi Suburban Centre of GKUGA) [PS-02]

(1) Rational

According to Asset Management Plan (2019), 33kV line from Mutundwe T/S to Masaka Central D/S (total length is 180.04km), the System Average Interruption Duration Index (SAIDI) is 5.00 and the System Average Interruption Frequency Index (SAIFI) is 3.91, showing high unreliable power supply situation.

(2) Objectives

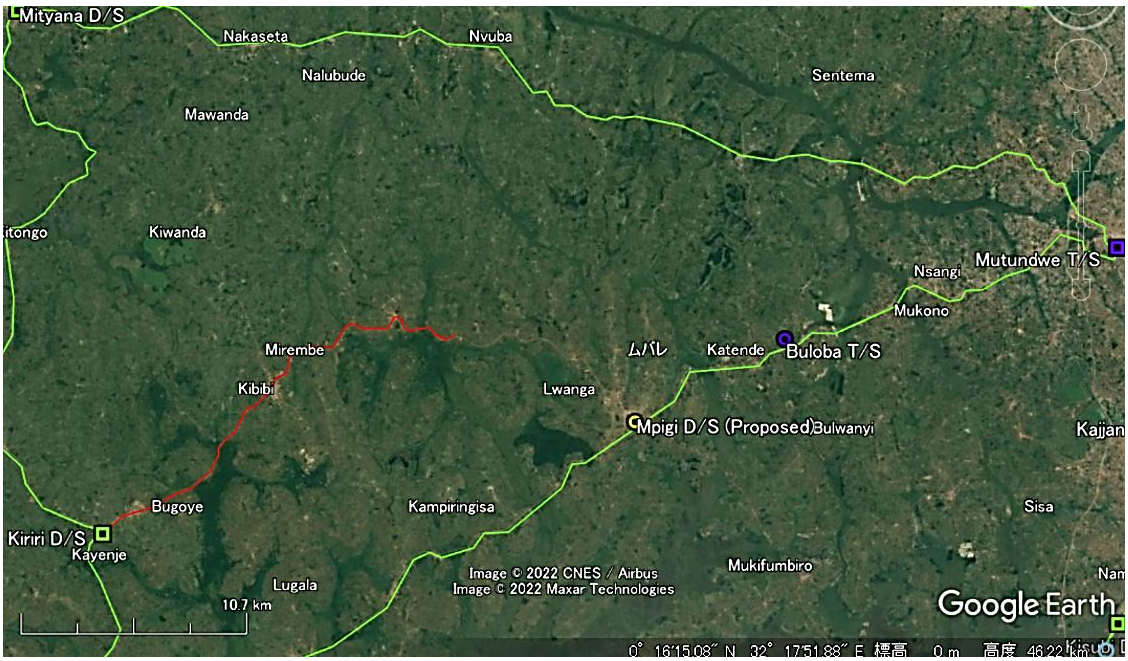
This line was designed as the interconnection line between Mutundwe T/S and Masaka Central D/S. However, due to the increase of power demand in area along this line, this line serves power. Electricity power is distributed to Mpigi area through this 33kV line by stepping down 33kV to 11kV by quite a few number of distribution transformers. Under this situation, the distribution line faults could extend and the fault of isolation of fault area will lead to the power outage of this area as well as main 33kV line.

This project will improve this situation and upgrade the existing distribution networks and increase the reliability of power supply in Mpigi.

(3) Project Description

This project will establish the new distribution substation, new construction of 11kV feeders for power supply, and upgrading existing 33kV distribution networks.

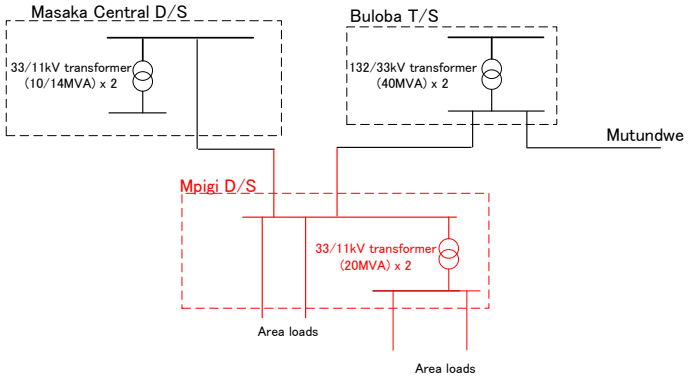
Figure 17.3.7 shows the potential location of distribution substation in Mpigi. The red colour line shows the existing 11kV feeder from Kiriri D/S (Butambala District).



Note: Green line: Existing 33kV incomers. Red line: existing 11kV feeder
Source: JICA Expert Team

Figure 17.3.7 Proposed Location of Mpigi D/S

Figure 17.3.8 shows the system diagram for Mpigi D/S. This substation will be interconnected to Masaka Central D/S and Buloba T/S, which will be commissioned in 2024.



Source: JICA Expert Team

Figure 17.3.8 System Diagram of Mpigi D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

- UMEME Limited
- UEDCL
- ERA

(6) Estimated Project Cost

3 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement.

17.3.6 Project for Construction of Nakasamba D/S and Connected 33kV Incomers (for Entebbe-Katabi Secondary Urban Centre of GKUGA) [PS-03]

(1) Rational

Entebbe area is designated as a secondary urban centre for GKUGA. Entebbe is connected with Kampala by expressway and has the international airport and some ministry offices It has the potentiality to grow to become an urban centre which supports the urban function of Kampala.

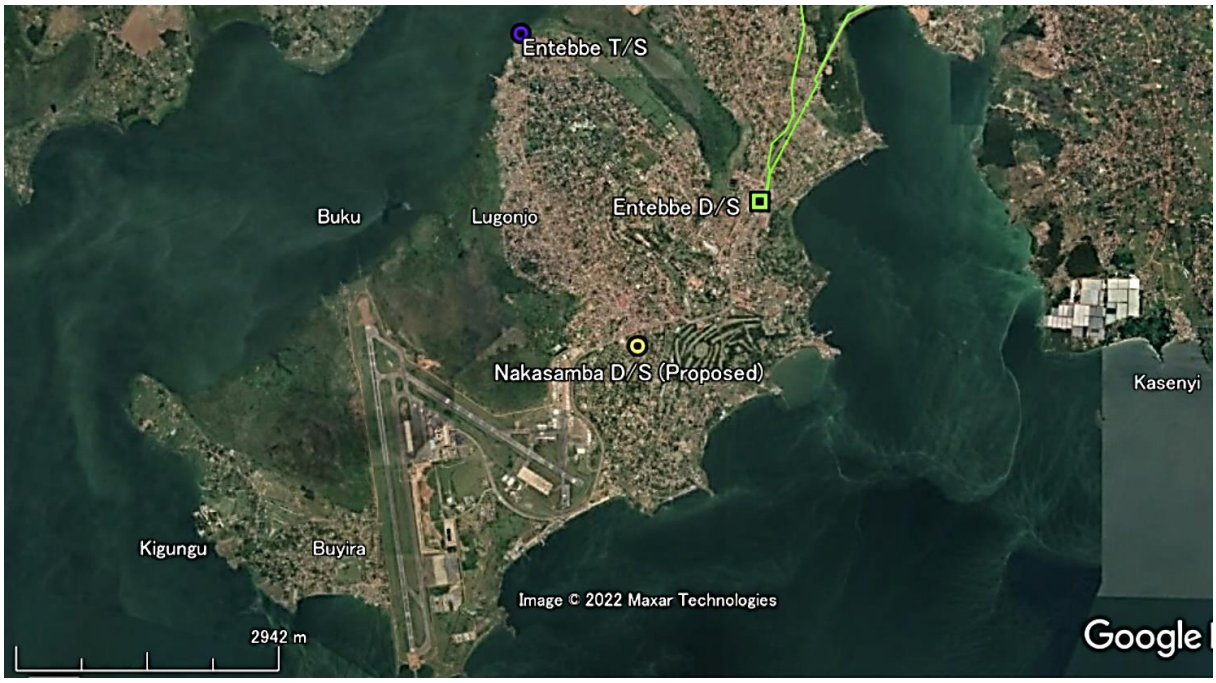
(2) Objectives

A new distribution substation will support the reliable power supply in Entebbe-Katabi Secondary Urban Centre.

(3) Project Description

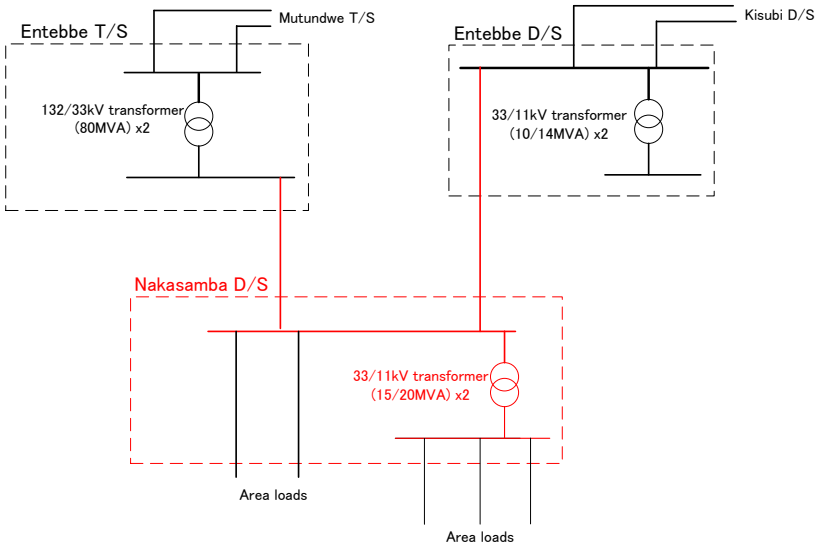
The scope of this project is the construction of distribution substation in Nakasamba with connected 33kV incomers.

Figure 17.3.9 shows proposed location of distribution substation at Nakasamba. Figure 17.3.10 shows preliminary system diagram. 33kV incomers will be connected from two power susbstations, namely Entebbe T/S and Entebbe D/S. From the view of reliability, improvement of line loss, and securing the sufficient supply capacity of existing 33kV lines to Entebbe D/S from Lubowa D/S, the line from Entebbe T/S is recommended to be used as main line and the other line is used as backup.



Note: Green line: Existing 33kV incomers.
Source: JICA Expert Team

Figure 17.3.9 Proposed Location of Nakasamba D/S



Source: JICA Expert Team

Figure 17.3.10 System Diagram of Nakasamba D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

- UMEME Limited
- UEDCL
- ERA

(6) Estimated Project Cost

3 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement.

17.3.7 Project for Construction of Bwebajja D/S and Connected 33kV Incomers for Bwebajja Area (for Kajjansi Metropolitan Centre of GKUGA)

(1) Rational

A new government campus is planned in Bwebajja in Kajjansi. The offices of the ministries are expected to move to Bwebajja from Kmapala city centre. Furthermore, the development of the Outer Beltway 1 will accelerate the urbanisation in this area transforming Kajjansi into a metropolitan centre providing job for the surrounding residents.

(2) Objectives

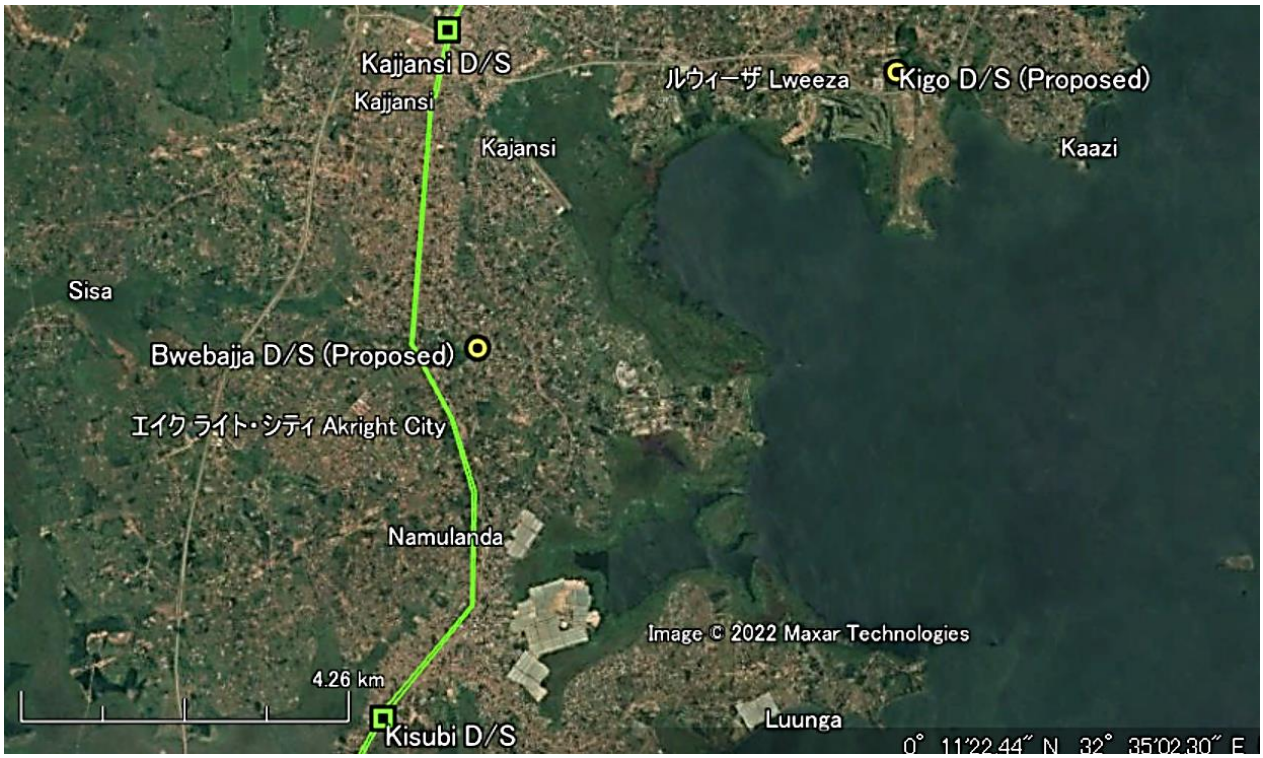
To provide sufficient and reliable power supply to Kajjansi Metropolitan Centre.

(3) Project Description

The scope of this project is the new construction of distribution substation in Nakasamba with connected 33kV incomers.

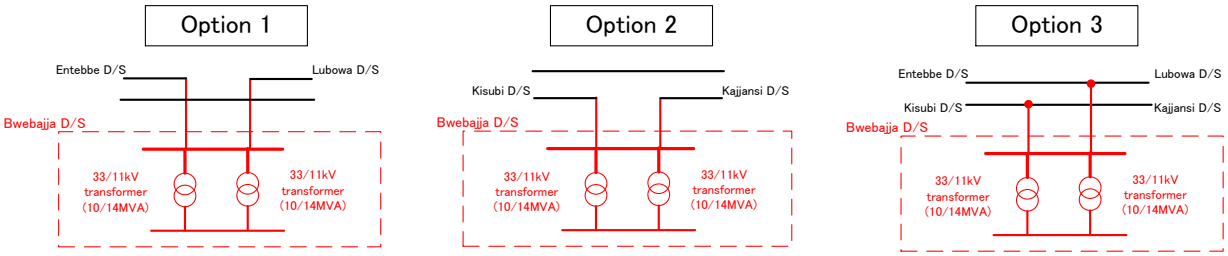
Figure 17.3.11 shows proposed location of distribution substation at Bwebajja. Figure 17.3.12 shows the preliminary system diagram.

There are three options for the 33kV incomer connection: Entebbe-Lubowa (Line-in Line-out), Kisubi-Kajjansi (Line-in Line-out), or a T-branch from the existing two lines as shown in Figure 17.3.12. This will be determined in the outline design stage considering factors such as the distribution company's operation method, line capacity, etc.



Note: Green line: Existing 33kV incomers.
Source: JICA Expert Team

Figure 17.3.11 Proposed Location of Bwebajja D/S



Source: Prepared by JICA Expert team

Figure 17.3.12 Options for Connecting Distribution Lines to Bwebajja D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

- UMEME Limited
- UEDCL
- ERA

(6) Estimated Project Cost

2 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement.

17.3.8 Project for Construction of Kigo D/S and Connected 33kV Incomers (for Kajjansi Metropolitan Area of GKUGA)

(1) Rationale

Kajjansi D/S has one unit of 33/11kV transformer (5/7.5MVA). Also, Kajjansi D/S is connected by T branch from Kampala South – Kisubi line. These two conditions may imply two bottlenecks of present Kajjansi D/S as below:

- There is only one transformer and it does not satisfy N-1 criteria. Also, the capacity is 5/7.5MVA which is smaller than other substations around Kajjansi. It is a high risk of supplying sufficient power to loads in the future.
- The line connected to Kajjansi D/S is only one from Kampala South – Kisubi line. When the fault occurs in this range (Kampala South – Kajjansi – Kisubi), Kajjansi D/S shall undergo the power outage.

The construction of Kigo D/S and connected 33kV incomes is expected to provide sustainable power supply to Kajjansi Metropolitan Area.

(2) Objectives

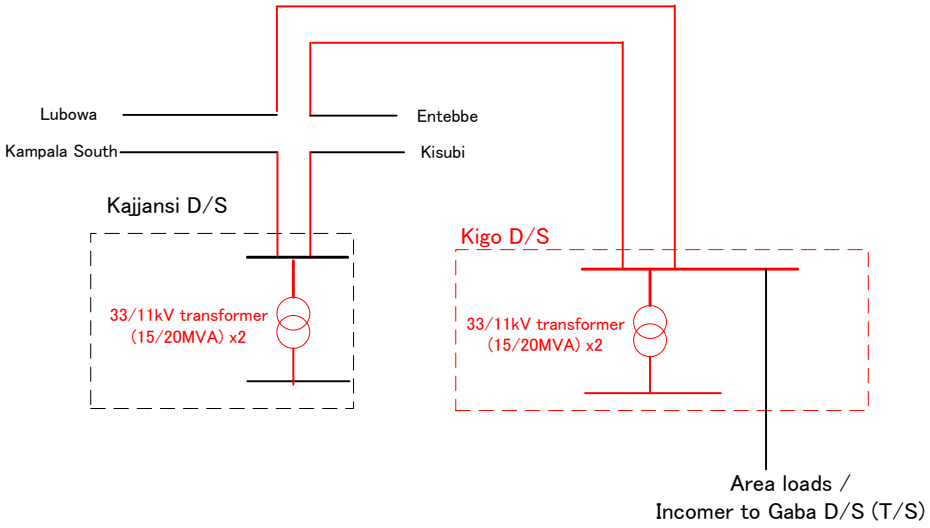
To provide sustainable power supply to Kajjansi Metropolitan Area.

(3) Project Description

The scope of this project is the new construction of distribution substation at Kigo with connected 33kV incomers. Figure 13.1.6-1 shows preliminary location. and Figure 13.1.6-2 shows system diagram. Figure 13.1.6-2 shows the system diagram in case of upgrading Kajjansi D/S for preliminary study purpose. The optimized design shall require further study (upgrading, decommissioning etc.).

Note: Green line: Existing 33kV incomers.
Source: Prepared by JICA Expert Team

Figure 17.3.13 Proposed Location of Kigo D/S



Note: Line arrangement shall need further study.
Source: JICA Expert Team

Figure 17.3.14 Preliminary System Diagram of Kigo D/S and Kajjansi D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

- UMEME Limited
- Electricity Regulatory Authority (ERA)

(6) Estimated Project Cost

5 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement

17.3.9 Project for Upgrading of Kakiri D/S and Construction of 33kV incomer from Kawaala T/S to Kakiri D/S (Northwest Area of GKUGA)

(1) Rational

According to the JICA Report (2016)[1], a 33kV feeder will be extended to Kakiri, Busiro North constituency, approx. 20km away toward north-west direction from this substation. Therefore, upgraded Kawaala Substation is expected to supply electricity to Nansana, Busiro North, and Busiro East constituency.

[1] Final Report for Preparatory Survey on Greater Kampala Metropolitan Area Transmission Systems Improvement Project in the Republic of Uganda (Sep. 2016)

(2) Objectives

To supply electricity to Nansana, Busiro North, and Busiro East constituency.

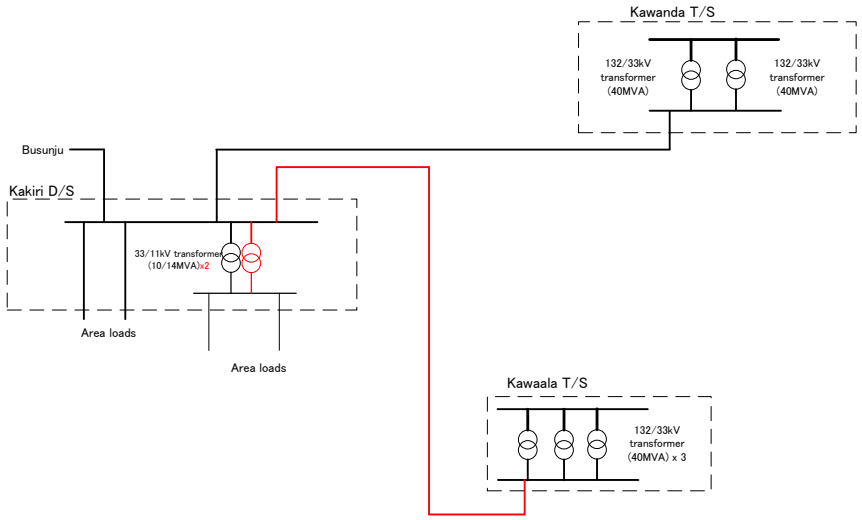
(3) Project Description

The scope of this project is to construct new 33kV line from Kawaala T/S to Kakiri D/S will be constructed. For the purpose of decreasing the utilization rate of 132/33kV transformers in Kawanda T/S, this new incomer will be used as main line whilst the existing line from Kawanda T/S to Kakiri D/S will be used as backup line.

Figure 13.1.7-1 shows preliminary route of 33kV line. In addition, since Kakiri D/S has only one unit of transformer, additional transformer will be installed for redundancy. Figure 13.1.7-2 shows preliminary system diagram.

Note: Green line: Existing 33kV incomers. Yellow line: New 33kV incomer route.
Source: Prepared by JICA Expert team

Figure 17.3.15 Proposed Location of Kakiri D/S and Connected lines



Source: Prepared by JICA Expert Team

Figure 17.3.16 System Diagram of Kakiri D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

- UMEME Limited
- UEDCL
- ERA

(6) Estimated Project Cost

3 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement.

17.3.10 Project for Load Shifting from Kampala North T/S & Muutndwe T/S to upgraded Kawaala T/S (Central Area)

(1) Rational

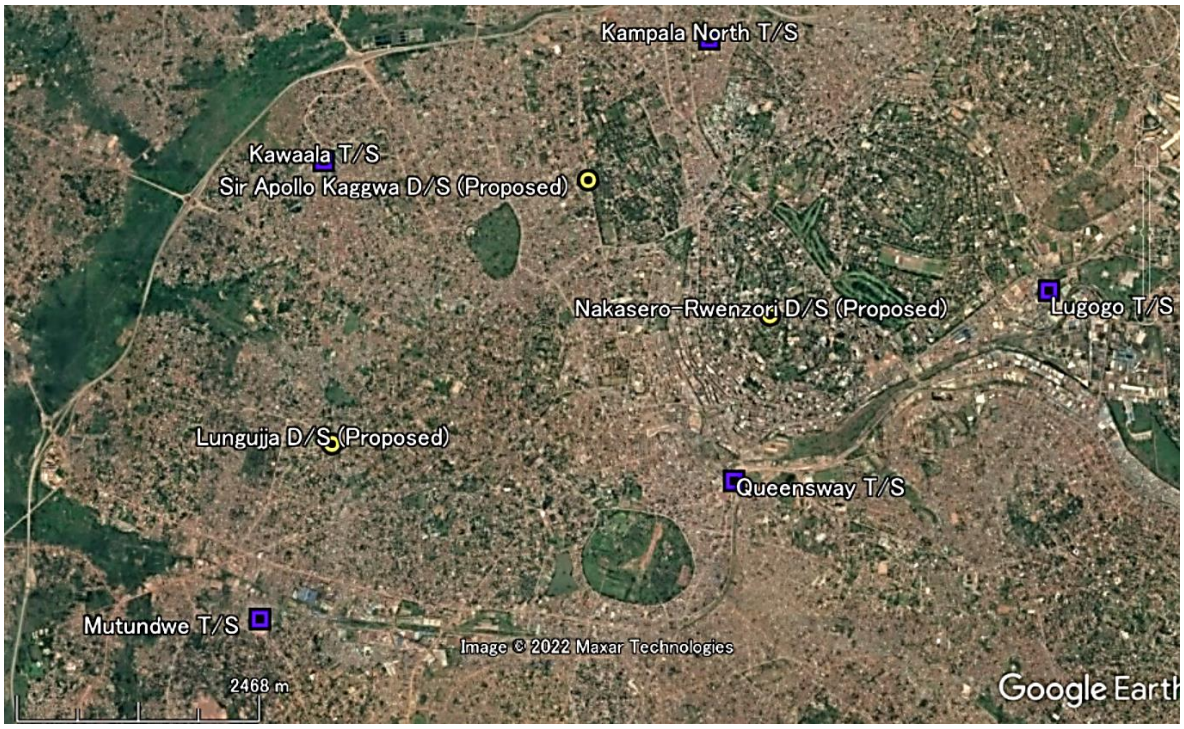
33kV feeders from upgraded Kawaala T/S will be also connected to Mutundwe T/S and Kampala North T/S.

(2) Objectives

(3) Project Description

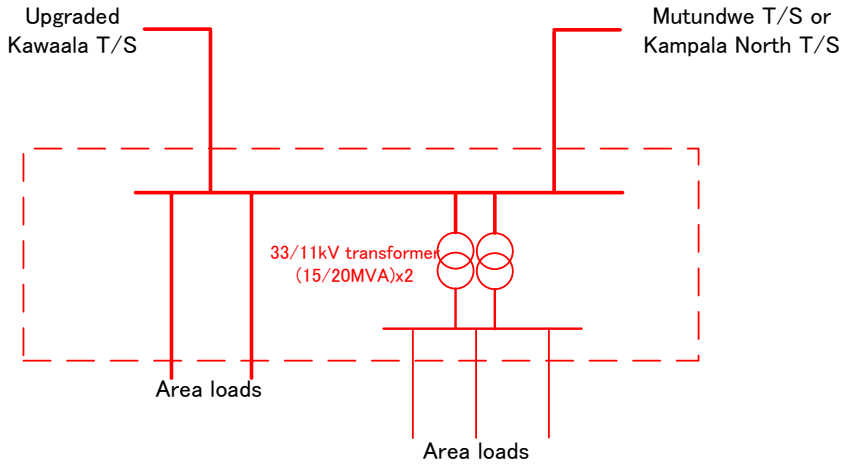
The scope of this project will include the new construction of 33kV incomers from upgraded Kawaala T/S to existing Mutundwe T/S and Kampala North T/S in line with new construction of distribution substations in and around Kampala Central Division. These new distribution substations will be Sir Appolo Kaggwa D/S (Kampala Central Division), Nakasero-Rwenzori D/S (Kampala Central Division) and Lungujja D/S (Lugaba Division).

Figure 13.1.8-1 shows proposed location of new distribution substations. As same as the other projects, 33kV route survey will be necessary. Figure13.1.8-2 shows basic system diagram applied to substations in common.



Source: JICA Expert team

Figure 17.3.17 Proposed location of Lungujja D/S, Sir Apollo Kagwa D/S and Nakasero-Rwenzori D/S



Source: JICA Expert Team

Figure 17.3.18 System diagram of Lungujja D/S, Sir Apollo Kagwa D/S and Nakasero-Rwenzori D/S

(4) Expected Benefits

Power supply capacity will be obtained considering the new load.

(5) Executing Agency and Related Institute

UMEME Limited. UEDCL and ERA

(6) Estimated Project Cost

3 million USD

(7) Implementation Schedule

As soon as practicable.

(8) Necessary Actions for Implementation / Critical Factor

Land acquisition

(9) Related Plans and Projects

UMEME master plan

(10) Social and Environmental Impacts

Noise from substation shall fulfil environment requirement.

17.3.11 Project for Expansion of Wi-Fi Hotspots [IT-01]

(1) Rational

The project will provide easy internet access service to the public at an affordable cost or free of cost by Wi-Fi hotspots in GKMA area, specially at different key locations such as, educational institutions, hospitals, public offices, public spaces and contribute to development.

(2) Objectives

- To densify communication networks to the public by providing easy access to the internet
- To increase penetration rate for the internet and the ICT facilities
- To enhance popularization of ICTs by accessibility to the internet in places most frequently visited by the inhabitants

(3) Project Description

- Install necessary equipment to create Wi-Fi hotspot at different key locations such as, educational institutions, hospitals, public offices, public spaces (park, shopping mall etc.)
- Provide secure and stable Wi-Fi internet access to the public
- Controlling the data use by registration and restricting the irrelevant websites in order to ensure the fair and efficient internet data use
- Maintenance budget

(4) Expected Benefits

- More inhabitants can access the internet.
- Access to the services through IT systems like telemedicine, e-learning, e-government, etc. will be enhanced.

(5) Executing Agency and Related Institute

- NITA-U: Responsible for overall infrastructure development
- Kampala Capital City Authority (KCCA) and each municipality: Responsible for local connectivity

(6) Estimated Project Cost

- US$ 3 million for 10 locations
- About 0.3 million per location which can serve about 10,000 people simultaneously

(7) Implementation Schedule

- 24 months

(8) Necessary Actions for Implementation / Critical Factor

- Needs to have proper coordination between the LGs and NITA-U

(9) Related Plans and Projects

- E-Government Master Plan by the central government
- NITA U's National Data Backbone Infrastructure (NBI) and last mile extension project
- KCCA's Information Systems Strategic Plan (ISSP) 2020-2026 also known as the Smart City Strategic Plan (2020-2026)

(10) Social and Environmental Impacts

- Wifi hot-spot equipment need to be set up carefully, so that it would not create any social or environmental hazards.

17.3.12 Establishment of a Resource Centre [IT-08]

(1) Rational

The project will provide opportunity for the young people, especially school children, could be given exposure to research and knowledge of different countries.

(2) Objectives

- To create opportunity for the young school children to use internet
- To enhance the opportunity of exposure to research and knowledge of different countries
- To create a knowledge sharing resource center for the younger generation which can be a center of excellence for the rest of the Africa

(3) Project Description

- Building/ Structure, Utilities installation & Production equipment with free high-speed internet
- Computers with necessary equipment for serving 100 persons
- Online meeting facilities
- E-library and collaboration with foreign cities to share the technical publications and ongoing projects
- Local Government IT and administrative personal for management
- Maintenance budget

(4) Expected Benefits

- The young generation's knowledge related to ICT will enhance
- Young generation will attract to ICT sector and

(5) Executing Agency and Related Institute

- Ministry of ICT: Policy Support
- NITA-U: IT Infrastructure Development
- Uganda Investment Authority: Overall Infrastructure Development

(6) Estimated Project Cost

- US$ 1.2 million

(7) Implementation Schedule

- 36 months

(8) Necessary Actions for Implementation / Critical Factor

- Needs to have proper coordination between the organizations

(9) Related Plans and Projects

- E-Government Master Plan by the national government (Education Sector)
- NITA U's National Data Backbone Infrastructure (NBI) and last mile extension project
- KCCA's Information Systems Strategic Plan (ISSP) 2020-2026 also known as the Smart City Strategic Plan (2020-2026)

(10) Social and Environmental Impacts

- The location needs to be selected which will be create any social or environmental impact

17.3.13 Profile of Project for Solid Waste Management [SW-01] and [SW-02]

It is recommended to carry out the project SW-01 (Formulation of Master Plan for Solid Waste Management System for GKUGA) and the project SW-02 (Capacity Development of Local Governments in Solid Waste Management System and Implementation of Master Plan for Solid Waste Management System) as one project.

(1) Rational

There is no solid waste management plan for GKUGA, and the solid waste management capacity of local governments, especially other than KCC, is weak.

(2) Objectives

- To formulate a master plan which will make clear the future direction of the solid waste management system for GKUGA.
- To develop the solid waste management capacity of the local governments through formulation process and implementation of pilot project(s).
- To build consensus on the future direction among stakeholders through the formulation process.

(3) Project Description

The project will formulate the master plan through joint work between a Ugandan competent authority(ies) and a team of solid waste management experts sent by a donor agency.

(4) Expected Benefits

A solid waste management master plan will be formulated for GKUGA. The formulation process aims to develop solid waste management capacity of people and institutions, and to build consensus among stakeholders for the implementation of the master plan.

(5) Executing Agency and Related Institute

- Ministry of Kampala Capital City, MKCC
- Ministry of Lands, Housing and Urban Development
- National Planning Authority
- Kampala Capital City Authority
- Mukono District Government

- Wakiso District Government
- Mpigi District Government
- Others as necessary

(6) Estimated Project Cost

[SW-01] 1.0 million USD + [SW-02] 2.0 million USD = 3.0 million USD

(7) Implementation Schedule

- Three years during 2025 - 2030

(8) Necessary Actions for Implementation / Critical Factor

- There is no authority dealing with solid waste management for the whole GKUGA. An organization of solid waste management experts should be established under MKCC for implementation.

(9) Related Plans and Projects

- Kampala Waste PPP Project

(10) Social and Environmental Impacts

There will be no social or environmental impacts, as the projects consist only of surveys, planning and capacity development.

17.3.14 Kampala Waste PPP Project [SW-03]

[SW-03] Kampala Waste PPP Project: Ddundu landfill + Kiteezi TS and Waste Diversion Facility for KCC

(1) Rational

Kiteezi landfill which receives waste from the Metro Core, i.e., KCC and neighbouring local authorities, is almost full and it is said that this landfill should be replaced in the next few years. KCC prepared a concept for a project called as "Kampala Waste PPP Project" and secured a land for the future landfill called as Ddundu. However, the project has not been realised so for. This project shall be implemented to ensure the solid waste management of the Metro Core.

(2) Objectives

- To improve and secure the entire solid waste management system, from collection to final disposal, of the Metro Core currently using the Kiteezi landfill, with private sector participation.

(3) Project Description

The project consists of improving collection, converting the Kiteezi landfill into a transfer station with waste minimisation facilities, and constructing and operating a new Ddundu landfill. The project can be implemented on a component basis.

(4) Expected Benefits

The project will increase collection rates, promote waste minimisation, mitigate the environmental impact of the Kiteezi landfill and provide appropriate final disposal.

(5) Executing Agency and Related Institute

Kampala Capital City Authority and neighbouring local authorities.

(6) Estimated Project Cost

The table below shows estimated project cost.

Unit: million USD

Project	Facility / Service	Item	2025-30	2031-40	2041-50	Total
SW-03	Collection	Capital	32.4	60.0	70.3	162.7
		O&M	109.4	202.6	237.3	549.3
	Transfer	Capital	7.9	14.6	17.1	39.7
		O&M	18.4	34.1	40.0	92.6
	Waste diversion	Capital	7.1	13.1	15.4	35.6
		O&M	14.2	26.3	30.8	71.2
	Landfill	Capital	13.2	24.4	28.6	66.1
		O&M	26.3	48.8	57.1	132.2

(7) Implementation Schedule

- See the table above.

(8) Necessary Actions for Implementation / Critical Factor

- The project expects private sector participation. Funding shall be secured to make it financially viable for the private sector.

(9) Related Plans and Projects

- Kampala Waste PPP Project

(10) Social and Environmental Impacts

- Strengthening the collection system will improve sanitation in the city.
- The closure of the Kiteezi landfill will reduce the environmental impact on the surrounding area.
- Conversion of the landfill to a transfer station with minimisation facilities at Kiteezi may result in new environmental impacts.
- Construction and operation of the new Ddundu landfill will require mitigation measures for the expected environmental impacts.

17.3.15 Project for Solid Waste Management in the Metropolitan Centres [SW-04], [SW-05], [SW-06]

The following are the projects that correspond to the development of the Metropolitan Centres.

- [SW-04] Establishment of Transfer Station and Waste Diversion Facility for Mukono Metropolitan Centre
- [SW-05] Establishment of Sanitary Landfill for Mukono Metropolitan Centre
- [SW-06] Establishment of Transfer Station and Waste Diversion Facility for Gayaza-Kasangati Metropolitan Centre
- [SW-07] Establishment of Transfer Station and Waste Diversion Facility for Matugga Metropolitan Centre
- [SW-08] Establishment of Transfer Station and Waste Diversion Facility for Wakiso Metropolitan Centre
- [SW-09] Establishment of Sanitary Landfill for Gayaza-Kasangati, Matugga and Wakiso Metropolitan Centres

- [SW-10] Establishment of Transfer Station and Waste Diversion Facility for Nsangi-Nakirebe Metropolitan Centre
- [SW-11] Establishment of Transfer Station and Waste Diversion Facility for Kajjansi Metropolitan Centre
- [SW-12] Establishment of Sanitary Landfill for Nsangi-Nakirebe and Kajjansi Metropolitan Centres

(1) Rational

The Greater Kampala Urban Growth Area Physical Development Plan, GKUGA-PDP, recommends a balanced urban development with dispersed Metropolitan Centres. The above solid waste management projects shall be in line with this urban development.

(2) Objectives

- To establish the entire solid waste management system, from collection to final disposal, in the Metropolitan Centres.

(3) Project Description

The project consists of establishment of collection system, construction and operation of transfer stations with waste minimisation facilities and constructing and operating new landfills. The project can be implemented on a component basis.

(4) Expected Benefits

The project will improve sanitation, promote waste minimisation, and provide appropriate final disposal in the Metropolitan Centres.

(5) Executing Agency and Related Institute

- Ministry of Kampala Capital City, MKCC
- Ministry of Lands, Housing and Urban Development
- National Planning Authority
- Kampala Capital City Authority and other local authorities

(6) Estimated Project Cost

The table below shows estimated costs of the projects.

Unit: million USD

Project	Facility/Service	Item	2025-30	2031-40	2041-50	Total
SW-4	Collection	Capital	3.7	15.6	41.3	60.6
		O&M	12.6	52.5	139.6	204.7
	Transfer	Capital	0.89	3.37	9.67	13.9
		O&M	2.07	7.86	22.56	32.5
	Waste diversion	Capital	0.85	4.12	9.73	14.7
		O&M	1.71	8.23	19.45	29.4
SW-5	Landfill	Capital	1.48	5.61	16.12	23.2
		O&M	2.95	11.23	32.23	46.4
SW-6	Collection	Capital	1.86	9.56	25.08	36.5
		O&M	6.29	32.26	84.65	123.2
	Transfer	Capital	0.44	2.06	5.85	8.4
		O&M	1.03	4.80	13.65	19.5
	Waste diversion	Capital	0.43	2.54	5.92	8.9
		O&M	0.85	5.09	11.85	17.8

Project	Facility/Service	Item	2025-30	2031-40	2041-50	Total
SW-7	Collection	Capital	1.40	5.41	12.90	19.7
		O&M	4.72	18.27	43.54	66.5
	Transfer	Capital	0.33	1.17	3.01	4.5
		O&M	0.78	2.74	7.01	10.5
	Waste diversion	Capital	0.32	1.43	3.05	4.8
		O&M	0.64	2.85	6.11	9.6
SW-8	Collection	Capital	2.05	9.78	27.26	39.1
		O&M	6.92	33.02	91.99	131.9
	Transfer	Capital	0.49	2.11	6.38	9.0
		O&M	1.14	4.92	14.88	20.9
	Waste diversion	Capital	0.47	2.60	6.40	9.5
		O&M	0.94	5.20	12.81	18.9
SW-9	Landfill	Capital	2.10	8.90	25.39	36.4
		O&M	4.21	17.81	50.79	72.8
SW-10	Collection	Capital	3.08	14.19	39.93	57.2
		O&M	10.38	47.89	134.76	193.0
	Transfer	Capital	0.73	3.06	9.35	13.1
		O&M	1.71	7.15	21.82	30.7
	Waste diversion	Capital	0.70	3.76	9.37	13.8
		O&M	1.41	7.53	18.74	27.7
SW-11	Collection	Capital	3.77	14.98	36.63	55.4
		O&M	12.74	50.56	123.62	186.9
	Transfer	Capital	0.90	3.25	8.54	12.7
		O&M	2.09	7.57	19.93	29.6
	Waste diversion	Capital	0.86	3.95	8.66	13.5
		O&M	1.73	7.91	17.32	27.0
SW-12	Landfill	Capital	2.71	10.51	29.82	43.0
		O&M	5.43	21.03	59.64	86.1

Source: JICA Expert Team

(7) Implementation Schedule

- See the table above.

(8) Necessary Actions for Implementation / Critical Factor

- Coordination among local authorities is a key to the successful development of a solid waste management system across the GKUGA. Strong leadership is expected from MKCC and/or other authorities at national level.

(9) Related Plans and Projects

- Kampala Waste PPP Project

(10) Social and Environmental Impacts

- Strengthening the collection system will improve sanitation in the Metropolitan Centres.
- Transfer stations with minimisation facilities may result in new environmental impacts.
- Construction and operation of new landfills will require mitigation measures for the expected environmental impacts.

17.4 Project Profile for Open Space Development and Wetland Management

17.4.1 Project for the Eco-Park Development in Lubigi [OS-01]

(1) Rational

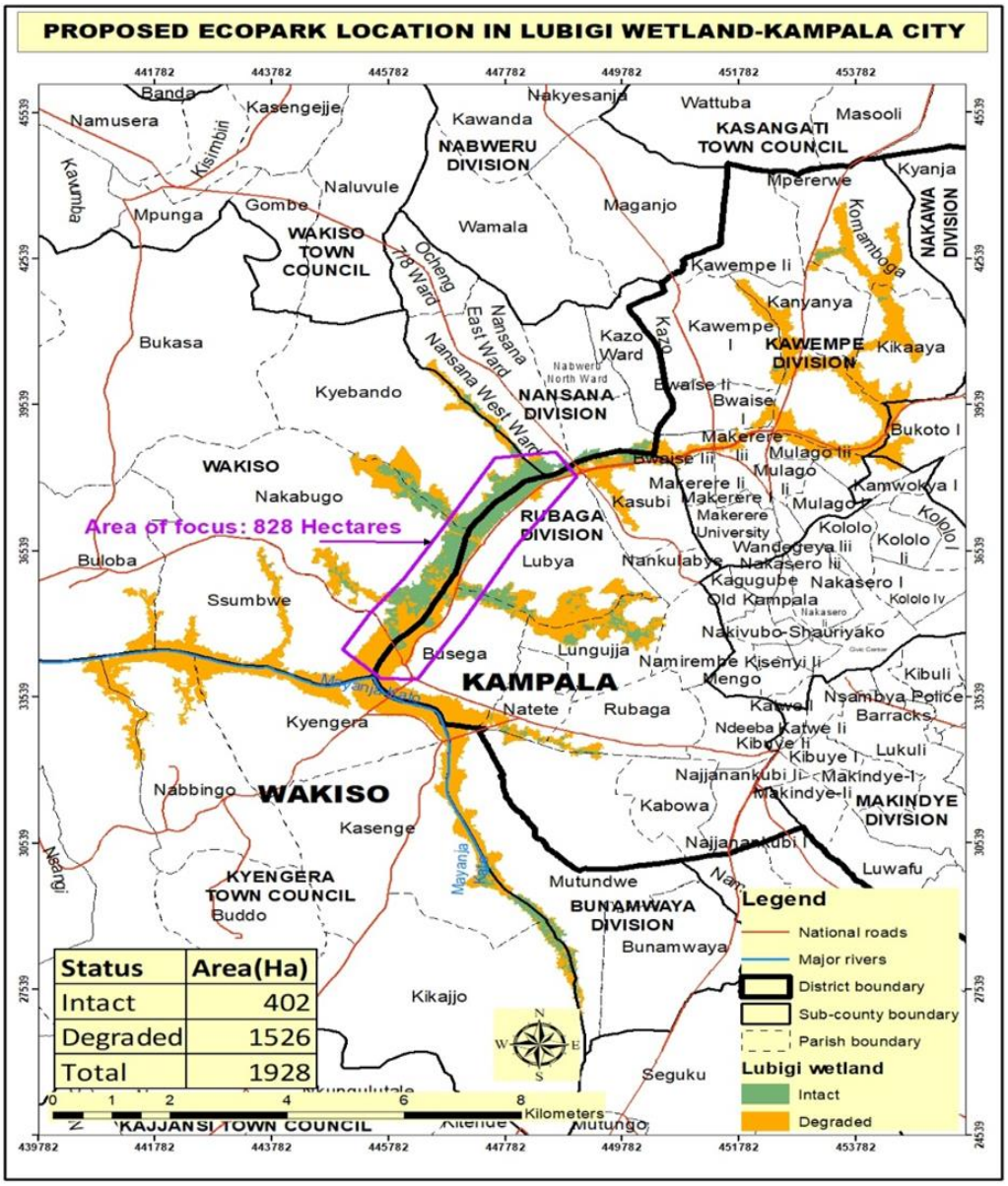
Wetland degradation is one of the critical issues in GKUGA especially in and around KCC. One of the wetland management strategies is the development of an urban green park at the edge of the wetland, which is expected to improve the physical boundary of the wetland and at the same time prevent further encroachment into the wetland. Considering that there is already an eco-park concept in Lubigi Wetland, it can be considered as a pilot project for the implementation of this strategy.

(2) Objective

- To develop a wetland eco-park in the urbanized area as a green urban park pilot project.
- To establish standards/guidelines for green urban park development using part of the wetland in the planning and design of this pilot project.

(3) Project Description

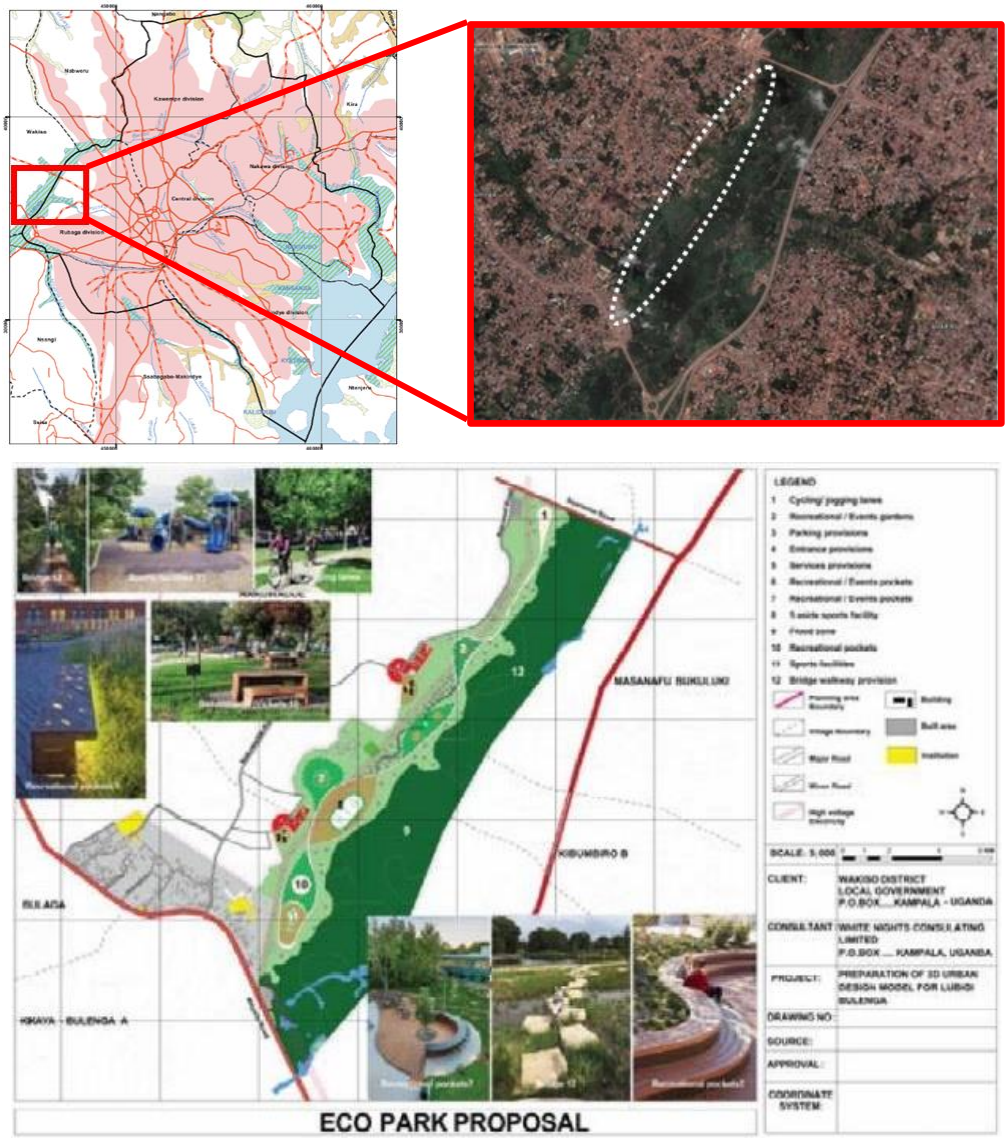
The proposed location of the eco-park in the Lubuji wetland is shown in Figure 17.4.1. It is locat4ed between Hoima Road on the eastern side and around Busega Roundabout on the western end. The target area is approximately 828 ha.



Source: Wetland Management Department of MoWE

Figure 17.4.1 Proposed Eco Park Site in Lubigi

Within the wetland, vegetation and water flow will be maintained. The design will be consistent with the topography of the land and sustainable landscaping. Amenities such as walking trails, seating area, picnic and playground area will be developed at the edge of the wetland. Figure 17.4.2 shows the example of eco-park concept plan drafted by the Wakiso District Local Government.



Source: Wakiso District

Figure 17.4.2 Eco Park Concept Plan (Example)

(4) Expected Benefits

- Provide open and recreational space for urban residents.
- Prevent encroachment within functioning wetland.
- Used as a model case for the eco-park development in other potential sites in GKUGA.

(5) Executing Agency and Related Institute

- Local governments (Wakiso District and KCCA): Engage development partners to prepare feasibility study. Monitor and supervise the development in case of private development.
- MoWE: Evaluate impact of the project and regulate activities inside the wetland
- NEMA: Evaluate impact of the project and determine approval
- MoLHUD: Prepare guidelines for an urban green park with a wetland wise use concept.

(6) Estimated Project Cost

The project cost will be estimated based on the feasibility study. The tentative budget is approximately UGX 20 billion.

(7) Implementation Schedule

- Feasibility Study: Consultant selection stage (as of May 2024)
- Development in 2025-2026

(8) Necessary Actions for Implementation / Critical Factor

- Seek funding for feasibility study and development partners for eco-park development.
- Based on the feasibility study, prepare guidelines for an urban green park with a wetland wise use concept.
- Monitoring and supervision of the development by the responsible authorities, i.e. Wakiso District and KCC government, to ensure compliance with the standards and regulations.

(9) Related Plans and Projects

Lubigi is one of the eco-park development sites. The feasibility study is supported by the Global Green Growth Institute (GGGI).

(10) Social and Environmental Impacts

EIA will be required. Hydrological and ecological surveys must be conducted at the feasibility study stage to identify and minimize negative impacts. The project is expected to have a positive impact on wetland conservation. The provision of a nature-based recreational space will improve the mental and physical health of urban residents. To maximize user benefits, accessibility, safety, and usability for different ages and genders should be considered.

17.4.2 Project for the Urban Park Development in Nakivubo [WL-02]

(1) Rational

The Nakivubo Wetland plays a crucial role in maintaining the water quality of the Murchison Bay section of Lake Victoria. However, it is losing its functionality due to the increasing drainage and the conversion of its natural vegetation. Proactive interventions are necessary to improve the situation. With the planned development of Luzira into a suburban centre, the creation of an urban green park in the Nakivubo area presents a significant opportunity to make it as a landmark nature-based recreational space for KCC, help prevent encroachment into the functioning wetland, and assist in the restoration of the wetland system.

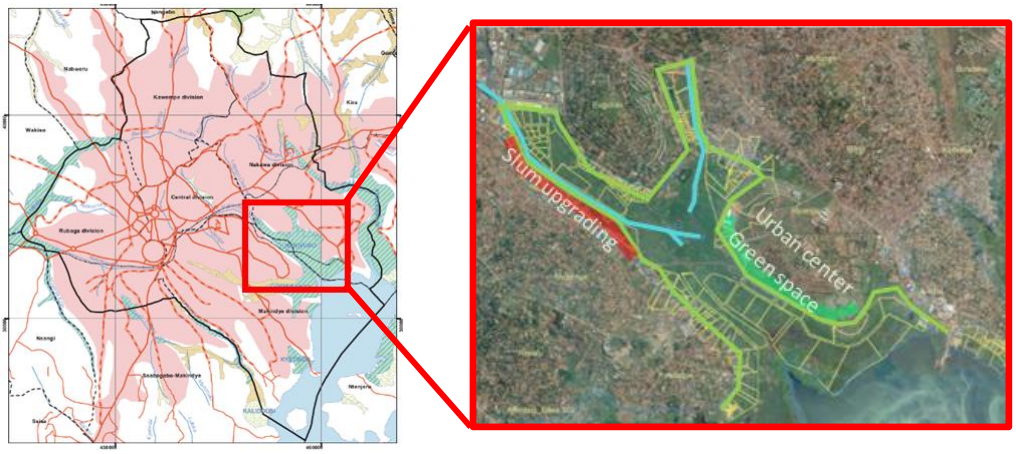
(2) Objectives

- Develop a green urban park along Nakivubo Wetland and provide open and recreational space for the urban residents.
- Integrate slum improvement with drainage and waste management to
- Clarify physical boundary by walkway to prevent land use change and encroachment within the wetland.

(3) Project Description

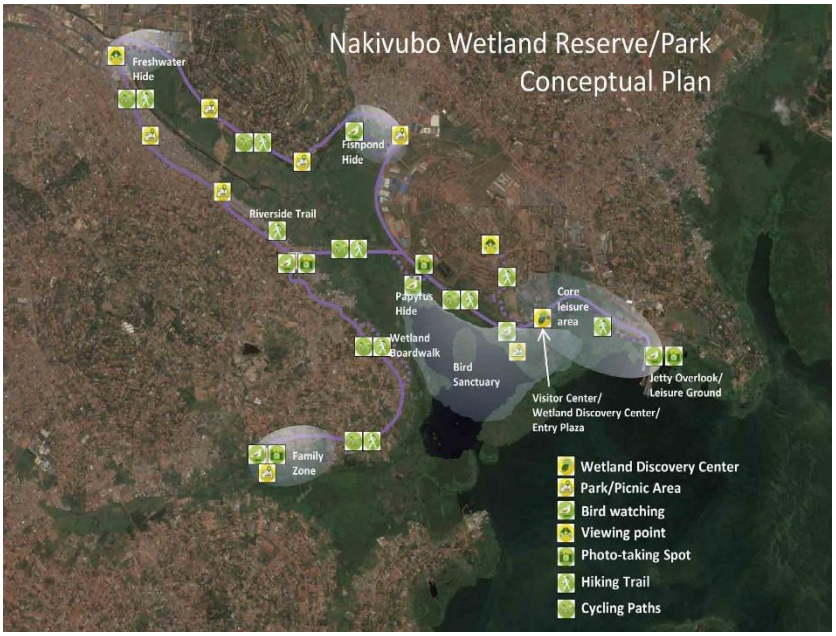
Develop an urban green park surrounding Nakivubo Wetland with the application of linear park concept (approximately 10km). As shown in Figure 17.4.3, the wetland and drainage channel will be maintained, and the park will be in strip defined by the pathways along the wetland. Some dedicated open spaces can be created at the Luzira side. The slum areas in Namuwongo need basic infrastructure improvement such as sewage piping and waste management. Phase based development approach may be considered where eastern side to be developed first and western informal dwelling area in the second phase.

The conceptual plan from the previous study is shown in Figure 17.4.4. The plan includes a visitor centre, landscaping, boardwalks, picnic facilities, toilet facilities, etc. For reference, Figure 17.4.5 shows the infrastructure intervention for the seasonal flood and wetland park presented in the similar project.



Source: JICA Project Team

Figure 17.4.3 Proposed Location of Linear Green Urban Park



Source: Promoting Green Urban Development in Africa, WB, 2016

Figure 17.4.4 Nakivubo Wetland Park Conceptual Plan (Reference)

Source: Addis Ababa "Beautifying Sheger" River Development Project, AfDB

Figure 17.4.5 Example of Wetland Park Concept (Reference)

(4) Expected Benefits

- Preserve functioning wetland and prevent further encroachment within wetland.
- Provide accessible open and recreational space for urban residents and international tourists.
- Raise awareness of wetland conservation.
- Allowing for tourism and business opportunities along the park.

(5) Executing Agency and Related Institute

- KCCA: Engage development partners to prepare urban green park plan and feasibility study.
- MoWE: Evaluate impact of the project and regulate activities inside the wetland.
- NEMA: Evaluate impact of the project and determine approval.
- MoLHUD: Plan and integrate slum upgrading projects in the urban green park plan.
- NGO: Plan and implement slum upgrading activities, including waste management.
- NWSC: Plan and coordinate sewage connections

(6) Estimated Project Cost

The project cost will be estimated based on the feasibility study. The tentative budget is approximately UGX 12 billion.

(7) Implementation Schedule

- Feasibility Study: 2026
- Implementation: 2027-2031

(8) Necessary Actions for Implementation / Critical Factor

- Securing the wetland by cancellation of private land titles.
- Seek funding and development partners for the feasibility study and implementation.
- Improvement of sewage infrastructure and waste management in the informal settlement.
- Improvement of wastewater treatment before entering wetland.

(9) Related Plans and Projects

- Sanitation and wastewater treatment works
- Slum upgrading initiatives

(10) Social and Environmental Impacts

EIA will be required. Hydrological and ecological surveys must be conducted at the feasibility study stage to identify the extent of the park, location of the facilities and design of the landscape. The project is anticipated to have a positive impact on wetland conservation. Additionally, the creation of a nature-based recreational space will enhance the mental and physical health of urban residents. Improving sewage and wastewater treatment will also benefit public health, particularly in informal settlements.

PART V

KAMPALA CAPITAL CITY PHYSICAL DEVELOPMENT PLAN (KCC-PDP)

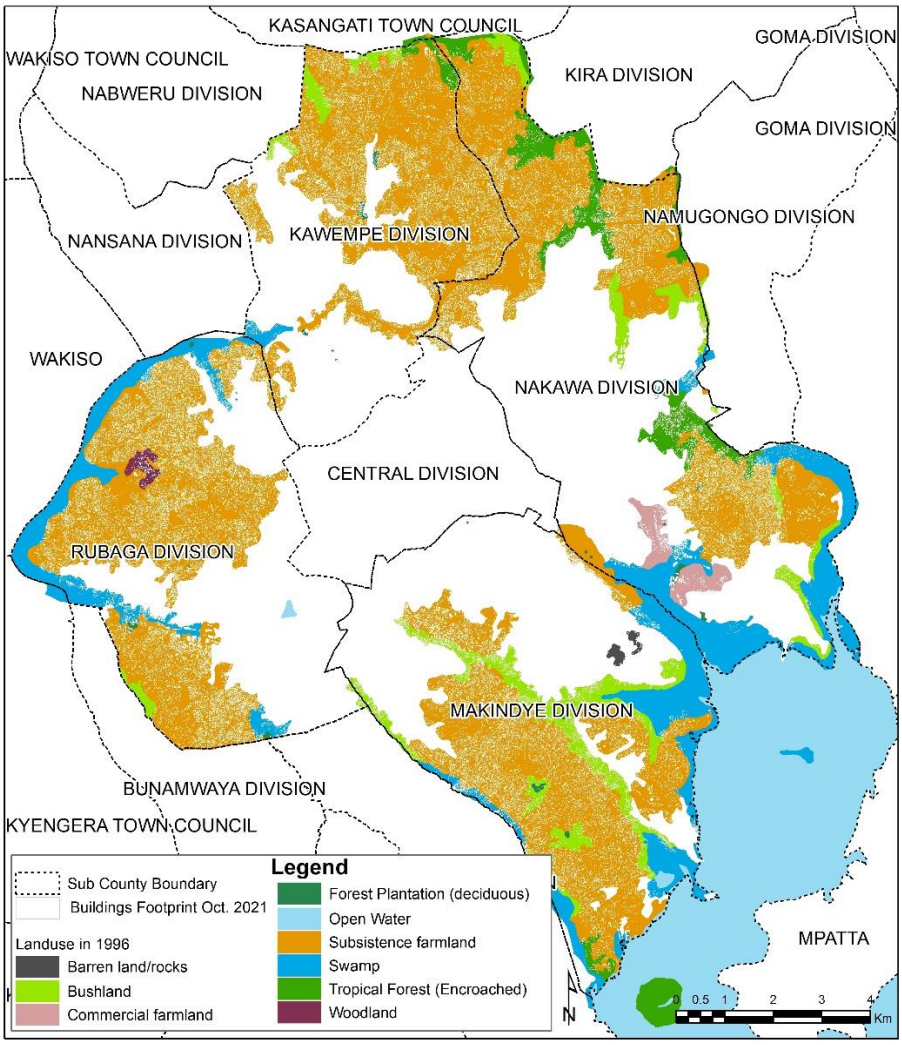
Chapter 18 Present Urban Characteristics of Kampala Capital City

18.1 Land Use in Kampala Capital City

18.1.1 Land Use Changes in Kampala Capital City

This section shows how land uses have changed in Kampala City.

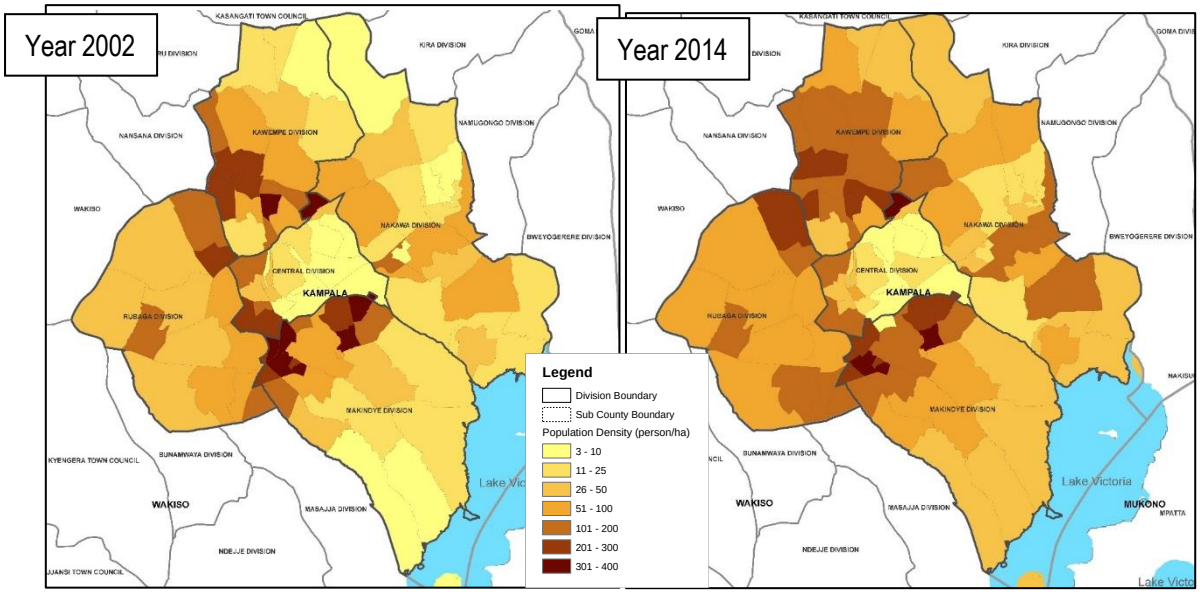
In 1996, approximately 45% of the surface area in Kampala City was built-up area, followed by approximately 38% of the land use being subsistence farmland, and 7% wetland. Most of these farmlands were transformed into residential areas by 2021 with less than 2% of the land still used for agricultural purposes. Some of the wetland has also been encroached on including for residential areas for low-income households. (See Figure 18.1.1.)



Note: White area within Kampala City is the built-up area in 1996.
Source: KCCA GIS Unit

Figure 18.1.1 Farmlands, Forests and Wetland Transformed into Residential Areas in Kampala City in 1996

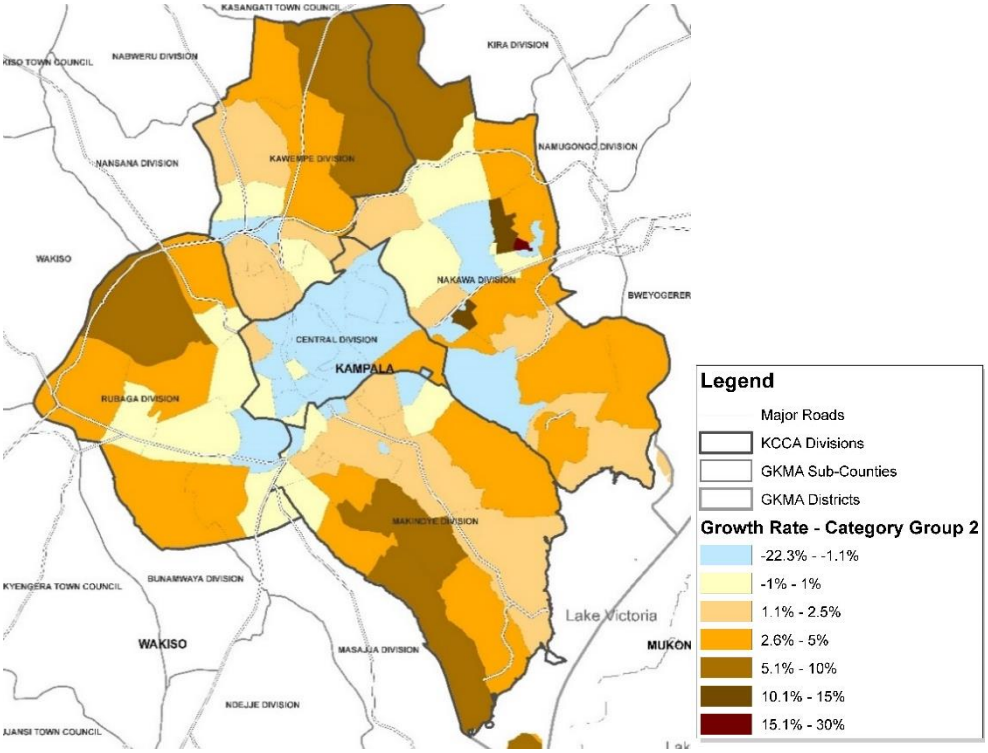
The change in population density between 2002 and 2014 also shows how these subsistence farmlands have been transformed from a very low-population density area (0–10 persons/ha) into a relatively populated area with 26–50 persons/ha in the northern part of Kawempe Division, the northern and southern part of Nakawa Division, the southern part of Makindye Division, and a high density area with 101–200 persons/ha in the western area of Rubaga Division. (See Figure 18.1.2)



Source: JICA Expert Team based on Population and Housing Census data 2002 and 2014 from UBOS

Figure 18.1.2 Changes in Population Density of Kampala City (2002 and 2014)

While farmlands have become residential areas, some residential areas in Kampala City have changed into commercial areas. A decrease in population was observed between 2002 and 2014, especially in the Kampala Central Division where the commercial and administration centre of Kampala is located. (See Figure 18.1.3.)



Source: JICA Expert Team based on Population and Housing Census data 2002 and 2014 from UBOS

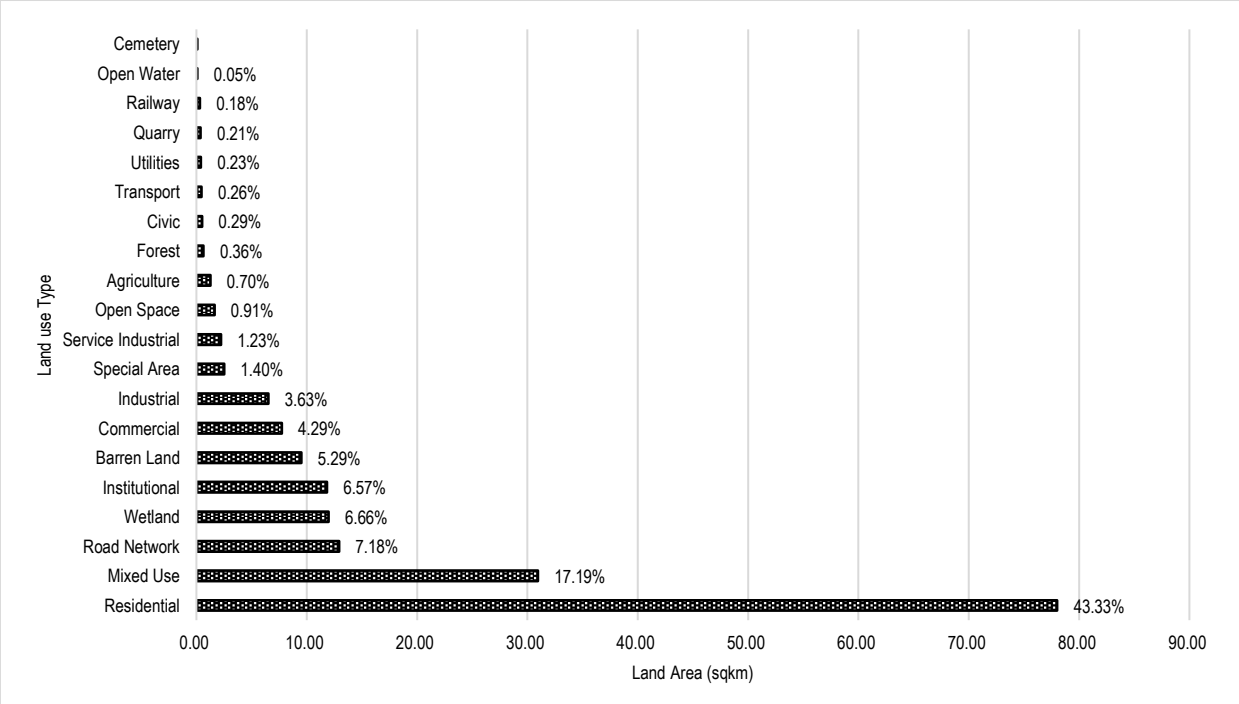
Figure 18.1.3 Average Population Growth Rage in Kampala City (2002-2014)

18.1.2 Present Land Use in Kampala Capital City

(1) Present Land Use at the City Level

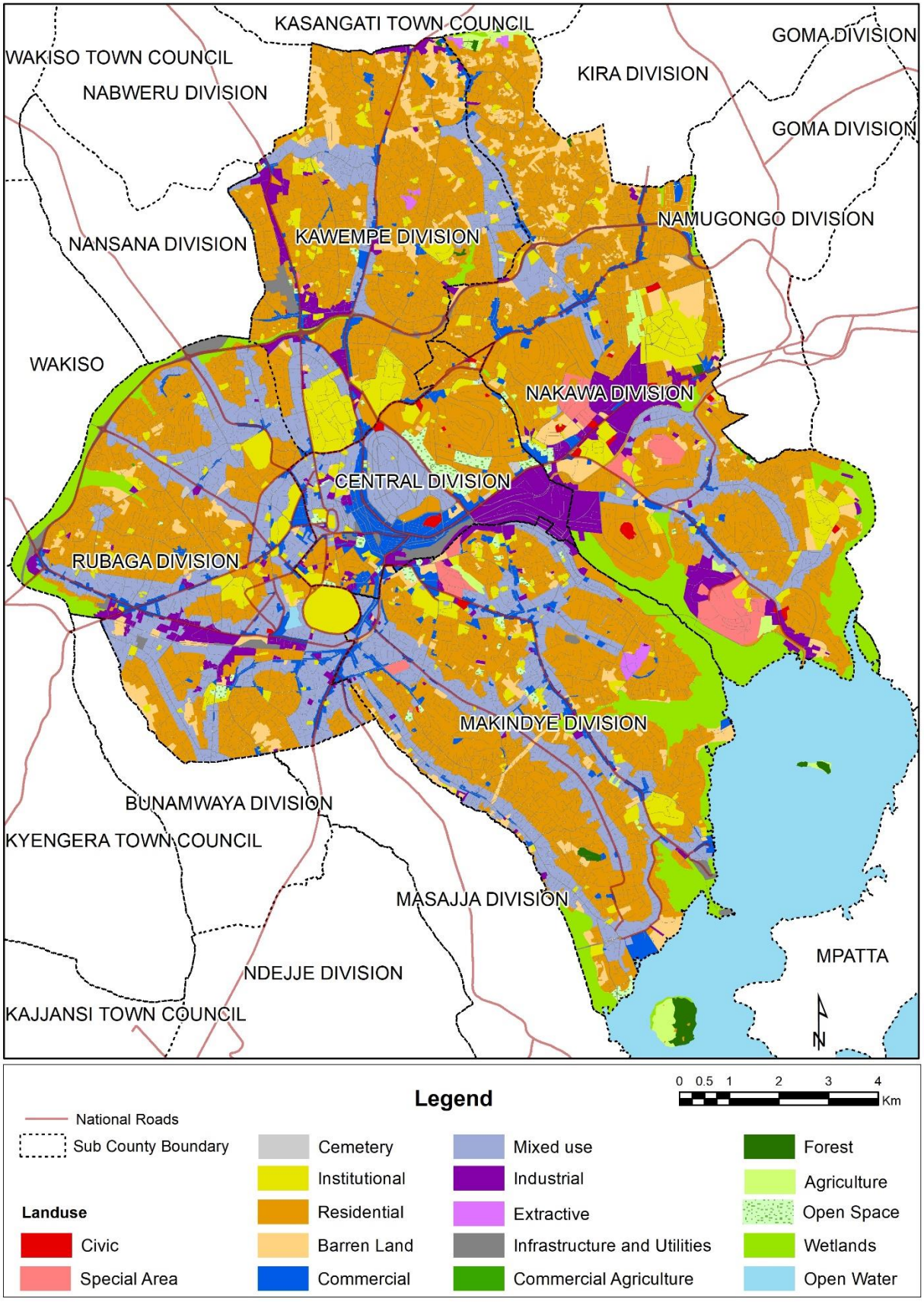
This part of the report gives an account of the current land use situation in the city. In line with the previous assertion of rapid urbanisation in the city, the land uses in the Kampala Capital City are dominated by residential and mixed use. Residential land uses takes about 43% of the total surface area of the city while mixed-use occupies about 17%. This mixed-use mainly comprises intertwined residential-commercial activities which are mainly made up of small businesses at the frontages of residential buildings along major arterial roads in the city. They are supplemented by purely commercial activities which equally takes advantage of the road network in the city. For this purpose, commercial land use represents 4.3% of the total land area of the city. The total land area for the city's road network is approximately 7% of Kampala Capital City's surface area.

As the seat of government and the centre for many formal administrative processes of the country, Kampala Capital City has several schools, offices, churches, hospitals, museums and other places of gathering. These are reflected in its institutional land use (7%), civic (0.3%), government or special area (1.4%), and public open space (0.91%). Scrap yards, garages, and other workshops make up the service industry with 1.2% of all land uses, while other industries take nearly 4% of the total surface area of the city. Wetlands, on the other hand, occupy about 7%; representing the fourth largest land use area in the city. There are some areas in the city which used to be part of the wetlands and are undeveloped and forms part of the barren land. This has a total of 9.5 square kilometres and represents approximately 5% of the total surface area of the city. All these are illustrated in Figure 18.1.4, while the summary of the land use categories and their areas is shown in the land use map in Figure 18.1.5. The present distribution of informal settlement areas is overlaid on the present land use map, as shown in Figure 18.1.6.



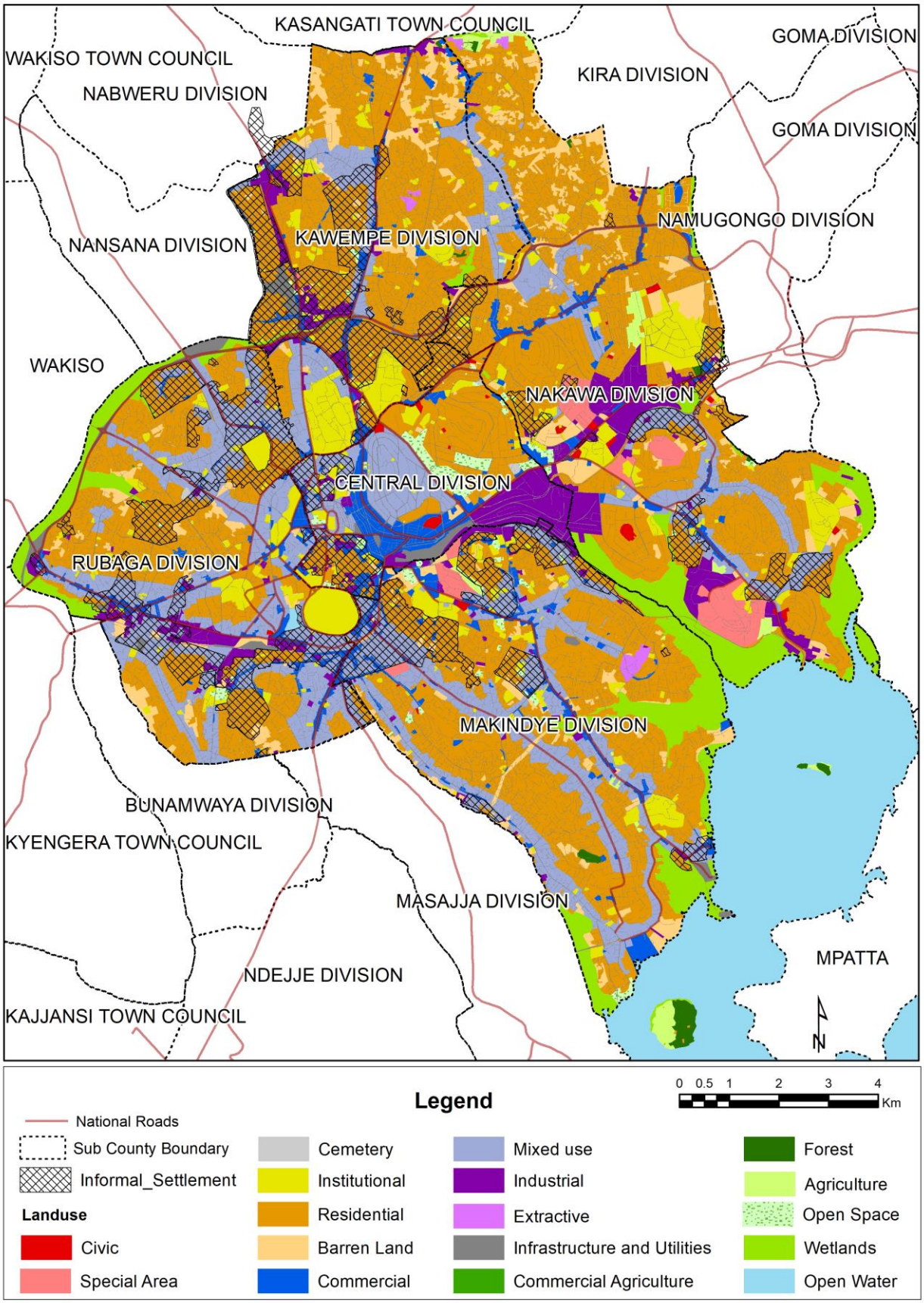
Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.4 Present Land Use Categories in Kampala Capital City



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.5 Present Land Use of Kampala Capital City, 2022



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022. The informal settlement distribution is from GIS Unit of KCCA (2014).

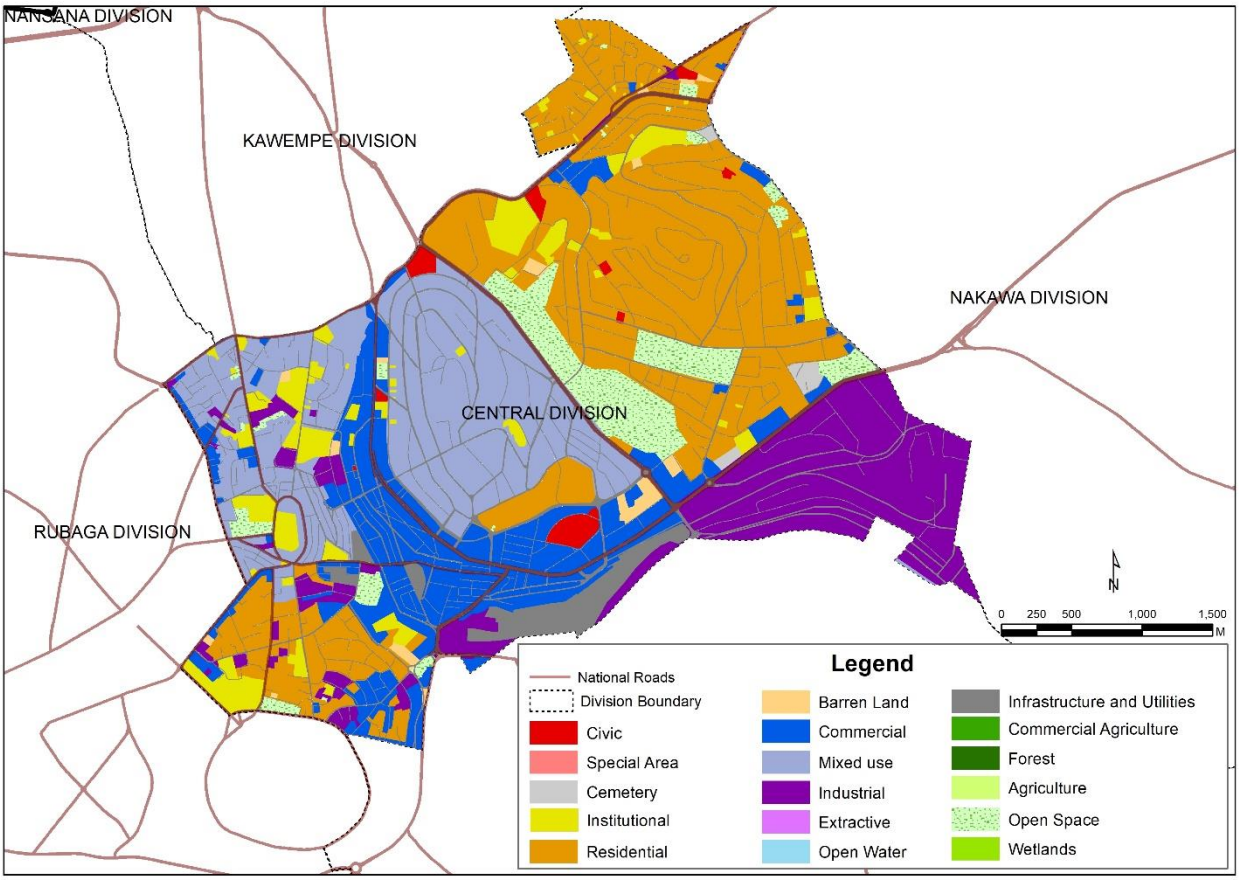
Figure 18.1.6 Present Distribution of Informal Settlements on Present Land Use of Kampala Capital City, 2014

(2) Present Land Use at Division Level

In this section, land uses at the division levels are discussed.

1) Present Land Use in Central Division

In general, all land uses in the Central Division represent 8.4% of the total land use coverage of the whole of Kampala City. Known for its centrality in the country's capital, the division can best be described as having four unique identities when it comes to its land use distribution as shown in Figure 18.1.7. There are the northeast, southeast, central and southwest. The Central Division is made up of a dominant 30.25% residential use which constitutes about 3% of the total land area of Kampala City. This is uniquely placed in the northeastern portion of the division with few areas in the southwest. Commercial land use is the second largest in the Central Division and is mostly found in the central portion which also embodies the CBD. Together with mixed commercial use, they occupy 31.36% of the division's total surface area and represent 2.63% of the entire Kampala City land use coverage. These commercial areas, particularly in the central area are supported by other land uses such as schools, healthcare facilities and offices. Therefore, institutional and civic land uses take up 5.3% and 1% of the division's land area respectively. Significantly, the southeastern enclave of the division is dedicated to industrial use and it constitutes 11.4 % area within the division. Together with other small industrial sites in other parts of the division, it is composed of nearly 1% of the total land area of the Capital City and 26% of all industrial land use in the city. Despite the vibrant activities in the division, there are areas dedicated to recreational activities which include the Ugandan Golf Course, and the Independence Park among others. They are composed of open spaces which are 6% of the division's area but constitute 56.3% of all open space allocations in the city. Table 18.1.1 gives additional information on the land uses in relation to others.



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.7 Present Land Use in Central Division

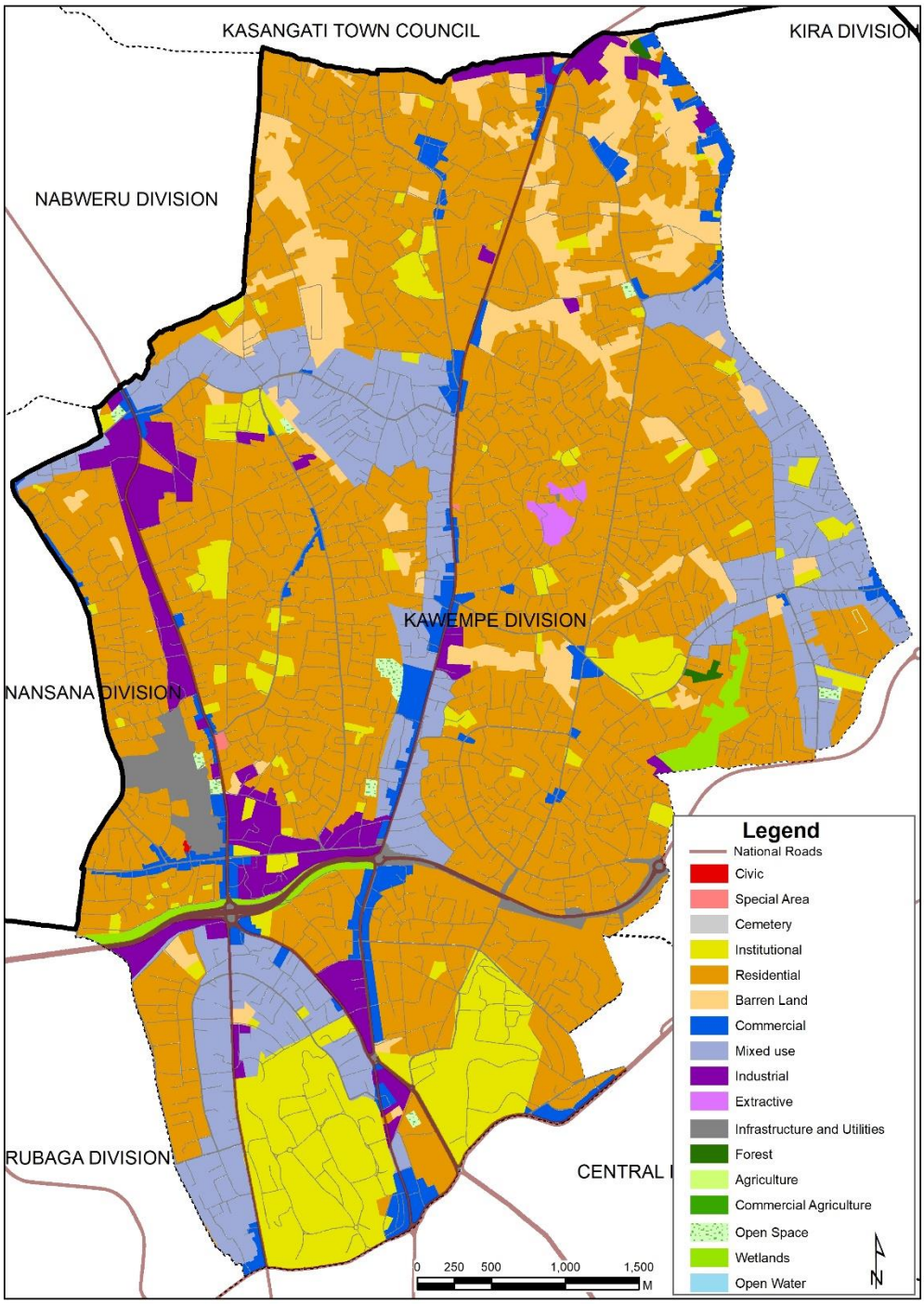
Table 18.1.1 Present Land Use Categories in Central Division

Land Use Category	Land Use Coverage (Ha)	% of Land Use within Division	% per City's Land Use Category Allocation	% of Total City's Surface Area
Wetland	0.00	0.00%	0.00%	0.00%
Transport	30.95	2.05%	***66.99%***	0.17%
Special Area	0.01	0.00%	0.00%	0.00%
Service Industrial	25.32	1.68%	11.41%	0.14%
Road Network	134.83	8.93%	10.43%	0.75%
Residential	456.58	***30.25%***	5.85%	2.54%
Railway	9.47	0.63%	29.06%	0.05%
Open Space	91.98	6.09%	***56.25%***	0.51%
Mixed Use	278.83	***18.48%***	9.01%	1.55%
Institutional	80.99	5.37%	6.85%	0.45%
Industrial	172.29	11.42%	26.39%	0.96%
Commercial	194.50	***12.89%***	25.16%	1.08%
Civic	14.78	0.98%	28.74%	0.08%
Cemetery	6.08	0.40%	***69.57%***	0.03%
Barren Land	12.56	0.83%	1.32%	0.07%
Agriculture	0.00	0.00%	0.00%	0.00%
Utilities	0.00	0.00%	0.00%	0.00%
Recreational	0.00	0.00%	0.00%	0.00%
Extractive	0.00	0.24%	0.24%	0.00%
Open Water	0.00	0.00%	0.00%	0.00%
Forest	0.00	0.09%	0.09%	0.00%
Commercial Agriculture	0.00	0.00%	0.00%	0.00%
Total	1,509.17	100.00%		8.38%

Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

2) Present Land Use in Kawempe Division

Land use in Kawempe Division constitutes 31.09 km^2 which is 17.3% of the total land use coverage in Kampala Capital City, and more than half (54%) of this is residential, which is nearly 22% of all residential land use in the city and 9.3% of all land use in the capital combined. Mixed land use constitutes 12.2% of the area in the division but together with other commercial uses represent almost 16%, which is about 3% of Kampala Capital City's surface area. However, they are mostly found along the Ntinda - Kasaasi Road and the Gayaza - Kampala Road. Furthermore, its industrial uses are spread along Bombo Road and in Bwaise Parish but the entire industrial area in the division is made up of 11.8% of all industrial zones in Kampala City. Makerere University, Mulago Hospital and other areas contribute to the division's institutional land use which is 9.5% area but denotes 25% of all institutional land uses for the Capital City. Figure 18.1.8 shows the land use map of the division while Table 18.1.2 shows the land use areas in comparison to others.



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.8 Present Land Use in Kawempe Division

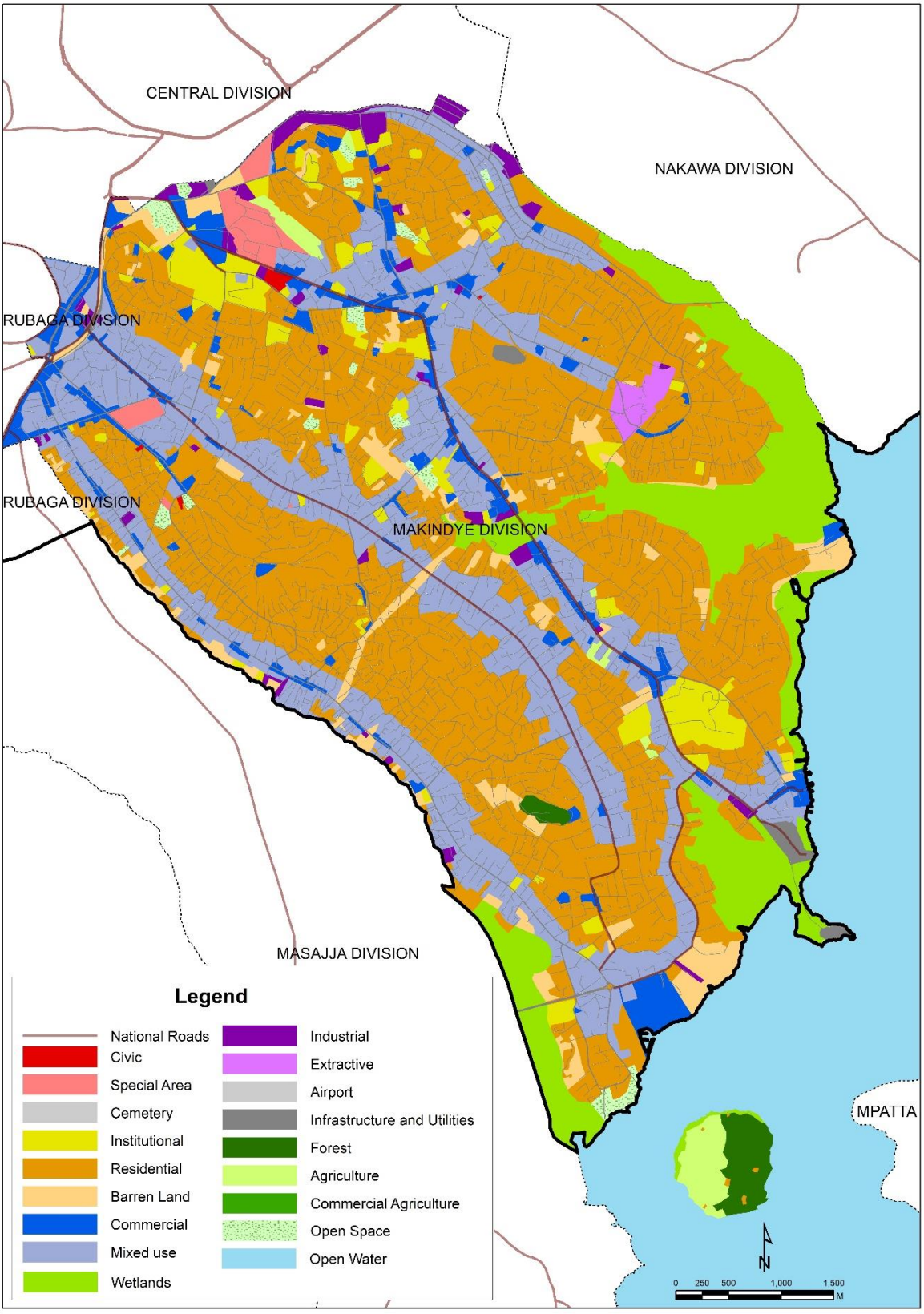
Table 18.1.2 Present Land Use Categories in Kawempe Division

Land Use Category	Land Use Coverage (Ha)	% of Land Use within Division	% per City's Land Use Category Allocation	% of Total City's Surface Area
Wetland	25.83	0.83%	2.16%	0.14%
Transport	0.14	0.00%	0.30%	0.00%
Special Area	1.02	0.03%	0.41%	0.01%
Service Industrial	53.32	1.71%	24.02%	0.30%
Road Network	266.21	8.56%	20.60%	1.48%
Residential	1,681.28	***54.08%***	21.55%	9.34%
Railway	0.00	0.00%	0.00%	0.00%
Open Space	8.87	0.29%	5.42%	0.05%
Mixed Use	381.18	***12.26%***	12.32%	2.12%
Institutional	295.33	***9.50%***	24.97%	1.64%
Industrial	77.33	2.49%	11.85%	0.43%
Commercial	103.90	3.34%	13.44%	0.58%
Civic	0.27	0.01%	0.53%	0.00%
Cemetery	0.00	0.00%	0.00%	0.00%
Barren Land	204.09	6.56%	21.45%	1.13%
Agriculture	0.00	0.00%	0.00%	0.00%
Utilities	0.12	0.00%	0.30%	0.00%
Recreational	0.00	0.00%	0.00%	0.00%
Extractive	7.46	0.24%	19.37%	0.04%
Open Water	0.00	0.00%	0.00%	0.00%
Forest	2.78	0.09%	4.33%	0.02%
Commercial Agriculture	0.00	0.00%	0.00%	0.00%
Total	3,109.13	100.00%		17.27%

Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

3) Present Land Use in Makindye Division

The present land use in Makindye Division is uniquely identified by the distribution of mixed uses along its major arterial roads such as Lukuli Road, Salaama Road and Ggaba Road. It represents 21.2% area of the division but takes 30.7% of all mixed uses allocations in the city, as well as 5.3% of the city's land area. Residential however occupies 42% of the division but 10% of the total surface area of Kampala Capital City. This is a further 24.6% of Kampala Capital City's 78 km^2 of residential land use allocations. Wetlands, on the other hand, take 10% of the division's land area and this is the third largest of the division and forms nearly 40% of all wetlands in the Capital City. Notably, along the roads are the location of commercial land use which is about an area of 2 km^2. In contrast with other land uses within the division, Table 18.1.3 shows the land use categories in Makindye Division while its spatial distribution is depicted in Figure 18.1.9.



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.9 Present Land Use in Makindye Division

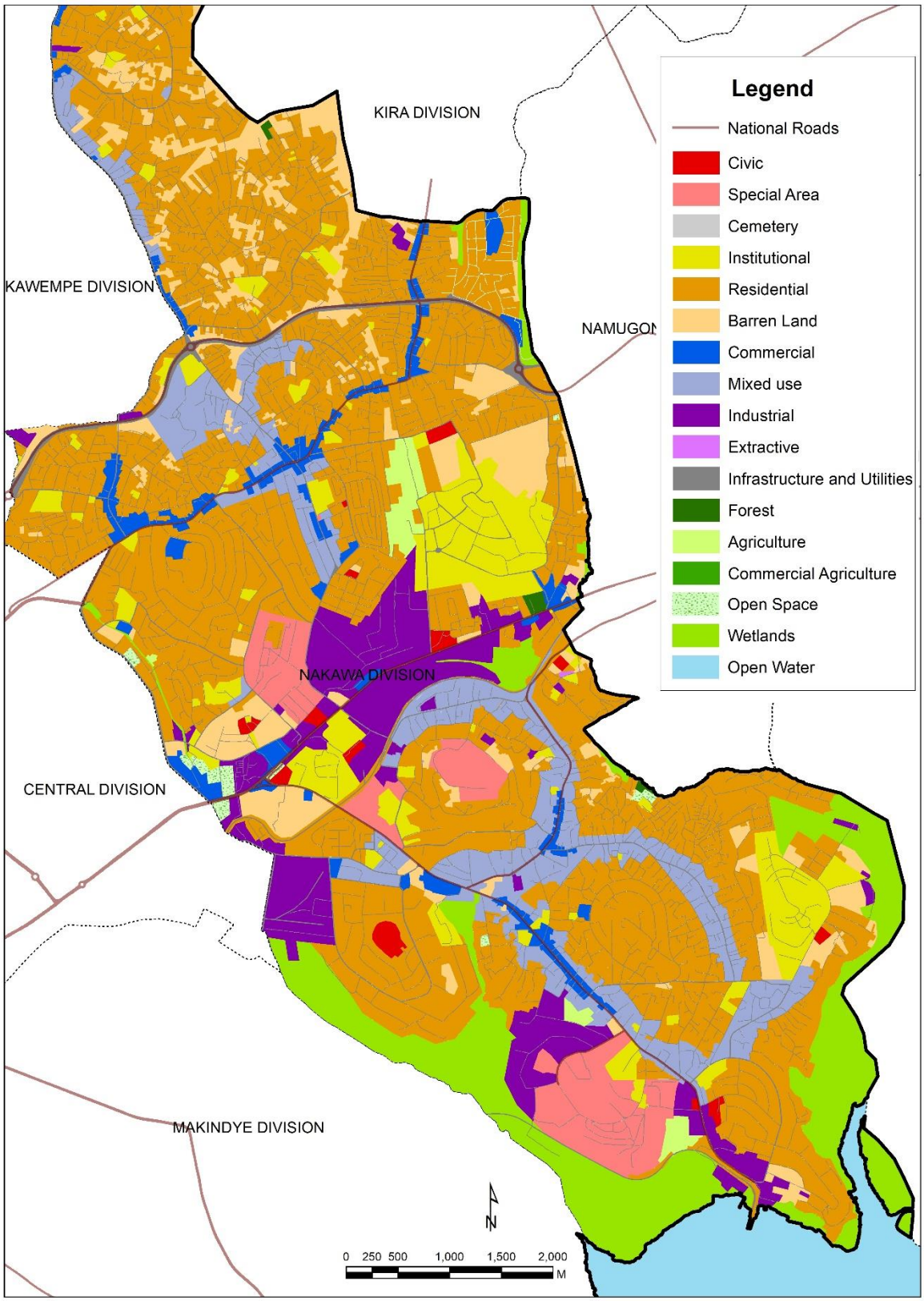
Table 18.1.3 Present Land Use Categories in Makindye Division

Land Use Category	Land Use Coverage (Ha)	% of Land Use within Division	% per City's Land Use Category Allocation	% of Total City's Surface Area
Wetland	470.71	***10.51%***	39.27%	2.61%
Transport	1.22	0.03%	2.65%	0.01%
Special Area	45.60	1.02%	18.15%	0.25%
Service Industrial	33.72	0.75%	15.19%	0.19%
Road Network	276.60	6.18%	21.40%	1.54%
Residential	1,917.54	***42.83%***	24.58%	10.65%
Railway	7.65	0.17%	23.45%	0.04%
Open Space	38.29	0.86%	23.42%	0.21%
Mixed Use	949.21	***21.20%***	30.67%	5.27%
Institutional	178.72	3.99%	15.11%	0.99%
Industrial	33.26	0.74%	5.10%	0.18%
Commercial	197.10	4.40%	25.49%	1.09%
Civic	4.01	0.09%	7.80%	0.02%
Cemetery	0.00	0.00%	0.00%	0.00%
Barren Land	189.33	4.23%	19.90%	1.05%
Agriculture	50.18	1.12%	39.73%	0.28%
Utilities	17.19	0.38%	42.39%	0.10%
Recreational	0.00	0.00%	0.00%	0.00%
Extractive	21.78	0.49%	***56.53%***	0.12%
Open Water	0.00	0.00%	0.00%	0.00%
Forest	44.95	1.00%	***69.98%***	0.25%
Commercial Agriculture	0.00	0.00%	0.00%	0.00%
Total	4,477.07	100.00%		24.87%

Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

4) Present Land Use in Nakawa Division

Nakawa Division shows a variety of land uses but is dominated by residential with an area of 19.1 km^2, representing approximately 13% of the total land area of Kampala Capital City and 45.2% of the surface area of the division. This is about 30% of all residential land use within the city. The division also has significant areas dedicated to industrial activities with about 2.9 km^2, representing 43% of all industrial land use in the city. Parts of the division are composed of special areas and they consist of the Naguru Police Barracks, the Luzira Prisons and other defence enclaves. Together, they form 81.4% of all lands allocated for such purposes in the whole of the city, and within the division, they represent about 4% of the total land use coverage. Furthermore, Kyambogo University, together with the Butabika National Referral Mental Hospital and others, contribute to the institutional land use. This is about 6.7% of the land use in the division. The representation of all the land uses in the division is depicted in Figure 18.1.10 and Table 18.1.4.



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.10 Present Land Use in Nakawa Division

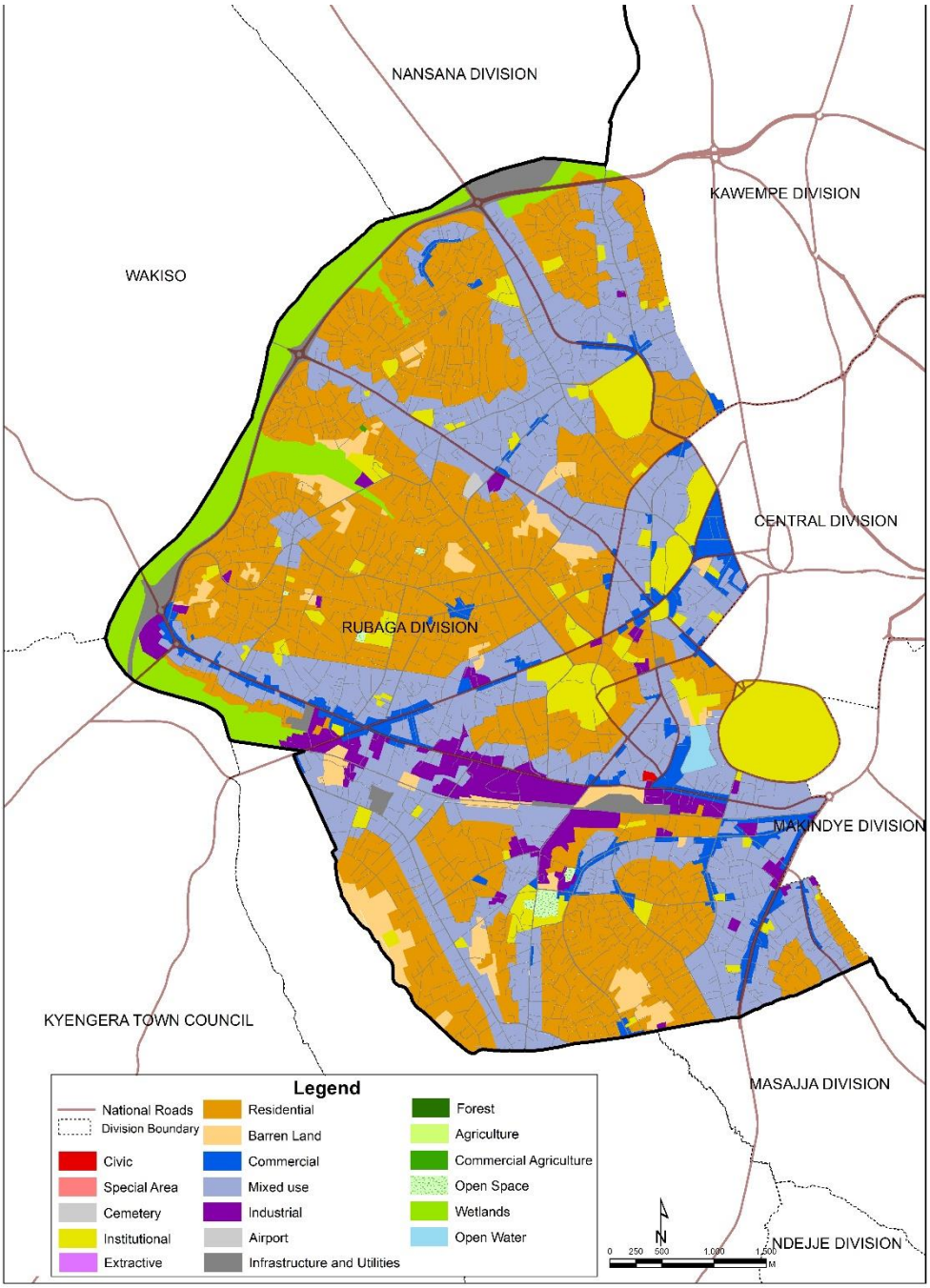
Table 18.1.4 Present Land Use in Nakawa Division

Land Use Category	Land Use Coverage (Ha)	% of Land Use within Division	% per City's Land Use Category Allocation	% of Total City's Surface Area
Wetland	484.27	***9.39%***	40.40%	2.69%
Transport	0.00	0.00%	0.00%	0.00%
Special Area	204.63	3.97%	***81.44%***	1.14%
Service Industrial	64.82	1.26%	29.20%	0.36%
Road Network	315.13	6.11%	24.38%	1.75%
Residential	2,331.09	***45.22%***	29.89%	12.95%
Railway	9.40	0.18%	28.83%	0.05%
Open Space	15.64	0.30%	9.56%	0.09%
Mixed Use	420.27	***8.15%***	13.58%	2.33%
Institutional	347.22	6.74%	29.36%	1.93%
Industrial	282.69	5.48%	43.31%	1.57%
Commercial	136.13	2.64%	17.61%	0.76%
Civic	31.27	0.61%	***60.83%***	0.17%
Cemetery	0.00	0.00%	0.00%	0.00%
Barren Land	410.26	7.96%	43.12%	2.28%
Agriculture	76.11	1.48%	***60.27%***	0.42%
Utilities	0.00	0.00%	0.00%	0.00%
Recreational	0.00	0.00%	0.00%	0.00%
Extractive	9.29	0.18%	24.10%	0.05%
Open Water	0.00	0.00%	0.00%	0.00%
Forest	16.50	0.32%	25.68%	0.09%
Commercial Agriculture	0.00	0.00%	0.04%	
Total	5,154.71	100.00%		28.64%

Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

5) Present Land Use in Rubaga Division

Six land uses are prominent in Rubaga Division. They are residential, which is nearly 40% of the division's land area, mixed uses (28.4%), institutional (7.5%), wetlands (5.8%), commercial (3.8%), and barren land (3.6%). Rubaga Division has the highest proportion of all mixed-use allocations in the whole of Kampala Capital City with a percentage of 34%. This represents about 6% of the entire surface of the city. This is notably spread along all arterial roads in the city as shown in Figure 18.1.11. Additional descriptions of the land use categories and their areas are shown in Table 18.1.5.



Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

Figure 18.1.11 Present Land Use in Rubaga Division

Table 18.1.5 Present Land Use Categories in Rubaga Division

Land Use Category	Land Use Coverage (Ha)	% of Land Use within Division	% per City's Land Use Category Allocation	% of Total City's Surface Area
Wetland	217.98	5.81%	18.19%	1.21%
Transport	13.89	0.37%	30.06%	0.08%
Special Area	0.00	0.00%	0.00%	0.00%
Service Industrial	44.76	1.19%	20.17%	0.25%
Road Network	299.74	***7.99%***	23.19%	1.67%
Residential	1,413.98	***37.69%***	18.13%	7.86%
Railway	6.08	0.16%	18.66%	0.03%
Open Space	8.73	0.23%	5.34%	0.05%
Mixed Use	1,065.33	***28.40%***	34.42%	5.92%
Institutional	280.34	7.47%	23.71%	1.56%
Industrial	87.18	2.32%	13.36%	0.48%
Commercial	141.46	3.77%	18.30%	0.79%
Civic	1.08	0.03%	2.10%	0.01%
Cemetery	2.66	0.07%	30.43%	0.01%
Barren Land	135.21	3.60%	14.21%	0.75%
Agriculture	0.00	0.00%	0.00%	0.00%
Utilities	23.25	0.62%	***57.31%***	0.13%
Recreational	0.00	0.00%	0.00%	0.00%
Extractive	0.00	0.00%	0.00%	0.00%
Open Water	9.37	0.25%	***100.00%***	0.05%
Forest	0.00	0.00%	0.00%	0.00%
Commercial Agriculture	0.30	0.01%	***99.96%***	0.00%
Total	3,751.35	100.00%	-	20.84%

Source: JICA Expert Team based on the interpretation of orthophoto images (2019) and ground truthing, 2022

18.2 Review of Former and Existing Land Use Plans in Kampala

18.2.1 Kampala Structure Plan 1994

The Kampala Structure Plan which was formulated in 1994 guided the urban development in Kampala Capital City until KPDP 2012 was formulated.

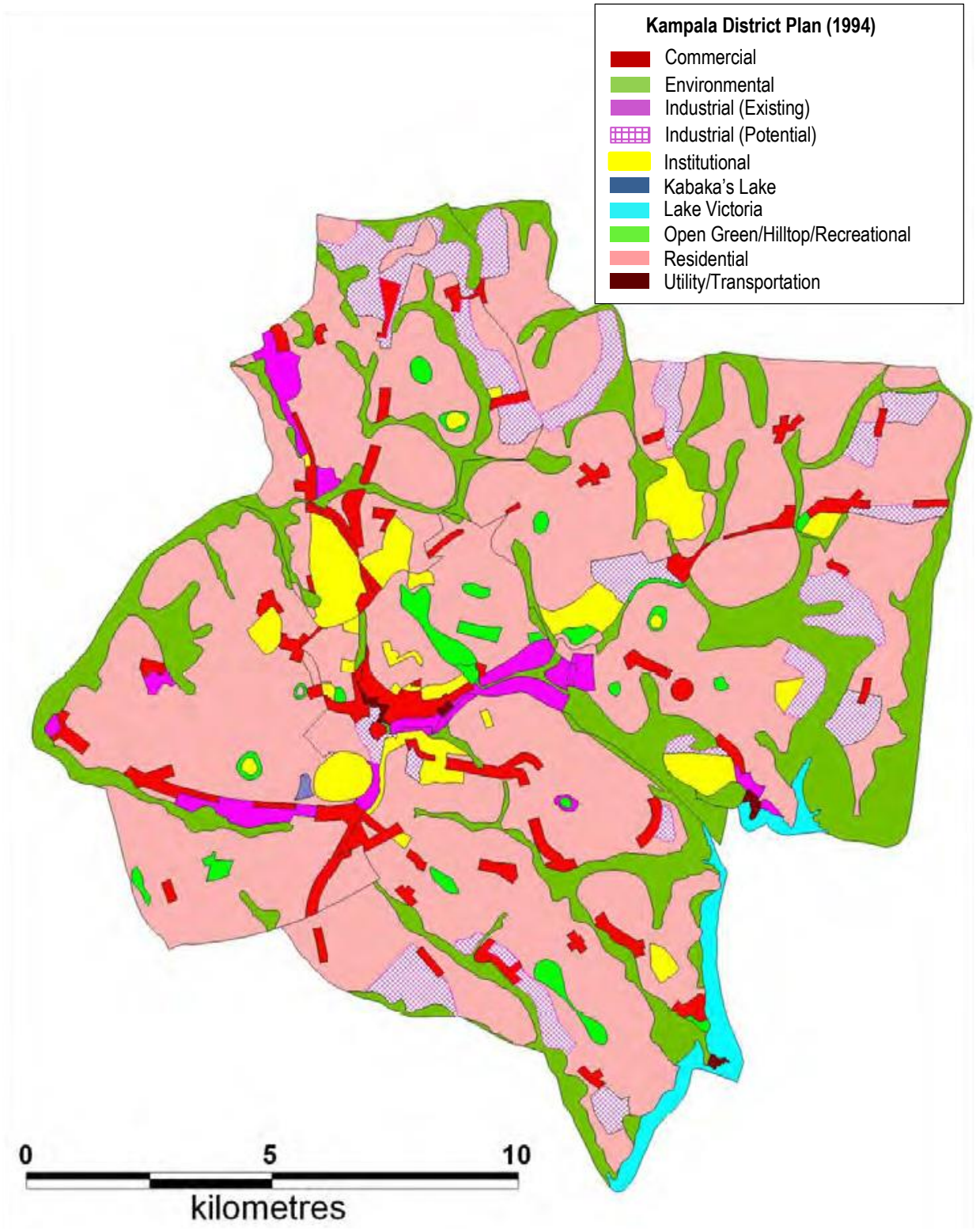
The overall objective of the Kampala District Plan was to provide for a conceptual planning framework for a combination of green fields expansion and intensification in a form which reinforces the existing resistance council system, and the corresponding pattern of community relations this system currently supports.

The plan includes the following land use categories:

- Environmental Land Use –The plan provides for the protection of critical ecological system and drainage pattern.
- Industrial Land Use – The plan identifies all undeveloped/agriculture lands with low-slope as "Potential Industrial Land" to reinforce the priority given to accommodating a full range of new formal and informal industrial activity.
- Commercial Land Use: The plan designates the existing CBD as well as a series of sub-centres and local centres for commercial activity in line with what currently exists.
- Residential Land Use: The plan designates as "residential" all existing residential areas as well as all other underdeveloped/agricultural lands not designated for primary commercial or industrial use.
- Social Facilities – The plan identifies the general distribution of facilities to be required both during and beyond the planning period in order that land can begin to be identified. The plan emphasises the development of multi-purpose facilities to make best use or limited resources.

- Transportation: The plan emphasises the upgrading of Kampala's existing road network, the primary road network in particular, during the planning period as opposed to construction of new roads.

The proposed land use plan of Kampala Structure Plan 1994 is shown in Figure 18.2.1.



Source: Kampala District Plan 1994 in KPDP 2012

Figure 18.2.1 Land Use Plan in Kampala District Plan 1994

Most of Kampala City is designated as residential area with concentration of commercial areas and industrial areas in the city centre. Also, many of the commercial areas are designated along the major arterial roads. Most of the potential industrial areas are designated in Kawempe Division and Nakawa Division. However, the industrial area in current land use in Kampala Capital City is more or less same as the industrial areas which existed in 1994, and the potential industrial areas were not developed to become industrial areas.

18.2.2 KPDP 2012

KPDP 2012 has been guiding the urban development in Kampala Capital City since its approval.

The spatial goals of KPDP 2012 are as follows:

- To create a multifocal and multifunctional city centre composed of special components of metropolitan importance.
- To enlarge and extend the CBD.
- To construct an urban freeway for better accessibility to employment and businesses.
- To develop Kampala as a lakefront city and to connect the lake to the inner city.
- To change the attitude towards wetlands within the city and protect them as lively, healthy and functional parks accessible to Kampala's residents and visitors.
- To create a new hierarchy of service centres and sub-centres and to control and direct linear sprawl of shops and public services.
- To crystallise a new spatial system, as part of the city centre, for cultural activities, recreation and tourism.
- To develop the hilltops for public use, recreation and tourism.
- To define and designate new urban quarters and precincts as planning entities for better control, management and development.
- To encourage new housing models, including affordable housing, in future development of quarters and precincts.
- To create a hierarchical road network system consisting of urban freeway and major arterial road.
- To create a mass rapid transit (MRT) system that includes BRT and/or LRT.
- To provide safe and attractive infrastructure for non-motorised trips.
- To integrate land use and transport planning.

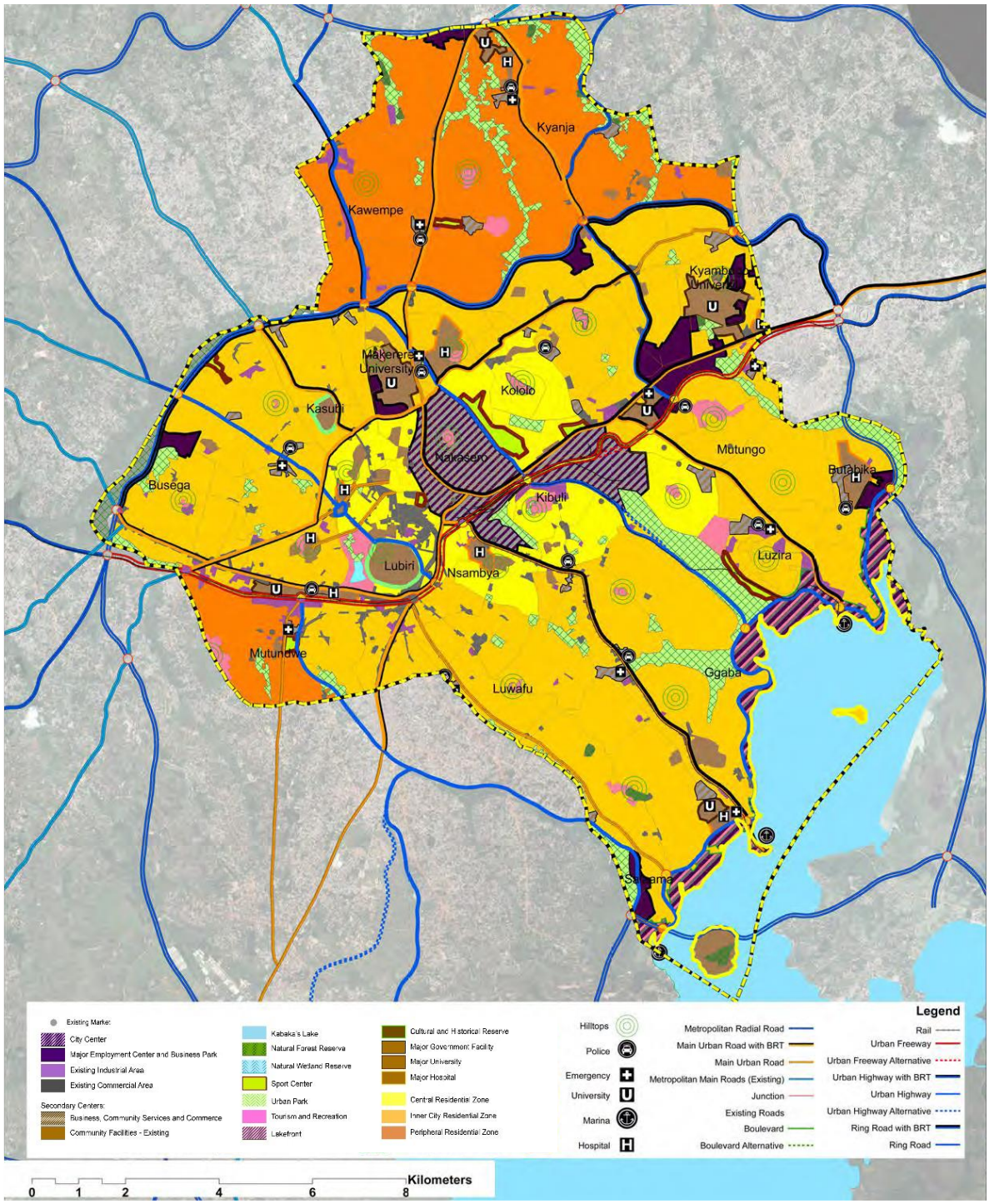
The plan includes the following land use categories:

- City Centre – Main and central functions of the city and metropolitan area including the existing CBD and new development and re-development in adjacent areas
- Major Employment Centres & Business Parks – Major business centres located along the inner ring road. Each Major Business Centre covers a minimum of 25 ha.
- Tourism and Recreation – Tourism and Recreation areas within the KCCA located at potential (e.g., hilltops, lakefront, etc.) or at existing sites (e.g., Kibuli Mosque, Kasubi Tombs, etc.) to meet the different the needs of local, regional and international tourism.
- Lakefront – The Lakefront consists of the Lake Victoria shoreline in the KCCA area. The Lakefront is a mixed use area which includes functions of employment, commerce, tourism and recreation together with the protection and preservation of the coastline itself.
- Secondary Centres: Business, Community Services and Commerce – Small scale Business, Community Services and Commerce centres within the built urban tissues. The local centres are to supply services for the residents of adjacent neighbourhoods.
- Major Hospital – New or existing major hospitals within the KCCA area. On average, a major

hospital will hold 2,000 beds serving a catchment population of some 500,000 people.

- Major University – New or existing major universities within the KCCA area.
- Major Government Facilities – Areas which house major government facilities (e.g., KCCA offices, Parliament, Kampala State House, etc.).
- Cultural and Historical Reserve – Areas of historic and cultural significance within the KCCA area (Kasubi, Lubiri Salaama Island) including World Heritage Sites.
- Urban Park – Green open space for public use within the KCCA area including recreation, sport and culture. The urban parks vary from city and metropolitan scale parks to small-scale local parks. The urban parks are located either in currently vacant areas or in existing wetland within the KCCA area.
- Sport Centre – Sport facilities for public use within the KCCA area. The sport facilities vary from city scale centres to small-scale local centres.
- Natural Wetland Reserve – Natural wetland surrounding the KCCA area. The wetlands have an important role in the Kampala ecologic system and constitute the most significant land reserves in the KCCA area.
- Natural Forest Reserve – Forests within the KCCA area which form part of the Natural Resources and Open Spaces System.
- Central Residential Zone – Inner city residential areas included in the city centre and areas adjacent to the city centre (e.g., Kololo, Old Kampala, Nsambya, Kibili, Bogolobi, etc.) The central residence zone provides support functions for the city centre and includes public functions to a certain extent in addition to residence.
- Inner City Residential Zone – Inner city established, relatively dense residential areas which are not adjacent to the city centre (e.g., Busega, Lubia, Mutungo, Buziga, etc.) These residential zones are mostly residential with more non-residential functions.
- Peripheral Residential Zone – Peripheral less established, less dense city residential areas in the extended KCCA area (e.g., Kawempe, Kyanja, Mutundwe, Busabala, etc.) These residential zones are primarily residential, often lacking non-residential functions.
- New Residential Zone – Areas for development of new residential areas. These new residential areas will be planned and built according to modern standards. The areas area located either in the Inner-City Residential Zones or the Peripheral Residence Zones.
- Slum Redevelopment and Upgrade – Existing slums which are to be redeveloped or upgraded. The areas for slum redevelopment and upgrade are located either in the Central Residential Zone, the Inner-City Residential Zones or the Peripheral Residence Zones.
- Road Network – New road networks to serve both KCCA and GKMA. The minimum reserve width of each newer road is 60 m and should include cross section travelling lanes, separation area between the two travelling directions, walkway pavement on each travelling side with minimum width of 2.5 m, cycling lane on each side with minimum width of 2.5 m, and a possibility for MRT system with a minimum width of 8m for the MRT sections and 15 m at stations and platforms. No parking will be allowed along the arterial roads, there will be no at-grade intersection between the urban freeway and the urban roads but only interchanges.
- MRT Network (BRT/LRT) – New mass rapid transit network for KCCA area. The alignments are either along existing urban roads or within the new arterial system. The MRT may be operated as BRT or LRT. All stations and platforms should be accessible to mobility impaired people. The MRT is planned to cover the majority of the KCCA area with a radius of 2 km.

The land use plan based on the spatial goals using the land use categories above are shown in Figure 18.2.2.



Source: KCCA, 2012, Updating Kampala Structure Plan and Upgrading the Kampala GIS Unit Final Report

Figure 18.2.2 Integrated Land Use Plan in KPDP 2012

The land use plan also includes the existing industrial areas, existing commercial areas, and existing community facilities.

Functions permitted on each land use category are determined in KPDP 2012. In addition, density targets (gross built area capacity and indicative nett development rights) are set for each land use category. Building coverage ratio, floor area ratio, building heights etc. are not determined in the plan document. Therefore, the KCCA staff follows the National Physical Planning Standards and Guidelines 2011 is used alongside the KPDP 2012 for development control.

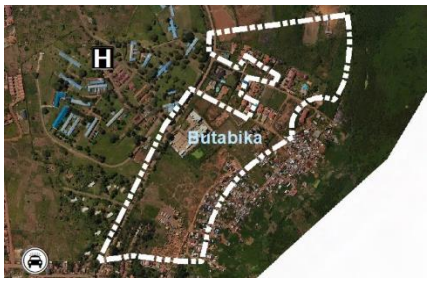
Unfortunately, many of the goals such as enlarging the CBD, implementing MRT, etc., were not realised in the past 10 years. In addition, despite the goal of controlling the linear sprawl of shops

and public services along the major roads, most of the areas along the major arterial roads has shifted to mixed use area of commercial and residential.

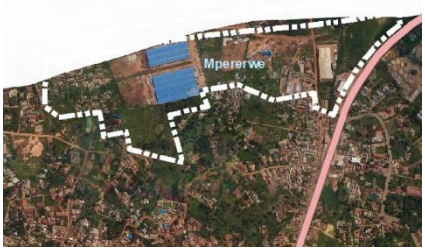
There are eight major employment centres and business parks proposed in the plan, which includes Nakawa, Kyambogo, Butabika, Munyonyo, Busega, Makerere and Bukoto in Kampala City and Nangabo in Kasangati Town, Wakiso District. Out of these eight, Butabika, Munyonyo and Busega are wetlands, while Kyambogo and Makerere are undeveloped land next to universities. Nakawa already has a business park established, and Bukoto is now being developed to become a multi-function complex. Nangabo, which was vacant land in 2011, is being developed as an industrial area. (See Figure 18.2.3.)

The secondary centres proposed are areas which still had some vacant land mostly with some sort of existing commercial activities or service centres. However, there are three new centres proposed, which are at Kyanja, Butabika and Kyebando. The situation of these designated secondary centres is shown in Figure 18.2.4.

Busaga and Lubya



Butabika



Mpererwe

Bukoto

Salama

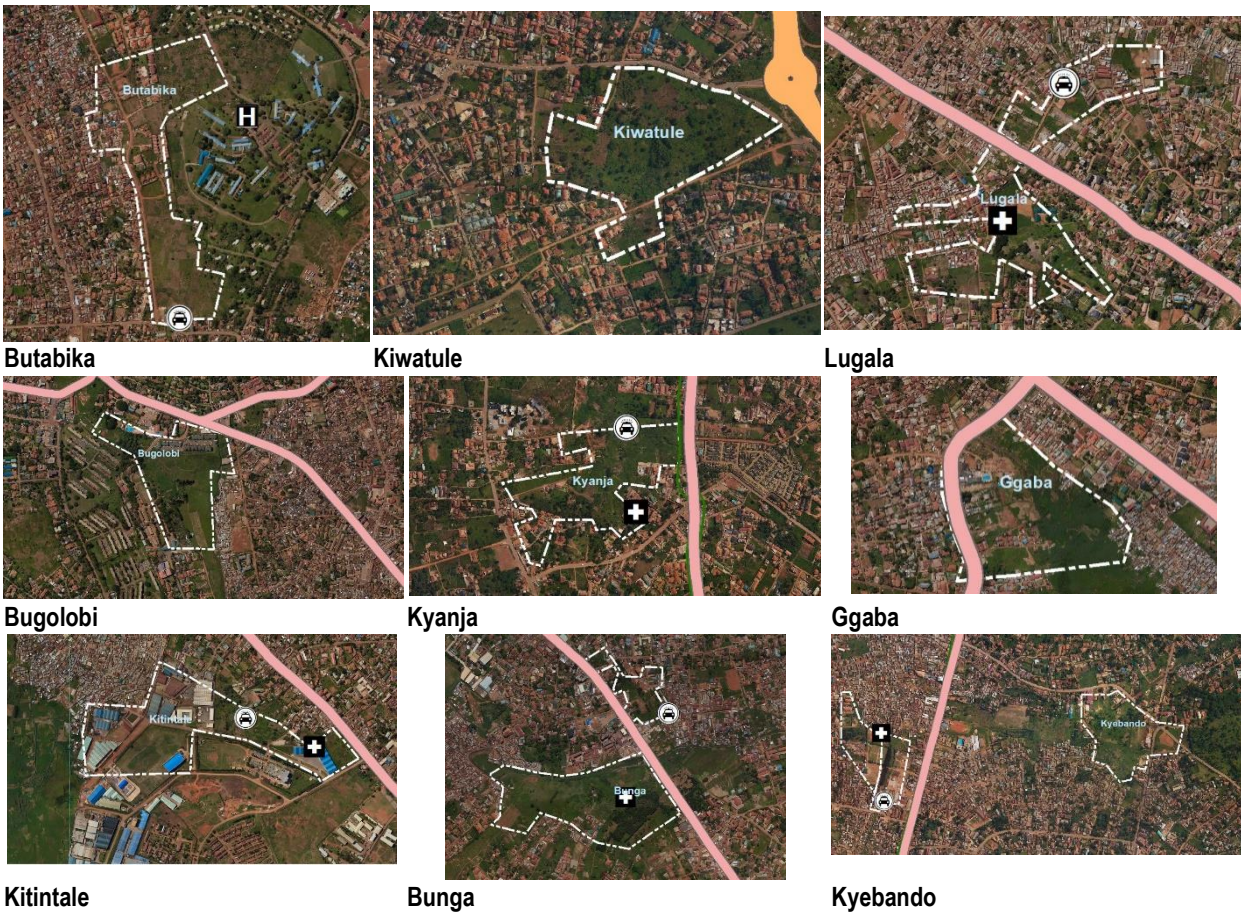
Upper Estate, Banda and Nabisunsa

Makerere University

Ntinda and Mbuya

Source: JICA Expert Team utilising data from KCCA GIS Unit and Orthophoto data 2019

Figure 18.2.3 Present Situation (2019) of the Lands Proposed for Employment Centres and Business Parks in KPDP



Source: JICA Expert Team utilising data from KCCA GIS Unit and Orthophoto data 2019

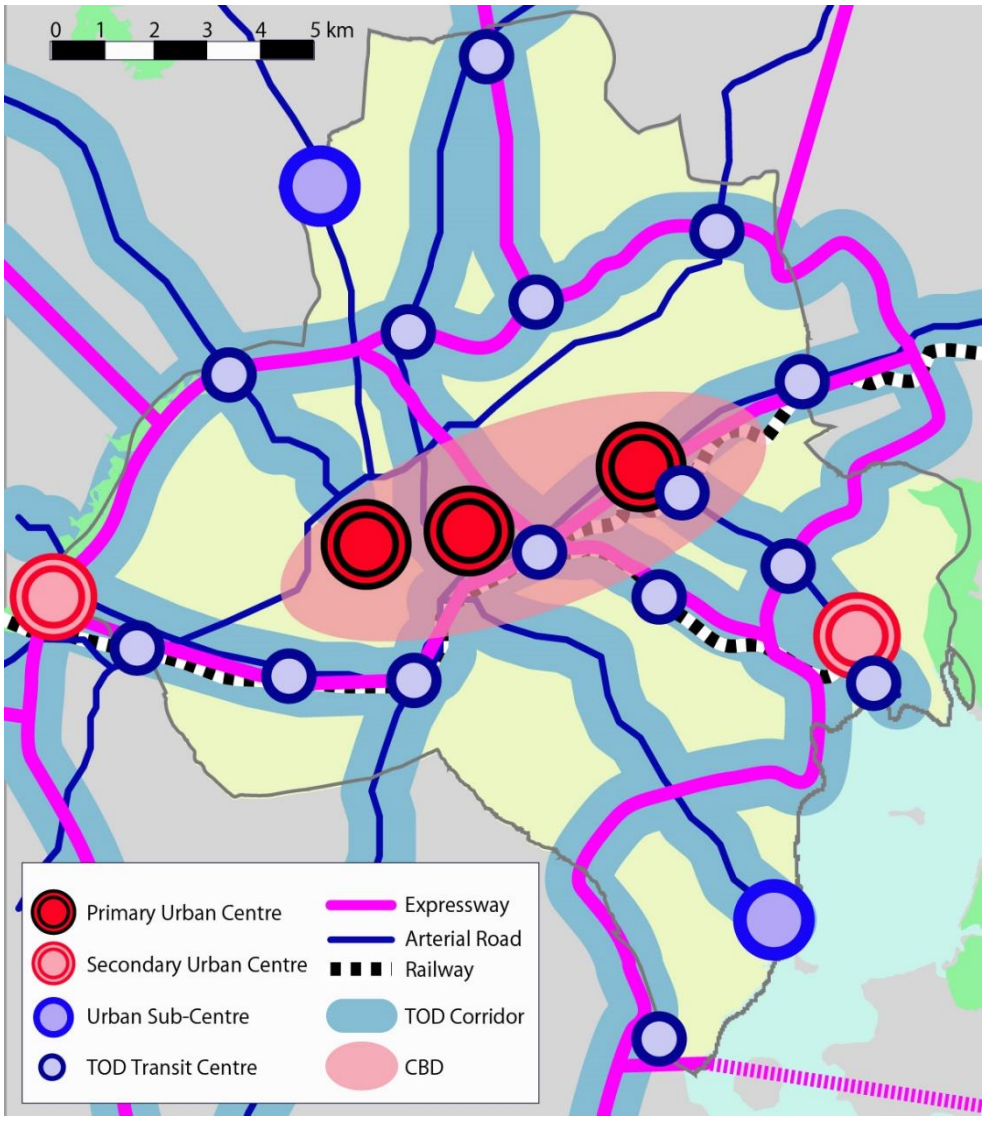
Figure 18.2.4 Present Situation (2019) of the Lands Proposed for Secondary Centres in KPDP

Chapter 19 Land Use Policies for Kampala Capital City (KCC)

19.1 Future Spatial Structure for Kampala Capital City (KCC)

The present spatial structure of Kampala Capital City (KCC) is a monocentric structure with a small CBD area and low-density commercial function or mixed use of commercial and residential along the major arterial roads.

The future spatial structure for Kampala Capital City considers the development of centres other than the existing CBD with Transit-Oriented development (TOD) along selected expressways and arterial roads, and railway line that will be rehabilitated. (See Figure 19.1.1.)



Source: JICA Expert Team

Figure 19.1.1 Future Spatial Structure of Kampala Capital City (KCC)

The urban spatial structure for KCC is composed of the following urban centres:

- Primary Urban Centres
- Secondary Urban Centres
- Urban Sub-Centres
- TOD Transit Centres

The Primary Urban Centres are the following three areas:

- Nakasero: Current CBD
- Old Kampala: Current CBD
- Naguru-Nakawa: New CBD to be Extended

The Secondary Urban Centres are the following two areas:

- Busega: near the exit/entrance of Kampala-Mpigi Expressway
- Luzira-Port Bell: near the Exit of Southern Bypass to be developed with existing business and industrial park

The Urban Sub-Centres are the following two areas:

- Kawempe: Current urban centre of Kawempe Division with industrial areas changing into commercial area along Bombo Road
- Munyonyo: Lakefront area along the Southern Bypass to be developed

The TOD corridors are designated along the major roads where BRT or LRT are planned to be implemented, and the existing railway line that will be rehabilitated to be utilised for urban railway. These corridors are expected to have higher daytime population density and active economic activities.

The TOD Transit Centres are at the exits of the expressways and railway stations where it has potential to develop as a commercial centre.

19.2 Land Use Policies for Kampala Capital City

(1) Objectives of the General Land Use Plan for Kampala Capital City

The objectives of the general land use plan for Kampala Capital City are as follows:

- To promote effective use of land that can vitalise economic activities
- To promote TOD in Kampala Capital City

(2) Land Use Policies for Kampala Capital City

By considering the present condition and urbanisation issues of Kampala Capital City, the following land use policies are proposed:

- To expand the area for CBD for accommodating commercial and business activities with high productivity, high-skilled industry, headquarters function as a primary centre not only for Uganda but also for East African Region
- To create Secondary Urban Centre Areas in selected areas with good accessibility to expressways and arterial roads, as well as railways and future rail-based transits, to support the CBD functions
- To allow the development of commercial and mixed-use areas along arterial roads while promoting the expansion of CBDs and Secondary Urban Centre areas.
- To promote Medium-Rise Mixed-Use areas (Commercial and Residential) along major expressways and arterial roads, by which transit-oriented development could be promoted (following TOD policies)
- To promote the expansion of higher-density residential areas where multi-story buildings can be built to accommodate an increasing number of population in an improved living environment by changing land uses from residential to Medium Density Mixed Use

(Commercial and Residential)

- To promote the development of Low-Density Mixed-Use areas (Commercial and Residential) on selected areas of existing residential areas with relatively large plot size and low-rise buildings.
- To control developments on wetlands that function as waterway and natural ecosystem.
- To secure land for future infrastructure and urban parks by utilising deteriorated wetlands.

(3) General Land Use Plans

In order to realise the above-mentioned land use policies, a general land use plan for the Kampala Capital City was formulated.

The general land use plan is a tool to realise the proposed spatial structure and land use policies for Kampala Capital City and GKUGA. Such general land use plans are used as reference for formulating detailed land use plans (land use zoning plans, as part of the detailed PDP). Then the detailed PDPs are used for controlling actual land development and construction and uses of buildings.

If the existing land use does not match the designated land use categories in the general land use plan, it does not mean that building uses should be changed, or existing people should relocate. Existing facilities can stay.

However, once the detailed PDPs are formulated by referring to the general land use plan, and in case, existing buildings are extended or rebuilt, those development should comply with the detailed land use zoning plan.

(4) Land Use Categories Used by the General Land Use Plan for KCC

The land use types for urban plans in the Draft National Physical Planning Standards and Guidelines Second Edition 2023 (NPPS&G 2)[1] are adopted for land use categories to be used for the general land use plan for the KCC.

However, the following adjustment or changes are proposed:

- Medium High Density Residential Zone is proposed in the residential zone since the majority of good residential areas in Kampala do not have such a large lot size as 1,000m2 which is the minimum lot size for medium density residential area specified by the NPPS&G 2, while the lot size of good residential areas also has a larger lot size than 300m2 which is the maximum lot size for high density residential areas regulated in the Draft Version of NPPS&G 2. .
- In addition, the minimum lot size of 200m2 is relatively large for high-density residential areas in a city where the land price is high like Kampala Capital City. There are quite a few residential houses with a lot size less than 200m2 but still should maintain the characteristics of residential area. Therefore, Low Density Mixed Use (Commercial and Residential) Zone and Medium Density Mixed Use (Commercial and Residential) Zone are also applied in the general land use plan for Kampala Capital City, where the lot size do not satisfy the minimum lot size regulated in the guidelines but is considered to maintain the low-rise structures.

The following land use categories are to be used in KCC-PDP's general land use plan:

- Commercial
  - CBD
  - Commercial
  - Mixed Use (Commercial and Industrial)
  - Mixed Use – Low Density (Commercial and Residential)
  - Mixed Use - Medium Density (Commercial and Residential)
  - Mixed Use – Low Density (Commercial and Residential)

[1] The National Physical Planning Standards and Guidelines (NPPS&G) 2011 was prepared by the Ministry of Lands, Housing and Urban Development (MoLHUD) in order to supplement the Physical Planning Act 2010 in promoting the orderly development. The Second Edition for the NPPS&G has been prepared in the last three years. NPPS&G 2011 was used as an official guideline and regulation for preparation of physical development plans.

  - Mixed Use – Medium Rise (Commercial and Residential)
- Institutional
- Residential
  - Low Density Residential
  - Medium Density Residential
  - Medium High Density Residential
  - High Density Residential
  - Medium Rise Residential
- Historic, Traditional and Cultural
- Forest
- Open Space
- Protected Waterfront
- Wetland

(5) Description of Land Use Categories

In the NPPS&G 2 (Draft Version), the land use categories used in the general land use plan for cities and districts are described. The land use categories in the general land use plan for KCC is described in accordance with the NPPS&G 2 (Draft Version).

1) Commercial Zone

There are three types of commercial zones used in the general land use plan for Kampala Capital City, which are, CBD, Commercial Zone and Mixed-Use Zone. The Mixed-Use Zone is further divided into five sub-categories, namely Mixed Use-High Rise (Commercial and Residential), Mixed Use – High Density (Commercial and Residential), Mixed Use – Medium Density (Commercial and Residential), Mixed Use – Low Density (Commercial and Residential) and Mixed Use (Commercial and Industrial). The policy for each land use categories are described below.

- CBD: The areas under this category will be the most attractive business and commercial areas of Uganda. High-rise buildings for business, commercial and residential uses should be permissible to support economic activities. CBD should be set for the Primary Urban Centres for GKUGA. Large-scale offices and shopping centres should be promoted. Good road network and public transport should also be developed to support the function of the CBD. Furthermore, residential usage should also be permitted to allow the existing residents to live and also to promote residents to return to the centre of Kampala Capital City.
- Commercial: The areas under this category should support the economic activities of the CBD by creating urban centres. Commercial area are set for the Secondary Urban Centres and Urban Sub-Centres for GKUGA. Large-scale and medium-scale offices and shopping centres should be promoted. Good road network and public transport should be developed to support such functions.
- Mixed Use (Commercial and Industrial): This area should promote commercial usage on the industrial areas to transform the land use. Large-scale and medium-scale offices should be promoted. Also, non-polluting industries should be permitted, while polluting industries should not be permitted. High-rise buildings should also be permitted. However, residential uses should not be permitted.
- Mixed Use – Medium Rise (Commercial and Residential): In this area, commercial and residential usage should be promoted. This area is set along major roads and for TOD Transit Centres in Kampala Capital City, allowing high-rise building promoting mixed urban development to promote TOD. Large-scale and medium-scale offices and shopping centres should be promoted. Small-scale retail shops are not preferable in this area.
- High-Density Mixed Use (Commercial and Residential): This area should be set in relatively dense residential and commercial mixed-use area. Informal settlements that should gradually transform to formal residential area should also be designated with this category.
- Medium Density Mixed Use (Commercial and Residential): This area should be set in major part of existing residential area of KCC and medium and small-scale offices and shopping

centres should be promoted. In this area, while high-rise buildings are not permitted, medium-rise buildings and individual residential buildings should be permitted.

- Low Density Mixed Use (Commercial and Residential): In this area, the existing low-rise residential areas with relatively larger plot sizes should be maintained. Medium-scale and small-scale offices and shopping centres should be promoted, but high-rise and medium-rise buildings should not be permitted.

2) Institutional Land Use Zone

The Institutional Land Use should be set for large scale educational and healthcare facilities on adequate parcels of land. In addition, primary and secondary schools within the CBD zone should be designated with this zone since primary and secondary schools are not permitted in CBD zone.

3) Open Space

The Public Open Space should be set for lands which should be secured as public parks and sport facilities. In addition, deteriorated wetlands that can become urban parks and land for large-scale infrastructure should be set as public open space to reserve the land. Green infrastructure should be promoted in this area.

4) Conservation Zone

Forest designated as Forest Reserve should be set under this zone.

5) Environmental Land Use Zone

Wetlands that should be preserved falls under the Environmental Land Use Zone.

should be set as wetland in the land use plan. No development should be permitted on this zone.

(6) Other Layers included in the General Land Use Plan

1) Conservation Layer

For the purposes of conservation of areas with special interest such as environmental and cultural conservation, another layer is overlayed on the land use category.

The following categories are included in the general land use plan for KCC:

- Historic, Traditional and Cultural Zone is for the area of Kasubi Royal Tombs and Kabaka's Palace its surrounding area.
- Protected Waterfront Zone should be designated on the lakefront of Victoria Lake.

2) Transport Layer

The following roads and railways are included in the general land use plan:

- Planned Expressways
- Existing Expressways
- National Roads
- Other Roads
- Existing Railways
- Proposed Standard Guage Railway

19.3 General Land Use Plan for Kampala Capital City

(1) Major Changes from the Existing General Land Use Plan (KPDP 2012)

The land use plan for Kampala Capital City should be changed from the land use plan in KPDP 2012 taking in consideration of the land use planning policies and the Draft National Physical

Planning Standards and Guidelines 2023 (Second Edition). To achieve the objectives of the general land use plan, the following changes have been applied to the land use plan in KPDP 2012.

- Expanded CBD proposed in KPDP 2012 remains as CBD Zone. In addition, Old Kampala and Nakawa proposed as Primary Urban Centres are designated as CBD Zone. However, primary and secondary schools existing in these areas are designated as institutional zone since primary and secondary schools are not permitted in CBD Zone in the guideline.
- Areas designated as Secondary Urban Centre and Sub-Centres in spatial structure plan are designated as Commercial Zone.
- Areas designated as Major Employment Centres & Business Parks, and Secondary Centres: Business, Community Services and Commerce are changed to Commercial Zone. However, Major Employment Centres & Business Parks and Secondary Centres which were designated on wetland in KPDP 2012 and are still wetland as of now, are changed to Wetland. Also, the area which was designated as
- Existing Industrial Area in KPDP 2012 are changed to Mixed Use (Commercial and Industrial) Zone.
- The roadside areas along Northern Bypass, Masaka Road, Jinja Road, Bombo Road, Hoima Road, Gayaza Road, Ggaba Road and Port Belle Road are designated as Mixed Use – Medium Rise (Commercial and Residential) Zone. The width of the Mixed Use – Medium Rise (Commercial and Residential) Zone along Northern Bypass, Masaka Road and Jinja Road are 150m from the centre line. The width of the Mixed Use Medium Rise (Commercial and Residential) Zone along Bombo Road, Hoima Road, Gayaza Road, Ggaba Road and Port Bell Road are 50m from the centre line.
- Areas with exits of expressways are designated as Mixed Use – High Rise (Commercial and Residential) Zone.
- Central Residential Zone is changed to Low Density Mixed Use (Commercial and Residential) Zone. If there are residential area with lot size larger than 2,000m^2, Low Density Residential Area is applied.
- Inner City Residential Zone and Peripheral Residential Zone are changed to Mixed Use – Medium Density (Commercial and Residential) Zone. If there are residential areas with lot size larger than 1,000m^2, Medium Density Residential Area is applied.
- Areas designated as Urban Park in KPDP 2012's land use plan which still function as wetland are changed to Wetland.
- Areas designated as Urban Park in KPDP 2012's land use plan which is neither part of Central Urban Park nor wetland are changed to Public Open Space.
- Areas designated as Lakefront in KPDP 2012's land use plan are changed to Protected Waterfront Zone.
- Sport Centres are changed to Public Open Space.
- Areas designated as Existing Community Facilities in KPDP 2012's land use plan are changed to Institutional Zone.
- Major universities and major hospitals in KPDP 2012's land use plan are changed to Institutional Zone.

(2) General Land Use Plan

The general land use plan (draft version) prepared at the scale of 1:20,000 for the target year 2040 is shown in Figure 19.3.1.

The total surface area of the land use under the category CBD, Commercial and Mixed Use (Commercial and Industrial) is 31.6 km^2. The existing commercial area in the present land use is 8.95km^2. Therefore, approximately 22 km^2 of land will increase which can be used for commercial and business purposes. In KPDP 2012, approximately 15km^2 of land was proposed as new areas for commercial and business purposes. But most of the area which was designated as new commercial area did not change to commercial usage.

The surface area by land use category in the draft general land use plan is shown in Table 19.3.1. Largest land use is Mixed Use Medium Density (Commercial and Residential) with 66.0 km^2

which is approximately 35% of the surface area in KCC. The next large land use is Mixed Use - High Density (Commercial and Residential) with 25.3km^2.

The comparison of the land surface area for each land use category in the general land use plan are compared with the present land use and KPDP 2012. The result is shown in Table 19.3.2.

In KPDP 2012, 70% of the area in KCC was designated as residential area In the KCC-PDP, residential area is limited while mixed use area covers 57% of the surface area in KCC.

Table 19.3.1 Surface Area in General Land Use Plan (Version June 2024) for KCC by Land Use Category

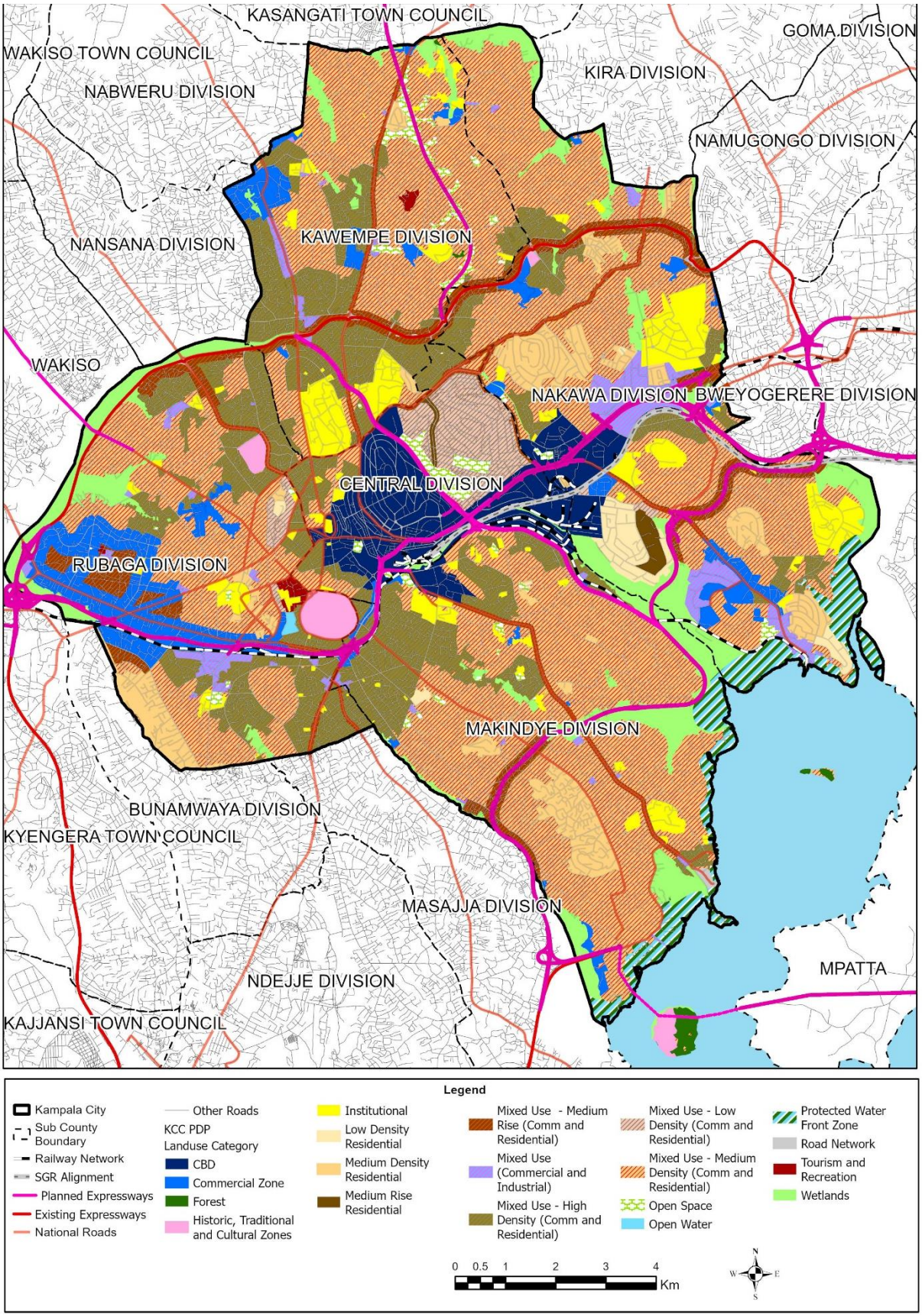
Land Use Category	Surface Area (km^2)	Share
CBD	9.3	4.9%
Commercial Zone	9.0	4.8%
Forest	0.5	0.3%
Historic, Traditional and Cultural Zones	1.5	0.8%
Institutional	8.2	4.3%
Low Density Residential	1.7	0.9%
Medium Density Residential	7.8	4.1%
Medium Rise Residential	0.6	0.3%
Mixed Use - High Density (Comm and Residential)	25.3	13.3%
Mixed Use - Medium Density (Comm and Residential)	66.0	34.9%
Mixed Use - Low Density (Comm and Residential)	3.8	2.0%
Mixed Use - Medium Rise (Comm and Residential)	9.2	4.8%
Mixed Use (Commercial and Industrial)	4.1	2.2%
Open Space	2.3	1.2%
Open Water	0.1	0.0%
Protected Water Front Zone	7.8	4.1%
Road Network	18.7	9.9%
Tourism and Recreation	0.3	0.2%
Wetlands	13.2	7.0%
Total	189.4	100.0%

Source: JICA Expert Team

Table 19.3.2 Comparison of Surface Area for Each Land Use (Present Land Use, KPDP and KCC-PDP)

Land Use Category	Present Land Use		KPDP 2012		General Land Use Plan 2040	
	Total (Ha)	%	Total (Ha)	%	Total (Ha)	%
Residential	7,687.51	42.78%	13,000.24	70.92%	984.85	5.46%
Mixed Use (Commercial and Residential)	3,098.88	17.24%	0.00	0.00%	10,389.30	57.62%
Institutional	1,289.60	7.18%	1,137.14	6.20%	1,027.47	5.70%
Commercial	991.73	5.52%	1,831.78	9.99%	1,831.81	10.16%
Industrial	758.05	4.22%	295.83	1.61%	0.00	0.00%
Mixed Use (Commercial and Industrial)	0.00	0.00%	0.00	0.00%	410.91	2.28%
Open Space	715.61	3.98%	1,117.15	6.09%	229.85	1.27%
Agriculture	104.19	0.58%	-	0.00%	0.00	0.00%
Wetlands	1,565.37	8.71%	141.15	0.77%	1,798.68	9.98%
Forest	48.58	0.27%	53.91	0.29%	47.94	0.27%
Open Water	9.37	0.05%	9.76	0.05%	9.35	0.05%
Other Land Use	1,702.65	9.47%	744.80	4.06%	1,299.00	7.20%
Total	17,971.55	100.00%	18,331.76	100.00%	18,029.17	100.00%

Source: JICA Expert Team



Source: JICA Expert Team

Figure 19.3.1 General Land Use Plan for Kamala Capital City (Version of June 2024)

PART VI

LOCAL-LEVEL DETAILED PHYSICAL DEVELOPMENT PLANS (MODEL PLANS)

Chapter 20 Local-Level Detailed Physical Development Plans in Greater Kampala Urban Growth Area (GKUGA) including Kampala Capital City

20.1 Priority Sites for Local-Level Detailed Physical Development Plans in GKUGA including KCC

KPDP 2012 has proposed that every precinct/neighbourhood shall have a detailed physical development plan. However, formulation of detailed physical development plans covering the whole of GKUGA is challenging in terms of human resources and budget. Therefore, it is necessary to identify priority sites where local-level detailed physical development plans should be formulated.

(1) Consideration of Priority Sites for Local-Level Detailed Physical Development Plans in GKUGA

The priority sites for local-level detailed physical development plans have be areas which need detailed plans to promote and guide development in the urban centres to transform the urban spatial structure of GKUGA from a mono-centric to a poly-centric structure.

The priority sites for local-level detailed physical development includes urban centres with the following characteristics:

- Areas which do not have detailed physical development plan
- Areas which land use are expected to change due to new road construction
- Areas which need detailed plan to guide TOD
- Areas which need detailed plan to reorganise the area

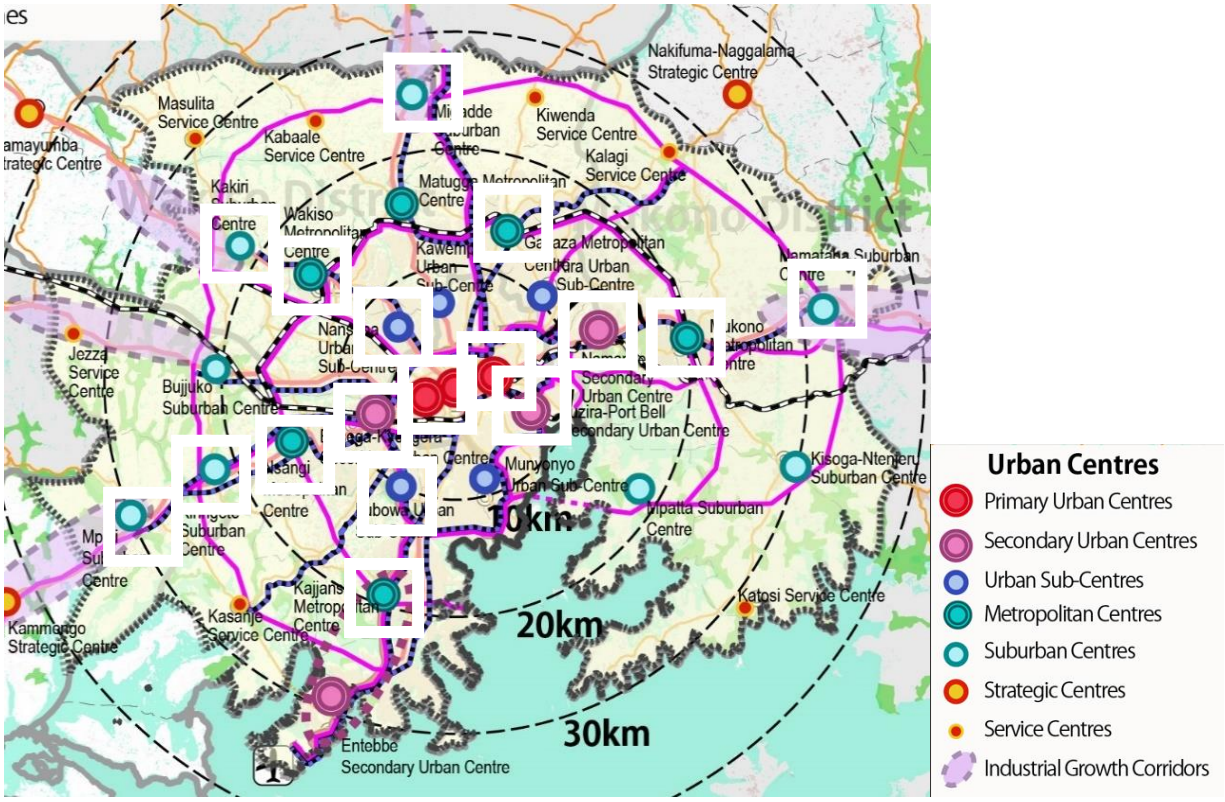
(2) Identified Priority Sites

The identified priority sites are shown in Table 20.1.1 and Figure 20.1.1. There are 18 priority sites in GKUGA.

Table 20.1.1 Priority Sites for Formulation of Detailed Plan in GKUGA

Urban Centres	District	Division, Municipality, Town, Subcounty
Nakawa Primary Urban Centre	Kampala Capital City	Central Division
Old Kampala Primary Urban Centre	Kampala Capital City	Central Division
Busega-Kyengera Secondary Urban Centre	Kampala Capital City	Rubaga Division
	Wakiso District	Kyengera Town, Wakiso Subcounty
Namanve Secondary Urban Centre	Mukono District	Mukono Municipality
Luzira-Port Bell Secondary Urban Centre	Kampala Capital City	Nakawa Division
Kajjansi Metropolitan Centre	Wakiso District	Kajjansi Town
Nsangi Metropolitan Centre	Wakiso District	Kajjansi Town
Wakiso Metropolitan Centre	Wakiso District	Wakiso Town, Wakiso Subcounty
Gayaza Metropolitan Centre	Wakiso District	Kasangati Town
Mukono Metropolitan Centre	Mukono District	Central District
Kirringete Suburban Centre	Mpigi District	Kirringete Subcounty
Mpigi Suburban Centre	Mpigi District	Mpigi Town
Kakiri Suburban Centre	Wakiso District	Kakiri Town, Kakiri Subcounty
Mikadde Suburban Centre	Wakiso District	Nansana Municipality
Namataba Suburban Centre	Mukono District	Namataba Town, Nama Subcounty, Nagojje Subcounty
Zana-Lubowa Urban Sub-Centre	Wakiso District	Makindye-Ssabagabo Municipality

Source: JICA Expert Team



Source: JICA Expert Team

Figure 20.1.1 Priority Sites for Local-Level Detailed Physical Development Plan in GKUGA

20.2 Two Selected Pilot Sites for Model Planning

It is agreed between the GoU and JICA that two sites shall be selected as model planning sites in GKMA-IUDMP.

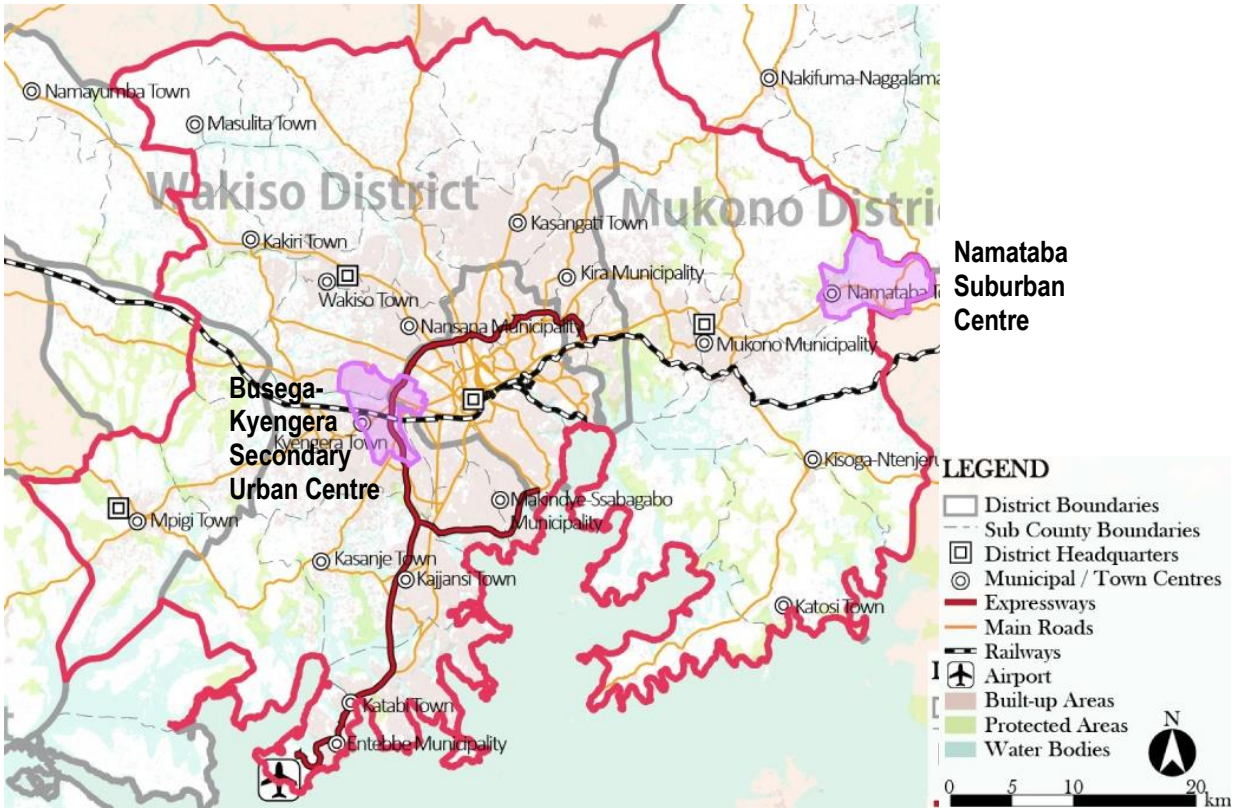
Criteria for selecting two model planning sites for local-level detailed physical development plan are set as follows:

- There is an expressway exit which has the potential to change the land use
- The location of expressway exit is already decided with existing detail design of the expressway
- The land for development is currently available
- The selected sites would become a good example for other sites
- The development is already emerging and detailed plan is urgently necessary

Besides the above criteria, one site should be in an already developed area with some still available for development, while the other site is a developing area with large plot of land still available for development, to formulate detailed plan on different type of urban centres.

The two selected model planning sites to have detailed local-level physical development plan formulated in GKMA-IUDMP are the following two and the location are shown in Figure 20.2.1

- Busega-Kyengera Secondary Urban Centre (partly in Kampala Capital City and partly in Wakiso District)
- Namataba Suburban Centre in Mukono District



Source: JICA Expert Team

Figure 20.2.1 Selected Model Planning Sites for Local-Level Detailed Physical Development Plan for GKUGA

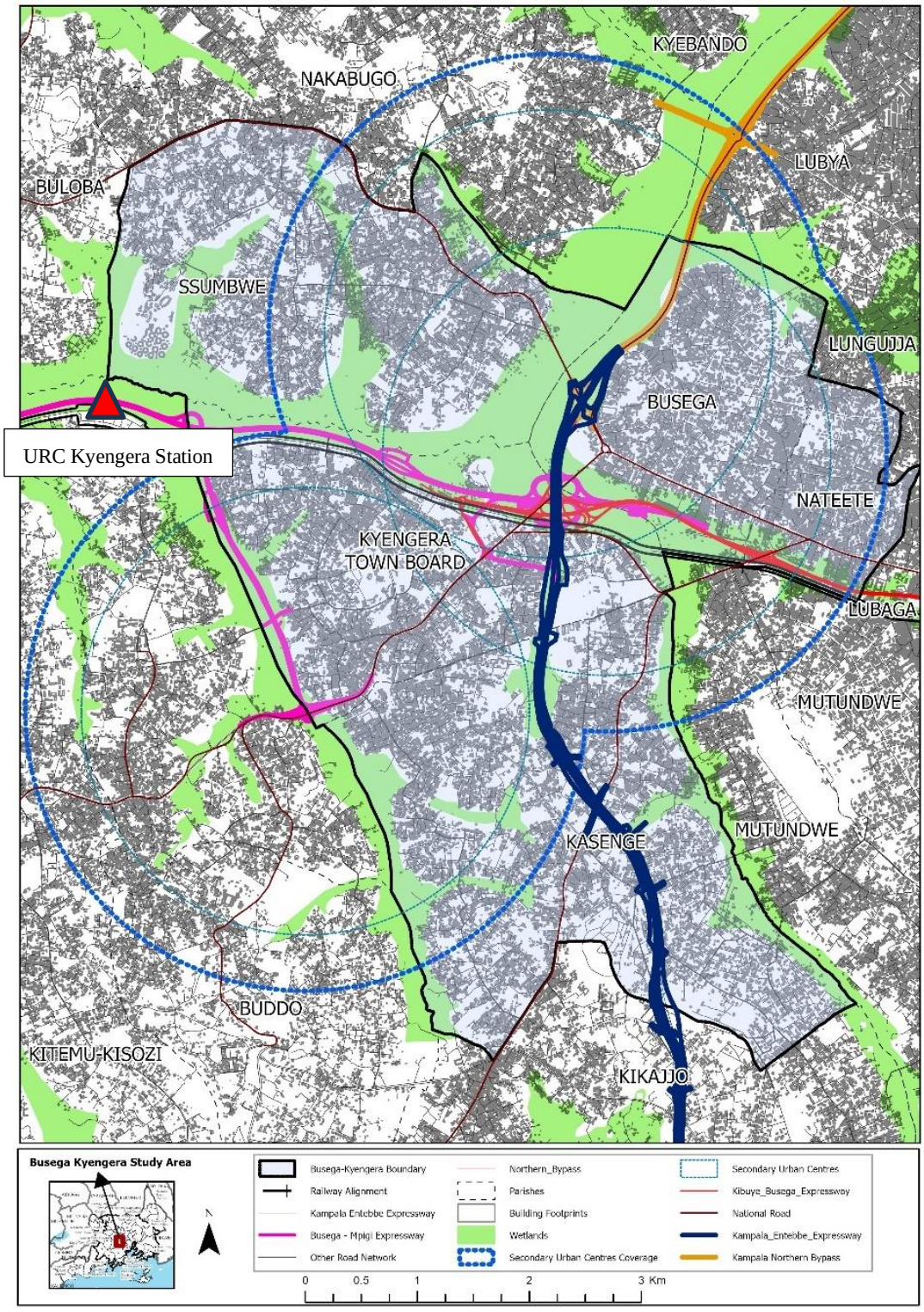
20.2.1 Busega-Kyengera Secondary Urban Centre

Site selected as model planning area for Busega-Kyengera Secondary Urban Centre is approximately 34.6km^2 and has the exit of Kampala-Mpigi Expressway, the Kampala-Entebbe Expressway and close to the Ugandan Railway Authority's Kyengera Station. (See Figure 20.2.2.) It covers the following wards and parishes:

- Busega Ward, Kampala Capital City
- Natete Ward, Kampala Capital City
- Bulenga Parish, Wakiso District
- Ssumbwe Parish, Wakiso District
- Kyengera Parish, Wakiso District
- Kasenge Parish, Wakiso District

The junction of Northern Bypass, Kampala-Entebbe Expressway and Kampala-Mpigi Busega-Expressway exists in Kyengera Secondary Urban Centre and the potential for development is higher compared with other urban centres. Furthermore, the construction of Kampala-Mpigi Expressway is ongoing and the necessity of detailed physical development plan is high. The Kampala-Mpigi Expressway is constructed on Lubigi Wetland.

The total number of buildings in this area is approximately 73,063. The building distribution is generally split into three main areas due to the existing wetlands.



Source: JICA Expert Team

Figure 20.2.2 Location Map of Selected Model Planning Area for Busega-Kyengera Secondary Urban Centre

20.2.2 Namataba Suburban Centre

Site selected as model planning area for Namataba Suburban Centre is approximately 39.5km^2 and has the exit of Kampala-Jinja Expressway (See Figure 20.2.3.) It covers the following parishes:

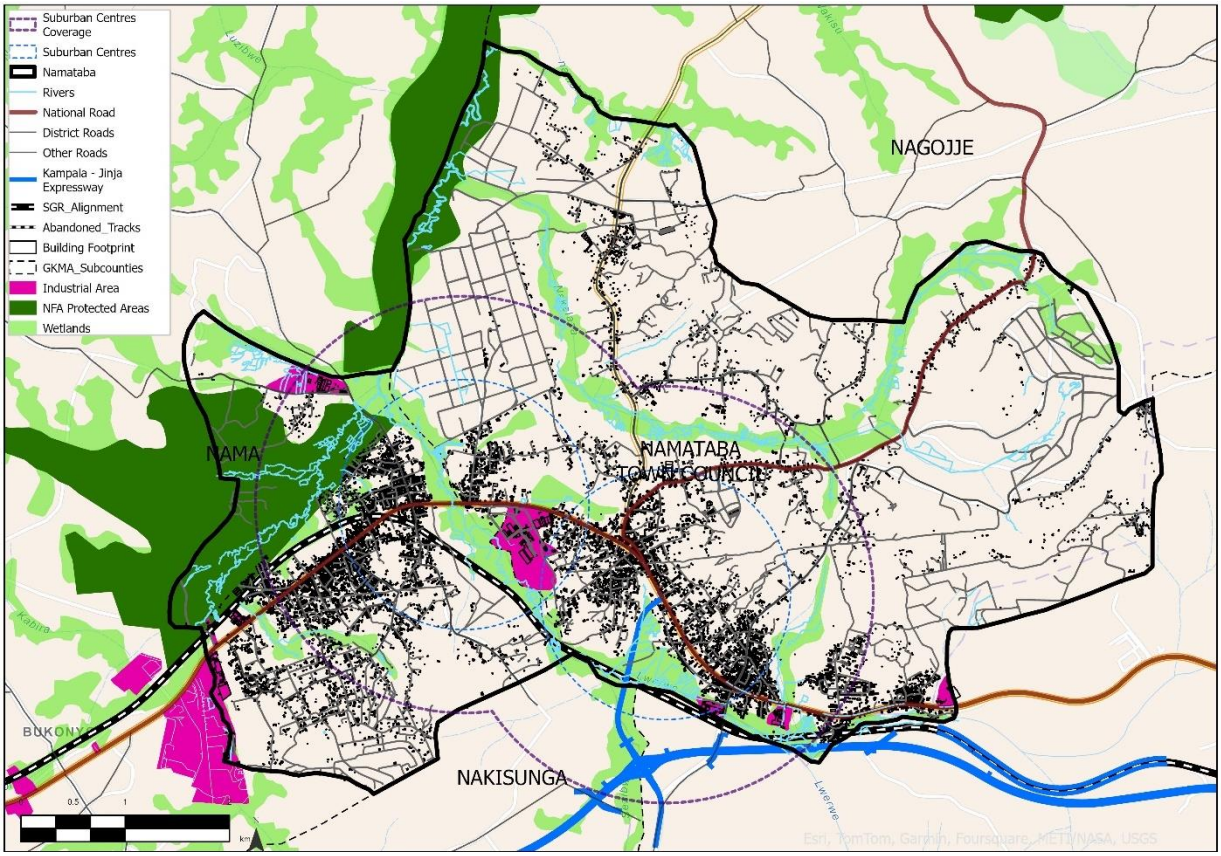
- Namagunga Parish
- Namataba Ward

- Namawojjolo Parish

The site is on the busiest corridor in Uganda, Jinja-Kampala-Mpigi Corridor and some industrial areas are already emerging along the Jinja Road. The Kampala-Jinja Expressway is expected to start its construction with the section between Kampala and Namagunga.

The area also has Nadagi Central Forest Reserve in the west of the area. The existing wetlands in Namataba generally runs through the area in three main directions which essentially divides the settlement into north, central and southwest.

Currently, there are approximately 16,428 buildings in the planned area.



Source: JICA Expert Team

Figure 20.2.3 Location Map of Selected Model Planning Area for Namataba Suburban Centre

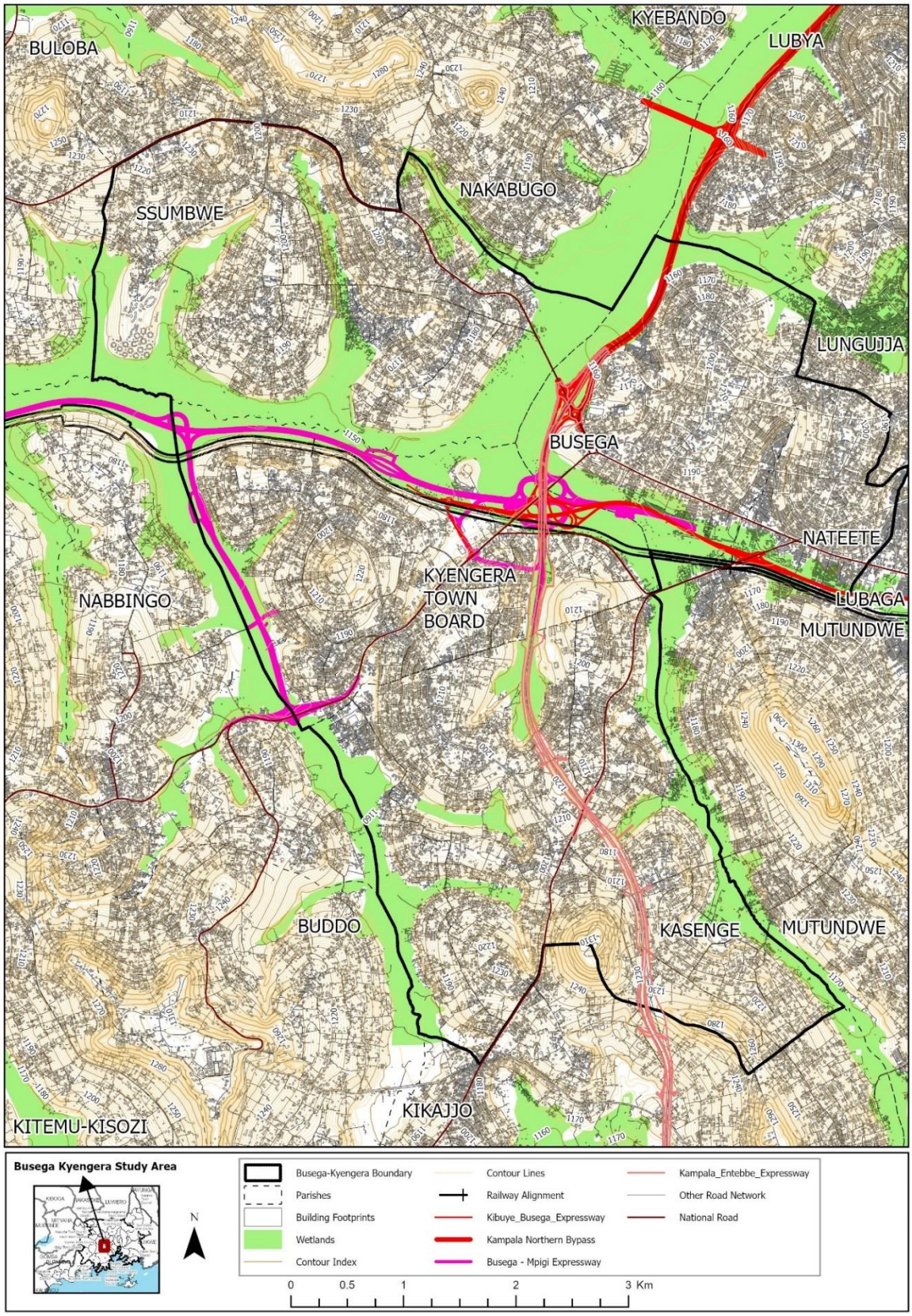
20.3 Local-Level Detailed Physical Development Plan for Busega-Kyengera Secondary Urban Centre Area for Model Planning

20.3.1 Present Situation of Busega-Kyengera Model Planning Area

(1) Natural Environment

1) Terrain:

The Busega-Kyengera area features a terrain predominantly composed of hilly and lowland regions. The hilly areas consist primarily of hard rocks like granite, while the lowlands are formed from softer sedimentary rocks and clay. The area is relatively humid, with vegetation characterized by the presence of wetlands.The topographic map of the planning area for Busega-Kyengera is shown in Figure 20.3.1 and Slope Conditions in Figure 20.3.2.



Source: JICA Expert Team based on Orthophoto (2019) and base map prepared by Preparatory Study on Urban Environment Improvement against COVID-19 (2022) JICA

Figure 20.3.1 Topographic Map of Busega-Kyengera Model Planning Area

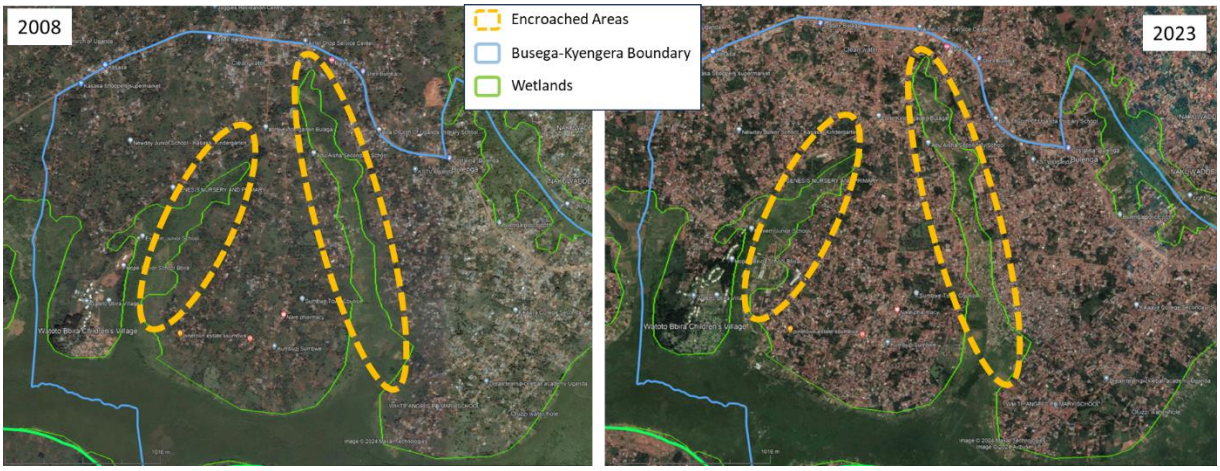
Source: JICA Expert Team based on Orthophoto (2019) and base map prepared by Preparatory Study on Urban Environment Improvement against COVID-19 (2022) JICA

Figure 20.3.2 Slope Conditions in Busega-Kyengera Model Planning Area

2) Wetlands:

Numerous wetlands, designated by the National Environment Management Authority (NEMA), are found within the low-lying areas. These wetlands are formed by rainwater and groundwater accumulation. The wetlands play a crucial role in the area water system, contributing to the main river flowing from northeast to northwest, receiving tributaries from both the north and the south.

Urbanisation and rapid development in close proximity to the wetlands is attributing the high levels of encroachments in this area across many fronts on the wetlands. Particularly, comparing the boundaries of wetlands delineated by the Ministry of Water and Environmental in 1994, and its current state shows that, some wetlands have completely vanished. For instance, Figure 20.3.3 shows how developments have taken over some wetlands in Ssumbwe Parish in Wakiso District over the last 15 years.



Source: JICA Expert Team, with image from Goodgle Earth Pro, 2024

Figure 20.3.3 Encroachments in Busega-Kyengera Model Planning Area

3) Forests

The area does not have forest designated by NEMA. However, small forest patches can be found on some of the hilly areas.

(2) Socio-economic Conditions

1) Population

The total population in the planning area was 502,845 in 2014. The estimated population for 2024 is 611,000 people.

According to 2014 census, the population of the six wards/parishes ranges from 48,234 to 135,678 people. Kyengera Ward (135,678 people) has the highest population, followed by Natete Ward (123,456 people). Kasenge Parish (48,234 people) has the lowest population.

The population in 2024 is projected to have increase for all areas from their 2014 population levels. The average growth rate will range from 1.48% to 2.28%.

Table 20.3.1 Population of Busega-Kyengera Planning Area

Area	Population 2014 (Census)	Estimated Population 2024	Average Growth Rate
Busega Ward, Kampala Capital City	54,231	63,000	1.51%
Natete Ward, Kampala Capital City	123,456	143,000	1.48%
Bulenga Parish, Wakiso District	78,901	98,000	2.19%
Ssumbwe Parish, Wakiso District	62,345	77,000	2.13%
Kyengera Ward, Wakiso District	135,678	170,000	2.28%
Kasenge Ward, Wakiso District	48,234	60,000	2.21%
Total	502,845	611,000	1.97%

Source: JICA Expert Team based on National Census 2014

2) Economic Activities

Busega-Kyengera, has experienced rapid urbanization in recent years, driving the emergence of a diverse industrial landscape. Table 20.3.2 provides a snapshot of the main industries and recent trends in six areas composing Busega-Kyengera Secondary Urban Centre Area. Key Findings include:

- Diverse Industrial Mix: The six areas exhibit a diverse mix of industries, with each area having its own unique strengths and opportunities.
- Manufacturing Hubs: Kyengera Ward and Natete Ward stand out as manufacturing hubs, with a concentration of factories producing food, beverages, and other goods.
- Emerging Service Sector: The service sector is showing promising growth across all areas, particularly in finance, real estate, IT, and tourism.
- Commercial Activities on the Rise: Commercial activities, including retail stores, markets, and shopping malls, are becoming increasingly prevalent in all areas, driven by rising consumer demand.

Table 20.3.2 Snapshot of Main Economic Activities in Busega-Kyengera and Surroundings

Area	Economic Activities	Trends
Busega Ward, Kampala Capital City	Commerce, services, light industry	・ Commercial activities have become more active in recent years, with a large number of retail stores and restaurants opening up. ・ The service sector is also growing, with increasing employment opportunities in finance, real estate, and IT. ・ Light industry remains an important industry, with factories producing food, garments, and metal products.
Natete Ward, Kampala Capital City	Manufacturing, commerce, services	・ Manufacturing is a major pillar of the local economy, with factories producing food, beverages, and tobacco. ・ Commercial activities are also thriving, with a large number of retail stores, markets, and shopping malls. ・ The service sector is also growing, with increasing employment opportunities in finance, real estate, and tourism.
Bulenga Parish, Wakiso District	Agriculture, light industry, services	・ Agriculture remains an important industry, with crops such as bananas, coffee, and beans being cultivated. ・ Light industry is also developing, with factories producing food, bricks, and furniture. ・ The service sector is also growing, with a gradual increase in retail stores, restaurants, and accommodation facilities.
Ssumbwe Parish, Wakiso District	Agriculture, commerce, services	・ Agriculture is a major pillar of the local economy, with crops such as bananas, coffee, and beans being cultivated.

		・ Commercial activities are also becoming more active, with a gradual increase in retail stores, markets, and shopping malls. ・ The service sector is also growing, with a gradual increase in retail stores, restaurants, and accommodation facilities.
Kyengera Parish, Wakiso District	Manufacturing, commerce, services	・ Manufacturing is a major pillar of the local economy, with factories producing food, beverages, and plastics. ・ Commercial activities are also thriving, with a large number of retail stores, markets, and shopping malls. ・ The service sector is also growing, with increasing employment opportunities in finance, real estate, and tourism.
Kasenge Parish, Wakiso District	Agriculture, light industry, services	・ Agriculture remains an important industry, with crops such as bananas, coffee, and beans being cultivated. ・ Light industry is also developing, with factories producing food, bricks, and furniture. ・ The service sector is also growing, with a gradual increase in retail stores, restaurants, and accommodation facilities.

Source: Kampala Capital City Investment Guide, Kampala Industrial and Business Park (KIBIP) Investment Guide, and Wakiso District Investment Profile 2020-2025.

As a future outlook, Busega-Kyengera is expected to experience further development in the coming years, leading to the expansion of existing industries and the emergence of new ones.

(3) Infrastructure

1) Transport Infrastructure

Railways

Uganda Railway Corporation (URC) is currently undertaking a rehabilitation project for the GKMA passenger railway service and the Kampala-Malaba international and domestic cargo railway service with funding from the African Development Bank. As for Busaga-Kyebgera, there is an east-west line running along the southern edge of the Wetland in the northern part of the area, The station is located at the western end of the district and the eastern end of the planning area. The distance between these two stations is almost 4 km, so a new station can be considered in Kyengera Ward.

Roads

Busega-Kyengera area is a major transportation hub. Three expressways and three national roads traverse this area, intersecting at the Busega Roundabout. This junction is notorious for causing severe traffic congestion. Due to the construction of expressway junction on the wetland near Busega Roundabout, the current important link from Busega Roundabout to the Kampala-Masaka Road is scheduled to be closed. The connection of Masaka Road will be altered to the Old Masaka Road. Outline of these trunk roads are described in Table 20.3.3.

Table 20.3.3 Major Trunk Roads in Busega-Kyengera Planning Area

Expressway Name	Number of Lanes	Section in the Target Area	Status
Outer Ring Expressway	2 lanes	Running north to south on the east side edge of Wetland	Operational
Kampala-Entebbe Expressway	4 lanes	Running north to south on the east side edge of Wetland	Operational
Kampala- Mpigi Expressway	2 lanes	Runs east to west on the south edge of Wetland	Under Construction
Kampala-Gomba Road	2 lanes	Passes through Buikwe District from northeast to southwest	
Kampala-Hoima Road	2 lanes	Passes through Buikwe District in a northwesterly direction	
Kampala-Masaka Road	2 lanes	Passes through Kyengera District in a southwesterly direction	To be closed

Source: JICA Expert Team by observation from field survey and GoogleEarth Satelite image 2024

2) Utilities Infrastructure

Water Supply

Currently, Busega-Kyengera relies on piped water supplied from the Gaba Water Treatment Plant in the south. The distance from the treatment plant has been cited as a cause of low water pressure and unreliability. A new water treatment plant (Wakiso-West-Kaazi WTP) is scheduled for construction closer to Busega and Kyengera after 2025. This is expected to improve water pressure and reliability.

Rainwater Drainage

Busega-Kyengera is prone to flooding due to its low-lying location. The area has been affected by floods in October 2010, November 2019, May 2020, October 2022, and May 2023. The main cause of flooding is the inadequate drainage network.

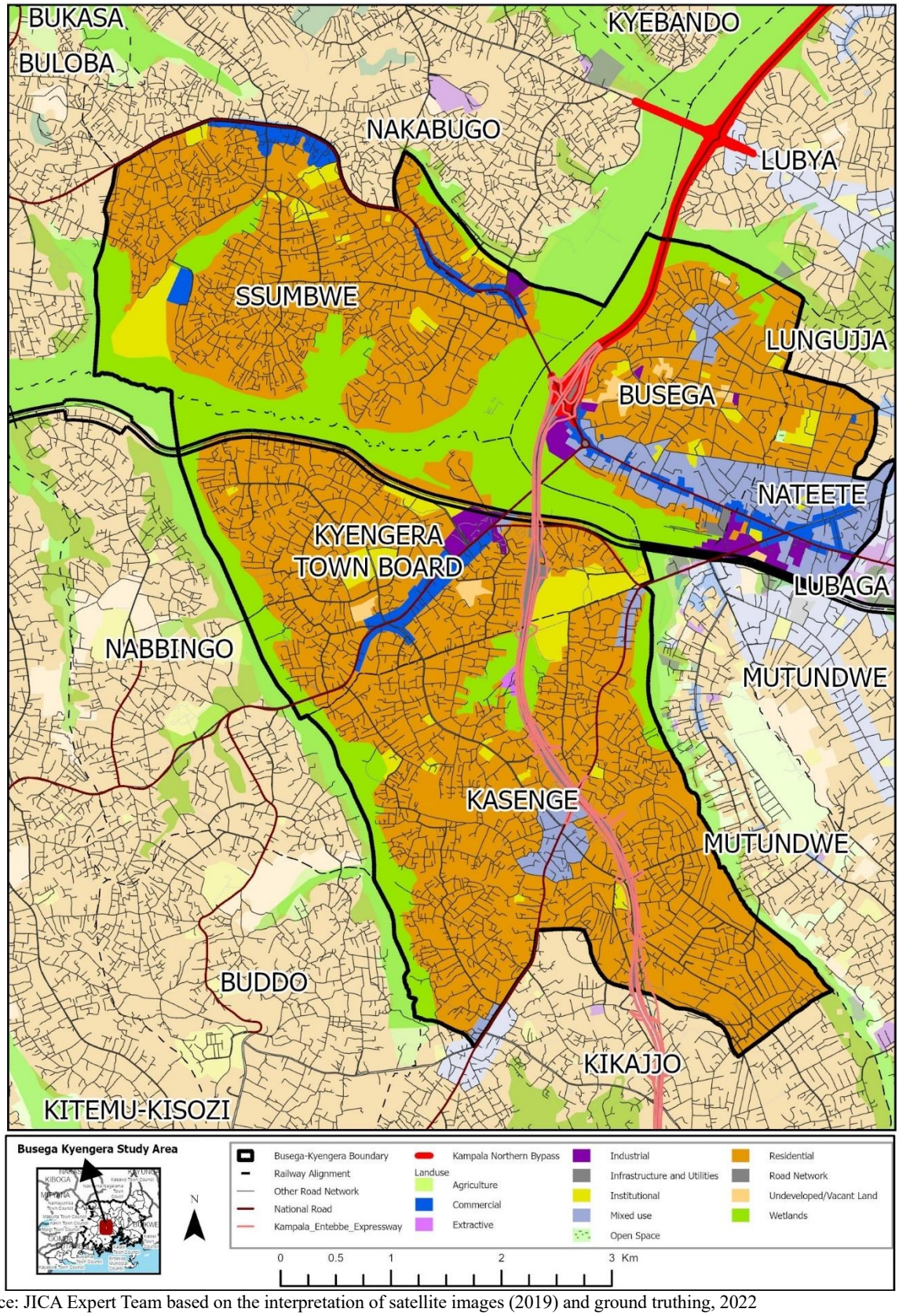
Waste Management

With the increasing population, Busega-Kyengera is generating more waste, and the collection services are struggling to keep up. Additionally, proper collection and disposal are not always consistently implemented. The planned relocation of the landfill from Kiteezi to another location raises concerns about a potential further decline in the quality of collection services due to increased transportation and disposal costs.

(4) Present Land Use

Figure 20.3.4 shows the present land use of the model planning area for Busega-Kyengera Secondary Centre Area and Table 20.3.4 shows their share. The composition of the current land use is predominantly residential with 2,406.46 ha (69.59%). Wetland also occupies a large area of 570.45 ha (16.50%). Land use for institutional usage such as schools and health facilities occupy 145.26ha (4.20%), which is larger than area for commercial covering 99.34ha (2.87%) and industrial covering 35.96ha (1.04%). Vacant land is limited to 101.88ha (2.95%).

Some large industrial areas are located on Masaka Road. There are also some industrial areas on Mityana Road. The majority of the commercial areas and mixed use are also located along these roads.



Source: JICA Expert Team based on the interpretation of satellite images (2019) and ground truthing, 2022

Figure 20.3.4 Present Land Use of Busega-Kyengera Secondary Model Planning Area

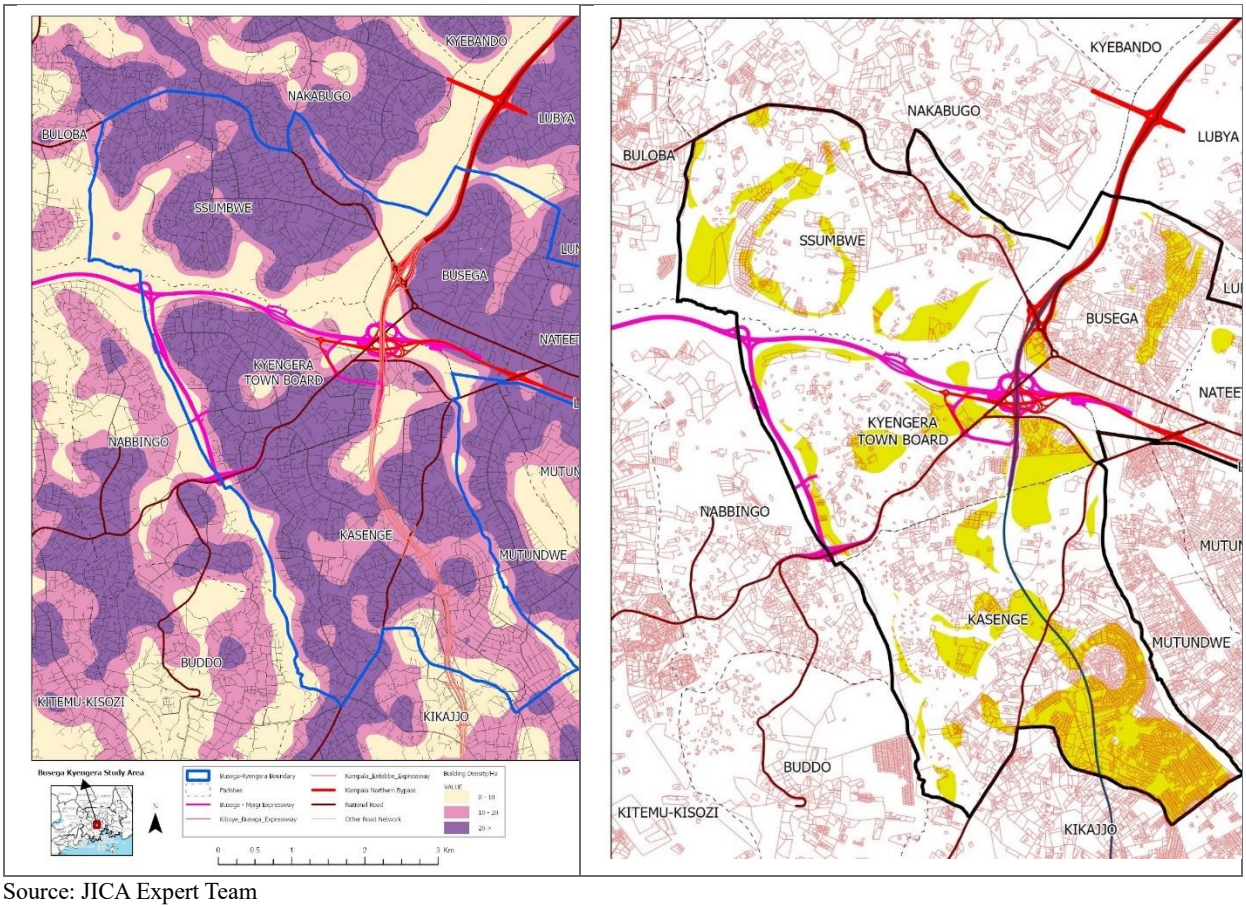
Table 20.3.4 Surface Area by Land Use in Model Planning Area for Busega-Kyengera

No.	Land Use	Area (ha)	Share (%)
1	Commercial	99.34	2.87
2	Industrial	35.96	1.04
3	Institutional	145.26	4.20
4	Mixed Use	1.95	0.06
5	Open Space	1.07	0.03
6	Quarry	2.59	0.07
7	Residential	2,406.46	69.59
8	Service Industrial	11.04	0.32
9	Transport	82.00	2.37
10	Vacant Lands	101.88	2.95
11	Wetland	570.45	16.50
Total		3,458.00	100.00

Sources: JICA Expert Team, based on the interpretation of orthophoto images (2019) and ground truthing, 2022

(5) Land Availability

The Busega-Kyengera area is already highly urbanized with a significant portion of land developed at relatively high densities as shown in Figure 20.3.5. Despite the extensive urbanization, there are still pockets of underutilized land within the Busega-Kyengera area. These areas represent opportunities for future development.



Source: JICA Expert Team

Figure 20.3.5 Present Land Use of Model Planning Area for Busega-Kyengera

(6) Existing and Potential Urban Cores

1) Existing Urban Cores

The Busega-Kyengera area boasts a diverse range of facilities, including vibrant markets, modern shopping malls, historical sites, and stunning natural attractions as briefly explained below:

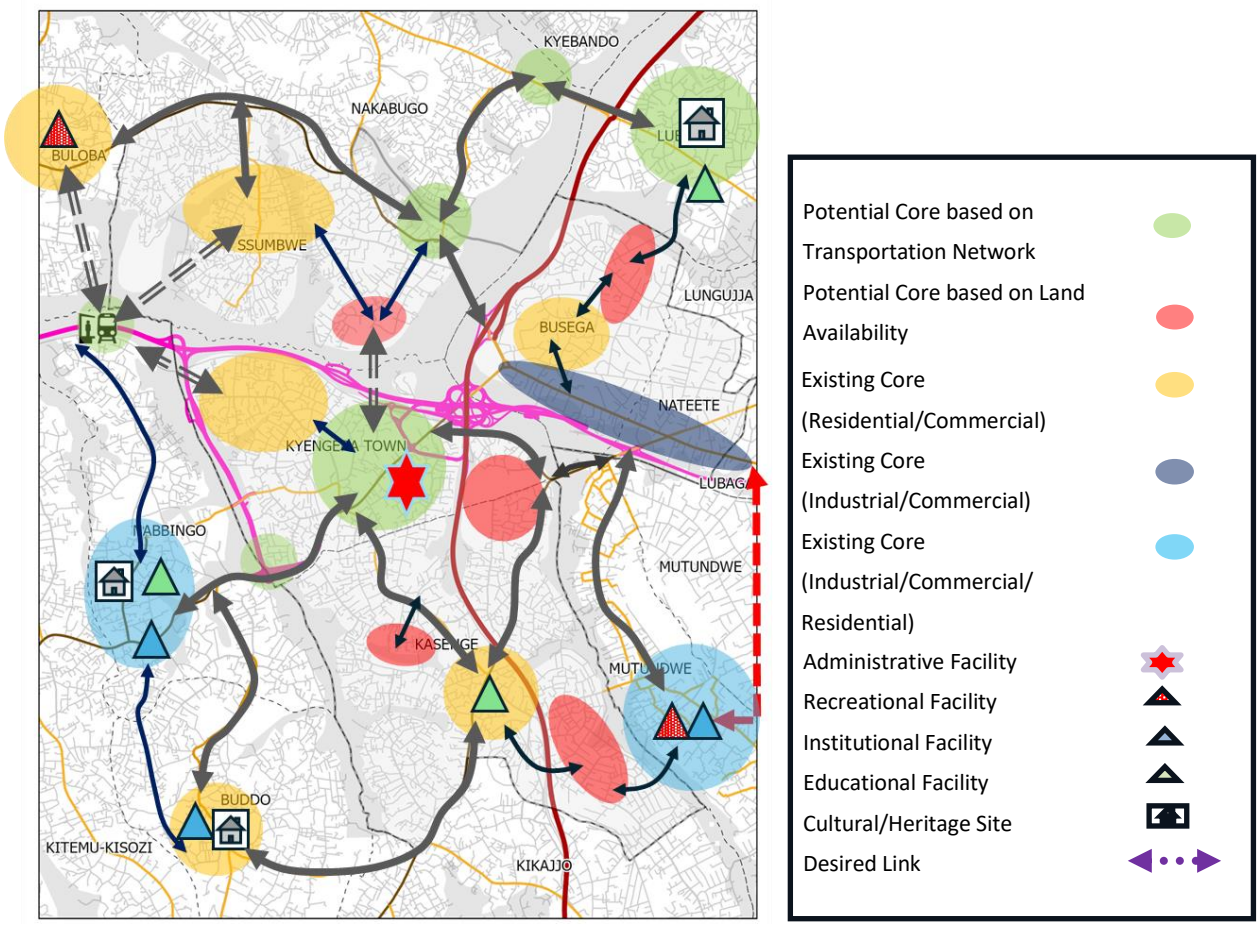
- Markets: The Busega area features the Busega Market, offering a wide selection of goods, including food, clothing, and household items. In the Kyengera area, the Kyengera Town Council Market serves as an essential hub for residents' daily needs. These markets play a crucial role in the area's economic activities and cultural identity.
- Shopping Malls: Busega is home to The Hub, a mixed-use facility encompassing a shopping mall, restaurants, and a cinema, while Victoria Mall stands as a modern shopping destination with diverse shops, dining options, and entertainment choices. Kyengera presents The Square Mall, a community-focused shopping center with local shops, cafes, and services. These shopping malls provide convenient venues for shopping, dining, and entertainment.
- Administrative Offices: The Kyengera Town Council serves as the administrative center for the area.
- Police Station: Busega Police Station ensures the safety and security of the area.
- Historical Sites: Nsambya Hill, a significant site linked to the history of the Buganda Kingdom, is located within Busega.
- Natural Scenery: Kyengera offers Namuli Hill, a vantage point for captivating views.
- Stadium: Kyengera Stadium hosts local football and athletics matches.
- Educational Facilities: The Uganda Wildlife Conservation Education Centre (UWEC) in Busega allows visitors to learn about Uganda's wildlife.

2) Potential Urban Cores

In addition to the existing urban cores, there are land blocks with the potential to become cores in the future. These can be identified by the following two factors:

- Places where convenience will be greatly improved by the formation of a new transportation network.
- Places that are spatially well-located but have been slow to urbanize due to poor access, etc.

Figure 20.3.6 shows the distribution of existing and future urban cores based on the above considerations.



Source: JICA Expert Team

Figure 20.3.6 Consideration of Existing and Future Urban Cores in Busega-Kyengera Secondary Urban Centre and Surrounding Area

20.3.2 Concept Plan

(1) Future Vision and Urban Functions of Busega-Kyengera Secondary Urban Centre

Busega-Kyengera is designated to be the Secondary Urban Centre in GKMA IUDMP, which is expected to play the following roles:

- Supporting Larger Urban Areas: Busega-Kyengera Secondary Urban Centre primarily serve the needs of a larger metropolitan area, acting like satellite towns or service hubs.
- High Level Urban Functions: Busega-Kyengera Secondary Urban Centre share some core functions with Primary Urban Centers (CBDs) such as commercial, service, education, and healthcare functions.

As the area evolves into a Secondary Urban Centre for GKUGA, it is envisioned that special urban centre functions will be located to support the Central Business District (CBD). Anticipated urban centre functions include:

- Commercial Business Area:
  - ➢ A modern office district with towering skyscrapers
  - ➢ A vibrant hub of large shopping malls and commercial establishments
  - ➢ A culinary haven with diverse restaurants and cafes
  - ➢ Cultural attractions such as art galleries and museums
  - ➢ Lush parks and plazas

- Commercial-Residential Mixed-Use Area:
  - Essential stores such as supermarkets and drugstores
  - Retail outlets including clothing and home décor shops
  - Eateries and cafes
  - Service providers such as salons and dry cleaners
  - Low-rise condominiums and apartments
- Transportation Hub Area:
  - Train stations and bus terminals
  - Parking facilities
  - Taxi stands
  - Hotels
  - Commercial establishments
  - Office buildings

This envisioned development pattern aims to create a vibrant and well-developed Secondary Urban Centre that caters to the diverse needs of its residents and visitors, fostering economic growth and enhancing the overall quality of life within the Busega-Kyengera area.

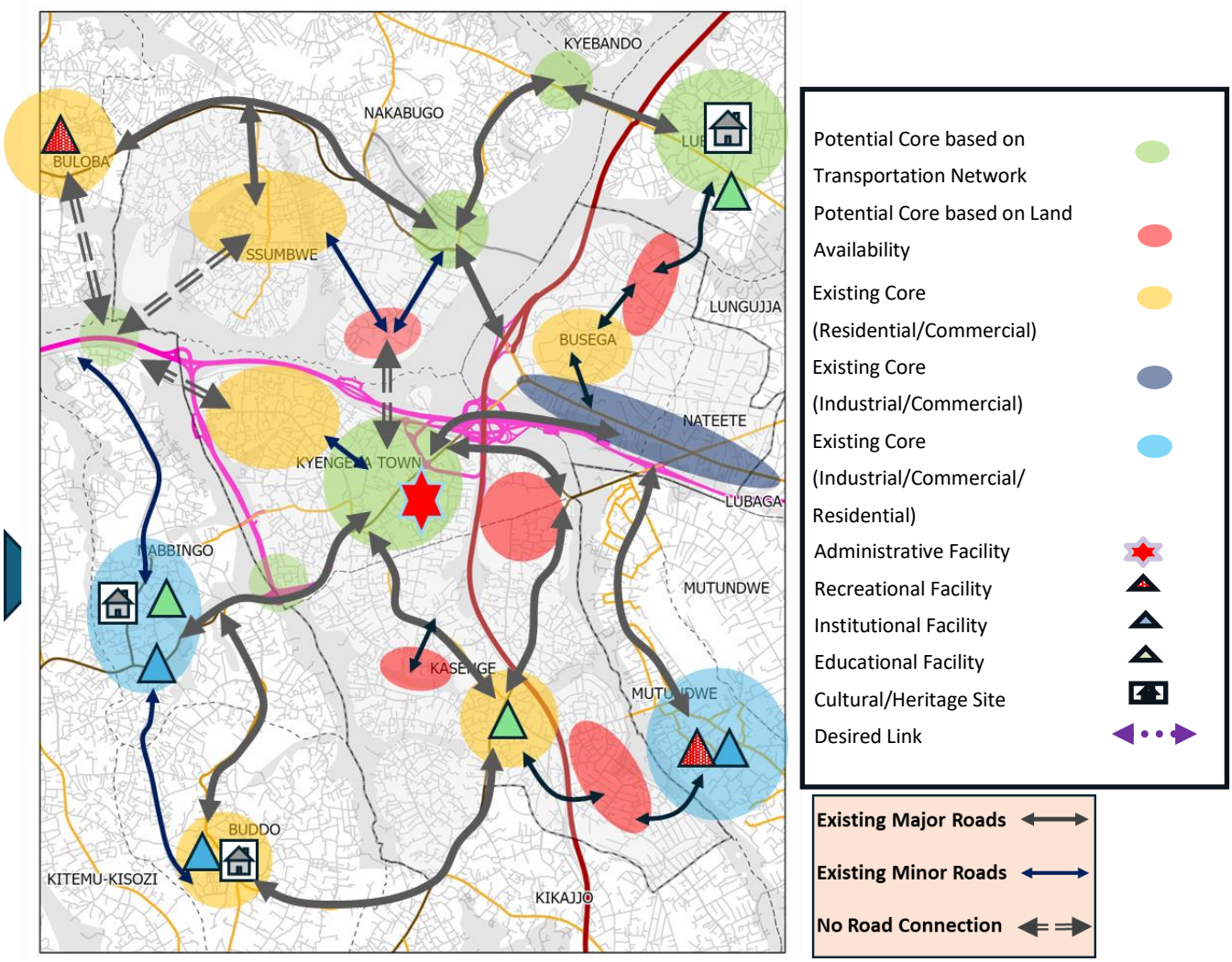
(2) Alternative Spatial Structure

The completion of the Kampala-Mpigi Expressway and the railway rehabilitation is expected to transform Busega-Kyengera's spatial structure. These new routes will bypass the congested Busega roundabout and the impassable wetland, improving access from the city centre. This improved connectivity is anticipated to drive up land prices in Busega-Kyengera, encouraging more efficient land use practices among landowners.

In response to these changes, the Detailed Local PDP for Busega-Kyengera Secondary Urban Centre aims to elevate land use beyond general residential areas, promoting the establishment of urban centre functions and fostering more sophisticated land utilisation. To achieve this, the Detailed Local PDP must provide clear message for land users to recognize investment opportunities.

This section examines how to integrate the outcomes of past projects into the spatial structure to ensure the success of the Busega-Kyengera Secondary Urban Centre.

Figure 20.3.7 illustrates the existing urban cores and potential locations of the future urban cores. It also indicates the presence of national roads, district roads, and other local roads that are crucial for connecting these cores and facilitating their maximum activation. This figure serves as a foundation for examining the configuration of future spatial structure.



Source: JICA Expert Team

Figure 20.3.7 Consideration of Connectivity between the Urban Cores in Busega-Kyengera Area and Surrounding Area

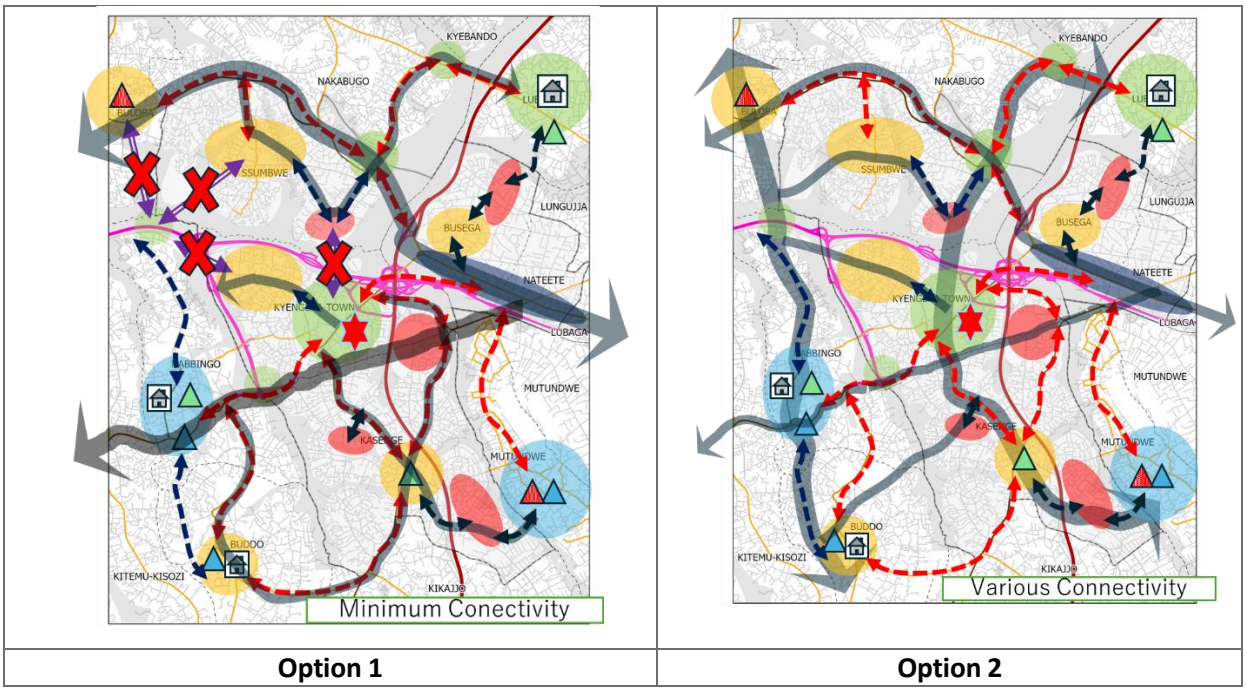
Figure 20.3.7 presents two proposed road network configurations for shaping Busega-Kengera's future framework.

1) Option 1: Preserving Wetlands and Extending Existing Spatial Structure

Option 1 emphasizes Wetland conservation and guiding the spatial structure along an extension of the existing pattern. This approach primarily focuses on maintaining the current north-south connectivity and capitalizing on the improved accessibility provided by the completed Kampala-Mpigi Expressway and railway rehabilitation.

2) Option 2: Enhancing Connectivity and Promoting Radial-Circular Dynamics

Option 2 prioritizes active connectivity enhancement, aiming to improve accessibility to the railway station and other potential urban cores. This approach seeks to foster a balance between radial (east-west) and circular (north-south) movement patterns, reducing reliance on radial movement from Kampala and invigorating north-south connectivity.



Source: JICA Expert Team

Figure 20.3.8 Alternative Options for Road Network for Busega-Kyengera Secondary Urban Centre

The evaluation result of road network for the two options for Busega-Kengera's future spatial structure are summarised in Table 20.3.5.

Table 20.3.5 Summary of Evaluation on Spatial Structure Options for Busega-Kyengera

	Option 1: Preserving Wetlands and Extending Existing Spatial Structure	Option 2: Enhancing Connectivity and Promoting Radial-Circular Dynamics
Advantages:	・ Minimizes environmental impact: This option prioritizes the preservation of existing wetlands and ecosystems, ensuring minimal disruption to the natural environment. ・ Leverages existing infrastructure: By extending the existing spatial structure, this option effectively utilizes existing infrastructure, reducing the need for extensive new construction and minimizing associated costs. ・ Maintains established connectivity: This option preserves the established north-south connectivity, ensuring seamless movement along existing transportation corridors.	・ Enhanced connectivity: This option prioritizes comprehensive connectivity, improving accessibility throughout Busega-Kyengera, including new development areas. ・ Efficient transportation network: By fostering a balance between radial and circular movement patterns, this option promotes a more efficient and adaptable transportation network. ・ Flexibility for future growth: The emphasis on connectivity facilitates future growth and development in a more flexible and adaptable manner, accommodating the community's evolving needs.
Disadvantages:	・ Limited potential for future growth: The focus on preserving wetlands may restrict future growth and development in certain areas, potentially hindering the expansion of the community. ・ Accessibility limitations: This option may not adequately address the need for improved accessibility to new development areas that may arise in the future. ・ Underutilized infrastructure: The limited expansion of the road network may not fully capitalize on the benefits of the completed Kampala-Mpigi Expressway and railway rehabilitation.	・ Environmental considerations: The expansion of the road network may involve some disruption to existing wetlands and ecosystems, requiring careful environmental mitigation strategies. ・ Increased construction costs: The more extensive construction involved in this option may lead to higher initial investment costs compared to Option 1. ・ Potential reliance on private vehicles: If not accompanied by effective public transportation measures, this option could increase reliance on private vehicles, potentially impacting environmental sustainability and traffic congestion.

Source: JICA Expert Team

(3) Concept Plan

Based on the spatial structure's future trunk transportation system, the following elements are added to the spatial structure to prepare the concept plan:

1) Urban Core

For both existing and potential urban cores, the following urban centre functions are established under the established transportation system:

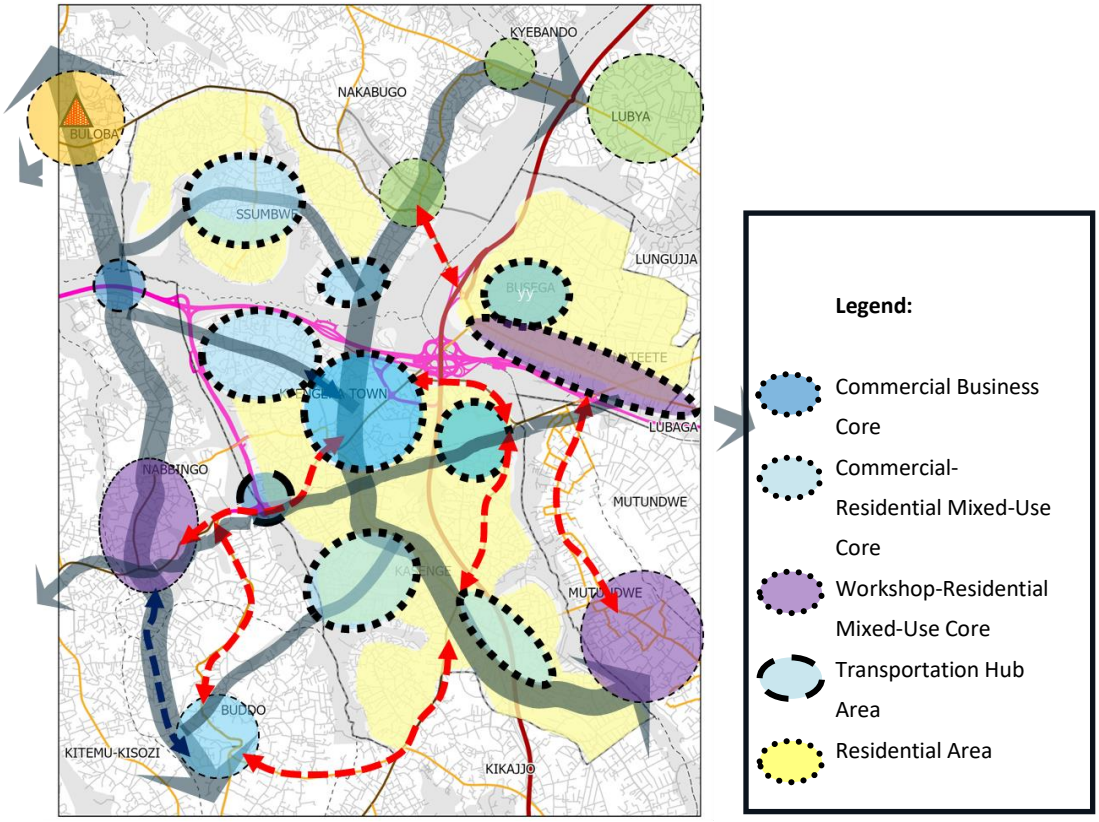
- Commercial Business Core: A centre for commercial businesses, such as offices, retail stores, and restaurants.
- Commercial-Residential Mixed-Use Core: A centre that combines commercial and residential uses, such as apartments, condominiums, and townhouses above retail stores.
- Workshop-Residential Mixed-Use Core: A centre that combines workshop and residential uses, such as live-work lofts and apartments above workshops.
- Transportation Hub Area: A centre for transportation, such as train stations, bus stops, and airports.

2) Residential Area

This includes the existing residential areas surrounding the urban cores and the areas that could be developed as new residential areas under the future transportation system. It is classified as follows:

- Residential Area: Areas that could become residential areas under the future transportation system and urban cores.

Figure 20.3.9 shows the concept plan created based on the above conditions.



Source: JICA Expert Team

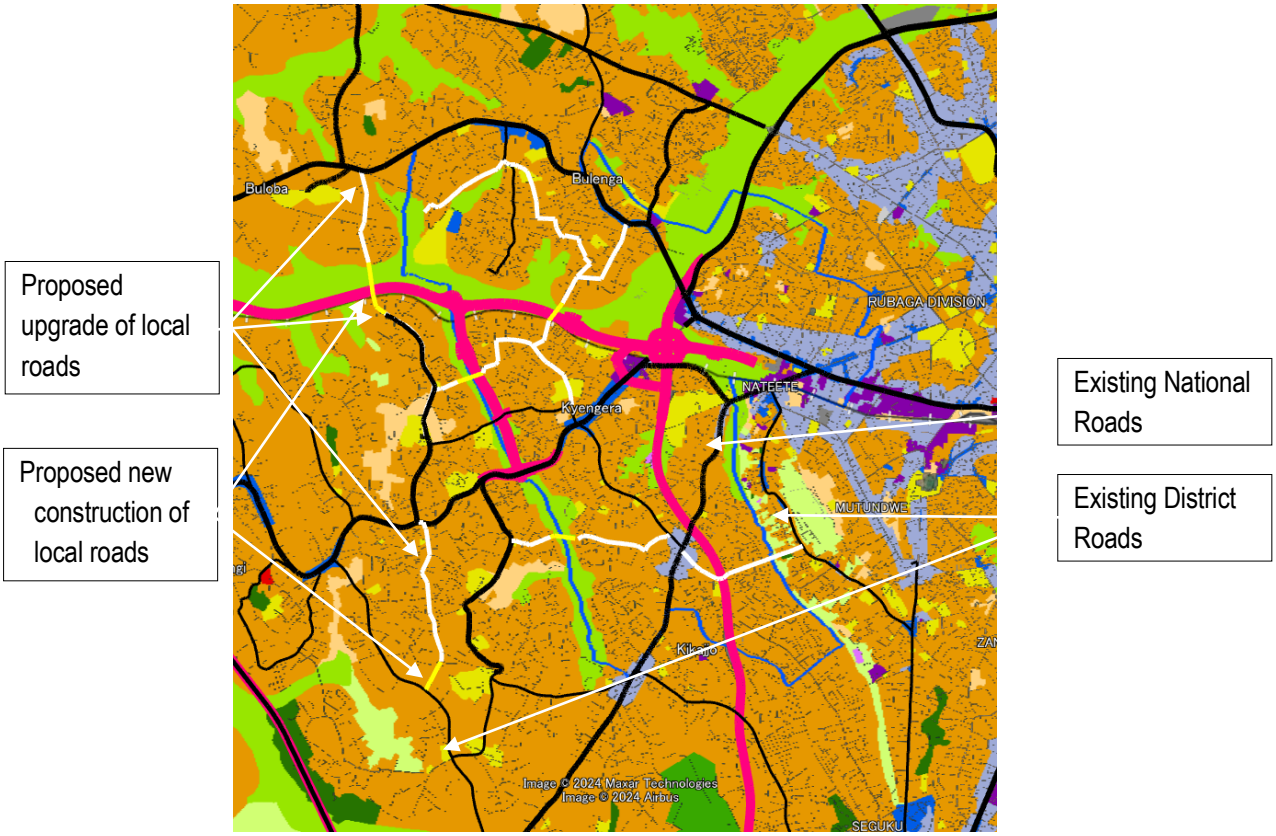
Figure 20.3.9 Concept Plan for Busega-Kyengera Secondary Urban Centre Area

20.3.3 General Land Use Plan for Busega-Kyengera Secondary Urban Centre

The general land use plan is prepared based on the concept plan though following steps:

1) Roads

- Focus on major roads connecting the planning are and the outside and use those roads identified in the concept plan.
- Added roads to create the complete network.
- Considered a grid pattern for some areas.
- Respected existing roads whenever possible



Source: JICA Expert Team

Figure 20.3.10 Refined Trunk Road Routes for General Land Use Plan

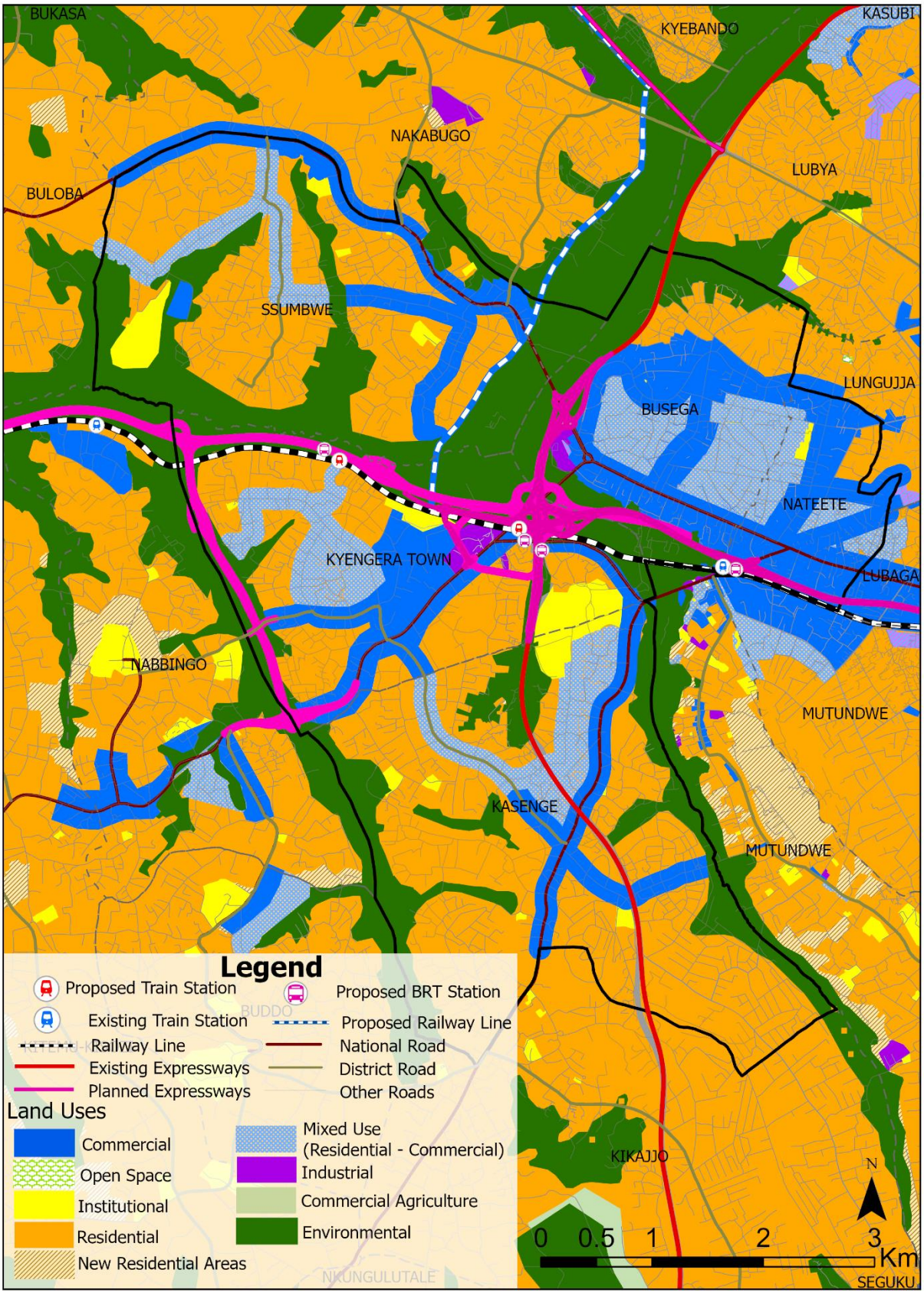
2) Urban Functions

- Identify areas for different uses including Business and Commercial, Commercial and Residential Mixed Use, Workshop-Residential Mixed Use, and Transportation Hub based on the road network clarified in the previous step.
- Refine these locations from the concept plan.

3) Future Residential Areas

- Identify areas for future residential area based on population growth and infrastructure.
- Refine the concept plan's future urban area by designating remaining land for housing assuming land use conversion will take place from the ones that are currently used for agriculture.
- Exclude the wetland area from urban use.

Based on the above analyses, the General Land Use Plan for the Busega-Kyengera Model Planning Area was formulated as shown in Figure 20.3.11.



Source: JICA Expert Team

Figure 20.3.11 General Land Use Plan for Busega-Kyengera Model Planning Area

20.3.4 Land Use Zoning Plan for Busega-Kyengera Secondary Urban Centre Area

In this section, how the land use zoning plan for Busega-Kyengera Secondary Urban Centre Area has been formulated is described. However, further discussion and consideration will be required for the improvement and finalisation of the detailed plan including zoning prescriptions.

It is proposed that the land use zoning plan for the Busega-Kyengera Secondary Urban Centre Area should use four layers to define land use regulations.

(1) Upper Regulation Layer

This layer identifies land use restrictions mandated by other laws and regulations that the Detailed Local PDP must adhere to. It does not overlap with the land use of zoning map itself. For the Busega-Kyengera Secondary Urban Centre Area, this layer shows the following:

- Gazetted Wetland 1994
- Transmission Line Buffer

(2) 2. Urban Facilities Layer

This layer focuses on urban facilities, including transport infrastructure and public facilities as described below.

1) Roads

The road network composes of those presented in the General Land Use Plan, but focuses on creating a grid pattern with categories of primary, secondary and tertial roads spaced between 500 meters and 2 kilometres. This structure aims to promote the placement of various functions while creating a desirable living environment. The network primarily consists of existing national and district roads with some missing links incorporated.

2) Public Facilities

Public facilities, including government offices, healthcare centres, schools and sports complexes, have traditionally been considered a land use category in Ugandan land use plans. However, these plans typically show individual facility locations, which isn't useful for zoning maps that focus on broader areas within the cityscape.

To address this, the model plan uses the urban facilities layer. This layer shows existing public facilities, ensuring their continued use in the future. Facilities planned for new urban areas will be designed according to relevant standards and added to this layer as projects are finalized.

3) Parks & Greenery

Similar to public facilities, parks, green spaces, and open spaces designated for public use will also be included on this layer as specific sites. This encompasses existing parks and green spaces, even those on leased land, to guarantee their continued function in the future.

Additionally, any wetlands not part of the designated Gazetted Wetland of 1994 will be identified on this layer. These wetlands will be treated as facilities requiring specific management. The proposed wetland park is also depicted in this layer.

(3) Land Use Regulation Layer

1) Commercial

The results of the Building Survey for existing commercial and business areas in Busega-Kyengera indicate a low building coverage ratio (BCR) and floor area ratio (FAR) as shown in Table 20.3.6. However, this is expected to change significantly as the Busega-Kyengera Secondary Urban Centre Area accommodates business and commercial facilities overflowing from the CBE of KCC. This will lead to a complete transformation of the current commercial landscape in the near future.

The CBD in KCC has been experiencing various renewal works, with high-rise office buildings replacing the previously dominant 2-4 story structures. This trend towards high-rise development (10-16 stories) is expected to be replicated in the Busega-Kyengera Secondary Urban Centre Area, particularly along Primary Roads. To achieve this vision, the zoning plan proposes a BCR of 80% and a FAR of 600 to 800%, allowing for the construction of 10-story office buildings and apartment buildings.

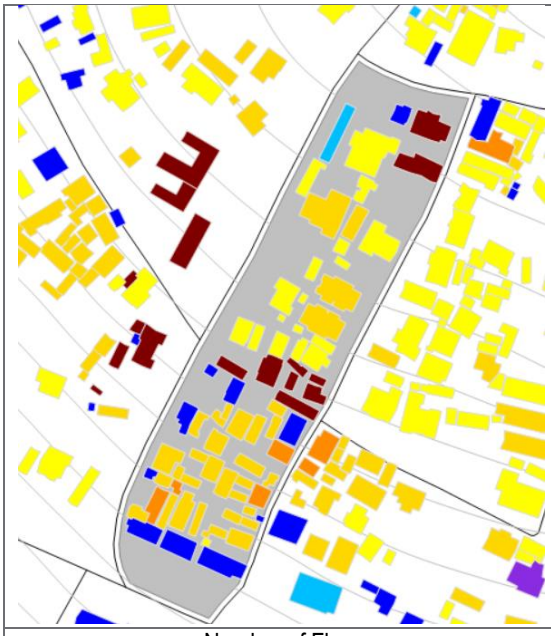
There are also high commercial and business potential behind these corridor-type commercial area. Since most such areas are already built-up, a spontaneous transformation is anticipated. Offices for various services, relatively affordable apartments, and ground-floor retail stores are expected to be integrated into these areas through the development of 5-6 story mixed-use buildings. The zoning plan proposes a BCR of 60% and a FAR of 400% to facilitate this type of development. This combination of the BCR and FAR will also accommodates a shopping mall style developments which may be located in some larger underutilized sites within these areas.

2) Mixed Commercial and Residential

In areas slightly away from the main commercial centres mentioned above, it is expected that buildings with profitability will increase in residential areas due to increase in land prices.

This trend is particularly likely to be seen in areas in Busega-Kyengera where workshops are mixed in with residential areas and in newly urbanized areas where land is relatively inexpensive. These areas tend to form a cityscape with a mix of small-scale commercial, industrial, and residential areas, and are often a source of vitality for the town. However, in Busega-Kyengera, the establishment of new industries is basically suppressed. This is because the location of such industries that bring vitality to the town can also lead to the concentration of such industries in other urban centres.

Table 20.3.6 Existing Condition of Commercial and Residential Mixed Use in Busega-Kyengera Model Planning Area



Number of Floors	Number of Buildings
1	56
2	7
3	3
4	2

Total Building Arae (m2)	Net Plot Coverage Ratio (BCR) (%)	Total Floor Area (m2)	Net Plot Ratio (FAR) (%)	Block Area (m2)
6,142.3	38.2	8,598.5	53.4	16,097.2

Source:JICA Expert Team

In addition, multi-story apartments are currently not as prevalent in Kampala. However, with rising land prices, their popularity is expected to increase, leading to a higher proportion of apartments in Kampala's city centre and secondary urban centres like Busega-Kyengera. With the area to develop as secondary urban centre, such multi-story apartments should develop in a mixed use environment allowing business and commercial activities in the lower floor and residential usage in the higher floors. This category envisions high-density residential areas with a population density of approximately 200 people per hectare. To achieve this density, the zoning plan proposes a building coverage ratio (BCR) of 70% and a floor area ratio (FAR) of 300 to 400%.

3) Medium Density Residential

Despite the urging development opportunity in Busega-Kyengera Secondary Urban Centre, for some good residential area away from the main roads, it is desired to maintain its characteristics to provide good residential area for the residents who wish to live in such environment. For this purpose a BCR of 50% and a FAR of 150% is proposed.

4) High Density Residential

The current mix of single-family and collective housing is expected to intensify. Driven by the spillover from Kampala Capital City and the demand for affordable housing, this trend is likely to persist for some time. To accommodate this type of housing, the zoning plan introduces area with a BCR of 60% and a FAR of 200% for the High Density Residential Zone.

5) Mixed Use (Industry and Commercial)

Busega-Kyengera holds immense potential to transform into a vibrant commercial center. To achieve this vision, we propose redesignating industrial areas as "Mixed Use (Industrial and Commercial)" zones. Mixed Use zones foster a dynamic environment where commercial and industrial activities coexist. This designation is anticipated to yield several benefits:

Commercial Expansion:

- Fostering a lively commercial environment
- Revitalizing the local economy
- Generating employment opportunities

Industrial Operations in a Convenient Environment:

- Enabling businesses to continue operations in a more favorable environment

The following table summarizes the land use categories, building coverage ratios (BCRs), floor area ratios (FARs), and population densities for each category:

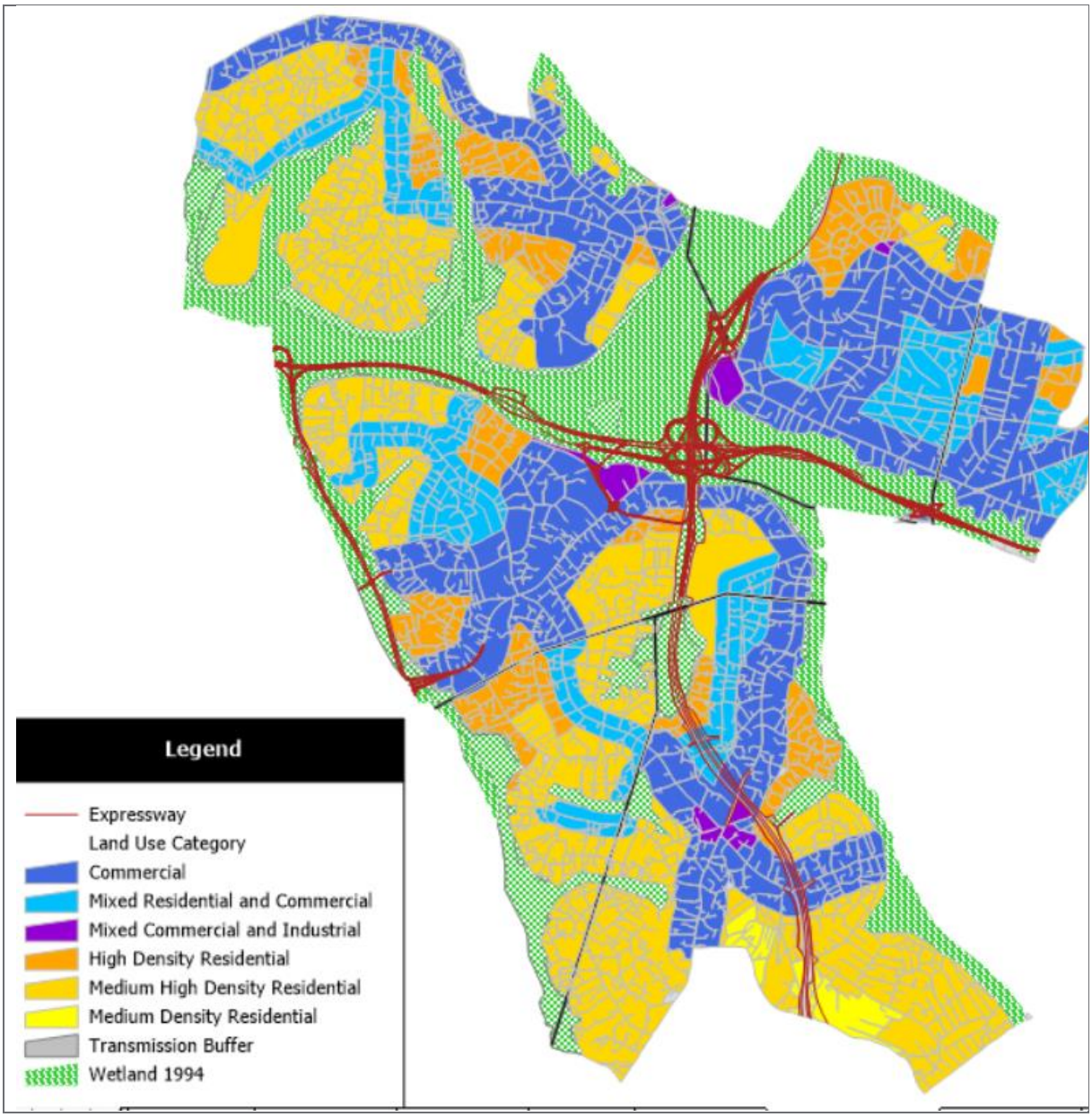
Table 20.3.7 Proposed Land Use Category for Busega-Kyengera Model Planning Area

Land Use Category	BCR	FAR	Remarks
Commercial	80% 80% 60% 60%	800% 600% 600% 400%	Along major roads Other areas
Mixed Commercial and Residential	70% 70%	400% 300%	Along major roads and areas with good existing local road networks Other areas
Medium Density Residential	40%	100%	
High Density Residential	60%	200%	Population Density (people/ha)>200
Mixed Commercial and Industrial	50% 60%	150% 200%	

Source: JICA Expert Team

(4) Land Use Zoning Plan

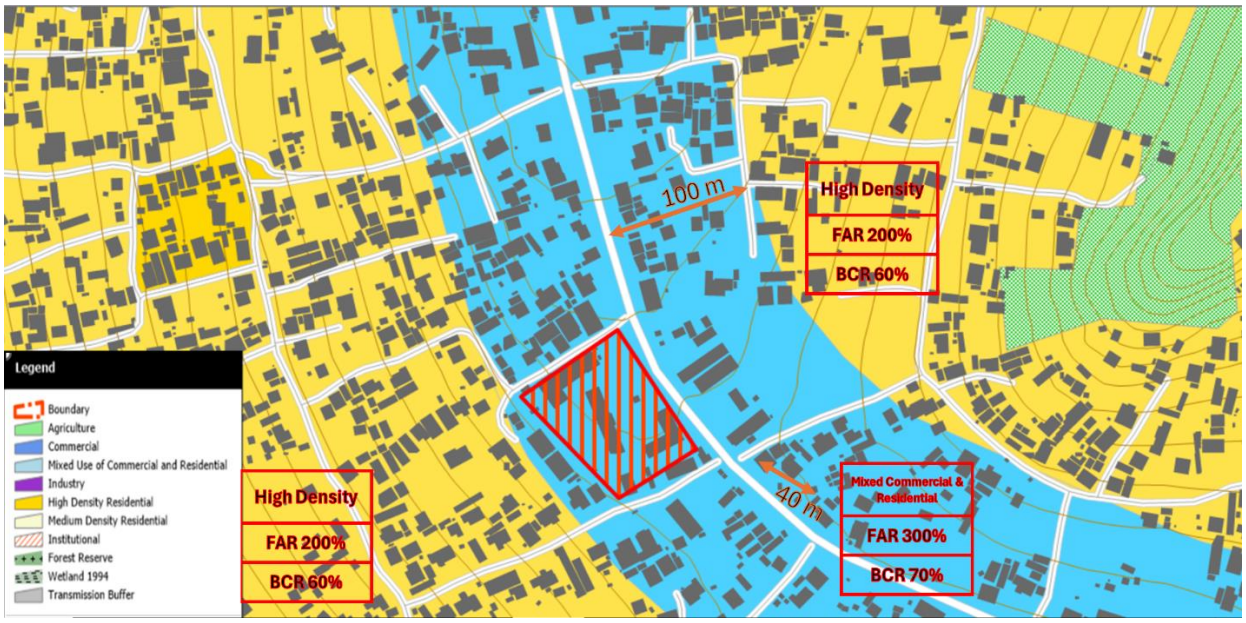
Based on the considerations above, the Zoning Map is shown in Figure 20.3.12.



Source: JICA Expert Team

Figure 20.3.12 Draft Zoning Map for Busega-Kyengera Area.

Figure 20.3.13 shows an example of the detailed view of the land use zoning plan.



Source: JICA Expert Team

Figure 20.3.13 Detailed View of Draft Land Use Zoning Plan for Busega-Kyengera Secondary Urban Centre

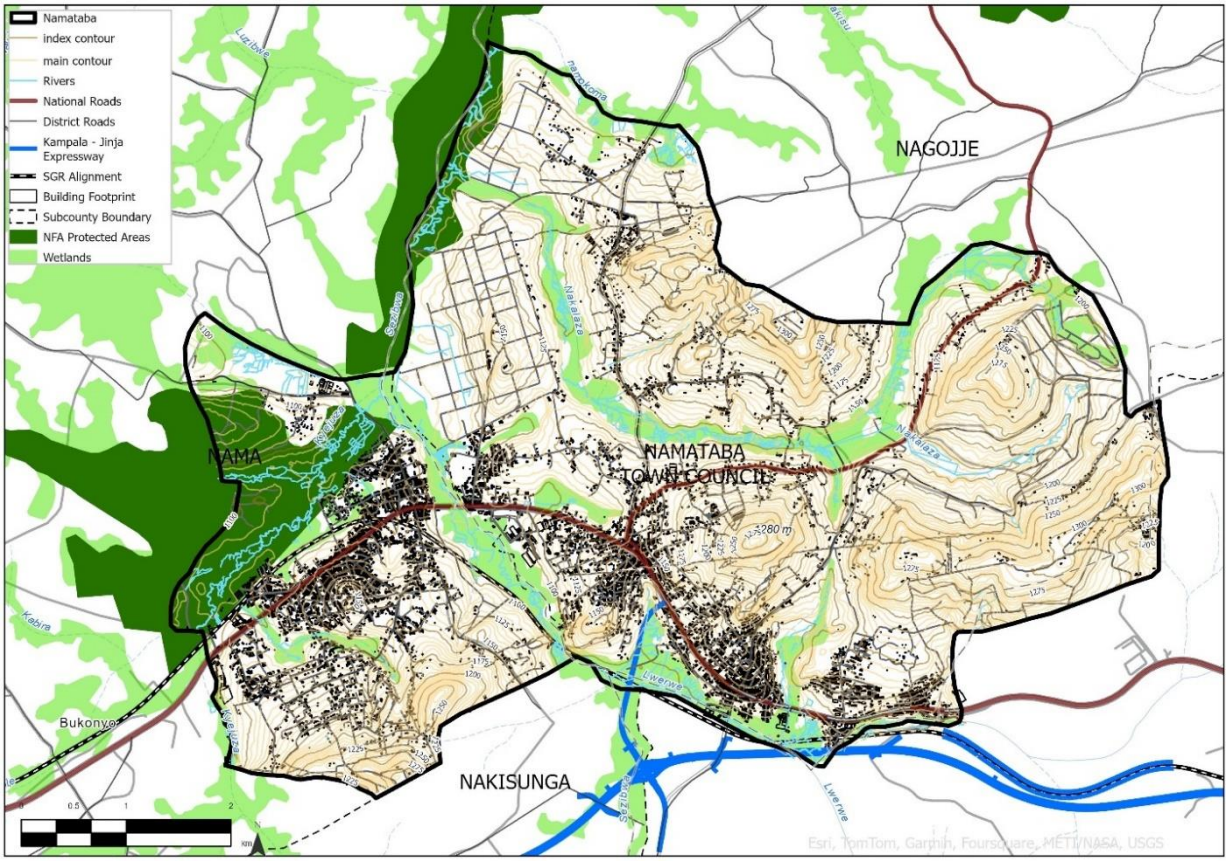
20.4 Local-Level Detailed Physical Development Plan for Namataba Model Planning Area

20.4.1 Present Situation of Namataba Model Planning Area

(1) Natural Conditions

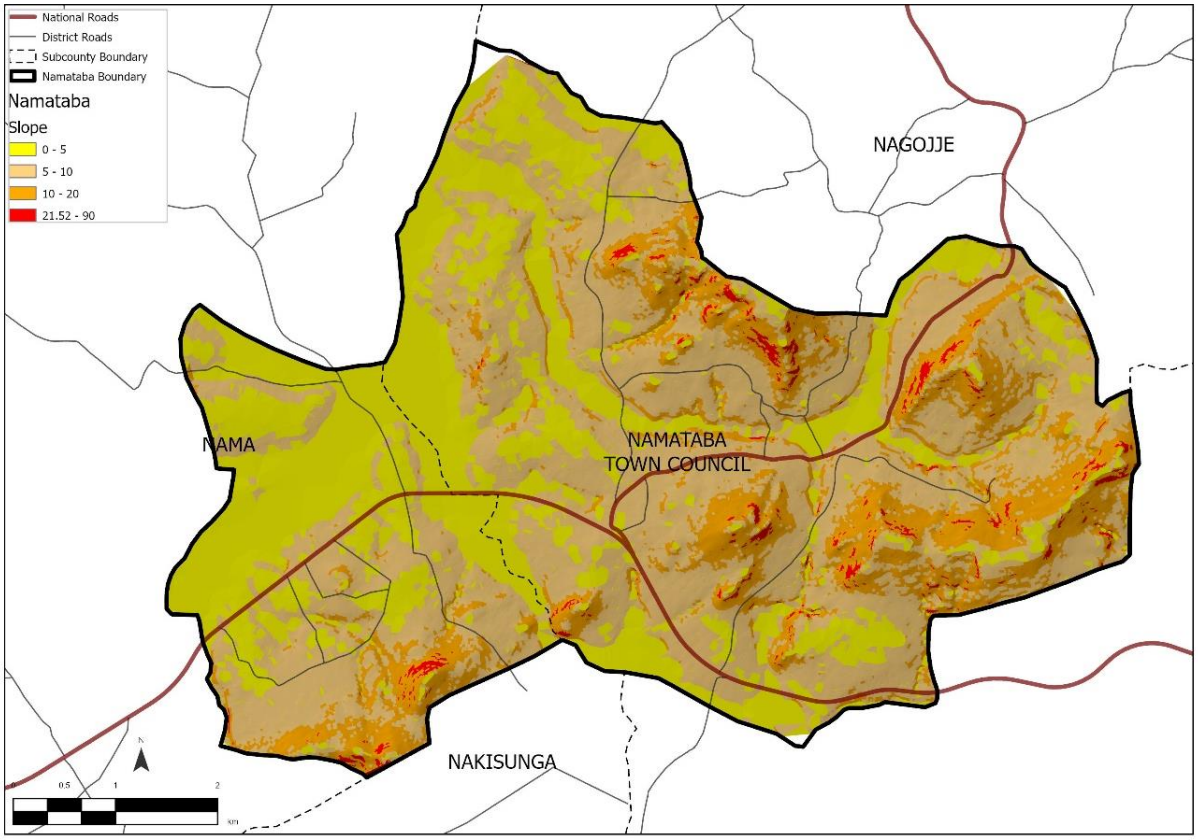
Namataba Suburban Centre Area features a hilly southeast and flat northwest, with urbanization concentrated along the Jinja-Kampala Highway in mountainous regions. Low-lying areas are primarily wetlands, while the northwest boundary is a forest protection area. Extensive plantations span the low-lying areas from the district's central part to the north. Refer to local planning documents and maps for detailed information.

The topographic map of the Namataba Suburban Centre Area is shown in Figure 20.4.1 and slope distribution map is shown in Figure 20.4.2.



Source: JICA Expert Team

Figure 20.4.1 Topographic Map of Namataba Suburban Centre Area



Source: JICA Expert Team

Figure 20.4.2 Distribution of Slopes in Namataba Suburban Centre

(2) Socio-economic Conditions

The planning area for Namataba Suburban Centre is composed of the entire Namataba Town and Namawojjolo Parish part of Nama Sub County. Namataba Town consists of two wards, Namataba Ward and Namagunga Ward. Namataba Town Council was newly established in 2018 separating from Nagojje Sub County.

1) Population

The total population of the three parishes in 2014 was 38,480. Namawojjolo Parish had the largest population (15,849), followed by Namataba Parish (12,400) and Namagunga Parish (10,231). Namawojjolo Parish also had the highest population density (1,585 people per km^2), followed by Namataba Parish (3,250) and Namagunga Parish (2,658).

There was a total of 9,237 households in the three parishes in 2014. The average household size was 4.1 persons. Namawojjolo Parish had the largest average household size (4.16 persons), followed by Namataba Parish (4.15 persons) and Namagunga Parish (4.19 persons). Table 20.4.1 summarises condition of population and household in Namataba Suburban Centre Area based on 2014 Uganda Census.

Table 20.4.1 Condition of Population and Households in Namataba Suburban Centre Area (2014)

Parish (Sub County)	Area (km^2)	Population 2014	Households 2014	Population Density (people/km^2)
Namawojjolo Parish (Nama Sub County)	10	15,849	3,812	1,585
Namataba Parish (Namataba Town)	17	12,400	2,987	729
Namagunga Parish (Namataba Town)	12	10,231	2,438	853
Total	39	38,480	9,237	1,012

Source: Sources: 2014 Census

2) Economic Activities

Existing conditions of economic activities in the planning area are as follows:

- Agriculture forms the backbone of the planning area's economy, with maize, beans, potatoes, tea, and sugarcane being the primary crops. The presence of large-scale tea and sugarcane plantations further contributes to the region's agricultural output and economic activity.
- Fishing serves as a significant source of livelihood for local communities and contributes to food security.
- The emergence of small businesses, including shops, restaurants, and bars, is a positive development in the planning area's economy.
- Manufacturing and warehousing industries are not prevalent yet in the planning area.

(3) Existing Condition of Infrastructure

1) Roads

The existing road network in the planning area consists of a hierarchy of national, district, and local roads.

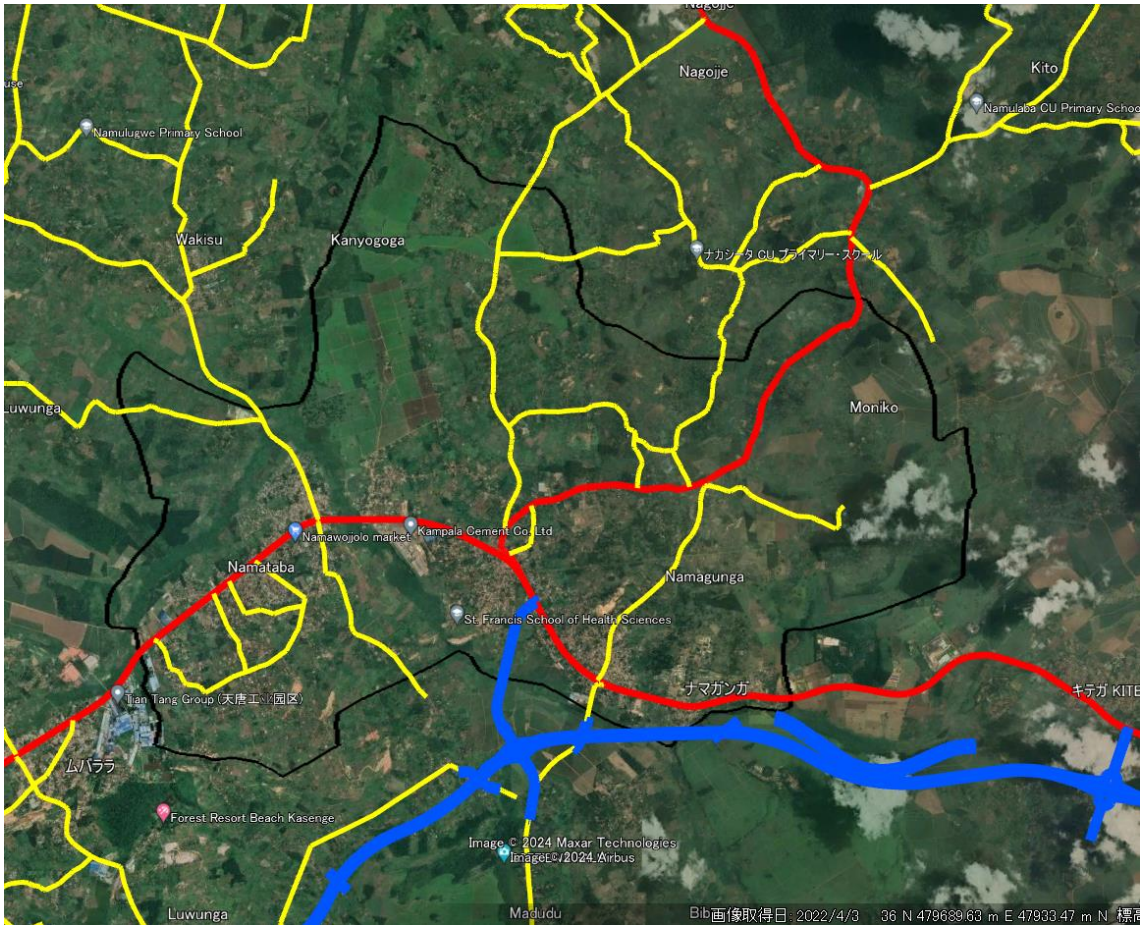
As a national road, Kampala-Jinja Highway (A109) traverses the southern part of the planning area in an east-west direction, providing a crucial transportation corridor between Kampala and Jinja.

The construction of Kampala-Jinja Expressway is underway along the southern edge of the planning area. It aims to reduce traffic congestion on the Kampala-Jinja Highway and provide a faster connection between the two cities. Two interchanges are planned in the vicinity of the planning area, both connecting to the Kampala-Jinja Highway (A109).

Namataba - Nagojje Road originates from within the planning area and connects it to the village of Nagojje in the north.

Regarding district roads, there are three relatively long distant roads extend in a north-south direction, serving as feeders from the Kampala-Jinja Highway (A109). A network of roads forms the backbone of the transportation system within the planning area, providing access to residential areas to the National Roads.

Figure 20.4.3 illustrates the layout of the major roads in and around the Namataba Suburban Centre Area.



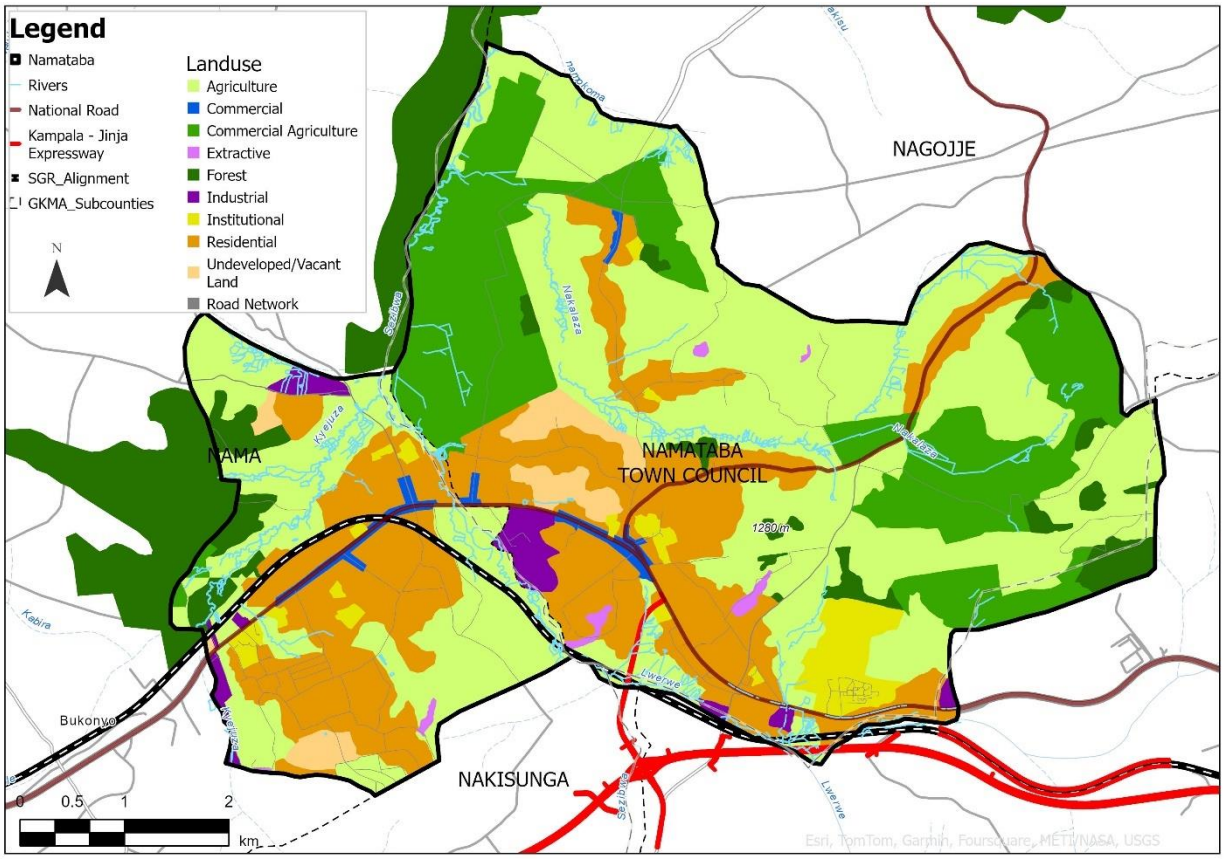
Source: JICA Expert Team

Figure 20.4.3 Composition of Major Roads within and Around Namataba Suburban Centre Area

(4) Present Land Use

Table 20.4.4 shows the present land use in the model planning area for Namataba Suburban Centre area and Table 20.4.2 shows their share. The composition of current land use area is predominantly agriculture with 1,594.51 ha (40.42%), followed by residential with 850.12 ha (21.55%) and commercial agriculture with 705.53 ha (17.88%). The land for commercial agriculture is mainly tea plantation. Other major land uses are wetland, commercial, forest and institutional which covers 204.32 ha (5.18%), 146.26 ha (3.71%), 139.59 ha (3.54%) and 116.10 ha (2.94%), respectively. Although the area is currently small, 77.37 ha (1.96%) is an industrial area.

Figure 20.4.5 shows the existing buildings in Namataba Suburban Centre Area.



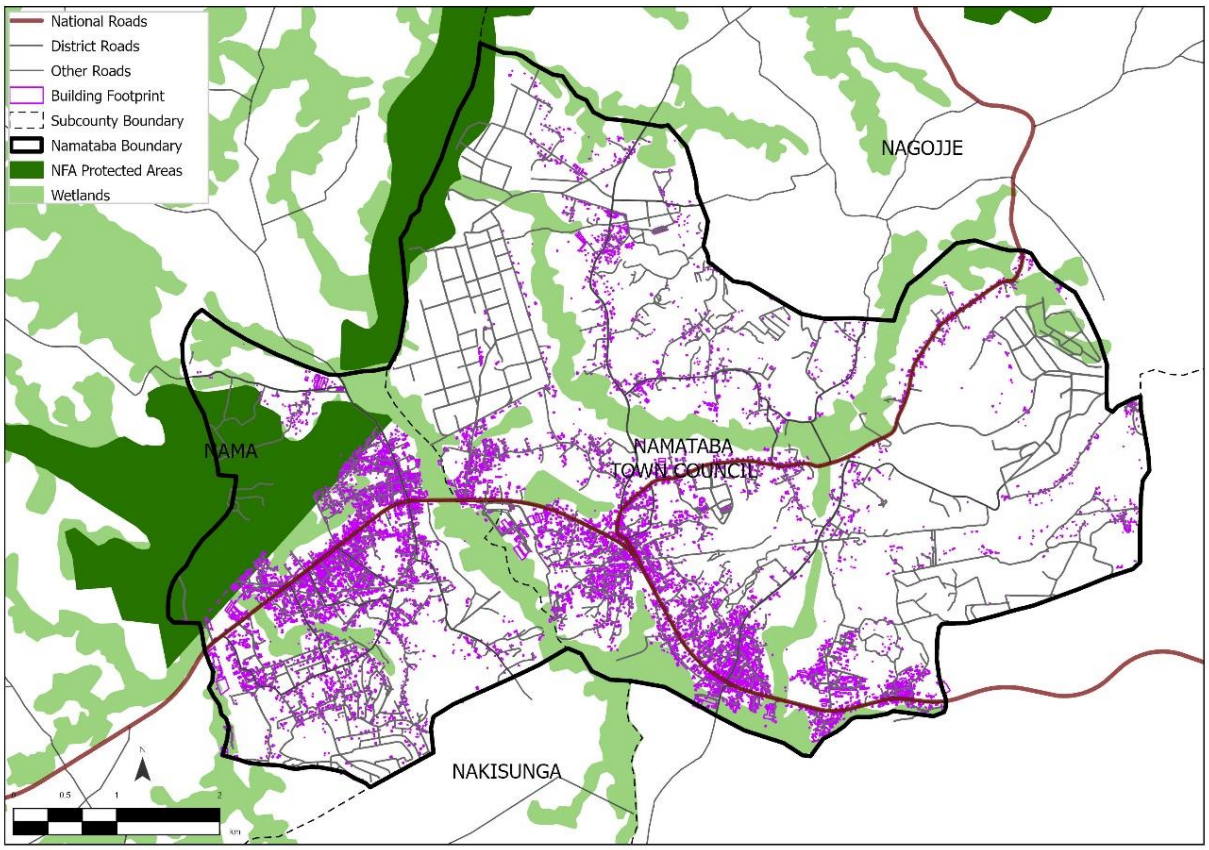
Source: JICA Expert Team based on the interpretation of satellite images (2019) and ground truthing, 2022

Figure 20.4.4 Present Land Use in Namataba Suburban Centre Area

Table 20.4.2 Land Uses in Namataba Suburban Centre Area

No.	Land Use	Area (ha)	Share (%)
1	Agriculture	1,594.51	40.42
2	Commercial	146.26	3.71
3	Commercial Agriculture	705.53	17.88
4	Forest	139.59	3.54
5	Industrial	77.37	1.96
6	Institutional	116.10	2.94
7	Quarry	16.74	0.42
8	Residential	850.12	21.55
9	Vacant Lands	94.45	2.39
10	Wetlands	204.32	5.18
Total		3,944.98	100.00

Source: Source: JICA Expert Team



Source: JICA Expert Team based on the interpretation of satellite images (2019) and ground truthing, 2022

Figure 20.4.5 Present Building Fooptrints in Namataba Suburban Centre Area

20.4.2 Concept Plan for Namataba Suburban Centre

(1) Future Vision and Urban Functions of Namataba Suburban Centre

Namataba is designated to be the Suburban Centre in GKMA-IUDMP, and the following type of development is expected:

- Ribbon style urbanization with some small industries along Kampala-Jinja Highway (A109) will be enhanced by completion of the Kampala-Jinja Expressway construction, which will trigger formulation of the suburban centre.
- Serves not only residents within the immediate area but also those in surrounding towns and rural areas, serving as a central hub.

Based on this understanding, the roles and urban functions of Namataba Suburban Centre are envisioned as follows:

1) Roles

- Central hub for the surrounding area: Serve as a central hub for the surrounding area, providing not only daily living services but also a range of essential functions for residents.
- Driver of local economic development: Act as a catalyst for local economic development by attracting businesses, creating employment opportunities, and promoting entrepreneurship.

2) Urban Functions

- Mixed-use urban area: to integrate residential, commercial, office, and retail spaces, creating a vibrant and dynamic mixed-use environment.

- Well-connected transportation network: includes public transportation options, and pedestrian-friendly street space, to ensure easy access to the centre and surrounding areas.
- High-quality public spaces: such as parks, plazas, and green spaces to provide opportunities for recreation, relaxation, and social interaction.
- Diverse range of commercial and retail offerings: including supermarkets, restaurants, shops, and services, catering to meet the needs of residents and visitors.
- Educational facilities: especially technical and vocational schools, to support learning and skill development.
- Healthcare facilities: such as hospitals, clinics, and pharmacies to ensure access to quality healthcare services for residents and locating industries.
- Administrative services: such as government offices, post offices, and banks to facilitate convenient access to essential services.
- Cultural attractions: such as museums, art galleries, and theaters to enrich the cultural life of the community.

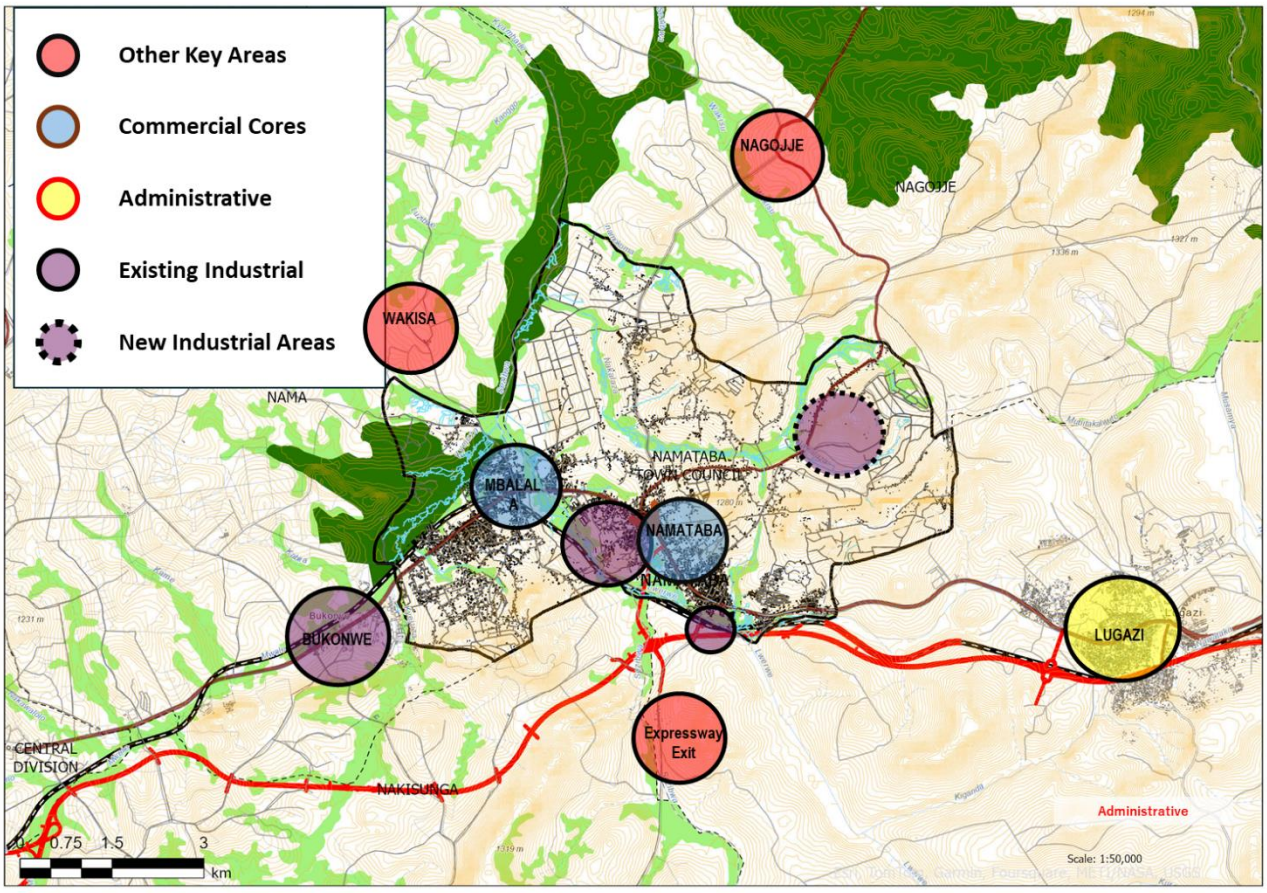
(2) Alternative Spatial Structures

The completion of the Kampala-Jinja Expressway is expected to bring significant changes to the Namataba Area. The change in the nature of passing-through traffic along the Kampala-Jinja Highway (A109) will enhance the area's potential for various developments, on top of the increased potential for industrial development.

To capitalize on these opportunities and transform Namataba Area into a thriving Suburban Centre, effective spatial reorganization is crucial. This involves not only the development of urban functions within existing urban areas, but also the expansion of existing industrial zones and the creation of new industrial areas.

The Detailed PDP for Namataba Suburban Centre Area aims to achieve a balance between fostering healthy growth in existing urban areas and attracting appropriate industrial investments. This section examines the spatial integration of these urban functions and their potential locations.

Figure 20.4.6 illustrates the key urban functions located outside the Namataba Area, the urban cores and industrial hubs within the Namataba Area, and the ongoing consideration of locations for new industrial areas. This figure serves as a foundation for examining the configuration of the future spatial structure.



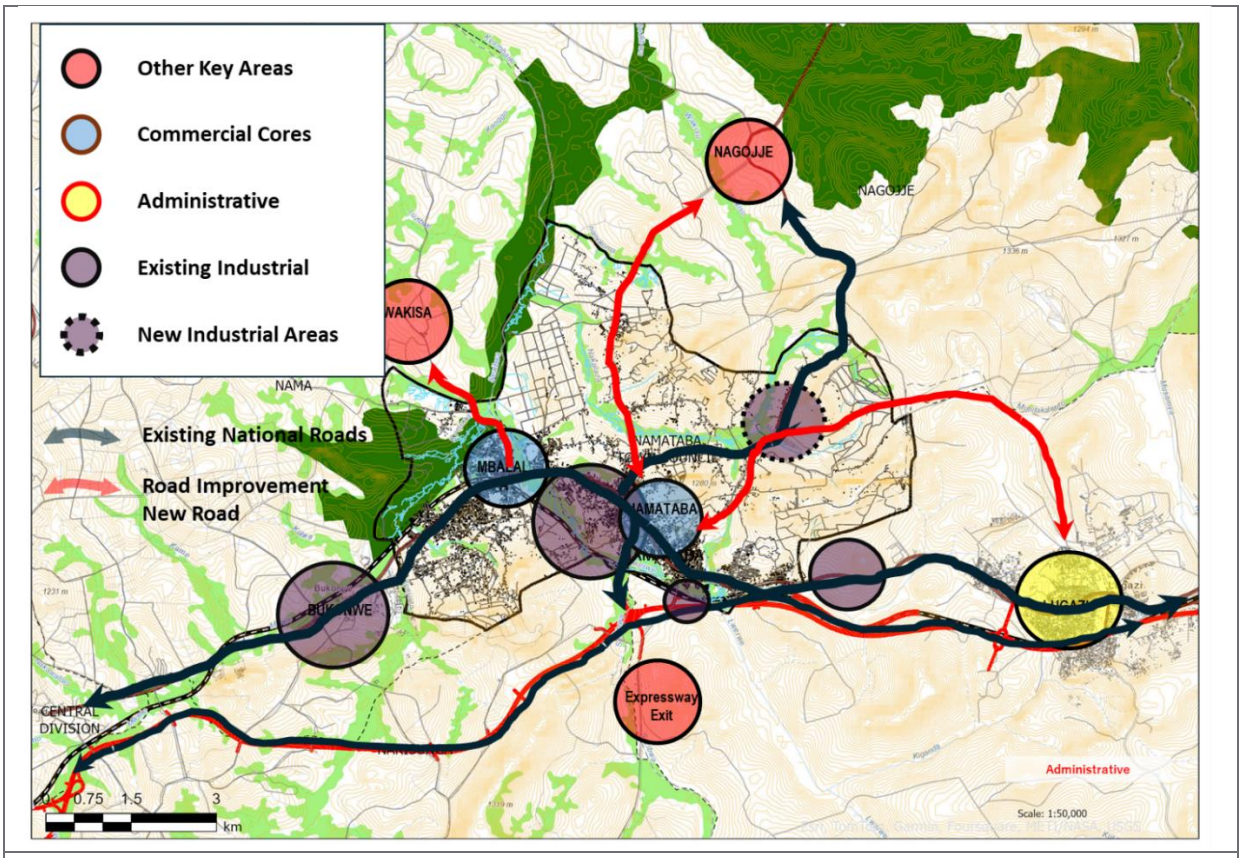
Source: JICA Expert Team

Figure 20.4.6 Potential Urban Cores within and around Namataba Suburban Centre Area

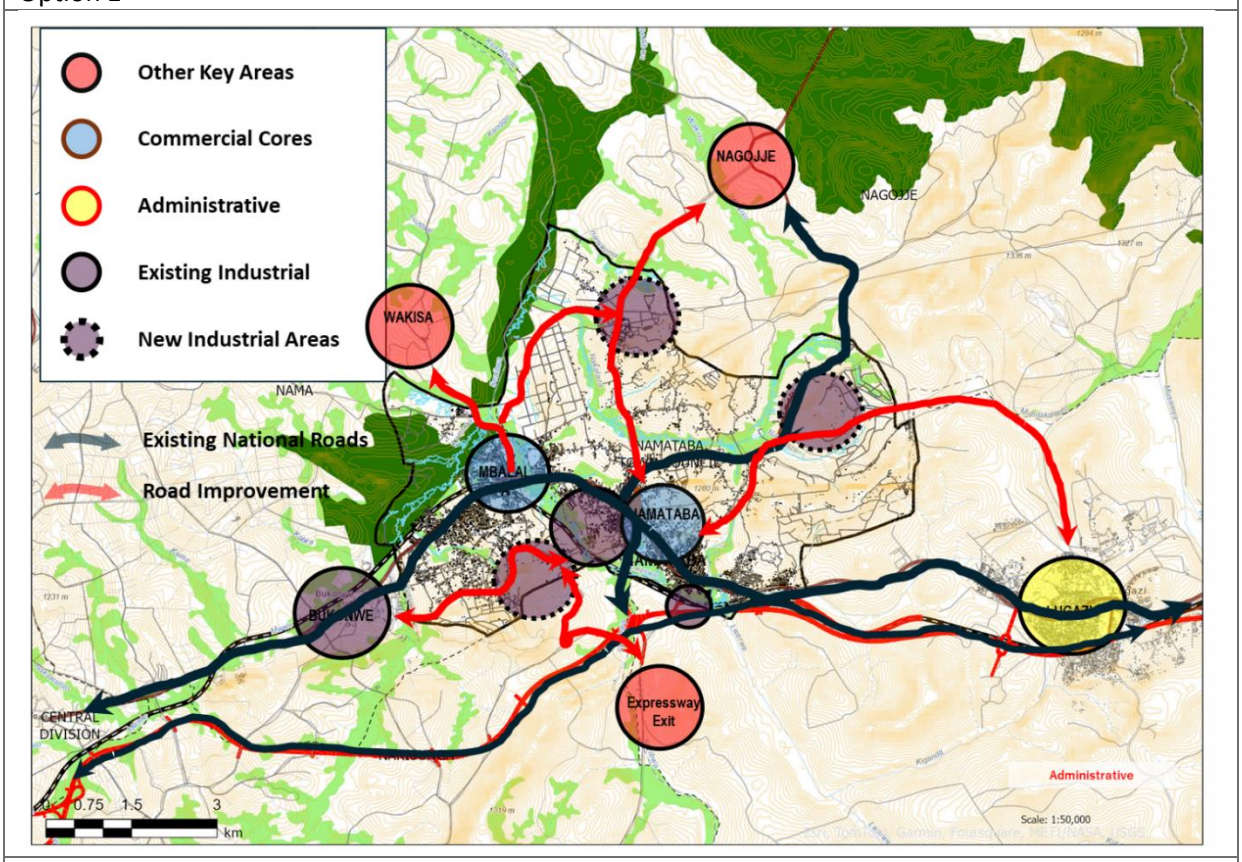
Key considerations for spatial planning include:

- Strategic Placement of Urban Functions: Urban functions should be strategically positioned to maximize accessibility and connectivity, considering factors such as transportation networks, population density, and land availability. In this line it is assumed that existing two core areas, one in Namataba Town council and another in Namawojjolo will continue to serve as the host for upgrading of urban functions suitable for the suburban centre.
- Industrial Zone Expansion and New Hub Creation: The expansion of existing industrial zones and the creation of new industrial hubs can be two options for managing the growth of Suburban Centre. Expanding the existing industrial cores may be achieved by minimum investment in transport infrastructure, while inducing industries to remote places from the existing residential areas along the Kampala-Jinja Highway (A109) is easier to manage favourable living environment.
- Mixed-Use Development: Encourage mixed-use development that integrates residential, commercial, and recreational spaces to create a vibrant and livable Suburban Centre which applies to the tow existing commercial cores.

In the light of the above key considerations, two options were set as depicted in Figure 20.4.7.



Option 1



Option 2

Source: JICA Expert Team

Figure 20.4.7 Alternative Spatial Options for Namataba Suburban Centre Area

1) Option 1: Industrial Development along the Kampala-Jinja Highway

This option is characterized by contributing to form a strong industrial corridor aiming at the following effects:

- Strengthened industrial corridor by immediate location of industries along the highway
- Improved logistics efficiency by concentration of industries along the highway
- Better opportunity of forming industrial clusters based on the characteristics and resource endowments of cities along the corridor

2) Option 2: Industrial Development Utilizing Feeder Roads

This option is characterized by Hinterland Development through improved feeder road access to the Kampala-Jinja Highway, aiming at the following effects:

- Expanded industrial land through feeder road access
- Strengthened linkage to surrounding rural areas that facilitates agricultural product collection, tourism, and the supply of essential goods.
- Spatially balanced development which will ease deterioration of living environment of the urban cores along the highway.

Table 20.4.3 Summary of Evaluation on Spatial Structure Options for Namataba

Feature	Option 1: Industrial Development along Highway	Option 2: Industrial Development Utilizing Feeder Roads
Main Objective	Form Strong Industrial Corridor	Hinterland Development & Balanced Growth
Advantages	・ Strengthened Industrial Corridor & Economies of Scale ・ Improved Logistics Efficiency ・ Increased Opportunity for Industrial Clusters	・ Expanded Industrial Land Options ・ Improved Connection to Rural Areas ・ Balanced Regional Development & Reduced Urban Strain
Disadvantages	・ Land Acquisition Challenges ・ High Funding Requirements for Large-Scale Development ・ Potential Environmental Impact	・ High Costs Associated with Feeder Road Construction ・ Need for Community Engagement & Understanding ・ Potential Environmental Impact of New Development
Suitability	・ Prioritizing economic growth & efficiency, maximizing industrial output * Promoting collaboration & diverse industries along the corridor * Implementing development in a shorter timeframe	・ Focusing on overall regional development & sustainability * Encouraging rural development & balanced growth * Taking a long-term perspective on local prosperity

Source: JICA Study Team

Based on the comparative analyses of above option, Option 2 is selected as a more preferable choice than Option 1 for the following reasons:

- Contribution to balanced regional development and sustainability
  - Industrial development utilizing feeder roads provides a wider range of industrial land options and alleviates excessive concentration in urban areas. This promotes balanced regional development and enhances sustainability.
  - Option 1, focusing on development along major corridors, raises concerns about urban concentration.
- Promotion of rural development and balanced inter-regional growth
  - Industrial development utilizing feeder roads improves access to rural areas and facilitates industrial development in these regions. This contributes to balanced inter-regional growth.
  - Option 1 is limited to industrial development along major corridors, with limited spillover

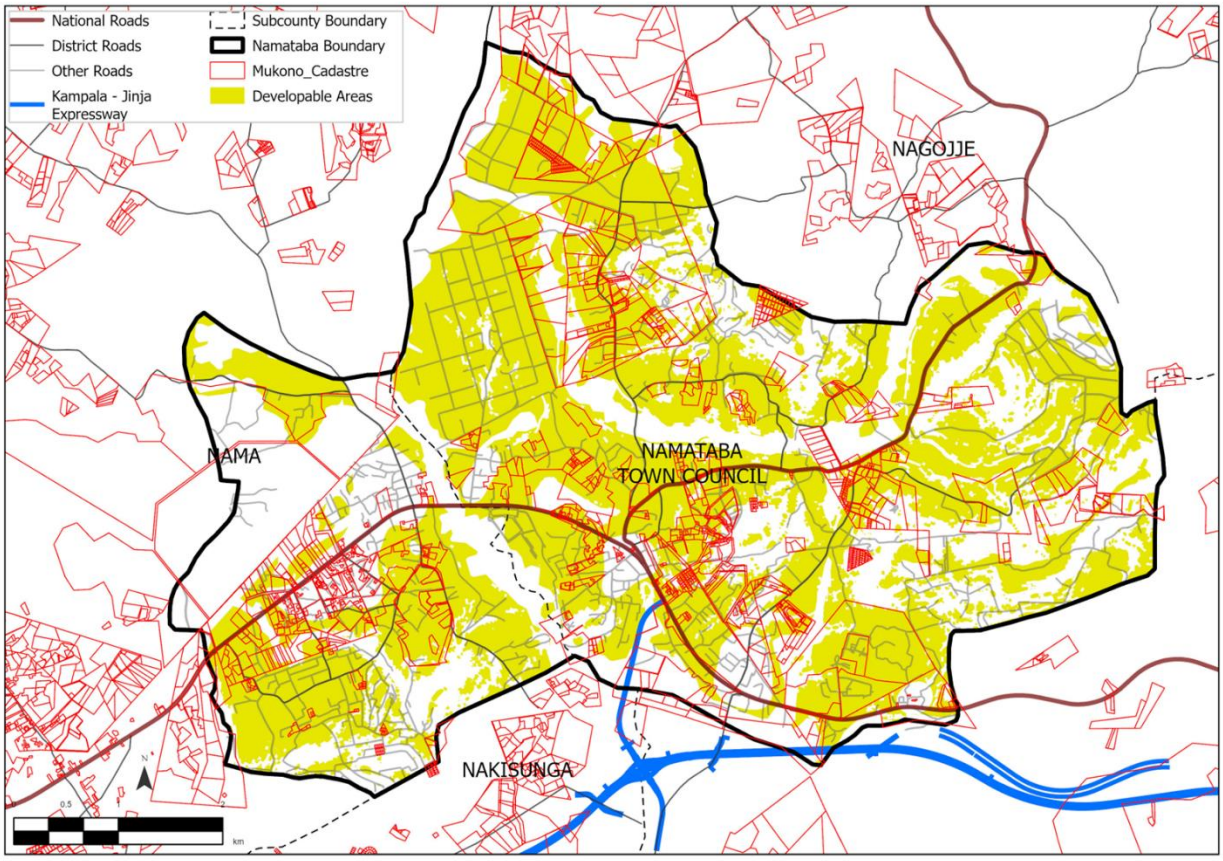
effects to rural areas.

- Long-term perspective for regional prosperity
  - While initial investment costs are higher, industrial development utilizing feeder roads promotes sustainable development in the long term. By incorporating community engagement and environmental considerations, it can lead to overall regional prosperity.
  - Option 1 prioritizes development speed but raises long-term concerns about environmental impact and funding challenges for large-scale development.

(3) Concept Plan

In this sub-section, the concept plan for Namataba Suburban Centre Area is formulated by essentially adding the factor of extended land for urban use by the conversion of land use to the spatial structure outlined in Option 2. This plan will identify areas within the planning area that are suitable for potential conversion to urban land use from agriculture use.

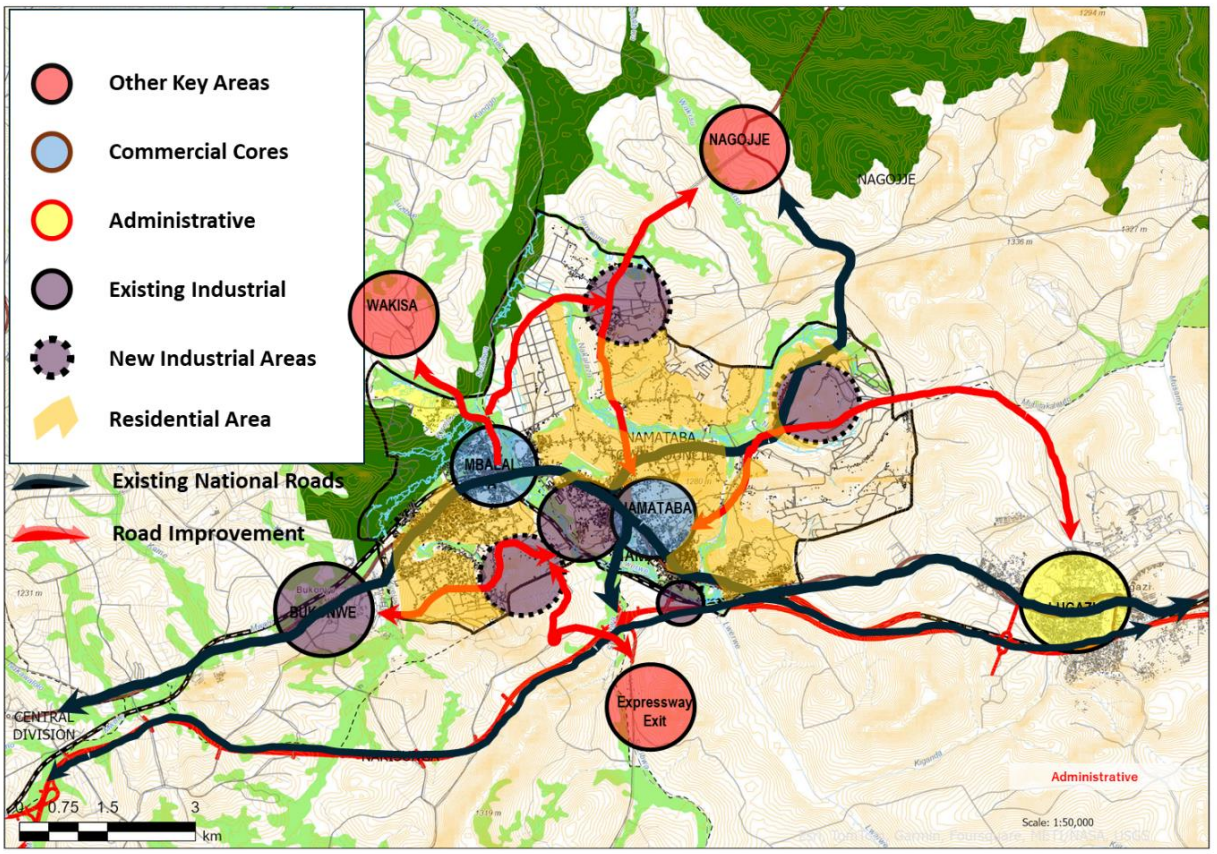
Figure 20.4.8 depicts the remaining land within the planning area after excluding protected areas, wetlands, steep slopes, and already urbanized areas. This represents the maximum extent of land potentially suitable for future urban land use conversion. Considering the 10-year planning horizon of the Detailed PDP for the Namataba Suburban Centre Area, it is assumed that the agricultural land use of plantations will be maintained.



Source: JICA Expert Team

Figure 20.4.8 Candidate Areas for Land Use Conversion from Agriculture to Urban Use

Figure 20.4.9 shows the Concept Plan formulated based on the above considerations.



Source: JICA Expert Team

Figure 20.4.9 Concept Plan for Namataba Suburban Centre Area

20.4.3 General Land Use Plan for Namataba Suburban Centre Area

The general land use plan is formulated based on the concept plan though the following steps:

1) Roads

- Focus on major roads connecting the region and use those identified in the concept plan.
- Add roads to create a complete road network.
- Consider a grid pattern road network for some areas.
- Respect existing roads wherever possible.

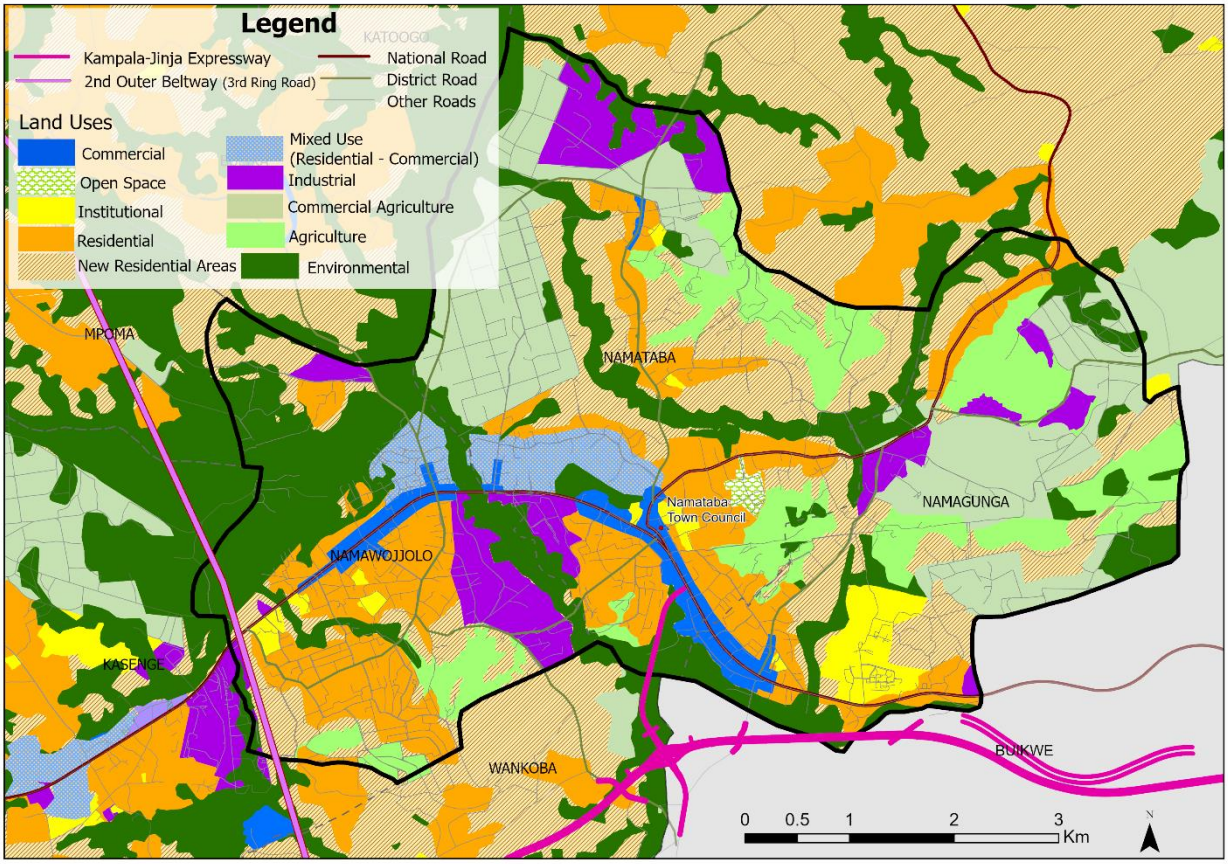
2) Urban Functions

- Identify areas for different uses including Business and Commercial, Commercial and Residential Mixed, and Industry, based on the road network clarified in the previous step.
- Refine these locations from the concept plan.

3) Future Residential Areas

- Identify areas for future residential area based on population growth and infrastructure.
- Refine the concept plan's future urban area by designating remaining land for housing assuming land use conversion will take place from the ones that are currently used for agriculture.
- Exclude all wetland area from urban use.

Based on the above analyses, the general land use plan for Namataba Suburban Centre is formulated as shown in Figure 20.4.10.



Source: JICA Expert Team

Figure 20.4.10 General Land Use Plan for Namataba Suburban Centre Area

20.4.4 Land Use Zoning Plan for Namataba Suburban Centre Area

In this section, how the land use zoning plan for Namataba Suburban Centre Area has been formulated is described. However, further discussion and consideration will be required for the improvement and finalisation of the detailed plan including zoning prescriptions.

The land use zoning plan for Namataba Suburban Centre area is proposed to have a four-layer system to define land use regulations.

(1) Upper Regulation Layer

This layer identifies land use restrictions mandated by other laws and regulations that the Detailed Local Physical Development Plan must adhere to. It does not overlap with the land uses shown on the zoning map itself. For Namataba, this layer may include restrictions such as:

- Forest Protection
- Gazetted Wetland 1994
- Transmission Line Buffer

(2) Urban Facilities Layer

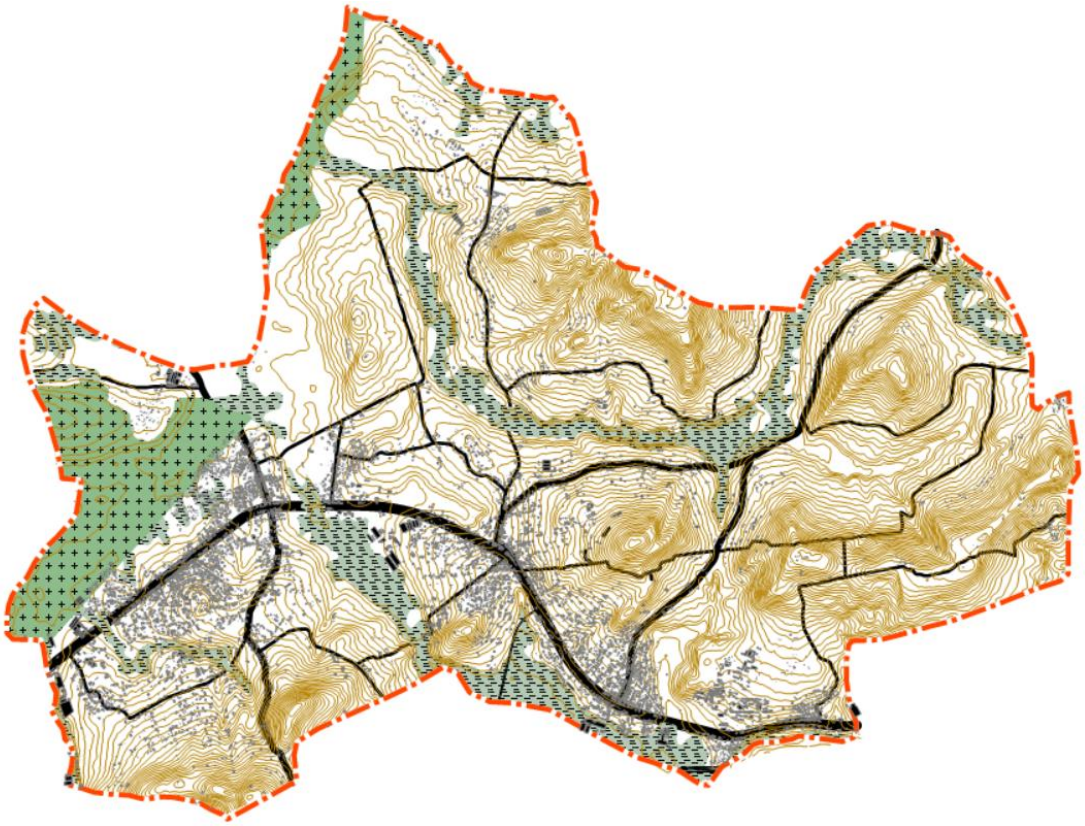
This layer focuses on the development and location of essential infrastructure within Namataba, including transportation networks and public facilities. Here's a breakdown of what this layer might entail:

1) Transportation Network

Building upon existing roads identified in the general land use plan, the road network, the zoning plan consists of realistic alignment of major roads. These roads consist of:

- Primary Roads: Major roads serving as the backbone of the transportation system and facilitating movement between different zones within Namataba and connecting to the wider regional network.
- Secondary Roads: These roads providing feeder access to primary roads and connecting various area outside the major urban cores located along the primary road.
- Tertiary Roads: These local access roads will provide connectivity within the Namataba area and also provide access to potential sites of Industrial Core development.

This structured network aims to promote efficient movement of goods and people, while also creating a desirable living environment with a balance between accessibility and a sense of community. The initial network relies on existing national and district roads, with expansion or improvement of missing links to complete the hierarchical road network.



Source: JICA Expert Team

Figure 20.4.11 Trank Road Network for Land Use Zoning Plan in Namataba Suburban Centre Area.

2) Public Facilities:

Traditionally, Ugandan land use plans have designated individual locations for public facilities such as government offices, healthcare centres, schools, and sports complexes. However, the zoning plan focuses on broader land use categories. To address this, the Urban Facilities Layer for is used for specific sites of urban facilities by the following manner:

- Identify the general locations of existing public facilities, ensuring their continued operation and serving as a guide for future development.
- Allocate appropriate space within the zoning map for new public facilities based on population

projections and service standards. Specific locations within these allocated spaces will be determined through further planning processes as development progresses.

3) Parks & Greenery:

Similar to public facilities, the Urban Facilities Layer will identify:

- Existing parks, green spaces, and open spaces designated for public use. This includes spaces even on leased land, to guarantee their continued function as recreational areas for the community.
- Wetlands not designated as part of the Gazetted Wetland of 1994. These wetlands will be identified on the Urban Facilities Layer and treated as essential areas requiring specific management plans to protect their ecological value.

(3) Land Use Regulation Layer

The land use regulation layer assigns specific land use categories to different areas of Namataba and regulates building development within those zones.

1) Commercial

A linear commercial corridor is envisioned along primary roads, catering to the needs of industrial workers and the broader community. This corridor will primarily feature:

- Retail shops: Supplying everyday goods and groceries for the local population.
- Restaurants and cafes: Offering dining options for workers and visitors.
- Hardware stores: Catering to the needs of industrial businesses and DIY enthusiasts.
- Auto repair shops: Supporting the maintenance of vehicles used for industrial and personal transportation.

To facilitate this vision, the zoning plan proposes a BCR of 60% and a FAR of 240% in general. This allows the construction of 3-5 story commercial buildings, creating a scale that is compatible with the surrounding hilly landscape while providing adequate space for commercial activities. In the downtown areas, there will be a potential of constructing higher buildings. To meet this requirement, a BCR of 70% and a Far of 350% is also proposed.

2) Mixed Use of Commercial and Residential

Existing built-up areas behind the commercial corridor are envisioned to be transformed to mixed-use zones, integrating light industrial businesses, affordable housing, and small-scale commercial and service facilities. These zones will promote a vibrant and liveable community, fostering interaction between residents, businesses, and industrial workers.

Interspersed within the mixed-use areas, smaller-scale commercial and service facilities will cater to the everyday needs of local residents. These facilities may include grocery stores, bakeries, pharmacies, hair salons and barbershops, tailors and dressmakers, daily stores, etc.

Sone light industrial activities are also expected and need to be permitted. These activities include:

- Small-scale manufacturing: Producing handcrafted goods, furniture, or other locally made products.
- Repair shops: Providing services for appliances, electronics, or other household items.
- Construction services: Offering carpentry, plumbing, or electrical work for local residents or businesses.

These permitted light industrial activities are characterized by minimal noise generation, low emissions, and a limited visual impact, making them compatible with the mixed-use environment.

Certain types of light industrial activities will not be permitted within the Mixed Use (Commercial and Residential) areas due to their potential for excessive noise, emissions, or visual impact. These activities include:

- Heavy manufacturing: Involving large machinery, high noise levels, and potential air or water pollution.
- Waste disposal facilities: Generating unpleasant odors, attracting pests, and posing potential environmental risks.
- Storage of hazardous materials: Creating safety hazards and posing risks to human health and the environment.

Locating of these activities are encouraged to situated in the Industrial Zone as described in the following sub-section.

The zoning plan proposes a BCR of 50% and a FAR of 150-200%. This allows for the construction of 2-3 story mixed-use buildings with a focus on smaller commercial spaces, residential units, and some light industrial activities.

3) Medium Density Residential

Residential areas in Namataba will cater to a diverse range of residents, including young professionals, families, and industrial workers. To ensure a balanced and livable environment, the zoning plan proposes formulation of medium density to high density town scape in a single residential category.

Medium Density Residential areas are good residential area in Namataba Suburban Centre for quiet neighbourhoods. The BCR of 50% and FAR of 150% is applied for this zone.

4) High Density Residential

Residential areas in Namataba will cater to a diverse range of residents, including young professionals, families, and industrial workers. To ensure a balanced and livable environment, the zoning plan proposes formulation of medium density to high density town scape in a single residential category.

High Density Residential areas are envisioned as neighbourhoods surrounding the commercial corridor and industrial zones, offering a suburban character while still providing access to essential amenities. These areas will feature a mix of housing types, including single-family homes, townhouses, and low-rise apartments, creating a family-friendly environment. It will have a population density of approximately 100 to 150 people per hectare. This density meets requirement of providing adequate housing options while preserving the natural environment.

To achieve the desired population density and ensure a harmonious balance with the surrounding commercial and industrial zones, the zoning plan proposes a BCR of 60% and a FAR of 200%.

5) Industrial

Aiming to foster a vibrant industrial hub, it is critically important to designate areas dedicated to a diverse range of industries. To achieve this vision, the zoning plan introduces Industrial Zone category. This zone accommodates industrial activities as follows:

- Light Manufacturing: Production of goods with minimal noise, emissions, and visual impact, such as Electronics assembly, Precision machining, Textile manufacturing, Food processing
- Clean Technology: Development and manufacturing of innovative technologies that minimize such as Renewable energy systems, Water treatment technologies, Waste management solutions

- Logistics and Distribution: Efficient movement and storage of goods to support regional supply chains, such as Warehousing and distribution centres, Freight transportation hubs, Logistics service providers

To ensure that industrial development aligns with the overall character of the Industrial Corridor and surrounding areas, the zoning plan proposes a BCR of 50% and a FAR of 150% for the Industrial zone. This allows for the construction of mid-rise industrial buildings (2-4 stories) that provide adequate space for industrial operations while maintaining sufficient buffer to the surrounding urban areas.

The following table summarizes the land use categories, building coverage ratios (BCRs), floor area ratios (FARs), and population densities for each category:

Table 20.4.4 Land use Category for Namataba Model Planning Area

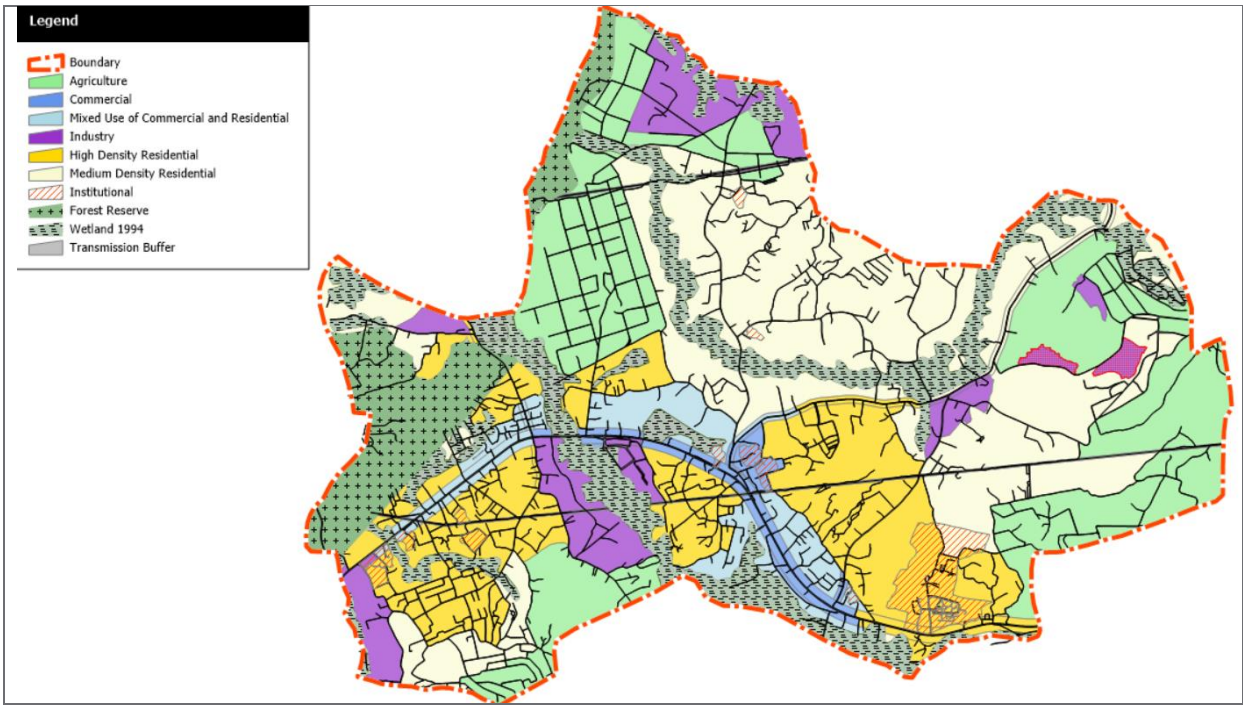
Land Use Category	BCR	FAR
Commercial	70%	350%
Mixed Use of Commercial and Residential	50%	150% 200%
Medium Density Residential	50%	150%
High Density Residential	60%	200%
Industrial	50%	150%

Source: JICA Expert Team

(4) Land Use Zoning Plan

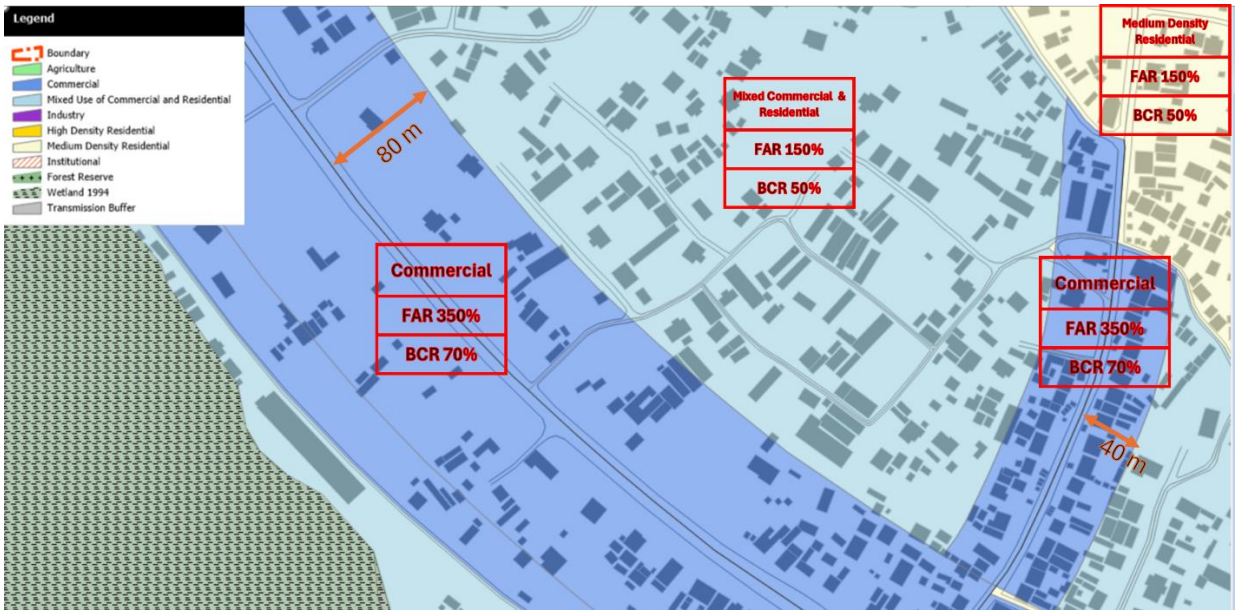
Based on the considerations above, the Land Use Zoning Plan is shown in Figure 20.4.12.

Figure 20.4.13 shows detailed view of the Land Use Zoning Plan.



Source: JICA Expert Team

Figure 20.4.12 Draft Land Use Zoning Plan of Namataba Suburban Centre Area.



Source: JICA Expert Team

Figure 20.4.13 Example of Detailed Land Use Zoning Plan for Namataba Suburban Centre Area.

Chapter 21 Capacity Development for the Formulation of Local-Level Detailed Physical Development Plans (PDPs)

21.1 Introduction

21.1.1 Position and Role of Local-Level Detailed Physical Development Plans (PDPs)

The Physical Development Act 2010 and its amendment in 2020 introduced the following six levels of PDPs:

(a) National Physical Development Plan

(b) Regional Physical Development Plan

(c) District Physical Development Plan

(d) Urban Physical Development Plan

(e) Local Physical Development Plan

(f) Detailed Physical Development Plan, Area Action Plan and Subject Plan

The national, regional and district physical development plans (upper-level PDPs) guide the formulation of lower-level PDPs. Thus, PDPs for GKMA and GKUGA guide the development of specific spatial structures consisting of important elements of major infrastructure, urban centres, employment centres and industrial parks, as well as indicate general land use policies. These upper-level PDPs, however, are insufficient to guide actual development on site.

The urban, local and detailed physical development plans have the nature of directly controlling or regulating the development of sites and conservation of vulnerable land areas. They are law-binding documents with suitable map scales for these purposes. They are lower-level PDPs that work as tools to prescribe the scale, intensity and site requirements of development, as well as support infrastructure and facility requirements. Specifically, urban PDP is essential for controlling urban growth as stipulated in the Physical Development (Amendment) Act 2020.

Currently, the formulation of lower-level PDPs is extremely limited due to constraints such as lack of funding and human resources.

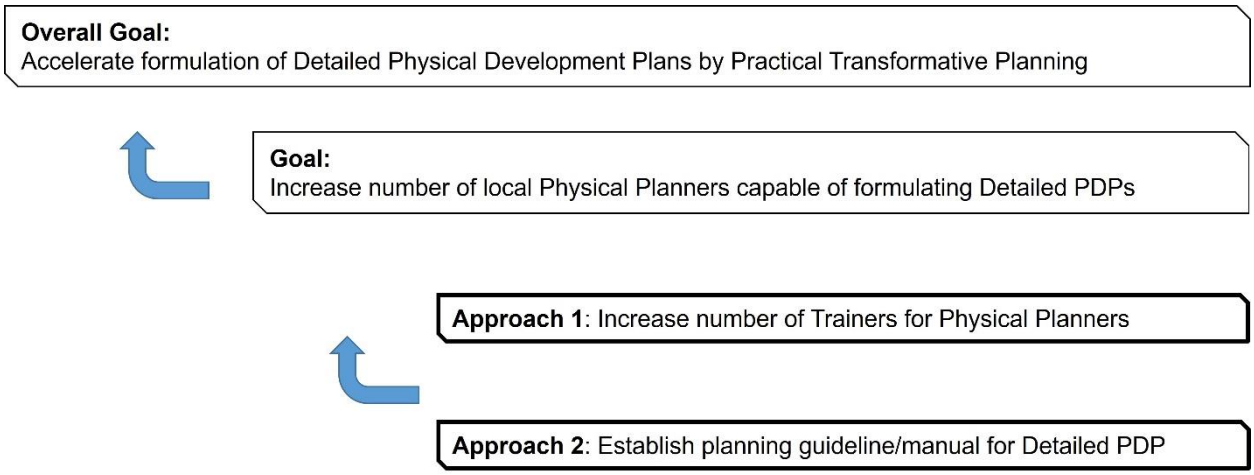
21.1.2 Lack of Systems and Tools for Efficient Urban Development Management

The development control in Uganda is made up not only of land use regulations and building permits, but also of laws and by-laws including (1) Physical Planning Act 2010, (2) National Physical Planning Standards and Guidelines 2011, (3) Building Control Act 2013, (4) Building Control Regulation 2012, (5) National Environment Act 2019, and (6) Public Health Act 2008 (Cap. 281). Although laws and regulations have been prepared to impose the requirements of building structures, no local-level detailed physical development plans have been formulated for regulating land use, building height and building volume. In other words, there have been no clear guidelines to control the densities of population and commercial activities for the purpose of managing the building environment and dispersing too much concentration in Kampala City and other regional cities.

Therefore, physical planning officers had to discretionary examine development and building applications submitted by developers, and those who want to construct buildings and request approval or guidance to change submitted building permit applications. Such a discretionary planning system requires significant number of skilled planning officers for examination and guidance for further improvement of submitted development proposals. The number of personnel involved in urban development control in GKMA municipalities is rather limited to perform the aforementioned tasks, and there are many vacant positions. Thus, it seems that the discretionary planning system for development control in GKMA is one of the major causes of shortage of capacity for urban development management.

21.2 Objectives of Capacity Development for the Formulation of Local-Level Detailed PDPs

This Project is a technical cooperation for formulating an urban development master plan and local-level physical development plans (local detailed plans). Thus, the JICA Expert Team plays a central role in formulating the master plan and local detailed plans. At the same time, the Project puts emphasis on capacity development of counterparts. Therefore, it is important to carry out a series of programmes for capacity development enabling the formulation of workable local-level detailed PDPs, and the development of implementable system. The objectives of the capacity development are described in Figure 21.2.1.



Source: JICA Expert Team

Figure 21.2.1 Objectives of Capacity Development for the Formulation of Local-Level Detailed PDPs

21.3 Basic Approaches for Capacity Development

21.3.1 Formulation of Guideline/Manual

JICA Expert Team is conducting the preparation of the guideline/manual for the formulation of Local-Level Detailed PDPs. After drafting a hypothetical model of the guideline/manual, planning is conducted for the two pilot areas' Local PDP. Based on the findings obtained in the planning process, the guideline/manual will be modified and finalised after a thorough review.

The guideline/manual focuses on the following two points:

(1) Optimising the Scope of Work for Local-Level Detailed PDPs

Currently, the following two guidelines have been drafted by MoLHUD for physical planning purposes and will be published soon:

- National Physical Planning Standards and Guidelines, 2nd Edition (NPPS&G 2, under preparation)

- Guidelines for the Preparation and Implementation of Physical Development Plans (GPIPDP, under preparation)

NPPS&G 2 mainly shows how to proceed with step-by-step physical planning. What should be done in each step is clearly indicated, and the roles of key actors are also described. However, it does not deal with technical matters on how to make PDPs.

On the other hand, the GPIPDP focuses on technical matters, including planning standards and land use categories with respective regulations. It is worth noting that GPIPDP indicates the use of the zoning system for land use regulation. However, the descriptions throughout the guideline document are mainly based on the viewpoint of land development projects. Thus, it is difficult to use for the purpose of imposing restrictions on existing urban areas.

The guideline/manual focuses on the following factors:

1) Introduction of Zoning System

As mentioned above, the introduction of the zoning system is important for urban growth management in Uganda, where human resources are limited. Therefore, the guideline/manual focuses on the components and required works to introduce and use the zoning system.

2) Enabling Transformative Planning

If the combination of NPPS&G 2 and GPIPDP is applied in the formulation of local-level detailed PDPs, it is expected that the following two extreme types of local PDPs will be produced, as already seen in some local PDPs:

a) Reflecting the current land use almost as it is
b) Unnecessarily detailed land use plan maps similar to a new town complex development

In the low-level PDP, it is necessary to reflect the upper-level PDP by using the latter as a framework for formulating the trunk road network and distributing the daytime and nighttime populations. Therefore, the guideline/manual focuses on how to create a transformative plan by avoiding the above two types of PDPs.

21.3.2 Training of Trainers

It is difficult to secure the appropriate personnel who should undergo training for the local-level PDPs, since there is a shortage of physical planners and other technical staff in charge of physical development planning especially under the level of cities and districts in GKMA. Thus, the JICA Expert Team proposes to conduct training of trainers by targeting the officers involved in the planning work of the two pilot local PDPs. These officers consisting of physical planners and related experts belonging to the local government of the planning area, will be joined by those from upper administration such as KCCA and districts. They will be trained as trainers in order to keep personnel who have undergone training to conduct trainings after the end of the Project. A total of 15 to 20 trainers will participate in the training sessions.

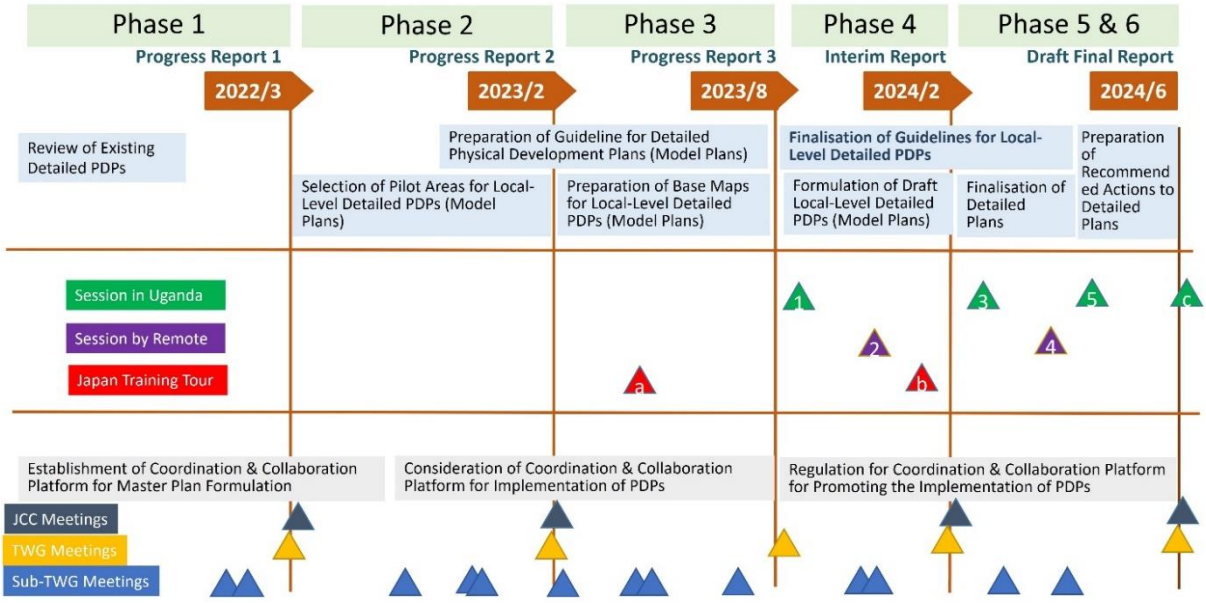
21.4 Schedule of Capacity Development

The training will mainly consist of several lecture and workshop sessions. Following each training session, there will be a segment for practicing the formulation of Local PDPs in the two pilot areas. This will provide an opportunity to apply the contents of the lectures and reflect on the findings from practical applications.

Lectures will be basically conducted face-to-face, but since the JICA Expert Team visits Kampala only for a limited time, several remote sessions will be held to increase the opportunities for lectures.

In addition, the training period in Japan is a good opportunity to review the progress of the training programme as the key counterpart personnel of the Project will be gathered in Japan.

Figure 21.4.1 shows the implementation schedule of the training programme together with the schedule of Pilot Local PDP preparation work.



Source: JICA Expert Team

Figure 21.4.1 Schedule for Implementing Training Programmes for Local-Level Detailed PDPs (Model Plans)

21.5 Capacity Development Activities

21.5.1 1st Training Session: In-Person Training for Metropolitan Planning and Detailed PDP on the 30th of August 2023

(1) Objectives

Overall objectives of the training were as follows:

- Understand the importance of planning for Metropolitan Areas.
- Grasp the characteristics of Detailed PDPs with a zoning system.

(2) Contents

1) Introduction to Metropolitan Planning:

- The concept of Metropolitan Areas, their characteristics and significance was explained, with some examples of prominent Metropolitan Areas around the globe, highlighting their unique features.
- The crucial role of Metropolitan Planning was explained, emphasizing its importance in addressing the challenges faced by these sprawling urban regions. It was stressed that a holistic, comprehensive approach to Metropolitan Planning is essential to tackle issues such as traffic congestion, flooding, and the preservation of natural environmental resources.

2) Introduction to the Detailed PDP with Zoning System

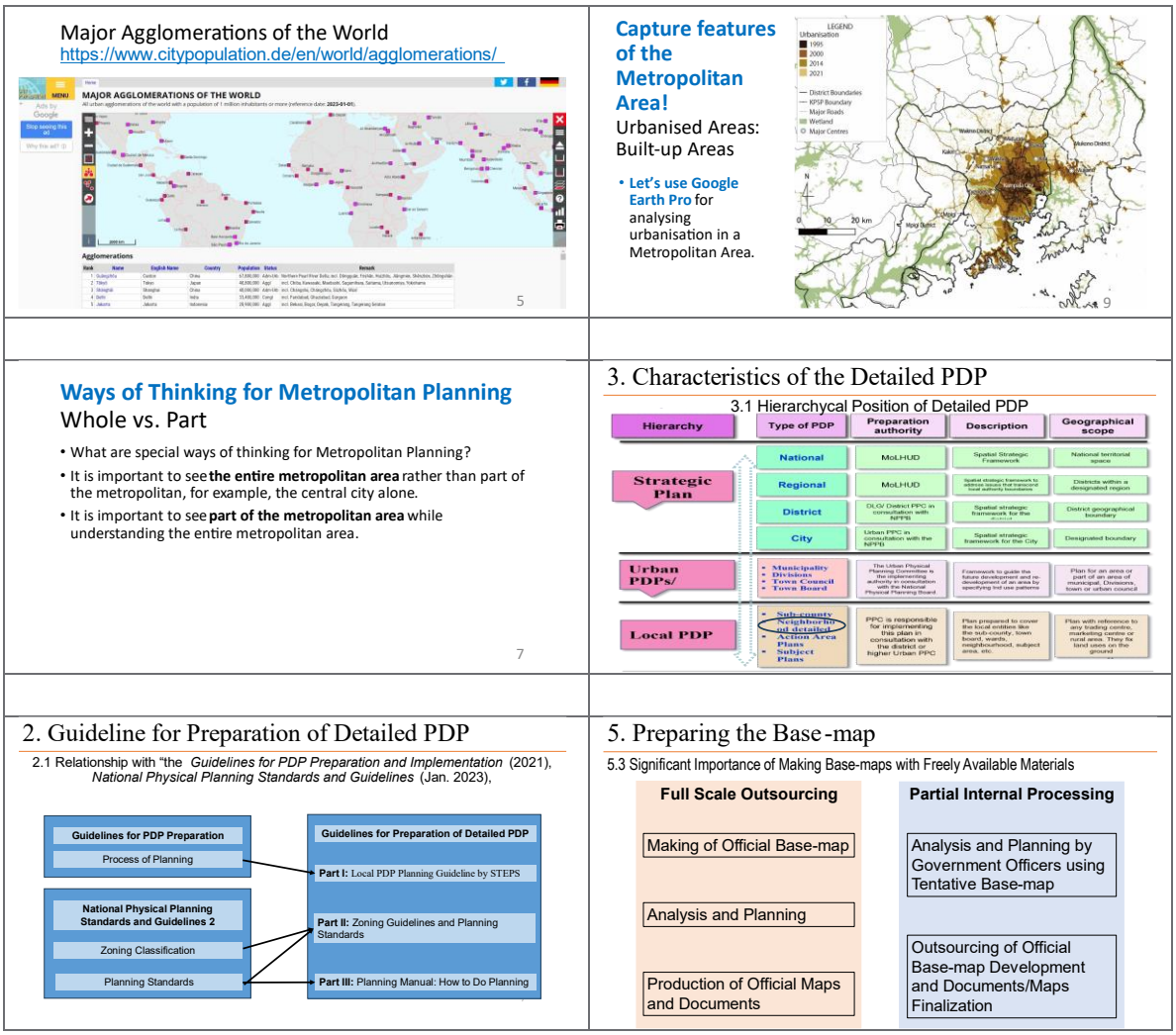
- Explained the following three major characteristics:
  - Character of Detailed PDPs and Higher-level Plans: Outlined the relationship between detailed PDPs and higher-level plans and the content that should be included in detailed

PDPs. Emphasize the aspects that must adhere to higher-level plans and their specific reflection methods. Introduce examples of Metropolitan Centre positioning and expected roles, future population and economic scales, and information obtained from GKMA-IUDMA reports and attached drawings.

- Characteristics and Significance of Zoning Systems: Explain that zoning systems differ from the discretionary urban planning management methods employed in Uganda and that different map creation methods are required to implement them. Illustrate this point using examples of maps from Japan.
- Importance of Solidifying Concepts Using Free Tools and Resources Alongside Base Map Preparation: Emphasize that while Detailed PDPs require the creation of zoning maps with legal binding force, demanding precision and incurring significant costs and time for base map preparation, it is possible to solidify concepts within the administration simultaneously using free tools and resources. Explain that concept creation is the most crucial factor in developing a transformative plan.

(3) Hands-on Training:

- Data analysis and future population projection using Excel
- Google Earth Pro: Usage and applications



Source: JICA Expert Team

Figure 21.5.1 Handouts from the 1st Training Session

21.5.2 2nd Training Session: Online Training for Metropolitan Planning on the 30th of November 2023

(1) Objectives:

- Understand the role of population and urban functions in metropolitan planning.
- Learn how to utilize land use zoning in development regulations.
- Develop the skills to formulate a comprehensive land use plan for a metropolitan area (including the roles of physical planners and GIS experts).

(2) Contents:

1) Metropolitan Planning:

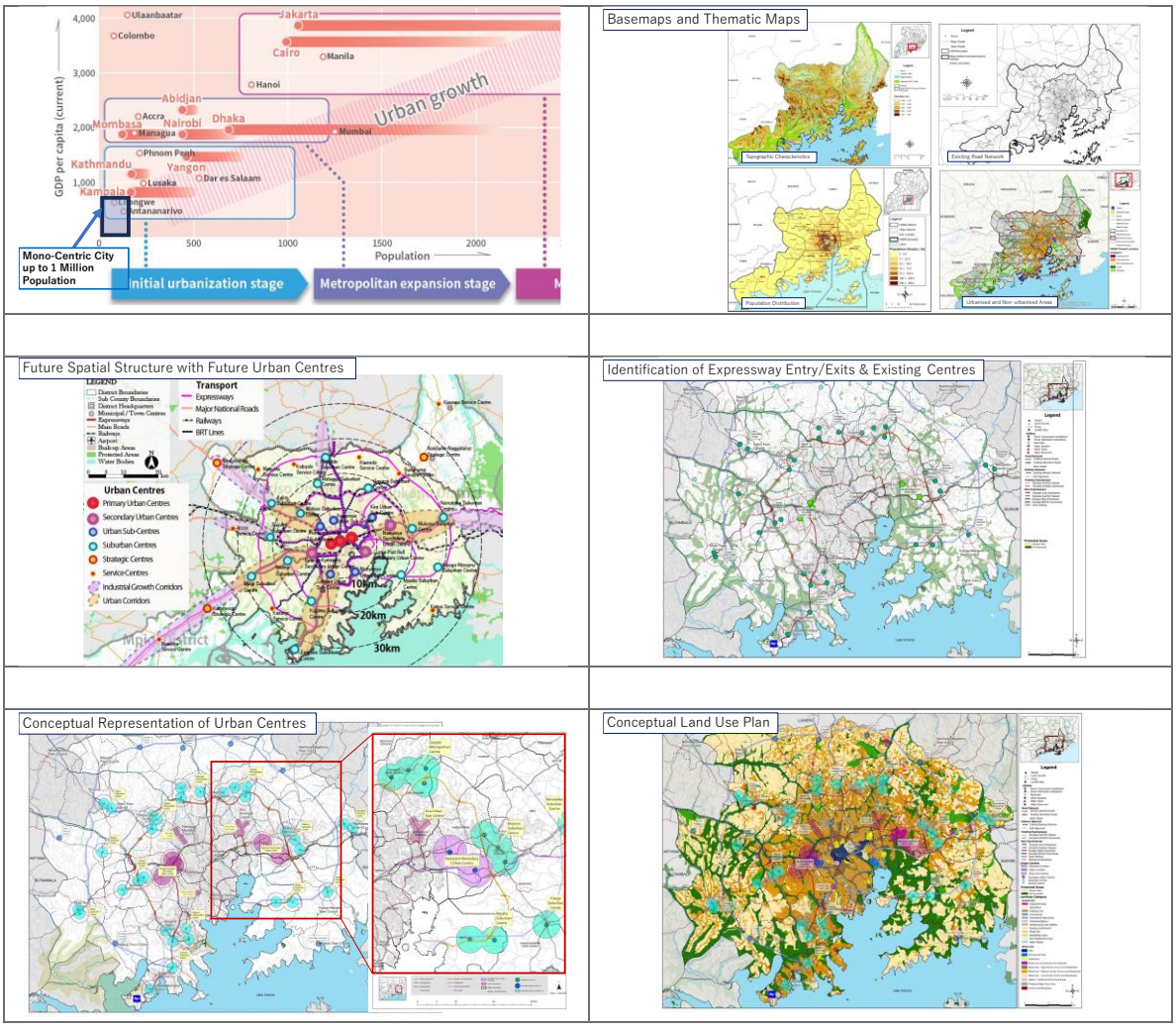
- Explained how as urban populations grow, suburban areas expand, making it challenging to manage with a single-centered urban structure. Therefore, there is a need to disperse urban functions that do not need to be located in the central city to the suburbs, transforming the urban structure into a multi-core one. Subsequently, explain how to set various Urban Centers and create a General Land Use Plan.

2) Utilizing Land Use Zoning in Development Regulations:

- Highlighted that the PDP guidelines and regulations in Uganda outline how individual buildings and plots should be constructed or maintained. Consequently, physical planners are trained to understand cities from the perspective of individual buildings and plots. In contrast, urban planners in Japan and other countries view cities from a broader urban perspective, providing direction and regulations.
- Furthermore, introduced how regulations related to building uses, floor area ratio (FAR), and building-to-land ratio (BLR) are used as tools to guide the future appearance of the city. Additionally, explain that zoning diagrams representing these regulations show land use regulations, morphological regulations such as FAR and BLR, and urban facilities such as infrastructure.

3) Hands-on Training:

- Conduct a land use analysis using GIS software to identify suitable locations for different urban functions.
- Develop a zoning diagram for a specific area, considering land use regulations, morphological regulations, and infrastructure requirements.



Source: JICA Expert Team

Figure 21.5.2 Handouts from the 2nd Training Session

21.5.3 3rd Training Session: In Person and Online Training (Hybrid Meeting) on Detailed PDP on 13th December 2023

(1) Objectives:

- Understand the relationship between the location of expressway entrances and exits, a factor in land use revision in GKUGA, and its relevance to reflecting the concept shown in the broad-based higher-order plan in Detailed PDPs.
- Understand the wide-area potential and development direction of the General Land Use Plan of GKUGA and the model districts of Busega-Kyengera and Namataba in Detailed PDPs, from a broad-area perspective, taking into account the location of expressway entrances and exits.
- Understand the systematic method for setting the Urban Core of Detailed PDPs and the significance and methods of participatory planning in this process.

(2) Contents:

1) From broad-area conceptual planning to detailed district planning

- Explanation of the process of revising and adjusting urban centres and land use, particularly based on the location of expressway entrances and exits and the location of Urban Centre functions.

2) General Land Use Plan of GKUGA

- Explanation of the General Land Use Plan of GKUGA

3) Case studies of setting Urban Centre functions in model Detailed PDP preparation districts

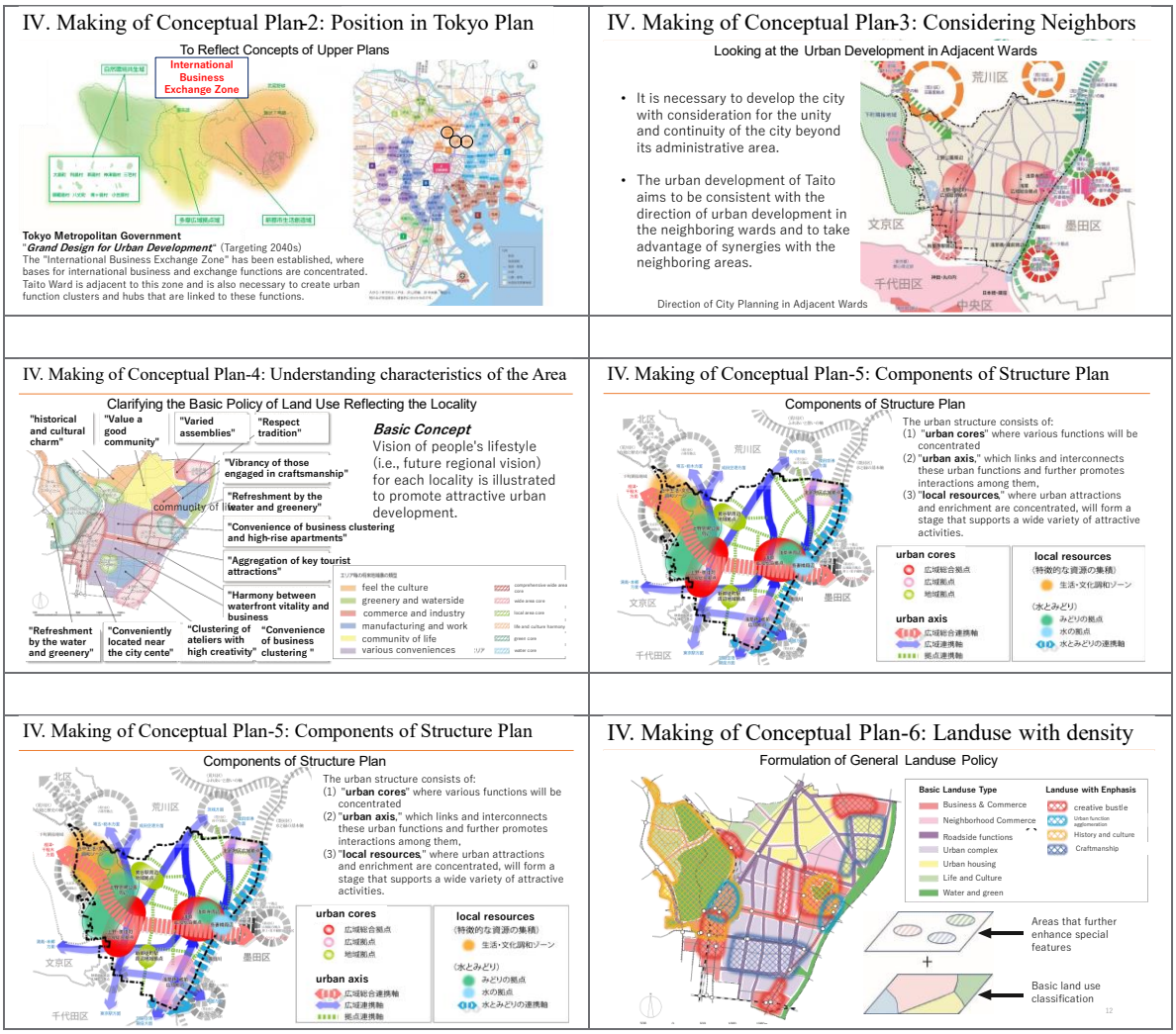
- Explanation of the method for identifying Urban Centres from a broad-area perspective in each Planning Area, using the examples of Busega Kyengera and Namataba, which were selected as pilot districts.

4) Method for creating a Concept Plan for Detailed PDPs

- Detailed explanation of each step of concept plan creation.
  - Step 1: Location and Connectivity: Analyze the location conditions and surrounding environment of the target area, considering access to transportation networks and public facilities.
  - Step 2: Positioning in the broad-area higher-order plan: Confirm the positioning to ensure consistency with the higher-order plan, and clarify the role and future direction of the target area.
  - Step 3: Linkage with surrounding areas: Understand the plans and challenges of the surrounding areas of the target area and identify the elements that influence each other.
  - Step 4: Understanding regional characteristics: Investigate the natural environment, history, and culture of the target area and evaluate its centrality. It is also effective to involve residents to understand their needs and desires.
  - Step 5: Setting Urban Core: Identify the districts that will be the future core based on the current situation and needs identified above. Set the functions that these districts will have.
  - Step 6: Setting Urban Axes: Finalize the connection between Urban Cores by considering multiple patterns and evaluating them.

5) Hands-on Training

- Identification of Urban Cores based on local knowledge, targeting Busega-Kyengera and Namatana.
- Creation of alternative proposals for the axes connecting the Urban Centres of Busega-Kyengera and Namataba.



Source: JICA Expert Team

Figure 21.5.3 Handouts from the 3rd Training Session

21.5.4 4th Training Session: In Person and Online Training (Hybrid Meeting) on Detailed PDP on 13th December 2023

(1) Objectives:

- Understand the intent and process of creating the General Land Use Plan (GLUP) for the GKUGA PDP, which can be directly referenced by Detailed PDPs.
- Learn the procedures and techniques for identifying areas in the Planning Area of Detailed PDPs that can be converted to urban land use.
- Understand the concerns about the use of participatory planning in setting the Urban Core of the Spatial Structure, and introduce general methods for participatory planning.
- Improve participants' development concept plan creation skills through group work.

(2) Contents:

1) General Land Use Plan (GLUP) of GKUGA-PDP

- Explanation of the intent and process of creating the GLUP included in the GKUGA-PDP. This included the importance of the GLUP in capturing the opportunities created by various centers around transportation nodes and guiding development appropriately.
- Emphasis on the creation method of identifying the potential range of each transportation node

and creating new Cores through new development of existing clusters and underutilized land inside and outside the range.

- Explanation of the necessary road network improvements to guide this development.

2) Scope of urban land use in the Planning Area of Detailed PDPs

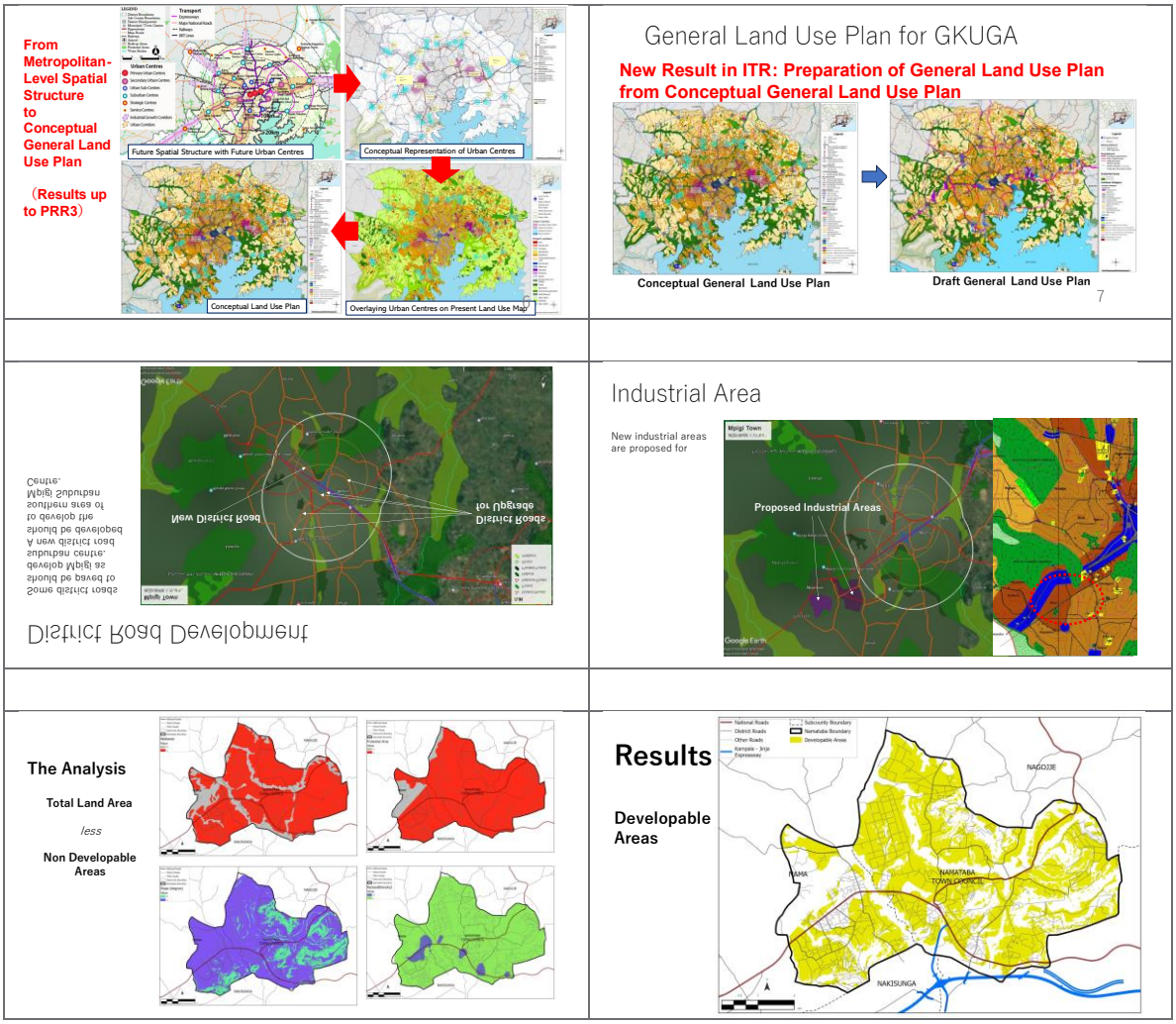
- Introduction of the process of identifying developable areas using factors such as restricted areas (wetlands, forests, etc.), slope analysis (0-5%, 5-10%, 10-20%, over 20%), and existing building density analysis.
- Namataba was used as an example to illustrate the process of identifying the maximum urbanization capacity and its scope in the case of maximum future urbanization.

3) Method for setting Urban Core

- Explanation of the method for setting future Urban Cores by comprehensively considering future transportation nodes, existing clusters, and future developable land.
- Emphasis on the usefulness of participatory planning methods in identifying the status of existing clusters and hidden local resources, using examples.

4) Hands-On-Training

- Group work exercise to create a Spatial Structure for Namataba.



Source: JICA Expert Team

Figure 21.5.4 Handouts from the 4th Training Session

21.5.5 5th Training Session: In Person and Online Training (Hybrid Meeting) on Detailed PDP on 13th December 2023

(1) Objectives:

- Understand the need to consider potential future transportation nodes and surrounding underutilized land as Urban Cores. This was identified as a missing element in the previous hands-on training on Spatial Structure, which is a core component of the concept plan.
- Learn how to assign urban function categories to the Urban Core of the Spatial Structure, moving closer to a land use plan.

(2) Contents:

1) Revision of the Spatial Structure Plan

- Explanation of common, different, and missing elements from the results of each group in the hands-on training.
- Introduction of the process of finalizing the Urban Core by assigning urban function categories.
- Explanation of how the combination of selecting different options for the minimum links connecting these Urban Cores, which are conceptually understood, to the existing road network can lead to significantly different future scenarios.

2) Urban function categories, Land Use designation, and building coverage ratio (BCR) and floor area ratio (FAR) composition

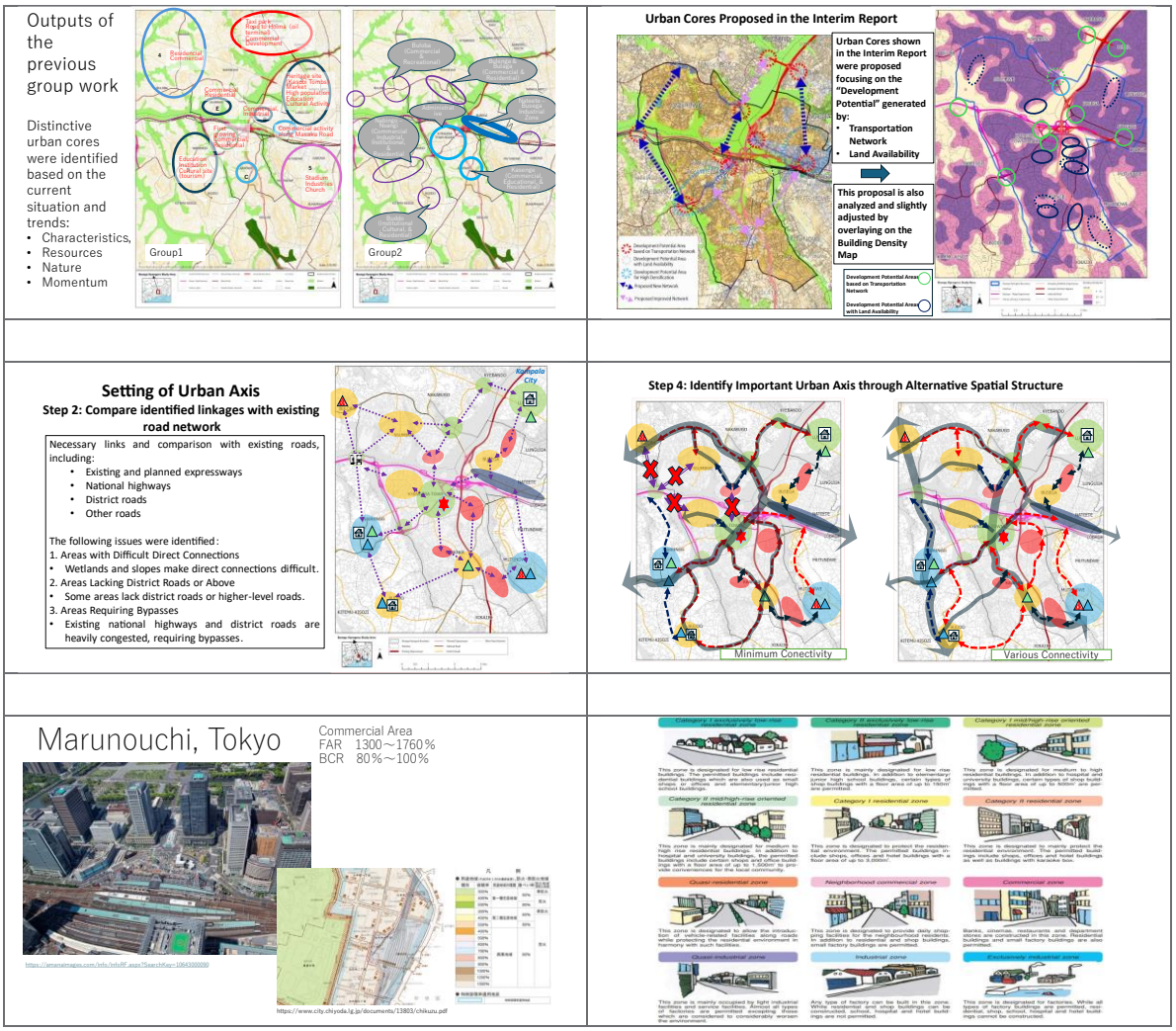
- Utilization of Japanese cities as reference cases to grasp the actual landscape image of urban function categories. This involved cross-referencing the streetscapes of Marunouchi, Ginza, and Denentyofu with the urban planning regulations in the Zoning Map.

3) Number of land use categories to be used hereafter

- Explanation of the importance of determining the number of land use categories based on the scale and characteristics of the city. This included the advantages of starting with a simple set of land use categories, such as:
  - Clear regulations: reduced violations and streamlined permitting procedures.
  - Flexibility to start with a smaller number of categories and increase them as future trends become clearer.

4) Hands-on Training

- Practice creating alternative spatial structure proposals based on Urban Core and road network.
- Use Google Earth to identify models of major urban functions, such as commercial, mixed commercial-residential, and mixed workshop-residential, as well as ideal high-density and medium-density residential areas.



Source: JICA Expert Team

Figure 21.5.5 Handouts from the 5th Training Session

21.5.6 6th Training Session: In Person and Online Training (Hybrid Meeting) on Detailed PDP on 24th May 2024

(1) Objectives:

- Review the process of creating transformative land use zoning plans and improve planning skills. This includes understanding how the concept plan, General Land Use Plan, and zoning map gradually take shape.
- Provide participants with hands-on experience in plan preparation through group work.

(2) Contents:

1) Review of the process of creating transformative land use zoning plans

Using case studies to confirm that the concept plan, General Land Use Plan, and zoning map are mutually referenced. This will help to understand how these three elements work together to create a transformative land use zoning plan.

2) Creating a concept plan

Explanation of how to create a concept plan was made. This included a detailed description of how to enrich the concept plan from the spatial structure, and focused on how to incorporate factors for future urban expansion into the concept plan consisting of Urban Cores. Urban Axes, and Future Urban Area.

3) Creating a General Land Use Plan

Explanation of how to create a General Land Use Plan was made. This included a description of the process of mapping the concept plan's urban axis to real roads and creating the Urban Core as an area on the map with realistic shape.

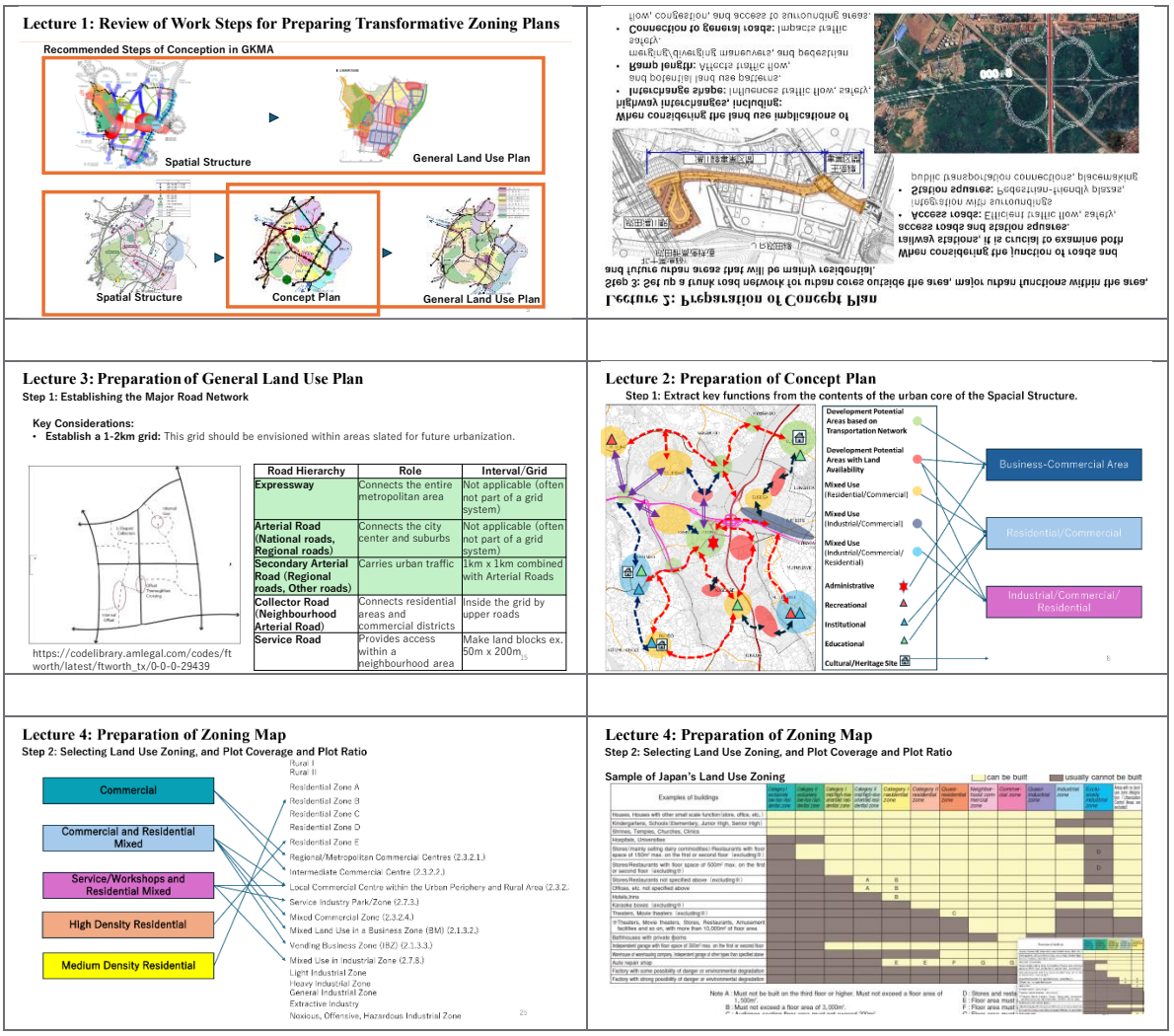
4) Creating a land use zoning map

Detailed explanation of how to create a zoning map was made. This included:

- How to match land use categories in the zoning diagram with urban functions.
- A table listing permissions and prohibitions as a guide for matching land use categories with urban functions.
- A menu-based approach to zoning density distribution based on building coverage ratio (BCR) and floor area ratio (FAR).
- Specific explanation of points to consider when drawing zoning boundaries.

5) Hands-on Training

- Discussion on improvement measures for the draft General Land Use Plan.
- Application of land use categories to the General Land Use Plan.



Source: JICA Expert Team

Figure 21.5.6 Handouts from the 6th Training Session

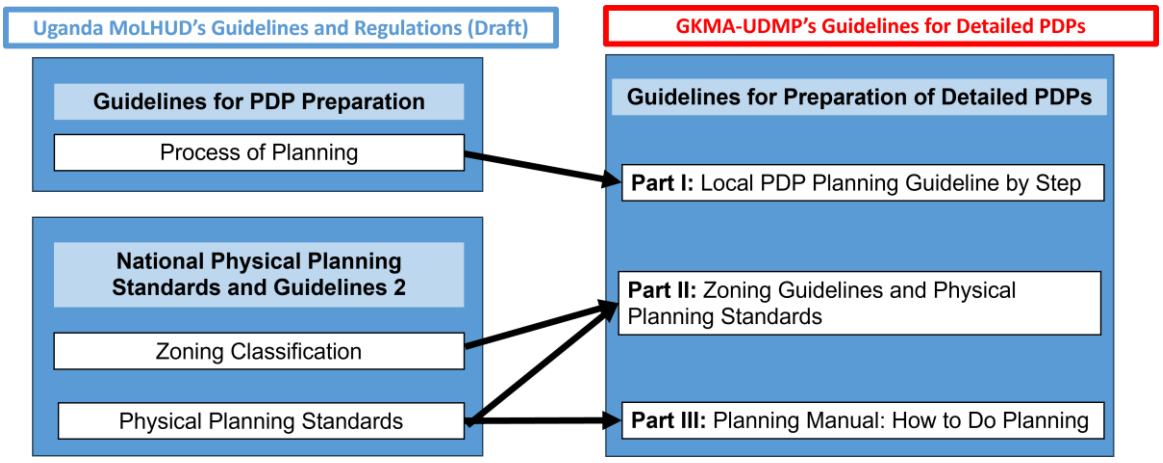
Chapter 22 Guidelines for Local-Level Physical Development Planning with Introduction of Zoning System

22.1 Guidelines for Local-Level Detailed Physical Development Planning

The Guidelines for Local-Level Detailed Physical Development Planning has been prepared in the Project for GKMA-IUDMP. This Guidelines consists of the following three parts:

- Part I: Local Detailed Physical Development Planning Guideline by Step
- Part II: Zoning Guidelines and Physical Planning Standards
- Part III: Planning Manual: How Do Planning.

As shown in Figure 22.1.1, this Guidelines for Local-Level Physical Development Planning relates to existing two draft guidelines being developed by MoLHUD.



Source: JICA Expert Team

Figure 22.1.1 Relationship GKMA-IUDMP's Guidelines for Local-Level Detailed Physical Development Planning and MoLHUD's Two Guidelines and Regulations (Draft)

22.2 Part I: Guidelines for Formulation of Local-Level Detailed Physical Development Planning by Step

22.2.1 Overview

This section contains Part I of the Guidelines for Formulation of Local-Level Detailed Physical Development Planning. It describes chronologically the actions to be taken and matters to be considered by the relevant actors in each phase of the development, approval and operation of the detailed PDPs. The positioning and objectives of the first part of the guidelines are similar to Guidelines for the Preparation and Implementation of Physical Development Plans (GPIPDP)[1], but the subject is focused on Local-Level Detailed Physical Development Plan and provides a more specific and comprehensive description and guide to each step of the planning process than the GPIPDP.

The aim of preparing a comprehensive manual is to lessen the challenges in formulating detailed PDPs, further generalise knowledge and skills in detailed planning, and thus facilitate the process. Those with little practical planning experience can also refer to this document to get an overall picture of the detailed planning and key study points.

Highlights of this section compared to the contents of the GPIPDP are as follows:

- To reflect the contents about procedure and process of physical development planning stipulated in the GPIPDP
- To emphasise that the Local-Level Detailed PDP should be guided by the higher-level PDPs and other infrastructure plans, as well as high-level development plans. The matters guidedba here is to receive and reflect the location of major infrastructure, major urban facilities and basic policies of land use planned in the higher-level plans.
- To highlight development control through zoning as set out in the Local-Level Detailed PDPs
- To propose the concept of building volume control
- To include an explanation of the concept of development induction, such as the relaxation of building volume restriction for buildings with specific uses
- To provide reference examples of specific development project implementation and financing methods
- To clarify the planning process for Local-Level Detailed PDP formulation
- To include procedures for development control based on land use zoning at the phase of plan implementation
- To explain the relationship between upper-level plan and lower-level plan in a hierarchical planning system
- To emphasise the importance of stakeholder participation
- To indicate where Part II, Zoning Guidelines and Planning Standard, should be referred to in the text, and to clarify the complementary relationship of both Part I and Part II contents
- To show specific examples from past practices including plan drawings

22.2.2 Planning Process and Steps

In the formulation of local-level Detailed PDPs, the planning activities involve various fields. To grasp the entire process, the activities are divided into several steps based on sequence following the GPIPDP. There are eight steps from the initiation to the approval of a local-level detailed PDP, and one additional step for the monitoring, performance assessment and modification of the local-level detailed PDP as listed below:

[1] MoLHUD has prepared this guideline (GIPDP) by outsourcing to a consulting company. A final draft of the GPIPDP was submitted to the Uganda National Bureau of Standards.

Step 1: Initiation (Section 4.2 in GPIPDP)

Step 2: Data Collection and Processing (Section 4.3 in GPIPDP)

Step 3: Data Analysis and Synthesis (Section 4.4 in GPIPDP)

Step 4: Plan Conceptualisation (Section 4.5 in GPIPDP)

Step 5: Draft Plan Preparation (Section 4.6 in GPIPDP)

Step 6: Plan Adoption and Acceptance (Section 4.7 in GPIPDP)

Step 7: Refinement of Accepted Plan (Section 4.8 in GPIPDP)

Step 8: Plan Approval (Section 4.9 in GPIPDP)

Step 9: Monitoring, Evaluation, and Modification

22.2.3 Local-level Detailed PDP Planning Guidelines by Steps

The planning guidelines are described in accordance with these eight planning work steps.

(1) STEP 1 Initiation (Section 4.2)

4.2 Initiation

This refers to the preparatory stage of the planning process where the planning authority is engaged in preliminary activities aimed at ensuring planning to plan. The technical committee, therefore, initiates the preparation of the PDP by conducting the following:

Description in GPIPDP	Matters to Be Added/Specified for Detailed PDP
1) Conducting planning needs assessment to identify the areas for planning, issues to be addressed by the plans, type of plan to be prepared and the availability of resources.	• The timing and amount of funding may be used to determine whether outsourcing is appropriate.
2) Preparing a concept paper to guide the rationale, needs identification, source of funding and project management.	• The transformative planning is required if the target area contains any of the urban functional cores in GKUGA.
3) Preparing Terms of Reference (ToRs) in consultation with the MLHUD for guidance, highlighting the rationale, objectives of the assignment, scope of work, specific tasks to be undertaken, expected outputs, timelines and reporting requirements, deliverables and personnel required.	• In particular, be aware of the difference between the type which guides existing land use and the type which prompte transformation of precent land use.
4) Cost estimation for plan preparation	• Compare cases of outsourcing, not outsourcing, and partially outsourcing. • Consider the possibility of shortening each schedule.
5) Procurement of consultancy services (if outsourcing is to be used)	• Consider the effectiveness of outsourcing for the procurement of satellite maps with appropriate accuracy to establish zoning regulatory maps.
6) Notification of intention to plan. This is intended to keep the supervising authority in the know, and also to seek guidance in the early stages of the plan preparation.	• When producing a conceptual plan in-house, the validity of the planning framework should be checked as a particular guidance item.
7) Prepare and present the inception report to the client. The planning authority will require an inception report in case a consultant is engaged to prepare the plan. This report will consist of the introduction and background; the rationale; assignment objective; approach; project organisation; team composition; project management; project activities and status of execution; and legal, policy and institutional framework.	• Prior to forming the team, training related to zoning system and detailed PDP shall be conducted by personnel who have learned zoning system through training courses such as the ToT conducted by the JICA Expert Team.

Source: MoLHUD, 2023, GPIPDP

(2) STEP 2 Data Collection and Processing (Section 4.3)

4.3 Data Collection and Processing

The aim of this phase is to collect information about the planning area to guide the process. Consolidating an information system for a PDP is like building a three-dimensional model. It should contain sets of data about the past, present, and projected conditions of the affected area.

Based on the aforementioned description, the Technical Committee shall undertake the following activities:

Description in GPIPDP	Matters to Be Added/Specified for Detailed PDP
a) *Review existing data and literature concerning the planning area.* Normally, this entails five basic steps which the planning team must adopt to inform the planning process. These include (a) searching for relevant literature, (b) evaluating and selecting sources, (c) identifying themes and gaps, (d) outlining the literature review's structure and (e) writing the literature review. This is a continuous process which can commence even before the actual planning starts. It should be noted that literature review covers both spatial (existing maps, imagery, photographs) and nonspatial data (reports, journals, textbooks) which can be obtained from the archives of the planning authority and the MLH&UD, UBOS, online sources, among others. The planning team must begin by identifying a planning theme which will help in focusing on relevant data needed for that purpose.	• Clarify the applicable data from the following: ➢ Positioning according to higher-level related plans ➢ Assignment of various frames based on higher-level related plans ➢ Statistical data from lower local governments
b) Obtain and prepare the base map. A base map is the graphic representation of an area at a specified scale of selected fundamental map information, used as a framework upon which additional data of a specialised nature may be compiled. It is a foundation on which the design process can be based to generate other thematic maps which will help to inform the plan preparation. This base map can be used throughout the design process to show iterations of the evolving study and focus. There are three basic steps that the planning team can follow when preparing a base map in a GIS environment. They include the following: (a) Collecting spatial data from secondary sources or from satellite imagery; (b) Overlaying sets of spatial data which will give the framework for the map. The layers may contain major features such as roads, boundaries, geographical features like relief, waterways, natural forests, swamps, among others; (c) Preparing a page layout to scale so that all elements wanted to appear on the map are visible.	• Procurement of satellite images that enable formulation of topographic maps with 1:5000 accuracy • Until the approval of budget for acquiring expensive satellite images, the team can try to collect free material as much as possible. • Consider hiring part-time workers to supplement each dataset. • Try to take advantage of freely available software. (GoogleEarthPro, Qgis, Gimp, etc.)
c) Make reconnaissance survey of the planning area. Reconnaissance survey helps to explore the site conditions and availability of infrastructures and other services which the planning team must be aware of. It helps to collect adequate data to prepare the plan / map of an area to be used for planning and designing. The purpose of this survey is to assist the planning team obtain information by visual observation or other detection methods, about the activities or about the meteorologic, hydrographic, or geographic characteristics of a particular area. Reconnaissance can be done using various methods such as the following: Study of Survey Sheets and Maps, Aerial Reconnaissance Survey (through the use of drones), Ground Reconnaissance Survey (which may	• If satellite images and topographic maps can be obtained, they will be utilized for the survey. • Even if only free materials are available, create a working map based on them.

	involve driving and/or walking in the area depending on the size of the planning area), and Reconnaissance Survey Reports. The selection of any of these methods is determined by availability of resources and the timeframe at one's disposal. The planning team prepares a survey plan as guide in the process and, based on which plan considered, looks at the tools required like cameras, GPS, notebooks, etc. It is important to check logistics, list of key aspects to look out for, the timeframe within which the activity will be executed and all possible routes and sites to be visited. A reconnaissance survey report is a requirement and should summarise all the collected information, including a description of each route or site, a conclusion on the planning area and, where possible, appropriate maps and aerial photographs should be provided.	
d)	Collect sector data and make an information inventory. Data collection is a systematic process or procedure of gathering, measuring and analysing accurate insights for research using standard validated techniques. Regardless of the purpose, data collection allows one to gain first-hand knowledge and original insights into the research problem. While methods and aims may differ between fields, the overall process of data collection remains largely the same. Before collecting data, one needs to consider the following: (a) the aim of the study, (b) the type of data needed to collect, and (c) the methods and/or procedures to be used in collecting, storing, and processing the data. In order to collect high-quality data relevant to the purpose of the study, the following four steps are essential in guiding the planning team in collecting relevant data: (a) define the aim of the study, b) choose the data collection methods and tools, c) plan the data collection procedure and (d) collect the data. Developing a data collection plan entails eight steps: (1) Identify the questions that you want to answer, (2) Determine the kind of data available, (3) Determine how much data are needed, (4) Determine how to measure the data, (5) Decide who is going to collect the data, (6) Determine where the data will be collected from, (7) Decide whether to measure a sample or the whole population, and (8) Determine in what format the data will be displayed. The sets of data to collect will be both qualitative and quantitative.	It is recommendable to prepare household survey questions and response formats and conducting a household survey targeting approximately 2% of the existing total number of households in the target area. This allows the obtained data as statistically appropreate.
e)	Conducting social and economic surveys or interviews on the following aspects: population/demography, income and expenditure, housing conditions, water supply, wastewater facilities, sanitation facilities, energy use, social services, solid waste, recreational facilities, gender equity, communication and travel characteristics, among others. Sometimes validation may be required, depending on who collected the data, before analysis is carried out.	• It is recommendable to prepare household survey questions and response formats and conducting a household survey targeting approximately 2% of the existing total number of households in the target area. This allows the obtained data as statistically appropreate.
f)	Conduct physical surveys (land use inventory, utility and infrastructure mapping, etc.), update the base map and prepare the existing land use map and other related thematic maps. In an office environment, the team can use a high-resolution satellite image to delineate existing land use zones. Then the team can validate the zones using ground truthing technique. This also involves conducting a physical survey where mapping of infrastructure, social services, ecological areas, protected zones and land use inventory, among others, are carried out. Using GPS, the planning team go out in the field to capture the location of the above-mentioned services. The field assistant who will collect the data must be oriented	• In view of using for reviewing the Detailed PDP, it is recommended to record usage, structure type, and number of floors for analysing changes over time. • It is desirable to conduct a similar survey once every five or ten years, regardless of whether or not plans are reviewed at that year.

	on the tools to be used, conduct while in the field and other ethical elements which will ensure collection of accurate data.	
g)	Conduct traffic surveys. This entails conducting traffic census or counts. It looks at the existing number of vehicles vis-a-vis the capacity of the roads in the area. It also projects the future traffic vis-a-vis the operating conditions of the roads. These surveys are normally required when dealing with municipal, city, district, regional and national PDPs.	• It should be noted that the higher-level plan shows the future traffic volume on major roads within the target area. After understanding the gap between this and the results of the traffic volume survey, the team needs to consider measures to smooth out traffic in the future.
h)	Collect any other data depending on the themes and subthemes. The planning team may find it fit to collect other sets of data, depending on the characteristics of the planning area and also due to the identified planning theme. These may include, but not limited to, hydrological and geological surveys.	
i)	Prepare a stakeholder engagement report. A stakeholder report should be developed to inform the planning process. This must clearly bring out the objective of the engagement, category of stakeholders engaged and the information obtained from them, key findings and conclusion.	• Plan and conduct stakeholder meetings prior to the preparation of the said report.

Source: MoLHUD, 2023, GPIPDP

(3) STEP 3 Data Analysis and Synthesis (Section 4.4)

4.4 Data Analysis and Synthesis

Data analysis is the process of discovering useful information by evaluating data. This is done through a process of inspecting, cleaning, transforming, and modelling data using analytical and statistical tools. The technique or method to be used will vary depending on the datum formats being analysed (spatial vis-a-vis nonspatial). For spatial data mapping using the GIS environment (create, manage, analyse, and map all types of data), various thematic areas are used; whereas, for nonspatial data both qualitative and quantitative techniques are employed using various applications like SPSS and Excel, among others. The information is presented in the form of maps, tables, charts, graphs and written narratives. The analysis should point to the current situation and future scenarios.

The information shall be analysed and synthesised by the Technical Committee. This stage involves the following:

Description in GPIPDP	Matters to Be Added/Specified for Detailed PDP
❖ Processing the physical and socioeconomic data	
❖ Prepare the situational analysis report (for the format and content, refer to Annex 1).	
❖ Presentation of the situational analysis report to the Steering Committee and other stakeholders for validation.	
❖ It is prudent to prepare a socioeconomic survey report (as a standalone report), especially where the planning area includes national, regional, district and any urban plans.	• In particular, when GKUGA assigns a core in the target area, the team should extract and compile the core's role, area of influence, and planning framework.

Source: MoLHUD, 2023, GPIPDP

(4) STEP 4 Plan Conceptualisation 4.5

4.5 Plan Conceptualisation

A conceptual plan is a framework used to determine the possible courses of action or to present an idea or thought. It defines the relevant study variables and maps out how these might relate to each other. The conceptual plan or model, therefore, is an avenue through which the main objective, structure and form of the planning area can be harnessed. It is highly dependent on the findings of the existing situation, looking at the suitability analysis of the various thematic areas and how they relate to each other and the set vision. The Technical Planning Committee develops alternative models which are then evaluated by the Steering Committee to select the best alternative. The selected model guides the detailed design of the land use plan or PDP.

The Technical Committee shall do the following:

Description in GPIPDP	Matters to Be Added/Specified for Detailed PDP
· Go about the process of designing future development scenarios by determining development constraints and opportunities.	
· Prepare projections for short-, medium- and long-term periods. These shall cover ▪ Future population estimates. Project future population based on the base year population, the population growth rates and the time horizon of the PDP which can be broken into intervals of five years. ▪ Housing demand. Determine how many units required to house the projected population by looking at the average households in the housing unit, determine the future housing demand, then determine land required to house the projected population. ▪ Social facilities. Determine the sufficiency of the facilities to meet the demands of the projected population based on range and threshold indicators. ▪ Infrastructure provision. Determine their hierarchy, accessibility, connectivity and safety. ▪ Land requirements for different land uses. Determine the future demand for residential use by density, industrial use by category, commercial use by hierarchy, institutional use by type, recreational use by hierarchy, environmental use and others). This work step becomes possible if the data collected considered all these indicators.	• If designated as core in GKUGA, the population per household needs to be assumed for apartment complex and single-family house separately. • Consider several combinations of the ratio of multi-family housing areas to single-family housing areas. • Understand the basic unit of public facilities and calculate the approximate amount of demand and processing amount.
· Formulate alternative concepts based on known theories and models (concentric, wedge shaped, multinuclei, garden city, a combination of two or more theories, among others).	• Determine the following items ➢ Core settings (features, number) ➢ Axis settings (function, number) ➢ Setting up land groups (design zoning)
· Prepare a conceptual report whose content should include objectives, suitability analysis, generated alternative models with their advantages and disadvantages, conceptual structure scheme, conclusion and recommendation.	• The team should set at least three alternatives and clarify their characteristics.
· The selection of the preferred model is then done by the Steering Committee to inform the next stage.	Following the SEA concepts, let the stakeholders to select alternatives firstly and then present the result with reasons to the Steering Committee.

Source: MoLHUD, 2023, GPIPDP

(5) STEP 5 Draft Plan Preparation 4.6

4.6 Draft Plan Preparation

Once the best conceptual model is determined, the Technical Committee prepares a future detailed land use plan, which illustrates the broad land use zoning, infrastructure and other services. The committee also proposes sector specific objectives and strategies for the different thematic areas which will help to improve the situation. The plan also projects and identifies action areas, and develops investment plan and implementation strategy.

The committee also prepares a draft report explaining the contents of the plan. (For the format and content of the report, refer to Annex 2.) There is a need to prepare technical supplements (conceptual, socioeconomic survey, traffic survey reports, etc.) especially if the planning area includes national, regional, district, city and municipality levels. This is because the content therein will be too big to be consolidated in one report.

The Technical Committee must ensure that the following aspects are addressed during the preparation of the draft plan.

Description in GPIPDP	Matters to Be Added/Specified for Detailed PDP
▪ The preferred alternative is selected through feedback meetings or by the Steering Committee.	• Following the SEA concepts, incorporate the step of selecting alternatives by the stakeholder into the process.
▪ The PDP must cater for land use planning, development challenges and strategies across all sectors. It should anticipate risks which might affect the realisation of the plan.	
▪ The scale and focus vary across the hierarchy of plans. Information required at national and regional levels varies from that of district / city level and that of municipal and town council levels. This helps to make a distinction between the planning requirements at different levels.	
▪ Relate and link the set Vision to Goals, Objectives and strategic interventions in the PDP addressing the identified challenges.	
▪ Integrate and link the PDP with other higher and or local plans, development plans and policies.	• Formulate a table showing that it matches the GKUGA framework.
▪ Identify the linkage between the PDP strategies and projected population; appropriate balance between the spatial concentration of populations, economic activities, infrastructure facilities and services and their distribution over the project area.	• Prior to the mentioned work, the team should envision promising types of commerce and industry.

Source: MoLHUD, 2023, GPIPDP

(6) STEP 6 Plan Adoption and Acceptance (Section 4.7)

4.7 Plan Adoption and Acceptance

Every PDP shall be adopted or amended by the Planning Authority as appropriate in the following manner:

Description in GPIPDP	Matters to Be Added/Specified for Detailed PDP
❖ The Technical Committee shall present the PDP to the Steering Committee for adoption, and forward to the relevant sectoral committee for discussion, scrutiny and improvement.	
❖ The Technical Committee shall present the plan to the Legislative Council of the respective planning authority. In case of the National and Regional Plans, presentation shall	

be made to the Parliament and the national executive for a resolution, minute of acceptance and final approval.	
❖ The Draft PDP is required by law to be put on deposit in a specified period for public viewing. This shall be put in strategic areas normally selected by the Planning Authority for comments using clearly marked comments register. The plan deposit period shall be as stipulated in th ePhysical Planning Act 2010 (as amended in 2020). The plan shall be published in local media/newspaper through the notice of deposition.	
❖ The draft plan shall then be presented to the Technical Committee of the MLHUD for further scrutiny and guidance in preparation for its presentation to the NPPB for approval.	

Source: MoLHUD, 2023, GPIPDP

(7) STEP 7 Refinement of Accepted Plan (Section 4.8)

4.8 Refinement of Accepted Plan

Upon expiry of the plan deposit period, the Technical Committee shall review and incorporate comments, opinions and recommendations from stakeholders and specified authorities in the draft PDP. The collected comments from various stakeholders shall be compiled and attached to the refined draft PDP for submission to the NPPB for consideration. Submission shall be through formal notification to the NPPB with evidence of fulfilment of all the requirements as provided for in the Physical Planning Regulations 2011.

Source: MoLHUD, 2023, GPIPDP

(8) STEP 8 Submission and Approval of Detailed PDP (Section 4.9)

4.9 Plan Approval

Local Physical Development Plans are approved by the District Council on recommendation of lower Physical Planning Committees.

The NPPB shall provide guidelines/checklist to be followed when approving PDPs. As the last stage of the plan preparation process, Planning Authorities shall present the PDP to the relevant approving body for consideration and approval. The Technical Committee is mandated to incorporate the comments and submit a final PDP with its report for endorsement by the approving body's representative. The specified time period within which the NPPB is supposed to approve the final PDPs shall be 2 months. Plan gazettement shall be carried out by the NPPB indicating that the plan was approved and functional. This shall be done within four weeks after endorsement of the plan at any level of planning.

Source: MoLHUD, 2023, GPIPDP

22.3 Part II: Zoning Guidelines and Planning Standards

22.3.1 Overview

This section deals with "Part II: The Zoning Guidelines and Planning Standards" of the guidelines for the formulation of detailed physical development plans, which will be a document covering the concepts, spatial planning subjects, numerical criteria and formulas required in local-level detailed PDPs. This is a document that will be referred to as necessary in the formulation and implementation of the detailed PDP. This part will also have the very same objectives as the NPPS&G 2 prepared by MoLHUD, and will include sections with common titles. However, based on the review in this chapter, necessary improvements and new recommendations are added to the contents of the NPPS&G 2.

Basically, zoning categories and zoning regulations proposed by the NPPS&G 2 are to be utilised for this part. However, the JICA Expert Team proposed the following necessary modifications on the zoning regulations defined by the NPPS&G 2:

- To create a document structure that clearly distinguishes between (A) zoning categories and regulations, and (B) distribution standards and building design standards
- To present a table of the zoning categories used in the Local-Level Detailed PDP and the set of prescriptions associated with them
- To propose new zoning categories that should be added for Local-Level Detailed PDPs (model plans), if necessary
- To propose numerical prescriptions (including BCRs and FARs[2]) of different zoning categories
- To describe spatial images of different zoning categories, e.g., mixed-use zone where necessary
- To propose calculations and formula, etc. required for area planning that are not specified in the NPPS&G 2, if necessary.

The distribution standards and location criteria, and design standards for different types of physical development set in the NPPS&G 2 are to be adopted and utilised.

22.3.2 Understanding the Zoning System

(1) Layered Structure

One of the characteristics of the zoning system is its composition of multiple layers. These layers can be roughly divided into two kinds. The first is the layer reflecting regulations related to land use restrictions based on a legal system separate from urban planning. This includes nature reserves and disaster risk areas, etc. The second comprised various regulations that belong to the urban planning system, which are particularly effective when combined with land use designation. In particular, urban growth boundaries are effective by setting them before specifying individual land uses. In addition, building coverage ratio, floor area ratio, minimum lot size, building height, etc. are effective if designated with each land use category in a combined manner.

The significance of dividing zoning into multiple layers is as follows:

- Detailed regulations can be given in combination with another layer, so there is no need to prepare more land use types than necessary.

[2] The Terms of Building Coverage Ratio (BCR) and Floor Area Ration (FAR) are used in the US. On the other hand, in the UK and Commonwealth Countries including Uganda, Plot Coverage Ratio is used for Building Coverage Ratio (BCR), and Plot Ratio is for Floor Area Ratio (FAR).

- It is not necessary to prepare all layers at the first proposition of a detailed PDP. Layers can be added when they become necessary, typically in case of requirements for fireproof performance, diagonal line restrictions, etc.

(2) Proposed Zoning Layers for Detailed PDPs in GKMA

For the detailed PDPs within the area of GKUGA, it is proposed to adopt the following zoning layers:

1) Upper regulations layer

Land use regulations stipulate various laws and regulations apart from physical planning.

2) Land use regulation layer

As the cornerstone of detailed PDP, this layer deals with land use regulations. It consists of two sublayers, namely: (1) Land Use Category and (2) Urban Form. The combination of these sub-layers achieves providing desired regulation to existing and/or future built-up areas.

3) Urban facilities layer

This layer represents a site used for a particular facility, such as a public utility, parkland, or infrastructure facility. Separating individual sites from the land use regulations prevents unnecessary proliferation of land use categories to be used for the land use zoning.

4) Development area layer

This layer is dedicated to designated block of land with certain size where specific projects are planned or promoted. It is advantageous for land use management when forming a development project while suppressing disorderly development at the site by imposing strong restrictions such as downzoning on the land use regulation layer. Some of the project-based land use zones presented in NPPS&G 2 are more concise, if handled in this layer.

22.3.3 Upper Regulations Layer

This is defined in "Section 2.14, Environmental Land Use Zone" of NPPS&G2 as follows:

Preservation of ecological resources maintains their core values and functions and such areas are unavailable for development unless the proposed development is in tandem with environmental conservation and the relevant environmental regulatory frameworks. Preservation areas comprised: floodplains, wetlands, steep slopes and hilltops, national parks, natural and indigenous forests or woodlands, among others.

The gazetted areas shall be considered environmentally sensitive if they are: floodplains, wetlands, steep slopes, ridgelines and hilltops, forests, areas of volcanic hazard and natural buffer zones.

1) Floodplains

The following activities are prohibited in floodplains:

- Any development, except for irrigation works and dams subject to an Environmental and Social Impact Assessment
- Any excavation, filling, or removal of soil, earth or gravel.
- The obstruction of stream channels.

2) Wetlands

The following activities are prohibited in wetlands:

- Dredging and soil dispersal

- Grading and soil removal
- Construction of buildings (both public and private) and infrastructure including their buffer areas

The development in the upland of wetlands shall be controlled to prevent the effects of sedimentation, which impairs the function of wetlands. Planning shall integrate connections between wetland areas and other habitats, unless those areas contain invasive species or other threats. Water sources and their catchment areas, including the confining bed of aquifers and water bodies, shall be protected from pollution through the following:

- Minimising impervious land coverage to less than 20% to reduce storm-water runoff, downstream flooding, water contamination and maintain groundwater recharge
- Not permitting storage, and businesses that use hazardous chemicals, solid waste disposal and facilities, seepage lagoons, hazardous waste storage, pipelines that transmit oil/gasoline/or hazardous materials, and pit latrines within 100m of an aquifer.

3) Steep Slopes

On steep slopes, ridgelines and hilltops, the following activities are prohibited:

- Physical alteration when gradient is above 20 %.
- Any constructed development on slopes with a gradient above 20 %.
- Any development on very steep slopes, ridgelines and hilltops shall be strictly controlled.

4) Volcanic Hazard

Guidelines for areas of volcanic hazard are as follows:

- Siting of key facilities and critical infrastructure shall be out of hazardous areas, as determined by a hazard map based on scientific information on volcanic hazards.
- The number of people residing in volcanic hazard areas shall be minimised through low-density development.
- Development in a rural area of volcanic hazard shall depend on ensuring full coverage of water supply in the event of ash fall.
- Information related to volcanic hazards and risk shall be incorporated in the urban and land use planning documents, including hazard maps, as well as social aspects of planning for hazards.

22.3.4 Land Use Regulation Layer

(1) Land Use Classification

In this section, classifications of land use types are defined. This topic is also described in NPPS&G2. However, since NPPS&G2 largely perceives the zoning system as a tool for development projects, there are many things that are inconsistent with the zoning system aimed at regulating land use, especially in the existing urban areas. In this light, land use categories are reorganised by generally following the land use categories presented in NPPS & G2, while rearranged to be defined in the 1) Development Area Layer, 2) zoning designation standards, or 3) excluded as recognised to be development/construction standards, etc.

1) CLASS I: Rural

Class I is designated as agricultural land, and NPPS&G2 defines two types: Rural I and Rural II. These are adapted since their definitions are rather consistent with the concepts in land use zoning system.

Rural I

Rural I is largely undeveloped area and is proposed for low-intensity agriculture with area not to exceed 0.7 hectare so as not to destroy its use that includes low concentration agriculture, grazing and shift cultivation. This zone may include protected areas (natural forests, game reserves, national parks, open water sources, etc.). The zone may be supported by centralised community facilities (i.e., schools, hospitals, religious facilities, among others) based on the availability of requisite population. Furthermore, village settlements and cottage industries accruing from the products of the agricultural activities are permitted. The purpose of this zone is mainly land banking.

Extractive industries in appropriate measures shall be acceptable but subject to environmental and social safeguards that should satisfy the regulatory authority. Below are restricted uses in the zone.

- Massive residential development
- Large-scale industrial development
- Large-scale commercial development
- Mass transport Facilities
- Large-scale warehousing
- Large-scale animal husbandry

Source: MoLHUD, 2023, NPPS&G2

Rural II

Rural II is moderately developed and is proposed to be used for intensive agriculture, animal husbandry and plantation, characterised by use of large amounts of labour and capital relative to the land area. These areas are characterised by high-quality fertile soils suitable for intensive agricultural and related activities. Flood protection works are permitted in this zone as well as irrigation projects. This zone shall be located farther away from urban settlements with pockets of settlements to take care of farm workers. Below are restricted uses in the zone.

- Massive residential development
- Industrial development
- Extractive industries
- Large-scale commercial development

Source: MoLHUD, 2023, NPPS&G2

2) CLASS II: Residential

The Residential Land Use category of NPPS&G2 is of five types: Residential Zones A to E, all of which are intended to be designated for individual land plots of the New Town Development project. Therefore, it is not appropriate to use this definition as a land use class for zoning regulation. However, since these zones eloquently describe the kind of space aimed to be formulated, this guideline adopts them as a set of land use classes with condition that a wider area will be designated compared to the size of area originally intended.

Residential Zone A

Land in Residential Zone A is proposed for low-density residential development with a minimum housing density of 5 dwelling units per hectare. The predominant development is for detached houses, with plot sizes of not less than 2,000m^2. Official residences, educational (nursery) facilities and childcare facilities may be permitted depending on the location and size of the development proposed. Home businesses with 2 to 5 employees, clinics, pharmacies, regulated commercial and surgeries may be permitted but shall be limited to 250m^2 in gross floor area (GFA). Below are the prohibited uses in the zone.

- Block of flats/ apartments /social housing
- Transportation for haulage
- Animal husbandry
- Industrial development
- Commercial development over 250m^2
- Bars and discotheques
- Warehousing
- Mixed-use development

Source: MoLHUD, 2023, NPPS&G2

Residential Zone B

Land in Residential Zone B is proposed for medium-density residential with a housing density varying between 5 (minimum) and 10 (maximum) dwelling units per hectare. The development comprises a mixture of detached, semi-detached (duplex), row (terraced), and compound houses with minimum plot size of 1,000 m^2 and maximum plot size of 2,000m^2. Some small retail development will be permissible in this zone in selected areas to accommodate the day-to-day shopping needs of the population. To ensure that an adequate level of amenity is achieved, small areas of public open spaces are intermixed within the development. Major transportation activities are excluded from the zone to minimize traffic congestion and preserve the residential character of the zone. Below are prohibited uses in the zone.

- Major commercial activities
- Major industrial activities
- Transportation for haulage
- Animal husbandry
- Industrial development
- Commercial development over 250m^2

Source: MoLHUD, 2023, NPPS&G2

Residential Zone C

Land in Residential Zone C is proposed for medium-density residential not exceeding 402 persons per hectare. The development will take the form of flats or apartments of minimum 4 dwelling units for 2- and 3-bedroom units with a minimum plot area of 1,012m^2 and 2,024m^2, respectively. The plot must have sufficient spatial separation between buildings to maintain ventilation, privacy, and light. The grounds shall be landscaped and provision shall be made for car parking. Exceptions to the density restriction may be allowed in central urban areas where the development is adjacent to public parks and gardens or other open spaces. In all such developments, adequate parking facilities will be required, providing a minimum of one parking space for each unit.

It is intended that Residential Zone C be located predominantly in inner-city areas and developing areas close to major roads to make maximum use of existing services and transport facilities in these areas. Ground floor units may be used for small-scale business enterprises and shops servicing a local community. The maximum height or number of stories will be determined by the Statutory Planning Committees depending on the location (e.g., height restriction near a flight path will be imposed or height restrictions may be imposed for reasons of the desired form of the urban landscape). In all cases, the maximum number of stories where no elevator is provided will be four. Below are prohibited uses in the zone.

- Industrial development
- Large-scale commercial development except for shops on the ground level
- Animal husbandry
- Cemetery and crematorium
- Transport uses
- Warehousing
- Major sports and recreation facilities

Source: MoLHUD, 2023, NPPS&G2

Residential Zone D

Land in Residential Zone D is proposed for institutional or community development to include residential hostels and guesthouses. The size of the site to be developed will be a minimum of 800m^2 to 1,000m^2. The nature and type of accommodation facilities to be provided, as well as car parking and open space requirements, will be determined by the Planning Authority in collaboration with the owner/ developer. The zone is proposed to be located in the inner-city area, on major roads close to public transport, near universities and other tertiary institutions and schools, or adjacent to facilities they service. Some mixed land uses may be permitted in the case of hotel development, but it is generally intended that commercial and industrial development be excluded from the zone. Landscaping to improve amenity and privacy will be encouraged. Below are prohibited uses in the zone.

- Industrial development
- Commercial development
- Animal husbandry
- Cemetery and crematorium
- Transport uses and warehousing
- Major sports and recreation facilities like stadiums and central parks
- Community facilities or public places of worship except on a site zoned for that purpose, but not in residential buildings
- Markets over 1,000m^2

Source: MoLHUD, 2023, NPPS&G2

Residential Zone E

Land in Residential Zone E is proposed for residential development with high densities in excess of 50 dwellings per hectare. The minimum plot size on which development will be approved is 200m^2 (minimum) and 300m^2(maximum). To ensure adequate provision of public open space and parking, these residential units will be provided as shared facilities to maximise space utilisation. Roads, footpaths and parking areas should be also provided adequately. The zone embodies the informal sector housing areas, which can be upgraded to meet the minimum space requirements.

This zone is located near major business centres and traffic corridors to facilitate easy access and reduce transport costs. Public transport facilities, educational facilities, public open spaces, local markets, and mixed uses will be provided to enhance livability. Gradually, it is expected that many of these areas will undergo extensive environmental upgrading due to the nature of land holdings and development patterns in this zone that do not permit significant reduction in housing density. Mixed residential development will be permitted with the encouragement of the first-floor residential and small-scale ground-floor business enterprises. Due to the dense built-up character of the zone, there will be a need to make provision for small-scale open spaces for public use. Special provisions will also be given to traffic management to reduce congestion. Below are prohibited uses in the zone.

- All industrial development
- Commercial development except as noted in column 1
- Animal husbandry
- Cemetery and crematorium
- Transport depots
- warehousing
- Major sports and recreation facilities

Source: MoLHUD, 2023, NPPS&G2

3) CLASS III: Commercial

Section 2.3 of NPPS&G2 provides comprehensive description on the commercial zones. At the same time, Section 2.1 (Urban Class) and Section 2.7 (Industry Class) also contain descriptions related to commercial zones, as summarized below.

NPPS&G2 Section 2.1	NPPS&G2 Section 2.3	NPPS&G2 Section 2.7
• Mixed land use in a business zone (BM) (2.1.3.2.) • Vending Business Zone (IBZ) (2.1.3.3.)	• Regional/metropolitan commercial centres (2.3.2.1.) • Intermediate commercial centre (2.3.2.2.) • Local commercial centre within the urban periphery and rural area (2.3.2.3.) • Mixed commercial zone (2.3.2.4.)	• Service industry park/zone (2.7.3.) • Mixed use in industrial zone (2.7.8.)

Source: JICA Expert Team

In detailed PDPs, it is unlikely that commercial centres with different hierarchies exist at the same time. On the other hand, in the zoning system, it is necessary to pay attention to whether to specialize in commercial/business functions or allow the mixture with other uses. From this point of view, the commercial-related land use classes described in NPPS&G2 can be organized as follows.

Commercial Centre	Commercial Mix
• Regional/metropolitan commercial centres (2.3.2.1.) • Intermediate commercial centre (2.3.2.2.) • Local commercial centre within the urban periphery and rural area (2.3.2.3.) • Service industry park/zone (2.7.3.)	• Mixed land use in a business zone (BM) (2.1.3.2.) • Vending Business Zone (IBZ) (2.1.3.3.) • Mixed commercial zone (2.3.2.4.) • Mixed use in industrial zone (2.7.8.)

Source: JICA Expert Team

In this sub-section, 1) Commercial Centre and 2) Commercial Mix are set as commercial land use zones. The content of NPPS&G2 shall be applied as appropriate to the land use types that can constitute each commercial land use zone. An overview of each land use type is shown below.

Commercial Centre

i) Regional/Metropolitan Commercial Centres (2.3.2.1.)

The regional commercial centre functions as a centre for the dispersal of economic activities, employment generation and traffic movement in a city and/or in the metropolitan area. These centres are meant to provide wholesale and retail facilities for the metropolitan and large regional areas. The zone will be strategically located to ensure ease of access and egress to transportation facilities. Other permissible and prohibited uses in this zone are indicated in the table of development below.

Functions and permitted uses	Prohibited uses
• Sub regional markets for agricultural products • Bulk breaking warehouses for manufactured and raw products • Cold storage facilities • Offices of the local administration • Professional offices • Sub-branch offices • Major retail stores • Service industries - mechanics, artisans • Recreational facilities • Community facilities • Health facilities • Police facilities • Parking facilities • Loading /offloading bays • Fuel and service stations	○ Low-density residential development ○ Heavy industrial development ○ Animal husbandry ○ Cemeteries/ crematorium ○ Animal slaughterhouses

Source: MoLHUD, 2023, NPPS&G2

ii) Intermediate Commercial Centre (2.3.2.2.)

Intermediate centres provide low order goods and shall be located along the inner and middle-ring road areas after the CBD/main centre, to provide lower focal service located within a 2km walking radius, such as public services, commerce and emergency services in an organized and accessible manner.

Functions and Permitted Uses	Requirement
○ Offices and business facilities ○ Commercial facilities, including wholesale markets ○ Light and high-tech industries ○ Storage and logistic areas ○ Appropriate public services ○ Convention facilities ○ Appropriate recreation, hotels and entertainment facilities ○ Emergency and police services ○ Alternative residential densities and types corresponding to the planned commercial, industrial and agricultural functions ○ Recreational and required services (educational, health, religious. security, communal facilities ○ Public parks and open spaces, including pedestrian and cycling routes ○ Transportation network, including terminals, pedestrian and cycling routes ○ Main market	Compatibility zoning must be adhered to

Source: MoLHUD, 2023, NPPS&G2

iii) Local Commercial Centre within the Urban Periphery and Rural Area (2.3.2.3.)

This centre usually services the surrounding neighbourhoods within a 2-5km range, but can also play an intercepting role in passing traffic to other suburbs. It could be located on major collector roads in suburbs or townships offering high visibility and accessibility to passing traffic intended for the suburb(s) in the immediate and neighbourhood vicinity. They are small-scale businesses, community essential services and commercial centres within the built urban tissue and rural clustered settlements. It should be located at the periphery after or between the intermediate centre and within a 2km walking distance, with emphasis on accessibility by NMT and BRT, and private vehicle.

Functions and Permitted Uses	Prohibited Uses
○ Shopping areas, including neighbourhood markets and storage for raw produce ○ Public services and institutions ○ Offices and business facilities ○ Transportation terminals ○ Emergency and police services ○ Mixed-use - commercial, service industries and residential ○ Light industrial sites ○ Residential densities corresponding to the planned commercial, industrial and agricultural functions ○ Recreational and required social services	Industrial parks not permitted in the zone

Source: MoLHUD, 2023, NPPS&G2

iv) Service Industry Park/Zone (2.7.3.)

Land in a service industry zone is intended to accommodate small scale, light industrial activities involving repair and maintenance, servicing and processing. Business in the zone may include small scale suppliers, dry-cleaning, photogenic film processing, small workshops, tradesman

depots, tailoring and services to the motor trade. The following are permitted and prohibited uses in the zone.

Permitted Uses		Prohibited Uses
○ Emergency services depot ○ Service industry ○ Service station ○ Motor trading ○ Clinics ○ Ancillary shop or office to service industry provided it does not exceed 500 m2 or 70% of built floor area, whichever is smaller ○ Childcare centre ○ Car park ○ Limited transportation ○ Markets ○ Retail, commercial and ancillary activities will be permitted in the zone, provided they do not exceed 70% of the built floor space ○ Book binding ○ Document duplicating or copying ○ Dressmaking ○ Dry cleaning or dyeing ○ Engraving by hand ○ Laundry ○ Making any of the following: - Bread, cakes, pastries ○ Canvas goods, tents, camping soft goods ○ Clothing, clothing accessories ○ Optical goods (being spectacles or the like) ○ Furniture and soft furnishings Toys	○ Woodworking ○ Block making ○ Photographic film processing ○ Photographic plate-making, etching and like photographic processes ○ Photographic sign making ○ Picture framing ○ Plan printing ○ Repairing or servicing ○ Confectionery ○ Dental good ○ Footwear ○ Jewelry ○ Keys ○ Millinery ○ Car repair works	○ All industry not classified as service industries ○ Major transportation uses ○ Institutional premises ○ Animal husbandry ○ Major commercial ○ Sports and recreation

Source: MoLHUD, 2023, NPPS&G2

Commercial Mix

i) Mixed Commercial Zone (2.3.2.4.)

Land in a mixed commercial zone is intended for lower intensity commercial business development and retail display on the fringe of the Central Business District and adjacent to major arterial roads. Commercial activities under this category take the predominant use (60-70%). It is usually surrounded by residential developments, predominantly free, standing with adequate provision for car parking and access.

The different permitted combinations of mixed land uses include:

- Commercial and Residential Use: Residential uses will only be permitted above ground floor level. Examples include:
  - Small general dealers' shop on the ground floor of a residential development, flats above shops in a business centre.
  - Residential, commercial and civic/community land use by introducing residential land use in a business centre by vertical densification.
- Commercial and Industrial: Commercial and industrial land use involving non-polluting and non-disturbing light and service industry;
  - Industrial plant or a place where products are manufactured and sold to the general public, such as cottage and small industry, as well as the service industry

  - Small workshops and services will be permitted only on plots designated for such purposes. Warehouses should be located in industrial areas.
- Commercial, Offices and Services
  - Offices will not normally be permitted at ground floor level on main shopping streets in the major commercial centers.
  - Hotels/restaurants/bars are permitted on plots designated for shops and must have on-site car parking, servicing areas approved by the local authority.
  - Churches will be permitted only on plots designated for such purposes. Location of churches on commercial buildings is not permitted.
- Social Facilities, Markets and Garages within Commercial Zones: Social facilities, markets and garages will be expected within commercial areas, and only on sites designated for these particular purposes. Generally, these non–retail uses should be sited on secondary streets in the commercial area.

ii) Mixed Land Use in a Business Zone (BM) (2.1.3.2.)

Mixed land use in a business zone is, in a broad sense, any urban, village development, or even a single building, that blends a combination of residential, commercial, cultural, institutional, or industrial uses, where such functions are physically and functionally integrated, and that provides pedestrian connections.

The design of mixed land use developments should aim at providing safety, amenity, accessibility, energy conservation, environmental protection and compatibility for all users. Mixed-use concentrated development should preferably be located near transit, be seen as a key "smart growth" tool to reduce auto dependence and preserve green space and natural resources.

iii) Vending Business Zone (IBZ) (2.1.3.3.)

This zone is meant to take care of roadside vending or roadside informal commercial activities. The proposed site size is $30m^2$, where up to four kiosks can fit (minimum size - L 2.5ft x W 2.5ft x H 6ft). The pedestrian hawkers should not obstruct traffic and thus should only be allowed along major pedestrian routes, but not along major roads. In instances where kiosks are acceptable, they should not be placed less than three meters from the edge of the adjoining road reserve or footpath for safety and should not obstruct the free flow of vehicular or pedestrian traffic. For more details on the placement of vending devices /activities along road reserves, refer to the Urban Roads Design Manual 2022.

iv) Mixed Use in Industrial Zone (2.7.8.)

Mixed-use development in a broad sense is any urban, village development, or even a single building, that blends a combination of residential, commercial, cultural, institutional, or industrial uses, where those functions are physically and functionally integrated, and that provides pedestrian connections. Mixed use in industrial development will take the form of industrial- residential, industrial- commercial, industrial- civic, among others. The restrictions on the mix of either uses will be based on the prohibitions as given in the various industrial use types.

The design of mixed land use shall aim at providing a safe, healthy, useable, serviceable, pleasant and easily maintained environment for all users. While the nature of each venture will differ, design of buildings and open space will consider the following:

- Protection from the spread of fire, dangerous operations, insanitary and dangerous waste and refuse, and vehicles.
- Control of heat, noise, smell, vibration and other nuisances.
- Accessibility – access for all users, including the elderly and the physically impaired, for firefighting and rescue, collection of waste or refuse, and for servicing and maintenance of equipment, processing, sanitary, or other installations.

4) CLASS IV: Industry

NPPS&G2 indicates six types of industrial land use categories, namely: (1) Light industrial; (2) Service industry park/zone; (3) Heavy industrial; (4) General industrial; (5) Extractive industry; and (6) Noxious/Offensive/Hazardous industrial. Among them, "Service Industrial Park/Zone" is dealt as a subclass of Class III (Business and Commerce) in this guidelines.

The classification of industrial lands, which is important in the zoning system, is whether it is allowed to be mixed with other uses, especially residential. In this regard, only the Light Industrial Zone is allowed to mix with Residential usage.

Light Industrial Zone

The Light Industrial Zone is intended for low-intensity industrial uses in zones adjacent to other uses that are prone to industrial pollution. Land in a Light Industrial Park is intended for light industrial activities, particularly those using clean and low technologies to restrict air and noise pollution. The sorts of industries that may be found in a Light Industrial Zone might include those producing high value but low weight and volume goods, such as specialised electronic firms, IT-based industries, jewellery, medical products, etc.

Permitted Principal Uses in Light Industrial Parks	Principal Uses Allowed by Special Permit
• Processing of nonhazardous materials • Offices serving main processing activity • Open storage <10% Plot surface grade 1, < 30% grade 2, < 40% for grade 3 • Processing, packaging, or assembling of components or goods • Light truck and freight terminals and warehouses • Timber yards • Automobile sales and service facility (showrooms) • Offices of government agencies overseeing the production of specified goods, ancillary services including canteens and open space, car parking • Low polluting industries, including service industries where appropriate • Clinics • Ancillary shop or office of service industry provided it does not exceed 500 m^2 or 70% of built floor area, whichever is smaller • Childcare centre • Car park • Limited transportation • Small-scale commercial outlets • Canteens • Mini parks and small recreation areas with form less than 20% of the developed area	• Contractor's yards/equipment storage with adequate visual screening • Sawmill • Veterinary hospital, or commercial stable on a plot of at least 3 acres, provided that no animals shall be kept in any buildings or enclosures within 45m^2 of any property line; and the use shall not create any odours, noise, or other impacts that would constitute a common-law nuisance concerning any other property • Expansion of a nonconforming use

Source: MoLHUD, 2023, NPPS&G2

Heavy Industrial Zone

The Heavy Industrial Zone is intended to house and provide for heavy processing activities of industrial goods, with a possibility of direct railway siding and sharing a marshaling yard facility for train manoeuvres.

Permitted Principal Uses	Prohibited Uses
• Manufacturing and processing • Storage up to 40% of plot surface • Offices serving main processing activity • Industry being general or service industry • Vehicle repair • Transport yard • Warehousing, if not in excess • Motor trading • Utility service station • Medical facilities for emergency services • Canteens • Limited commercial retail • Uses allowed by Special Permit • Business and commercial use up to less than 10% of built space • Stacking/ Storage beyond 40% of plot surface	• Major commercial centre • Residential • Hotel • Educational facilities • Child care centres • Institutional premises • Intensive animal husbandry

Source: MoLHUD, 2023, NPPS&G2

General Industrial Zone

The land included in a General Industrial Zone is intended to accommodate a wide range of industrial and related developments including manufacturing, food processing, assembly of machinery and heavy equipment, vehicles, and appliances.

It entails the performance of the following:

- An operation by way of carrying out the course of a trade or business of any process or ancillary to an activity being:
- The making of any article or part of any article; the assembly of products
- The altering, preparing and servicing, ornamenting, finishing, cleaning, washing, freezing, packing or canning, adapting for sale, or breaking up for demolition, of any articles;
- Processing of goods, including agricultural products;
- Without prejudice to the first and the second aspects in this list, the getting, dressing or preparing for sale of minerals or the extraction or preparation for the sale of oil, or
- An operation by way of carrying out the course of a trade or business of any process of scientific or technological research, investigation, or testing.

Permitted Uses	Prohibited Uses
• Industry being general or service industry • Vehicle repair • Transport yard • Warehousing, if not over 50% of gross floor area • Motor trading • Utility service station • Medical facilities for emergency services • Canteens • Food stalls • Limited commercial retail not exceeding 50% of the floor space area • Parking	• Residential development • Major commercial centre • Hotel • Educational facilities • Child care centres • Institutional premises • Intensive animal husbandry

Source: MoLHUD, 2023, NPPS&G2

Extractive Industry

The land included in an Extractive Industry Zone is intended to be available for the extraction or mining of rock, gravel, sand, clay, mineral ores, and precious stones. The location of these zones will be carefully selected to avoid activities that may generate an adverse impact on the urban and future urban environment.

Residential development will be restricted to security and staff accommodation located away from operational areas. Strict conditions will be placed on the security of sites and the winning of materials will be properly contracted under license and permits from responsible government agencies. Once the resource of the site has been exploited, the land shall be rehabilitated and rezoned for appropriate use.

Permitted Uses	Prohibited Uses
• Extractive industry • Ancillary uses to an extractive industrial use • Public open space • Staff housing except beyond/outside 1km from blasting zone • Afforestation • Waste disposal site (subject to environmental assessment)	• Commercial buildings serving the community • School buildings serving the community • Residential development within 1km of a quarry site where explosives are used will be prohibited. • All uses not specified as permitted in the zone

Source: MoLHUD, 2023, NPPS&G2

Noxious, Offensive, Hazardous Industrial Zone

Land included in the Noxious, Offensive, Hazardous Industrial Zone is intended for development by industries that emit elements of a noxious, hazardous or offensive nature. Such industries will generally be incompatible within any other urban zones and include activities associated with inflammable fuels or explosives, smiting, galvanising, manufacture of cement, slaughtering of livestock, manufacture of poisons, chemicals, and refining.

All activities in this zone will be subject to strict monitoring by the relevant agencies. Every proposed development will be subject to a detailed environmental impact statement which will be considered before planning approval is given. Strict conditions will be placed on the discharge and disposal of wastes. Industries storing explosive and flammable materials will have special siting and construction measures applied.

Permitted Uses	Prohibited Uses
• Industry is defined as noxious, offensive or hazardous • Warehousing • General industries • Ancillary uses to the industry • Public open space • Emergency services • Car park • Lorry parking area related to the industry	• All uses not specified as permitted in the zone

Source: MoLHUD, 2023, NPPS&G2

(2) Urban Form Regulations

This section describes applicable development control measures in association with the zoning classifications in Section 22.3.4 (1) . The development control measures, in general, composed of tools by land lot size, building coverage ratio (BCR), building height in association with floor area ratio (FAR), building lines (front, rear, and side), and other specific measures.

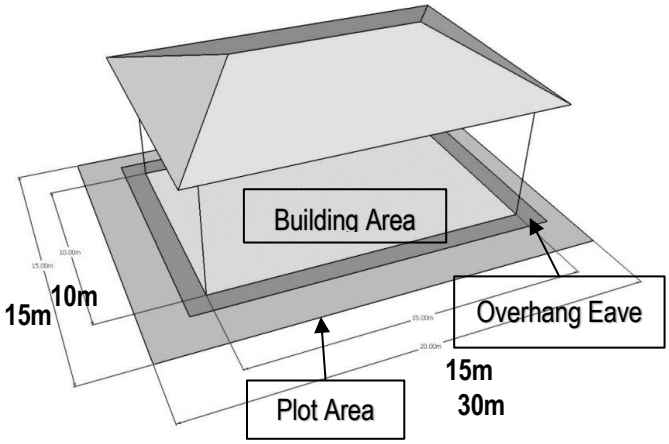
Land Lot Size

Land lot size control applies mainly to residential areas and subdivisions in order to determine development density for settlement and formulate the appropriate and attractive living environment. Taking account of the development concepts of GKUGA, densification by medium or medium-high density development is required for settlement and various economic activities.

Building Coverage Ratio (BCR)[3]

A) No building shall be erected in the land lot area so as to cover a greater proportion of BCR than the permitted coefficient.

B) The BCR of the building area of a building or buildings to the land lot area on which the building or buildings are located.



Building Coverage Ratio (BCR)=$\frac{\text{Building Area (A)}}{\text{Land Lot Area (C)}}$

Example:

1) Land lot area: 300 m^2

2) Building area: 150 m^2

3) BCR =$\frac{150m^2}{300m^2}$ = 0.5 (50%)

Note: Area of Overhang Eave is excluded from the area of Building Coverage at the calculation of BCR

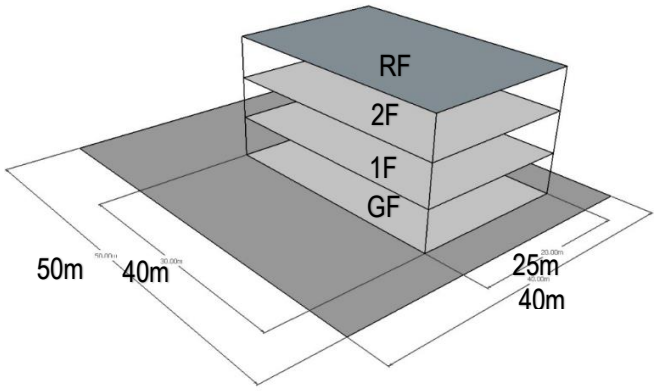
Source: JICA Expert Team

Figure 22.3.1 How to Calculate Building Coverage Ratio (BCR) on a Land Property

Floor Area Ratio (FAR)[4]

A) The floor area ratio (FAR) aims in principle at guiding the intensity of development based on the floor area for employment or residence, especially for medium and high residential area and commercial and business areas including mixed-use areas, taking account the capacity of infrastructure service and road network.

B) No building shall be erected so as to exceed the FAR as prescribed indicated by decimal numbers.



Floor Area Ratio (FAR) = $\frac{\text{Total allowable floor aras (A)}}{\text{Plot Area (B)}}$

Example:

1) Plot area: 2000 m^2 (B)
2) BCR 50%: allowable building area = 1000 m^2 (C)
3) If FAR is 1.5 (or 150%)
   Total allowable floor area = B x 1.5 = 3000 m^2 (A)
4) Theoretical allowable number of floors: $\frac{A}{C}$ = 3 floors
5) Therefore, in case of FAR/1.5, BCR/50% makes three floors (3000 m^2) volume can be enjoyed as maximum floor areas in the plot of 2000m^2.

Source: JICA Expert Team

Figure 22.3.2 How to Calculate Floor Area Ratio (FAR) on a Land Plot

[3] In the UK and Commonwealth Countries, Plot Coverage Ratio is used instead of Building Coverage Ratio (BCR).
[4] In the UK and Commonwealth Countries, Plot Ratio is used instead of Floor Area Ratio (FRA).

At assigning BCR and FAR it is recommended to adopt a structured approach which combines land use designations with predefined building coverage ratio (BCR) and floor area ratio (FAR) options. This approach provides the following advantages:

1) Streamlined Planning and Enhanced Consistency:

Zoning menuisation (the menu preparation for zoning categories) facilitates efficient zoning plan creation by providing a standardized framework. This consistency promotes orderly development and aligns with overall urban planning goals. Predefined options streamline the planning process, reducing time and resources required for individual assessments. Moreover, consistency ensures a cohesive urban landscape, fostering predictability and stability for developers and residents alike.

2) Improved Clarity and Transparency:

Clearly defined menu options enhance communication and understanding among stakeholders, including residents, developers, and planning authorities. This transparency promotes informed decision-making and accountability. Stakeholders can readily grasp the permissible development parameters, facilitating informed choices and ensuring compliance with regulations.

3) Adaptability and Future-proofing:

Such menuiszation offers adaptability to accommodate changing needs and circumstances. As urban dynamics evolve, new menu options or modifications can be introduced to ensure long-term relevance. This flexibility allows for dynamic responses to emerging trends, technological advancements, and societal shifts, ensuring that zoning regulations remain relevant and effective.

Table 22.3.1 Recommended Combination of BCR and FAR for Land Use Categories in GKMA

Category	BCR	FAR	Reason
High-Density Residential	70%	300%	• Suitable for central Kampala with high population density and high housing demand. This allows for high-rise apartments, making efficient use of limited land to accommodate many residents.
	75%	340%	• Increases density further to supply more housing in the city center, supporting economic activities with a large workforce. Suitable for areas with good transport infrastructure.
	60%	200%	• Allows for high-rise buildings while securing green spaces and public areas, providing a comfortable living environment. Aims to improve the quality of life in the city center.
Medium-Density Residential	50%	150%	• Suitable for Kampala's suburbs and residential areas. Medium-rise apartments and townhouses can strengthen community and provide a comfortable living space.
	60%	200%	• As a medium-density residential area, it ensures efficient land use and moderate population density. Suitable for areas with good transport links, making commuting easier.
	55%	180%	• Allows for balanced development with appropriate mixed-use of residential and commercial facilities, improving convenience for residents and revitalizing the community.
Low-Density Residential	40%	100%	• Suitable for upscale residential areas and suburbs of Kampala, offering detached houses with large gardens and providing a comfortable living environment. Focuses on preserving natural surroundings.
	30%	80%	• Very low density, suitable for areas that value natural environments. Ideal for upscale residential areas offering large plots and privacy.
	35%	90%	• Balances green spaces and buildings, emphasizing private space. Ideal for quiet residential areas aimed at families.
Mixed Residential and Commercial	60%	250%	• Suitable for central Kampala and areas with good transport links, balancing mid-rise residential and commercial facilities, offering a convenient living environment.

Category	BCR	FAR	Reason
	70%	300%	• Allows for high-density commercial activities coexisting with residences, enhancing urban vitality. Suitable for areas with shopping malls and office buildings.
	50%	200%	• Emphasizes balance between commercial and residential, aiming to provide daily convenience and support economic activities. Suitable for areas with cafes and small shops.
Commercial	80%	400%	• Ideal for Kampala's commercial centers, promoting economic activity concentration with high-rise buildings. Suitable for main business districts and commercial areas.
	70%	350%	• Enables high-density commercial facilities, ensuring efficient land use in accessible areas. Suitable for areas with shopping malls and office buildings.
	75%	380%	• Increases density of commercial areas, promoting economic activities while ensuring adequate open spaces for a comfortable commercial environment.
Mixed Commercial and Industrial	60%	250%	• Suitable for areas with mixed commercial and light industrial activities, ensuring efficient land use and economic activity stimulation. Ideal for logistics centers and industrial parks.
	70%	300%	• Allows for high-density commercial and industrial activities, promoting urban economic growth. Suitable for areas where commercial and industrial activities coexist.
	65%	280%	• Balances commercial and industrial uses, ensuring efficient land use. Ideal for multi-purpose buildings and industrial facilities.
Industrial	50%	150%	• Ensures efficient layout and sufficient working space for industrial facilities. Suitable for industrial parks.
	60%	200%	• Ensures moderate density for industrial activities while considering environmental impact. Suitable for manufacturing and processing facilities.

Frontage Road Based FAR

The frontage road based FAR is a FAR that is determined based on the width of the frontage road. The frontage road FAR can be more restrictive than the FAR that is set for each land use zone. The FAR applicable to a plot is the one which is more restrictive than the other.

Specifically, the frontage FAR is calculated as follows:

- If the width of the frontage road is less than 12 meters, the FAR is limited to the product of the width of the road and 40% or 60%, depending on the land use zoning.
- For example, if the width of the frontage road in a residential land use zone is 6 meters, the frontage road FAR is 6 meters x 0.4 x 100 = 240%.
- On the other hand, if the designated FAR is 200%, the designated FAR is lower, so the frontage FAR of 240% is NOT applied in this case.

The frontage FAR is designed to mitigate traffic, noise, and safety issues on roads when the width of the road is narrow. It also mitigates capacity of utilities laid under the road.

Building Height

A) The building height is regulated by the number of floors excluding underground floor, therefore, the absolute height control (metre in height) is used as referential information except for the case when the height in metre is required.

B) Variations in floor-to-floor height are subject to evaluation of the height depending on the use and location of the floor. The minor gap of overall building height (in metres) may be allowed if its building ensemble with other buildings is secured.

C) No building shall be erected so as to contain a number of floors in excess of the maximum number specified. Provided that an additional floor may be permitted with the written consent of the Authority if specific area development is formulated.

In order to make introduction of the "building height control" effectively, the following shall be taken into consideration.

a) Provision of Urban Design Guideline

Height control to organise town's view ensemble is one of the most effective and considerable measures to characterise and foster attractive urban landscape of GKUGA. Therefore, an urban design guideline should be established to promote the existing characteristic urban form of the city.

This draft model zoning regulations propose a specific regulation apart from the aforementioned height regulation.

b) Consideration of Fire-fighting Capacity

Digestion activity against fire in a tall building is one of the critical issues, unless a building has a sufficient hydrant system or the fire-fighting team has a hook-and-ladder truck. Therefore, it is necessary for tall building design and construction that sufficient hydrant system or extinguisher system be required or should be considered by the capacity of its extinguishing system.

Building Lines

A) All developments are required to provide a buffer set by the building line between the road line (right-of-way) and the building in the lot. The exception is when there are urban design requirements allowing the buildings to abut the road line/site boundaries such as for developments in the city cent area.

B) Building lines from public roads are determined by the road buffer only. The minimum buffer width depends on the hierarchy of the category of the road the site fronts, the type, and height of development.

C) Building lines should be consistent with the relevant regulation element, especially with Building Coverage Ratio (BCR) where building lines take certain areas not to be built in the lot. Therefore, the rest of the areas taken by the building lines should be larger or equal to the area for BCR.

22.3.5 Urban Facilities Layer

"Urban facilities" is a list of facilities that should be defined in detailed PDPs. Facilities include not only buildings such as schools, libraries, and hospitals, but also infrastructures such as roads, rivers, water supplies, sewers, parks and other green areas. Among these city facilities, those that have been specifically planned in the detailed PDPs can be depicted in the Urban Facilities Layer of the Zoning Maps, as shown in the example in Figure 22.3.3. Once the facilities are depicted, building regulations shall be imposed within the area of the planned facilities' right-of-way, in order to ensure the smooth implementation of future projects.

These facilities may include the following:

(1) Roads, urban high-speed railways, parking lots, car terminals and other transportation facilities

(2) Parks, green spaces, squares, cemeteries and other public open spaces

(3) Water supply facilities, electricity supply facilities, gas supply facilities, sewage systems, sewage treatment plants, garbage incineration plants and other supply facilities or treatment facilities

(4) Rivers, canals and other waterways

(5) Schools, libraries, research facilities and other educational and cultural facilities

(6) Hospitals, nursery schools and other medical facilities or social welfare facilities

(7) Markets, slaughterhouses or crematoriums

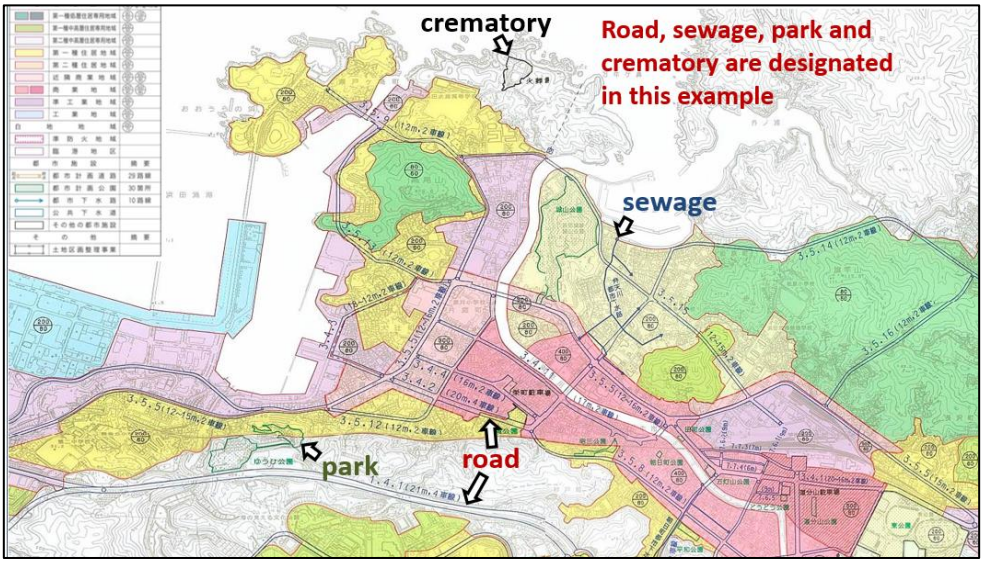
(8) Residential facilities in one housing complex (meaning housing complexes of 50 or more units in one housing complex, passageways and other facilities incidental to these.)

(9) Public office facilities in one complex (meaning buildings of national institutions or local public bodies in one complex, passageways and other facilities incidental to these.)

(10) Distribution business complex

(11) Other facilities specified by government ordinances

Although there are many types of facilities that can be defined as urban facilities, only the necessary ones shall be selected for the target planning area. Urban facilities are set at appropriate locations on an appropriate scale, considering the prospects of the city. More importantly, designating the existing urban facilities on this layer will greatly help in preventing the land use conversion, especially when the land is owned by private sector.



Source: JICA Expert Team based on the General Map of Urban Plan, Hama City

Figure 22.3.3 Urban Plan Map Designating Urban Facilities

22.3.6 Promotion Area Layer

"Promotion area" refers to areas in which planning and implementation of strategic urban development projects are promoted. Designating promotion areas is a system to promote land development projects and/or urban redevelopment projects that should be carried out by the private sector firstly. Since the materialisation of these projects require significant time period, various restrictions shall be imposed in advance for the preparation of a project. If the project failed to be commercialised by private sector within a defined period, public sector will carry out the project instead. In the promotion area, permission is required for any type of urbanisation activities including construction of buildings.

The designation of a promotion area layer is particularly important when the land use regulation layer is drown based on a transformative concept plan in a greenfield area. This helps to suppress

individual construction activities other than large-scale development by private developers, which has more capacity to cover necessary investments in public facilities and infrastructure.

In addition, the following areas can be specified in the Promotion Area Layer of the zoning map in the detailed PDP, which are defined as residential zones in NPPS&G2.

Redevelopment/ Renewal/ Upgrading

Land in this residential zone is proposed for low-cost, high-density residential structures. It is often characterised by inhabitants living in uncertain conditions such as overcrowding, inefficient use of land and unauthorised land conversion, no social services, poor waste management, urban poverty, inadequate basic infrastructure and housing, as well as generating other environmental impacts. These areas are sometimes referred to as *slums*.

Since full-scale redevelopment of the area will be constrained by high displacement and social costs, it is essential to adopt an upgrading strategy that will reduce costs arising out of demolitions, displacement, and relocation of people. Emphasis will be placed on Sites and Services and guided self-upgrading.

For the strategy above to be achieved, community awareness, participation of both political and technical experts is paramount. Guidelines provided in Residential Zone E shall apply in this zone.

Prohibited uses of Redevelopment Zones are as follows:

- Massive infrastructure development that will relocate many people
- Large markets
- Cemeteries and crematoriums

Urban informal settlements should be upgraded to ensure an agreed standard of service provision for their residents, and this provides the neighbourhood suitable land which is nonhazardous, i.e., not prone to flooding, not located on weak soil or on sloped terrain steeper than 30 ^{o}.

In case an area must be cleared of existing development due to one of the above reasons, it must not be re-developed as residential area. Areas should be environmentally protected from polluting industrial operations, and from newly built structures. Trees, green areas, and spaces shall be preserved and restored. Planning shall follow the procedures of a specific Physical Development Plan and urban planning operations as applicable and determined by the respective implementing orders.

Site improvement of the settlement shall ensure the following:

- Protection of human health and natural resources
- Ensure that stormwater is managed in a way that it is prevented, controlled, and its runoff cleaned to reduce flooding, erosion, and sedimentation.
- Ensure that no built structures are added in historic flood areas.
- Manage liquid waste in a way that protects the environment from its effects.
- Organise household solid waste disposal through service providers.

Refugee Settlement/IDP Camps and Resettlement of People Living in Disaster Areas

For this land use, preparation of a Settlement Physical Development Plan before habitation is a requirement and it should have the following features:

- Should be adaptable and capable of responding to changes during a crisis.
- Should not exceed 225 hectares. In case of an influx, adjustment in the standard can be considered with approval from NPPB.
- Settlements should be people-centred, promoting self-reliance and enabling communities to develop suitable solutions themselves.

- Should take into account the characteristics and identity of the area, the environment, the people and their habitat.
- Plan for infrastructure improvements that meet the national and regional development plans and priorities.
- Locate in a site, not at risk from natural disaster impacts such as floods and landslides.
- Consider the carrying capacity of the site with regards to access to sufficient water, fuels, and land for livelihoods
- Minimise and mitigate risk of conflict between the host community and displaced population over access to natural resources.
- Ensure equitable access to basic services for both the displaced population and host community
- Prioritise the development and upgrading of existing services over the creation of new parallel services
- Covered living area of 3.5m^2 per person minimum
- Minimum ceiling height of 2 metres at highest point
- Camp settlement size is 45m^2 per person (including auxiliary services). No camp should have more than 50,000 people.

Chapter 23 Planning Manual for Local-Level Detailed Physical Development Plans

This chapter deals with "Part III: Technical Manual" of the guidelines for the preparation of Detailed Local Physical Development Plan. This chapter contains a preliminary version of the Technical Manual. It will show how to do the planning works in detail. Furthermore, based on the understanding of the two concepts (planning process and land use zoning) mentioned in Chapter 22, "Part III: Planning Manual", this chapter will break down each step of the planning process to the level of individual tasks and provide the "How Tos" for the following:

- Area Analysis
  - How to understand characteristics of local topography, drainage, and geography of connectivity development plans, such as infrastructure and environmental conservation, to the local level
  - How to conduct field work and field mapping to understand the present situation in the planning area
  - How to define issues and draw them on maps
- Dynamic Context Expected by Upper-Level/Broader Plans
  - How to understand the characteristics and roles of the pilot areas (planning areas for the model PDP) in the context of GKUGA and GKMA, as well as the JMK Corridor
  - How to receive broad plan contents from upper-level PDP and other plans
  - How to perceive the potentialities of economic sectors in the local context and that of GKUGA
- Conceptualisation
  - How to formulate basic strategies and draw them on maps
  - How to formulate alternative scenarios and select one, and draw them on maps (putting transformative plans in the local-level detailed PDPs)
  - Projection of development framework
- Making of Zoning Maps
  - How to make local-level detailed PDPs using the land use zoning system through a series of steps that utilise maps

23.1 Area Analysis

This section aims to provide answers to the following questions:

- How to understand local characteristics of topography, drainage, and geography found in connectivity development plans, such as infrastructure and environmental conservation, at the local level
- How to conduct field work and field mapping to understand the present situation in the planning area
- How to define issues and draw them on maps

23.1.1 How to Understand Local Characteristics of Topography, Drainage, and Geography of Connectivity Development Plans, such as Infrastructure and Environmental Conservation, to the Local Level?

(1) Identifying Baseline Data for Detailed PDP Planning

Table 23.1.1 shows the required baseline data for Detailed PDP planning. Availability of these data needs to be confirmed.

Table 23.1.1 Baseline Data for Detailed PDP Planning

Category	PDP Planning Elements	Types of Data Required
Natural Environment Conditions	• Land vulnerability (disaster risks) • Natural resource protection and conservation • Biodiversity conservation • Climate conditions for climate change analysis	• Elevation / Slope • Geology/Soil • River /Watershed/Groundwater • Vegetation / Ecological zones / Others • Indigenous species • Hazard prone areas (flood, landslide, storm, etc.)
General Socioeconomic Conditions	• Population trend (growth, density, distribution, family size, etc.) • Distribution of socioeconomic activities • Land transactions, market price • Construction trend (area, type, etc.)	• Statistical data (population, employment, poverty, GDP, products) • Public services statistics (education, health, sanitation, utilities, etc.) • Location of facilities for key urban services • Land transactions (registration, transfer of ownerships) • Existing cadastral data (properties)
Spatial and Living Environmental Conditions	• Existing land use conditions • Urban service disparity • Land development suitability • People's satisfaction of urban services	• Administrative boundaries • Existing land use and road conditions • Conditions of natural environment and urbanisation status • Spatial distribution of urban services
Technical Infrastructure (including transport)	• Accessibility and safety (road and transport) • Accessibility to urban services • Coverage of urban infrastructure networks • People's satisfaction of infrastructure services	• Road inventory by type and network density and traffic volume • Public transport network • Supply capacity of infrastructure services (water, sewer, electricity, telecommunication, waste collection)
Urban Environmental Conditions	• Pollution conditions • Waste management • Energy and carbon management	• Pollution data for air, noise, vibration, soil, water resource • Solid waste disposal sites, magnitude of wastes • Energy and carbon indicators
	• Landscape and townscape management • Scenic and landscape protection • Greenery coverage	• Park and open space distribution and scale • Field visual record and prominent views inventory
Relevant Plans and Projects	• Coordination and adjustment with an upper planning framework • Incorporation of current sector development plans and projects into the detailed PDP Plan	• Upper spatial development plans (GKUGA-PDP, others) • Upper socioeconomic development plans • Sector development plans and projects

Category	PDP Planning Elements	Types of Data Required
Urban Management Conditions	• Institutional framework for development and conservation • Administrative capacity for urban development and management	• Relevant legal data for urban management and regulations • Local government administration and decentralisation programmes • Protection and identification of conservation areas
People's living conditions	• Concerns and issues regarding living conditions including land use • Expected future status	• Household conditions and their opinions

Source: JICA Expert Team

23.1.2 How to Conduct Field Work and Field Mapping to Understand the Present Situation of the Planning Area

(1) Conducting Field Survey

It is essential that those who are involved in planning should take the time to visit the target area, at least, for its main features and transport routes. It is preferred to inspect the area with knowledgeable local persons. This will show the reality which is always quite different from the image or condition developed through data and satellite imagery. Digital pictures should be taken with the mark of the place, which will be useful in the analysis and confirmation work in later stage.

(2) Preparing the Base Map and Thematic Maps

The base map needs to be established in order to set up the planning boundary and conduct various analyses for the detailed PDP planning. Table 23.1.2 shows two kinds of base maps to be prepared. The digital base map is desirable as it can be utilised for GIS analyses and GIS outputs of the land use plan.

Collecting of available thematic maps from relevant agencies has to be carried out simultaneously. If available maps are limited or insufficient in terms of coverage area or issued dates (i.e., maps generated 20 years ago), it is necessary to identify items for additional mapping surveys.

Table 23.1.2 Base Maps for Detailed PDP Planning

Detailed PDP Planning Level and Purpose	Required Base Map		
		Scale	Source
1. City level analysis	Topographic map (administrative boundaries, all physical features)	1/10,000	Relevant authorities or Digital Elevation Model data from the satellite imagery
2. Planning area base map		1/2,500 – 5,000	Mapping agency provided additional maps, in case existing maps are unsuitable

Source: JICA Expert Team

All the readily available data and the results of supplemental surveys shall be compiled by appropriate tabulations, and geographical database (preferably by GIS) shall be established. Major components of upper policy frameworks (GKUGA-PDP) and sector development plans shall be incorporated.

23.1.3 How to Define Issues and Draw Them on Maps?

(1) Identifying Spatial Development Issues

Issues on spatial development need to be identified by multisectoral dimensions in order to ensure (1) competitive and sustainable local economy, 2) efficient urbanisation and its growth management, (3) liveable and attractive living environment, and (4) protection and restoration of natural and historical resources. The SWOT analysis method can be employed to identify issues from the viewpoint of strengths, weaknesses, opportunities, and threats. The result of the SWOT analysis provides a summary assessment of development issues to be prioritised.

Any results of the SWOT analysis, which can be attributed to a location, should be placed or shown on a map for better understanding of spatial development issues.

23.2 Understanding Dynamic Context of Upper/Broader Plans

This section aims to provide answers to the following questions.

- How to understand the characteristics and roles of the pilot areas (planning areas for the model PDP) in the context of GKUGA and GKMA, as well as the JMK Corridor
- How to perceive the potentialities of economic sectors in the local and GKUGA contexts

23.2.1 How to Understand the Characteristics and Roles of the Pilot Areas (Planning Areas for the Model PDP) in the Context of GKUGA and GKMA, as well as the JMK Corridor?

(1) Identifying Descriptions related to the Pilot Area

Examine everything written about the pilot area. In particular, the role in economic development, the role in environmental conservation, and the positioning in the future urban structure need to be carefully examined.

(2) Clarifying Roles and Functions of the Planning Area in related Plans

As an initial step of analyses, it is essential to clarify expected roles and functions of the planning area in relevant development plans (e.g., National Socioeconomic Development Plan, GKUGA-PDP) as well as in sector development plans and District, Municipal and Town Development Plans.

Table 23.2.1 shows key items required in detailed PDP which can be referred to in upper and sector development plans. As shown in the table, some items stated by certain documents need to be considered as the given condition, while others can be used as references and require further consideration in the planning of detailed PDP.

Table 23.2.1 Information from Relevant Development Plans for Planning of Detailed PDP

Category	Development Plans and Items to be Referred to	Numerical Framework		Spatial Framework	
		Pop.	Emp.	Strat	SS
Upper/Relevant Development Plan	1 National Socioeconomic Development Plan	●	●	--	--
	2 Local Government Five-Year Development Plan	○	○	○	--
	3 GKUGA-PDP, City/District PDP	●	●	●	●
Sector Development Plans (National / Regional / Department / District)	5 Road and Transportation Plan (national, regional)	○	○	●	●
	6 Infrastructure plans (water supply, sewerage/drainage, power, etc.)	○	○	●	○
	7 Waste Management Plan	○	○	●	○
	8 Education Plan (primary, secondary, tertiary schools)	○	○	●	○
	9 Health and Social Welfare Plan	○	○	●	○
	10 Agriculture / Fishery Development Plan	○	○	●	○
	11 Industrial Development Plan	○	○	●	●
	12 Tourism Development Plan	○	○	●	●
	13 Disaster Management Plan (climate change adaptation, etc.)	○	○	●	●
	14 Culture, Sports and Recreation Plan (facilities, parks and sports, etc.)	○	○	●	○
	15 Environmental Plan (biodiversity, nature protection, etc.)	○	○	●	●

Notes: ●= conforming to Plan in principle, ○= to be reviewed and adjusted in case of necessity, -- = not applicable, Pop = population, Emp = employment, Strat = strategy, SS = spatial scheme (land use, area designation, etc.)
Source: JICA Expert Team

23.2.2 How to Perceive the Potentialities of Economic Sectors in the Local and GKUGA Contexts

(1) Analysing Socioeconomic Development Trends and Opportunities

Existing urban land use pattern and its entity in the planning area are caused by socioeconomic activities represented by population, employment, sector industrial products, public services (education, health, social welfare, etc.). Accordingly, characteristics of socioeconomic activities are analysed by their volume and scale, past trends, and likely changes.

Although upper-level planning frameworks might define numerical targets in the planning area of a Detailed PDP, it is necessary to analyse demographic and economic conditions in detail by taking into account the current tendency, changes, and opportunities for the planning of more detailed spatial distribution.

(2) Analysing Spatial Development Trends, Constraints and Opportunities

It is essential to identify constraints and opportunities through spatial analyses based on spatial data such as existing land use, administrative boundaries, environmental protection area, historical sites and technical infrastructure in the planning area.

Spatial indicators (e.g., density, service intensity, occupancy per spatial unit) will give clear quantitative benchmarks to be utilised in estimating future spatial demands. Other spatial plans (e.g., road and transport, infrastructure, public facilities including education and health sector, etc.) have to be reviewed, adjusted and modified, if necessary, in case some gaps between existing conditions and plans exist.

(3) Analysing Land Vulnerability and Development Suitability

Land vulnerability and suitability analysis aim at identifying appropriate use and capability of lands in detail, to see applicability of GKUGA's spatial structure. The analysis involves the application of three types of criteria: (1) environmental vulnerability, (2) habitat suitability, and (3) socioeconomic development suitability. The analyses for (1) and (2) may not be required in case the target planning area is a fully built-up area.

The analysis can be done by land assessment through the overlay method where the use of GIS is desirable. In case of analysis without computer aid (GIS), planning team can carry out the assessment through a set of hand-made maps by overlaying transparent sheets of paper. The methodology of land vulnerability analysis and land suitability analysis is shown below.

Table 23.2.2 Purposes and Key Factors of Land Vulnerability and Suitability Analyses

Category	Purposes	Key Factors
Environmental Vulnerability	• To identify the considerable natural environmental area to be protected • To identify valuable historical and cultural area and its surroundings to be conserved	• Natural vegetation with vulnerable flora and fauna • Natural resource (underground water, mines, etc.) • Climate conditions indicating climate change • Historical cultural heritage
Habitat Suitability	• To identify natural hazard-prone areas to be avoided • To identify unsuitable areas avoiding man-made pollution and nuisance-prone areas	• Lowland area • Affected area of past natural hazard (inundation, flood, desertification, erosion, etc) • Industrial areas with pollution, waste disposal sites, heavy transportation terminal, etc.
Socioeconomic Development Suitability	• To identify advantageous area with access to infrastructure • To identify advantageous area accessing to urban services	• Existing and planned road network with public transportation network • Existing and planned utility network • Public facilities (school, health, etc.)

Source: JICA Expert Team

23.3 Conceptualisation

This section aims to provide answers to the following questions:

- How to formulate basic strategies
- How to draw the basic strategies on maps
- How to formulate alternative scenarios and select one, and draw them on maps (How to integrate transformative plans to the local-level detailed PDPs)

23.3.1 How to Formulate Basic Strategies

(1) Establishing visions, themes and other concepts

Based on the dynamic context of the higher-level related plans and the characteristics of the target area of the Detailed PDP, key words should be extracted for the future vision of the target area. Based on these key words, it is useful to try to set themes based on stakeholders' opinions. The final content should be compiled by the team to be specific to the target area.

(2) Setting Development Frameworks

Establish a series of development frameworks for the target area as socio-economic and land use indicators to support the themes and vision set by the above task (1). Development frameworks include future population, employment and key development indicators such as population density, growth rate, and intensity of socioeconomic activities in accordance with the framework of GKUGA. The final output in this task is to figure out a set of land use framework consisting of land area requirements for residential, industrial, and commercial uses. Figure 23.3.1 shows a sample workflow for projecting and setting development frameworks. Some sample templates are presented in Table 23.3.1 and Table 23.3.2.

Table 23.3.1 Sample Template for Setting Population Target and Indicators

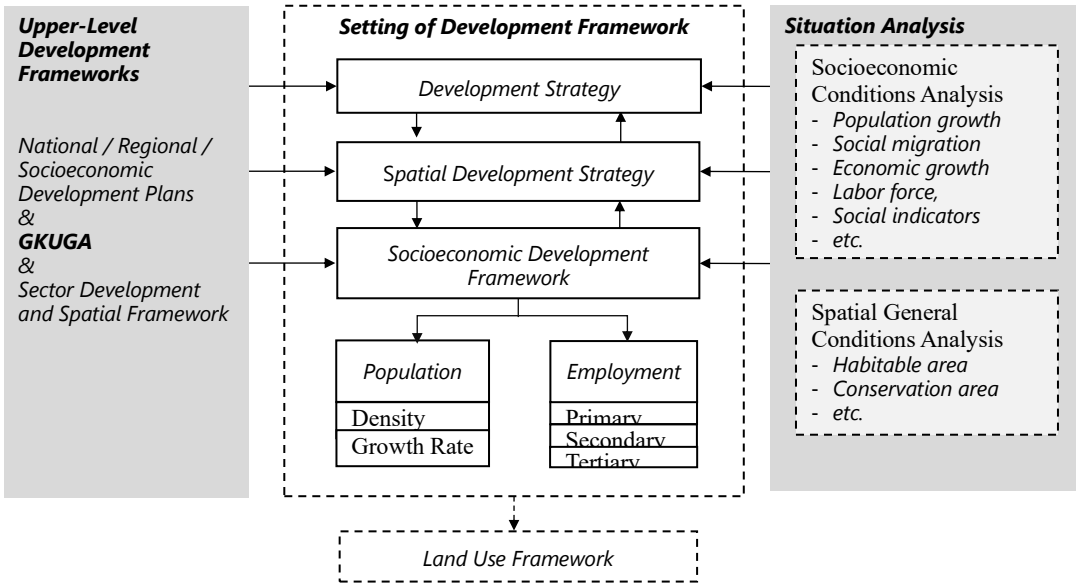
Administrative Area		Area (km^2)	Population (000)				AAGR (10 years) (%/yr.)	Population Density	
			Existing		20xx			Existing	20xx
			no.	%	no.	%		(no/ha)	(no/ha)
Sub county (total)									
Parish	01								
	02								
	03								
	04								
	05								
	….								
Subtotal									
Total									

Source: JICA Expert Team

Table 23.3.2 Sample Template for Setting Employment Target by Sector

Sector	Employment (000)				AAGR (10 years) (%/yr.)
	Existing		20xx		
	no.	%	no.	%	
Primary [1)]					
Secondary [2)]					
Tertiary [3)]					
Total					

Notes:
1) Primary Industry: This industry produces raw materials such as wheat, wool, and meat and makes use of natural resources such as minerals and forests.
2) Secondary Industry: This is the manufacturing industry, where basic materials are turned into saleable products, such as the production of clothing from cotton or wool, or the manufacture of electronics or machines.
3) Tertiary Industry: This industry is concerned with the framework and foundations of business and the provision of services. It includes banking and transport, as well as the direct marketing or selling of products.
Source: JICA Expert Team



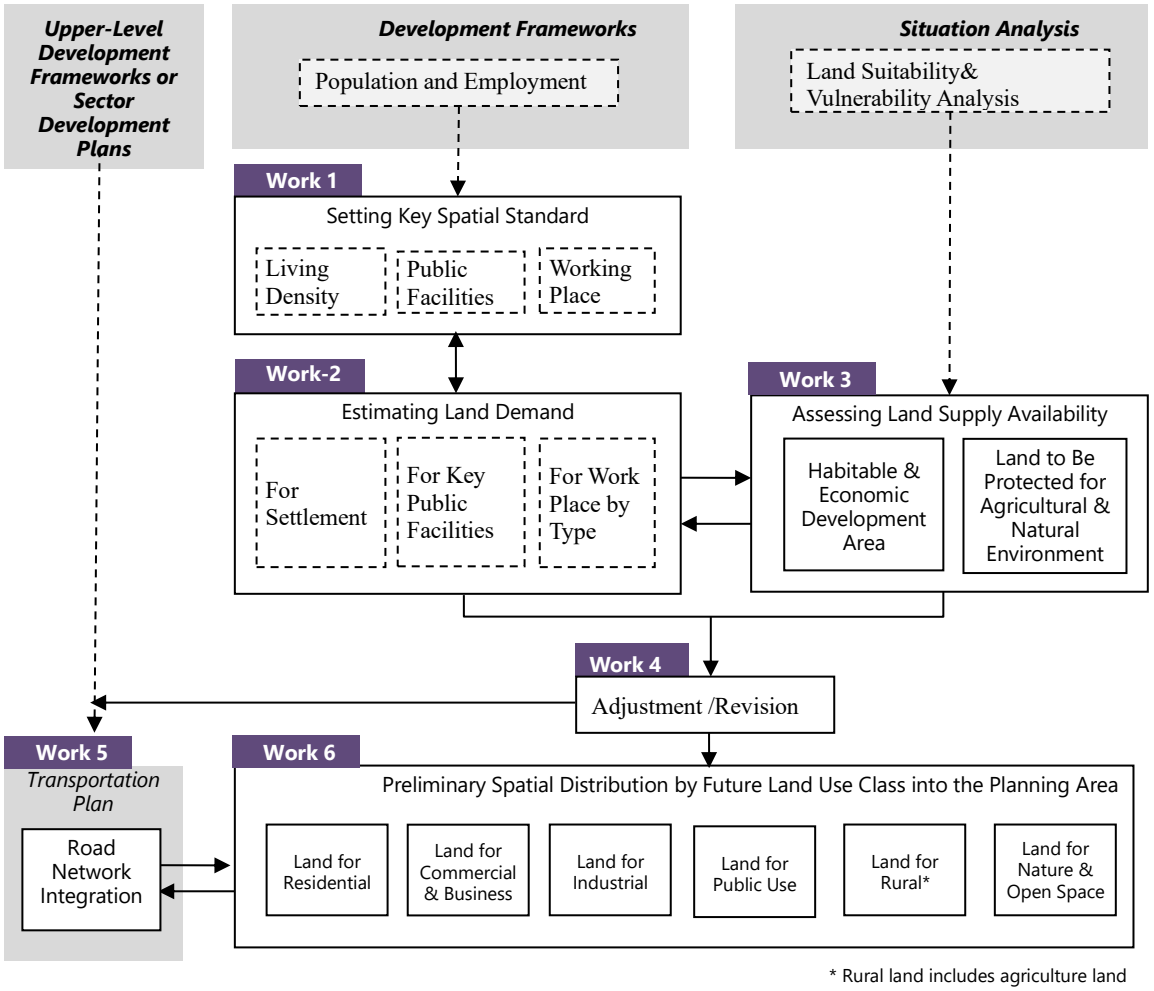
Source: JICA Expert Team

Figure 23.3.1 Work Process for Generating Development Framework

(3) Setting the Land Use Framework

This task consists of several steps. The basic concept is to narrow down the given upper-level development framework to fit the locality of each community. In practice, key works in this task consist of two analytical components, namely: land demand and land supply. These two components are also linked to another two aspects: location and space and number of activities.

These factors form four sequential works: (1) setting the key spatial standard, (2) estimating land demand based on the development framework and spatial standard, (3) determine land supply available for habitation, and (4) derive target land area by use. The workflow is presented in Figure 23.3.2.



Source: JICA Expert Team

Figure 23.3.2 Workflow for Land Use Framework Formulation

1) Work 1: Setting Spatial Standard

Spatial standards are essential indices to estimate demand for spaces by each land use category. Although it is desirable that the spatial planning standards are governed and regulated by a legislative framework, they sometimes need to be adjusted to the local conditions. Some indicator categories that can be used for spatial planning are listed in Table 23.3.3.

Table 23.3.3 Referable Indicator Categories for Spatial Planning Norms or Standards

Category	Item	Planning Indicator	Unit for Standard / Indicator
1. Land Use	Residential / Mixed Use	Gross population density by type	Population per area (ha)
		Gross unit area	Residential area per capita (detached, semi-detached, collective)
	Commercial and Business	Gross employment density by	Employment per area (ha)
		Gross unit area	C and B area per capita (retail, wholesale, office etc.)
	Industry	Gross employment density by	Employment per area (ha)
		Gross unit area	Industry area per capita
	Agriculture	Gross productivity	Production turnover per area
	Green and Open	Standard area unit for population	Green and open space area (m^2) per capita
	Location Conditions	Buffer space or separation	Distance from facilities or land use to mitigate the negative impact
	Use of Intensity	Building volume at a site	Floor Area Ratio (FAR), Building Coverage Ratio (BCR)
2. Housing	Living Environment	Dwelling lot density	Dwelling number per area (detach, semi-detach, collective)
		Dwelling lot area	Lot area per dwelling/household (detach, semi-detached, collective)
		Floor area of the dwelling	Floor area of dwelling per lot
		Optimum/Minimum living space	Floor area per capita (detached, semi-detached, collective)
3. Public Facilities	Accessibility to Facilities	Service coverage by planning	Population able to access public facilities per area
		Distance from service facilities	Allowable distance per facilities by type of facilities
	Educational Facilities	Service students by school type	Students per school (nursery, primary, secondary, tertiary)
	Healthcare/Hospital	Service population by facility type	Population per facility (primary care, referral)
	Community Facilities		Population per facility (communal hall, others)
	Cultural Facilities		Facility per administrative unit or per population
	Park and Recreation	Service area unit for population	Facility area per capita or per administrative unit
4. Technical Infrastructure	Road Network	Development density by road type	Length (km) per area unit (km^2) by arterial, distributor, etc.
	Utilities	Service coverage by the utility	Population covered by each utility service
5. Environmental Management	Pollution Prevention	Degree of allowable emission	Air, noise, vibration, hazardous chemicals, carbon
	Environmental	Indicators for land suitability	Soil resistance, slope degree, occurrence frequency
	Natural resource	Indicators for vulnerable	Flora and fauna, vegetation, biodiversity, etc.

Source: JICA Expert Team

2) Work 2: Estimating Land Requirements

To estimate the future land demand by translating the given socioeconomic development framework by GKUGA-PDP, spatial planning standards and the aforementioned indices are applied. There are three subsectors to cover: (1) settlement areas by population framework, (2) working areas by employment frameworks (primary, secondary and tertiary) and (3) key public facility areas by population framework. Templates are presented in Table 23.3.4 to Table 23.3.6.

Settlement Area Requirement

- Determine appropriate future living standards for the "Residential Use" involving three levels of density (low, mid, high) and the "Mixed Use" categories by applying the standard indices as planning unit. The existing levels of density and better living conditions in the future, with an available benchmark for dwelling design standards need to be taken into consideration.
- Estimate the gross settlement area by planning unit, while examining additional requirement in case of overflow.
- In conjunction with this subactivity, the number of residential areas by density can be converted into dwellings and housing types for necessary supply framework of housing planning.

Table 23.3.4 Sample Table for Settlement Area Requirement by Use Type

Urban Typology	Planning Unit Area	Residential (ha)			Mixed-Use (ha)			Future Targets	
		Total	Existing	Addition	Total	Existing	Addition	Population (A)	Gross Density (Pop/ha)
1.Existing Dense Urban Area	Ward 01	C	D	E	C	D	E	A	B
	02 …….								
2. Urban Sprawl Area	03								
	04….								
3. Expected New Urban Area	05								
	06….								

Note: C (total area) = A (population) x B (target density) by use category : E (additional area requirement) = C (total area requirement) – D (existing area)
Source: JICA Expert Team

Employment Area Requirement

Determine appropriate land area by planning unit by the standard for the primary sector by fishery, agriculture, and mining; the secondary sector by industry; and the tertiary sector by commercial and business, public administration, institutions, etc. The planning unit needs to be established by existing employment densities and better working conditions in the future with an available benchmark for working area standards.

- **Method-1: Employment-based**. This method is frequently applied when available data are limited. This is to simply estimate aggregate space requirement of total existing industrial sector employment (primary, secondary and tertiary) by unit industrial area (ha) per employment capita in the planning area
- **Method-2: Productivity-based**. This method estimates the space requirement based on the analysis of existing and future productivity by unit production area (ha) in the planning area. This method cannot be applied unless production data are available by each industrial category.
- **Method-3: Production value-based**. This method is to estimate aggregate space requirement through the total sector products turnover by unit production area (ha) in the planning area. This method also can be applied only if product value data are available by each planning unit.

Above methods require statistical data; otherwise, sample surveys will be necessary to get typical indicators from the survey. In case of GKMA, land requirements by the employment of the primary sector such as mining and others are considered as limited demand, unless the specific policy is set to provide certain land area.

Table 23.3.5 Sample Table for Area Requirements for Secondary Sector Use by Type

Planning Unit Area	Industry (ha)			Quasi-Industry (ha)			Future Targets Employment (A)	
	Total	Existing	Addition	Total	Existing	Addition		
Ward 01	C	D	E	F	G	H	A	B
02								
03								
04								
05								
06 ……								
Parish 01								
02 …….								
Target Gross Density (Emp/ha)	xxx Target	xxx Emp/ha	xxx Emp/ha	xxx Target	xxx Emp/ha	xxx Emp/ha	Industry	Quasi-industry
	X			Y			Secondary	

Note: C (total area) = A (employment) x X (target average density) by use category (industry)
: F (total area) = B (employment) x Y (target average density) by use category (quasi-industry)
: E, H (additional area requirement) = C, F (total area requirement) – D, F (existing area)
Source: JICA Expert Team

Table 23.3.6 Sample Table for Area Requirements for Tertiary Sector Use by Type

Planning Unit Area	Commercial and Business (ha)			Public Administration (ha)			Future Target Employment (A)	
	Total	Existing	Addition	Total	Existing	Addition		
Ward 01	C	D	E	F	G	H	A	B
02								
03								
04								
05								
06 ……								
Parish 01								
02 …….								
Target Gross Density (Emp/ha)	xxx Target	xxx Emp/ha	xxx Emp/ha	xxx Target	xxx Emp/ha	xxx Emp/ha	Primary Employment	Tertiary Employment

Note: C (total area) = B (employment) x X (target average density) by use category (commercial and business)
: F (total area) = A (employment) x Y (target density) by use category (public administration: central government, institution, agencies, other public administration facilities)
: E, H (additional area requirement) = C, F (total area requirement) – D, G (existing area)
Source: JICA Expert Team

Key Public Facility Area Requirement

The public facilities mainly for education, health, transportation, and sports and recreation sectors require certain space/lands to meet the future incremental public service needs associated with population increase. Lands for public facilities have to be secured also by public authorities. For estimation of key public facilities, service standard in each sector study (education, health, transportation, culture and sports, green and open space, etc.) is inevitably required to incorporate with land space requirement. Service standards are set by development policy for public service level, in order to fill the gap between existing service level of each public service sector and its goal.

3) Work 3: Assessing Land Supply

Work 3 is examining and assessing the holding capacity of all lands in the planning area by identifying the gap between land demand and supply, based on the land vulnerability and suitability analysis discussed previously. It should be noted that "vulnerable lands" should not be limited to official natural protected areas and covered by potential areas for natural environment conservation, agricultural potential lands, and natural hazard-prone areas, which are classified as "unsuitable land for urban settlement".

4) Work 4: Adjustment /Revision

Work 4 is adjusting and modifying the spatial allocation of lands with quantitative factors taken into consideration. The overlaying of the results of assessment between vulnerability and suitability areas are also utilised in this work.

5) Work 5: Road Network Spatial Integration

The transportation sector is one of the most essential components to be integrated in land use planning. The road network, together with public transportation systems, and land use distribution mutually influence one another. Laying out of the road network has to be planned simultaneously at the time of land use planning.

In detailed PDP, detailed road network and transportation planning should be consistent with major road network of upper-level plans (e.g., GKUGA-PDP or Transportation Master Plan) associated with planned road standards. Detailed PDP provides units to define urban block-based traffic management, parking system and other mobility modes such as pedestrian network and bicycle network. The following are principles of road network and facility planning to be integrated in land use at the planning level of detailed PDP.

- Laying out efficient and effective local road network system (e.g., convenient access and

parking for commercial and business areas, safe, quiet and comfortable access for residential areas, flow of heavy traffic and capacity for the industrial area, etc.)

- Considering traffic management in each urban block to avoid unnecessary passing traffic and trips, traffic congestion in node points, and to secure the quality of living environment without negative traffic impacts
- Promotion of public transportation and other modes (pedestrian, bicycle, etc.) with a comfortable network and intermodal system provision
- Promotion of parking provision by on-street, off-street (site area parking, parking building, etc.) with consideration of road capacity as well as roadside land use

6) Work 6: Preliminary Spatial Distribution

Work 6 aims at setting preliminary spatial distribution based on the results of analyses from Work 1 to Work 5. The result of Work 6 becomes a base to formulate the detailed land use plan described in the next Task 5.2.

23.3.2 How to Draw the Basic Strategies on Maps

(1) Formulation of a future urban structure map

It is advisable to prepare a future urban structure map as the clearest illustration of the concept of the target area. The Future Urban Structure Map is not only easy to understand for citizens and policy makers, but is also an important criterion in the formulation of basic land-use policies and the subsequent preparation of zoning maps.

It is common for future urban structure maps to include the following items.

1) Urban Centres where various urban functions will be concentrated. Within the subject area, several types will be established depending on their character.

2) Urban Axes which links and interconnects these urban functions and further promotes interactions among them, linking urban cores in the target area and cores outside the target area. Several types are set up, depending on the nature of the cores to be linked and the purpose of linking them.

3) Local Resources," where urban attractions and enrichment are concentrated, will form a stage that supports a wide variety of attractive activities. Identify land resources, landscapes, customs, etc. within the target area that you want to conserve or co-ordinate, and illustrate their location.

Figure 23.3.3 shows an example from a Ward of Tokyo Metropolis.

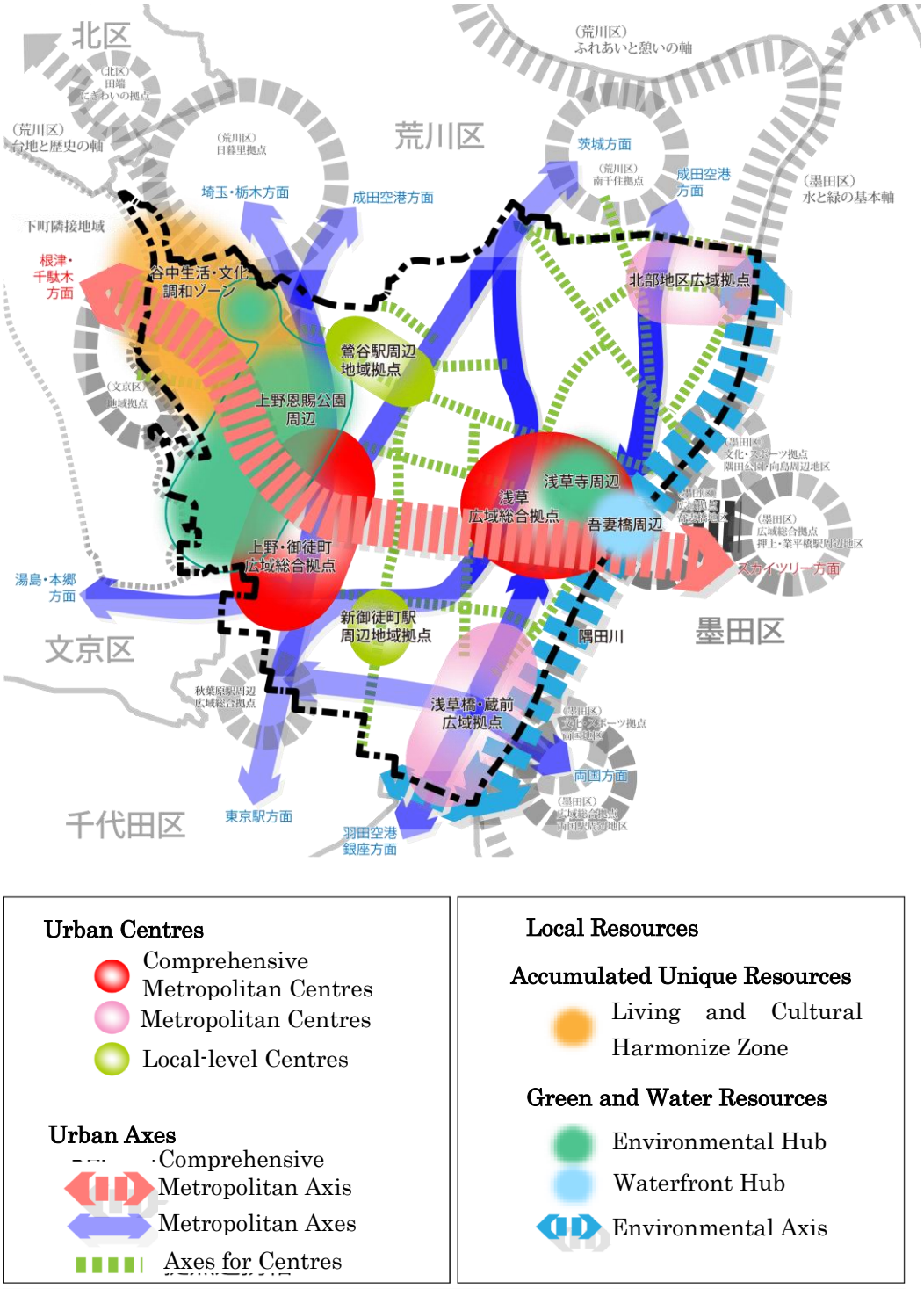


Figure 23.3.3 Example of Future Urban Structure Map at Detailed PDP Level

(2) Establishment of a General Land Use Plan

Based on the current status of the land in the target area, the status of land resources and their position in the Future Urban Structure Map, areas with similar characteristics are divided into blocks and a policy is set for each block. There is no standard for the number and area of blocks, but it is advisable to set them while being aware of the required land area as indicated in the Future Land Use Framework. Figure 23.3.4 shows an example of a General Land Use Plan.

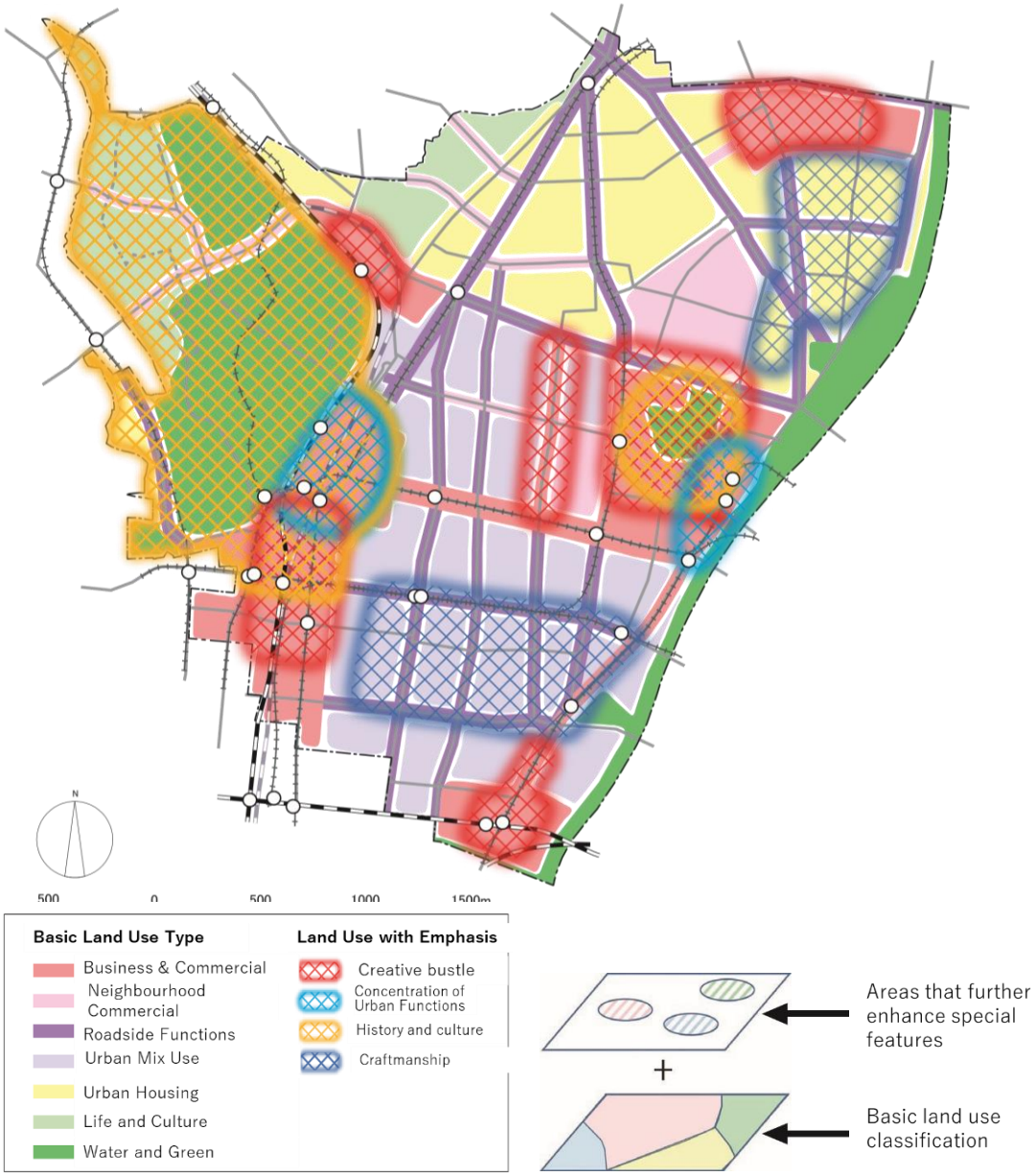


Figure 23.3.4 Example of a General Land Use Plan at Detailed PDP Level.

(3) Developing Detailed Spatial Development Strategy

This task is to review and interpret the policies, spatial development concept and vision or goal of the upper-level development plan (GKUGA-PDP) for the local context and characteristics in the planning area. The following are key considerations when the concepts are transformed into development terms.

- Interpret the concept of upper-level territorial development policies and goals (GKUGA)
- Consider the concept as development directions to maximise the local socioeconomic characteristics and advantages, while retaining natural environmental values
- Consider the spatial context of wider areas (i.e., GKMA, GKUGA, District, etc.) in terms of intra-, inter-socioeconomic linkages, and natural environmental networks
- Develop detail to cope with global and contemporary development issues

(4) Formulating Alternative Spatial Development Strategies

Since it is conceptual in nature, the Future Urban Structure Map and the General Land Use Plan can be formulated by several different ways of thinking. They can be prepared in different forms, based on the local cultural values rooted in the target area, intentions of the inhabitants, as well as on some contemporary themes as shown below.

- Climate change adaptation and natural disaster management
- Competitive and sustainable urban economy with network and linkage
- A sustainable living environment with basic infrastructure and public services
- Poverty reduction and social welfare
- Attractive urban amenity and environment indicating quality of life
- Local historical and traditional value indicating quality of life
- Natural environment and resource protection

There are prerequisites for the strategies to be effective and fruitful. These requirements include: (1) strong support shown by political will and commitment, (2) transparent and accountable decision-making process and (3) stakeholders' leverage by the participation of private sector and communities. When spatial development strategies are under formulation, it is necessary to consider if these are applicable as concrete measures of the urban development plan and enable development control or not. In this context, there is a strong need to discuss and select alternatives at stakeholder meetings in the SEA process. In doing so, one of the important indicators for evaluation of alternative plans includes the significance of contribution to realising the principles and measures of the GKUGA.

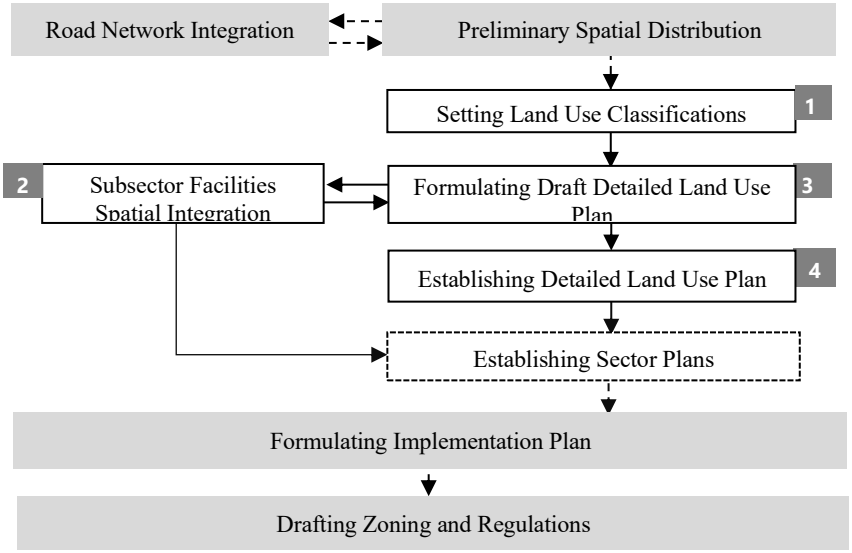
23.4 Making of Zoning Maps

This section aims to provide answers to the following question:

- How to make local-level detailed PDPs using the land use zoning system by following a series of steps which utilise maps

23.4.1 Formulating a Detailed Land Use Plan Zoning

The detailed land use plan will be finalised by the distribution of the future land use classes as an integrated output of spatial development incorporated with subsector plans, including each plan for transportation, technical infrastructure, park and green space, urban design/landscape and environment. The output will be the bases for further planning activities during the action plan formulation, and the zoning and management plan formulation. Figure 23.4.1 shows the workflow for the formulation of a detailed land use plan.



Source: JICA Expert Team

Figure 23.4.1 Workflow for Detailed Land Use Plan Formulation

(1) Setting Land Use Classification for Detailed PDP

Work 1 aims to set future land use classes as fundamental elements of detailed PDP planning tasks. Key land use requirements are already examined and determined in the previous works. The land use classification defines appropriate urban activities in detail, taking into account the hierarchical categories and coding systems in both GKUGA-PDP and detailed PDP. It also links to zoning with development control measures.

(2) Integrating key subsector facilities' spatial setting

Work 2 aims to integrate public facilities and infrastructure development in the land use plan. After examination of key land requirements of subsector development, each land parcel for key educational facilities, key public health facilities, recreational facilities, parks, and infrastructure are allocated to the appropriate location. Table 23.4.1 shows referable guide for land allocation for key public facilities and utilities. It should be noted that planning standards should be developed as official planning standards and norms for all levels of urban facilities.

Table 23.4.1 Referable Guide for Key Public Facilities and Infrastructure Affected Significantly by Land Use Allocation

Category of Network and Facilities		Key (Large-Scale) Public and Infrastructure Facilities	References and Considerations
Large Area with Public Facilities	Education	University, college	Based on the facility's planning requirement
		Multi-grade combined large school	Ditto
	Health	Hospitals and health centres	Ditto
	Recreation	Park and sports centre (athletic field ground, stadium, park, etc.)	Ditto
	Transportation	Public transportation (bus, LRT, etc.) and logistic terminals	Ditto
		Logistic terminal, inland depot areas	Ditto
		Railway workshop, marshaling yards	Ditto
		Airplane runway protection area beyond the airport facilities	Ditto
		Port facilities	Ditto
	Utilities and Public Services	Water supply plant	Ditto
		Sewerage treatment plant	Ditto
		Large power and telecommunication transmission station	Ditto
		Cemetery and waste disposal site (treatment plant)	Ditto
Network Facilities	Road and Transport	Trunk road with buffer area as a part of the Right of Way	Ditto
	Utilities	Railway with buffer area as part of the right-of-way (ROW)	Ditto
		Medium and high-voltage power line (6.6 kv~225 kV) ROW	20~60 m buffer at one side*
		Trunk gas pipeline and ROW	8~60m buffer at one side*
		Trunk water pipeline ROW	3~5m buffer at one side*
		Trunk sewer/drainage system ROW	Based on the facility's planning requirement

Note: The standards refer to AMST International temporarily, and should be defined by Ugandan technical standards.
Source: JICA Expert Team

(3) Formulating Draft Detailed Land Use Plan

Work 3 as the final stage in detailed land use planning aims to draft the proposed detailed land use plan. The plan shall be illustrated by necessary planning elements supported by explanatory text. This draft plan will be adjusted and modified through a series of discussions with relevant stakeholders. Table 23.4.2 shows a template for the future land use plan.

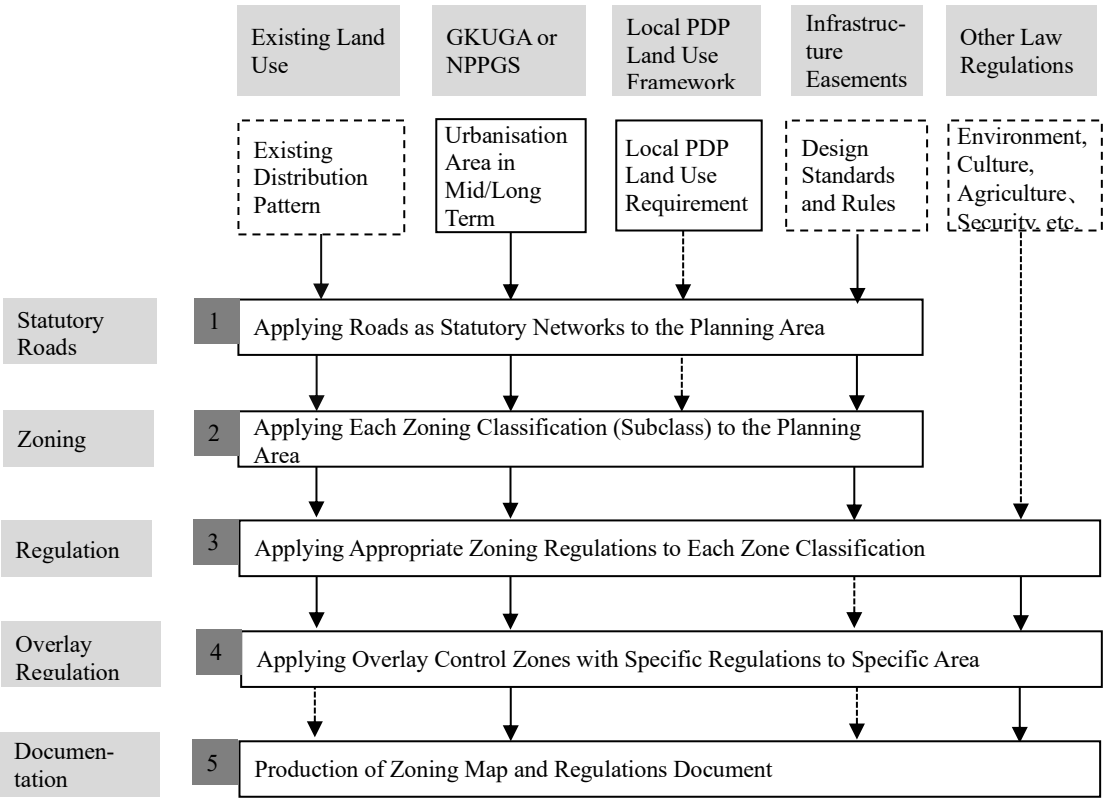
Table 23.4.2 Example of Template for Future Detailed Land Use Plan

Land Use Class	Area (ha)			Change (ha)
	Existing	Proposed	Share%	
I. Rural				
II. Residential				
III. Commercial and Business				
IV. Industrial				
V. Open Space				
VI. Protected Waterfront				
VII. Conservation				
VIII. Institutional				
IX. Special Area				
X. Protective Services				
Total				

Source: JICA Expert Team

(4) Examining and Setting Appropriate Zone Category and Overlaying Controls

Stepwise works to identify rules and regulations in this task are required based on the upper-level planning framework such as GKUGA-PDP, detailed PDP, trunk infrastructure and other sector laws and regulations, taking into account existing land use distribution and pattern. The following steps can be taken in interpreting upper-level planning framework and its application on the ground in the planning area of detailed PDP.



Source: JICA Expert Team

Figure 23.4.2 Work Steps for Setting Zone Regulations to be Applied to the Planning Area of Detailed PDP

1) Work 1: Applying roads as statutory networks in the planning area

The road network shown in GKUGA-PDP is reproduced with high accuracy, and the secondary trunk road network is specified as an existing road or newly planned.

Table 23.4.3 Sample Table for Proposed Key Roads (GKUGA) to be Designated and Depicted in the Zoning Map

Type	Function	Road Width (m)	Composition (No. of Lanes/width m)				Note
			Car Lane	Parking	Sidewalk	BRT Lane/width	
1	Expressways, Primary Roads						
2	Secondary Roads						
3	Tertiary Roads						

Source: JICA Expert Team

2) Work 2: Applying Zoning Classification in the Planning Area

According to the land requirements of the land use framework of detailed PDP, interpretation of the urban structure and development framework of GKUGA, and the types of zoning classification, each zone is distributed and drawn on the ground. When each zone is delineated, the easement of trunk infrastructure (high-voltage power line, gas pipeline, etc.) should be considered as “Buffer Area” by zoning subclassification of “Key Public Facilities” or “Park, Sports Area, and Open Space”.

It should be noted that additional zoning classification may need to be developed to fit with the characteristics and condition in the planning area, although the standard classifications are applicable to other planning areas of the detailed PDP in GKUGA. This zoning classification is defined in detail by colour codes.

3) Work 3: Applying Land Use Regulations

In parallel to distributing and delineating each zone classification on the ground, appropriate regulations for land use regulation and urban form (building height, floor volume, usage of land property, etc.) in each zone classification should be defined to guide and manage appropriate urban development in accordance with the development framework of GKUGA.

Land Use Regulation by Zoning Classification

Zoning aims to regulate urban activities of the private sector by guiding or promoting their investment in a manner to create appropriate living and working environment in accordance with the concept and urban structure of the proposed GKUGA. This is achieved by grouping together compatible types of land use in zoning districts stipulated by the zoning classification, while separating or buffering incompatible uses. The land use regulation consists of three categories, namely: Permitted Use, Conditional Use and Prohibited Use as shown in Table 23.4.4.

Table 23.4.4 Land Use Regulations to be Applied in Zoning Classifications

Type of Land Use Regulation	Purpose
Permitted Use	Permitted Use is for buildings or building complexes allowed to be constructed in a lot property as a matter of right in the designated zoning classification. The authorisation work should not involves discretionary parts if the applied development complies with design standards of building or construction codes.
Conditional Use	Conditional Use will be listed in the zoning regulations for each zoning classification. Conditional use shall be authorised on a discretionary basis, i. e., only authorised if the applied project is compatible with neighbouring land use classifications, adapted to meet the capacity of infrastructures at the site, and does not violate the objectives of the zoning regulations.
Prohibited Use	Prohibited Use consists of those buildings/facilities which are not allowed to be built in the designated land use class. These are specified in the zoning regulations.

Source: JICA Expert Team

Urban form control, in combination with building form and site form, is achieved effectively by two-tier control measures: (1) control and regulation for each building unit and 2) overlay form control or development control for area-wide building ensemble in certain harmonious urban or rural areas. These two control measures are applied to the target area taking into account the urban character to be promoted or conserved.

The concrete building regulations can be two elements: (1) building coverage ratio (BCR), and (2) floor area ratio (FAR). The following shows the policy of model detailed PDP to adopt urban form regulations, namely: BCR, FAR and height control for each zoning classification. Table 23.4.5 illustrates the urban form control system.

Detailed regulations with numerical standards are indicated in the “Draft Model Zoning Regulations for the detailed PDP” at the back of this guidelines. The following control measures or elements describe considerations for urban form regulation when it is applied in the planning area.

Table 23.4.5 Urban Form Control System and Its Measures

Urban Form Control Target	Control Measure	Applied Measure	Reference
1. Single Building/Lot Unit	Intensity and Density Standards	1.1 Property Lot Size	Standard control and regulation measures of each zoning classification
		1.2 Floor Area Ratio (FAR)	
		1.3 Building Coverage Ratio (BCR)	
	Dimensional Standards	1.4 Building Height Control (BHC)	
		1.5 Building Lines Control (BLC): front yard setback with access road	
		1.6 Building Lines Control (BLC): side setback	
		1.7 Building Lines Control (BLC): backyard setback	
2. Building Ensemble / Area	Overlay Zoning	2.1 Significant historical and cultural urban or rural scenery control and regulation	Specific or exclusive control and regulations based on Overlay Zoning, adding regulations n relevant zoning classification
		2-2 Waterfront scenery control and regulation	
		2-3 Airport safety overlay control and regulation	
No Relation to Urban Form Control		2-4 Natural hazard control and regulation	
		2-5 Nature and environment protection control and regulation	

Source: JICA Expert Team

Building Coverage Ratio (BCR)

Taking into account the role of BCR as one of the tools for densification of the settlement, it may be needed to increase the ratio of BCR in necessary locations (zoning) where the GKUGA density frame requires more densification. It should be noted that the following specific conditions are taken into account when BCR is applied to each zoning classification with desirable urban formation.

- Sufficient open space (low-rate BCR) in the case of a high-rise building on Residential Zone E with high densities.
- High-rate BCR in case of Commercial Zone should be allowed upon compliance with conditions of "corner lot", "fire-resistant building structure and treatment" and provision of "parking space" such as underground car park

Floor Area Ratio (FAR)

FAR as essential densification tool of settlement is also required to increase the ratio in necessary locations (zoning) based on the GKUGA's density framework.

- FAR will be one of the important control measures to guide efficient utilisation of land, especially those with commercial and business activities, in combination with the maximisation of land value.
- FAR will play an important role in considering the supply capacity of infrastructure services in terms of population density, although this regulation may not be useful or insufficient to control the absolute height of a building.
- Floor areas of building basement and garage of car parking can be exempted from FAR

4) Work 4: Applying Urban Form Regulations to Each Zone Classification

Building Height Control

Although building height is related to FAR control measure, this measure will play a more considerable role in securing strict building height within desirable urban areas where specific townscape is required to be formulated or maintained. Also, building height control is required generally to increase building height in necessary locations (zoning) based on the GKUGA density framework. It should be noted that the following specific conditions are taken into account when building height control is applied in each zoning classification.

- Higher buildings with more than R+4 floors should consider lift provision in accordance with Decree 205-2007, while lower buildings without lift are defined by the R+4 floor buildings (ground floor included) as walk-up buildings.
- Higher buildings with more than R+ 4 floors should consider firefighting provision, especially the availability of reachable firefighting ladder truck for the upper floors of the building.
- Higher buildings in specific areas where the environment regulation requires to conserve the townscape or scenery, or to regulate buildings in terms of the safety of specific infrastructure such as airport surface areas.

Lot Size and Building Lines Control

The standard range of lot size for each zone classification is required to be widened by the introduction of smaller lot size in consideration with existing standards of the National Physical Planning Standards and Guidelines, and international standards.

Building lines measure should be considered for building purposes without danger to the health, safety of the occupants, security, and considering fire-resistance and micro-climate ventilation within a property lot to be reasonably constructed, occupied and used.

In case of zero side-setback line by building design such as a semi-detached house, row house or terrace house, no side setback is allowable by the authority's discretion in consideration with such residential block design or relevant urban design guideline.

5) Work 5: Production of Zoning Map and Regulation Document

Based on the examinations and outputs of zoning works and by the rules and regulations of each zone classification and overlay control zone, a draft zoning map and relevant draft regulation document are produced.

The purpose of this description is to outline standard requirements for completing a zoning map, while allowing for flexibility and professional judgment. The drawing depicts zone classifications within and surrounding a planning area to illustrate the impact and/or relationship of a proposed building to all land properties in it. The following table illustrates the mapping standards for the zoning map.

Table 23.4.6 General Requirements for Mapping

Category	Descriptive Requirements
1. Scale of Map	Mapping scale depends on the magnitude of the planning area (smaller planning area needs a smaller map scale (greater amount of detail) The standard range of the mapping scale: 1/5,000 ~ 1/10,000
2. Colouring	If zoning classifications show each code visibly (number or abbreviation) on a map, a zoning map does not need to add colour on it, allowing a black and white copy for internal use.
3. Geographic Information System (GIS) etc.	GIS and CAD as some of the most effective application softwares for drawing can be adapted to the zone mapping works.

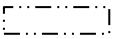
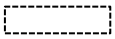
Source: JICA Expert Team

The standard contents of a zoning map consist of four elements: (1) base map, (2) statutory roads, (3) land use zone classification, and (4) areas for urban development projects.

The legend for the basic information is shown in Table 23.4.7 (i.e., planning area boundary, administrative boundaries, key names of location or specific place), which is required to be indicated on the zoning map. Secondly, the legend for zoning classification as base zone (class and subclass) is defined by standard colour code by identity numbers of Pantone Colour Table 23.4.8 indicated. This zoning classification is depicted by Translucent Coloured Form on the existing base map with topographic information of the contour and existing built-up area.

As an important information on the zoning map, a zoning indicator in combination with figures of zone coefficients (BCR, FAR), building height indicator, and zoning subclass (abbreviation) is required to be depicted on each zone.

Table 23.4.7 Example of Legend for Basic Information

Legend	Description
	Detailed PDP planning area
	Other administrative boundaries if these are necessary to be shown
Name	Key names of locations or specific places; administrative names

Source: JICA Expert Team

Table 23.4.8 Example of Legend for Others including Statutory Areas for Road Network and Urban Development Projects

Legend	Description
	Statutory road network alignment (arterial, secondary and tertiary roads)
	Urban development project areas if necessary

Source: JICA Expert Team

PART VII

INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF THREE-LAYER PHYSICAL DEVELOPMENT PLANS

Chapter 24 Institutional Framework for Implementation of Integrated Urban Development Master Plan for GKMA

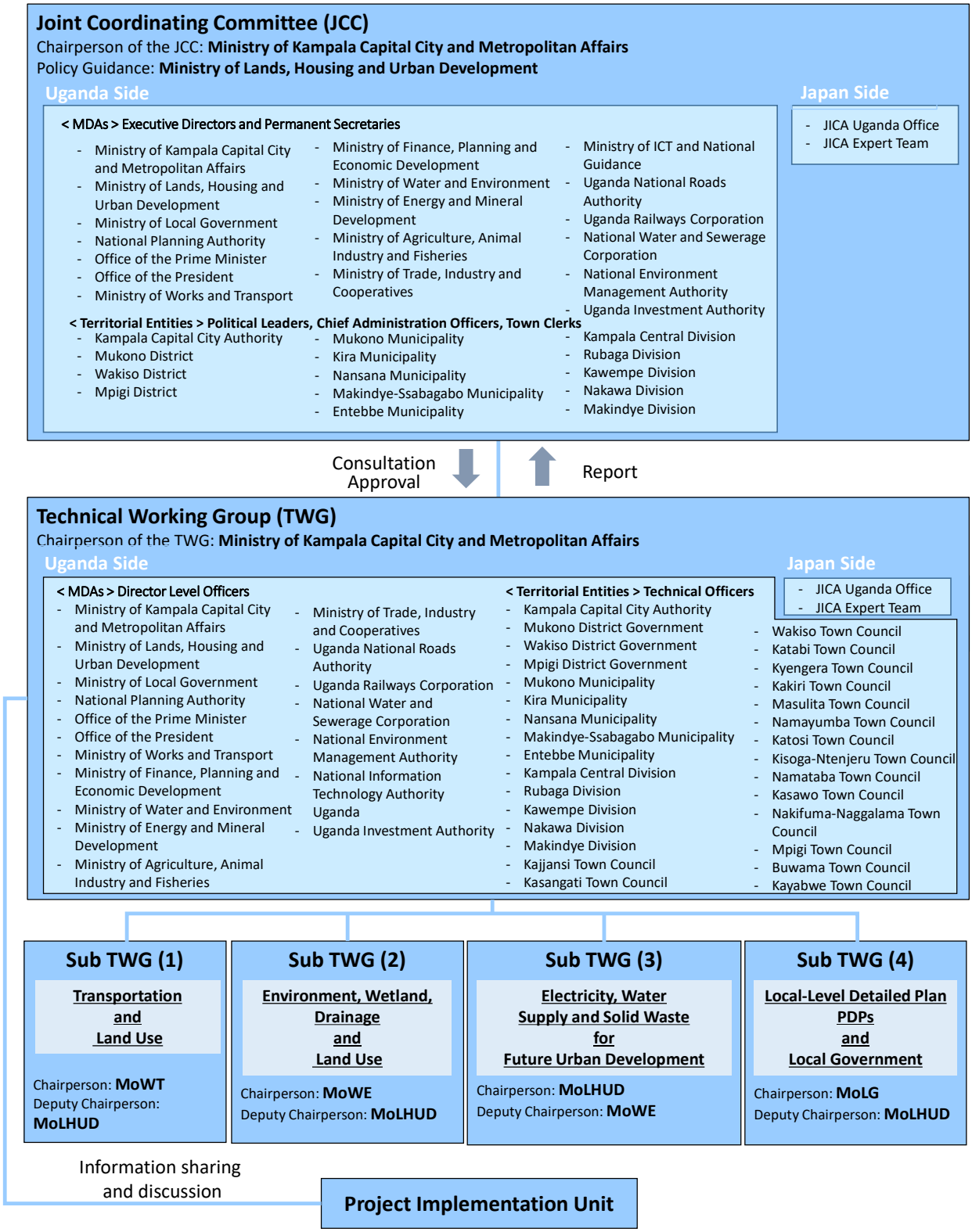
24.1 Introduction

In this chapter, the following three current institutional frameworks related to GKMA are reviewed for the purpose of considering possible institutional frameworks for promoting the implementation of three layers of physical development plans in GKMA:

- Institutional framework for coordination and collaboration for formulating three layers of physical development plans
- Proposed Implementing Structures for KPDF and KPDP 2012
- Institutional Framework for Coordination of GKMA-Wide Developments (for the Implementation of GKMA Economic Development Strategy)

24.2 Institutional Framework for Coordination and Collaboration for Formulation of Three Layers of Physical Development Plans (PDPs)

This JICA supported "Project on Integrated Urban Development Master Plan for Special Kampala Planning Area" has a three-level institutional system for coordination and collaboration for formulating the Integrated Urban Development Master Plan for GKMA (GKMA-IUDMP), as shown in Figure 24.2.1.



Source: JICA Expert Team

Figure 24.2.1 Institutional Framework for Formulating the Integrated Urban Development Master Plan (Three Layers of Physical Development Plans) in GKMA

24.3 Proposed Implementing Structure for KPDF and KPDP 2012

In the final report of "Updating the Kampala Structural Plan and Upgrading the Kampala GIS Unit" which covered KPDF and KPDP, an implementation structure for these plans were proposed as described in this section below.

The organisations introduced in this proposal were supposed to be legalised. In fact, the establishment of these implementation committees were included in the proposed statutory provisions of the KPDP. However, the official approval was not done for the implementing structure. As a result, those organisations failed to be established as expected.

24.3.1 Establishment of Implementation Bodies for KPDF and KPDP 2012

The proposal by the above report on implementation of KPDF and KPDP includes the establishment of four statutory organisations as explained below.

This set of implementation bodies is organised in two layers. The first is at the national-level organisation with an emphasis on policy and resource allocation. The second is at the local-level organisation with an emphasis on operation and coordination in the field.

The first national-level organisation, NPB Plan Implementation Committee, covers both the KPDF and KPDP. However, there is only one local-level committee, KCCA Plan Implementation Committee, which covers only KPDP. There is no local-level committee for implementing KPDF in this proposal.

(1) NPB Plan Implementation Committee (NPIC)

NPIC is a national body, in the framework of the National Planning Board.

The NPIC's functions include coordinating, overseeing, and directing implementation of both the KPDP and the KPDF together with relevant national institutions.

This committee is to be established with a primary emphasis on policy and resource allocation.

(2) KCCA Plan Implementation Committee (KPIC)

KPIC is a KCCA body for coordinating, overseeing and directing implementation of the KPDP on the local level with a primary emphasis on the operational side and on coordination in the field.

(3) Kampala Development Fund (KDF)

KDF is a fund with dedicated revenue source to fund development of infrastructure and public facilities in Kampala Capital City.

(4) Kampala Lands Bank (KLB)

KLB is an organisation to be jointly created by KCCA and the Uganda Land Commission (ULC). KLB's mandates are to hold, acquire, exchange and/or subject to clear restrictions sell, plan, manage, enhance, upgrade, develop (directly or in Joint Venture) and allocate for public benefit all public real estate properties (of the Government of Uganda or KCCA) in the jurisdiction of the KCCA.

24.3.2 Proposed Composition and Scope of NPB Plan Implementation Committee (NPIC)

In this section, the composition and scope of the NPIC, which were proposed by the KPDP are described.

The NPIC should focus on coordination at the national and metropolitan levels and on statutory functions of the NPB.

The NPIC should be constituted of the following chairperson and members:

- The Secretary of the NPB - chair;
- A member of the NPB;
- The Executive Director of the KCCA or permanent representative;
- Representatives of the KCCA;
- Representative of GKMA representative Municipalities and Towns
- Representative of National Ministries and Authorities (MOLG, MoWT, MOWE, MOFPED, NPA; NEMA, UNRA, Uganda Police (Metropolitan Police), Uganda Lands Commission, and Buganda Lands Board.
- A public representative (registered professional planner).

The NPIC' mandates are as follows:

- To oversee, assess and report on all relevant aspects of public bodies and projects regarding the implementation of all aspects relevant to the implementation of both the KPDP and the KPDF.
- To initiate and require interventions, actions and projects, and changes thereto, from all relevant public bodies required to advance the implementation of both the KPDP and the KPDF.
- To report periodically and no less than once annually, to the Hon. Minister of Lands, Housing and Urban Development regarding the implementation of from all relevant public bodies regarding the implementation of all aspects relevant to the implementation of both the KPDP and the KPDF.
- To deal, in standing of the NPB, with all proposals for changes to the KPDP and/or KPDF and/or variations from the KPDP subject to the provisions detailed in the KPDP statutory documents.
- To approve, in full or in part or with changes, proposed changes to the KPDP subject to the provisions detailed in the KPDP statutory documents.
- To approve or bring to the NPB for discussion and approval changes to and/or variations from the KPDP and KPDF subject to the provisions detailed in the KPDP statutory documents.

24.3.3 Proposed Composition and Scope of KCCA Plan Implementation Committee (KPIC)

In this section, the composition and scope of the KCCA Plan Implementation Committee (KPIC), which were proposed by the KPDP are described.

KPIC to be established by the KCCA by statutory instrument, is in charge of directing and overseeing the implementation and enforcement of the KPDP within the jurisdiction of the KCCA.

The KPIC should focus on coordination in Kampala Capital City at the local level and on operational and enforcement matters.

The KPIC is to be composed of the following chairperson and members:

- The Executive Director of the KCCA - chair;
- Representatives of the Lord Mayor and KCCA Council (majority and opposition);
- A representative Divisional Mayor;
- KCCA Directors of Physical Planning, Engineering, Finance; Education and Health;
- KDIIP Project Manager;
- Representatives of MoE, MoH, NWSC, NEMA, UNRA, and Uganda Police (Metropolitan Police);
- KCCA Senior Legal Officer responsible for Planning Law and Enforcement;
- Director of the Kampala Lands Board;
- KCCA Senior Planners responsible for Planning, Construction Licensing (Building Permission) and Planning Enforcement.

The KPIC's mandates are as follows:

- To require, receive and assess reports from all relevant KCCA units and public bodies involved

in, impacting on and/or impacted by implementation of the KPDP and the KPDF;
- To initiate and require interventions, actions and projects, and changes thereto, from all KCCA units and all relevant public bodies required to advance the implementation of both the KPDP;
- To report periodically and no less once quarterly to the NPIC regarding implementation and enforcement of the KPDP.

24.4 Institutional Framework for Coordination of GKMA-Wide Developments (for the Implementation of GKMA Economic Development Strategy)

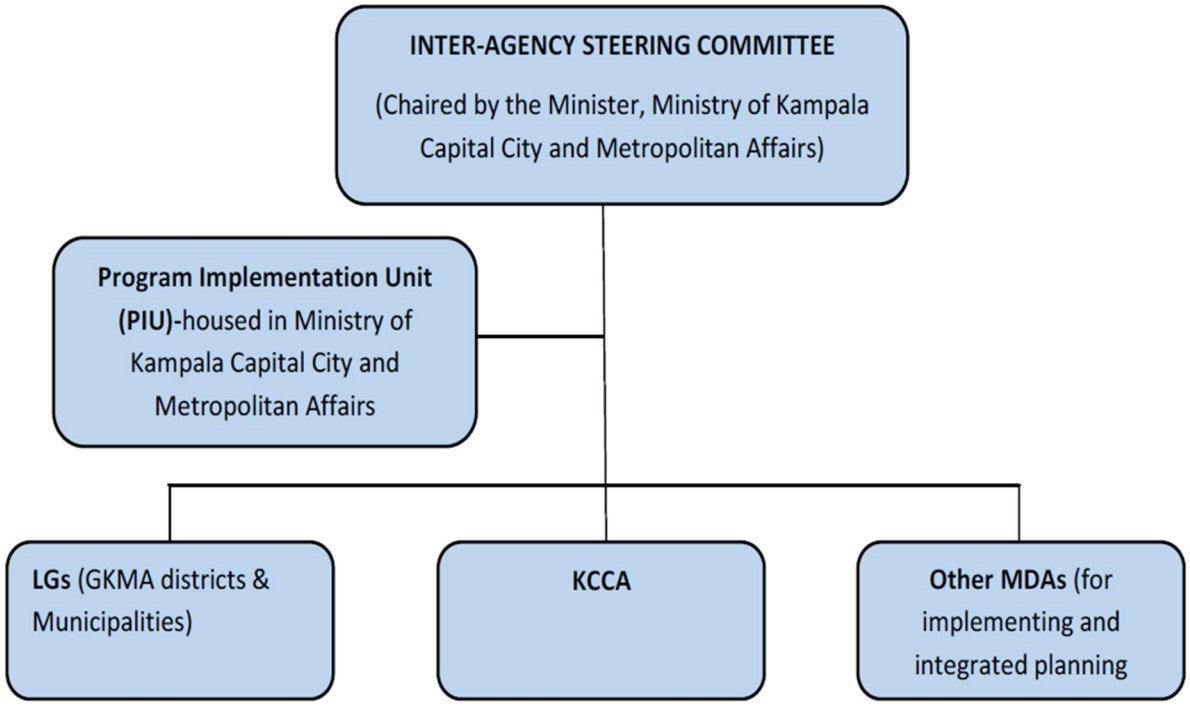
24.4.1 Implementation Structure for GKMA Economic Development Strategy

(1) Institutional Framework for Coordination of GKMA-Wide Development

For the implementation of GKMA Economic Development Strategy, an institutional framework for coordination of GKMA-wide developments was introduced and successfully approved for operation.

Government organizations concerning the implementation of GKMA Economic Development Strategy extend to various local governments (LGs) and MDAs. In order to operate the Strategy, Program Implementation Unit (PIU) was established in MKCC&MA as shown in Figure 24.4.1.

By interacting among these organizations, several teams were established to operate dedicated tasks to achieve successful implementation of the Strategy as described in the sections below.



Source: NPA, referred in the GKMA Economic Development Strategy 2020-2030

Figure 24.4.1 Institutional Framework for Coordination of GKMA-Wide Developments

24.4.2 Teams for Implementation of GKMA Economic Development Strategy [1]

After the completion of the final document of GKMA Economic Development Strategy, further consideration and preparation of implementing organisations have been discussed by the MDAs and LGs concerned with GKMA. Based on the discussion among the concerned institutions, the

[1] This section is informed by a memorandum on GKMA LED Strategy Implementation Structure obtained from MKCC&MA in September 2020.

establishment of the following different teams have been considered for substantiate activities for promoting the implementation of the strategy:

- GKMA Inter-Ministerial Team
- Strategy Coordination Team
- Interim Delivery Unit (Development Planners Technical Team)
- Economic Competitive Resource Teams

(1) GKMA Inter-Ministerial Team

The mandates of the GKMA Inter-Ministerial Team are to provide policy oversight as well as to guiding the implementation of the GKMA Economic Development Strategy. Its composition ensures a multi-sectorial involvement of both public and private sectors, as well as non-governmental organisations.

The operations of the GKMA Inter-Ministerial Team operations are to be informed to the Greater Kampala Economic Planners Team and sub-groups of committees and task forces. These sub-groups work closely with the Economic Planners.

The specific objectives of the GKMA Inter-Ministerial Team are as follows:

- To provide policy guidance and direction in the formulation and implementation of the Greater Kampala Metropolitan Strategy;
- To ensure alignment of the Kampala Metropolitan strategy with other donor and Government strategies, policies and programmes
- To ensure more efficient and effective resource usage, reduce duplication and contradiction between programs and interventions, increase flow of information about Kampala's economy between stakeholders, and improve the quality of a strategy development and implementation on an ongoing basis through real time feedback.

This team is in charge of discussing and reviewing key opportunities and constraints to economic development in Greater Kampala.

The sub-groups of the GKMA Inter-Ministerial Team are as follows:

- Institutions, regulation and taxes sub-group
- Land and Infrastructure sub groups/task force
- Skills and Innovation tasks force
- Enterprise support and Finance task force.

The Inter-Ministerial Team is to be supported by the use of policy papers and reports from the task forces, sub-groups and economic planners working groups.

(2) Strategy Coordination Team [2]

This team is composed of NPA, MoLG, MKCC&M, and KCCA, and is based at the MKCC&MA. It works to provide the following support functions:

- To provide technical backstopping for the coordination of the programme.
- To ensure the internal coordination of policy matters by the Programme Coordination Committee
- To conduct planning and coordination for a program and its activities
- To ensuring implementation of policies and practices
- To maintaining budget and track expenditures/transactions
- To prepare paperwork and order material
- To prepare and circulate the agenda
- To facilitate the meetings
- To prepare the minutes and follow through on responsibility centres
- To coordinate and engage various stakeholders to the extent and ability required

[2] This section is based on the information from a memorandum on GKMA LED Strategy Implementation Structure obtained from MKCC&MA in September 2020.

- To act as the primary point of contact outside of scheduled meetings.

(3) Interim Delivery Unit (Development Planners Technical Team) [3]

The primary role of the Interim Delivery team is to promote the Economic Competitiveness in the GKMA. The multidisciplinary committee meets frequently to discuss common issues on which they need to collaborate such as land allocation for investors and local industries, key infrastructure projects, neighborhood mapping and zoning, among others.

The Interim Delivery team provides technical guidance and support to their respective Councils and Technical Planning Committees and the Greater Kampala Inter Ministerial Committee.

The Interim Delivery Team is a forum for planners to jointly plan interventions across the Districts, Municipalities and Cities that make up the Greater Kampala and their scope of work include the following matters:

- Coordination and Harmonization of Interventions
- Economic Development Planning. This entails;
- Resource Mobilization and Project Monitoring and Evaluation.
- Participate in the design of key Projects for the Greater Kampala

(4) Economic Competitive Resource Teams (EC-RT) [4]

The LED activities are undertaken by a multi-disciplinary technical team known as the Economic Competiveness Resource Team (EC-RT). The core members of this EC-RT include the Director and managers responsible for production and marketing.

The Roles of the EC-RT are as follows:

- To work with private sector associations to Set-up, organize and support the City/District/Municipal Investment or Business Forums, Project Management Committees (PMC) etc.,
- To build relationship between private sector and government through organizing regular dialogues and information sharing.
- To build technical capacity of both technical and political leadership on LED and job creation.
- To support LED "kick-start" activities, such as the Participatory Appraisal of Competitive Advantage (PACA) exercise, and the preparation and annual review of Local Economic and Business Assessments (LEBA) and other Diagnostic studies.
- To support the preparation of the Greater Kampala Metro Economic Development Strategy, including project identification, appraisal and approval into an elaborated and agreed portfolio of Competitiveness interventions;
- To monitor Economic Competitive interventions to ensure technical, financial and procedural parameters of project implementation are met; and
- To conduct annual evaluations and "Barazas" to illustrate value for money (VFM) according to agreed Economic Competitive indicators.

24.5 Institutional Framework for Promoting the Implementation of Three Layers of Physical Development Plans in GKMA

24.5.1 Designing of Institutional Framework for Implementation of GKMA-IUDMP

In the course of formulating the three layers of PDPs to compose the integrated urban development master plan for GKMA, it is necessary to conduct studies on how to organise an institutional framework for promoting the implementation of the PDPs in GKMA because the implementation

[3] This section is based on the information from a memorandum on GKMA LED Strategy Implementation Structure obtained from MKCC&MA in September 2020.
[4] This section is based on the information from a memorandum on GKMA LED Strategy Implementation Structure obtained from MKCC&MA in September 2020.

of the PDPs, as well as the formulation of PDPs is required to involve many MDAs and territorial local governments of GKMA and other stakeholders.

The utilisation of the current institutional framework for the stage of formulation of the three layers of PDPs for GKMA for the purpose of implementation of the PDPs is one thing. However, the institutional framework at the stage of the PDPs for GKMA is another. Since it is more difficult to promote the implementation of PDPs (or integrated urban development master plan) than the formulation of PDPs (or master plan), it is necessary to establish an effective and efficient institutional framework for the implementation stage.

A multi-level, many-member committee-style implementation structure is used for many master plan formulation projects. However, after the completion of such master plan formulation, it is necessary to make a shift to different types of structures at the stage of implementation.

Therefore, in this Project, the JICA Expert Team examined some options of more compact and more result-oriented organisations from the committee style structure or a hybrid structure consisting of both many-member committees and relatively small coordinating secretariats.

(1) Current Management for Collaboration and Coordination on Physical Development Planning and Implementation by Ministry of Kampala Capita City & Metropolitan Affairs

The proposed implementing structure for KPDF and KPDP was the committee style structure. On the other hand, the proposed institutional framework for implementing the GKMA Economic Development Strategy is a hybrid structure of a large steering committee and effective coordination teams.

The MKCC&MA has conducted management including coordination and implementation on physical development plans with the support of key personnel including the following MDAs.

- NPA
- MoLHUD
- MoLG
- MoWT
- MWE
- NEMA
- Nine Local Governments in GKMA

Under the management of under secretary of MKCC&MA, this group of technical officers of various MDAs has played a key role in collaboration and coordination in the implementation of physical development plans, especially in the preparation of a new Urban Development Programme of the WB.

However, this system of coordination and collaboration among those MDAs under the strong leadership of the under secretary of MKCC&MA has not been officially written down and signed for maintaining a sustainable management of such coordination and collaboration.

Therefore, it is necessary to formalise the management mechanism.

(2) Establishment of a Technical Coordination Group for GKMA-IUDMP

Establishment of a compact-sized Technical Coordination Group should be established for collaboration and coordination for promoting the implementation of the formulated master plan (three layers of PDPs) in GKMA.

The objectives of the establishment of a Coordination Group for GKMA-IUDMP are as follows:

- To promote coordination and collaboration among ministries in charge of implementation of GKMA-IUDMP and priority projects
- To monitor and follow up the preparation and implementation of projects in GKMA
- To prepare and organise roundtables involving development partners with a frequency to be determined by members (presumably around once per year)

This group establishment should be initiated by an official Letter from PS of Office of President. An MOU among relevant entities (key MDAs and local governments) and MKCC&MA should be made for establishment of the Technical Coordination Group.

On the other hand, it is necessary to consider how to involve and refresh the current physical planning committees of local governments and KCCA.

The following should be determined and signed as part of the MOU:

- Definition of the Coordination Platform for GKMA-IUDMP
- Principles of the Coordination Platform for GKMA-IUDMP
- Organisational Members of the Coordination Platform for GKMA-IUDMP
- Steering Functions of the Coordination Platform for GKMA-IUDMP
- Focal Points of the Coordination Platform for GKMA-IUDMP
- Secretariat Functions of the Coordination Platform for GKMA-IUDMP
- Coordination Meetings of the Coordination Platform for GKMA-IUDMP

24.5.2 Discussion and Coordination for Establishing the Institutional Framework for Coordination and Collaboration for Implementing GKMA-IUDMP

(1) The Fourth Technical Working Group Meeting on the 4th of August 2023

The JICA Expert Team proposed a compact form of organization (a kind of group of government officers from different MDAs and local governments) to promote the coordination and collaboration among the following government organisations at the stage of implementing the GKMA-IUDMP.

However, the chairperson of the TWG Meeting (Ms. Monica Edemachu, Under Secretary of MKCC&MA) argued against the establishment of a new organization for this purpose. It is partly because Ugandan central government has issued a notice not to create new organisations in MDAs' administration and project implementations.

In the Under Secretary's view, it is partly because the central government of Uganda has issued a notice to create as few new organisations as possible. It is also partly because the on-going WB-assisted Urban Development Programme is being implemented by having a similar organization, the GKMA Inter-Ministerial Team as described in the previous section (see Section 24.4.2), for promoting the implementation of the programme.

(2) Technical Discussion for GKMA-IUDMP on the 13th of December 2023

Taking advantage of the availability of major counterpart personnel (14 trainees of various institutions) in Northern Kyusyu for the purpose of JICA Study Tour and Training in Japan, another discussion meeting was held for discussing the necessity of establishing a compact and efficient institutional framework for promotion and collaboration in the implementation of the GKMA-IUDMP.

Many participants of the discussion agreed on the following matters:

- Organising of a compact group of multi-sectoral MDA officers and territorial local government officers is useful for promoting the implementation of the GKMA-IUDMP.
- Although such organization has been already established for the WB Urban Development Programme, it is also necessary to have the similar organization for the purpose of promoting the implementation of the GKMA-IUDMP.
- At the same time, it would be necessary to have a formal written agreement among related organisations (MDAs and territorial local governments).
    - This group establishment should be initiated by an official Letter from the Secretary of Office of President.
    - An MOU among relevant entities (key MDAs and local governments) and MKCC&MA

should be made for establishment of the Technical Coordination Group.

- The following should be determined and signed as part of the MOU:
  - Definition of the Coordination Platform for GKMA-IUDMP
  - Principles of the Coordination Platform for GKMA-IUDMP
  - Organisational Members of the Coordination Platform for GKMA-IUDMP
  - Steering Functions of the Coordination Platform for GKMA-IUDMP
  - Focal Points of the Coordination Platform for GKMA-IUDMP
  - Secretariat Functions of the Coordination Platform for GKMA-IUDMP
  - Coordination Meetings of the Coordination Platform for GKMA-IUDMP

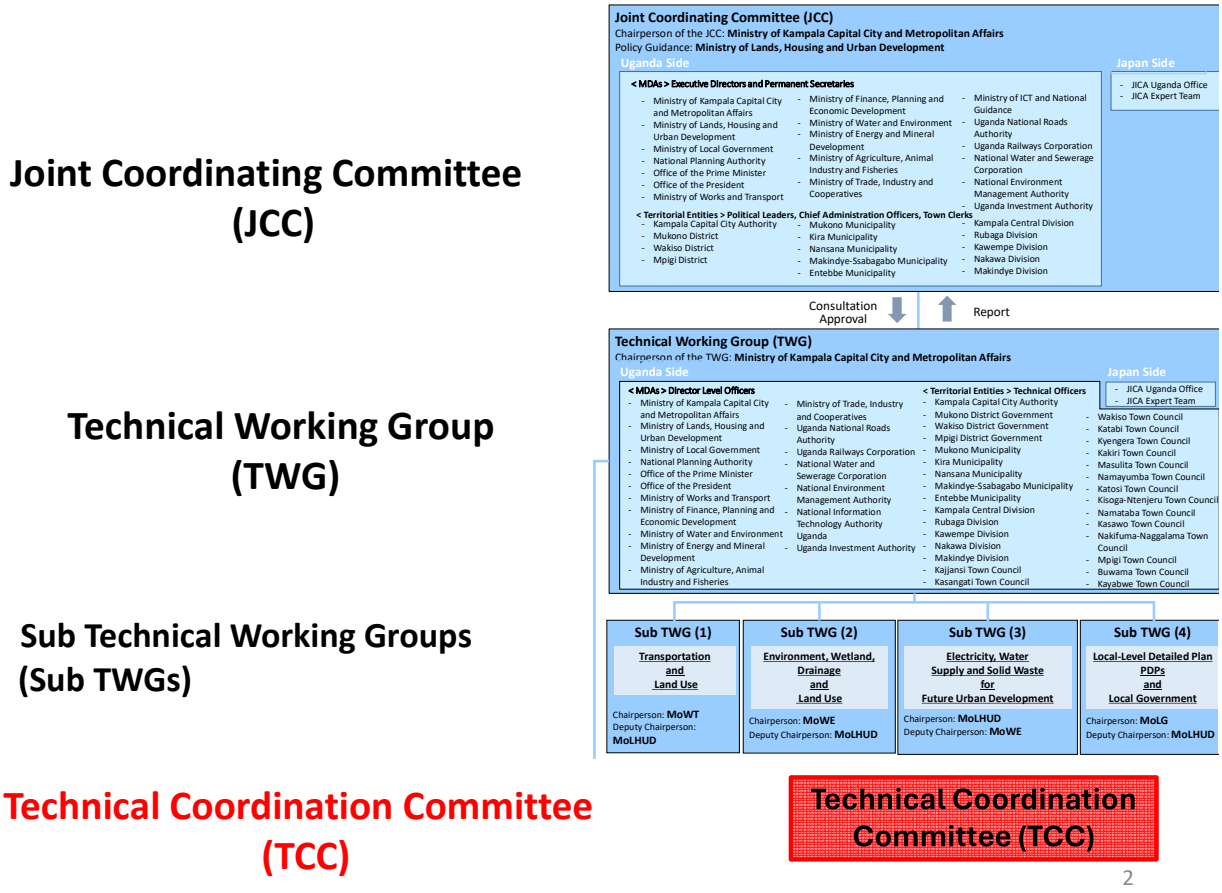
- On the other hand, it is necessary to consider how to involve and refresh the current physical planning committees of local governments and KCCA.

(3) The First Technical Coordination Committee Meeting on the 11th of April 2024

Based on the general consensus made among the concerned Ugandan counterparts of GKMA-IUDMP in the technical discussion held in Northern Kyusyu of Japan, the first technical working group meeting was held by the initiative of the Under Secretary of MKCC&MA on the 11th of April 204. In this meeting, the following matters were decided:

- The name of the organization is "Technical Coordination Committee" for GKMA-IUDMP.
- The institutional members are as follows:
  - MKCC&MA: Leader
  - MoLHUD: Technical Co-Leader
  - NPA
  - MoLG
  - MoWT
  - MoWE
  - UNRA
  - URC
  - 9 Territorial Entities (Local Governments)
  - 4 Districts（KCCA、Wakiso、Mukono、Mpigi）
  - 5 Municipalities (Makindye-Ssabagabo、Entebbe、Mukono、Nansana、Kira)
- The objectives of the Technical Coordination Committee are as follows:
  - To promote coordination and collaboration among ministries in charge of implementation of GKMA－UDMP and priority projects
  - To monitor and follow up the preparation and implementation of priority projects in GKMA
  - To organise Technical Working Group Meetings for technical discussion and Joint Coordination Committee for decision making regularly (once a year or so)
  - To prepare and organise roundtables involving development partners with a frequency to be determined by members (presumably around once per year)
- The Technical Coordination Committee is placed for supporting the activities of the JCC, TWG and Sub-TWGs as shown in Figure 24.5.1.
- Every three months, regular meetings for the Technical Coordination Committee are to be held.
- Other organizations are to be invited to Technical Coordination Committee meetings for discussion, coordination and collaboration.
- A Terms of Reference (TOD) to establish and operate the Technical Coordination Committee is necessary. Mr. Joseph Pade of MKAA&MA and Mr. Denis Tugume of NPA have been appointed for preparation of a draft TOR including the above decided matters.

- In Northern Kyusyu, Japan, a Minutes of Understanding should be prepared a written agreement among the participating member organisations. However, in this meeting, a



Source: JICA Expert Team

Figure 24.5.1 Institutional Framework for Promoting the Implementation of GKMA-IUDMP

(4) The Second Technical Coordination Committee Meeting on the 29th of May 2024

The previous meeting (the First Technical Coordination Committee meeting) was held for general agreement and deciding of the establishment and starting activities of the Technical Coordination Committee). This second meeting for Technical Working Committee was the first actual meeting.

The following points were discussed and decided:

1. The Logo for the GKMA-IUDMP

   A new logo is necessary to respond to the new abbreviation, GKMA-IUDMP. The late abbreviation was GKMA-IUDMP.

2. Review of the Terms of Reference for the Technical Coordination Committee

   Members discussed that the draft sample be shared for their input and that the final TOR should be presented to Cabinet as part of the Cabinet Memorandum for approval by the cabinet.

3. Approval Process of GKMA-IUMP

   Members observed that there was need to expedite the process of declaration of GKMA-Special Planning Areas; and start the display period, and there was need to exhibit urgency to expedite the finalization and getting the necessary approvals of the plan. Comprehensive mechanism for general public comments during the display period is necessary. If the Board is convinced that the engagements have been adequate enough, it can waive or completely

remove the display of the plan. Considerations should be made on how to share with wide public through using social media such as X platform, WhatsApp among other such as TV talk shows, Radio talk shows and newspaper and utilising Prime time on the Media Houses if budget allows

4. The members observed that the project cost implication can be reviewed and the project phases be shortened so that the biggest bulk of the infrastructure corridor Right of Ways (RoW) can be realised early enough when land is relatively cheaper for infrastructure development than later when land is too expensive during compensation and resettlements.
5. Relationship between the GKMA-IUDMP and the GKMA-EDS

   Members agreed that there is no conflict between them, and they are well linked to each other.

PART VIII

STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

Chapter 25 Strategic Environmental Assessment

25.1 SEA for GKMA-IUDMP

25.1.1 Background of SEA Study for GKMA-IUDMP

The National Environment (Strategic Environmental Assessment) Regulations 2020 in Uganda requires an SEA for the physical planning and land-use plans. The JICA Guidelines for Environmental and Social Considerations (April 2010) (hereinafter referred to as "the JICA Guidelines") also require an SEA for the studies at the master plan level. Therefore, an SEA study is required in the GKMA-IUDMP.

An SEA is an environmental assessment at Policy (P), Planning (P), and Programme (P), (so-called PPP) level. An SEA can be introduced in the adoption of any policy, legislation, programme, plan, or project likely to produce significant effects on the environment to avoid, minimize or compensate for these effects in the decision-making procedure. It has a profound significance in the plans for proactive environmental and social considerations into the higher levels of decision-making processes through early warning on environmental and social impacts and broad and long-term perspective. Therefore, an SEA is required to be conducted as the Environmental and Social Considerations for the formulation of the master plan of GKMA-IUDMP.

25.1.2 Objectives of the SEA Study in GKMA-IUDMP

The broad objective of an SEA study is to ensure that sustainability issues, such as natural resources, economic, socio-cultural and institutional dimensions, are integrated into the physical development plan.

The specific objectives are as follows:

- To identify the risks and opportunities associated with the physical development plan for GKMA and present necessary guidelines and recommendations to enhance opportunities and to minimize risks
- Incorporate environmental/sustainability issues into the master plan
- Identify potential sensitive environmental areas and provide guidance for their protection
- Establish benchmarks for assessing cumulative environmental effects
- Outline mitigation and monitoring requirements that establish best practices and ensure effective impact management.

25.2 Legal and Institutional Frameworks of Environmental and Social Considerations

25.2.1 Legal Framework

(1) Legislation on Environmental Impact Assessment System

The environmental impact assessment system in Uganda is based on the National Environment Act 1995, which stipulates that an EIA must be carried out for any development project that affects

the environment. In 1998, the Environmental Impact Assessment Regulations No. 13/1998 were formulated, which set out detailed regulations on EIA procedures, contents, screening, public participation and disclosure. NEMA also developed the Guidelines for Environmental Impact Assessment in Uganda in 1997 as a more specific guideline for conducting an EIA.

Meanwhile, a revised environment act (The National Environment Act) was presented to the Cabinet in December 2017, and The National Environment Act, 2019 (The Act) came into force in March 2019. Under the Act, NEMA is also reviewing the Environmental Impact Assessment Regulations and Environmental Impact Assessment Guidelines. According to the NEMA Annual Corporate Report for FY2017/2018, these regulations and guidelines were reviewed or developed between 2017 and 2018, and are awaiting final approval.

Table 25.2.1 shows major legislation for environmental management in Uganda.

Table 25.2.1 Major Legislation for Environmental Management in Uganda

Category	Name	Year	Authority
Environmental Impact Assessment	National Environment Act	2019	NEMA
	Guidelines for Environmental Impact Assessment in Uganda	1997	NEMA
	National Environment (Environmental and Social Assessment) Regulations	2020	NEMA
	The National Environment (Strategic Environmental Assessment) Regulations	2020	NEMA
	The National Environment (Audit) Regulations	2020	NEMA
Protected Area	Wildlife Act	1996	UWA
	National Forestry Policy	2001	NFA
	The National Forestry and Tree Planting Act	2003	NFA
Water Resource Management	The Water Act	1997	GOU
	The National Environment (Wetlands, Riverbanks and Lakeshores Management) Regulations	2000	NEMA
Land Acquisition and Resettlement	The Constitution of the Republic of Uganda	1995	GOU
	Land Act	1998	GOU
	Land Acquisition Act	1965	GOU
	The National Land Policy	2013	GOU
	Guidelines for Compensation Assessment under Land Acquisition (GCALA)	2017	MoLHUD

Source: Uganda Legislation

(2) Legislation on Land Acquisition and Resettlement

The most important legislation on land acquisition and resettlement in Uganda is as follows. Meanwhile, the Ministry of Lands, Housing and Urban Development (MLHUD) drafted the National Land Acquisition, Resettlement and Rehabilitation Policy in 2018.

- The Constitution of Uganda (1995)
- The Land Act (1998)
- The Land Acquisition Act (1965)
- The National Land Policy 2013
- Guidelines for Compensation Assessment under Land Acquisition (GCALA) 2017

1) The Constitution of Uganda (1995)

Article 237 "Land Ownership," paragraph (1) of the Constitution of Uganda (1995) states that Land in Uganda belongs to the citizens of Uganda, who are vested rights according to the land

tenure system stipulated in the Constitution. In addition, in paragraph (3) of the same Article, land in Uganda shall be owned by the land tenure systems, Customary, Freehold, Mailo[1], and Leasehold.

On the other hand, Paragraph (1) of Article 26 stipulates that every person has a right to own property, and Paragraph (2) stipulates that no person shall be compulsorily deprived of property except for taking of possession or acquisition is necessary for public use or in the interest of defence, public safety, public order, public morality or public health. Accordingly, Paragraph (2) also stipulates prompt payment of fair and adequate compensation, prior to the taking of possession or acquisition of the property; and a right of access to a court of law by any person who has an interest or right over the property.

2) The Land Act (1998)

The Land Act (1998) provides for land ownership, management and dispute resolution. According to Article 2 of Chapter 227 under Article 237 of the Constitution of Uganda, the land in Uganda, it belongs to the people of Uganda, with the land ownership system including Customary, Freehold, Mailo, and Leasehold. In addition, Article 42 states that the government or local governments can acquire land based on Article 26 and Article 237, Paragraph (2) of the Constitution.

The Act also states that any compulsory acquisition of land shall be assessed at a fair market valuation on a willing seller willing buyer basis; no person from whom land is to be acquired shall be required to vacate that land until they receive the compensation awarded, and they shall be paid compensation for any losses caused by severance or injurious affection. A disturbance allowance is also mentioned.

3) Land Acquisition Act (1965)

The Land Acquisition Act (1965) prescribes procedures and methods for compulsory land acquisition for public purposes, whether for temporary or permanent use. Persons authorised by the responsible minister can enter the target area and perform the tasks necessary for surveying, digging or boring into the subsoil and remove samples, and do any other thing necessary for ascertaining its suitability for public purposes. The government must pay compensation to those who suffer damage from such works. The Act also stipulates that the assessment officer will survey the land, make public announcements, redress grievances, award compensations, and the affected persons are to be paid compensation.

4) National Land Policy (2013)

The vision of the National Land Policy is: "a transformed Uganda society through optimal use and management of land resources for a prosperous and industrialized economy with a developed services sector." Meanwhile, the goal of the policy is, "to ensure an efficient, equitable, and optimal utilization and management of Uganda's resources for poverty reduction, wealth creation, and overall socio-economic development."

In particular, regarding the land rights of women and children in the land tenure framework, the policy states that women are generally unable to own or inherit land due to restrictive practices under customary land tenure or due to economic difficulties for purchasing land rights in the market in Uganda.

To improve the land rights of women and children, the following are stated in the Policy Statement.

- Government shall by legislation, protect the right to inheritance and ownership of land for women and children; and
- Government shall ensure that both men and women enjoy equal rights to land before marriage, in marriage after marriage and at succession without discrimination.

[1] "Mailo Tenure" has roots in the allotment of land pursuant to the 1900 Uganda Agreement and derives its legality from the constitution and its incidents from written law.

5) Guidelines for Compensation Assessment under Land Acquisition (2017)

The Guidelines for Compensation Assessment under Land Acquisition (GCALA) were formulated by MLHUD in 2017, which aimed to harmonise and improve the overall practice of valuation assessment to achieve fair and adequate compensation to project affected persons. The guidelines set out the following principles.

- Compensation following involuntary resettlement or compulsory land acquisition is based on the principle of fairness, adequacy, and prior and prompt compensation. This means that the project-affected person should not be worse off in financial terms after the acquisition than he or she was before.
- Land and affected developments on the land are valued based on its replacement cost including other incidental costs covered by the statutory disturbance allowance.
- Eligibility for compensation is determined by the cut-off date which shall be disclosed and documented prior to the census and valuation surveys.
- Affected persons shall be adequately informed and consulted on the valuation and compensation process that affects them.
- The minister shall appoint an assessment officer and the land acquisition process shall be conducted.
- Based on circumstances, any compensation can be claimed including but not limited to: the value of the land taken, the value of developments on the land taken (including but not limited to buildings, structures, crops, cultural heritage sites), severance and/or injurious affection.
- In cases where public infrastructure is acquired or affected, the implementing entity in collaboration with the line agency shall reinstate the infrastructure where required and feasible.
- Affected persons with no formal legal rights to land shall be included in the assessment provided that they have established rights to property on the land taken, prior to the cut-off date.
- In all special purpose properties, appraisers shall seek the relevant expertise to guide their assessment.
- Grievance mechanisms are established.

6) Land Acquisition and Resettlement Procedures

The draft National Land Acquisition, Resettlement and Rehabilitation Policy proposes the procedures for the land acquisition, resettlement and rehabilitation as follows.

- The identification of whether a project meets “public use” or “public interest” to improve accountability.
- The declaration of a cut-off date.
- A census and socio-economic survey are to be undertaken upon the public declaration of a cut-off date to collect gender-disaggregated demographic, socioeconomic and cultural baseline data that will serve to identify all impacts, all interests in affected assets, all affected persons, communities, organisations and businesses, and their means of livelihood.
- The consultation, meaningful engagement and active participation of all affected persons, organisations and businesses and host communities in the LARR process.
- Clearly define eligibility criteria and entitlements for compensation and resettlement assistance for the various land rights holders, occupiers and users under the different land tenure categories, including women. The eligibility criteria should recognize all legitimate rights holders, including those who do not have any formal documentation of their rights and customary tenure rights holders, especially in the case for people who hold secondary and

tertiary rights (e.g., tenancy agreements, labourers, sharecropping and rights to common property resources) and residents or users of land such as road reserves, gazetted prior to their occupancy.

- The identification of vulnerable people based on context-specific vulnerability criteria and a vulnerability assessment is undertaken to develop a vulnerable peoples support programme.
- Entitlements and compensation packages
- Budget
- Schedule
- Responsibilities for the implementation
- Supervision, monitoring and evaluation of land acquisition and resettlement processes to ensure that compensation and resettlement is fair, prompt and consistent.
- Establishment of independent grievance redress mechanisms that are accessible to affected communities and individuals.

25.2.2 Procedures of Environmental Impact Assessment

Environmental and Social Impact Assessment (ESIA) procedures in Uganda are carried out by the Environment Act, 2019 (The National Environment Act) and the National Environment (Environmental and Social Assessment) Regulations, 2020. Under the Environment Act 2019, NEMA has also reviewed the Environmental Impact Assessment Guidelines which have not yet been approved and implemented.

(1) Screening

Under Article 112 of the Environment Act 2019, a developer of a project set out in Schedule 4 of this Act shall undertake the ESIA by way of a project brief that outlines the project, the environmental conditions, the expected environmental impacts, and mitigation measures. The project brief is a summary report on the likely environmental impacts of a proposed project. The project brief must be submitted to the lead agencies by Part 1 and Part 2 of Schedule 4 (Projects For Which Project Briefs are Required).

A developer of a project set out in Part 1 of Schedule 4 submits a project brief to the Authority in the manner prescribed by regulations. A developer of a project set out in Part 2 of Schedule 4 submits a project brief to the lead agency[2] in the manner prescribed by the regulations.

NEMA will consult with the lead agency and approve the project if they find that the project mentioned in Part 1 is not likely to have significant adverse impacts on human health or the environment, or the project brief includes sufficient mitigation measures to address the potential impacts of the project.

Article 112 of the Environment Act 2019 sets out the projects for which a project brief is required as follows.

- (1) A developer of a project set out in Schedule 4 to this Act shall undertake the ESIA by way of a project brief.
- (2) The developer of a project set out in Part I of Schedule 4 to this Act shall submit a project brief to the Authority in the manner prescribed by regulations.
- (3) A developer of a project set out in Part II of Schedule 4 shall submit a project brief to the lead agency in the manner prescribed by regulations.
- (4) Where there is more than one lead agency, the lead agency to which the project brief is submitted shall consult with the other lead agencies in the consideration of the project.

[2] "Lead agency" means a ministry, department, agency, local government or public officer in which or in whom the functions of control or management of any segment of the environment are vested.

- (5) Where the Authority, in consultation with the lead agency, is satisfied that the project referred to in subsection (2) is likely not to have significant adverse impacts on human health or the environment or that the project brief contains sufficient mitigation measures to cope with the anticipated impacts, it may approve the project.
- (6) Where the Authority finds that the project in subsection (2) is likely to have significant adverse impacts on the environment or that the project brief does not disclose sufficient mitigation measures to cope with anticipated impacts, the Authority may reject the project or may require the developer to undertake the ESIA.

Thus, NEMA will approve a project if it finds, in consultation with the lead agency, that the project referred to in Part 1 is not likely to have significant adverse impacts on human health or the environment, or that the project brief contains adequate mitigation measures to address the anticipated impacts.

On the other hand, if NEMA determines that the proposed project is likely to have a significant negative environmental impact, or if the project brief does not provide sufficient mitigation measures to address the expected impacts, NEMA either rejects the project or requires the project proponent to perform an ESIA. The difference between Schedule 4 Part 1 and Part 2 is that Part 2 projects have less impact in terms of project type or scale.

Further, a developer of a project who intends to implement the business included in Schedule 5 needs to carry out an ESIA. Schedule 5 (Projects for which Environmental and Social Impact Assessments are Mandatory) (Appendix 4) lists the following types of projects for which an ESIA is required. Each type of project includes specific project details.

- 1. Transport, transportation equipment and related infrastructure
- 2. Communications facilities.
- 3. Exploration and power generation, transmission and distribution infrastructure.
- 4. Utilization of water resources and water supply.
- 5. Housing and urban development.
- 6. Agricultural investments, livestock, range management and fisheries.
- 7. Food and beverage industry.
- 8. Nature conservation areas.
- 9. Forestry.
- 10. Hotel, tourism and recreational development.
- 11. Wood industries.
- 12. Textile industry.
- 13. Tanning and leather industry.
- 14. Chemical industry.
- 15. Metallurgy.
- 16. Electrical and electronics industry.
- 17. Mining industry and mineral processing.
- 18. Manufacturing of non-metallic products.
- 19. Assembling plants.
- 20. Extraction of non-mineral products.
- 21. Petroleum operations.
- 22. Waste management facilities.
- 23. General.

Meanwhile, the Environmental Impact Assessment Guidelines indicate the following projects that are excluded from the ESIA process in List A.

- Cleaning and farm construction for individual subsistence small farms
- Construction or repair of individual houses
- Minor land use changes in the area with slopes of less than 20% including housing construction
- Information collection (scientific or educational) except if it involves the use of chemicals or endangered species or alien materials
- Transfer or ownership of land or related facilities so long as the general character of the area is not changed
- Environmental enforcement actions
- Emergency repairs to facilities within the character of its surroundings

(2) ESIA Procedures

The general procedure for ESIA in Uganda is set out in the Environmental Impact Assessment Guidelines prepared by NEMA. The outline procedure can be summarised as follows. It should be noted that the guidelines are still under revision and may be subject to change, but it is not yet clear whether they will be enforced.

A developer of a project as defined in Part 1 of Schedule 4 of the Environment Act 2019 submits the project brief to NEMA, or one whose project is defined in Part 2 submits it to a lead agency, which should include an overview of the project, the general state of the environment, the likely environmental and social impacts and mitigation measures.

NEMA will consult with the lead agency and, if it finds that the project referred to in Part 1 is not likely to have significant adverse impacts on the human health or the environment, or that the project brief contains sufficient mitigation measures to address the anticipated impacts, the project is approved.

On the other hand, if NEMA finds that a Part 1 project is likely to have significant adverse impacts on the environment, or that the project brief does not provide sufficient mitigation measures to address the anticipated impacts, NEMA will reject the project or require the developer to undertake the ESIA. Projects included in Schedule 5 must also be subject to an ESIA.

The Environmental Impact Assessment Guidelines indicate that developers who intend to implement projects in the vicinity of environmentally sensitive areas, as indicated in Schedule 10, are required to carry out an ESIA. However, the projects and activities indicated in Schedule 11 are exempt from an ESIA unless NEMA determines that they are likely to have cumulative adverse impacts on human health or the environment.

The procedures of an ESIA are summarized as follows.

- A project proponent corresponding to Schedule 4 Part 1 submits a Project Brief to NEMA. Alternatively, a project proponent corresponding to Schedule 4 Part II submits a Project Brief to the lead agency.
- Necessity assessment for ESIA by NEMA (Screening 1: ESIA not applicable, Screening 2: ESIA target project, Screening 3: Are appropriate mitigation measures considered?)
- If an ESIA is not required, an environmental approval (CAE: Certificate of Approval of ESIA) will be issued.
- When an ESIA is required, scoping is performed, and an ESIA TOR is created. Also, an ESIA is required for a project corresponding to Schedule 5.
- A TOR is discussed and reviewed with related organizations and stakeholders.
- Based on the TOR, the project proponent conducts an environmental survey, prepares an environmental impact assessment report (EIS), and submits it to NEMA. Consultation is conducted with stakeholders during the environmental survey.
- NEMA examines the EIS and requests comments from related organizations and related

stakeholders.

- The EIS is reviewed according to the examination results and comments.
- As a result of the examination, the EIS is approved, and the CAE is given to the project.
- Upon receiving the CAE, the project proponent decides to implement the project.
- The project is monitored by the operator according to the monitoring plan described in the EIS, and NEMA and the supervisory authorities confirm whether it is properly monitored.

25.2.3 Strategic Environmental Assessment (SEA)

(1) Environment Act 2019

A Strategic Environmental Assessment (SEA) is stipulated in the Environment Act 2019 defined as "strategic environmental assessment" means the systematic and comprehensive process of evaluating the likely environmental, health and social consequences of a policy, plan or programme and its alternatives to ensure that these consequences are integrated and appropriately addressed at the earliest stage of decision making with the same importance as economic and other strategic considerations.

The Act defines the SEA in Article 47 as follows.

- A strategic environmental assessment shall be undertaken for government policies, plans and programmes being initiated or reviewed, which are likely to have a significant impact on human health or the environment.
- A strategic environmental assessment shall be carried out for activities in landscapes or other areas where there are likely to be large investments or where cumulative impacts are likely to have a significant impact on human health or the environment.
- A lead agency responsible for the policy, plan or programme referred to in subsection (1) shall, in consultation with the Authority, be responsible for carrying out a strategic environmental assessment in a manner prescribed by regulations.

(2) The National Environment (Strategic Environmental Assessment) Regulations 2020

NEMA instituted The National Environment (Strategic Environmental Assessment) Regulations, 2020 under Article 179 of the Environmental Act 2019. The SEA study procedures in the regulation are outlined as follows.

Table 25.2.2 SEA Study Procedures in the Regulation

Procedures	Activities
1) Establish a multi-sectoral technical committee	A ministry, department or agency of the government constitutes a multi-sectoral technical committee to guide the SEA process.
2) Notice for SEA	The ministry, department or agency of the government proposing to undertake SEA, prior to the commencement of the process, gives notice to the Authority and any other relevant lead agency.
3) Screening	SEA is applied to the policies, plans and programmes set out in Schedule 1 of The National Environment (Strategic Environmental Assessment) Regulations, 2020. The SEA implementing agency submits the SEA Screening Form in Schedule 2 to the multi-sectoral technical committee for its advice. The SEA implementing agency submits the Schedule 2 of SEA Screening Form to the multi-sectoral technical committee to obtain advice, and decide whether to proceed to scoping to implement the SEA or not implement the SEA. The reasons for conducting or not conducting the SEA are stated on the screening form and made public.
4) Scoping	The SEA implementing agency submits a scoping report in the form of Schedule 3 to the multi-sectoral technical committee. The multi-sectoral technical committee reviews and approves it. Then the SEA implementing agency discloses it.
5) Conduct of SEA	The SEA implementing agency conducts the SEA in accordance with the scoping.
6) Consultations during the SEA	The SEA implementing agency consults NEMA and other relevant key environmental management agencies, affected populations, etc., during the SEA implementation and prior to the preparation of the SEA, report to collect their opinions.
7) Public hearing on SEA	The SEA implementing agency decides whether to hold a public hearing on the draft policies, plans and programmes. If a public hearing is held, the draft policies, plans and programmes and the draft SEA report are made available to the public.
8) Preparation of SEA report	The SEA implementing agency prepares a SEA report in the form of Schedule 4 in the Regulations.
9) Review of the SEA report	The SEA implementing agency holds a meeting with the multi-sectoral technical committee to certify the SEA report.
10) Preparation and approval of final SEA report	On the recommendation of the multi-sectoral technical committee, the SEA implementing agency submits the final SEA report to the minister responsible for the policies, plans or programmes, who approve it in consultation with the Minister for the Environment.
11) Integration of recommendations of the final SEA report	The agency responsible for the policies, plans or programmes integrates the advice on the final SEA report into the policies, plans or programmes, as appropriate.
12) SEA report in policy, plan or programme approval	The ministry, department or agency of the government responsible for the policies, plans or programmes submits the policies, plans or programmes, together with the final SEA report, to the responsible minister for approval.
13) Monitoring and evaluation mechanism	The SEA implementing agency works with NEMA and other relevant key environmental management agencies to monitor and assess environmental and social impacts.

Source: The National Environment (Strategic Environmental Assessment) Regulations, 2020

(3) Guidelines for Strategic Environmental Assessment (SEA) in Uganda 2020

NEMA provided the Guidelines for Strategic Environmental Assessment (SEA) in Uganda 2020 under the National Environment Act, 2019. The guidelines are designed to support ministries, departments and agencies of the government, and practitioners when undertaking SEA. The guidelines will support the operationalization of the relevant provisions under the National Environment Act, 2019 and the National Environment (Strategic Environmental Assessment) Regulations, 2020.

The guidance is targeted to the various actors in the planning process including:

- Ministries Departments and Agencies responsible for the particular policies, plans and programmes;
- SEA and other relevant expert teams/ practitioners who carry out the analysis and studies for assessment of the policies, plans and programmes;

- Ministries, Departments and Agencies that will contribute to the SEA process, as well as monitoring and evaluation.

The SEA study procedures in the guidelines are summarized as follows.

Table 25.2.3 SEA Study Procedures

(1) Screening 1) Identifying environmental, health and social issues 2) Stakeholder consultations 3) Screening Form
(2) Scoping 1) Study Team set up 2) Identifying other relevant plans, programmes and environmental protection objectives 3) Data collection, baseline information and background studies needed during scoping 4) Developing SEA objectives 5) Criteria for environmental quality, health and social objectives 6) Approval of terms of reference for the strategic environmental assessment
(3) Undertaking Strategic environmental assessment 1) Identification and evaluation of strategic options 2) Scope and nature of potential impacts 3) Identification and evaluation of environmental issues and linkages 4) Identification of risks and opportunities 5) Enhancement and mitigation measures 6) Recommendations on each evaluated strategic option 7) Strategic environmental management and monitoring plan 8) Coordinating SEA within the policy, plan and programme formulation process 9) Ensuring that SEA is integrated into the policy, plan and programme process 10) Preparation of SEA Report 11) SEA Report review 12) Final SEA Report
(4) Public and stakeholder concerns (5) Approval (6) Monitoring and evaluation

Source: Guidelines for Strategic Environmental Assessment (SEA) in Uganda 2020

25.2.4 Organizational Framework for Environmental Management Administration

(1) National Environment Management Authority (NEMA)

In Uganda, the National Environment Management Authority (NEMA), established under the National Environment Act in May 1995, is responsible for coordinating, monitoring, regulating and supervising environmental management in the country. Its main tasks of activities are as follows:

- to advise on the formulation and implementation of environmental and climate change policies, plans and programmes
- to support the mainstreaming and integration of environmental concerns in national and sectoral plans through coordination and collaboration with lead agencies
- to issue environmental compliance certificates
- to regulate environmental practitioners in the environmental and social impact assessment and environmental audit processes
- to review and make decisions on environmental and social impact assessments, environmental audits and other studies or reports submitted in accordance with the Act or any other applicable law
- to issue permits and licences in accordance with the Act and any other applicable law

- to undertake and coordinate environmental monitoring, inspections and compliance audits.

NEMA also consists of four departments and one office, as follows. Among them, the Department of Environment Monitoring and Compliance is responsible for the environmental and social impact assessment procedure.

- Office of the Executive Director
- Department of Finance and Administration: D/F&A
- Department of District Support Coordination and Public Education: D/DSCPE
- Department of Policy, Planning and Information: D/PPI
- Department of Environment Monitoring and Compliance: D/EMC

(2) Department of Environment Monitoring and Compliance (D/EMC)

The Department of Environment Monitoring and Compliance (DEMC) of NEMA is responsible for Environmental Impact Assessment (EIA) in Uganda. It ensures effective implementation of procedures and guidelines and provides technical guidance in the area of EIA; carries out environmental audits and inspections to ensure compliance with environmental standards and regulations.

(3) Kampala Capital City Authority (KCCA), Environment Management Unit

The KCCA Environment Management Unit under the Directorate of Public Health and Environment provides an oversight role in: planning, coordinating, compliance monitoring, technical guidance and enforcement to ensure sustainable infrastructure, spatial planning and social-economic development, which enhance the environmental quality in Kampala City.

Overall, environmental management offers a cross-sectoral technical supporting role through the following core functions:

- Provide environmental compliance technical assistance, monitoring and enforcement for proposed, ongoing, and existing city developments/projects
- Guide and streamline control of pollution and management of domestic and industrial waste including hazardous material
- Implement sound and sustainable natural resources (water, wetlands, forests and biodiversity) conservation and management
- Develop and implement a public/community participation action plan in environment management
- Develop proposals, implement and participate in environmental management basic and applied research to inform strategic decisions and policy
- Provide technical support to KCCA in integrating best practices of environmental management and climate change in infrastructure development, gender and community services, spatial planning, education and other key city development projects.

25.2.5 Comparison of JICA Guidelines and EIA System of Uganda

Table 25.2.4 summarizes the differences between the legislation of the EIA system in Uganda and JICA guidelines. As the table shows, a few gaps were found on the basis between them, and the gaps will be adjusted according to the JICA guidelines.

Table 25.2.4 Gaps between JICA Guidelines and Legislation of Uganda

No.	JICA Guidelines (GL)	EIA System of Uganda	Gaps between JICA GL and Laws in Uganda	Policy to fill up gaps
Underlying Principles	Environmental impacts that may be caused by projects must be assessed and examined in the earliest possible planning stage. Alternatives or mitigation measures to avoid or minimize adverse impacts must be examined and incorporated into the project plan. (JICA Guidelines Appendix 1, 1.)	The principles of environment management include: - requiring prior environmental and social impact assessments of proposed projects which may significantly affect the environment or use of natural resources. - requiring the application of the mitigation hierarchy in environmental and social impact assessments including: to avoid and minimize impacts, to achieve restoration targets and for residual impacts, to deliver biodiversity offsets. (Article 5, National Environment Act 2019) A strategic environmental assessment shall be undertaken for government policies, plans and programmes being initiated or reviewed, which are likely to have a significant impact on human health or the environment. (Article 47, National Environment Act 2019)	There is no gap with the Laws of Uganda.	The Project studies the alternatives of urban plans in the master plan stage and mitigation measures to avoid or minimize adverse impacts.
Examination of Measures	Multiple alternatives must be examined in order to avoid or minimize adverse impacts and to choose better project options in terms of environmental and social considerations. In the examination of measures, priority is to be given to avoidance of environmental impacts; when this is not possible, minimization and reduction of impacts must be considered next. Compensation measures must be examined only when impacts cannot be avoided by any of the aforementioned measures. (JICA Guidelines Appendix 1, 2.)	Environmental and social impact assessment is defined as an analytical process that systematically examines the likely environmental and social impacts of a proposed project, evaluates alternatives and designs appropriate mitigation, management and monitoring measures, taking into account interrelated socio-economic, cultural and human health impacts, both beneficial and adverse. (National Environment Act 2019, National Environment Regulations 2020)	There is no gap with the Laws of Uganda.	The Project examines multiple alternatives.
	Appropriate follow-up plans and systems, such as monitoring plans and environmental management plans, must be prepared; the costs of implementing such plans and systems, and the financial methods to fund such costs, must be determined. Plans for projects with particularly large potential adverse impacts must be accompanied by detailed environmental management plans. (JICA Guidelines Appendix 1, 2.)	The developer of a project requiring an environmental and social impact assessment shall develop an environmental management and monitoring plan in respect of the operations of the project. The Authority may require a developer of any other project to develop an environmental management and monitoring plan. (Article 46, National Environment Regulations 2020)	There is no gap with the laws of Uganda.	The Project studies the mitigation measures and the monitoring plan.

No.	JICA Guidelines (GL)	EIA System of Uganda	Gaps between JICA GL and Laws in Uganda	Policy to fill up gaps
Scope of Impacts to Be Assessed	The impacts to be assessed with regard to environmental and social considerations include impacts on human health and safety, as well as on the natural environment, that are transmitted through air, water, soil, waste, accidents, water usage, climate change, ecosystems, fauna and flora, including trans-boundary or global scale impacts. These also include social impacts, including migration of population and involuntary resettlement, local economy such as employment and livelihood, utilization of land and local resources, social institutions such as social capital and local decision-making institutions, existing social infrastructures and services, vulnerable social groups such as poor and indigenous peoples, equality of benefits and losses and equality in the development process, gender, children's rights, cultural heritage, local conflicts of interest, infectious diseases such as HIV/AIDS, and working conditions including occupational safety. (JICA Guidelines, Appendix 1, 3.)	The developer shall undertake an environmental and social impact study to assess the anticipated positive and negative direct, indirect, induced, cumulative and transboundary environmental, health, socio-economic, cultural and climate change impacts of the proposed project, including expected carbon footprints of the project. (Article 15, National Environment Regulations 2020)	No law is identified to stipulate concrete scope of impact to be assessed.	The Project conducts scoping and assessment for the impacts on the items of environmental and social conditions mentioned in JICA Guidelines.
Social Acceptability	Projects must be adequately coordinated so that they are accepted in a manner that is socially appropriate to the country and locality in which they are planned. For projects with a potentially large environmental impact, sufficient consultations with local stakeholders, such as local residents, must be conducted via disclosure of information at an early stage, at which time alternatives for project plans may be examined. The outcome of such consultations must be incorporated into the contents of project plans. (JICA Guidelines, Appendix 1, 5.)	The developer shall, in undertaking the environmental and social impact study, carry out consultations with relevant stakeholders, communities likely to be affected by the project and the public. The developer shall ensure that the comments received during consultations are recorded, made publicly available and taken into account during the environmental and social impact study. (Article 16, National Environment Regulations 2020)	There is no gap since a public consultation is stipulated.	Although the Project is at the master plan level, public consultation meetings are conducted to disclose the Project information to the local stakeholders and collect opinions to incorporate into the plans.

No.	JICA Guidelines (GL)	EIA System of Uganda	Gaps between JICA GL and Laws in Uganda	Policy to fill up gaps
Ecosystem and Biota	Projects must not involve significant conversion or significant degradation of critical natural habitats and critical forests. (JICA Guidelines, Appendix 1, 6.)	Not applicable	No law is identified to stipulate no involvement of significant conversion or significant degradation of critical natural habitats and critical forests. However, a developer of a project proposed to be located in or near an environmentally sensitive area may be required to undertake scoping and an environmental and social impact study. (Article 12, National Environment Regulations 2020)	The Project does not involve significant conversion or significant degradation of critical natural habitats and critical forests. The Project area, Kampala metropolitan area, does not include critical natural habitats or critical forests.
Involuntary Resettlement	Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives. When, after such an examination, avoidance is proved unfeasible, effective measures to minimize impact and to compensate for losses must be agreed upon with the people who will be affected. (JICA Guidelines, Appendix 1, 7.)	The project brief shall contain a description of alternative resettlement areas for project-affected persons, if any, their associated environmental and social impacts, and or any plans for compensation to project-affected persons. (Article 6, National Environment Regulations 2020) For a certificate of approval of project brief/environmental and social impact assessment, depending on the project, a compensation plan or resettlement action plan to cater for identified project-affected persons in accordance with the applicable laws, may be considered. (Schedule 3, National Environment Regulations 2020)	No law is identified to stipulate clearly that involuntary resettlement and loss of means of livelihood are to be avoided when feasible. However, the National Land Acquisition, Resettlement and Rehabilitation Policy drafted by MLHUD states an objective to avoid and minimize displacement and to promote, where feasible, non-displacing or least-displacing alternatives. It also states prompt and full compensation based on full replacement cost in the principles.	The Project avoids involuntary resettlement and loss of means of livelihood when feasible, and will take effective measures if avoidance is proved unfeasible.
Indigenous Peoples	Any adverse impacts that a project may have on indigenous peoples are to be avoided when feasible by exploring all viable alternatives. When, after such an examination, avoidance is proved unfeasible, effective measures must be taken to minimize impacts and to compensate indigenous peoples for their losses. (JICA Guidelines, Appendix 1, 8.)	All persons are equal before and under the law in all spheres of political, economic, social and cultural life and in every other respect and shall enjoy equal protection of the law. (Article 21, Constitution) The environmental and social impact study and project brief must take into account impacts and sustainability of the indigenous peoples. (Article 15, Schedule 2, National Environment Regulations 2020) A developer shall identify the environmental, social, health or human rights risks or hazards associated with the project or activity, including indigenous peoples. (Article 34, National Environment Regulations 2020)	There is no gap with the Constitution or National Environment Regulations 2020 of Uganda.	The Project avoids any adverse impacts on indigenous peoples, and takes effective measures if avoidance is proved unfeasible. The Project area, Kampala metropolitan area, does not include habitats of indigenous peoples.

No.	JICA Guidelines (GL)	EIA System of Uganda	Gaps between JICA GL and Laws in Uganda	Policy to fill up gaps
Monitoring	After projects begin, project proponents etc. monitor whether any unforeseeable situations occur and whether the performance and effectiveness of mitigation measures are consistent with the assessment's prediction. They then take appropriate measures based on the results of such monitoring. (JICA Guidelines, Appendix 1, 9.)	A developer shall monitor the project and any environmental phenomena of the project; to assess and mitigate its possible impacts, and to ensure the effectiveness of mitigation measures. The Authority shall, upon detecting any non-compliance by a developer, notify the developer in writing and require the developer to bring the project to comply with the requirements. (Article 122, National Environment Act 2019) The developer shall maintain, implement and update the environmental management and monitoring plan during the lifecycle of the project or activity. (Article 46, National Environment Regulations 2020)	There is no gap with the laws of Uganda.	The Project studies the mitigation measures and the monitoring plan.

Source: Uganda Legislation and JICA Guidelines for Environmental and Social Considerations

25.3 Institutions and Organizations for SEA

(1) Multi-Sectoral Technical Committee of MKCC&MA

MKCC&MA constitutes the Multi-Sectoral Technical Committee to guide the SEA process under the National Environment (Strategic Environmental Assessment) Regulations, 2020. The members of the committee will be composed of officers of MKCC&MA, technical officers from NEMA, and environmental officers of KCCA, Mukono District, Wakiso District and Mpigi District.

The office representing NEMA in the Multi-Sectoral Technical Committee needs to provide a senior officer with qualifications, skills, and experience in environmental and social assessment.

1) Tasks of Multi-Sectoral Technical Committee

MKCC&MA constituted the Multi-Sectoral Technical Committee (MSTC) to guide the SEA process under the National Environment (Strategic Environmental Assessment) Regulations, 2020 at the beginning of June 2022.

The tasks of the MSTC are to:

- Review the SEA Screening Report for consideration and advice as to whether it is necessary to proceed to the scoping stage;
- Review and approve the SEA Scoping Report and Terms of Reference (ToR);
- Review and validate the SEA Report; and
- Recommend submission of the Final SEA Report to the Minister of Kampala Capital City and Metropolitan Affairs for Approval in consultation with the Minister responsible for the environment.

2) Members of MSTC

The members of the MSTC chaired by MKCC&MA are composed of the technical officers of lead agencies involved in the planning and environment/culture management sectors including NEMA. The local governments in the Study Area are also members of the MSTC.

Table 25.3.1 List of Multi-Sectoral Technical Committee Members

Category	Name of Organization
Chair	1. Ministry for Kampala Capital City and Metropolitan Affairs
Authority	2 National Environment Management Authority (NEMA)
Lead Agencies	3. Ministry of Lands, Housing and Urban Development 4. Ministry of Local Government 5. Ministry of Water and Environment 6. Ministry of Gender, Labour and Social Development 7. Ministry of Works and Transport 8. Ministry of Energy and Mineral Development 9. Ministry of Tourism, Wildlife and Antiquities 10. National Planning Authority 11. Kampala Capital City Authority
Local Governments	12. Wakiso District Local Government 13. Mukono District Local Government 14. Mpigi District Local Government

Source: MKCC&MA, JICA Expert Team

(2) SEA Team

A consultant team selected by the JICA Expert Team shall undertake the SEA on behalf of MKCC&MA. This team will work closely with both the JICA Expert Team and the Multi-Sectoral Technical Committee of MKCC&MA.

(3) NEMA

NEMA is responsible for coordinating, monitoring, regulating, and supervising environmental management including the EIA system in the country. Unlike the EIA system, NEMA neither reviews nor approves the SEA report. However, a representative from NEMA was invited as a member of the Multi-Sectoral Technical Committee which guides the SEA process for the Project.

25.4 SEA Study

25.4.1 Screening

The MKCC&MA prepared a screening report set out in schedule 2 of the National Environment (Strategic Environmental Assessment) Regulations 2020 with support from JICA Expert Team and submitted it to the MSTC. The MSTC meetings were held for the screening of SEA on the 6th and 13th of June 2022. The screening report was presented at the 1st MSTC meeting. The comments were collected and discussed in the report for review.

After the 1st screening meeting, the other comments on the screening report were collected from the MSTC members. The report that addressed the comments was presented in the 2nd screening meeting and approved by the MSTC on 13th June 2022. It was deemed appropriate to implement the SEA for the Project.

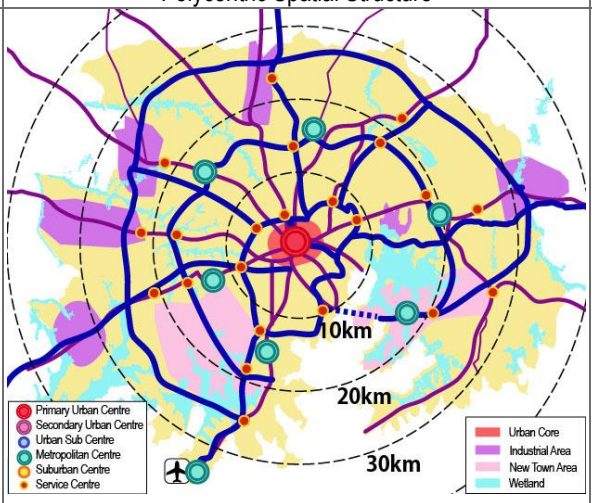
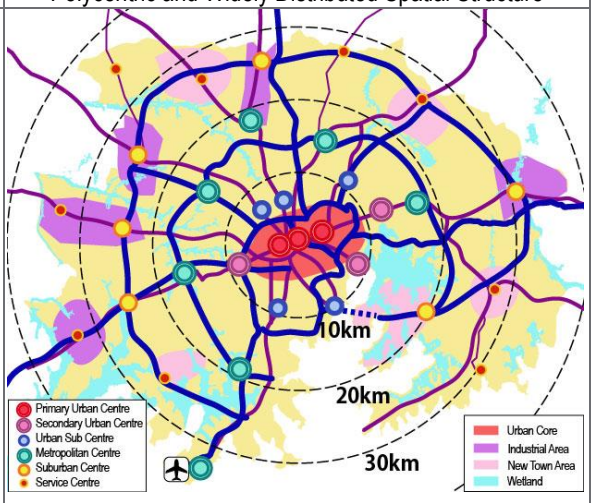
25.5 Alternative Study

25.5.1 Alternative Setup

The JICA Expert Team studied and set up four alternatives for GKUGA Urban Spatial Structures with Without Project (Without Review and Updating), “Do-Nothing Case” as shown in Table 25.5.1, Table 25.5.2 and Table 25.5.3 below.

It is also described in Section 10.1.

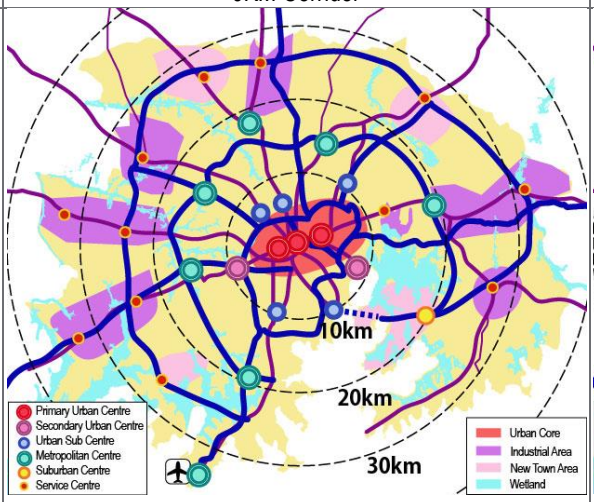
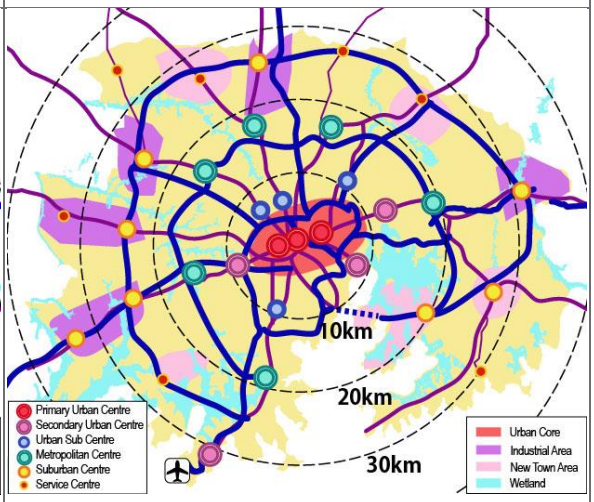
Table 25.5.1 Characteristics of Alternative Urban Spatial Structures A & B

Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure
Spatial Structure	 Alternative Urban Spatial Structure A: Poly-Centric Spatial Structure, which is composed of Spontaneously Developed Urban Centres Just Outside of the Boundaries of Kampala Capital City and a Large Single CBD within Kampala Capital City	 Alternative Urban Structure B: Poly-Centric and Widely Distributed Spatial Structure, which is composed of Large Urban Centres Widely Located Outside of Kampala Capital City and Expanded CBD supported by Secondary Urban Centres
Population	• A large population will be distributed both inside and outside Kampala Capital City. • Nighttime population in 2050 will be 3 million in Kampala Capital City and 10 million outside Kampala Capital City. (Present population in Kampala Capital City is 1.7 million, and outside Kampala Capital City is 3.4 million.)	• A large population will be distributed outside Kampala Capital City. • Nighttime population in 2050 will be 2.2 million in Kampala Capital City and 10.8 million outside Kampala Capital City. (Present population in Kampala Capital City is 1.7 million, and outside Kampala Capital City is 3.4 million.)
Urbanisation	• To develop urban centres outside Kampala Capital City, as proposed by KPDF 2012. • The spontaneously developed urban centres just outside Kampala Capital City will be fostered. The expansion of dense urbanisation will happen within 25km radius from Kampala Capital City's urban core.	• Urban Centres with major functions (job provision and service provision for residents) are distributed at 20-30 km radius from Kampala Capital City's urban core. • The expansion of dense urbanisation will happen within 35km radius from Kampala City's urban core around the urban centres widely located in GKUGA.
CBD	• Consecutive expansion of one large CBD is developed in Kampala City as in KPDP 2012.	• Three Primary Urban Centres will be developed in the centre of Kampala Capital City • The function of the Primary Urban Centres will be supported by three Secondary Urban Centres adjacent to the urban core at Luzira-Port Bell, Busega-Kyengera and Namataba.
Metropolitan Centre	• Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core along with Entebbe.	• Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core along with Entebbe. • Suburban Centres will be developed at the major junctions of expressways such as Kirringete, Bujjuko, Kakiri, Migadde, Namataba and Mpatta. • Mukono, Gayaza, Matugga, Wakiso, Nsangi, Kajjansi and Mpatta will be Metropolitan Centres • Namataba, Kakiri, Mpigi and Entebbe will be Suburban Centre
Service Centre	• Service Centres will be developed within 20-25 km radius from Kampala Capital City' s urban core.	• Service Centres will be developed within 25-35 km radius from Kampala Capital City's urban core.

Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure
Industry	• Industrial area will be developed around 25-35km radius from Kampala Capital City's urban core, along with the existing Namanve Industrial Park.	• Industrial area will be developed around 25-35km radius from Kampala Capital City's urban core.
New Town Development	• Large new town development is proposed in the southern areas of Wakiso District and Mpigi District.	• New town development is proposed around Kasanje, Kabaale, Kalagi, Kisoga and Mpatta.
Transport Network	Multi-Modal Urban Transport Master Plan (MMUTMP) Scenario (Intensive Transit Development): This scenario is based on the Metro Plus Plus scenario of the MMUTMP Travel Demand Model (TDM). The Metro Plus Plus scenario is the recommended scenario of the MMUTMP to achieve all objectives of the plan. It provides significant improvements in parameters of accessibility and mobility due to infrastructural upgrades, while minor revisions are made considering the changes in travel behaviour and infrastructure development after the formulation of the MMUTMP. The socioeconomic framework of the MMUTMP project will be fully utilised for this scenario, while zonal indicators such as population, working population and student population for TAZs outside of KSPA are estimated based on the Do Minimum scenario. 1) Mass Transit Improvements 2) Other Public Transport Improvements 3) Boda Boda Restriction 4) Parking Restrictions in CBD 5) Transport-Oriented Development (TOD)	Similar to Alternative D

Source: JICA Expert Team

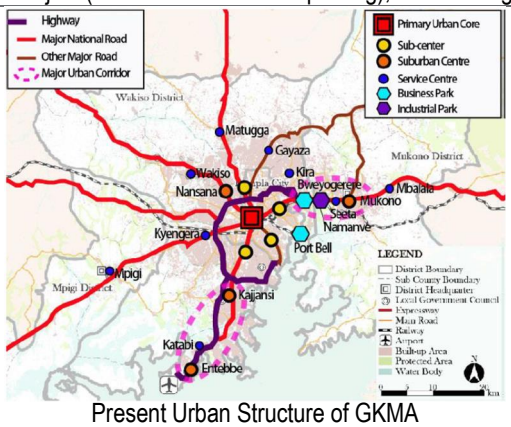
Table 25.5.2 Characteristics of Alternative Urban Spatial Structures C & D

Alternative	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C
Spatial Structure	 Alternative Urban Structure C: Urban Spatial Structure taking Advantage of the Industrial Location Potential Created by JKM Corridor centred on Kampala-Jinja Expressway	 Alternative Urban Structure D (Integration of Urban Structures B and C): Poly-Centric and Widely Distributed Spatial Structure, taking Advantage of the Expressway Development in GKUGA to Support Industrial Development and Urban Development

Alternative	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C
Population	• Large population will be distributed to outside Kampala Capital City. • Nighttime population in 2050 will be 2.2 million in Kampala Capital City and 10.8 million outside Kampala Capital City. (Present population in Kampala Capital City is 1.7 million, and outside Kampala Capital City is 3.4 million.)	• Large population will be distributed to outside Kampala Capital City. • Nighttime population in 2050 will be 2.2 million in Kampala Capital City and 10.8 million outside Kampala Capital City. (Present population in Kampala Capital City is 1.7 million, and outside Kampala Capital City is 3.4 million.)
Urbanisation	•	• Urban Centres with major functions (job provision and service provision for residents) are distributed at 20-30 km radius outside Kampala Capital City. • The expansion of dense urbanisation will happen within 35km radius from Kampala Capital City's urban core taking advantage of the expressway development.
CBD	• Three Primary Urban Centres will be developed in the centre of Kampala Capital City, and the function of the Primary Urban Centres will be supported by two Secondary Urban Centres adjacent to the urban core at Luzira-Port Bell and Busega-Kyengera.	• Three Primary Urban Centres will be developed in the centre of Kampala Capital City • The function of the Primary Urban Centres will be supported by three Secondary Urban Centres adjacent to the urban core at Luzira-Port Bell, Busega-Kyengera and Namataba. • Entebbe will also be developed as the Secondary Urban Centre with its strategic function as international gateway and some central government functions.
Metropolitan Centre	• Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core along with Entebbe.	• Metropolitan Centres will be developed mainly within 15-20 km radius from Kampala Capital City's urban core.
Suburban Centre	•	• Suburban Centres will be developed at the major junctions of expressways such as Kirringete, Mpigi, Bujjuko, Kakiri, Migadde, Namataba, Kisoga and Mpatta.
Service Centre	• Service Centres will be developed within 25-35 km radius from Kampala Capital City's urban core to provide services to the industrial area.	• Service Centres will be developed within 25-35 km radius from Kampala Capital City's urban core.
Industry	• Industrial Growth Corridors will be allocated along the major corridors of Jinja-Kampala including Namanve Industrial Park, Kampala-Mpigi, Kampala Mitiana, Kampala-Hoima, Kampala-Bombo and around Kisoga. Industrial area will be developed around 20-35km radius from Kampala Capital City's urban core.	• Industrial area will be developed around 25-35km radius from Kampala Capital City's urban core.
New Town Development	• New town development is proposed around Kasanje, Kabaale, Kalagi, and Mpatta.	• New town development is proposed around Kasanje, Kabaale, Kalagi, Kisoga and Mpatta.
Transport Network	Similar to Alternative D	Urban Centre TOD Scenario (Moderate Transit Development and Joint Development of Urban Centres and Transport Infrastructures): Development strategies are considered, in which the urban centres to be developed outside Kampala City are integrated with the transport networks consisting of roads, BRT, LRT, MRT and transit-oriented development (TOD).

Source: JICA Expert Team

Table 25.5.3 Characteristics of Alternative Urban Spatial Structure E

Alternative	Alternative E Without Project (Without Review and Updating), "Do-Nothing Case"
Spatial Structure	 Present Urban Structure of GKMA The present situation under the KPDF/KPDP, a Modern, Functional, Balanced City and Metropolitan System
Population	• A large population will be distributed both inside and outside Kampala Capital City. Nighttime population in 2050 will be 3 million in Kampala Capital City and 10 million outside Kampala Capital City. (Present population in Kampala Capital City is 1.7 million, and outside Kampala Capital City 3.4 million.)
CBD	• Most of the urban and administration functions of Kampala City are concentrated in its city centre. • Its central business district (CBD) has two types of areas. The first area covers the taxi parks (Old Taxi Park and New Taxi Park) that function as the transportation terminals for the taxis (mini buses) and a large cluster of small-scale and informal commercial activities located on the west of CBD. • The second is the area with offices of the Central Government, the Parliament, headquarters of banks and other private companies which are formal businesses. This area is on the eastern side of the CBD.
Urban Centres	• In Kampala City, while the urban core area is expanding, urban sub-centres are now emerging. • At present, municipal centres and town centres function as the service centres in the suburban areas. However, some municipal centres in neighbouring Kampala City are developing rapidly and are functioning as suburban centres. • The existing town centres are developing to become service centres for the emerging urban population. Most of them are located along major national roads. • However, in Kasangati Town, Gayaza is developing as its service centre. Furthermore, Matugga in Nansana Municipality is also functioning as the service centre for the area. • Matugga is expected to become one of the major urban centres of Wakiso District as indicated in the Wakiso District PDP.
Dense Urbanisation	• The area along the Kampala-Jinja Road and Kampala-Entebbe Road are developing as urban corridors. • On the other hand, the residential area is expanding widely towards the north and west of Kampala City in Wakiso District. • Dense urbanisation will expand within a 25 km radius of Kampala City along Kampala-Jinja Corridor and Kampala-Entebbe Corridor and around the existing urban sub-centres.
Industry	• Three industrial and business parks are prepared by the Investment Promotion Authority in GKMA. • There is also an area in the centre of Kampala City, called the Industrial Area. • Other small-scale industrial developments are occurring along the major national roads.
New Town Development	• There is an existing project to develop satellite cities in Bwebajja, Nakigalala, Mpata, Nsimbe and Buziranjovu.
Transport Network	Do Minimum Scenario: The "Committed/Approved Projects" are considered as those slated for implementation regardless of the findings or recommendations of the master plan. These projects, collected from the project inventory list compiled in cooperation with all stakeholders, include infrastructure and operational upgrades as well as new infrastructure building projects. The socioeconomic framework including population, working population and student population of this scenario is to be developed assuming that the current urbanisation trend continues.

Source: JICA Expert Team

25.5.2 Likely Impacts for Comparison

The JICA Expert Team considered the preliminary scoping and the opinions from the participants of the first stakeholder consultation meeting to decide the indicators to compare the alternatives of spatial structures. The indicators were considered: what impacts are more significant; cumulative impacts; broader and long-term perspective; and data availability and accessibility. Therefore, the items of likely impacts especially expected in the construction (temporary) phase were excluded from the indicators for the SEA.

The JICA Expert Team focused attention on the opinions presented by the participants during the group discussions of the first stakeholder consultation meeting. As the result, the following likely impacts were derived from the opinions presented by the participants during the group discussions of the first stakeholder consultation meeting as the indicators to be evaluated to compare the alternatives of appropriate GKMA-UDAP.

- Air quality and Green House Gas (GHG) emission management
- Protected Area
- Fauna and flora outside protected areas
- Population (gender, vulnerable groups) (poor, informal settlers)
- Local Economy (livelihood activities)
- Land Use
- Local Conflicts/ Governance
- Working Conditions (Industrialisation)

25.5.3 Comparison and Evaluation of Alternatives

Five alternatives were evaluated in both qualitative and quantitative manners. The qualitative approach was adopted mainly because the nature of the Master Plan study did not specify the extent of impact and scale of the project area over a wide area. Comparisons were made by evaluating the alternatives relative to each other. As the results of the evaluations, Alternative D, Integration of Urban Structures was recommended for the GKMA-UDAP as shown in Table 25.5.4 and Table 25.5.5. Table 25.5.4 summarises the scoring results of Table 25.5.5. No comparator weighting was used in scoring.

In addition to the environmental and social impacts, the structure desirability and the transport sector (Multicriteria Analysis: MCA) which is important from a technical point of view as the skeleton of the urban structure, was used as a comparison item, and for the environmental and social impacts, the items identified as having particularly significant impacts during the group discussions of the first stakeholder consultation meeting were used as comparison items.

In Alternative A, the spontaneous expansion of cities will continue, with population, urbanised areas, urban functions and industry concentrated in existing urbanised areas. This results in a mixed land use of urban functions, i.e. administrative and social services, commercial, business and services, residential and industry. At the same time, transport is intensively developed and traffic conditions are better than in Alternative E. In relative terms, the environmental and social impacts would be greater and therefore this proposal is not recommended.

Alternative B focuses on urban functions, consisting of an expanded CBD supported by secondary urban centres, and urban centres located widely outside the Kampala Metropolitan Area. Population and urbanised areas, CBDs and urban centres, and urban functions and industrial clusters will be more widely dispersed. In addition, the transport system will be developed in an integrated manner and the transport situation will be better than in Alternative A. Because of its focus on urban functions, it is better at mitigating pollution and natural environmental impacts and improving living conditions than the industry-oriented Alternative C, but it is inferior in terms of economic benefits.

Relatively, it is better than Alternative E and Alternative A in mitigating environmental and social impacts, but inferior to Alternative D. It is therefore promising but not recommended.

Alternative C is more industry-oriented, taking advantage of the industrial location potential of the JKM corridor, particularly the Kampala-Jinja Expressway. As with Alternative B, the population, urbanised areas, CBDs and individual urban centres, urban functions and industrial clusters would be distributed over a wider area. However, the provision of services, particularly in cities close to industrial areas, will be a key function.

In addition, transport will be developed in an integrated manner and traffic conditions will be better than in Alternative A. Because of its industrial focus, it has better economic benefits than Alternative B, which focuses on urban functions, but is less effective in reducing pollution and natural environmental impacts and improving living conditions.

Relatively, it is better than Alternative E and Alternative A in mitigating environmental and social impacts, but inferior to Alternative D. It is therefore promising but not recommended.

By integrating Alternative B: Poly-Centric and Widely Distributed Spatial Structure and Alternative C: Advantage of the Industrial Location Potential Created by JKM Corridor. Alternative D will ensure an appropriate distribution of urban areas and centres, urban functions and industries in the GKUGA based on current development potential.

The integration of these areas to be developed on the outskirts of Kampala with the transport network consisting of roads, BRT, LRT, MRT and other transport-oriented development (TOD) will facilitate the following urban development in the GKUGA.

- To develop competitive and vibrant economic sectors
- To enhance the healthy and resilient residential environment and urban amenities for the enjoyable lives of people
- To promote the environmental and social sustainability of GKUGA

This alternative is recommended because it integrates urban and industrial functions and TOD, which will mitigate pollution and natural environmental impacts compared to the other alternatives, while increasing economic benefits.

Alternative E, the “do-nothing case”, has few advantages over other alternatives. If nothing is done and current problems are delayed in being addressed and resolved, the current situation will get worse. This will make it more difficult to deal with the worsening problem and will require more time, effort and money. While waiting for a solution, the environmental and social impacts will increase and spread. It is therefore not recommended.

Table 25.5.4 Summary of Comparison and Evaluation of GKUGA Urban Spatial Structure Alternatives

Comparison Items \ Alternatives	Evaluation [1]					Scoring				
	A	**B**	**C**	**D**	**E**	**A**	**B**	**C**	**D**	**E**
1. Technical aspect: Structure desirability										
1-1) Wide allocation of urban centres	B	A	B	A	C	2	3	2	3	1
1-2) Functional expansion of CBDs	C	A	A	A	C	1	3	3	3	1
1-3) Emphasis on industrial growth corridors	B	B	A	A	B	2	2	3	3	2
2. Technical aspect: Transport sector										
2-1) Economic Benefit	B	A	A	A	C	2	3	3	3	1
2-2) Safety and Security	A	A	A	A	C	3	3	3	3	1
2-3) Feasibility	C	B	B	B	A	1	2	2	2	3
3. Environmental and Social Impacts										
3-1) Air quality and Green House Gas (GHG) emission management	B	A	B	A	C	2	3	2	3	1
3-2) Protected Area	C	A	B	A	C	1	3	2	3	1
3-3) Fauna and flora outside protected areas	C	A	B	A	C	1	3	2	3	1
3-4) Population (gender, vulnerable groups) (poor, informal settlers)	B	A	B	A	C	2	3	2	3	1
3-5) Local Economy (livelihood activities)	B	B	A	A	C	2	2	3	3	1
3-6) Land Use	C	B	B	A	C	1	2	2	3	1
3-7) Local Conflicts/ Governance	C	A	B	B	C	1	3	2	2	1
3-8) Working Conditions (Industrialisation)	B	A	A	A	C	2	3	3	3	1
Overall Evaluation [2]	B-	B+	B+	A	C	23	38	34	40	17

Note: [1] Evaluation
A: Comparatively less adverse impacts or more positive impacts (3 points)
B: Comparatively medium impacts (2 points)
C: Comparatively more adverse impacts or less positive impacts (1 point)
[2] Overall evaluation: minimum value (17 points) was rated C, maximum value (40 points) was rated A, intermediate value (28.5 points) was rated B, between minimum and intermediate values was rated B- and between intermediate and maximum values was rated B+.
Source: JICA Expert Team

Table 25.5.5 Comparison and Evaluation of GKUGA Urban Spatial Structure Alternatives

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
1. Technical aspect: Structure desirability					
1-1) Urban Centare	In view of the rapid growth of the residential population outside the KCC, a wide distribution of urban centres should be promoted in the suburban areas outside the KCC.				
Rating	B	A	B	A	C
1-2) CBD	Given the future size of the total population (over 10 million) of the metropolitan area, the CBDs should be expanded physically and functionally.				
Rating	C	A	A	A	C
1-3) Industrial Growth Corridor	Strong industrial growth corridors should be developed along the Kampala-Jinja Expressway and the Kampala-Mpigi Expressway.				
Rating	B	B	A	A	C
2. Technical aspect: Transport Sector (Multicriteria Analysis: MCA)					
2-1) Economic Benefit	Travel Time was calculated as 61.24 passenger-billion hour/year (3,665 passenger hour/person/year) • The passenger's travel time was reduced from the Do-Minimum Scenario of the transport development strategies and was in the middle among the alternatives. Vehicle Operation Cost was calculated as 2,876 Million $/year (172.1 $/person/year) • Considering the travel distance and fuel consumption, the Vehicle Operation Cost was reduced from the Do-Minimum Scenario of the transport development strategies and was in the middle among the alternatives.	Same as Alternative D.	Same as Alternative D.	Travel Time was calculated as 16.52 passenger-billion hour/year (1,122 passenger hour/person/year) • The passenger's Travel Time was reduced from the Do-Minimum Scenario of the transport development strategies and was the shortest among the alternatives. Vehicle Operation Cost was calculated as 2,005 Million $/year (136.1 $/person/year) • Considering the travel distance and fuel consumption, the Vehicle Operation Cost was reduced from the Do-Minimum Scenario of the transport development strategies and was the least among the alternatives.	Travel Time was calculated as 132.62 passenger-billion hour/year (7,936 passenger hour/person/year) • The passenger's Travel Time was reduced from the Do-Minimum Scenario of the transport development strategies and was the longest among the alternatives. Vehicle Operation Cost was calculated as 3,924 Million $/year (234.8 $/person/year) • Considering the travel distance and fuel consumption, the Vehicle Operation Cost was the highest among the alternatives.
Rating	B	A	A	A	C
2-2) Safety and Security	Same as Alternative D.	Same as Alternative D.	Same as Alternative D.	Traffic accident risk: The majority of the victims of the traffic accidents were pedestrians, and the second largest number for all years pertains to motorcyclists. As for major cause actors of traffic accidents, boda-boda drivers identify taxis, while pedestrians identify boda-boda in the survey. Since road conditions will be improved, it can reduce the risk of traffic accidents due to driver inattention. Besides, the	Traffic accident risk: Assuming the current urbanisation trend continues, the risk of traffic accidents will increase.

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
				separation of pedestrians and vehicles will be promoted by pedestrian infrastructures, such as sidewalks, bike lanes/bike networks and priority lanes for public transport. This can also reduce the risk of traffic accidents.	
Rating	A	A	A	A	C
2-3) Feasibility	Issues of land acquisition, technical issues and financial constraints: Since the most extensive transport development is planned, the highest initial cost and the most land acquisition are expected. Consequently, involuntary resettlement is also expected.	Same as Alternative D.	Same as Alternative D.	Issues of land acquisition, technical issues and financial constraints: Since transport developments are focused on ensuring that the urban centres developed outside Kampala City are being integrated with the transport networks consisting of roads, BRT, LRT, MRT and transit-oriented development (TOD), moderate initial cost, land acquisition and involuntary resettlement are expected.	Issues of land acquisition, technical issues and financial constraints: Since the "Committed/Approved Projects" are considered as those slated for implementation regardless of the findings or recommendations of the master plan, minimum land acquisition and investment are expected.
Rating	C	B	B	B	A
Note:	• The traffic congestion continues and grows compared with the current traffic condition. • The result of the travel demand forecast shows that the capacity of public transport exceeds its capacity in the critical sections. • The results were based on the multicriteria analysis by the JICA Expert Team.				
3. Environmental and Social Impacts					
3-1) Air quality and Green House Gas (GHG) emission management	• The JCIA expert team's traffic demand forecasts show that the major roads in the MMUTMP would have higher Volume to Capacity Ratio (VCR), similar to Alternative E, but with reduced volumes. • The reduction in travel times is expected to reduce traffic congestion, resulting in reduced emissions of air pollutants from exhaust gases and contributing to improved air quality in the region. On the other hand, it is difficult to control point sources of air pollution, such as factories, due to the natural development. • According to the analysis of the JCIA Expert Team, CO_2 emissions from vehicles were calculated at 2,571 million tons/year (153.8	• The transport network is the same as Alternative D, with key urban functions (provision of employment and services to residents) distributed within a 20-30 km radius outside the Kampala Metropolitan Area, leading to a reduction in vehicle movements into Kampala city centre. It is therefore expected to contribute to improving air quality in the region in the same way as Alternative D. • However, as industry is not planned to be as decentralised as in Alternatives C and D, local residents may be affected by air pollution due to the proximity of residential and urban function sites to manufacturing and other industries that could become point	• The transport network is the same as Alternative D, with key urban functions (provision of employment and services to residents) distributed within a 20-30 km radius outside the Kampala Metropolitan Area, leading to a reduction in vehicle movements into Kampala city centre. It is therefore expected to contribute to improving air quality in the region in the same way as Alternative D. • However, the development of industrial areas along major arterial routes can lead to a rapid increase in industrial vehicle traffic. The concentration of manufacturing and other industries in the area could also be point sources of air pollution and therefore the area could be	• According to the JCIA expert team's traffic demand forecasts, the Volume to Capacity Ratio (VCR) will be lower and the number of roads with high VCRs will also be reduced. • Thus, the relocation of industry from urban centres and the introduction of integrated transport networks will reduce traffic congestion associated with economic activity and consequently reduce air pollutants from exhaust emissions. This is expected to contribute to improved air quality in the region. However, there is a potential for increased air pollution from factory emissions in suburban industrial areas. • According to the analysis of the JCIA Expert Team, CO_2 emissions from vehicles were calculated at 1,845 million tons/year (125.3 tons/person/year).	• According to the JCIA expert team's traffic demand forecasts, most of Kampala's main arterial roads have high Volume to Capacity Ratio (VCR). This is due to the concentration of workplaces in the centre of Kampala and residential sprawl in the suburbs. • Travel times are not reduced and traffic congestion is exacerbated, resulting in increased emissions of air pollutants from exhaust fumes and worsening air quality in the area. In addition, the spontaneous development of the area makes it difficult to control point sources of air pollution, such as factories. • According to the analysis of the

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
	tons/person/year). • The CO_2 emissions from vehicles were reduced from the Do-Minimum Scenario of the transport development strategies and were in the middle among the alternatives.	sources of air pollution.	affected by increased air pollution.	• The CO_2 emissions from vehicles were reduced from the Do-Minimum Scenario of the transport development strategies and were the lowest among the alternatives.	JICA Expert Team, CO_2 emissions from vehicles were calculated at 3,476 million tons/year (209.0 tons/person/year) • The CO_2 emissions from vehicles were the highest among the alternatives.
Rating	B	A	B	A	C
Note:	• CO_2 emission from vehicles (million tons/year): The unit CO_2 emission volume (grams/vehicle-km) by speed range by vehicle type was estimated based on the Highway Development and Management Model Four (HDM-4) developed by the World Bank. • The total CO_2 emission was calculated by multiplying the unit CO_2 emission volume with the vehicle flow volume and travel distance. • The results were based on the multicriteria analysis by the JICA Expert Team.				
3-2) Protected Area	• One large CBD will be consecutively expanded in Kampala City, and the urban centre will foster spontaneous development just outside the Kampala Metropolitan Area. • However, in spontaneous cities, urban functions and conventional industries will be developed without proper infrastructure and/or regulation. • Large new town developments are proposed in the southern part of Wakiso and Mpigi districts. • This expansion of spontaneous development, the industrial areas of Mpigi and the large new town development in the south are likely to have the same impact on Ramsar wetlands and other forest reserves as Alternative E.	• The CBDs will be decentralised, and urban centres and high-density urban areas will also be widely dispersed. • In addition to these urbanised areas, industrial areas will be widely dispersed, which could affect Ramsar wetlands and other forest reserves. • However, due to the emphasis on urban functions, the impacts are relatively less than those of Alternatives A and C.	• As in Alternative B, urban centres, high-density urban areas and industrial areas will be widely dispersed. • In addition, there will be an industrial growth corridor along the main Jinja-Kampala corridor and industrial areas will be more extensively developed than in Alternative B. • The main form of industry, manufacturing, would not have relatively large pollution emissions, but industrial areas will be spread over a larger area. The potential for impacts on Ramsar wetlands and other forest reserves would therefore be relatively greater.	• As in Alternative B, urban centres, high-density urban areas and industrial areas will be widely dispersed. • Industrial areas will be developed to a similar extent, but the industrial growth corridor, particularly between Jinja and Kampala, will not be developed to the extent of Alternative C. • Therefore, although wetlands and other forest reserves can be affected, the impacts will be averaged out due to the integrated nature of Alternatives B and C.	• In Kampala, one large CBD will be continuously expanded and the city centre will spontaneously form on the outskirts of Kampala. Traditional urban areas and industries may expand on sprawl in relatively small areas without appropriate infrastructure or regulation. • Ramsar wetlands, Mamamba Bay, and Luembe Bay wetlands, like other wetlands, are affected by urbanisation and conversion to cultivation, which can be exacerbated by the expansion of such unregulated development. • Other forest reserves are also threatened by development and the risk of encroachment.
Rating	C	A	B	A	C
3-3) Fauna and flora outside protected areas	• Most areas in the region have been artificially modified, and only a few natural habitats remain outside protected areas, which are being degraded. • The above-mentioned urban development features and infrastructure development can fragment degraded wetlands and	• The urban development characteristics and infrastructure development described above can result in temporary or permanent loss of flora and fauna, with potential damage to the flora and fauna of degraded wetlands and forests. • However, naturally occurring development such as Alternative A	• As mentioned above, the development of industrial areas around the JKM corridor, centred on the Kampala-Jinja Expressway, is planned to be more extensive and can damage the remaining flora and fauna of wetlands and forests. • However, as with Alternative B, spontaneous development is	• As described above, impacts are averaged, minimised and mitigated due to the integrated characteristics of Alternatives B and C.	• Most areas within the region have been artificially modified, with few natural habitats remaining outside the reserves. Forest cover has been reduced by residential and industrial development and is scattered over limited areas within the region. • Population growth and

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
	forests, resulting in temporary or permanent damage to flora and fauna.	will be controlled in each urban centre and industrial area according to their respective functions. The extent of the industrial areas is also relatively small, so impacts will be minimal among the alternatives.	expected to be controlled and industrial areas will limit the presence of conventional industries and establish more high-tech, strategic and non-polluting manufacturing. • Therefore, the impacts of the industrial areas will be controlled and mitigated. However, it will be extensive and the impacts are moderate among the alternatives.		urbanisation are increasing the encroachment of development into wetlands outside these protected areas, the inflow of sewage and sedimentation due to inadequate sanitation, and contributing to degradation. • This situation is ongoing and will worsen if not addressed systematically.
Rating	C	A	B	A	C
3-4) Population (gender, vulnerable groups) (poor, informal settlers)	• In urban areas, vulnerable groups (e.g. poor households, women and children, the elderly, people with disabilities, people living with HIV/AIDS, youth, child-headed households, orphans and widows) lack access to productive and household assets, income and livelihood opportunities, and public services, especially health care and markets. • These disadvantages can therefore be exacerbated if vulnerable groups are not adequately compensated for land acquisition for development or resettlement. • Women often have limited access to key resources such as land and credit, which, combined with gender disparities in employment, can hinder their economic development. • Vulnerable groups, including women, can also be limited in their participation in employment and business opportunities created by urban development. • Similar impacts are expected for poor residents of informal settlements, which are widespread in Kampala City. They can suffer socio-economic impacts such as	• The CBDs will be decentralised, and urban centres and high-density urban areas will also be widely dispersed. Industrial areas will be also widely dispersed. • However, due to the urban function-oriented spatial structure, the situation of gender and socially vulnerable groups shown in Alternative A is relatively less affected than in Alternatives A and C.	• As in Alternative B, urban centres and high-density urban areas will be widely dispersed. Industrial growth corridors will be along the main Jinja-Kampala corridor, and industrial areas will be more extensively developed than in Alternative B. • However, due to the spatial structure with emphasis on industrial development, the situation of gender and vulnerable groups shown in Alternative A is relatively more affected than in Alternative B.	• Impacts will be averaged, minimised and mitigated due to the integrated nature of Alternatives B and C.	• This alternative envisages spontaneous development, with population and development concentrated in the centre of Kampala and urban sprawl in the suburbs, where basic urban infrastructure and services unable to keep pace. • This is likely to worsen the situation of gender and socially vulnerable groups, as indicated in Alternative A.

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
	degradation or loss of living conditions, reduced income and loss of livelihoods. • Impacts on gender and socially vulnerable groups are greater than in Alternatives B, C and D, as development is assumed to be more spontaneous than in Alternatives B, C and D. In particular, impacts on this group will be greater in the CBDs due to the continuous expansion of a large existing CBD.				
	Social exclusion due to inaccessibility for groups of dwellers with relatively poor mobility are low-income households, households without access to private vehicles, women, elderly and youth, and people with a disability. Equity of Transport Network: • Population coverage of high-service level public transport stations within 1 km (based on the transport network development analysis) was calculated as 22.3% of population coverage which was at the middle among the alternatives. Walkability of NMT (Non-Mortalized Transport) Infrastructures: • The modal share of "Walk" still accounted for 29% in the AM Peak Scenario of the Travel Demand Forecast. • Since pedestrian infrastructures, such as sidewalks, bike lanes/bike networks and priority lanes for public transport are planned, and separation of pedestrians and vehicles will be promoted, the walkability of NMT infrastructures is expected to be improved.	As with Alternative D, the transport network in the TOD scenario is expected to improve the walkability of the NMT infrastructure to a comparable level for a group of residents with relatively low mobility.	As with Alternative D, the transport network in the TOD scenario is expected to improve the walkability of the NMT infrastructure to a comparable level for a group of residents with relatively low mobility.	Social exclusion due to inaccessibility for groups of dwellers with relatively poor mobility are low-income households, households without access to private vehicles, women, elderly and youth, and people with a disability. Equity of Transport Network: • Population coverage of high-service level public transport stations within 1 km (based on the transport network development analysis) was calculated as 29.8% of population coverage which was the highest among the alternatives. Walkability of NMT (Nonmotorised Transport) Infrastructures: • The modal share of "Walk" still accounted for 30% in the AM Peak Scenario of the Travel Demand Forecast. • Since pedestrian infrastructures, such as sidewalks, bike lanes/bike networks and priority lanes for public transport are planned, and separation of pedestrians and vehicles will be promoted, the walkability of NMT infrastructures is expected to be improved.	Social exclusion due to inaccessibility for groups of dwellers with relatively poor mobility are low-income households, households without access to private vehicles, women, elderly and youth, and people with a disability. Equity of Transport Network: • Population coverage of high-service level public transport stations within 1 km (based on the transport network development analysis) was calculated as 7.5% of population coverage which was the lowest among the alternatives. Walkability of NMT (Nonmotorised Transport) Infrastructures: • The modal share of "Walk" still accounted for 35% in the AM Peak Scenario of the Travel Demand Forecast. • However, since no pedestrian infrastructures, such as sidewalks, bike lanes/bike networks and priority lanes for public transport are planned, and no separation of pedestrians and vehicles will be promoted, the walkability of NMT infrastructures is expected to be the same as the present conditions.

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
	• The urban corridors will provide local roads with gutters, and water supply infrastructure to prevent further expansion and deterioration of informal settlements especially in areas where the population is increasing. • These can contribute to improving the living conditions of the population (women, vulnerable groups, poor and informal settlers).	• The urban centres outside Kampala Capital City will provide a good level of educational and health facilities for attracting middle-income populations. • The urban corridors will also provide local roads with gutters, and water supply infrastructure to prevent further expansion and deterioration of informal settlements especially in the areas where the population is increasing. • These can contribute to improving the living conditions of the population (women, vulnerable groups, poor and informal settlers).	• The urban centres outside Kampala Capital City will provide a good level of educational and health facilities for attracting middle-income populations. • More job opportunities in the commercial and service sectors supporting the industries can contribute to providing more livelihoods for the population (women, vulnerable groups, poor, informal settlers).	• The urban centres outside Kampala Capital City will provide a good level of educational and health facilities for attracting middle-income populations. • The urban corridors will also provide local roads with gutters, and water supply infrastructure to prevent further expansion and deterioration of informal settlements especially in the areas where the population is increasing. • More job opportunities in the commercial and service sectors supporting the industries can contribute to providing more livelihoods. • These can contribute to improving the living conditions of the population (women, vulnerable groups, poor and informal settlers).	• Particularly, Kampala struggles with high rates of informality and underemployment, as the number of available formal jobs has not increased as rapid urbanisation and population growth. • Moreover, the informal sector is largely made up of micro-firms that are below the minimum threshold for small business income tax. • The poor road infrastructure network and absence of a developed public transportation system have compounded the challenge of the movement of goods and services, making business operations costly.
Rating	B	A	B	A	C
Note:	• High-service level public transport is BRT, LRT, MRT and railway. Although URC currently operates the metre-gauge railway service from Kampala to Namanve Industrial Park, the service level is not high considering its frequency and operation speed. Thus, it was not counted as high-service level public transport. • Population coverage that can access high-service level public transport (BRT, LRT, MRT and railway) station within 1 km: Calculated based on spatial analysis using public transportation station buffer coverage and population by TAZ (Traffic Analysis Zone). • The results are based on the multicriteria analysis by the JICA Expert Team.				
3-5) Local Economy (livelihood activities)	As described in 1-1) Economic Benefit of the Transport Sector, the Travel Time and the Vehicle Operation Cost were calculated in the middle among the alternatives. The results show that serious traffic congestion disrupting economic and social activities can be eased which can contribute to improving the local economy.	Similar to Alternative D	Similar to Alternative D	As described in 1-1) Economic Benefit of the Transport Sector, the Travel Time and the Vehicle Operation Cost were calculated and found to be the least among the alternatives. The results show that serious traffic congestion disrupting economic and social activities can be eased which can contribute to improving the local economy.	As described in 1-1) Economic Benefit of the Transport Sector, the Travel Time and the Vehicle Operation Cost were calculated and found to be the most among the alternatives. The results show that serious traffic congestion disrupting economic and social activities can remain which cannot contribute to improving the local economy. • There is an overconcentration of workplaces (jobs), education facilities (primary schools, secondary schools and universities), and commercial functions including markets and shopping centres in Kampala City. Although there are some

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
					commercial and service functions along the radial roads, these are still limited and far from enough. As a result, serious traffic congestion disrupts economic and social activities in Kampala.
	• Each urban centre is expected to have a higher density of urban functions. The population living in the urban centres are expected to become large and they are expected to benefit from increased employment opportunities due to the location of urban functions (business, commercial and service sectors, and administrative and public services). • Urban centres also include urban functions, housing, industry and infrastructure development. This is expected to lead to economic diversification and expansion of the market and purchasing population. • On the other hand, spontaneous development can encourage mixed land use, resulting in inefficient infrastructure development. • Inefficient infrastructure development is unattractive on the investment side and may not have an effective economic impact.	• The new urban centres outside Kampala Capital City will accommodate the government administrations with business, commercial and service sectors. These can generate more job opportunities in the local population. • The Urban Corridors are expected to have denser urban functions. The population living along the urban corridors are expected to become large and they can benefit from job opportunities.	• The Industrial Areas can attract more high-tech, strategic and nonpolluting manufacturing industries, and generate job opportunities in them by restricting incoming conventional industries, as well as by providing better infrastructure and services.	• The new urban centres outside Kampala Capital City will accommodate the government administrations with business, commercial and service sectors. These can generate more job opportunities in the local population. • The Urban Corridors are expected to have denser urban functions. The population living along the urban corridors are expected to become large and they can benefit from job opportunities. • Also, the Industrial Areas can generate job opportunities in more high-tech, strategic and nonpolluting manufacturing industries by restricting incoming conventional industries.	• Particularly, Kampala struggles with high rates of informality and underemployment, as the number of available formal jobs has not kept pace with the rapid urbanisation and population. • Moreover, the informal sector is largely made up of micro-firms that are below the minimum threshold for small business income tax. • The poor road infrastructure network and absence of a developed public transportation system have compounded the challenge of the movement of goods and services making business operations costly. • Under-developed infrastructure can prevent businesses from connecting to local, regional, and global markets, and limit their willingness to invest.
Rating	B	B	A	A	C
Note:	• Travel Time was calculated based on the travel time and the traffic flow volume in each link of road and public transport network, obtained from the result of the traffic assignment model in the travel demand forecast model. • The results are based on the multicriteria analysis by the JICA Expert Team.				
3-6) Land Use	• Each urban centre includes urban functions, housing, industry and infrastructure development. This is expected to lead to economic diversification and expansion of the market and purchasing population. • Given that these will be implemented in areas that are	• The new urban centres outside Kampala Capital City will provide social services to their surrounding residential population by providing basic infrastructures, such as electricity, water supply and access roads. • The Urban Corridors are expected to	• The new urban centres outside Kampala Capital City will provide social services to their surrounding residential population by providing basic infrastructures, such as electricity, water supply and access roads. • The Industrial Areas (growth	• The new urban centres outside Kampala Capital City will provide social services to their surrounding residential population by providing basic infrastructures, such as electricity, water supply and access roads. • The Urban Corridors are expected to have denser urban functions.	• Despite the proposal of formulating metropolitan zone centres, quartier centres and local centres by KPDF/KPDP almost a decade ago, urban sprawl has been prevalent in suburban areas of the city. • Rapid population increase and

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
	already urbanised, the magnitude of the impact is considered to be moderate.	have denser urban functions. • This proper infrastructure development can facilitate efficient urban/residential land use and raise its value.	corridors) should be provided with infrastructure. • This proper infrastructure development can facilitate efficient urban/industrial land use and raise its value.	• The Industrial Areas (growth corridors) should be provided with infrastructure. • In these urbanised areas, appropriate infrastructure development can promote efficient urban, residential and industrial land use and increase their overall value.	urbanisation are happening outside Kampala City, and the basic urban infrastructure and services cannot catch up. • Under-developed infrastructure cannot facilitate efficient urban/residential land use and raise its value.
Rating	C	B	B	A	C
3-7) Local Conflicts/ Governance	• Urban centres can spontaneously form on the outskirts of Kampala and conventional industries can expand radially without proper infrastructure or regulation. • With the influx of population into such unregulated developed urban areas, subsequent development interventions will require land acquisition and allocation, which can lead to governance problems and local conflicts. • Land and boundary disputes tend to increase with urbanisation and are a potential risk. • There is also the potential for increased evictions of local communities and encroachment on public land, particularly in conflict-prone areas such as wetlands. • Political conflicts may arise due to governance issues within newly developed cities and political jurisdictions. • In addition, urbanisation is taking place across multiple jurisdictions, under the authority of bodies such as local authorities and the Kingdom of Buganda, which risks complicating the coordination of development interventions and conflict resolution. • Difficulties in coordination can hinder efficient implementation of plans, prudent management and	• As the transport network is the same as in Alternative D, and the main urban functions (providing employment and services to residents) and high-density urban areas will be more widely dispersed than in Alternative A, the land acquisition for development can create the risk of conflicts of interest as in Alternative A. • However, naturally occurring development, such as Alternative A, will be controlled in each urban centre and industrial area according to their respective functions. The extent of industrial areas is also relatively small, so impacts will be minimal among the alternatives.	• The transport network is the same as in Alternative D, and the main urban functions (providing employment and services to residents) and high-density urban areas will be more widely dispersed than in Alternative A. • However, the development of industrial areas, mainly along the JKM corridor, centred on the Kampala-Jinja Expressway, is planned on a wider scale and the land acquisition for development can create the risk of conflicts of interest as in Alternative A. • On the other hand, naturally occurring development, as in Alternative A, will be controlled in each urban centre and industrial area according to its own function. Impacts are therefore moderate among the alternatives.	• The above development risks in protected areas such as Ramsar wetlands, other wetlands and forest reserves, lack of infrastructure, informal population problems and land use issues will be exacerbated if this is not addressed. • The impact on the risk of conflict of interest is therefore the greatest among the alternatives.	

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
	cooperation between relevant agencies. • Impacts will be greater among the alternatives.				
Rating	C	A	B	B	C
3-8) Working Conditions (Industrialisation)	• Each urban centre will have a higher density of urban functions and a larger resident population. Residents are expected to benefit from increased employment opportunities due to the placement of urban functions (business, commercial and service sectors, and administrative and public services). • In addition, urban centres include urban functions, housing, industry and infrastructure development, which accelerates industrial growth, overlooks the application of appropriate occupational safety and health measures, and increases the risk of accidents, injuries and health hazards to workers. It can also require longer working hours, contributing to work-related stress, fatigue and work-life imbalance. • In addition, spontaneous development can also encourage conventional industries to move in, increasing the risk of such a deterioration in the working environment.	• Key urban functions (providing employment and services to residents) and high-density urban areas will be more dispersed than under Alternative A. • However, naturally occurring development will be controlled in each urban centre and industrial area according to its function, so impacts on the working environment will be relatively less.	• The development of industrial areas, mainly along the JKM corridor, centred on the Kampala-Jinja Expressway, is planned more extensively than Alternative B and is an industry-oriented spatial structure that risks worsening the working environment. • However, employment opportunities in more high-tech, strategic and non-polluting manufacturing industries can improve the occupational health and safety environment.	• There is a so-called industrial area in the centre of Kampala city, as well as small-scale industrial developments along the main national road. These are mainly manufacturing industries, including agro-processing, with informal employment for informal settlement dwellers, who make up a large proportion of the population. • In addition, urban sprawl is progressing in the suburbs and basic urban infrastructure and services have not kept pace with rapid population growth and urbanisation. • With such industrial development and urbanisation, the risk of a deteriorating working environment is even higher.	
	• Travel (commuting) time will be shortened in the middle by the Multi-Modal Urban Transport Master Plan (MMUTMP) Scenario (Intensive Transit Development). • Job opportunities in the neighbouring areas of residences can facilitate to shorten the commuting time.	• As the transport network is the same as that of alternative D, travel (commuting) time will be shortened the most by the Urban Centre TOD Scenario (Moderate Transit Development and Joint Development of Urban Centres and Transport Infrastructures). • Job opportunities in the neighbouring areas of residences can also facilitate to shorten the	• As the transport network is the same as that of alternative D, travel (commuting) time will be shortened the most by the Urban Centre TOD Scenario (Moderate Transit Development and Joint Development of Urban Centres and Transport Infrastructures). • Job opportunities in more high-tech, strategic and nonpolluting manufacturing industries can	• Travel (commuting) time will be shortened the most by the Urban Centre TOD Scenario (Moderate Transit Development and Joint Development of Urban Centres and Transport Infrastructures). • Job opportunities in the neighbouring areas of residences can also facilitate to shorten the commuting time. • Job opportunities in more high-tech, strategic and non-polluting	• Long travel time for commuting: The development of road and public transport infrastructures cannot catch up with the rapid population growth, rapid urbanisation and economic growth in GKMA. • This will result in a decrease in the modal share of public transport services (buses and taxis) which share road space with motorised

Item \ Alternative	Alternative A Polycentric Spatial Structure	Alternative B Polycentric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structures B and C	Alternative E Without Project (Review and Updating), "Do-Nothing Case"
		commuting time.	promote occupational health and safety.	manufacturing industries can promote occupational health and safety.	private transport modes (cars and motorcycles).
Rating	B	A	A	A	C
Evaluation	Not recommended: The spontaneous expansion of cities will continue, with population, urbanised areas, urban functions and industry concentrated in existing urbanised areas. This results in a mixed land use of urban functions, i.e. administrative and social services, commercial, business and services, residential and industry. At the same time, transport is intensively developed and traffic conditions are better than in Alternative E. In relative terms, the environmental and social impacts would be greater and therefore this proposal is not recommended.	Promising but not recommended: The alternative focuses on urban functions, consisting of an expanded CBD supported by secondary urban centres, and urban centres located widely outside the Kampala Metropolitan Area. Population and urbanised areas, CBDs and urban centres, and urban functions and industrial clusters will be more widely dispersed. In addition, the transport system will be developed in an integrated manner and the transport situation will be better than in Alternative A. Because of its focus on urban functions, it is better at mitigating pollution and natural environmental impacts and improving living conditions than the industry-oriented Alternative C, but it is inferior in terms of economic benefits. Relatively, it is better than Alternative E and Alternative A in mitigating environmental and social impacts, but inferior to Alternative D. It is therefore not recommended.	Promising but not recommended: This alternative is more industry-oriented, taking advantage of the industrial location potential of the JKM corridor, particularly the Kampala-Jinja Expressway. As with Alternative B, the population, urbanised areas, CBDs and individual urban centres, urban functions and industrial clusters would be distributed over a wider area. However, the provision of services, particularly in cities close to industrial areas, will be a key function. In addition, transport will be developed in an integrated manner and traffic conditions will be better than in Alternative A. Because of its industrial focus, it has better economic benefits than Alternative B, which focuses on urban functions, but is less effective in reducing pollution and natural environmental impacts and improving living conditions. Relatively, it is better than Alternative E and Alternative A in mitigating environmental and social impacts, but inferior to Alternative D. It is therefore not recommended.	Recommended Preferable Urban Spatial Structure: By integrating Alternative B: Poly-Centric and Widely Distributed Spatial Structure and Alternative C: Advantage of the Industrial Location Potential Created by JKM Corridor. This will ensure an appropriate distribution of urban areas and centres, urban functions and industries in the GKUGA based on current development potential. The integration of these areas to be developed on the outskirts of Kampala with the transport network consisting of roads, BRT, LRT, MRT and other transport-oriented development (TOD) will facilitate the following urban development in the GKUGA. • To develop competitive and vibrant economic sectors • To enhance the healthy and resilient residential environment and urban amenities for the enjoyable lives of people • To promote the environmental and social sustainability of GKUGA This alternative is recommended because it integrates urban and industrial functions and TOD, which will mitigate pollution and natural environmental impacts compared to the other alternatives, while increasing economic benefits.	Not recommended: The "do-nothing case" has few advantages over other alternatives. If nothing is done and current problems are delayed in being addressed and resolved, the current situation will get worse. This will make it more difficult to deal with the worsening problem and will require more time, effort and money. While waiting for a solution, the environmental and social impacts will increase and spread. It is therefore not recommended.
Overall evaluation	B-	B+	B+	A	C

Note: Rating
A: Comparatively less adverse impacts or more positive impacts
B: Comparatively medium impacts
C: Comparatively more adverse impacts or less positive impacts
Overall evaluation is explained in Table 25.5.4.
Source: JICA Expert Team

25.6 Scoping

25.6.1 Approval of Scoping Report

The MKCC&MA, with the assistance of a team of JICA experts, prepared a draft scoping report as required by Schedule 3 of the National Environment (Strategic Environmental Impact Assessment) Regulations 2020. The MSTC held a meeting for the SEA scoping report, reviewed it, and provisionally approved it on August 22, 2023. Then the scoping report was finalized waiting for comments from the Committee members.

25.6.2 Scoping for Updated Master Plan

Preliminary scoping was conducted based on the environmental and social conditions of the study area, and the results of the First Stakeholder Consultation Meeting, the discussion among the participants. The likely impacts were expected due to the preliminary strategic perspectives proposed by the JICA Expert Team in Progress Report 1. Utilising the result of the preliminary scoping described in Progress Report 2, the SEA team of local consultants, with their study, prepared the scoping report, including the scoping results summarized in Table 25.6.1.

Since the purpose of this scoping is to consider environmental and social impacts at the planning stage of urban development, at the so-called master plan level, the likely impacts were expected fundamentally in the long-term, cumulatively, or in a broader area. Besides, although the purpose of this Project is not to formulate a new master plan, but to review and update the existing KPDF/KPDP and create guidelines for detailed planning, tentative impacts during pre-construction and construction phases were also considered.

Table 25.6.1 Result of Scoping

	No.	Likely Impacts	Description of Impacts/Issues	Key Issues requiring further assessment during the SEA Detailed Study
Pollution	1.	Air Pollution	Infrastructure projects, fossil-fuel based motorised transport, and other energy consumption related activities associated the master plan, will have a negative impact on air quality. In contrast, enhancing public transportation will help mitigate air pollution since the number of vehicles will be reduced due to the introduction of mass transport. Re-organisation and relocation of industries will help reduce or mitigate effects of industrial air pollution. The energy transition to renewable sources of energy is also expected to have a positive effect on air quality.	Air quality and greenhouse gas emissions management
	2.	Water Pollution	Point sources of pollution from industries around the Lake Victoria basin as well as informal settlements are likely to continue having a negative effect on both surface and below ground water sources, if the waste management infrastructure is not in tandem with the anticipated urbanisation rates.	Waste management
	3.	Noise and Vibration	Environmental noise and vibration mainly from motorised traffic as well as mass transport is likely to be a problem especially in heavily urbanised areas, and also for communities along the expressway corridors. That might also be the case with large urban infrastructural projects and their associated facilities/projects.	Noise Emission Management
	4.	Soil Contamination	Rezoning of industrial parks that will result in the relocation of certain industries could result in soil contamination if their decommissioning is not well done. Equally of concern is likely to be the impact of soil quality in greenfield areas within the GKMA to which manufacturing industries are expected to expand to. It also important not to overlook the impact of improper disposal of plastics (especially the single use plastics) that are currently having a negative impact on soil quality due to their improper disposal and this is likely to increase with urbanisation rates.	Waste Management
	5.	Waste	There is litter (polythene bags, plastic bottles, papers) and burning of solid waste in the residence in the KSPA. Population growth and economic	Waste Management

			activities can increase solid waste, generate more litter, and solid waste is burned in the residence if no sustainable solid waste disposal and management system are developed. In contrast, the anticipated urbanisation activities will continue to exert pressure on what is currently a weak waste management infrastructure although plans are already underway to set up another landfill site within the GKMA, coupled with waste consolidation areas around Kampala. Of particular concern is likely to be municipal/household waste. Other streams of concern include; hazardous wastes from industries as a result of selective expansion of manufacturing industries within GKMA, to mention but a few.	
	6.	Ground Subsidence	No urban development plans which will require a large-scale groundwater withdrawal for sources of water supply are proposed.	No effect is foreseen.
	7.	Offensive Odour	Offensive odours are likely to be generated from wastes generated from the GKMA. Of particular concern will be the landfill sites to which wastes are disposed of, waste water/sewage treatment plants, abattoirs, and wetlands systems involved in the tertiary treatment of waste water. The problem will be more pronounced if the odour recovery systems are poor or not in place at all.	Air Quality
	8.	Bottom sediment	Increased runoff from hard infrastructure in urbanised areas and the associated soil therein, can affect bottom sediment of surface water systems. Additionally, industrial development within the industrial and commercial zones could lead to increased wastewater discharge into surface water resources which in turn could lead to deterioration of the quality of surface water resources (bottom sediment).	Waste Water Management
Natural Environment	9.	Protected Areas	Entebbe Wildlife Sanctuary located in Entebbe city also known and used as Entebbe Zoo and Uganda Wildlife Conservation Education Centre (UWEC); and two registered wetlands under the Ramsar Convention (Lutembe Bay Wetland System and Mabamba Bay Wetland System that support and array of bird species), are among some of the protected areas. Although no development related to the study interventions are envisaged in these areas, implementation of the masterplan would have an impact on protected areas for example improvement in road infrastructure will boost tourism to Ramsar site and hence increasing revenue.	Protected Areas
	10.	Flora, Fauna, and Biodiversity	Kampala City has experienced a decline in its biodiversity due to the growing pressure of urbanisation and economic development on its environment and natural resources, including wetlands and limited green spaces. The proposed developments under the master plan could exacerbate the situation by disrupting breeding patterns and affecting feeding grounds.	Fauna and flora outside protected areas
	11.	Hydrological Situation	The GKMA consists of several wetlands such as Mayanja, Lubigi, Buvumbo, Kinawataka, Namanve, and Nakivubo wetlands, among others. Projects emanating from the implementation of the master plan such as road infrastructure development may interfere with the integrity of the wetland/hydrological system. There is also a risk that persons or communities displaced by infrastructure projects may encroach on such ecologically sensitive areas, thereby interrupting the drainage systems and resulting in and increased risk of flooding. However, it is hoped that wise utilisation of wetlands will curtail encroachment and subsequent degradation of wetland habitats which will improve water quality and control pollution of aquatic habitats.	Surface water resources Flooding (Hydrology)
	12.	Topography and Geographical features	The master plan does not propose plans/projects involving any major alteration of the topography or geology.	No effect is foreseen
Social-Environment	13.	Involuntary Resettlement	There is a risk of person being physically displaced to make way for urban infrastructure projects. This is likely to affect the urban poor and other vulnerable groups hardest especially if they are not offered timely and adequate compensation for their lost assets that are key to sustaining their livelihoods.	Land take/ involuntary resettlement
	14.	The poor, Vulnerable	Kampala is characterised by several informal settlements. The process of acquiring land for urban infrastructure development, as outlined in the Master Plan, poses a significant risk of disrupting the livelihoods of the	Population (Vulnerable Groups)

		Group	urban poor. These individuals may face physical and economic displacement, which is further compounded by the fact that they often lack legal rights to the land they occupy, rendering them ineligible for compensation.	
			Vulnerable groups and households are more likely to lose their land rights in the new growth areas. This could be due to asset transfers, distress land sales, evictions, land grabbing and abuse of land inheritance procedures.	
			Due to urban development, the poor people may be displaced from prime areas to relatively cheap areas and some may end up in informal settlements, if no social safeguards are put in place for the vulnerable poor communities.	
			If the urban development plans are implemented in line with the National Land Policy which aims to improve the land rights of residents in informal settlements and slums by ensuring the supply of affordable land in urban areas, it may have a positive impact on the poor and vulnerable groups.	
	15.	Indigenous and Ethnic people	The Baganda tribe is a major constituent of the Kingdom of Buganda, and many inhabit the KSPA. No indigenous people's settlements are located there.	No effect is foreseen
	16.	A local economy such as employment and livelihood, etc.	The construction phase activities of the projects in the master plan will provide employment opportunities for workers (especially unskilled) and this will serve as a boost to the local economies hosting the projects. Also of importance is the role of the local service sector that can provide services such as housing/accommodation, meals etc. It can facilitate business opportunities for the local service sector. Meanwhile, inadequate compensation can cause loss of livelihoods, difficulty to recover livelihoods, and/or degradation of previous living conditions of relocated people. Besides, traffic congestion caused by construction activities can stagnate the local economic activities, daily activities, and livelihoods of residents.	Local economy (livelihood activities)
			The multi-nucleus urban development model is expected to result in an improvement in the local revenue base and standards of living due to employment and other economic opportunities. The urban transport system can improve accessibility in the area, it can also stimulate local economic activities. However, there is concern that the existing public transportation operators (of mini-buses and Boda Bodas) may lose their means of livelihood or have their incomes reduced. New jobs and a variety job would be created for the local economy through employment and better livelihood.	
			The development of regional capitals and growth corridors to accommodate agro-processing industries will lead to the growth of agriculture when market is created for agricultural products, and better returns for farmers and exporters which will further spur investment into agriculture thus improving food security, employment and community livelihoods.	
			Proper planning will facilitate the growth of the communities where the economy is boosted by proper intertwined roads, industrial zones, and parks, hence higher levels of employment and better livelihood are expected.	
	17.	Land use and utilisation of local resources	To secure the construction space and the construction works can change the existing land uses, however, they are minor and limited.	Land use
			Coordinated and controlled development would promote orderliness and optimum and more efficient utilisation of land and local resources with more output. The expected urban/ transportation/ infrastructure developments could change the current land use patterns. Since they aim to improve the environment for achieving economic growth, more effective land use and local resource use are expected.	
	18.	Water Usage or Water Rights and Rights of Common	Most households in the KSPA use a clean water distribution system as drinking water source. The expected urban/ transportation/ infrastructure developments will not have serious adverse impacts on water usage specifically.	No effect is foreseen
	19.	Existing social infrastructures	Urban infrastructure development as part of the Master Plan implementation if not properly managed is likely to affect access to existing social infrastructure, such as schools, hospitals, and other essential	Social infrastructure and services

		and services	services.	
			The multi-nucleus urban development structure can ease proximity to social facilities. Also, since the urban transport system can improve accessibility in the KSPA, it can make it convenient to access social services in neighbourhoods and other areas. Urban infrastructure developments can also contribute to an increase in the quality of social services.	
	20.	Social institutions such as social infrastructure and local decision-making institutions	Since the urban/ transportation/ infrastructure developments are aimed at improving the urban environment to achieve economic growth and improving the living environment, no particular impact is expected. The social institutions and local decision-making institutions may be well distributed across the region due to the control of population size and concentration of economic activities.	No effect is foreseen
	21.	Misdistribution of benefit and damage	Since the urban/ transportation/ Infrastructure developments are aimed at improving the urban environment to achieve economic growth, no particular impact is expected.	No effect is foreseen
	22.	Local conflict of interests	Although the urban/ transportation/ infrastructure developments are aimed at improving the urban environment to achieve economic growth, land and boundary conflicts tend to increase with accelerating levels of urbanisation. Also, conflicts may arise out of a lack of a proper land acquisition model. Conflicts by political influence and privatisation of wetlands can be expected if not properly managed.	Local conflicts/ governance
	23.	Cultural heritage	The GKMA has a number of archaeological and cultural sites such as the Independence Monument, Kasubi Royal Tombs, and the Uganda Museum, among others. The Kasubi tombs are registered as a World Heritage Site, with buildings originating from the Kingdom of Buganda and religions in the KSPA. They may be neglected and their cultural values and attractiveness can deteriorate if not properly managed.	Cultural heritage/ tourism
			Additionally, Kampala is home to religious sites such as Old Kampala Mosque, Namirembe Cathedral, Rubaga Cathedral, and Bahai Temple. The growth of suburban areas as a result of the implementation of the master plan could obliterate areas of scenic and historical significance including historical structures.	
			The In-migration of people with different beliefs and backgrounds within the areas that are earmarked for development areas could lead to the undermining of existing cultural norms and beliefs including the associated tangible and intangible cultural heritage.	
	24.	Landscape	Since the terrain includes hilly land and small valleys, the urban/ transportation/ infrastructure developments are planned not to seriously change or detract from the surrounding landscape. However, elevated transport infrastructure could distort visual aesthetics of the urban landscape.	Landscape
	25.	Gender	In Uganda, studies found that women only own 14 per cent of the land in Uganda. This is because women are usually unable to own or inherit land due to restrictive practices under customary land ownership; and hence a disproportionately impact on women's livelihoods is expected due to the land acquisition. On the other hand, to improve women's rights, the National Land Policy (2013) stipulates that women's rights to inheritance and ownership should be protected and that both men and women should have equal rights without discrimination. However, there is a gap between the policies and the customary reality. This can exacerbate gender inequality in property ownership and employment, especially when land acquisition and involuntary resettlement are involved.	Population (Gender and Vulnerability)
			Urban infrastructure developments can contribute to increase in the quality of social service such as improved city lighting and increase in the number of health centers and police stations and thus improving women's safety and living conditions.	
			Although the Government of Uganda has strived to improve in terms of gender equality and women's empowerment, with the definition of a National Gender Policy, socio-cultural norms and the burden of domestic	

			work disproportionately that's falls on women constrain women's economic participation, therefore access to the benefits of urbanisation may not be equitable, due to urban inequality disproportionately affecting women.	
			Many women in Kampala are engaged in informal economic activities, such as street vending and shopkeeping, which are like to be displaced during infrastructure development as a result of implementation of the masterplan, thus putting a strain on women's constant income, contributing to their poverty and further dependence on their husbands.	
	26.	Children's rights	The establishment of industrial and commercial zones as part of the Master Plan's implementation is expected to create new employment opportunities. However, this development may also increase the risk of child labour and other violations of children's rights, potentially leading to an increase in school dropouts.	Children's rights (Vulnerability)
			Traffic and transport systems are seldom designed with children's needs in mind. Without adequate transport or security, many children, especially girls and children with disabilities, cannot go to school. However, with proper planning and a good transport system, children will have better access to education and health facilities hence fulfilling their right to some basic needs.	
			Implementation of the Masterplan could lead to displacement of communities/persons in the regional capitals and growth corridors who might encroach on public land especially wetlands and thereby shifting the burdens (slum encroachment etc.) associated with such encroachment. Urban children, especially those affected by poverty or discrimination, are at risk of lack of secure, functional housing and safe supportive neighbourhood space, as well as the lack of water, sanitation, drainage and waste removal which affect children more seriously and in different ways from adults.	
			Wise utilisation of wetland as a result of implementation of the masterplan will lead to preservation of open/green spaces in urban areas that can be used a playground for children. Play is fundamental to children's development and shapes their capacity for learning and social growth, particularly in the early years.	
	27.	Hazards (Risk), Infectious diseases such as HIV/AIDS	Uncontrolled urbanisation can make urban areas less resilient and more prone to hazards such as floods if not properly managed. There is a possibility of new population inflow/migration leading to the transfer of STIs like HIV/AIDS to new areas/cities. Illicit behaviours such as prostitution in urban areas can lead to the spreading of diseases STIs and diseases.	Public Health (HIV/AIDS)
	28.	Working conditions	There will be creation of more employment opportunities as a result of the infrastructural developments associated with master plan's implementation, as a result, construction workers will be attracted to the city to take up the employment opportunities. As such, risky unfair working conditions and exploitation including sexual exploitation and abuse may increase.	Working condition (industrialisation)
Others	29.	Accidents	GKMA_IUDMP incorporates the concept of transit-oriented development, which is likely to result in increased linear settlements along existing and planned road networks, including expressways. This development may increase the risk of accidents to the surrounding communities due to an increase of economic activities along those corridors.	Community Health and Safety
	30	Transboundary Issues/Global Warming	Since the urban transport system can improve traffic conditions, it is expected to reduce traffic congestion, thereby decreasing future CO2 emissions.	Air quality and greenhouse gas emissions management

Source: Scoping Report, JICA Expert Team

25.6.3 TOR of Environmental and Social Considerations Study

The TOR of Environmental and Social Consideration Study to evaluate the impacts are summarised in Table 25.6.2 based on the results of the scoping. The study methods include literature review on statistics, documents, legislation, national/regional/sectoral policies, and the study by JICA Expert Team.

Table 25.6.2 TOR of Environmental and Social Considerations Study

	No.	Likely Impacts	Phase/ Rating	Study Item	Study Method
Pollution	1	Air pollution	Const. B- Operation B+/-	• Situation of air pollution • Emission volume from vehicles • Transportation plan	• Study on the situation of air pollution in the existing information • Traffic analysis and study on the transport plan by JICA Expert Team including estimation of CO_2 emission volume
	2	Water Pollution	Const. B- Operation B-	• Situation of water pollution • Sewerage management	• Study on the situation of water pollution and the sewerage management in the existing information • Study on the policies and measures for effluent control in the existing information
	3	Noise and Vibration	Const. B- Operation B-	• Urban development plan • Traffic volume • Noise and vibration management	• Study on the urban development plan by JICA Expert Team • Traffic analysis and study on the transport plan by JICA Expert Team including estimation of traffic volume • Study on the policies and measures for noise and vibration management in the existing information
	4	Soil Contamination	Const. B- Operation B-	• Type of Industry • Soil management	• • Study on the policies and measures for soil management in the existing information
	5	Waste	Const. B- Operation B-	• Population growth • Waste management	• Study on population growth and waste management by JICA Expert Team • Study on the policies and measures for waste management in the existing information
	7	Offensive odor	Const. B- Operation B-	• Waste and sewage management • Situation of abattoirs	• Study on the situation of abattoirs in the existing information • Study on the policies and measures for waste and sewage management in the existing information
	8	Botom Sediment	Const. B- Operation B-	• Sewage management • Drainage system	• Study on the sewerage management and drainage system in the existing information
Natural Environment	9	Protected Area	Operation B+/-	• Accessibility (Transport plan) • Wetland conservation policies	• Traffic analysis and study on the transport plan by JICA Expert Team • Study on the eco-tourism plan by JICA Expert Team
	10	Flora/Fauna/Biodiversity	Const. B- Operation B-	• Situation of wetlands and green open spaces • Conservation policies	• Study on the wetland and green open space management by JICA Expert Team
	11	Hydrological Situation	Const. B- Operation B+/-	• Hydrological situation • Conservation policies	• Study on the drainage system, waste management, wetland and open space management by JICA Expert Team
Social Environment	13	Involuntary Resettlement	Const. B- Operation B-	• Situation of the poor • Land acquisition and resettlement policies	• Study on informal labour • Study on the land acquisition and resettlement policy • Study on the policies and measures for vulnerable group
	14	The poor, Vulnerable Group	Const. B- Operation B-	• Situation of the poor • Land acquisition and resettlement policies • Legislation and policy for vulnerable group	• Study on informal labour • Study on the land acquisition and resettlement policy • Study on the policies and measures for vulnerable group
	16	Local economy such as employment and livelihood, etc.	Const. B+/- Operation B+/-	• Situation of the industry • Situation of employment • Expected types of workers • Transport plan	• Study on the labour force in the existing information (literature survey) • Assumption of construction workers to hire the local workers • Traffic analysis and study on the transport plan by JICA Expert Team
	17	Land use and utilization of local resources	Operation B+	• Land use plan	• Study on the land use plan by JICA Expert Team

	No.	Likely Impacts	Phase/ Rating	Study Item	Study Method
	19	Existing social infrastructures and services	Const. B- Operation B+/-	• Public facility plan • Accessibility	• Study on the public facility plan by JICA Expert Team • Traffic analysis by JICA Expert Team
	22	Local conflict of interests	Const. B- Operation B-	• Land conflict • Land acquisition and resettlement policy	• Study on land conflict situation • Study on wetland utilisation by JICA Expert Team • Study on the land acquisition and resettlement policy in the existing information (literature review)
	23	Cultural heritage	Const. B- Operation B-	• Ethnic culture • Legislation and policy for cultural heritage	• Study on ethnic culture • Study on the policies and measures in the existing information (literature review)
	24	Landscape	Operation B-	• Structure of public transport system	• Study on the public transport system by JICA Expert Team
	25	Gender	Const. B- Operation B+/-	• Employment and livelihood • Land tenure • Legislation and policy for Gender	• Study on situations of employment and livelihood • Study on land tenure • Study on the policies and measures in the existing information (literature review)
	26	Children's rights	Const. B- Operation B+/-	• Situations of child labour • Situations of public facilities • Legislation and policy for children's rights	• Study on child labour • Study on the public facility plan by JICA Expert Team • Study on the policies and measures in the existing information (literature review)
	27	Hazards (Risk), Infectious diseases such as HIV/AIDS	Const. B- Operation B-	• Population growth • Situations of HIV/AIDS • Legislation and policy for HIV/AIDS	• Study on population growth by JICA Expert Team • Study on HIV/AIDS and STI in the existing information (literature review) • Study on the policies and measures in the existing information (literature review)
	28	Working conditions	Const. B- Operation B-	• Travel time • Existing working condition • Legislation and policy for working security	• Traffic analysis by JICA Expert Team • Study on the existing information (literature survey) • Study on the policies and measures in the existing information (literature review)
	29	Accidents	Const. B- Operation B-	• Traffic volume • Legislation and policy for working security • Traffic accident occurrence	• Traffic analysis by JICA Expert Team • Study on the policies and measures in the existing information (literature review)
	30	Global warming	Operation B+	• Emission volume from vehicles	• Traffic analysis by JICA Expert Team and Estimation of CO_2 emission volume

Source: JICA Expert Team

25.7 Results of the Environmental and Social Considerations Study

25.7.1 Air Pollution

It is anticipated that the air pollution (as a result of vehicular emissions) will be less with the introduction of the Bus Rapid Transit (BRT) which shall provide mass transport means and lessen private vehicle use. The travel demand forecast model in the GKMA-IUDMP study shows that the share of public transport use in 2021 was 28.5%, which will increase to 48% in 2050.

It is also anticipated that the improved connectivity between the CBD and urban growth areas will lessen traffic and reduce travel time, resulting in reduction of fumes from vehicular emissions. As the MCA also resulted to passenger's travel time of 20.14 passenger-billion hour/year (1,212 passenger hour/person/year), while 132.62 passenger-billion hour/year (7,936 passenger hour/person/year) was calculated for the Do-Minimum Scenario. Travel time became almost a sixth of the Do-Minimum Scenario.

The results of CO_2 emissions from vehicles were calculated as 2,014 million tons/year (121.2 tons/person/year). The CO_2 emissions from vehicles were reduced more than the Do-Minimum

Scenario of the transport development strategies, where CO_2 emissions from vehicles were calculated as 3,476 million tons/year (209.0 tons/person/year). CO_2 emissions from vehicles per person per year were also reduced in the base year 2021, which was calculated as 213.5 tons/person/year. However, the total volume of CO_2 emissions from vehicles will increase from the base year 2021 of 1,235 million tons/year.

In addition, the low emission vehicles such as electric vehicles will be promoted and new environmental technologies with PoC (proof of concept) experiment will be enhanced.

25.7.2 Water Pollution

One of the performance indicators of the National Water and Sewerage Corporation (NWSC), which provides water and sewerage services in Uganda, is compliance with effluent discharge standards (%), which is also the case in the Kampala Metropolitan Region. The NWSC is also developing a sewage treatment system, but with population growth and urbanisation, sewage may exceed the NWSC's treatment capacity.

Meanwhile, the National Environment (Standards for Discharge of Effluent into Water or Land) Regulations, 2020 set out environmental standards and treatment measures for effluent before it is discharged from sources into water or land. The Regulations require dischargers to ensure that, in addition to the above standards, effluent meets general chemical and microbiological discharge standards, and inorganic and organic discharge standards.

In addition, the GKMA-IUDMP proposes the Guidelines for Local-Level Physical Development Planning with Introduction of Zoning System. The Zoning Guidelines and Planning Standards state that sewage treatment plants should be planned at local level.

Thus, with urban development and population growth comes an increase in wastewater, and although the risk of water pollution is high, it can be reduced by implementing the facility planning proposed in the GKMA-IUDMP at the local level, together with waste management, wise use of wetlands and strict compliance with effluent standards.

25.7.3 Noise and Vibration

The result of the traffic volume forecast shows that the future traffic volume will increase compared to the current situation and that noise from vehicles can increase. However, the GKMA-IUDMP proposes the TOD transport system by providing alternative means of transport through the integrated transport system. In the future, The TOD can reduce the VCR more than Do-Minimum case. As a result, the traffic congestion can be reduced and the noise from vehicle movements and heavy traffic is expected to be reduced in the future.

Additionally, the Noise Standards and Control Regulations provide the levels to ensure the maintenance of a healthy environment for all people, the tranquillity of their surroundings and their psychological well- being, and generally, to elevate the standard of living of the people. There is therefore a risk of increased noise and vibration, but the risk can be reduced as far as possible by enforcing noise regulations.

25.7.4 Soil Contamination

The main type of industry in the region is manufacturing, and manufacturing will remain a strategic industry in the future. Although the manufacturing industry is unlikely to handle large quantities of hazardous substances, the risk of soil contamination on the site increases over time due to improper waste handling and accumulated spills of raw materials, oil, cleaning fluids, etc.

Therefore, when a factory is relocated, the risk can be reduced by investigating the soil at the site and, if contamination is found, by replacing and treating (disposing of) the soil in accordance with the hazardous waste disposal regulations.

25.7.5 Waste

In Kampala, 41.0% of households practiced "Local dump, supervised" as an appropriate waste disposal method, followed by disposal through a "Waste vendor" and "Burn". In the suburbs, "Garden" and "Burn" were dominant disposal methods. The National Population and Housing Census 2014 shows also that "Burn," "Bury," "Local dump, supervised" and "Waste vendor" were appropriate disposal methods. In this sense, Kampala had a higher percentage of households (i. e., 88%) that disposed of waste properly.

On the other hand, as waste increases with urban development and population growth, there is a concern that the existing Kiteezi disposal site will reach its capacity, thus a new disposal site is being planned. However, the GKMA-IUDMP proposes a more realistic waste management plan. The plan aims to improve the efficiency of waste treatment by installing material recovery facilities (MRFs) and promoting waste reduction through resource recovery. It also addresses the needs of less urbanised municipalities through community-friendly waste management facilities, home composting and open dumping to controlled dumping. It also considers the management of waste beyond municipal solid waste using the “polluter pays” principle.

The National Environment (Waste Management) Regulations, 2020, require waste handlers and product stewards to ensure safe and environmentally sound waste management. They must promptly detect and deal with spills, ensure employee awareness and provide protective equipment. The regulations also encourage positive changes in waste management attitudes and practices.

The regulations classify and categorise hazardous waste, prohibit mixing it with nonhazardous materials and require its proper storage, handling and documentation. Healthcare waste, including sharps, infectious and radioactive materials, must be managed in accordance with the regulations. The waste manifest requires documentation, storage, controlled access, appropriate containers, safe collection and transport, voyage management plans and electronic tracking systems.

Thus, with urban development and population growth come an increase in waste and a high risk of waste pollution, which can be reduced by implementing an instrumental management plan and ensuring strict compliance with environmental (waste management) regulations.

25.7.6 Offensive Odour

Meat is popular and an important part of the population's diet in Uganda. As the population grows, so will the demand for meat and the number of slaughterhouses. At present, however, most of the slaughterhouses have poor processing and drainage facilities, which means that the risk of odour is high.

On the other hand, the Meat Ordinance Act 2006 gives KCCA and local authorities the power to inspect and approve meat products. KCCA developed guidelines and strengthened regulations in the meat sector. In addition, the GKMA-IUDMP Guidelines for Local-Level Physical Development Planning with Introduction of Zoning System plan slaughterhouses as urban facilities. This zoning allows slaughterhouses to be built in hazardous industrial zones. In this way, the development of slaughterhouses in the new urban area is regulated and the risk of odour generation is reduced.

25.7.7 Bottom Sediment

Increasing urbanisation and the expansion of concrete pavements on roads and construction sites result in rapid and massive run-off, including siltation, from rainfall-induced land erosion. This affects the lower reaches of the urbanising Kampala Metropolitan Area (Wakiso, Mukono and Mpigi). The run-off contains siltation due to land erosion caused by rainfall. This can be mitigated through the implementation of drainage maintenance based on the Drainage Master Plan, waste management and wise use of wetlands as proposed in the GKMA-IUDMP.

25.7.8 Protected Areas

The GKMA-IUDMP has identified relatively accessible areas as ecotourism sites, including two Ramsar wetlands. These sites are expected to attract more tourists as they become more accessible through improved transport networks. However, improved tourism will also increase the risk of impacts on the natural environment, which can be mitigated through the development and implementation of management plans, including zoning, as recommended by the GKMA-IUDMP.

On the other hand, income from ecotourism will help improve the livelihoods of local people. As a result, economic encroachment on wetlands by local people will be reduced. In addition, the impact on nature will be mitigated as part of the income will be used for the conservation and management of protected areas, including Ramsar wetlands, Lake Victoria shores and natural areas, depending on the management plan, including zoning, recommended by GKMA-IUDMP.

25.7.9 Flora, Fauna, and Biodiversity

Wetlands in built-up areas are already degraded. Therefore, the GKMA-IUDMP will transform these degraded parts into green open spaces and protect the remaining part of the wetlands to prevent further degradation. In areas undergoing urbanisation, preventive protection measures and strict development control should be implemented. Where wetlands and forests are in their natural state, these areas should be protected for recreation and tourism purposes and promoted as wise use areas. Thus, although there is a risk of urbanisation impacts, the GKMA-IUDMP prevents further degradation of wetlands and forests and strongly promotes the conservation of existing wetlands and green spaces, which reduces the extent of this risk.

25.7.10 Hydrological Situation

Rapid urbanisation and reduced wetlands have led to decreased surface infiltration capacity, causing flooding and inundation in Kampala Capital City. This is exacerbated by land use changes, increasing impervious areas and reducing the effect of storage.

The GKMA-IUDMP underscores the need for structural drainage measures to mitigate flooding risks, based on the Kampala Drainage Master Plan 2016 and the Final Detailed Design, while also emphasising waste management and wetland protection. For conserving wetlands, it also includes defining physical boundaries, limiting road crossings, and specifying road designs to minimise impacts on wetlands. For utilising wetlands, the development of open spaces is proposed through the wise use of wetlands. This aims to enhance urban amenity, improve housing quality and provide attractive recreational spaces. The plan also considers the ecological restoration of wetlands surrounded by urban areas, ensuring that the function of the wetland is not compromised.

Thus, population growth and urbanisation can lead to wetland degradation and increase the risk of flooding and inundation, which can be mitigated by implementing drainage development based on the GKMA-IUDMP, together with waste management and wise use of wetlands.

25.7.11 Involuntary Resettlement

Ugandan law lacks specific provisions for squatters, illegal settlers and vulnerable groups such as women, children, elderly, ethnic minorities, indigenous people, landless and those living below the poverty line.

The Ugandan Constitution guarantees property rights and prevents expropriation unless necessary for public use or defence. It requires fair compensation and access to justice for property owners. The country's policy framework for land acquisition and resettlement includes KCCA's Resettlement Policy, UNRA's LAP, and WB and AfDB policies for funded projects. Special attention is given to vulnerable households and their living standards.

Land acquisition and resettlement for urban development increase the risk of impacts on the poor and vulnerable, but to a lesser extent through compliance with the Constitution of Uganda and implementation of the implementer's land acquisition and resettlement policy.

25.7.12 The Poor and Vulnerable Group

Land acquisition and resettlement for urban development increases the risk of impacts on the poor and vulnerable, but to a lesser extent through compliance with the Constitution of Uganda and implementation of the land acquisition and resettlement policy by project implementers.

Employment in the informal sector is generally high in Uganda, although lower levels of education are associated with higher rates of employment in the informal sector. As urban development proceeds and land acquisition and resettlement occur, there is a risk of loss of precarious livelihoods or reduced income and living standards in the informal sector. This risk is more pronounced for the poor and socially vulnerable, especially in the slum areas where they live.

Meanwhile, the GKMA-IUDMP has reviewed current slum upgrading plans and proposed an urban development strategy for slum upgrading. To prevent slums from forming in the suburbs, basic infrastructure such as roads, public toilets and water supply will be provided through land certification and municipal purchases, while developers will consider community building services using land leasehold, affordable housing and community development models.

The approach in the 2008 National Slum Upgrading Strategy and Action Plan to promote slum upgrading in Kampala, which transforms the land and housing market into economically valuable land uses is also recommended as beneficial for future unplanned settlements in urban areas.

Thus, although land acquisition and resettlement for urban development can carry the risk of loss of livelihoods or reduced income and living standards for the poor and vulnerable, slum upgrading and regulated and proper land acquisition and resettlement procedures can mitigate the extent of risk.

25.7.13 Local Economy such as Employment and Livelihood, etc.

Requirement for construction workers gives opportunity to inexperienced or unskilled workers, such as doing the earthworks, and likely can be in demand for any type of construction works. Therefore, the urban development projects will temporally boost the demand for local employment opportunities for workers (especially unskilled). They will have opportunities to gain experience as earthmovers and obtain qualifications and licences.

The proportion of employed population in the construction sector has an important contribution to local economy and the it is growing steadily. Demand for construction workers due to urban development will serve as a boost to the local economy of those hosting the projects. Consequently, the demand for construction workers' accommodation, food, and beverages can also contribute to boosting the economy of the local service sector.

In the same way that industrial development increases employment in the manufacturing sector, multi-nucleus urban development will increase employment in the tertiary sector including local government, business, commercial, and services according to the functions of each urban centres.

Since the transport networks consisting of roads, BRT, LRT, MRT and transit-oriented development (TOD) will reduce passengers' travel time and the vehicle operation cost, they can improve accessibility in the area and also stimulate local economic activities.

In the meantime, the Urban Centre TOD Scenario (in which the urban centres to be developed outside Kampala City are integrated with the transport networks consisting of roads, BRT, LRT, MRT and TOD) will decrease the modal shares of boda boda, while the public transport mode shares will increase. Therefore, the existing public transportation operators (of mini-buses and boda bodas) can lose their means of livelihood or reduce their income. Meanwhile, as mentioned above, they may have opportunities to be employed as construction workers, especially as earth workers, even without experience or skills.

Meanwhile, agriculture employs the majority in the suburban districts, and the agro-processing industries are growing under the national polices. In the projection of the GRDPs of the GKMA-IUDMP, the primary sector will occupy an important position in the local economy of Wakiso,

Mukono and Mpigi in the future. Both agro-processing industries and agriculture will develop in a synergistic way.

The GKMA-IUDMP proposes proper planning (i. e., the local level physical development planning with the introduction of zoning system) which will regulate land use and prevent disorderly urban development to actively promote the creation of desirable urban areas and maintain the healthy environment at the local level. It will promote sound investment and growth of communities where the economy will be boosted, leading to higher levels of employment and improved livelihoods.

25.7.14 Land Use and Utilisation of Local Resources

The implementation of the land use plan will enable more efficient land use and local resource use. Especially, the GKMA-IUDMP proposes a zoning system for local level physical development planning, aiming to regulate land use and prevent disorderly urban development. This will promote desirable urban areas and maintain a healthy local environment, boosting investment, community growth, and employment, ultimately improving livelihoods.

Besides, as mentioned in subsection 25.7.13: Local Economy such as Employment and Livelihood, etc. since the Urban Centre TOD scenario (in which the urban centres to be developed outside Kampala City are integrated with the transport networks consisting of roads, BRT, LRT, MRT and TOD) will reduce passengers' travel time and the vehicle operation cost, it can improve accessibility in the area and also can stimulate local economic activities.

25.7.15 Existing Social Infrastructures and Services

The multi-nucleus urban development structure proposed by the GKMA-IUDMP can facilitate proximity to social services. As the urban transport system can improve accessibility in the GKUGA, it can also make easier to access social services in neighbourhoods and other areas.

In addition to urban infrastructure development, the GKMA-IUDMP also proposes the development of health and educational facilities, depending on the population growth situation, and open spaces. These can also help improve the quality of social services.

25.7.16 Local Conflict of Interests

The majority of Ugandans hold their land under customary tenure and the lack of clear boundaries is problematic. Blurred land boundaries are a major cause of land disputes, including development activities in wetlands. Therefore, the risk of land conflict increases when land acquisition and resettlement are necessary for urban development.

On the other hand, appropriate measures are being taken by the State, KCCA and other local authorities, MoLHUD, UNRA and other ministries and agencies to develop land acquisition and resettlement laws, policies and procedures for project implementation. In addition, WB and AfDB projects apply the policies of these agencies to ensure that land acquisition and resettlement are properly implemented.

However, the risk of development encroaching on non-degraded wetlands may increase as private development expands, especially as more urban development takes place in the suburbs. This can be mitigated to a lesser extent through implementation of the wise use of wetlands proposed by the GKMA-IUDMP, together with appropriate project management, including environmental and social assessment.

25.7.17 Cultural Heritage

Cultural properties are protected from development and construction, as protected objects of archaeological, palaeontological, ethnographic, traditional or historical interest cannot be altered, added to, repaired, destroyed, defaced or damaged.

KCC has a national ethnic population and although many of Kampala's residents were born and raised in the city, they still define themselves by their tribal roots and speak the language of their

ancestors. This is more pronounced in the suburbs, where tribal languages are widely spoken alongside English, Luganda and Swahili. The same is true of Mukono District, on the outskirts of KCC, where there is already a large ethnic mix and therefore no significant cultural barrier for new migrants.

Meanwhile, improved access as well as public facilities can also make it easier for local people to visit cultural heritage sites, thereby promoting the use of cultural assets, cultural awareness and heritage conservation.

25.7.18 Landscape

In the long term, if the traffic demand cannot be met by BRT due to the phased development of the transport network, an elevated rail-based system with a height of 8.15 metres (excluding vehicles) is proposed in the middle of the expressway. However, the road width of the expressway is about 50 metres and the visual impact from the roadside is low. The BRT on the urban road also has a lower visual impact as it is not an elevated system.

25.7.19 Gender

Ugandan law does not specifically require consideration of women in land acquisition and resettlement. However, for projects such as KCCA and UNRA, the Gender Equality Policy provides for gender equality and consideration of vulnerable groups. In particular, the KCCA provides for gender compensation and consideration for female heads of households. In addition, WB and AfDB projects provide equal compensation for men and women in accordance with these institutions' policies.

In terms of land tenure, women do not traditionally have access to land rights and cannot own or inherit land. However, the situation is expected to improve as the National Land Policy 2013 sets out strategies in law to address gender inequalities in land inheritance and ownership, integration of women in decision-making structures and processes on land access and use, etc. The National Land Policy 2013 also sets out strategies to address gender inequalities in land inheritance and ownership, integration of women in decision-making structures and processes on land access and use, etc.

Currently, there is a gender gap in employment wages (1.79 times). Also by sector, the highest wages are in the service sector with an average monthly wage of UGX300,000. The gender pay gap in this service sector is 1.94 times.

The proportion of women working in the informal sector itself is lower than that of men, due to the higher proportion of women engaged in domestic work. The proportion of women working in the formal sector is also lower than that of men. Note that the number and proportion of informal workers nationally is higher than in 2016/17 (from 4,495,000 to 5,629,000, 85.0% to 87.9%) and this is more pronounced for women (85.6% to 91.2%, while it is 84.5% to 85.6% for men).

Thus, there is a gender pay gap and women are more likely to be involved in informal employment and enterprises. Therefore, as urban, transport and infrastructure development progresses, women are at high risk of losing their livelihoods, income or standard of living due to land acquisition and resettlement. On the other hand, the impact of land acquisition and resettlement is mitigated by the fact that women are taken into account in land acquisition and resettlement, and that legal gender disparities in women's land ownership rights are being addressed.

In addition, as noted in subsection 25.7.13: Local Economy such as Employment and Livelihood, etc.the demand for construction workers due to urban development also increases the demand for accommodations and food and beverage sales, which in turn increases the demand for local service sector workers. This demand of local services also contributes to improving the livelihoods of women working in the service sector. In addition, as health facilities and education facilities will be aligned with the population change pattern in the districts, they are expected to improve women's safety and living conditions.

25.7.20 Children's Rights

The Uganda Bureau of Statistics' National Labour Force Survey 2021 found that 38.5% of children aged 5-17 in Uganda were engaged in child labour excluding household chores, with more than half (55.7%) engaged in economic activities. This prevalence was higher among rural dwellers, less affluent households and children in school. Child labour is in various sectors in Uganda, including agriculture, industry, and services. It includes cultivating and harvesting crops, working with livestock, fishing, and performing domestic and street work, as well as working in various establishments. Therefore, increased employment opportunities due to industrial and urban development also increases the risk of child labour, especially in poor households.

Slum upgrading can reduce the risks of child labour, and to degrade living environment of the urban children, especially in the slums. The equity of the transport network and the walkability brought about by NMT (non-motorised transport) infrastructure can also improve access to social facilities for children. Travel time will be reduced and public transport can be made more comfortable for children.

In addition, the wise utilisation of wetland will create open spaces for the residents. By providing lighting and improved access, paths, footpaths and landscaping, these spaces can be used for playgrounds for children, which can contribute to promoting their healthy growth. Establishment of such open spaces can also increase safety and public security, especially for vulnerable users such as women and children.

25.7.21 Hazards (Risk), Infectious Diseases such as HIV/AIDS

The high prevalence of HIV among adults not only in Kampala, but also in the suburbs of Mukono, Wakiso and Mpigi, where the population is currently growing, can lead to an increase in HIV prevalence rates as the population continues to grow in the future. There is a particular risk of workplace-borne transmission, as population and economic growth promote employment and attracts a diverse range of workers from the region and beyond, from manufacturing to construction, administration, business, commerce, services, etc.

In line with population and economic growth, there will be also an increase in hotspots (clusters of bars, nightclubs, local breweries, eateries, lodges and guesthouses) in and around new urban centres. This situation can lead to an increase in the number of long-distance truck drivers, uniformed service personnel, boda-boda taxi drivers, and sex workers among whom high HIV prevalence rates were reported.

Meanwhile, national HIV prevalence rates have been falling and the Ugandan government has been implementing viable programmes with strategies which can therefore help reduce the risk of HIV/AIDS spreading.

25.7.22 Working Conditions

Workplace violence covers various acts or threats, including physical violence, harassment, intimidation and disruptive behaviour. A large proportion of workers in Kampala are subjected to work places wherein they are constantly shouted at (16.3%) or repeatedly insulted (10.4%), as well as experience of non-payment of wages/salaries/benefits (19.7%). Also, different forms of exploitation experienced by victims of forced labour have been identified. The most common form of labour exploitation is withholding of payments experienced by 30% of victims of exploitation nationally.

Workers often experience accidents or injuries at work that result in absenteeism or incapacity to work. Nearly 8% of the working population suffer an accident or injury, and the workplace has more men (9.6%) than women (4.8%). The industrial sector has a higher injury rate (12.5%) than agriculture (8.3%) and services (5.3%). About 40% of these injuries are serious enough to cause workers to miss at least one day of work. Most of the seriously injured workers (48.5%) have experienced such an incident once in the previous 12 months.

As noted in subsection 25.7.13: Local Economy such as Employment and Livelihood, etc. urban development increases construction demand and consequently this increases the demand for construction labour. Industrial development will increase employment of manufacturing sector especially, and multi-nucleus urban development will increase employment in the tertiary sector including local government, business, commercial, and services according to the functions of each urban centre. Therefore, with this increase in employment opportunities, the risk of unfair working conditions and exploitation increases if the current working environment remains the same.

However, the Occupational Safety and Health Act provides for the rights of children, prohibits hazardous work and prevents exploitation. Employers are required to protect workers by maintaining safe workplaces and providing safe means of entry and exit. Employers are also required to monitor the health of workers exposed to occupational hazards due to pollution and other harmful agents in the working environment. Strict compliance with the Occupational Safety and Health Act can therefore reduce the risk of unfair working conditions and exploitation.

As shown in subsection 25.7.1: Air Pollution, travel time was calculated and found to be reduced or shortened. In addition, the decentralisation of urban centres and functions, urban areas and industry to the suburbs is expected to bring work and home closer, further reducing commuting times. This is expected to improve the working environment in terms of commuting time.

25.7.23 Accidents

Although the traffic volume will increase, the risk of traffic accidents can be reduced because pedestrian infrastructure such as sidewalks, motorcycle lanes/networks and priority lanes for public transport will promote the separation of pedestrians and vehicles. Improving road conditions can also reduce the risk of traffic accidents due to driver inattention. In addition, the safety management plan can help to raise awareness of road safety. This can also reduce the risk of traffic accidents.

25.7.24 Transboundary Issues/Global Warming

As can be seen in subsection 25.7.1: Air Pollution, CO_2 emissions from vehicles were calculated and found to be reduced compared to emission levels in the Do-Minimum scenario of the transport development strategies, CO_2 emissions from vehicles can be reduced in the future. As shown, the travel time was calculated and found to be reduced, and this will lessen traffic congestion and, consequently, help lower CO_2 emissions from vehicles. The GKMAI-UDMP can, therefore, help reduce greenhouse gas emissions.

25.8 Evaluation of Anticipated Environmental and Social Impacts

The anticipated environmental and social impacts were evaluated and summarised as shown in Table 25.8.1.

The main objectives of the project were to update the existing urban development master plan, set guidelines for plan preparation, and the preparation of district-specific detailed plans. Under the existing plans, population and economic concentration in Kampala City will continue to increase and the environmental and social impacts will continue to worsen. In response to this situation, the updated Urban Development Master Plan (GKMA-UDAP) seeks to maximise socioeconomic benefits while addressing and ameliorating these environmental and social problems. Based on the evaluation, the risk of environmental and social impacts due to population growth and urban development will increase, but will be reduced as much as possible, while socioeconomic benefits will be achieved.

With regard to the impacts of the pre-construction and construction phases, construction works associated with the assumed infrastructure development were considered.

Table 25.8.1 Evaluation of Anticipated Environmental and Social Impacts

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
Pollution	1	Air Pollution	B-	B+/-	B-	B+/-	[Construction Phase] The operation of construction machinery and vehicles for the urban and infrastructure developments will generate exhaust gas and dust. These will temporarily deteriorate air quality around the limited construction sites. [Operation Phase] It is anticipated that the air pollution (as a result of vehicular emissions) will be less with the introduction of the Bus Rapid Transit (BRT) which shall provide mass transport means and lessen private vehicle use. The travel demand forecast model in the GKMA-IUDMP study shows that the share of public transport use in 2021 was 28.5%, which will increase to 48% in 2050. It is also anticipated that the improved connectivity between the CBD and urban growth areas will lessen traffic and reduce travel time, resulting in the reduction of fumes from vehicular emissions. The MCA results also show that passengers' travel time as 20.14 passenger-billion hour/year (1,212 passenger hours/person/year), while 132.62 passenger-billion hours/year (7,936 passenger hours/person/year) was calculated for the Do-Minimum Scenario. Travel time became almost one-sixth of the Do-Minimum Scenario. The CO_2 emissions from vehicles were calculated as 2,014 million tons/year (121.2 tons/person/year). The CO2 emissions from vehicles were reduced more than the Do-Minimum Scenario of the transport development strategies, where these were calculated as 3,476 million tons/year (209.0 tons/person/year). CO2 emissions from vehicles per person per year were also reduced more than the base year 2021, which was calculated as 213.5 tons/person/year. However, the total volume of CO2 emissions from vehicles would increase from 1,235 million tons/year in the base year 2021. In addition, the low emission vehicles, such as electric vehicles, will be promoted and new environmental technologies with PoC (proof of concept) experiment will be enhanced. Thus, although CO2 emissions from vehicles will be higher than at present due to the increase in traffic itself, the introduction of public transport and the shift from car use will reduce travel times and CO2 emissions from vehicles. In addition, as exhaust emissions and dust from existing car traffic are a major source of air pollution, the shift to public transport will contribute to a reduction in air pollution.

No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
		Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
2	Water Pollution	B-	B-	B-	B-	[Construction Phase] Drainage water will be discharged from the construction sites, which include washing water for construction vehicles and machinery, topsoil runoff from the construction sites during rainfall, drainage from the campsite, and nightsoil from the toilets. The drainage water can temporarily and slightly deteriorate the water quality of the surrounding rivers unless no implemented treatment measures by a contractor are undertaken. [Operation Phase] One of the performance indicators of the National Water and Sewerage Corporation (NWSC), which provides water and sewerage services in Uganda, is compliance with effluent discharge standards (%), which is also the case in the Kampala Metropolitan Region.The NWSC is also developing a sewage treatment system, but with population growth and urbanisation, sewage may exceed the NWSC's treatment capacity. Meanwhile, the National Environment (Standards for Discharge of Effluent into Water or Land) Regulations, 2020 set out environmental standards and treatment measures for effluent before it is discharged from sources into water or land. The Regulations require dischargers to ensure that, in addition to the above standards, effluent meets general chemical and microbiological discharge standards, and inorganic and organic discharge standards. In addition, the GKMA-UDAP proposes the Guidelines for Local-Level Physical Development Planning with Introduction of Zoning System. The Zoning Guidelines and Planning Standards states that sewage treatment plants should be planned at local level. Thus, with urban development and population growth come an increase in wastewater, and although the risk of water pollution is high, it can be reduced by implementing the facility planning proposed in the GKMA-UDAP at the local level, together with waste management, wise use of wetlands and strict compliance with effluent standards.
3	Noise and Vibration	B-	B-	B-	B+/-	[Construction Phase] The operation of construction vehicles and machinery will intermittently generate noise and vibration. It can temporarily increase levels of noise and vibration near the construction sites. It will disturb the living environment of nearby residents without noise reduction measures. [Operation Phase] The result of the traffic volume forecast shows that the future traffic volume will increase compared to the current situation and that noise from vehicles can increase. However, the GKMA-UDAP proposes the TOD transport system by providing alternative means of transport through the integrated transport system. In the future, The TOD can reduce the VCR more than the Do-Minimum case. As a result, the traffic congestion can be reduced and the noise from vehicle movements and heavy traffic is expected to be reduced in the future. Additionally, the Noise Standards and Control Regulations provide the levels to ensure the maintenance of a healthy environment for all people, the tranquility of their surroundings and their psychological well-being and, generally, to elevate the standard of living of the people. There is, therefore, a risk of increased noise and vibration, but the risk can be reduced as far as possible by enforcing noise regulations.
4	Soil Contamination	B-	B-	B-	B-	[Construction Phase] The operation of construction machinery and vehicles for the urban and infrastructure development can cause unintentional fuel or oil spills. It may contaminate the soil nearby the construction sites. [Operation Phase] The main type of industry in the region is manufacturing, which will remain a strategic industry in the future. Although the manufacturing industry is unlikely to handle large quantities of hazardous substances, the risk of soil contamination on the site increases over time due to improper waste handling and accumulated spills of raw materials, oil, cleaning fluids, etc. Therefore, when a factory is relocated, the risk can be reduced by investigating the soil at the site and, if contamination is found, by replacing and treating (disposing of) the soil in accordance with the hazardous waste disposal regulations.

No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
		Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
5	Waste	B-	B-	B-	B-	[Construction Phase] Construction refuse (waste soil and materials), hazardous waste, and general waste (solid waste and night soil) will be generated with construction works and at the campsite. These wastes will be disposed of under the control of the site engineer. However, these wastes can cause health hazards, odours, effluent contamination if they are not properly disposed of following the environment management plans and instructions. [Operation Phase] In Kampala, 41.0% of households used "Local dump, supervised" as an appropriate waste disposal method, followed by "Waste vendor" and "Burn". In the suburbs, "Garden" and "Burn" were dominant disposal methods. The National Population and Housing Census 2014 shows that "Burn", "Bury", "Local dump, supervised" and "Waste vendor" are also appropriate disposal methods. In this sense, Kampala had a higher percentage of households that dispose of waste properly, at 88%. On the other hand, as waste increases with urban development and population growth, there is a concern that the existing Kiteezi disposal site will reach capacity and a new disposal site is being planned. The GKMA-UDAP proposes a more realistic waste management plan. The plan aims to improve the efficiency of waste treatment by installing material recovery facilities (MRFs) and promoting waste reduction through resource recovery. It also addresses the needs of less urbanised municipalities through community-friendly waste management facilities, home composting and open dumping to controlled dumping. It also considers the management of waste beyond municipal solid waste using the polluter pays principle. The National Environment (Waste Management) Regulations, 2020, require waste handlers and product stewards to ensure safe and environmentally sound waste management. They must promptly detect and deal with spills, ensure employee awareness and provide protective equipment to their workers. The regulations also encourage positive changes in waste management attitudes and practices. The regulations classify and categorise hazardous waste, prohibit mixing it with non-hazardous materials and require proper storage, handling and documentation. Healthcare waste, including sharps, infectious and radioactive materials, must be managed in accordance with the regulations. The waste manifest requires documentation, storage, controlled access, appropriate containers, safe collection and transport, voyage management plans and electronic tracking systems. Thus, with urban development and population growth come an increase in waste generation and a high risk of waste pollution, which can be reduced by implementing an instrumental management plan and ensuring strict compliance with environmental (waste management) regulations.
6	Ground Subsidence	D	D	N/A	N/A	
7	Offensive Odor	B-	B-	B-	B+/-	[Construction Phase] The operation of construction vehicles and machinery can generate offensive odour due to the exhaust gas, discharging water. The domestic waste from the campsites can also be a source of offensive odour. These will cause a nuisance to nearby residents without prevention measures. [Operation Phase] Meat is popular and an important part of the population's diet in Uganda. As the population grows, so will the demand for meat and the number of slaughterhouses. At present, however, most of the slaughterhouses have poor processing and drainage facilities, which means that the risk of odour is high. On the other hand, the Meat Ordinance Act 2006 gives KCCA and local authorities the power to inspect and approve meat products. KCCA developed guidelines and strengthened regulations in the meat sector. In addition, the GKMA-UDAP Guidelines for Local-Level Physical Development Planning with Introduction of Zoning System plan slaughterhouses as urban facilities. This zoning allows slaughterhouses to be built in hazardous industrial zones. In this way, the development of slaughterhouses in the new urban area is regulated and the risk of odour generation is reduced.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	8	Bottom sediment	B-	B-	B-	B+/-	[Construction Phase] Drainage water will be discharged from the construction sites, which include washing water for construction vehicles and machinery, topsoil runoff from the construction sites during rainfall, drainage from the campsite, and nightsoil from the toilets. The drainage water can temporarily and slightly deteriorate the bottom sediment of the surrounding rivers unless no implemented treatment measures by the contractor are undertaken. [Operation Phase] Increasing urbanisation and the expansion of concrete pavements on roads and construction sites result in rapid and massive run-off, including siltation, from rainfall-induced land erosion. This affects the lower reaches of the urbanising Kampala Metropolitan Area (Wakiso, Mukono and Mpigi). The run-off contains siltation due to land erosion caused by rainfall. This can be mitigated through the implementation of drainage maintenance based on the Drainage Master Plan, waste management and wise use of wetlands as proposed in the GKMA-UDAP.
Natural environment	9	Protected Areas	D	B+/-	N/A	B+/-	[Operation Phase] The GKMA-UDAP has identified relatively accessible areas as ecotourism sites, including two Ramsar wetlands. These sites are expected to attract more tourists as they become more accessible through improved transport networks. Increased tourism will also increase the risk of impacts on the natural environment, which can be mitigated through the development and implementation of management plans, including zoning, as recommended by the GKMA-UDAP. On the other hand, income from ecotourism will help improve the livelihoods of local people. As a result, economic encroachment on wetlands by local people will be reduced. In addition, the impact on nature will be mitigated as part of the income will be used for the conservation and management of protected areas, including Ramsar wetlands, Lake Victoria shores and natural areas, depending on the management plan, including zoning, recommended by GKMA-UDAP.
	10	Flora, Fauna and Biodiversity	B-	B-	B-	B+/-	[Construction Phase] Although wetlands and forests in built-up areas are already degraded, in areas undergoing urbanisation or in more suburban areas, there are still wetlands and forests in their natural state that have not yet been degraded. Therefore, there is potential for wetland encroachment and tree felling due to urban development and building infrastructure. [Operation Phase] Wetlands in built-up areas are already degraded. Therefore, the GKMA-UDAP will transform the degraded parts into green open spaces and protect the remaining part of the wetlands to prevent their further degradation. In areas undergoing urbanisation, preventive protection measures and strict development control should be implemented. Where wetlands and forests are in their natural state, these areas should be protected for recreation and tourism purposes and promoted as wise use areas. Thus, although there is a risk of urbanisation impacts, the GKMA-UDAP prevents further degradation of wetlands and forests and strongly promotes the conservation of existing wetlands and green spaces, which reduces the extent of this risk.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	11	Hydrological Situation	B-	B+/-	B-	B+/-	[Construction Phase] Construction on steep slopes can cause soil erosion if earth retaining works are not done properly. The run-off from the eroded soil can block the drainage system and cause rainwater to overflow in urbanised areas and cause flooding even in areas not prone to flooding. [Operation Phase] Rapid urbanisation and reduced wetlands have led to decreased surface infiltration capacity, causing flooding and inundation in Kampala Capital City. This is exacerbated by land use changes, increasing impervious areas and reducing the effect of storage. The GKMA-UDAP emphasises the need for structural drainage measures to mitigate flooding risks, which based on the Kampala Drainage Master Plan 2016 and the Final Detailed Design, while also focusing on waste management and wetland protection. For conserving wetlands, it also includes defining physical boundaries, limiting road crossings, and specifying road designs to minimise impacts on wetlands. For utilising wetlands, the development of open spaces is proposed through the wise use of wetlands. This aims to enhance urban amenity, improve housing quality and provide attractive recreational spaces. The plan also considers the ecological restoration of wetlands surrounded by urban areas, ensuring that the function of the wetland is not compromised. Thus, population growth and urbanisation can lead to wetland degradation and increase the risk of flooding and inundation, which can be mitigated by implementing drainage development based on the GKMA-UDAP, together with waste management and wise use of wetlands.
	12	Topography and Geographical features	D	D	N/A	N/A	
Social Environment	13	Involuntary Resettlement	B-	B-	B-	B-	The mixed land tenure situation poses challenges for planning and development, including a limited supply of land for housing, public infrastructure and utilities, and economic activities that require large parcels of land. This leads to increased land acquisition costs, limits infrastructure and service provision, and encourages encroachment on marginal and public land. Ugandan law lacks specific provisions for squatters, informal settlers and vulnerable groups such as women, children, the elderly, ethnic minorities, indigenous peoples, the landless and those living below the poverty line. The Ugandan Constitution guarantees property rights and prevents expropriation unless necessary for public use or defence. It requires fair compensation and access to justice for property owners. The country's policy framework for land acquisition and resettlement includes KCCA's Resettlement Policy, UNRA's LAP, and WB and AfDB policies for funded projects. Special attention is given to vulnerable households and their living standards. Land acquisition and resettlement for urban development increase the risk of impacts on the poor and vulnerable, but to a lesser extent through compliance with the Constitution of Uganda and implementation of the implementer's land acquisition and resettlement policy.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	14	The poor, Vulnerable Group	B-	B-	B-	B-	[Pre-Construction Phase] As noted above, land acquisition and resettlement for urban development increase the risk of impacts on the poor and vulnerable, but to a lesser extent through compliance with the Constitution of Uganda and implementation of the land acquisition and resettlement policy by project implementers. [Operation Phase] Employment in the informal sector is generally high in Uganda, although lower levels of education are associated with higher rates of such employment. As urban development proceeds and land acquisition and resettlement occur, there is a risk of loss of precarious livelihoods or reduced income and living standards in the informal sector. This risk is more pronounced for the poor and socially vulnerable, especially in the slum areas where they live. Meanwhile, the GKMA-UDAP has reviewed current slum upgrading plans and proposed an urban development strategy for slum upgrading. To prevent slums from forming in the suburbs, basic infrastructure such as roads, public toilets and water supply will be provided through land certification and municipal purchases, while developers will consider community building services using land leasehold, affordable housing and community development models. The approach in the 2008 National Slum Upgrading Strategy and Action Plan to promote slum upgrading in Kampala, which transforms the land and housing market into economically valuable land uses is also recommended as beneficial for future unplanned settlements in urban areas. Thus, although land acquisition and resettlement for urban development can carry the risk of loss of livelihoods or reduced income and living standards for the poor and vulnerable, slum upgrading as well as regulated and proper land acquisition and resettlement procedures can mitigate the extent of such risk.
	15	Indigenous and Ethnic people	D	D	N/A	N/A	

No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
		Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
16	Local economy such as employment and livelihood, etc.	B+/-	B+/-	B+/-	B+/-	[Pre-Con./Construction Phase] The requirement for construction workers gives opportunities to the inexperienced or unskilled workers, such as doing earthworks, likely to be in demand for any type of construction works. Therefore, the urban development projects will temporarily boost the demand for local employment opportunities for workers (especially the unskilled). They have opportunities gaining experience as an earthmover and obtaining qualifications and licences. The proportion of employed population in the construction sector has an important contribution to local economy and this is growing steadily. Demand for construction due to urban development will serve as a boost to the local economies hosting the projects. Consequently, the demand for construction workers' accommodation and food, and beverages can also contribute to boosting the economy of the local service sector. Meanwhile, inadequate compensation can cause loss of livelihoods, difficulty to recover livelihoods, and/or degradation of previous living conditions of project affected people especially those who live under the poverty line. [Operation Phase] In the same way that industrial development will increase employment in the manufacturing sector, multi-nucleus urban development will increase employment in the tertiary sector including local government, business, commercial, and services according to the functions of each urban centres. Since the transport networks consisting of roads, BRT, LRT, MRT and transit-oriented development (TOD) will reduce passengers' travel time and the vehicle operation cost, they can improve accessibility in the area and also stimulate local economic activities. The Urban Centre TOD Scenario, which the urban centres to be developed outside Kampala City are integrated with the transport networks consisting of roads, BRT, LRT, MRT and TOD, will decrease the modal shares of boda boda while the public transport mode shares increased. Therefore, the existing public transportation operators (of mini-buses and boda bodas) can lose their means of livelihood or have their incomes reduced. Meanwhile, as mentioned above, they may have opportunities to be employed as construction workers, especially in earthworks, even without experience or skills. Agriculture gives majority of the employment in the suburban districts and the agro-processing industries are growing under the national polices. In the projection of the GRDPs of the GKMA-UDAP, the primary sector will occupy the important position in the local economy of Wakiso, Mukono and Mpigi in the future. Both agro-processing industries and agriculture will develop in a synergistic way. The GKMA-UDAP proposes proper planning, the local level physical development planning with the introduction of zoning system, which will regulate land use and prevent disorderly urban development to actively promote the creation of desirable urban areas and maintain the healthy environment at the local level. It will promote sound investment and growth of communities where the economy will be boosted, leading to higher levels of employment and improved livelihoods.
17	Land use and utilization of local resources	D	B+	N/A	B+	[[Operation Phase] The implementation of the land use plan will enable more efficient land use and local resource use. Especially, the GKMA-UDAP proposes a zoning system for local level physical development planning, aiming to regulate land use and prevent disorderly urban development. This will promote desirable urban areas and maintain a healthy local environment, boosting investment, community growth, and employment, ultimately improving livelihoods. Besides, as mentioned in "A local economy such as employment and livelihood, etc." above, since the Urban Centre TOD Scenario in which the urban centres to be developed outside Kampala City are integrated with the transport networks consisting of roads, BRT, LRT, MRT and TOD will reduce passengers' travel time and the vehicle operation cost, it can improve accessibility in the area and also stimulates local economic activities.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	18	Water Usage or Water Rights and Rights of Common	D	D	N/A	N/A	
	19	Existing social infrastructures and services	B-	B+/-	B-	B+/-	[Construction Phase] The operation of construction machinery and vehicles for the urban and infrastructure development can hinder access to existing social services such as schools, hospitals and other essential services due to traffic congestion around the construction sites if not properly managed. [Operation Phase] At present, population growth has led to shortages in social infrastructure such as roads, medical and educational facilities, etc., which have not been matched to regional population growth patterns, resulting in concentrated use and strain on facilities. There is a risk that these service levels can be further reduced if urban development and population growth continue. The multi-nucleus urban development structure proposed by the GKMA-UDAP can facilitate proximity to social services. As the urban transport system can improve accessibility in the GKUGA, it can also make it easier to access social services in neighbourhoods and other areas. The transport network that includes roads, BRT, LRT, MRT and Transit Oriented Development (TOD) also improves accessibility in the region by reducing travel times and vehicle operation costs. In addition, the equity of the transport network and the ease of travel through the development of infrastructure for non-motorised transport (NMT), such as walking and cycling, can also improve access to social infrastructure and services for local residents. In addition to urban infrastructure development, the GKMA-UDAP also proposes the development of health and education facilities, depending on the population growth situation, and open spaces. These can also help to improve the quality of social services.
	20	Social institutions such as social infrastructure and local decision-making institutions	D	D	N/A	N/A	
	21	Misdistribution of benefit and damage	D	D	N/A	N/A	

No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
		Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
22	Local conflict of interests	B-	B-	B-	B-	[Construction Phase] The majority of Ugandans hold their lands under customary tenure, and the lack of clear boundaries is problematic. Blurred land boundaries are a major cause of land disputes, including development activities in wetlands. Therefore, the risk of land conflict increases when land acquisition and resettlement are necessary for urban development. On the other hand, appropriate measures are being taken by the government, KCCA and other local authorities, MLHD, UNRA and other ministries and agencies to develop land acquisition and resettlement laws, policies and procedures for project implementation. In addition, WB and AfDB projects apply their policies to ensure that land acquisition and resettlement are properly implemented. [Operation Phase] The risk of development encroaching on non-degraded wetlands may increase as private development expands, especially as more urban development takes place in the suburbs. This can be mitigated to a lesser extent through implementation of the wise use of wetlands proposed by the GKMA-UDAP, together with appropriate project management, including environmental and social assessment. In addition, there is a risk of complications in coordinating development interventions and resolving land disputes when the development area covers a wide range of areas under the jurisdiction of different municipalities and the Kingdom of Buganda, such as transport networks. However, this can be reduced by MKCC&MA coordinating across regions and sectors.
23	Cultural heritage	B-	B-	B-	B+/-	[Construction Phase] If the construction work for the urban and infrastructure developments is implemented at the places where the cultural/historical facilities or the traditional and customary sacred places are located, they can be damaged and lose or deteriorate their cultural values. [Operation Phase] Cultural properties are protected from development and construction. As protected objects of archaeological, palaeontological, ethnographic, traditional or historical interest, they cannot be altered, added to, repaired, destroyed, defaced or damaged. KCC has a national ethnic population and although many of Kampala's residents were born and raised in the city, they still define themselves by their tribal roots and speak the language of their ancestors. This is more pronounced in the suburbs, where tribal languages are widely spoken alongside English, Luganda and Swahili. The same is true of Mukono District, on the outskirts of KCC, where there is already a large ethnic mix and, therefore, no more significant cultural barrier for new migrants. Meanwhile, improved access as well as public facilities can also make it easier for local people to visit cultural heritage sites, thereby promoting the use of cultural assets, cultural awareness and heritage conservation. In addition, strengthening connectivity and mobility through improved transport infrastructure can facilitate cultural exchange and exploration within the region, further enhancing its attractiveness as a tourist destination.
24	Landscape	D	B	N/A	D	In the long term, if the traffic demand cannot be met by BRT due to the phased development of the transport network, an elevated rail-based system with a height of 8.15 metres (excluding vehicles) is proposed in the middle of the expressway. However, the road width of the expressway is about 50 metres and the visual impact from the roadside is low. The BRT on the urban road also has a lower visual impact as it is not an elevated system.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	25	Gender	B-	B+/-	B-	B+/-	Ugandan law does not specifically require consideration of women in land acquisition and resettlement. However, for projects such as KCCA and UNRA, the Gender Equality Policy provides for gender equality and consideration of vulnerable groups. In particular, the KCCA provides for gender compensation and consideration for female heads of households. In addition, WB and AfDB projects provide equal compensation for men and women in accordance with their policies. In terms of land tenure, women do not traditionally have access to land rights and cannot own or inherit land. However, the situation is expected to improve as the National Land Policy 2013 sets out strategies in law to address gender inequalities in land inheritance and ownership, integration of women in decision-making structures and processes on land access and use, etc. The National Land Policy 2013 also sets out strategies to address gender inequalities in land inheritance and ownership, integration of women in decision-making structures and processes on land access and use, etc. Currently, women have lower employment rates and higher unemployment rates than men. There is also a gender gap in employment wages (1.79 times). By sector, the highest wages were in the service sector with an average monthly wage of UGX300,000. The gender pay gap in this service sector was 1.94 times. The proportion of women working in the informal sector is lower than that of men, due to the higher proportion of women engaged in domestic work. However, the proportion of women working in the formal sector is also lower than that of men. Note that the number and proportion of informal workers nationally are higher than in 2016/17 (from 4,495,000 to 5,629,000, or from 85.0% to 87.9%). This trend is more pronounced for women (85.6% to 91.2%) and for men (84.5% to 85.6%). In addition, female-headed households are more likely to be poor than male-headed households. Thus, there is a gender pay gap; and women are more likely to be involved in informal employment and enterprises. Therefore, as urban, transport and infrastructure development progresses, women are at high risk of losing their livelihoods, income or standard of living due to land acquisition and resettlement. On the other hand, the impact of land acquisition and resettlement is mitigated by the fact that women are taken into account in land acquisition and resettlement, and that legal gender disparities in women's land ownership rights are being addressed. In addition, as noted in subsection 21.1.13: Local Economy such as Employment and Livelihood, the construction demand from urban development also increases the demand for accommodation of construction workers, and food and beverage sales, which in turn increases the demand for local service sector workers. It also contributes to improving the livelihoods of women working in the service sector. In addition, as health facilities and education facilities will be aligned with the population change pattern in the districts, they are expected to improve women's safety and living conditions.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	26	Children's rights	B-	B+/-	B-	B+/-	[Construction Phase] The traffic volume and congestion will temporarily increase due to construction vehicles running with ordinary vehicle traffic around construction sites. This also increases the risk of road accidents for students if there are schools nearby. This situation will also increase the risk of traffic accident on students. [Operation Phase] The Uganda Bureau of Statistics' National Labour Force Survey 2021 found that 38.5% of children aged 5-17 in Uganda were engaged in child labour (excluding the doing of household chores) with more than half (55.7%) engaged in economic activities. This prevalence was higher among rural dwellers, less affluent households and children in school. The children's works are in various sectors in Uganda, including agriculture, industry and services. These include cultivating and harvesting crops, working with livestock, fishing, and performing domestic and street work, as well as working in various establishments. Therefore, increased employment opportunities due to industrial and urban development also increase the risk of child labour, especially in poor households. Slum upgrading can reduce the risks of child labour, and to degrade living environment of the urban children, especially in the slums. Equity in the transport network and walkability brought about by the development of infrastructure for non-motorised transport (NMT), such as walking and cycling, are key modes of transport, especially for people with reduced mobility, and also improve children's access to social services. In this context, the GKMA-UDAP also proposes to expand health and education facilities in line with population growth, so that public transport will reduce travel times and improve overall access to these facilities for children. In addition, the wise utilisation of wetland will create open spaces for the residents by providing the lighting and improved access, paths, footpaths and landscaping, hence can be used as playgrounds for children. This can contribute to promoting healthy growth in children. It can also increase safety and public security, especially for vulnerable users such as women and children.
	27	Hazards (Risk), Infectious diseases such as HIV/AIDS	B-	B-	B-	B-	[Construction Phase] The influx and movement of construction workers can lead to the transfer of sexually transmitted diseases such as HIV/AIDS. These can also lead to prostitution and the spread of sexually transmitted infections and diseases. [Operation Phase] The high prevalence of HIV among adults not only in Kampala, but also in the suburbs of Mukono, Wakiso and Mpigi, where the population is currently growing, can lead to an increase in HIV prevalence rates as the population continues to grow. There is a particular risk of workplace-borne transmission, as population and economic growth promote employment and attract a diverse range of workers from the region and beyond, from manufacturing to construction, administration, business, commerce, services, etc. In line with population and economic growth, there will be also an increase in hotspots (clusters of bars, nightclubs, local breweries, eateries, lodges and guesthouses) in and around new urban centres. This can lead to an increase in the number of long-distance truck drivers, uniformed service personnel, boda-boda taxi drivers, and sex workers among whom high HIV prevalence rates were reported. Meanwhile, national HIV prevalence rates have been falling and the Ugandan government has been implementing viable programmes with strategies. These can therefore help reduce the risk of HIV/AIDS spreading.

	No.	Likely Impacts	Rating by Scoping		Rating by study results		Reasons for Rating
			Pre-con./ Construction	Operation	Pre-con./ Construction	Operation	
	28	Working conditions	B-	B-	B-	B+/-	Workplace violence covers various acts or threats, including physical violence, harassment, intimidation and disruptive behaviour. A large proportion of workers in Kampala were subjected to work places where they were constantly shouted at (16.3%) or repeatedly insulted (10.4%), and they experienced non-payment of wages / salaries / benefits (19.7%). Also, different forms of exploitation experienced by victims of forced labour were identified. The most common form of labour exploitation was withholding of payments, experienced by 30% of victims of exploitation nationally. Workers often experienced accidents or injuries at work that resulted in absenteeism or incapacity to work. Nearly 8% of the working population suffered an accident or injury, of which there were more men (9.6%) than women (4.8%). The industrial sector had a higher injury rate (12.5%) than agriculture (8.3%) and services (5.3%). About 40% of injuries were serious enough to cause workers to miss at least one day of work. Most of the seriously injured workers (48.5%) had experienced such an incident once in the previous 12 months. Urban development will increase construction demand and consequently this increases the demand for construction labour. Industrial development will increase employment of the manufacturing sector especially, and multi-nucleus urban development will increase employment in the tertiary sector including local government, business, commercial, and services according to the functions of each urban centre. Therefore, with this increase in employment opportunities, the risk of unfair working conditions and exploitation increases if the current working environment remains the same. However, the Occupational Safety and Health Act provides for the rights of children, prohibits hazardous work and prevents exploitation. Employers are required to protect workers by maintaining safe workplaces and providing safe means of entry and exit. Employers are also required to monitor the health of workers exposed to occupational hazards due to pollution and other harmful agents in the working environment. Strict compliance with the Occupational Safety and Health Act can, therefore, reduce the risk of unfair working conditions and exploitation. Travel (commuting) time was calculated and found to be reduced or shortened. In addition, the decentralisation of urban centres and functions, urban areas and industry to the suburbs is expected to bring work and home closer, further reducing commuting times. This is expected to improve the working environment in terms of commuting time.
Others	29	Accidents	B-	B-	B-	B+/-	[Construction Phase] The traffic volume and congestion will temporarily increase due to construction vehicles running with the ordinary vehicle traffic around construction sites. This also increases the risk of road accidents for residents nearby. This will also increase the risk of traffic accident on the residents. [Operation Phase] Although the traffic volume will increase, the risk of traffic accidents can be reduced because pedestrian infrastructure such as sidewalks, motorcycle lanes/networks and priority lanes for public transport will promote the separation of pedestrians and vehicles. Improving road conditions can also reduce the risk of traffic accidents due to driver inattention. In addition, the safety management plan can help to raise awareness of road safety. This can also reduce the risk of traffic accidents.
	30	Global Warming	D	B+	N/A	B+	[Operation Phase] As the CO_2 emissions from vehicles were calculated to be reduced compared to the Do-Minimum scenario of the transport development strategies, future CO_2 emissions from vehicles can be reduced. Also, as shown, the travel time was calculated and found to be reduced. This will lessen traffic congestion and consequently help reduce CO_2 emissions from vehicles. The GKMA-UDAP can, therefore, help reduce greenhouse gas emissions.

Source: JICA Expert Team

25.9 Proposed Mitigation Measures

The JICA Expert Team proposes Alternative D as the appropriate master plan for the GKUGA as mentioned above. However, Alternative D will result in some adverse impacts and the mitigation measures are proposed in Table 25.9.1 below. The GKMA-UDAP already includes the measures to cover the mitigation measures shown in Table 25.9.1. Therefore, the cost of implementing mitigation measures is also included in the budget of the implementing agency. General mitigation measures are also proposed for the pre-construction and construction phases.

Table 25.9.1 Proposed Mitigation Measures

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
Pre-Construction and Construction Phases					
1	Air Pollution	Deterioration of air quality due to dust	• Regular water spray on working area, roads, and demolition debris. • Regular washing and cleaning of construction vehicles and machinery. • Sheet covering of back of hauling equipment during operations.	- Consultant - Contractor	-Project implementer
		Deterioration of air quality due to emission gases	• Use modern equipment and regular maintenance. • Develop traffic management plan. • Install outer wall around site. • Instruct drivers against excessive idling and revving.		
2	Water Pollution	Turbid water due to eroded soil from the construction site	• Install a silt fence to prevent soil erosion from the construction site and siltation in nearby drainages, streams, and rivers.		
		Deterioration of river water due to wastewater from the construction site and the labour camps	• Install toilets for proper waste disposal. • Trap washing water for construction equipment and vehicles, and wastewater from site offices to meet the effluent standards and discharge into drainage channels. • Install an oil separator for topsoil runoffs.		
3	Noise and Vibration	Nuisance on residents due to noise and vibration generated by equipment and vehicles	• Use modern construction vehicles and machinery to generate low noise and vibration, and regularly maintain them. • Schedule effective working hours in restricted times considering nuisance to nearby communities. • Develop a traffic management plan so that construction vehicles are not congested around the construction site. • Install an outer wall around the construction site. • Instruct drivers of vehicles not to make excessive idling and revving of construction vehicles at sites. • Instruct drivers of vehicles, especially the large-sized vehicles, to control the driving speed, not to make excessive idling and revving.	- Consultant - Contractor	-Project implementer
4	Soil Contamination	Fuel and oil spills, Hazardous wastes	• Install oil guard for spill protection. • Temporarily store hazardous wastes in leakproof containers. • Collect and transport hazardous wastes by licensed collectors. • Dispose hazardous wastes in authorised facility.	- Consultant - Contractor -Licensed collectors	-Project implementer
5	Waste	Domestic wastes from the construction site and the labour camps	• Put garbage in trash cans, and regularly dispose garbage to assigned places.		
		Construction waste disposal	• Sort, separate, and store construction wastes by type, domestic waste, solid waste, liquid waste, and chemical wastes at the site. • Collect, transport, and dispose construction wastes appropriately through licensed collectors.		
		Hazardous wastes	• Store hazardous wastes temporarily in leakproof containers at a separated safe place on-site. • Collect and transport hazardous wastes on a specified route by licensed collectors and dispose them in a designated facility authorised by the local government.		

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
7	Offensive Odor	Emission gases	• Use modern equipment and regularly maintain the construction vehicles and machinery to minimise exhaust gas emission. • Develop a traffic management plan so that construction vehicles are not congested around the construction site. • Install an outer wall around the construction site. • Instruct drivers not to make excessive idling and revving of construction vehicles at site.	- Consultant - Contractor	-Project implementer
		Wastewater from the construction site and the labour camps	• Install toilets at the construction site and labour camps to appropriately treat and dispose of human waste. • Treat washing water for construction equipment and vehicles, and wastewater from site offices to meet effluent standard and discharged into drainage channels.		
		Domestic wastes from the construction site and the labour camps	• Put garbage in trash cans, and regularly dispose garbage to assigned places.		
13 14 16	Involuntary Resettlement/ The Poor, Vulnerable Group/ Local Economy such as Employment and Livelihood, etc.	Loss of business and/or livelihoods, residence Decrease in income Decrease in the level of living conditions	Design and implement land acquisition and resettlement plans properly, and monitor and evaluate those activities including the following: • Develop and implement strategies to mitigate negative social impacts of gentrification and displacement. • Avoid heavily settled areas when identifying potential locations for infrastructure development. • Agree on compensation with affected individuals and in accordance with district rates and guidance from the Office of the Chief Government Valuer. • Develop comprehensive resettlement programmes including adequate housing, access to basic services, public health infrastructure, livelihood restoration, and community support mechanisms. • Involve stakeholders at all levels to sensitise the community on land acquisition intentions. • Involve all affected communities and stakeholders in the decision-making process. • Consider the interests of vulnerable groups in the communities likely to be affected by proposed activities. • Develop and implement livelihood enhancement programmes to help economically and physically displaced persons re-establish their livelihoods or create new ones. • Develop a grievance mechanism plan to address grievances from the affected communities. • Prioritise development of under-utilised areas to reduce the need for new land and resettlement. • Improve land tenure systems to provide security of land ownership and reduce the risk of forced evictions and displacement of vulnerable populations. • Ensure access to basic services such as water, sanitation, and healthcare for affected communities • Ensure fair compensation and timely compensation for lost assets and livelihoods. • Establish a robust monitoring and evaluation system to track the impacts of developments on vulnerable groups. These are implemented in accordance with legislation and implementing agency policies. (Constitution, National Land Policy 2013, KCCA Resettlement Policy Framework, Guidelines for Compensation Assessment under Land Acquisition (GCALA, UNRA Land Acquisition and Resettlement Policy (LARP) ・ Land Acquisition and Management System (LAMS), Guidelines for Mainstreaming Gender into the Road Sub-sector, Uganda National Gender Policy, WB/AfDB policies)	- Consultant - Contractor - KCCA -Mukono district - Wakiso district - Mpigi district -Technical Vocational Education and Training (TVET)[3] -International/ local Donors/ NGOs	-Project implementer - Ministry of Land, Housing and Urban Development (MoLHUD) - Ministry of Gender, Labour and Social Development (MoGLSD) - Ministry of Works and Transport (MoWT)

[3] Technical Vocational Education and Training (TVET) is responsible for policy, financing, licencing of private institutions, regulation and accreditation of TVET training and education.

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
25	Gender	Gender gaps	• Compensate female-headed households with the same rate as male-headed households. • Encourage women to participate in public consultations and in the Land Acquisition and Resettlement Action Plan implementation organisations. • Promote employment of women as construction workers (simple labour, technical assistants, etc.) and ordinary workers in construction work. (including contractor camp management) • Ensure equal wages for men and women for the same type of work. • Provide workers the awareness-raising education on HIV, sexual harassment, and women's safety at construction sites.		
26	Children's rights	Traffic accidents involving children	• Require technical specifications, including the prevention measures for traffic accidents, and their enforcement considering women and students. • Take the same traffic management measures as "Accidents" below.	- Consultant - Contractor - MoGLSD	-Project implementer
27	Hazards (Risk), Infectious diseases such as HIV/AIDS	Spread of infectious diseases	• Maintain the hygienic environment around the campsites to avoid the occurrence of infectious diseases caused by unsanitary drainage and insects. • Instruct and sensitise the construction workers to prevent sexually transmitted diseases.		
28	Working conditions	Occupational safety, hygiene, and health of workers	• Ensure occupational safety, hygiene, and health of workers under the legislation related to construction work and general occupational safety and health, and technical specification. • Supervise and monitor the construction activities and improve the working environment as necessary.		
29	Accidents	Accidents of workers and nearby residents	• Develop a traffic management plan including individual routes so that construction vehicles are not congested, and secure safe access of vehicles and passersby without traffic interference around the construction site. • Avoid the concentration of vehicles during heavy traffic hours of commuting times for school and business, and instruct the workers on safe driving. • Install safety equipment, which includes traffic signs, traffic mirrors, lighting, signposting, warning signs, and barriers for traffic segregation. • Install an outer wall or fence around the construction site to separate each other.	- Consultant - Contractor	-Project implementer
Operation Phase					
1	Air Pollution	Deterioration of air quality due to emission gases	• Promote efficient and environmentally friendly modes of transport, such as rail and bus, and improve their accessibility and reliability to reduce the concentration of emissions from many small vehicles by implementing Urban Centre TOD Scenario (Moderate Transit Development and Joint Development of Urban Centres and Transport Infrastructures) proposed in the GKMA-UDAP. • Integrate the development strategies in which the urban centres to be developed outside Kampala City with the transport networks consisting of roads, BRT, LRT, MRT and transit-oriented development (TOD). • Create dedicated forest, nature parks, and green lawns as carbon sinks. • Encourage fuel-efficient machinery and vehicles to reduce greenhouse gas emissions. • Establish and enforce speed limits to reduce airborne fugitive dust • Monitor air quality regularly along busy transport routes to reverse negative trends. • Introduce cleaner fuel standards and promote electric vehicles. • Encourage investment in high-tech, non-polluting manufacturing industries. • Encourage use of renewable energy sources like solar, wind, and hydroelectric power. • Promote energy-efficient designs, construction, and retrofitting of buildings. • Enforce emission controls through legislation and comply with ambient air quality standards. (The National Environment (Air Quality Standards) Regulations, 2024)	- NEMA - MoWT - Ministry of ICT and National Guidance - Uganda National Roads Authority (UNRA) - Uganda Railways Corporation (URC) - Ministry of Trade, Industry and Cooperatives (MoTIC) - Ministry of Energy and Mineral Development (MoEMD) - MoLHUD	- MKCC&MA- - Ministry of Water and Environment (MoWE)

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
2/8	Water Pollution/ Bottom sediment	Deterioration of surface water, groundwater	• Expand sewerage network and faecal sludge treatment facilities to cover urbanised areas. • Enforce effluent control through regulations. (Standards for Discharge of Effluent into Water or Land) Regulations, 2020)	- NEMA - NWSC - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE
3	Noise and Vibration	Disturbance to local residents due to noise and vibration caused by more vehicles	• Construct physical noise barriers along major expressways and arterial roads. • Implement traffic calming measures like speed limits and traffic signal synchronisation. • Conduct awareness campaigns to educate residents and businesses about noise pollution impacts. • Include sound acoustics in infrastructure design. • Implement noise mapping and monitoring to revise policies and urban planning decisions. • Lower noise levels at the source or along the propagation path using techniques like traffic flow management, low-noise vehicles, sound barriers, insulation, and landscaping. • Minimise adverse effects of noise on receivers using techniques like noise zoning, land use planning, building design, soundproofing, and masking. • Enforce the 2003 Noise and Standards Control Regulations, ensuring acceptable noise limits in residential, commercial, and industrial areas during both day and night. (National Environment (Noise Standards And Control) Regulations, 2003)	- NEMA - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA - MoWE
4	Soil Contamination	Deteriorated soil, Hazardous wastes	• Treat top soil after relocation including soil survey, soil replacement, and soil disposal. • Enforce soil management regulations. (National Environment (Minimum Standards for Management of Soil Quality) Regulation 2001, National Environment (Oil Spill Prevention, Preparedness and Response) Regulations 2020) • Take the same hazardous waste management measures mentioned under “Waste”.	- NEMA - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE
5	Waste	Waste increase	• Implement a comprehensive waste management plan including waste reduction, reuse, and recycling. • Prepare an integrated waste management plan for each of the proposed projects. • Encourage eco-friendly products and packaging use in addition to waste take back solutions. • Provide waste segregation and collection services to all areas, including newly designated commercial and residential zones. • Promote public awareness on proper waste disposal practices for Sustainable Consumption and Production (SCP) and a Circular Economy. • Establish new standardised landfills for waste testing, treating, and safe landfilling. • Monitor landfill sites regularly to ensure compliance with environmental regulations. • Invest in waste management infrastructure such as recycling centres, composting facilities, waste-to-energy plants, and modern landfills. • Include Extended Producer Responsibility (EPR) in contracts of KCC PDP project implementation concessionaires. • Promote a circular economy, promoting waste materials as resources and supporting businesses using recycled materials. • Embrace innovative technologies for waste management, such as IoT-based monitoring system and mobile applications for waste collection scheduling. • Involve local communities, businesses, and stakeholders in waste management initiatives. • Develop and enforce regulations and policies related to waste management for waste management practices in industries and construction activities. (The National Environment (Waste Management) Regulations 2020, The Guidelines for the Management of Landfills in Uganda of 2020, National Environment (Oil Spill Prevention, Preparedness and Response) Regulations 2020)	- NEMA - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
7	Offensive Odour	Offensive odour from waste, sewage and abattoirs	• Take the same waste and sewage management measures above • Enforce the meat ordinance and the guidelines for abattoirs provided by KCCA. (Meat Ordinance Act 2006, Industrial Wastewater Management Guide for ABATTOIRS, KCCA) • Enforce the GKMA-UDAP zoning system	- NEMA - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE
9	Protected Areas	Degradation of wetlands and forest reserves	• Enforce regulations for wetlands conversion prohibiting for agricultural, commercial, industrial, or residential purposes. (National Environmental Act Cap 153、National Environment (Wetlands, River Banks And Lake Shores Management) Regulations, No. 3/2000) • Ensure all proposed projects are subject to appropriate planning controls including ESIA, and enforce any environmental conditionals attached to each development project. • Map out and establish the location of sensitive habitats within protected areas. • Align all project planning with district and sub-county physical development plans. • Strengthen institutional cooperation to eliminate illegal activities associated with resource exploitation from protected areas. • Implement wetland restoration and conservation programmes to restore degraded wetlands and enhance their ecological functions. • Develop comprehensive land-use plans prioritising wetlands protection and designating them as critical areas for conservation. • Conduct awareness-raising campaign about the importance of wetlands and their benefits. • Implement comprehensive flood management measures considering the role of wetlands in flood control. • Implement measures to avoid introduction of invasive species and establish buffer zones around protected areas (PAs). • Integrate PAs into urban planning frameworks by delineating development boundaries and ensuring urban expansion does not encroach upon PAs. • Promote eco-friendly and sustainable tourism practices that minimise the ecological footprint on PAs.	- MoWE -National Forestry Authority (NFA) - MoTWA	- MKCC&MA-
10	Flora, Fauna and Biodiversity	Loss of vegetation	• Avoid ecologically sensitive areas for the urban development • Establish forested areas and nature parks for ecologically sensitive areas. • Maintain minimal vegetation clearance footprint. • Promote sensitive and progressive habitat organisation and rehabilitation.	- NEMA - NFA - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE
11	Hydrological Situation	Deterioration of drainage, Increased risk of flood	• Implement effective stormwater management systems to capture and manage excess surface runoff during rainfall events. • Incorporate green infrastructure elements like green roofs, permeable pavements, and urban green spaces to enhance natural infiltration and reduce surface runoff. • Identify and restore degraded wetlands to their natural state as natural buffers, reducing the risk of flooding downstream. • Integrate land use planning strategies prioritising flood-resistant development practices, such as avoiding construction in flood-prone areas and promoting elevated building designs. • Raise public awareness about responsible land use practices and flood risk management, educating the community on proper waste disposal and benefits of natural drainage systems. • Enforce regulations controlling land use and development activities to ensure compliance with flood risk mitigation measures, including strict enforcement of building codes, zoning regulations, and environmental protection laws.	- MoWT - UNRA - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation

14	The Poor, Vulnerable Group	Loss of businesses and/or livelihoods, residence
		Decrease in income
		Decrease in the level of living conditions
			• Continue to implement land acquisition and resettlement action plans.
			• Develop land use planning strategies for balanced distribution and avoidance of concentration of slums in marginalised areas.
			• Develop long-term plans to address urbanisation challenges, including affordable housing, infrastructure development, and service facilities. These are as follows:
			  • Develop affordable housing programmes and financial incentives for low-income individuals.
			  • Upgrade existing settlements by improving infrastructure, sanitation, and basic services, and housing structures.
			  • Implement income-generation programmes to uplift residents' economic status and promote sustainable livelihoods.
			  • Create economic opportunities through skills development, vocational training, and support for micro-enterprises.
			  • Encourage community participation in urban development and settlement decisions.
			  • Address land tenure issues by providing secure land rights.
			  • Involve communities in decision-making processes and empower community leaders.
			  • Ensure access to essential social services and extend services to marginalised populations.
			  • Implement regularisation and upgrading programmes to transform informal settlements into formal neighbourhoods.
				- KCCA
				-Mukono district
				- Wakiso district
				- Mpigi district
				- NWSC
				- TVET
				-International/ local Donors/ NGOs
					- MKCC&MA-
					- MoLHUD
					- MoWT

			• Implement social protection schemes targeting vulnerable groups
			  • Provide skills development and training programmes to enhance employability of vulnerable groups.
			  • Develop affordable housing programmes, prioritising vulnerable groups such as women-headed households, the elderly, and people with disability.
			  • Ensure equal access to essential services such as water, sanitation, and healthcare for all residents, especially vulnerable groups.
			  • Implement programmes promoting economic empowerment for vulnerable groups.
			  • Involve vulnerable groups in decision-making processes related to urban development and service delivery.		

16	Local economy such as employment and livelihood, etc.	Loss of businesses or livelihoods, decreased income of boda boda drivers	• Provide boda boda drivers priority in road maintenance work. • Provide livelihood recovery programmes for boda boda drivers: technical skill development training, entrepreneurship development, basic skills training, provident financial asset building, access to financing opportunities and job referrals and placements. • Involve boda boda drivers in the process to form a consensus to establish the new public transportation system operation.		
19	Existing social infrastructures and services	- Accelerating lack of infrastructure and public facilities - Reducing service levels	• Invest in infrastructure expansion to accommodate population growth trend and reduce the burden on infrastructure. • Implement urban planning strategies for mixed-use zones, efficient transportation, and social service infrastructure. • Develop and upgrade education and health facilities to meet growing population needs. • Manage traffic congestion and improve transportation systems through public transportation promotion and traffic management strategies. • Encourage active participation and collaboration among stakeholders for effective planning, implementation, and monitoring of infrastructure and service improvements.	- MoWT - UNRA - NWSC - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA- - MoWE

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
22	Local conflict of interests	Land dispute and conflict	• Foster community engagement and ensure participatory decision-making processes involving community representatives, stakeholders, and local leaders to promote inclusivity and representation of diverse groups in decision-making processes and governance processes. • Establish and strengthen conflict resolution mechanisms to address disputes related to urbanisation, land use, property rights, and resource allocation. • Strengthen local governance structures and institutions to better address community needs and encourage dialogue and collaboration among diverse stakeholders to foster mutual understanding and cooperation in addressing local conflicts and governance issues. • • Improve access to justice by providing legal aid services and support for residents facing legal challenges. • Conduct civic education programmes to inform residents about their rights and responsibilities. • Incorporate conflict analysis and conflict-sensitive approaches into urban development plan. • Incorporate local communities' interests in comprehensive land use plans.	- MoLG - DPP - MoJCA - MoWT - MoLHUD - KCCA -Mukono district - Wakiso district - Mpigi district	- MKCC&MA - MoWE
23	Cultural heritage	Damage and degradation of cultural heritage	• Enforce the Historical Monument Act. (Historical Monuments Act 1967) • Conduct inductions and trainings for contractors on cultural heritage protection. • Incorporate cultural heritage considerations into urban planning processes. • Conduct public awareness campaigns and educational programmes to raise cultural heritage awareness. • Establish a grievance mechanism for reporting and responding to cultural heritage damage. • Develop sustainable cultural tourism programmes showcasing rich heritage. • Foster partnerships between government agencies, NGOs, academia, tourism stakeholders, and local communities.	Ministry of Tourism, Wildlife and Antiquities (MoTWA)	- MKCC&MA
25	Gender	Increasing gender inequality	• Enforce land acquisition and resettlement polices including gender equality in property right, compensation and livelihood rehabilitation. (Constitution, National Land Policy 2013, KCCA Resettlement Policy Framework, Guidelines for Compensation Assessment under Land Acquisition (GCALA), UNRA Land Acquisition and Resettlement Policy (LARP) • Land Acquisition and Management System (LAMS), Guidelines for Mainstreaming Gender into the Road Sub-sector) • Address gender equality in employment, wage and job opportunities. (Uganda National Gender Policy, Employment Act 2006) • Promote gender sensitive urban planning that integrates gender considerations in urban planning processes. • Conduct awareness campaigns and educational programmes promoting gender equality.	- MoGLSD - Ministry of Internal Affairs (MoIA) - Ministry of Local Government (MoLG) - Directorate of Public Prosecutions in the Ministry of Justice and Constitutional Affairs	- MKCC&MA
26	Children's rights	Increasing risk of deteriorating child safety	• Advocate and enforce legal frameworks and policies protecting children's rights. • Implement robust child protection policies to safeguard children from exploitation, abuse, trafficking, child labour and violence in high-density residential areas. • Enforce the Employment Act and Regulations. (Employment (Employment of Children) Regulations 2012, Employment Act 2006, National Child Labour Policy 2006, Children's Act Cap 59, National Gender Policy 2007)		

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
		Degradation of levels of education and health services	• Ensure quality education for all children by building and maintaining schools and addressing barriers to school enrollment (school dropouts). • Improve access to healthcare services, including paediatric healthcare, immunisations, maternal care, and nutrition programmes for children and mothers. • Enhance public spaces, playgrounds, and recreational areas to create safe and supportive environments conducive to children's growth.		
		Increase in child poverty	• Provide economic opportunities, social support, and basic amenities to target urban poverty and inequality, especially in slum areas. • Support families to have access to social welfare programmes, financial aid, and livelihood opportunities. • Implement programmes to address child poverty and socioeconomic disparities. • Ensure access to adequate housing, clean water, sanitation facilities, and basic amenities. • Incorporate child-friendly urban planning principles into city development. • Promote community involvement in decision-making processes related to urban development.		
27	Hazards (Risks), Infectious diseases such as HIV/AIDS	Spread of infectious diseases	• Implement comprehensive public health campaigns to raise awareness about HIV/AIDS prevention, transmission, and treatment. • Ensure availability and accessibility of healthcare services, including HIV testing, counselling, and treatment facilities. • Implement evidence-based prevention strategies, such as promoting condom use, regular testing, and pre-exposure prophylaxis. • Collaborate with local community-based organizations and NGOs to provide group support, targeted interventions, and counselling services for vulnerable populations affected by HIV/AIDS. • Conduct extensive public awareness campaigns to educate communities about HIV/AIDS transmission, prevention methods, treatment options, and reducing stigma. • Expand coverage and availability of antiretroviral therapy (ART) for individuals diagnosed with HIV/AIDS. • Promote safe sex practices to prevent HIV transmission and encourage regular testing and counseling for sexually active individuals. • Integrate HIV/AIDS services with other healthcare services to reduce stigma and provide comprehensive care. • Establish community support groups, peer education programmes, and networks for people living with HIV/AIDS. • Train healthcare workers, community health volunteers, and educators to deliver HIV/AIDS-related services. • Collect and analyse data on HIV/AIDS prevalence, treatment adherence, and outcomes to guide future strategies.	- KCCA -Mukono district - Wakiso district - Mpigi district -International/ local Donors/ NGOs	- Ministry of Health (MoH)
		Degradation of community health	• Anticipate and plan for increased demand on social services due to in-migration, such as healthcare services, clean water, sanitation facilities, and waste management. • Improve access to healthcare services by building and upgrading facilities, clinics, and hospitals. • Improve access to clean water and proper sanitation facilities. • Conduct health education campaigns to raise awareness about common health issues, disease prevention, sanitation practices, and healthy lifestyles. • Develop and improve emergency response systems and services. • Provide training programmes for healthcare professionals, emergency responders, and community health workers. • Implement community-based health programmes focusing on preventive healthcare, vaccination campaigns, maternal and child health, and disease surveillance. • Establish systems for data collection, monitoring health indicators, and evaluating the effectiveness of health interventions.		

No.	Item	Possible Adverse Impacts	Proposed Environmental Mitigation Measures	Implementing Organisation	Responsible Organisation
		Deterioration of public safety	• Collaborate with law enforcement agencies to address higher crime levels associated with urbanisation, including increased police presence, improved street lighting, and community policing initiatives. • Develop a grievance mechanism plan to address grievances from local communities around urban development areas.	- KCCA -Mukono district - Wakiso district - Mpigi district - UPF	- MoIA - MoLG
28	Working conditions	Occupational safety, hygiene, and health of workers	• Enforce the Occupational Safety and Health Act. (The Occupational Safety and Health Act, No. 9, 2006)	- Employer	- MoGLSD
29	Accidents	Traffic accidents	• Separate pedestrians and vehicles through pedestrian infrastructure such as sidewalks, cycle lanes/networks and priority lanes for public transport, especially in urbanised areas. • Implement traffic management measures including the traffic safety awareness campaign, installation of traffic safety measures around school (pedestrian crossing, signages, road markings, sidewalk). • Implement traffic calming measures like speed limits and traffic signal synchronisation. • Manage traffic congestion and improve transportation systems through public transportation promotion and traffic management strategies. • Invest in improving transportation infrastructure to alleviate traffic congestion and promote sustainable transportation. • Enhance public safety through improved street lighting, pedestrian safety, traffic management, and crime prevention initiatives.	- School - Police - KCCA -Mukono district - Wakiso district - Mpigi district -International/ local Donors/ NGOs	- MoWT

Source: SEA Team, JICA Expert Team

25.10 Monitoring Plan

The proposed monitoring plan is shown in Table 25.10.1.

Table 25.10.1 Proposed Monitoring Plan

Environmental Item	Monitoring Item	Location	Frequency	Implementing Organization	Responsible Organization	Cost
Pre-construction Phase						
Involuntary Resettlement/ The poor, Vulnerable Group/ Local economy such as employment and livelihood, etc./ Gender	• Establishment of the resettlement implementation units • Census and socio-economic survey • Identification of vulnerable people • Inventory works (with detailed measurement survey) • Entitlements and compensation packages • Property evaluation and LARAP finalization • Scheduling • Budgeting • Negotiation and contract • Budget disbursement • Compensation payment • Relocation and clearance • Registration of land • Income restoration programme • Public consultation • Stakeholder consultation • Process of grievance redress and outcomes	Project affected sites	Monthly	• Consultant • Contractor • KCCA • Mukono District • Wakiso District • Mpigi District • TVET • International & local donors/ NGOs	• Project implementer • MoLHUD • MoGLSD • MoWT	Included in the project implementer's budget (project costs)
Construction Phase						
Air Pollution	• TSP, PM10, CO, NOx, SOx	Nearby project sites	At the start of construction/ Every month	• Consultant • Contractor	• Project implementer	Included in the project implementer's

Environmental Item	Monitoring Item	Location	Frequency	Implementing Organization	Responsible Organization	Cost
Water Pollution	• PH, BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), SS (Suspended Solid), Oil	Discharging point to drainage, river, stream, labour camps	At the start of construction/ Every month			budget (project costs)
Noise and Vibration	• Ambient noise level in dB(A)	Nearby project sites	At the start of construction/ Every month			
Soil Contamination	• Fuel and oil spills • Hazardous wastes	Labour camps	At the start of construction/ Every month	• Consultant • Contractor • Licensed collectors	• Project implementer	
Offensive Odor	• Grievances from residents and redress outcomes	Labour camps	At the start of construction/ Every month			
Waste	• Construction waste • Domestic waste • Hazardous waste	Construction site, labour camps	Every collection			
Gender	• LARAP implementation • Property ownerships/rights • Process of grievance redress and outcomes • Wage levels of women • Employment rates of women	Nearby construction sites	Monthly	• Consultant • Contractor • MoGLSD	• Project implementer	
Children's rights	• Traffic accidents • Child labours	Nearby construction sites	Monthly			
Hazards (Risk Infectious diseases such a HIV/AIDS, Working conditions, Accidents	• HIV/AIDS prevalence • Occupational accidents • Traffic accidents • Description of accident, Coping process	Construction sites, nearby construction site communities	Monthly	• Consultant • Contractor	• Project implementer	
Grievance redress	• Process of grievance redress and outcomes	Construction sites, nearby construction site communities	Monthly			
Operation Phase						
Air Pollution	• Ambient air pollution-attributable death rate (by age category) • Ambient air pollution attributable to Disability Adjusted Life Years (DALYs) • Ambient air pollution attributable to Years of life lost from mortality (YLL) • Air pollution-related infections (respiratory diseases) • TSP, PM10, CO, NOx, SOx, CO2	CBD Urban centres Mixed use areas Residencial areas	Quarterly	• NEMA	• MKCC&MA • MoWE • MoH	NEMA budget
Water Pollution/ Bottom sediment	• PH, BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), SS (Suspended Solid), Oil • Amount of waste in wetlands	Rivers leading to Lake Victoria, Wetlands where nature is still unspoilt and pollution ongoing, Sources of drinking water	Quarterly	• NEMA • NWSC	• MKCC&MA • MoWE • MoH	NEMA/NWSC budgets
Noise and Vibration	• Ambient noise level in dB(A)	Along the major expressways and arterial roads in: CBD Urban centares Mixed use areas Residencial areas	Quarterly	• NEMA	• MKCC&MA • MoWE • MoH	NEMA budget
Soil Contamination	• Contamination level of soil	Relocation sites	Quarterly	• NEMA	• MKCC&MA • MoWE • MoH	NEMA budget

Environmental Item	Monitoring Item	Location	Frequency	Implementing Organization	Responsible Organization	Cost
Waste	• Volume of waste generation • Waste collection rates • Number of businesses using recycled materials • Number of NEMA-certified waste handlers	CBD Urban centares Mixed use areas Residencial areas	Quarterly	• NEMA • KCCA • Mukono District • Wakiso District • Mpigi District	• MKCC&MA • MoWE • MoH • MoGLSD	NEMA/ Ministries' budgets/ Municipal budgets
	• Process of hazardous waste (Number of cases of non-compliance) • Number of occupational health hazards associated with hazardous waste	Industrial areas Health facilities				
	• Recycle rates • Disposal volume including hazardous waste • Conditions of waste treatment facilities	Waste transfer stations Final disposal sites				
Offensive Odor	• Grievances from residents and redress outcomes	CBD Urban centares Mixed use areas Residencial areas	Quarterly	• NEMA • KCCA • Mukono District • Wakiso District • Mpigi District	• MKCC&MA • MoWE • MoH	NEMA/Municipal budgets
Protected Areas	• Number of species (Decrease in species) • Spread of invasives • Level of water pollution of wetlands • Amount of waste in wetlands • Area of encroached wetlands • Wise use of wetlands area	Ramsar sites Forest reserves	Quarterly	• MoWE • NEMA • NFA • MoTWA	• MKCC&MA	Ministries' budgets/ Authorities' budgets
Flora, Fauna and Biodiversity	• Area of vegetation clearance • Area of established forested areas • Area of rehabilitated habitat	Wetlands Green spaces	Quarterly	• NEMA • NFA	• MKCC&MA • MoWE	Authorities' budgets
Hydrological Situation	• Frequency of flooding • Aera of flooding • Flood victims • Nature of flooding incidents • Socio-economic cost of flooding damage	Flood prone areas CBD Urban centares Mixed use areas Residencial areas	Yearly	• KCCA • Mukono District • Wakiso District • Mpigi District • NEMA	• MKCC&MA	Municipal budgets
Involuntary Resettlement	• Landholding status • Post land acquisition livelihood status of affected parties/groups • Grievance redress outcomes	CBD Urban centares Mixed use areas Residencial areas	Quarterly	• KCCA • Mukono District • Wakiso District • Mpigi District • International & local donors/ NGOs	• MKCC&MA • Project implementer • MoLHUD • MoGLSD • MoWT • MoIA • MoLG • DPP	Included in the project implementer's budget (project costs)
The poor, Vulnerable Group	For the poor and the vulnerable groups: • LARAP implementation • Property ownerships/rights • Post land acquisition livelihood status of affected parties/groups • Grievance redress outcomes • Wage levels of women • Employment rates of women • Provision of affordable housing options • Provision of safe and formal residential areas	CBD Urban centares Mixed use areas Residencial areas	Quarterly	• KCCA • Mukono District • Wakiso District • Mpigi District • International & local donors/ NGOs	• MKCC&MA • MoLHUD • MoGLSD • MoWT • MoIA • MoLG • DPP	Ministries' budgets/ Municipal budgets
Local economy such as employment and livelihood, etc.	• Employment rates of former Bodaboda drivers who have changed jobs • Completion rates of livelihood recovery programmes for former Bodaboda drivers who have changed jobs	CBD Urban centares Mixed use areas	Yearly			

Environmental Item	Monitoring Item	Location	Frequency	Implementing Organization	Responsible Organization	Cost
Existing social infrastructures and services	• Number of users of health and sanitation facilities • Number of users of social infrastructure and services	CBD Urban centares Mixed use areas Residencial areas	Quarterly	• KCCA • Mukono District • Wakiso District • Mpigi District	• MoES • MoH	Ministries' budgets/ Municipal budgets
	• Number of healthcare providers and educators • Number of schools • Number of health facilities • Number of open spaces		Yearly			
Local conflict of interests	• Cases of land disputes and conflicts • Process of grievance redress and outcomes	CBD Urban centares Mixed use areas Residencial areas	Quarterly	• KCCA • Mukono District • Wakiso District • Mpigi District	• MKCC&MA • MoIA • MoLG • DPP	Municipal budgets
(Community safety)	• Number of displaced and migrating populations • Number of populations with property losses • Social fragmentation and division					
Cultural heritage	• Damage and degradation cases • Process of grievance redress and outcomes	CBD Urban centares Mixed use areas	Yearly	• MoTWA	• MKCC&MA	MoTWA budget
Gender	• LARAP implementation • Property ownerships/rights • Post land acquisition livelihood status of affected parties/ groups including the vulnerable • Process of grievance redress and outcomes • Wage levels of women • Employment rates of women	Urban centares Mixed use areas Residencial areas Industrial areas	Quarterly	• KCCA • Mukono District • Wakiso District • Mpigi District	• MoGLSD	MoGLSD budget/ Municipal budgets
Children's rights	• Child labours • Children under poverty level • Child relate urban crimes • Living conditions and well-being of the children • Child school dropout rates • Number of street children	Urban centares Mixed use areas Residencial areas Industrial areas	Quarterly	• KCCA • Mukono District • Wakiso District • Mpigi District	• MoGLSD	MoGLSD budget/ Municipal budgets
	• Number of schools • Number of health facilities • Number of open spaces	Mixed use areas Residencial areas	Yearly		• MoES • MoH	MoES/MoH budgets
Hazards (Risk), Infectious diseases such as HIV/AIDS	• Prevalence, morbidity and mortality of HIV/AIDS • Prevalence, morbidity and mortality of STDs • Prevalence, morbidity and mortality of infectious diseases	Urban centares Mixed use areas Residencial areas Industrial areas	Monthly	• Health facilities • KCCA • Mukono District • Wakiso District • Mpigi District	• MoH	MoH budget
Working conditions	• Accident cases • Violence cases • Health disorder cases • Child labours	Working places	Monthly	• Employer	• MoGLSD	Employer/ MoGLSD budget
Accidents	• Traffic accidents	Major roads near schools, health facilities CBD Urban centares	Monthly	• UPF • KCCA • Mukono District • Wakiso District • Mpigi District	• MoIA • MoWT	UPF budget
	• Clime/incidents Clime/i/violence	Mixed use areas Residencial areas Industrial areas	Quarterly	• UPF • KCCA • Mukono District • Wakiso District • Mpigi District	• MoIA	UPF budget

Note: UBOS also collects demographics, social, and socio-economic data through statistical surveys on a regular basis or on request.
Source: SEA Team, JICA Expert Team

25.11 Public Involvement

25.11.1 First Stakeholder Consultation Meeting

With public involvement in SEA, stakeholder consultation is considered for the Project. The stakeholder consultation has a broader scope than the TWGs to disclose the project information to the public and promote public participation in the study process from the earlier study stage. The MKCC &MA conducted the First Stakeholder Consultation Meeting on 15 June 2022, which was supported by JICA Expert Team.

1) Purposes

The purposes of stakeholder consultation meetings were to disclose and share the project information and discuss it among the stakeholders, and collect their opinions as follows. It is also a part of the SEA process.

The following contents were explained and discussed in the First Stakeholder Consultation Meeting by the agenda shown in Table 25.11.1.

- Outline of the Project (Study Description, Study Area, Implementation Structure, Activities, Implementation Schedule)
- Progress of the Study
- Environmental and Social Considerations in the Project: Policies for Environmental and Social Considerations in the Project (including Purpose of SEA, Tiers of SEA and EIA, Fundamental differences between SEA and EIA, SEA Approaches, Process, Scoping, Stakeholder Engagement), Outlines of the Study Area, Schedule, Consideration of Likely Impacts from the Urban Developments, Upcoming Second Stakeholder Consultation Meeting

Table 25.11.1 Agenda of the First Stakeholder Consultation Meeting

Time	Items
08:30-09:00	Registration
09:00-09:10	Participants Self-introduction
09:10-09:15	Opening Remarks by Minister of Kampala Capital City and Metropolitan Affairs
09:15-09:20	Objectives of the Meeting by Ministry of Kampala Capital City and Metropolitan Affairs
09:20-09:25	Introduction to Strategic Environmental Assessment (SEA) by National Environment Management Agency (NEMA)
09:25-09:50	Outline of "The Project for Integrated Urban Development Master Plan for Kampala Special Planning Area"
09:50-10:15	Environmental and Social Considerations, the Strategic Environmental Assessment (SEA), in the Project
10:15-10:35	Coffee break
10:35-11:05	Questions and Answers
11:05-12:30	Group Discussion on the existing environmental and social issues and likely impacts due to urban development proposed by the Integrated Urban Development Master Plan to be formulated in this Project
12:35-12:55	Presentation on the Results of Group Discussions
12:55-13:00	Closing Remarks by Ministry of Kampala Capital City and Metropolitan Affairs
13:00-14:00	Lunch

Source: MKCC&MA, JICA Expert Team

2) Invitees

The MKCC&MA invited the stakeholders for the First Stakeholder Consultation Meeting as shown in Table 25.11.2. The stakeholders were considered including national government Ministries,

Departments, and Agencies (MDAs), local governments, academia, representatives from Non-Government Organisations (NGOs), and representatives from the private sector.

Table 25.11.2 List of Invitees to Stakeholder Consultation Meeting

Government Entities	Non-Government Entities
1. The Permanent Secretary, Office of the Prime Minister	43. The President, Uganda National Chamber of Commerce and Industry
2. The Permanent Secretary, Ministry of Finance, Planning and Economic Development/Secretary to the Treasury	44. The Chairperson, Kampala City Traders Association
3. The Permanent Secretary, Ministry of Lands, Housing and Urban Development	45. The Chairperson, Uganda Manufacturers Association
4. The Permanent Secretary, Ministry of Local Government	46. The Chairperson, Uganda Hotel Owners Association
5. The Permanent Secretary, Ministry of Water and Environment	47. The Chairperson, Uganda Small Scale Industries Association
6. The Permanent Secretary, Ministry of Gender, Labour and Social Development	48. The Executive Director, Federation of Small and Medium-size Enterprises – Uganda
7. The Permanent Secretary, Ministry of Works and Transport	49. The Chairperson, Uganda Freight Forwarders Association
8. The Permanent Secretary, Ministry of Energy and Mineral Development	50. The Chairperson, Uganda Association for Impact Assessment
9. The Permanent Secretary, Ministry of Trade, Industry and Cooperatives	51. The President, Uganda Institute of Professional Engineers
10. The Permanent Secretary, Ministry of Tourism, Wildlife and Antiquities	52. The President, Institute of Surveyors of Uganda
11. The Executive Director, National Physical Planning Board	53. The President, Uganda Society of Architects
12. The Director General, Uganda Investment Authority	54. The President, Uganda Institute of Physical Planners
13. The Executive Director, National Planning Authority	55. The Executive Director, National NGO Forum
14. The Executive Director, National Environment Management Authority	56. The Executive Director, Private Sector Foundation Uganda
15. The Executive Director, Uganda National Roads Authority	57. The Executive Director, National Association of Women Organisations
16. The Executive Director, National Water and Sewerage Corporation	58. The Executive Director, Uganda Water and Sanitation NGO Network
17. The Executive Director, Uganda Railways Corporation	59. The Chief Executive Officer, Uganda Women Entrepreneurs Association Limited
18. The Executive Director, Uganda Electricity Transmission Company Ltd	60. The Country Manager, Cities Alliance
19. The Executive Director, Uganda Road Fund	61. The Chairperson, Slum Dwellers International
20. The Executive Director, Kampala Capital City Authority	62. The Managing Director, Uganda Electricity Transmission Company Ltd.
21. The Chief Administrative Officer, Mpigi District Local Government	63. The managing Director, UMEME
22. The Chief Administrative Officer, Mukono District Local Government	64. The Minister of Culture, Heritage, Tourism and Royal, Buganda Kingdom
23. The Chief Administrative Officer, Wakiso District Local Government	65. The Minister of Planning, Investment and Economic Development, Buganda Kingdom
24. The Town Clerk, Entebbe Municipality	
25. The Town Clerk, Kira Municipality	
26. The Town Clerk, Makindye-Ssabagabo Municipality	
27. The Town Clerk, Mukono Municipality	
28. The Town Clerk, Nansana Municipality	
29. The Town Clerk, Central Division, KCCA	
30. The Town Clerk, Kawempe Division	
31. The Town Clerk, Makindye Division	
32. The Town Clerk, Nakawa Division	
33. The Town Clerk, Rubaga Division	
34. The Town Clerk, Wakiso Town Council	
35. The Town Clerk, Kakiri Town Council	
36. The Town Clerk, Kajjansi Town Council	
37. The Town Clerk, Mpigi Town Council	
38. The Town Clerk, Kisoga-Ntenjeru Town Council	
39. The Town Clerk, Kasangati Town Council	
40. The Town Clerk, Katabi Town Council	
41. The Town Clerk, Katosi Town Council	
42. The Town Clerk, Kasanje Town Council	

Source: MKCC&MA, JICA Expert Team

3) Participants

A total of 91 persons consisting of 28 from the central governments, 26 from the local governments, 20 from the local stakeholders (non-government), and 17 from the JICA Expert Team participated in the meeting as shown in Table 25.11.3. Among them, 27 persons were female and 64 persons were male.

Table 25.11.3 Outline of 1st Stakeholder Consultation Meeting

Date and Time	Venue	Agenda	Types of Attendees			
			Organization	Male	Female	Total
Date: 15 June 2022 Time: 9:30 – 14:00	Golf Course Hotel, Kampala City	Purpose: Disclose and share the project information and discuss it among the stakeholders, and collect their opinions. It is also a part of the SEA process.	Government	18	10	28
			Local Government	19	7	26
			Local Stakeholder	14	6	20
			JICA Expert Team	13	4	17
		Type: Workshop	Total	64	27	91

Source: JICA Expert Team

4) Exchanges of Opinions

Major questions, comments, opinions, and responses are explained in Table 25.11.4.

Table 25.11.4 Summary of Discussion in First Stakeholder Consultation Meeting

No.	Questions/Comments/Opinions		Responses by MKCC&MA/JICA Expert Team/ Local Consultant
	Name/ Organization	Questions/Comments/Opinions	Answers
1	Berna Nakazi, Senior Inspection Officer (SIO), Ministry of Trade, Industry, and Cooperative (MTIC)	The master plan is looking at the rezoning of industrial areas within the Greater Kampala Metropolitan Area; however, the Ministry of Trade, Industry, and Cooperatives (MTIC) and National Planning Authority (NPA) have already developed an Integrated Master Plan for Industrial Parks. Wouldn't the rezoning of the industrial park conflict with what is planned by MTIC and NPA? I suggest that there should be harmonisation of what is planned in the two master plans for better planning of the industrial sector.	The JICA Expert Team will get in touch with MTIC and NPA to get a copy of the Integrated Master Plan for Industrial Parks to review and understand the synergies and opportunities that could be enhanced. The JICA Expert Team is already working with MTIC. MTIC is represented at the Joint Coordination Committee and Technical Working Group.
2		In the promotion of rezoning of existing industrial parks to mixed zones to accommodate suburban centre functions, two industrial parks (Namanve and Luzira) that are highlighted are already occupied. How will the rezoning be done to transform these industrial parks?	MKCC & MA/ the JICA Expert Team will look at the remaining open spaces to transform part of the industrial and business centres into suburban functions including offices, shopping centres, hotels, and health and education facilities.
3		Please take note of the issue of waste management in the industrial parks.	A solid waste management strategy across the GKMA is currently being developed through the following initiatives: • Establishing cooperation guidelines across the GKMA, including harmonising permitting and licensing, tariff setting, billing, and the collection as well as revenue sharing; • A pilot project is also being developed. This comprised waste segregation/sorting and characterisation, collection, disposal, treatment, and reuse; and • Formulation of a comprehensive GKMA-wide plan for future landfill needs, bankable project business plans, and feasibility studies.
4	Verna Mbabazi, Member, Chairperson of Urbanism Chapter, representing Uganda Association of Architecture	The Under Secretary for MKCC & MA mentioned something about the budget. My request is that since development control is the local government's duty, there should be adequate funding for the development controls. Currently, there is no budget and no resources/ technical officers for development controls.	The GoU deliberately created the Department of Physical Planning in the MKCC & MA headed by a commissioner in charge of the coordination of the activities of the physical planners in the metropolitan area. The commissioner should be able to advocate for resources/funding for development controls.
5		It was presented that GKMA-IUDMP will review and update the KPDP; however, the presentation made very little mention of what the challenges were and opportunities/ success of implementing the KPDP. I would request that going forward, the consultant provides a summary of KPDP highlighting the successes and challenges and the rationale for updating the KPDP.	This has been noted. The review aims to update the future targets of KPDF/KPDP, especially the population framework and the urban structure, which is expected to work effectively as a policy and programme to resolve urban planning and urban development issues in the planning area. Due to a massive influx of population in Kampala Capital City, urban areas are expanding to sloping lands and suburbs in GKMA. Furthermore, disorderly development is

No.	Questions/Comments/Opinions		Responses by MKCC&MA/JICA Expert Team/ Local Consultant
	Name/ Organization	Questions/Comments/Opinions	Answers
			occurring in the central area of Kampala City, causing problems with transportation, environment, disaster prevention, and landscape. Therefore, the formulation of an effective and implementable urban development master plan is required to realise a sustainable metropolitan area.
6		The study team should also consider projects in the KPDP/ KPDF because there were several projects under KPDP that have not been mentioned.	This has been noted. The GKMA-IUDMP will review and update the KPDP/KPDF and some of the projects that were proposed in the KPDP/KPDF will be part of the GKMA-IUDMP.
7		Governance issues should be included in the socio-economic assessment which was missing in the SEA presentation. When it comes to the social setting of Kampala, governance is very important.	This has been noted. A discussion on governance will be included in the socio-economic section of the SEA Report.
8		The study team should assess the capacity of the local government to implement, monitor, and evaluate the master plan because that is the biggest problem we have with our master plans; they are normally beautiful documents that are hardly implemented.	The JICA Expert Team will assess the capacity of the local government to implement the developed master plan and as part of capacity building, the JICA Expert Team will work alongside the local government officials to prepare some local-level detailed physical development plans.
9		The study team should look at a population projection beyond 2040.	The GKMA-IUDMP is an update of the KPDP/KFDP. It is not an overhaul of the KPDP/KFDP. The GKMA-IUDMP is the renewed KPDF/KPDP targeting the years 2040 and 2030.
10	Anthony Katusiime, Senior Environmental Officer, Ministry of Energy and Mineral Development	An integrated urban development plan is looking at issues of job creation, industrialisation, physical infrastructure, and other components that make urban development a reality. However, from the environmental perspective, nothing has been mentioned about air quality and how MKCC & MA is prepared to address the challenges of air quality, water, and soil pollution. You need to develop plans that address these challenges.	The physical environment section of the SEA report will provide a description of the baseline environment on climate, air quality, soil, water resources, and drainage. The impacts of the master plan on the physical environment will also be assessed as part of the SEA study.
11		The master plan should recommend sustainable wetland management such that the activities that will be implemented close to wetlands do not lead to further wetland reclamation.	The GKMA-IUDMP proposes wise utilisation of the deteriorated wetlands for urban recreational parks or central parks and enhancement of natural regeneration processes. The SEA study will also recommend appropriate mitigation measures to ensure the sustainable utilisation of wetlands.
12		Drainage in Kampala is a critical issue that needs extra attention. The study team should also provide an indication of the source of funding for the proposed infrastructure.	The Kampala Drainage Masterplan is already in place and the JICA Expert Team has reviewed it as part of the preparation of GKMA-IUDMP. It is the role of the government to secure funding for the proposed infrastructure.
13		It will be prudent for the study team to look at different proposals submitted by different local governments to MKCC & MA to select some areas for cooperation.	This has been noted. The JICA Expert Team will request and review different proposals submitted by different local governments to MKCC & MA.
14		The master plan could also look into planning for forest parks within greater Kampala.	This has been noted. Greater Kampala Economic Development Strategy looked at tourism as a major element for the GKMA economy since all foreign visitors arrive in the area. Some of the potential sub-clusters include Kasozi Forest Park as a recreation centre within the Busukuma Reserve (Nansana) and Forest Park (Mpigi) as a recreation centre within the forest reserve in Mpanga and Kampiringisa.
15	Patrick Isiko Simon, Safety Inspector, Ministry of Gender, Labour and Social Development	The Ministry of Gender, Labour, and Social Development was not included in the master plan preparation organisational structure yet in the presentation by Atacama, it was mentioned that 60% of the population in Kampala lives in the slum areas which means they will be affected by this master plan. Therefore, the ministry needs to be included as it interfaces with such social challenges/issues from slums on a daily basis.	This has been noted. The SEA study team appreciates the input from the Ministry of Gender, Labour, and Social Development and will continuously engage the Ministry during the preparation of the SEA and master plan process.
16	Josephine Nabaggala,	Atacama's presentation indicated that the SEA and master plan are taking a parallel mode to SEA preparation and	Although the JICA Expert Team/master plan contract will end in 2024, the master plan preparation will be finalised in

No.	Questions/Comments/Opinions		Responses by MKCC&MA/JICA Expert Team/ Local Consultant
	Name/ Organization	Questions/Comments/Opinions	Answers
	Deputy Town Clerk, Nansana Municipality	showed that the expected final product will be done in March 2023. However, the timeline for the Master Plan is 2024. How will you ensure that the SEA captures the proposals for the final master plan concerning the current land use?	2023. This will be followed by a series of activities related to the approval of the master plan. The SEA team is working closely with the master plan team and should material changes come up there is always an opportunity to update the SEA accordingly.
17	Joseph Ogwal, Principal Environmental Officer, Uganda Electricity Transmission Company Limited (UETCL)	UETCL is already working with JICA to develop an electricity supply line within the GKMA. UETCL will share formal comments with Atacama Consulting directly.	This has been well noted. A Background Information Document (BID) and feedback form were shared with UETCL for comment. Atacama Consulting shall await the formal comments from UETCL.
18		There is a challenge of shared corridors in Kampala, e.g., water pipelines, and other cables are always uprooted whenever infrastructure is being developed. Why is development followed by planning instead of the other way round?	Due to the problem of unplanned development, an integrated master plan is needed to ensure integrated planning that considers all the key sectors to reduce repeated dislocation and resettlement.
19		As part of planning, please pay special attention to the needs of the informal sector.	GKMA-IUDMP strategic objective 3 is focusing on business support to the informal sector, the youth, and economic clusters, and a key planning exercise will be to plan bus parks, parking lots, and taxi parks alongside economic infrastructure investments such as markets and artisan parks. Old Taxi Park, USAFI market, Nansana-Namungoona stage, Mukono Park, Kiira Park, Kajjansi, Nakawa Market, and Kalerwe Market are areas that can be transportation, commercial and parking hubs and bus and taxi park locations strategically alongside market infrastructure, artisan parks, etc. Spaces will be provided for informal enterprises in the Nakawa market, USAFI market, Bwaise, Lubiigi, Namungoona-Nansana stretch, and Rubaga Division, among other places.
20		The master plan should also assess the human capital quality and readiness – do we have the right skills for the jobs?	This has been noted. GKMA-IUDMP will strengthen the capacities of Wakiso City and Entebbe City, which are to be newly created, and the capacities of Mukono and Mpigi Districts for urban management.
21		The ESIA practitioners have not been engaged as part of this study and yet these are the people who are doing a lot of projects within the GKMA.	The Uganda Association of Impact Assessment (UAIA), an umbrella for the ESIA practitioners were invited to this meeting. The SEA and the master plan team will continuously engage UAIA during the SEA and master plan preparation processing.
22		Securing green spaces increases the resilience of infrastructure. Most of the roads have been degraded because of flooding and intensity of use so we need to look at green spaces to increase the resilience of the infrastructure.	GKMA-IUDMP will make good use of the topography, open spaces, and landscape resources such as wetlands and the lakeside. Hilltops will be developed as centres for tourism and recreation, while wetlands and lakeshores will be developed as open green spaces.
23		I observed in the presentation that the national census population data of 2014 was used. The study team should update the data with current statistics.	In order to undertake reliable future population estimates, you need national population census data undertaken using the standard method. The last national population census was undertaken in 2014 and provides a more reliable estimate of the population and hence the adoption in this study.
24		Kampala is the heart of government, and there are a number of sector-specific policies that will need to be considered. The SEA will need to undertake policy analysis and see which policies are compatible with the master plan.	Consistency analysis will be carried out as part of the SEA to check the consistency of the master plan with key policies, plans, and programmes. As part of the analysis, it will be ascertained whether the policies, plans, and programmes: • Generate opportunities for the master plan; • Set environmental and socio-economic conditions for the master plan; and • Consider likelihood of conflict with the master plan.
25		Economic migrants from villages are forming part of the city population and constitute part of the urban vulnerable so you need to put up a plan to tap into the economic migrants most of whom are in slum areas.	One of the GKMA-IUDMP strategic perspectives is controlling/ limiting the population size and concentration of economic activities in GKMA within Uganda by promoting

No.	Questions/Comments/Opinions		Responses by MKCC&MA/JICA Expert Team/ Local Consultant
	Name/ Organization	Questions/Comments/Opinions	Answers
			urban development of regional capitals and growth corridors where the economic migrants would likely be attracted.
26	Jotham Muyambi, Ministry of Lands, Housing and Urban Development	There is a need to control industrial stake and analyse why investors are not taking up space in the reserved industrial parks.	This has been noted. GKMA will attract more high-tech, strategic and non-polluting manufacturing industries by restricting incoming conventional industries, as well as by providing better infrastructure and services in industrial parks within GKMA. At the same time, GKMA can provide the basis for incubation clusters for innovative economic sectors.
27	Deborah Asiket, Country Manager, Cities Alliance	Engagement in the informal sector is a very sensitive matter. Cities Alliance has developed settlement forums that can be used to engage communities in the slums and these can be shared with the Atacama team. The informal sector should be engaged separately as their input is critical to the SEA.	Generally, SEA engagements draw the attention of representatives of key stakeholders rather than individuals. Representatives of the informal sector were invited to this meeting (for example, your organisation "Cities Alliance," which continuously engages with the informal settlements). The SEA and master plan team will continuously engage informal sector representatives throughout the SEA and master plan preparation processing.
28		Ensure inclusivity while undertaking stakeholder engagement; include informal settlements/ slums in the consultation process. Cities Alliance's partner – the National Slum Dwellers Federation of Uganda – could be approached to discuss how the settlement forums can be engaged during the SEA process as well as during implementation later on. Emphasise an integrated approach to realise sustainable solutions/ not isolated interventions e.g., Kinawataka Wetland – the report should contain 'downstream' and 'upstream' level recommendations for instance when it comes to wetlands management.	
29		The study team should include an estimated budget for the social and environmental interventions (percentages against e.g., the MKCC & MA projected budget of three billion dollars), as was done by Atacama Consulting in the Kampala Jinja Expressway (KJE) Resettlement Livelihood Restoration Programme (RLRP).	This has been well noted.
30		The SEA and master plan study team should incorporate into the report, the need for capacity building at different government and community levels.	
31		The SEA and master plan teams should prepare a 'story line' on how infrastructure can be used as a tool to drive development (e.g., by creating jobs and creating better livelihoods) as opposed to viewing these social and environmental recommendations as an inconvenience to 'ticking the box'.	This has been well noted. One of the GKMA-IUDMP strategic objectives is to focus on business support for the informal sector, the youth, and economic clusters. The key planning exercise will be to plan bus parks, parking lots, and taxi parks alongside economic infrastructure investments such as markets and artisan parks. Old Taxi Park, USAFI market, Nansana-Namungona stage, Mukono Park, Kiira Park, Kajjansi, Nakawa Market, and Kalewre Market – are areas that can be transportation, commercial and parking hubs, and bus and taxi park locations strategically alongside the market infrastructure, artisan parks, etc. Spaces will be provided for informal enterprises in the Nakawa market, USAFI market, Bwaise, Lubiigi, Namungoona-Nansana stretch, and Rubaga Division, among other places.
32		Slum development is not business as usual and it requires an attitude change; more cooperation, more concessions and exceptions (i.e., special planning zones for slums), and a willingness to learn and try new approaches, which calls for more investment in terms of funds and capacity building.	This has been noted.
33	Bob Reyman Kabango, PARD, Uganda Small	I did not see industrialisation under the socio-economic environment in the SEA presentation; this is an area that needs to be given a lot of attention because that is an area that also affects the city.	This has been noted. A discussion on industrialisation will be included in the SEA under the socio-economic environment chapter.

No.	Questions/Comments/Opinions		Responses by MKCC&MA/JICA Expert Team/ Local Consultant
	Name/ Organization	Questions/Comments/Opinions	Answers
34	Scale Industries Association	The industrial parks (Namanve and Luzira) are almost filled up and I wonder how rezoning will be undertaken. I recommend that as the government is planning for the rezoning of Namanve and Luzira Industrial Parks, it should also look at creating more space in other areas like Mukono and Mpigi districts. Let us also think of creating space for other sectors, specifically space for the micro, small and medium industries.	This has been noted. The GKMA-IUDMP will promote the selective expansion of manufacturing industries within GKMA.
35	Winifred Aduch, Senior Environmental Officer, Ministry of Works and Transport	It would be prudent for the SEA and master plan study team to consult with the Ministry of Works and Transport because the ministry is in the process of developing the National Integrated Transport Master Plan that will run up to 2030 and there are a lot of issues that might impact physical planning. There is also an SEA report that is being prepared for the National Integrated Transport Master plan. Therefore, it is important to discuss how these two plans enhance or complement each other.	This has been noted. The SEA and master plan study teams will review the National Integrated Transport Master Plan as part of the report preparation. The JICA Expert Team will also have further targeted engagement with MoWT.
36		All planned developments whether transport or industrial related should have a component of climate change and all development should be climate change resilient. We need to have a component in the SEA that details how climate change is going to be included.	This has been noted. The SEA and the master plan will include a section on climate change. In addition, the Uganda National Land Policy, 2013 indicated that: • The Government shall in its plans and programmes, mitigate and adapt to the impacts of climate change, and mainstream sustainable management of the environment and natural resources. • The Government shall put in place strategies to mitigate and adapt to climate change and variability, to reduce the impact on climate, the population, and the economy. • The Government will develop a framework for compliance with all international commitments on the management of climate change. Furthermore, the goal of the National Climate Change Policy, 2015 is to ensure a coordinated approach toward a climate-resilient and a low carbon development path for sustainable development in Uganda, all of which will be considered during this study.
37		There is a need to engage political leaders because you come up with a good plan but it might be difficult to implement provided that the interested groups are not brought on board.	This has been noted. Political leaders (ministers, and district chairpersons) are already part of the Joint Coordinating Committee (JCC) of the master plan and are involved in the decision-making concerning the master plan.
38	Joward Baluku, Senior Wildlife Officer, Ministry of Tourism, Wildlife, and Antiquities	NDP III recognises tourism as one of the sectors that will drive this county to the middle-income status and the Ministry of Tourism, Wildlife and Antiquities has a tourism development master plan for the entire country which identifies greater Kampala as a key tourism development area. The ministry has gone ahead to identify some of the key tourist, historical, cultural sites, and other attractions. Tourism relies on development such as infrastructure. Therefore, the consultant needs to look at the tourism master plan to ensure that some of these issues are addressed.	This has been noted. The tourism master plan will be reviewed as part of the Plans, Policies, and Programmes consistency analysis of the SEA Study. In addition, the Greater Kampala Economic Development Strategy looks at tourism as a major element of the GKMA economy since all foreign visitors arrive in this area. Some of the potential sub-clusters include Kasozi Forest Park as a recreation centre with the Busukuma Reserve (Nansana) and Forest Park (Mpigi) as a recreation centre within the forest reserve in Mpanga and Kampiringisa.
39		One of the identified strategic objectives is the decongestion of Kampala. Has the government thought about moving certain services away from Kampala because you cannot talk about decongesting the city which is the administrative, industrial, and economic capital at the same time? The government should move some of these services elsewhere which can help to decongest the city by creating a new administration city.	This has been noted. The GKMA-IUDMP proposes promoting the urban development of regional capitals and growth corridors; promoting the development of the multi-nucleus spatial structure of GKMA as a whole, enhancement of the liveability and attractiveness of suburban areas outside Kampala City by establishing public hospitals and schools; developing liveable and sustainable neighbourhoods in and around suburban centres which will go a long way in the decongestion of the capital city.
40		Wise utilisation of wetlands seems to indicate that the only way we can utilise these wetlands is by establishing	This is noted. The KPDP strategic proposal for utilising deteriorated wetlands for urban recreational parks or central

No.	Questions/Comments/Opinions		Responses by MKCC&MA/JICA Expert Team/ Local Consultant
	Name/ Organization	Questions/Comments/Opinions	Answers
		recreational parks, which is not true; there are other ways we can utilise these wetlands. We need to expound on other ways we can utilize these wetlands.	parks is not only for wetland spaces but also for the enhancement of natural regeneration processes. GKMA-IUDMP will make good use of the topography, open spaces, and landscape resources such as wetlands and lakeside. Hilltops will be developed as centres for tourism and recreation, while wetlands and lakeshores will be developed as open green spaces.
41	Stella Buwage Marie, Programmes Director, National Association of Women Organisation	Most of the people in the informal sector/settlements are women and these are likely to be more impacted by the implementation of the master plan. Therefore, it is important that women are consulted as part of master plan development.	Generally, SEA engagements draw the attention of representatives of key stakeholders rather than individuals. Representatives of women or women associations (e.g., National Association of Women Organisation, Uganda Women Entrepreneur Association Limited) were invited to this meeting, and the SEA and master plan team will continuously engage women or women association representatives throughout the SEA and master plan preparation processing.
42		The SEA consultant may need to consult UNOC because it plans to build an industrial storage terminal in Mpigi with a plan to link the storage terminal to different transport systems, i.e., the road and railway that will be running around Kampala.	This has been well noted. The SEA and master plan team will have more targeted engagement with UNOC so that all the upcoming projects are looked at under the Cumulative Impact Assessment during the detailed SEA study.
43	Herman Mukibi, Principal Development and Partnership Officer, Buganda Kingdom	Before the government lays down its good strategies and plans, it needs to have consideration of a proper land acquisition model because this is one of the things that impede development. We need to be careful about that so that we address the dynamic of the rightful land owners to facilitate quick programme implementation.	One of the GKMA-IUDMP strategic perspectives is the promotion of effective coordination and integration of road development plans and public transportation development plans with physical development plans at all levels from national, regional, sub-regional, district, and urban levels to local levels; this could be useful for making land reserves for road development and other major infrastructure development. Land acquisition for infrastructure is one of the critical factors to realise any Physical Development Plans (PDPs) and sectoral development plans on the ground.
44		There should be the right technical personnel to ensure the implementation of the master plan. The master plan should also be monitored and evaluated to ensure that recommendations made are implemented.	Monitoring will be carried out as part of the implementation phase of the master plan to specifically address significant environmental and social effects on certain environmental and social components.
45		The government needs to consider having proper community dialogues to qualitatively understand where this cycle of development is going because you decongest Kampala but you don't know the dynamics of Mukono and Mpigi. Consider having a proper qualitative survey for these host communities so that you understand the dynamics of the host communities/ population.	The SEA and master plan study team will continuously engage all affected stakeholders during the preparation of the SEA and master plan process. However, generally, SEA engagements draw the attention of representatives of key stakeholders rather than individuals. The key representatives of the host communities (e.g., Kira Municipality, Nansana Municipality, Kasangati Town council, etc.) have been represented in this meeting.

Source: JICA Expert Team

5) Group Discussion

At the end of the meeting, group discussions were held in five groups about the most likely impacts due to the preliminary strategic perspectives proposed by the JICA Expert Team in progress report 1. The participants were allocated to five groups for every two or three tables. Two or three members of JICA Expert Team also participated in each group. One group consisted of about 15 persons including the JICA Expert Team members.

The preliminary strategic perspectives were selected for each group as shown in Table 25.11.5. The JICA Expert Team also showed 30 items of likely impacts categorised by pollution, nature, and social environment listed below.

- Pollution: Air Pollution, Water Pollution, Noise and Vibration, Soil Contamination, Waste, Ground Subsidence, Offensive Odour, Bottom sediment

- Natural Environment: Protected Areas, Flora, Fauna and Biodiversity, Hydrological Situation, Topography, and Geographical features
- Social Environment: Involuntary Resettlement, The poor people, Indigenous and ethnic people, Local economy such as employment and livelihood, etc., Land use and utilisation of local resources, Water Usage or Water Rights and Rights of Common, Existing social infrastructures and services, Social institutions such as social infrastructure and local decision-making institutions, Misdistribution of benefit and damage, Local conflict of interests, Cultural heritage, Landscape, Gender, Children's rights, Hazards (Risk), Infectious diseases such as HIV/AIDS, Working conditions
- Others: Accidents, Transboundary issues, Global Warming

The participants were asked to discuss and select the most important five likely positive and negative impacts due to the subjected perspectives. They were guided to consider the long-term, wider area, and cumulative perspective for the impacts. Finally, each group presented the results of the discussion about the most likely impacts.

Table 25.11.5 Grouping by Strategic Perspectives Proposed by JICA Expert Team

Group	Strategic Perspective		Gov.	Local Gov.	Local Stake.	JICA Expert Team	Total
1	No.1 Controlling/ Limiting the Population Size and Concentration of Economic Activities in GKMA within Uganda by Promoting Urban Development of Regional Capitals and Growth Corridors.	Female	1	1	0	0	2
		Male	1	4	5	1	11
		Total	2	5	5	1	13
2	No.2 Promoting Selective Expansion of Manufacturing Industries within GKMA. No.6 Promoting Rezoning of Existing Industrial Parks to Mixed Zones to Accommodate Suburban Centre Functions.	Female	1	0	2	1	4
		Male	1	3	4	3	11
		Total	2	3	6	4	15
3	No.3 Promoting Development of Multi-Nucleus Spatial Structure of GKMA as a Whole, Especially by Promoting Development of Relatively Larger Suburban Centres than those in the Current KPDF.	Female	2	2	0	1	5
		Male	2	1	2	4	9
		Total	4	3	2	5	14
4	No.10 Wise Utilisation of Wetlands for Sustainable Urban Development. No.14 Promoting Lakefront Development of GKMA in a sustainable way, by taking sufficient measures of conservation of the environment of the Victoria Lake.	Female	2	1	1	0	4
		Male	2	3	0	3	8
		Total	4	4	1	3	12
5	No.9 Promoting Effective Coordination and Integration of Road Development Plans and Public Transportation Development Plans with Physical Development Plans at All Levels from National, Regional, Sub-regional, District, and Urban levels to and Local levels. No.11 Promoting the Enhancement of Public Transportation strongly Connecting Suburban Centres with Kampala City.	Female	0	2	1	1	4
		Male	2	4	3	2	11
		Total	2	6	4	3	15

Source: JICA Expert Team

6) Results of Group Discussion

After the group discussion, each group presented the results of the discussion about the most likely impacts due to the respective strategic perspectives. The most important likely impact was "Air Pollution" that four groups indicated both positive and negative impacts followed by "Flora, Fauna, and Biodiversity (two groups in positive, three groups in negative)". The results are summarised in Table 25.11.6 and Table 25.11.7.

Rating was done with Low (+)/(-) indicated by 1 group, Moderate (+)(+)/(-)(-) indicated by 2 groups, High (+)(+)(+)/(-)(-)(-) indicated by 3 or more as follows.

- Highly positive and negative: Air Pollution

- Moderately positive: Water Pollution
- Lowly negative: Noise and Vibration
- Lowly positive and moderately negative: Waste
- Lowly negative: Offensive Odour
- Lowly positive: Protected Areas
- Moderately positive and highly negative: Flora, Fauna, and Biodiversity
- Moderately negative: Involuntary Resettlement
- Moderately positive and highly negative: The poor people
- Lowly negative: Indigenous and ethnic people
- Moderately positive: Local economy such as employment and livelihood, etc.
- Moderately positive: Land use and utilisation of local resources
- Lowly positive: Existing social infrastructures and services
- Moderately positive: Social institutions such as social infrastructure and local decision-making institutions
- Highly negative: Local conflict of interests
- Lowly positive and negative: Cultural heritage
- Lowly negative: Landscape
- Highly positive: Gender
- Moderately positive and lowly negative: Children's rights
- Highly negative: Hazards (Risk), Infectious diseases such as HIV/AIDS
- Highly positive and lowly negative: Working conditions
- Moderately positive: Accidents

Table 25.11.6 Number of Groups That Listed Most Important Likely Impacts

	No.	Likely Impacts	Number of Groups		Rating	
			Positive Impacts	Negative Impacts	Positive Impacts	Negative Impacts
Pollution	1	Air Pollution	4	4	(+)(+)(+)	(-)(-)(-)
	2	Water Pollution	2	-	(+)(+)	-
	3	Noise and Vibration	-	1		(-)
	4	Soil Contamination	-	-	-	-
	5	Waste	1	2	(+)	(-)(-)
	6	Ground Subsidence	-	-	-	-
	7	Offensive Odour	-	1	-	(-)
	8	Bottom sediment	-	-	-	-
Natural Environment	9	Protected Areas	1	-	(+)	-
	10	Flora, Fauna, and Biodiversity	2	3	(+)(+)	(-)(-)(-)
	11	Hydrological Situation	1	-	(+)	-
	12	Topography and Geographical features	-	-	-	-
Social Environment	13	Involuntary Resettlement	-	2	-	(-)(-)
	14	The poor people	1	3	(+)	(-)(-)(-)
	15	Indigenous and ethnic people	-	1	-	(-)
	16	Local economy such as employment and livelihood, etc.	3	-	(+)(+)(+)	-
	17	Land use and utilisation of local resources	3	-	(+)(+)(+)	-
	18	Water Usage or Water Rights and Rights of Common	-	-	-	-
	19	Existing social infrastructures and services	1	-	(+)	-
	20	Social institutions such as social infrastructure and local decision-making institutions	2	-	(+)(+)	-
	21	Misdistribution of benefit and damage	-	-	-	-
	22	Local conflict of interests	-	3	-	(-)(-)(-)
	23	Cultural heritage	1	1	(+)	(-)
	24	Landscape	-	1	-	(-)
	25	Gender	3	-	(+)(+)(+)	-
	26	Children's rights	2	1	(+)(+)	(-)
	27	Hazards (Risk), Infectious diseases such as HIV/AIDS	-	3	-	(-)(-)(-)
	28	Working conditions	3	1	(+)(+)(+)	(-)
Others	29	Accidents	2	-	(+)(+)	-
	30	Transboundary issues, Global Warming	-	-	-	-

Note: Rating, Low (+)/(-)=1 group, Moderate (+)(+)/(-)(-)=2 groups, High (+)(+)(+)/(-)(-)(-)=3 or more groups
Source: JICA Expert Team

Table 25.11.7 Results of Group Discussion: Most Important Likely Impacts

Group/Strategic Perspective	
Positive Impact	**Negative Impact**
Group-1: No.1 Controlling/ Limiting the Population Size and Concentration of Economic Activities in GKMA within Uganda by Promoting Urban Development of Regional Capitals and Growth Corridors.	
1. Protected areas through control of urban population / decongested 2. Waste management would improve from a holistic point of view since there will be a direct investment toward its handling and management, rather than the current situation where local governments and urban areas find huge challenges in waste management where some don't even have management facilities 3. Reduced encroachment of flora, fauna, and biodiversity-protected areas 4. Preserved and protected hydrological situation in the whole planning perspective 5. Reduced air pollution in GKMA 6. Land use and proper utilisation of local resources 7. Social institutions such as social infrastructure and local decision-making institutions are well distributed across the region 8. Preservation and enriching of cities with cultural and ethnic, heritages like improved cultural areas such as wetlands 9. Urbanisation protects all gender rights like women's and children's rights 10. Better working conditions within the regional cities 11. Reduced accidents as people move away from the GKMA to other urban centres	1. Air pollution would increase in regional cities because of decentralized industrial activities in these cities and increased air pollution from vehicle fumes and disposal of used oils 2. Flora, fauna, and biodiversity become depressed by high levels of urbanisation 3. Involuntary resettlements 4. Discriminatory in economic status like the poor shall live in the city with segregation 5. New cities in regions may not consider the ethnic groups and endangered groups plus natives. 6. Neglecting the critical cultural heritage sites 7. Migration/ transfer of infectious diseases like HIV/AIDS to new areas/ cities
Group-2: No.2 Promoting Selective Expansion of Manufacturing Industries within GKMA. No.6 Promoting Rezoning of Existing Industrial Parks to Mixed Zones to Accommodate Suburban Centre Functions.	
1. Reduced pollution if more polluting industries are removed 2. New jobs and varied jobs for the local economy through employment and better livelihood 3. More efficient utilisation of land uses and local resources with more output 4. Industrial growth can attract investment in social infrastructure and local decision-making services 5. A higher opportunity for female jobs and cleaner jobs as a form of gender balance 5. Working conditions may improve due to cleaner technologies and competition in the employment sector	1. Air pollution from industries and traffic 2. Risk of improper waste disposal may lead to pollution since industries have different waste management mechanisms that may be difficult to unite 3. Risk of infringement on children's rights 4. Risk of disease spread due to congestion and illicit behaviour 5. Risk of unfair working conditions and exploitation including sexual exploitation
Group-3: No.3 Promoting Development of Multi-Nucleus Spatial Structure of GKMA as a Whole, Especially by Promoting Development of Relatively Larger Suburban Centres than those in the Current KPDF.	
1. Local Economy such as employment and livelihood. There would be an improvement in the local revenue base and standards of living due to employment and other economic opportunities people would be having. 2. Land Use and Utilisation of Local Resources. Coordinated and controlled development would promote orderliness and optimum utilisation of land. 3. Social institutions such as social Infrastructure and local decision-making institutions. Proper Planning and	1. Air Pollution. As development happens, there are things that may not be avoided. For example, industrialisation comes along with impacts such as air pollution which is harmful. 2. Flora, Fauna, and Biodiversity. Poorly managed Urbanisation in multiple nucleus would accelerate the degradation of the environment. 3. The Poor People. When development happens, poor people tend to be pushed away from prime areas and

Group/Strategic Perspective	
Positive Impact	**Negative Impact**
implementation would lead to reduced travel time and cost. 4. Gender. The development of multi-nucleus centres would uplift the most vulnerable members of the communities because they can benefit from the various services brought nearer to them such as health and education facilities. 5. Working Conditions. Due to multiple employment opportunities created, workers would travel less which is convenient, and save more resources as a result of reduced transport costs. Because of the convenience of working nearby, chances of improved productivity at work would also increase.	relocated to other areas that are relatively cheap and most of them end up in informal settlements. 4. Local Conflict of Interests. Land and boundary conflicts tend to increase with accelerating levels of urbanisation. 5. Hazards (Risk), infectious diseases such as HIV/AIDS. If not properly managed, increasing levels of urbanisation can make urban areas less resilient and more prone to hazards such as floods. Behaviours such as prostitution in urban areas can lead to the spreading of diseases such as HIV/AIDS.
Group-4: No.10 Wise Utilisation of Wetlands for Sustainable Urban Development. No.14 Promoting Lakefront Development of GKMA in a sustainable way, by taking sufficient measures of conservation of the environment of the Victoria Lake.	
1. Air Pollution • Cleans the air • Reduces carbon emissions 2. Water pollution • Nice clean water if well managed • Put in systems for people to take up the project through technical guidance • Guide end-users on good practices • Sustainable utilisation of wetlands • Pay attention to the poor mindset of the people 3. Flora, Fauna, and Biodiversity • Healthy environment • Beautiful and liveable environment	1. Waste • A lot of garbage will be caught before it goes into lakes • Affects the neighbours due to increased human activity 2. Offensive Odour • If ignored it may generate a bad odour from the wetlands 3. Flora, Fauna, and Biodiversity • Loss of natural habitats 4. Local conflicts of interests • Political influence and privatization of wetlands 5. Air pollution • Destroys the quality of the air because of the pressure from people and roads among other factors
Group-5 No.9 Promoting Effective Coordination and Integration of Road Development Plans and Public Transportation Development Plans with Physical Development Plans at All Levels from National, Regional, Sub-regional, District, and Urban levels to and Local levels. No.11 Promoting the Enhancement of Public Transportation strongly Connecting Suburban Centres with Kampala City.	
1. Air pollution: An enhancement to public transportation will help in the mitigation of air pollution since the number of vehicles will be reduced due to the introduction of mass transport like Bus Rapid Transit or Light Rail Transit. 2. The poor people: With the enhancement of public transportation, the poor people will be able to access timely transportation to their destinations at fairly low costs 3. Local Economy such as employment and livelihood, etc.: Proper planning will facilitate the growth of the communities where the economy is boosted by proper intertwined roads, industrial zones, and parks, hence we expect higher levels of employment and better livelihood. 4. Children's Rights: With proper planning and a good transport system, children will have better access to education and health facilities hence fulfilling their right to some basic needs. 5. Accidents: With a proper public transport system, we expect the number of accidents to reduce since the use of boda bodas, which is one of the major causes of accidents within the GKMA area, is likely to go down.	1. Noise and Vibration: With the development of the road network and an increase in vehicles, we anticipate noise to increase. 2. Involuntary Resettlement: The new master plan will require the displacement of some people involuntarily within the planning area and hence a resettlement plan may be required. 3. The poor people: The plan may not provide social safeguards for the vulnerable poor community. 4. Local conflict: We anticipate conflicts that may arise out of a lack of a proper land acquisition model. 5. Landscape: With the terrain of Kampala, the cost of implementation of for example railway transport will be high.

Source: JICA Expert Team

7) Results of Personal Opinions

The JICA Expert Team also collected the personal opinions about the likely impacts from the participants with the check sheet showing the 30 items of likely impacts as well as it was done in the group discussion. The participants were asked to mark five likely positive and negative impacts due to the subjected perspectives.

Rating was done with Low (+)/(-) marked by 1-5, Moderate (+)(+)/(-)(-) marked by 6-10, High (+)(+)(+)/(-)(-)(-) marked by 11 or more as follows.

- Highly positive and negative: Air Pollution
- Moderately positive and highly negative: Water Pollution
- Lowly positive and moderately negative: Noise and Vibration
- Lowly negative: Soil Contamination
- Highly positive and negative: Waste
- Lowly negative: Offensive Odour
- Lowly negative: Bottom sediment
- Moderately positive and negative: Protected Areas
- Lowly positive and moderately negative: Flora, Fauna, and Biodiversity
- Lowly positive and negative: Hydrological Situation
- Lowly negative: Topography and Geographical features
- Lowly positive and highly negative: Involuntary Resettlement
- Lowly positive and moderately negative: The poor people
- Lowly negative: Indigenous and ethnic people
- Highly positive and lowly negative: Local economy such as employment and livelihood, etc.
- Highly positive and lowly negative: Land use and utilisation of local resources
- Lowly positive: Existing social infrastructures and services
- Highly positive and lowly negative: Social institutions such as social infrastructure and local decision-making institutions
- Highly negative: Local conflict of interests
- Lowly positive and negative: Cultural heritage
- Lowly positive and negative: Landscape
- Highly positive and lowly negative: Gender
- Lowly positive and negative: Children's rights
- Lowly positive and moderately negative: Hazards (Risk), Infectious diseases such as HIV/AIDS
- Highly positive and lowly negative: Working conditions
- Moderately positive and Lowly negative: Accidents
- Lowly positive and negative: Transboundary issues, Global Warming

Table 25.11.8 Number of Persons That Listed Most Important Likely Impacts

	No.	Likely Impacts	Number of Marked Answers		Rating	
			Positive Impacts	Negative Impacts	Positive Impacts	Negative Impacts
Pollution	1	Air Pollution	11	18	(+)(+)(+)	(-)(-)(-)
	2	Water Pollution	6	15	(+)(+)	(-)(-)(-)
	3	Noise and Vibration	3	11	(+)	(-)(-)(-)
	4	Soil Contamination	-	1	-	(-)
	5	Waste	11	17	(+)(+)(+)	(-)(-)(-)
	6	Ground Subsidence	-	-	-	-
	7	Offensive Odour	-	1	-	(-)
	8	Bottom sediment	-	1	-	(-)
Natural Environment	9	Protected Areas	8	7	(+)(+)	(-)(-)
	10	Flora, Fauna, and Biodiversity	5	9	(+)	(-)(-)
	11	Hydrological Situation	1	2	(+)	(-)
	12	Topography and Geographical features	-	1	-	(-)
Social Environment	13	Involuntary Resettlement	2	14	(+)	(-)(-)(-)
	14	The poor people	5	7	(+)	(-)(-)
	15	Indigenous and ethnic people	-	1	-	(-)
	16	Local economy such as employment and livelihood, etc.	24	2	(+)(+)(+)	(-)
	17	Land use and utilisation of local resources	21	2	(+)(+)(+)	(-)
	18	Water Usage or Water Rights and Rights of Common	-	-	-	-
	19	Existing social infrastructures and services	3	-	(+)	-
	20	Social institutions such as social infrastructure and local decision-making institutions	16	1	(+)(+)(+)	(-)
	21	Misdistribution of benefit and damage	1	-	(+)	-
	22	Local conflict of interests	-	14	-	(-)(-)(-)
	23	Cultural heritage	2	3	(+)	(-)
	24	Landscape	2	3	(+)	(-)
	25	Gender	14	1	(+)(+)(+)	(-)
	26	Children's rights	5	4	(+)	(-)
	27	Hazards (Risk), Infectious diseases such as HIV/AIDS	2	11	(+)	(-)(-)
	28	Working conditions	13	2	(+)(+)(+)	(-)
Others	29	Accidents	6	1	(+)(+)	(-)
	30	Transboundary issues, Global Warming	2	1	(+)	(-)

Note: Most likely positive and negative impacts are considered although the participants were also asked to mark the next five impacts to some extent if they had other concerns.
Source: JICA Expert Team

25.11.2 Second Stakeholder Consultation Meeting

The MKCC&MA organised the Second Stakeholder Consultation Meeting on 31 August 2023, with the support of the JICA Expert Team. Its purposes, described further below, were to explain the GKUGA urban spatial structure alternatives, and discuss the potential environmental and social impacts among stakeholders and collect their opinions. The same stakeholders from the First Stakeholder Consultation Meeting were invited for this activity.

The objectives of the meeting were as follows:

- Explain the five GKUGA urban spatial structure alternatives, i. e., four spatial structures and a without project (review and updating), "do-nothing case"
- Explain that the comparison of alternatives will be done through an initial environmental

impact assessment

- Group discussion and inputs from the participants on the environmental and social impacts of each alternative

The following contents explained and discussed in the Second Stakeholder Consultation Meeting were covered by the agenda shown in Table 25.11.9.

- Outline of "The Alternatives of GKUGA Urban Spatial Structures Proposed in the Master Plan for GKMA"
- Preliminary Comparison of GKUGA Urban Spatial Structure Alternatives
- Group Discussion on the likely impacts of "The Alternatives of GKUGA Urban Spatial Structures Proposed in the Master Plan for GKMA"
- Presentation of the Results of Group Discussions

Table 25.11.9 Agenda of the Second Stakeholder Consultation Meeting

Time	Items
08:30-09:00	Registration
09:00-09:10	Participants' Self-introduction
09:10-09:15	Opening Remarks by MINISTRY OF KAMPALA CAPITAL CITY AND METROPOLITAN AFFAIRS
09:15-09:20	Objectives of the Meeting by MINISTRY OF KAMPALA CAPITAL CITY AND METROPOLITAN AFFAIRS
09:20-09:50	Outline of "The Alternatives of GKUGA Urban Spatial Structures proposed in the Master Plan for GKMA"
09:50-10:20	Question and Answer Session
10:25-10:45	Coffee Break
10:45-11:15	Preliminary Comparison of GKUGA Urban Spatial Structure Alternatives
11:15-12:30	Group Discussion on the Likely Impacts of "The Alternatives of GKUGA Urban Spatial Structures Proposed in the Master Plan for GKMA"
12:30-12:55	Presentation of the Results of Group Discussions
12:55-13:00	Closing Remarks by MINISTRY OF KAMPALA CAPITAL CITY AND METROPOLITAN AFFAIRS
13:00-14:00	Lunch

Source: MKCC&MA, JICA Expert Team

1) Participants

A total of 67 persons consisting of 17 from the central governments, 19 from the local governments, 8 from the private sector, 9 from the local stakeholders (non-government), and 14 from the JICA Expert Team participated in the meeting as shown in Table 25.11.10. Among them, 27 persons were female and 40 persons were male.

Table 25.11.10 Outline of 2nd Stakeholder Consultation Meeting

Date and Time	Venue	Agenda	Types of Attendees			
			Organization	Male	Female	Total
Date: 31 August 2023 Time: 9:30 – 14:00	Conference Room of Hotel Africana, Kampala City	Purpose: Explain the five GKUGA urban spatial structure alternatives, Group discussion and inputs. It is also a part of the SEA process.	Government	7	10	17
			Local Government	9	10	19
			Private sector	6	2	8
			Local Stakeholder	6	3	9
			JICA Expert Team	12	2	14
		Type: Workshop	Total	40	27	67

Source: JICA Expert Team

2) Outline of the Alternatives

The JICA Expert Team provided five alternatives for GKUGA Urban Spatial Structures as shown in Table 25.5.1, Table 25.5.2 and Table 25.5.3 in section 25.5 in this chapter. The similarities of the features between the alternatives were also explained to help the participants understand the spatial structures. (See Table 25.11.11.)

Table 25.11.11 Similarities of Alternative Features

Item	Similar Alternatives	Not Similar Alternatives
Population	A & E, B & C & D	
CBD	B & D	A, C, E
Urban centres	B & D	A, C, E
Dense urbanisation	A & E, B & D	C
Industry	A & B	C, D, E
New Town Development	A & D	B, C, E
Transport Network	B & C & D	A, E

Source: JICA Expert Team

3) Results of Group Discussion

Four groups were formed for each of the four alternatives listed below. The participants in the groups discussed the impacts of the alternatives assigned to them. They also tried to evaluate the impacts.

- Group 1 for Alternative A: Polycentric Spatial Structure
- Group 2 for Alternative B: Polycentric and Widely Distributed Spatial Structure
- Group 3 for Alternative C: Advantage of the Industrial Location Potential Created by JKM Corridor
- Group 4 for Alternative D: Integration of Urban Structures B and C

At the end of the meeting, each group presented the results of their discussions. The results of the group discussions are summarised in Table 25.11.12. The results are considered as stakeholder inputs and considered for further impact assessment in the SEA.

Table 25.11.12 Result of Group Discussion (Summary of the Feedback from Stakeholders on the Analysis of Alternatives)

Significant Issues	Alternative A Poly-Centric Spatial Structure	Alternative B Poly-Centric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structure B and C
2. Impacts on Pollution				
Air quality and Green House Gas (GHG) emissions management	High (-)	Medium (+)	Medium (-)	Low (+)
Waste Management	High (-)	Medium (+)	High (-)	Medium (+)
Noise Emissions Management	High (-)	Medium (-)	Medium (-)	Low (-)
Surface water resources	High (-)	Low (-)	High (-)	Medium (-)
Landscape	High (-)	Medium (+)	High (-)	Very Low (+)
3. Impacts on the Natural environment				
Protected Area	High (-)	Low (-)	High (-)	Medium (+)
Fauna and flora outside protected areas	High (-)	High (-)	High (-)	Medium (+)
4. Impacts on Social Environment				
Land take/ Involuntary Resettlement	High (-)	Medium (-)	High (-)	High (-)
Population (gender, vulnerable groups) (Poor, Informal Settlement)	High (-)	Medium (-)	High (-)	High (-)

Significant Issues	Alternative A Poly-Centric Spatial Structure	Alternative B Poly-Centric and Widely Distributed Spatial Structure	Alternative C Advantage of the Industrial Location Potential Created by JKM Corridor	Alternative D Integration of Urban Structure B and C
Local Economy (livelihood activities)	Medium (+)	Very low (+)	High (-)	High (+)
Land use	High (-)	Low (+)	High (-)	Medium (-)
Social infrastructure and services	Medium (-)	High (+)	Medium (+)	Medium (+)
Local Conflicts/Governance	High (-)	Medium (-)	Medium (-)	High (-)
Cultural Heritage/ Tourism	Medium (+)	Low (+)	Low (+)	Medium (-)
Children's Rights (vulnerability	Medium (-)	High (-)	Medium (+)	Low (+)
Public Health (HIV/AIDS)	High (-)	High (-)	High (-)	High (-)
Working Conditions (Industrialisation)	Medium (+)	High (+)	Medium (+)	High (+)
Community Health and Safety	Medium (+)	Low (-)	High (-)	Medium (+)
5. Evaluation				
Rating	Sum = Average = High (-)	Sum = Average = Medium (-)	Sum = Average = Medium (+)	Sum = Average = Medium (-)
Determination	Not recommended	Not recommended	Not recommended	Recommended Preferable Spatial Structure

Criteria for Rating:

Rating:	Magnitude	Description
A	High	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics and/or features (Adverse). Large scale or a major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (beneficial).
B	Medium	Loss of resource, but not adversely affecting the integrity of xxx; partial loss of/damage of key characteristics and/or features (adverse). Benefit to, or addition of key characteristics, features or elements; improvement of attributes and/or quality (beneficial)
C	Low	Some measurable change in attributes, quality or vulnerability; minor loss or alteration to one (may be more) key characteristic, feature or element (adverse). Minor benefits to, or addition of one (maybe more) key characteristic, feature or element; some beneficial impacts on attribute or a reduced risk of negative impact occurring (beneficial).
D	Very low	Very minor loss or detrimental alteration to one or more characteristics, features or elements (adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (beneficial).

Source: SEA Team

Appendix A Progress of the Project

A.1 Progress Made in Phase 1

A.1.1 Kick-Off Meetings with MKCC&MA, Key MDAs and Local Governments of GKMA

Three kick-off meetings were held separately with MKCC&MA and KCCA, which are the main counterpart entities at the time of contract conclusion, with key Ministries, Departments and Agencies (MDAs) and with Local Governments (LGs).

(1) Kick-Off Meeting with MKCC&MA

A Kick-Off Meeting was held between MKCC&MA and the JICA Expert Team to launch the GKMA-IUDMP Project.

1) Objectives

- To explain and discuss Inception Report
- To discuss how to agree on the organisational structure of the Project among related entities

2) Date

The Kick-Off Meeting was held on 7th June 2021.

3) Venue

The Kick-Off Meeting was held online connecting Uganda and Japan.

4) Participants

In the Kick-Off Meeting, 7 members participated from MKCC&MA and KCCA in Uganda. In addition, 18 members participated from JICA HQ, JICA Uganda Office and the JICA Expert Team.

Entities which participated from Uganda are as follows:

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Kampala Capital City Authority (KCCA)

5) Main Points of Discussion

- Inception Report was presented by the JICA Expert Team and discussed by participants.
- The mandate of coordination between related organisations in the Project was emphasized by MKCC&MA.

(2) Kick-Off Meeting with Key MDAs

A Kick-Off Meeting was held between key MDAs and the JICA Expert Team to launch the GKMA-IUDMP Project.

1) Objectives

- To explain and discuss the outline of the GKMA-IUDMP Project

- To reach general consensus concerning the necessity of working together among the key MDAs for formulating an integrated physical development master plan for GKMA
- To generally agree on the organisational structure for the Project

2) Date

The Kick-Off Meeting was on 6th July 2021.

3) Venue

The Kick-Off Meeting was held online connecting Uganda and Japan.

4) Participants

In the Kick-Off Meeting, 23 members participated from related MDAs in Uganda. In addition, 16 members participated from JICA HQ, JICA Uganda Office and the JICA Expert Team.

Entities from Uganda are as follows:

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Office of the Prime Minister (OPM)
- National Planning Authority (NPA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Local Government (MoLG)
- Ministry of Works and Transport (MoWT)
- Kampala Capital City Authority (KCCA)

5) Main Points of Discussion

- Inception Report was presented by the JICA Expert Team. While questions about the outline of the project were asked by participants, most of them were answered by the JICA Expert Team.
- The opinion of expanding the planning area for the Project from Kampala Special Planning Area (KSPA) was raised by participants.
- The importance of collaboration with GKMA EDS (Greater Kampala Economic Development Strategy), NPDP (National Physical Development Plan) and other existing plans were voiced by participants from Ugandan MDAs.
- The general consensus of the implementation structure of the Project was made in the meeting.

(3) Kick-Off Meeting with Local Governments of GKMA

A Kick-Off Meeting was held between Local Governments and the JICA Expert Team to launch the GKMA-IUDMP Project.

1) Objectives

- To explain and discuss the outline of the GKMA-IUDMP Project
- To reach general consensus concerning the necessity of working together among Local Governments within GKMA for establishing an integrated physical development master plan for GKMA
- To generally agree on the organisational structure for the Project

2) Date

The Kick-Off Meeting was held on 8th July 2021.

3) Venue

The Kick-Off Meeting was held online.

4) Participants

In the Kick-Off Meeting, 18 members participated from related entities in Uganda. In addition, 16 members participated from JICA HQ, JICA Uganda Office and the JICA Expert Team.

Members which participated from Uganda are as follows:

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Kampala Capital City Authority (KCCA)
- Mukono District
- Wakiso District
- Mpigi District
- Mukono Municipality
- Kira Municipality
- Entebbe Municipality
- Makindye Ssabagabo Municipality
- Nansana Municipality

5) Main Points of Discussion

- Inception Report was presented by the JICA Expert Team. While questions about the project were asked by participants, most of them were answered by the JICA Expert Team.
- It is emphasized that the inclusion and coordination of local governments outside Kampala City is essential in formulation of an integrated physical development plan for GKMA.
- Physical development plans not only in GKMA, but also in Uganda tend to remain at the strategic level. More concrete plans at each level should be prepared so as to guide lower-level physical development plans.

A.1.2 Bilateral Meetings with Key MDAs and Local Governments of GKMA

After a series of Kick-Off Meetings with related entities, the JICA Expert Team held online bilateral meetings for the purpose of further discussion and information collection.

(1) Bilateral Meeting with Wakiso District

A Bilateral Meeting with Wakiso District was held to conduct further discussion and information collection.

1) Objectives

- To discuss problems concerning development and environment
- To discuss sub-centres of suburban areas of GKMA
- To discuss the current situation of coordination and collaboration with KCCA and MDAs
- To discuss availability of trained personnel for physical planning

2) Date

The Bilateral Meeting was held on 22nd July 2021

3) Venue

The Bilateral Meeting was held online.

4) Participants

In the Bilateral Meeting, 8 members participated from Wakiso District, including Chief Administrative Officer (CAO) and officers in each sector. In addition, 9 members participated from the JICA Expert Team.

5) Main Points of Discussion

- Various information and issues on physical development plans at different levels in the Wakiso District were presented by Wakiso District.
- Wakiso District and the JICA Expert Team agreed on involvement the various levels of the government under Wakiso District in the Project.

(2) Bilateral Meeting with Mukono District

A Bilateral Meeting between Mukono District and the JICA Expert Team was held to conduct further discussion and information collection.

1) Objectives

- To discuss problems concerning development and environment
- To discuss sub-centres of suburban areas of GKMA
- To discuss the current situation of coordination and collaboration with KCCA and MDAs
- To discuss the current situation of collaboration and coordination with Mukono Municipality and other local government units
- To discuss the availability of trained personnel of physical planning

2) Date

The Bilateral Meeting was held on 27th July 2021

3) Venue

The Bilateral Meeting was held online.

4) Participants

In the Bilateral Meeting, 7 members participated from Mukono District, including Chief Administrative Officer (CAO) and officers in each sector. In addition, 11 members participated from the JICA Expert Team.

5) Main Points of Discussion

- Mkono District argued that the planning area for the Project should include parts of Mukono District.
- Various information on the current situation of physical development plans in Mukono District were mentioned by Mukono District.
- Mukono District and the JICA Expert Team agreed on the continuous communication and cooperation for GKMA-IUDMP Project

(3) Bilateral Meeting with National Planning Authority (NPA)

A Bilateral Meeting was held between National Planning Authority and the JICA Expert Team to conduct further discussion and information collection.

1) Objectives

- To discuss problems concerning development and environment
- To discuss sub-centres of suburban areas of GKMA
- To discuss the current situation of coordination and collaboration with KCCA and MDAs
- To discuss availability of trained personnel of physical planning

2) Date

The Bilateral Meeting was held on 5th August 2021

3) Venue

The Bilateral Meeting was held online.

4) Participants

Nine members from NPA, 2 members from MKCC&MA and 2 members from KCCA participated in the Bilateral Meeting. In addition, 10 members participated from the JICA Expert Team.

5) Main Points of Discussion

- The information of implementation structure for GKEDS were presented by members of MKCC&MA and NPA.
- Problems of physical planning which caused by difference between political aspect and physical planning aspect in local level were raised by a NPA member.

(4) Bilateral Meeting with Ministry of Lands, Housing and Urban Development (MoLHUD)

A Bilateral Meeting was held between Ministry of Lands, Housing and Urban Development (MoLHUD) and the JICA Expert Team to conduct further discussion and information collection.

1) Objectives

- To discuss problems concerning metropolitan-wide development and environment
- To discuss how to coordinate and integrate metropolitan-level PDP and different infrastructure sector development plans
- To discuss how to coordinate and integrate GKMA-IUDMP and GKMA economic development strategies (GKEDS)
- To discuss how to coordinate and integrate different levels of PDPs with each other
- To discuss sub-centres of suburban areas of GKMA
- To discuss how to enhance the strength of urban core areas of Kampala City
- To discuss the current situation of collaboration and coordination among MDAs and LGs for GKMA
- To discuss capacity development for physical planners of LGs

2) Date

The Bilateral Meeting was held on 6th August 2021

3) Venue

The Bilateral Meeting was held online.

4) Participants

Five members from MoLHUD, including Director Directorate of Physical Planning, and 1 member from KCCA participated in the Bilateral Meeting. In addition, 10 members participated from the JICA Expert Team.

5) Main Points of Discussion

- In addition to the coordination of physical development plans at different levels, the importance of inclusion of various levels of the entities for formulating a metropolitan-level master plan was discussed between MoLHUD and the JICA Expert Team.
- The information on the ongoing JKM Corridor Physical Development Plan was given by MoLHUD. Subsequently, MoLHUD and the JICA Expert Team agreed to initiate the coordination and collaboration between the JKM Corridor Physical Development Plan Team and the JICA Expert Team.

(5) Bilateral Meeting with Ministry of Works and Transport (MoWT)

A Bilateral Meeting was held between Ministry of Works and Transport (MoWT) and the JICA Expert Team to conduct further discussion and information collection.

1) Objective

- To discuss problems concerning metropolitan-wide development and environment
- To discuss on how to coordinate and integrate different levels of PDPs and a variety of transportation infrastructure plans
- To discuss sub-centres of suburban areas of GKMA
- To discuss how to enhance the strength of urban core areas of Kampala City
- To discuss the current situation of collaboration and coordination among MDAs and LGs for GKMA
- To ask for updates on transportation sector

2) Date

The Bilateral Meeting was held on 11th August 2021

3) Venue

The Bilateral Meeting was held online.

4) Participants

Eight members from MoWT, including Director Directorate of Transport, and 3 members from MKCC&MA and 2 members from KCCA participated in the Bilateral Meeting. In addition, 12 members participated from the JICA Expert Team.

5) Main Points of Discussion

- As for the coordination of between different sectors, UNRA is important agency concerning the roads in Uganda was presented by MoWT
- Various information on the existing and ongoing plans related to the transport sector were presented by MoWT, and the JICA Expert Team acknowledged it.

(6) Bilateral Meeting with Ministry of Local Government (MoLG)

A Bilateral Meeting was held between Ministry of Local Government (MoLG) and the JICA Expert Team to conduct further discussion and information collection.

1) Objectives

- To discuss the current situation of collaboration and coordination among MDAs and LGs for GKMA
- To discuss how to involve the LGs in the plan formulation and implementation at the metropolitan-level (for GKMA-IUDMP)
- To discuss how to coordinate and integrate GKMA-IUDMP and GKMA Economic Development Strategies (GKEDS) to the plans of each LG
- To discuss how to coordinate and integrate different levels of PDPs with each other
- To discuss the expected roles and responsibilities of the newly created cities in GKMA
- To discuss capacity development for physical planners and other technical officers in the LGs

2) Date

The Bilateral Meeting was held on 17th August 2021

3) Venue

The Bilateral Meeting was held online.

4) Participants

Six members from MoLG, and 1 member from KCCA participated in the Bilateral Meeting. In addition, 10 members participated from the JICA Expert Team.

5) Main Points of Discussion

- Involvement of local government by GKMA Project was actively discussed between MoLG and the JICA Expert Team.
- Various information on the latest programme for the parish and current situation of the administrative boundaries were presented by MoLG.

A.1.3 Joint Coordinating Committee Meeting and Technical Working Group Meeting

(1) The First Joint Coordinating Committee Meeting

The First Joint Coordinating Committee (JCC) Meeting was held with JCC members who are selected by reflecting the discussion through a series of Kick-Off and Bilateral Meetings.

1) Objectives

- To agree on the establishment of the Project Implement Structure consisting of JCC, TWG, Sub-TWG and PIU including their members, roles, and operation
- To agree on the formulation of an Integrated Physical Development Plan covering the Greater Kampala Metropolitan Area

2) Date

The JCC Meeting was held on 30th September 2021

3) Venue

The JCC Meeting was held at the Conference Hall, Office of the President. It was also held online.

4) Participants

41 members participated from the Ugandan side. In addition, 24 members participated from JICA headquarters, JICA Uganda Office and the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Office of the Prime Minister (OPM)
- Office of the President (OP)
- Ministry of Local Government (MoLG)
- National Water and Sewerage Corporation (NWSC)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District

- Nansana Municipality
- Makindye-Ssabagabo Municipality
- Entebbe Municipality
- Kampala Central Division
- Lubaga Division
- Kawempe Division
- Makindye Division

5) Main Points of Discussion

- The scope, approach and schedule of the Project was presented by the JICA Expert Team. Subsequently, many questions related to the Project were asked by JCC members.
- Various information on the current situation of physical planning and other development issues of different territorial entities were mentioned by JCC members, and the JICA Expert Team acknowledged them.
- The importance of inclusion of all related MDAs and local governments and that of harmonization between GKMA-IUDMP and existing plans were raised by JCC members.

(2) The First Technical Working Group Meeting

The First Technical Working Group (TWG) Meeting was held with TWG members who are selected by reflecting the discussion of a series of Kick-Off and Bilateral Meetings.

1) Objectives

- To explain and discuss the scope, approach, and schedule of GKMA-IUDMP Project
- To explain and discuss functions, responsibilities, and activities of the Technical Working Group (TWG)
- To mutually agree on the formulation Sub-Technical Working Group (Sub-TWG) for the different themes

2) Date

The TWG Meeting was held on 5th October 2021

3) Venue

The TWG Meeting was held in the Library Conference Hall, Office of the President. It was also held online.

4) Participants

45 members participated from the Ugandan side. In addition, 24 members participated from JICA headquarters, JICA Uganda Office and the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Office of the Prime Minister (OPM)
- Office of the President (OP)
- National Planning Authority (NPA)
- Ministry of Local Government (MoLG)
- Ministry of Works and Transport (MoWT)
- Ministry of Water and Environment (MWE)

- Ministry of Trade, Industry and Cooperatives (MoTIC)
- Uganda National Roads Authority (UNRA)
- National Environment Management Authority (NEMA)
- National Water and Sewerage Corporation (NWSC)

Territorial Entities

- Kampala Capita City Authority
- Wakiso District
- Mukono District
- Mpigi District
- Kira Municipality
- Makindye-Ssabagabo Municipality
- Mukono Municipality
- Nakawa Division
- Kasangati Town Council
- Wakiso Town Council

5) Main Points of Discussion

- The scope, approach and schedule of the Project was presented by the JICA Expert Team. Subsequently, many questions related to the outline of the Project were presented by TWG members.
- The JICA Expert Team proposed different themes and participating members for different Sub-TWGs. The proposal was discussed among TWG members and the JICA Expert Team.
- The importance of inclusion of all related entities and harmonization between GKMA-IUDMP and existing plans were commented by JCC members.

A.1.4 Sub-Technical Working Group Meetings

Through the discussion in the First TWG Meeting and the coordination with chairing organisations for different Sub-TWGs, four Sub-TWG Meetings were as follows. Each Sub-TWG is designed to deal with themes integrating two or more sectors/aspects.

- Sub-TWG 1: Transportation and Land Use
- Sub-TWG 2: Environment, Wetland, Drainage and Land Use
- Sub-TWG 3: Electricity, Water Supply and Solid Waste Management for Future Urban Development
- Sub-TWG 4: Local-Level Detailed Plan PDPs and Local Governments

During the period for preparing Progress Report 1, the Sub-TWG 1 Meeting and Sub-TWG 3 Meeting were held.

(1) First Sub-Technical Working Group Meeting 1: Transportation and Land Use

The Sub-Technical Working Group (Sub-TWG) Meeting 1 was held under the chair of Ministry of Works and Transport (MoWT) and the deputy chair of Ministry of Lands, Housing and Urban Development (MoLHUD).

1) Objectives

- To discuss the schedule of meetings for the Sub-TWG 1
- To discuss the implication of Kampala Physical Development Plan (KPDP) 2012 and Multi-Modal Urban Transportation Master Plan (MMUTM) 2018
- To discuss issues regarding the location of Sub-Urban Sub-Centres, Outer Ring Road and BRT

Routes and Radial Road

2) Date

The Sub-TWG Meeting 1 was held on 2nd November 2021

3) Venue

The Sub-TWG Meeting 1 was held in the Library Conference Hall, Office of the President, as well as by online.

4) Participants

34 members participated from the Ugandan side. In addition, 18 members participated from the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Works and Transport (MoWT)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- Uganda National Roads Authority (UNRA)
- Uganda Railway Corporation (URC)
- National Planning Authority (NPA)
- Uganda Investment Authority (UIA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mpigi District
- Mukono Municipality
- Entebbe Municipality
- Wakiso Town Council
- Kajjansi Town Council
- Kakiri Town Council
- Mpigi Town Council
- Katosi Town Council
- Kisoga Ntenjeru Town Council

5) Main Points of Discussion

- In addition to the Project outline, the future demand for transportation by analysis of Multi-Modal Urban Transport Master Plan and the topic of BRT were presented by the JICA Expert Team.
- Subsequently, the information on the current situation of BRT installation was mentioned by Sub-TWG members.
- The structure of Sub-TWG1 was discussed among Sub-TWG1 members especially the inclusion of finance sector and communication sector.

(2) Sub-Technical Working Group Meeting 3: Electricity, Water Supply and Solid Waste Management ×Future Urban Development

The Sub-Technical Working Group (Sub-TWG) Meeting 3 was held under the chair of Ministry of Lands, Housing and Urban Development deputy chair of Ministry of Water and Environment.

1) Objectives

- To discuss the schedule of meetings for the Sub-TWG 3
- To discuss the importance of utilities provision for promoting sustainable urban development, especially in suburban areas of GKMA
- To discuss the following substantial issues: Electricity Supply to Suburban Areas and Urban Development in Suburban Areas of GKMA/ Water Supply to Suburban Areas and Urban Development in Suburban Areas of GKMA/ Solid Waste Management in Suburban Areas and Urban Development in Suburban Areas of GKMA

2) Date

The Sub-TWG Meeting 3 was held on 4th November 2021

3) Venue

The Sub-TWG Meeting 3 was held at the Library Conference Hall, Office of the President, as well as online.

4) Participants

33 members participated from the Ugandan side. In addition, 21 members participated from JICA Uganda Office and the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Water and Environment (MWE)
- Ministry of Kampala Capital City and Metropolitan Affairs (MMKCC&MA)
- Ministry of Energy & Mineral Development (MoEMD)
- National Water and Sewage Corporation (NSWC)
- UMEME Limited
- National Environment Management Authority (NEMA)
- National Planning Authority (NPA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Nansana Municipality
- Makindye-Ssabagabo Municipality
- Wakiso Town Council
- Kajjansi Town Council

5) Main Points of Discussion

- In addition to the Project outline, several topics of water supply sector, solid waste management sector and electricity sector were presented by the JICA Expert Team.

- Subsequently, discussions, especially of the landfill site and quality of water, were held among Sub-TWG members and the JICA Expert Team.
- Question of the electricity was presented by Sub-TWG3 member and answered by the JICA Expert Team.
- It was understood that due to a wrong future population projection, especially the projection of smaller population increases outside Kampala City, development plans for water supply and electricity supply were not well prepared in order to respond to future urban development outside Kampala City, especially in western part of Wakiso District.

A.1.5 Data Collection and Present Situational Analysis

During the reporting period, the JICA Expert Team conducted data collection surveys and filed / facility inspection, as needed, to capture the present situation of each sector. The list of the conducted surveys is shown in Table A.1.1.

Table A.1.1 Data Collection Survey

Date*	Organisation	Topic
Land Use Planning and Local Planning		
12th Oct	Lubaga Division	Interview about Building Permit / Development Control
14th Oct	KCCA	Interview about Building Permit / Development Control
18th Oct	Nakawa Division	Interview about Building Permit / Development Control
19th Oct	Wakiso District	Interview about Building Permit / Development Control
21st Oct	Mukono District	Interview about Building Permit / Development Control
22nd Oct	Central Division	Interview about Building Permit / Development Control
Socio-Economic / Economic and Financial Analysis		
6th Oct	UBOS	Request for Population Data
25th Oct	UBOS	Request for Economic Data
Transportation Planning		
24th Sep	KCCA	Interview about Current Transport Projects
28th Sep	MoWT	Interview about Road Project in GKMA
28th Sep	UNRA	Interview about Road Project
4th Oct	URC	Interview about Current Railway Connections and Future Plans
6th Oct	UBOS	Request for Population Data
Infrastructure (Water Supply)		
14th Oct	NWSC	Interview about National Water Supply
18th Oct	Wakiso District	Interview about District Water Supply
19th Oct	Miyaanga Reservout and Gaba Water Treatment Plant	Site / Facility Inspection
20th Oct	Katosi Water Treatment Plant and Reservour	Site / Facility Inspection
20th Oct	Nsumba_Reservior	Site / Facility Inspection
21st Oct	NWSC P&CD Head Office	Interview about National Water Supply
22nd Oct	Naguru Water Reservour	Site / Facility Inspection
22nd Oct	NWSC	Interview about Infrastructure Planning
26th Oct	NWSC Namugongo Booster	Site / Facility Inspection
26th Oct	Kyebando Public Stand Post	Site / Facility Inspection
28th Oct	Mukono District	Interview about District Water Supply
29th Oct	NWSC P&CD	Interview about National Water Supply
1st Nov	Kamengo Water Supply and Sanitation Office	Interview about District Water Supply
3rd Nov	Water Pump Stations	Site / Facility Inspection
Infrastructure (Sewage)		
26th Oct	NWSC	Interview on sewage in Kampala Capital City
Infrastructure (Solid Waste Management)		
4th Oct	KCCA HQ	Interview about Solid Waste Management
7th Oct	Nanasana Municipal Council	Interview about Solid Waste Management
7th Oct	Makindye Division	Interview about Solid Waste Management
8th Oct	Makindye Ssabagabo Division	Interview about Solid Waste Management

Date*	Organisation	Topic
8th Oct	Wakiso District	Interview about Solid Waste Management
12th Oct	Kyengera Town Council	Interview about Solid Waste Management
12th Oct	Wakiso Town Council	Interview about Solid Waste Management
13th Oct	Kajjansi Town Council	Interview about Solid Waste Management
13th Oct	Kiteeszi Disposal Site	Facility Inspection
15th Oct	Entebbe Municipal Council	Interview about Solid Waste Management
19th Oct	Kira Municipal Council	Interview about Solid Waste Management
22nd Oct	Nansana Municipality	Interview about Solid Waste Management
Infrastructure (ICT / Smart City)		
11th Oct	NITA-U	Infrastructure Development and Policies Relating to ICT
12th Oct	KCCA	Policies and Smart City Plans
Infrastructure (Drainage / Disaster Risk Management)		
14th Oct	KCCA	Interview about Drainage
14th Oct	NWSC	Interview about Drainage / Disaster Risk Management
19th Oct	Wakiso District	Interview about Drainage / Disaster Risk Management
28th Oct	Mukono District	Interview about Drainage
29th Oct	KCCA	Interview about Drainage
29th Oct	KCCA	Interview about Disaster Risk Management
GIS		
8th Oct	Survey and Mapping (MoLHUD)	Interview about GIS Data
11th Oct	MoLHUD	Request for GIS Data
11th Oct	Wakiso District	Interview about GIS Data
18th Oct	Survey and Mapping (MoLHUD)	Interview / Request about Ortho photo
21st Oct	Mukono District	Interview / Request about GIS Data
25th Oct	Mpigi District	Interview / Request about GIS Data
Environmental and Social Considerations		
22nd Oct	NEMA	Interview about SEA
Institutional Analysis / Capacity Development		
21st Oct	Mukono District	Interview about Institution and Training
25th Oct	Mpigi District	Interview about Institution and Training
28th Oct	Kasangati Town Council	Interview about Institution and Training
29th Oct	Katosii Town Council	Interview about Institution and Training
1st Nov	Kiringente Sub-County	Interview about Institution and Training
3rd Nov	MoLG	Interview about Institution and Training

*All surveys were conducted in 2021.
Source: JICA Expert Team

As shown in Table A.1.1, the JICA Expert Team collected information from various entities related to each sector. Based on the data collection survey, the JICA Expert Team conducted situational analysis from the technical aspect.

A.1.6 Surveys Conducted

(1) State Preference Survey

The JICA Expert Team has conducted the State Preference Survey (SP Survey) to understand the present modal choices of transport and future modal choices in the study area.

The objective of the SP Survey is to estimate the probability of modal shift, if new public transport, which might be Bus Rapid Transit (BRT) and modernized Light Rail Transit (LRT), is in place. In the survey hypothetical conditions are set which cannot be predicted through analysis of the existing trip data, and to develop a mode choice model for travel demand forecast.

The survey was conducted by the face-to-face interview method to people of different professions and different income levels who are randomly selected. The JICA Expert Team has selected 20 survey locations which consist of different categories such as: taxi and bus stops, office buildings and factories, shopping malls/supermarkets, traditional markets and universities. The SP Survey collected 1,117 samples in total.

The questionnaire is composed of three parts, namely, 1) general information, 2) the stated preference of modal choice and trip information, and 3) the impact of COVID-19 on transport. The field data collection was conducted in October 2021. The travel demand model for the study area was updated using the SP survey result.

(2) Capacity Assessment Questionnaire Survey for Physical Planning

In Phase 1, a questionnaire survey was conducted with local government officials within the GKMA involved in the formulation and operation of the physical planning to understand the range of their jobs and their baselines. Baselines here includes background, knowledge, skills, experience, preferences and working conditions and environment.

The format of the survey was a structured questionnaire. Printed out questionnaires were distributed to all the local governments in the GKMA, and delivered to the accounting officers, and also Online questionnaire were shared to collect the answers. The total number of responses collected, both printout and online, was 237.

The survey items in the questionnaire are divided into following five large categories:

- Age Composition, Working Years, and Academic Backgrounds
- Experience on Physical Planning
- Self-Assessment of Capacity for Physical Planning
- Preference on the Method of Formulating Local Physical Development Plans
- ICT Environment

A.2 Progress Made in Phase 2

A.2.1 Joint Coordinating Committee Meeting and Technical Working Group Meeting

(1) The Second Technical Working Group Meeting

The Second Technical Working Group (TWG) Meeting was held with TWG members under the chair of Ministry of Kampala Capital City & Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of Progress Report 1 covering the following points:
  - Present situational analysis on GKMA
  - Three Key aspects of 1) transportation, 2) present spatial development and future spatial structure, and 3) how to update the current KPDF/KPDP
- To discuss the “Planning Area" proposed by the JICA Expert Team for GKMA-IUDMP
- To discuss “Strategic Perspectives for Upgrading the Current KPDF/KPDP" by reflecting the present situation and identified problems for GKMA

2) Date

The TWG Meeting was held on 15th March 2022

3) Venue

The Second TWG Meeting was held in the Conference Hall, Office of the President. It was also held online.

4) Participants

31 members including 10 persons from local consulting firms participated from the Ugandan side. In addition, 22 members participated from the JICA headquarters, JICA Uganda Office and the JICA Expert Team.

Members who participated, excluding JICA, the JICA Expert Team and local consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Office of the Prime Minister (OPM)
- Ministry of Local Government (MoLG)
- Ministry of Works and Transport (MoWT)
- Uganda National Roads Authority (UNRA)
- National Information Technology Authority Uganda (NITA-U)

Territorial Entities

- Kampala Capita City Authority (KCCA)
- Wakiso District
- Mpigi District
- Kira Municipality
- Entebbe Municipality
- Mukono Municipality
- Rubaga Division
- Kawempe Division
- Nakawa Division
- Kajjansi Town Council

5) Main Points of Discussion

- Participants expressed their agreement with the contents in the presentation of the JICA Expert Team.
- However, they also presented several specific aspects to be taken into consideration, including wetland conservation, lakeshore development, slums, schools and hospitals, and planning boundaries
- Regarding transport planning, the JICA Expert Team responded to the issues on expansion of logistics and the introduction of BRT and LRT, and so on, by using examples of the situation in other countries.
- It was also pointed out that there are differences in priorities within the GKMA area, and it was suggested that more attention should be paid to Mpigi and Mukono.
- Different perceptions about future urbanisation and urban centre development outside Kampala Capital City became clear between the JICA Expert Team and the Ugandan side. The JICA Expert Team emphasized a larger importance of investing for urban development including urban centre development

(2) The Second Joint Coordinating Committee Meeting

The Second Joint Coordinating Committee (JCC) Meeting was held with JCC members under the chair of Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of Progress Report 1
  - Present situational analysis on GKMA
  - Three Key aspects of 1) transportation, 2) present spatial development and future spatial structure, and 3) how to update the current KPDF/KPDP
- To share discussions made in the Second TWG Meeting
  - Discussions on "present situational analysis" for GKMA
  - Discussions on "identified problems" for GKMA
  - Discussion on the "Planning Area" proposed by the JICA Expert Team for GKMA-IUDMP
  - Discussion on "Strategic Perspectives for Upgrading the Current KPDF/KPDP" by reflecting the present situation and identified problems for GKMA
- To discuss and recommend the "Planning Area" proposed by the JICA Expert Team for GKMA-IUDMP
- To discuss and recommend "Strategic Perspectives for Upgrading the Current KPDF/KPDP" by reflecting the present situation and identified problems for GKMA

2) Date

The JCC Meeting was held on 17th March 2022

3) Venue

The JCC Meeting was held at the Cabinet Library, Office of the President. It was also held online.

4) Participants

26 members participated from the Ugandan side. In addition, 23 members participated from the JICA headquarters, JICA Uganda Office and the JICA Expert Team. Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Works and Transport (MoWT)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Water and Environment (MWE)
- Ministry of Local Government (MoLG)
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- Ministry of ICT & National Guidance
- National Planning Authority (NPA)
- National Environment Management Authority (NEMA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Mukono Municipality
- Makindye Division

5) Main Points of Discussion

- As in the Second TWG Meeting, the contents of the Progress Report 1 were explained by the

JICA Expert Team, followed by a presentation focusing on three main points: transportation, physical planning and KPDP and KPDF update.

- The Executive Director of NPA raised concerns and criticisms against the proposed planning area by the JICA Expert Team because the definition of Greater Kampala Metropolitan Area covering all administrative areas of Kampala Capital City, Wakiso District Local Government, Mukono District Local Government and Mpigi District Local Government was approved by the Cabinet of Ministers. This definition of GKMA has been also used for Greater Kampala Economic Development Strategy (March 2020). The JICA Expert Team was then asked to reconsider the planning area boundaries.
- The contents of Progress Report 1 are generally accepted by JCC members, and the strategic perspectives to upgrade the KPDP and KPDF were also agreed on a condition that some supplemented points provided by the JCC members should also be considered for updating the current KPDF and KPDP.

A.2.2 Sub-Technical Working Group Meetings

(1) Second Sub-Technical Working Group Meeting 1: Transportation and Land Use

The Sub-Technical Working Group (Sub-TWG) Meeting 1 was held under the chair of the Ministry of Works and Transport (MoWT) and the deputy chair of the Ministry of Lands, Housing and Urban Development (MoLHUD).

1) Objectives

- To explain and discuss key points of Progress Report 1 (First Study Report)
- To share discussions made in the Second TWG Meeting to be held on 15th March, and in the Second JCC (Joint Coordinated Committee) Meeting to be held on 17th March
- To explain the three possible options of urban centre development along the Nansana-Wakiso-Kakiri Corridor considering the future expressway construction and establishment of BRT and other public transport modes
  - Option A: Ribbon Development Along Existing National Road
  - Option B: Development of Individual Towns
  - Option C: Ladder Development Pattern
- To organise a group discussion on different spatial development patterns for Nansana-Wakiso-Kakiri Corridor

2) Date

The Second Sub-TWG Meeting 1 was held on 21st March 2022

3) Venue

The Second Sub-TWG Meeting 1 was held in the Board Room, Office of the President, as well as by online.

4) Participants

33 members participated from the Ugandan side. In addition, 14 members participated from the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Works and Transport (MoWT)
- Ministry of Lands, Housing and Urban Development (MoLHUD)

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Uganda National Roads Authority (UNRA)
- Uganda Railway Corporation (URC)
- Uganda Investment Authority (UIA)
- Uganda National Oil Company (UNOC)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Mukono Municipality
- Entebbe Municipality
- Nakawa Division
- Kajjansi Town Council
- Kyengera Town Council
- Kasangati Town Council
- Katosi Town Council
- Kisoga Ntenjeru Town Council

5) Main Points of Discussion

- The JICA Expert Team explained three possible options on urban development pattern integrating urban centres, expressway routes, and three transit route options along the Nansana-Wakiso-Kakiri Corridor.
- Participants were divided into three groups according to their expertise and each group selected each option to make a pattern of urban centre development.
- There was more interest from participants in Urban Development Option C "Ladder Development Pattern" because a ladder development pattern enables the integration of urban development, road development and public transport development in suburban areas along the radial national roads.

(2) Special Sub-Technical Working Group Meeting for Spatial Structure and Urban Centres in Greater Kampala Urban Growth Areas (GKUGA)

The Sub-Technical Working Group (Sub-TWG) Meeting for Spatial Structure and Urban Centres was held in the form of workshops with the physical planning officers.

1) Objectives

- To discuss the future urban spatial structure of GKUGA proposed in Progress Report 1 by the JICA Expert Team
- To get input for modifying the future urban spatial structure of GKUGA proposed by the JICA Expert Team.

2) Date

The Sub-TWG Meeting for Spatial Structure and Urban Centres was held on 28th June 2022.

3) Venue

The Sub-TWG Meeting for Spatial Structure and Urban Centres was held at the Training Room, BMK House Apartment, as well as online.

4) Participants

10 members participated from the Ugandan side. In addition, 9 members participated from the JICA Expert Team.

Members who participated, excluding the JICA Expert Team, are as follows:

MDAs

- Ministry of Local Government (MoLG)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Entebbe Municipality
- Nansana Municipality
- Mukono Municipality
- Kira Municipality

5) Main Points of Discussion

- A case study of the urban spatial structure of Antananarivo Agglomeration, Madagascar was presented as an example to the participants, and an introductory explanation was given of the hierarchy of five types of urban centres to be used in the Greater Kampala Urban Growth Area (GKUGA) and Greater Kampala Metropolitan Area (GKMA).
- Participants argued that some urban centres should be re-categorized into other types of urban centres from their own viewpoints.
- From these group discussions, several urban centres that were not yet fully recognized by the JICA Expert Team within the GKMA were incorporated into the spatial urban structure.

(3) Special Sub-Technical Working Group Meeting for Spatial Structure and Development/ Conservation Policies for GKMA

1) Objectives

- To explain the three-layer system of physical developments (PDPs) in the Greater Kampala Metropolitan Area
- To explain and discuss the importance of considering the physical development plan (PDP) at the GKMA Level for considering the physical development plan (PDP) at the GKUGA-level
- To discuss alternative development directions of the GKMA-level of the physical development plan (PDP) in relation to the Jinja-Kampala-Mpigi Corridor Physical Development Plan

2) Date

Special Sub-TWG Meeting for Spatial Structure and Urban Policies for GKMA was held on 15th December 2022.

3) Venue

Special Sub-TWG Meeting for Spatial Structure and Urban Policies for GKMA was held at the Conference Hall, Golf Course Hotel, Kampala.

4) Participants

38 members participated from the Ugandan side. In addition, 14 members participated from the JICA Expert Team.

Members who participated, excluding the JICA Expert Team, are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Local Government (MoLG)
- Ministry of Water and Environment (MWE)

Territorial Entities

- Mukono District
- Wakiso District
- Mpigi District
- Kira Municipality
- Entebbe Municipality
- Makindye-Ssabagabo Municipality
- Mukono Municipality
- Nansana Municipality
- Lugazi Municipality
- Nakifuma Nagalama Town Council
- Katosi Town Council
- Namataba Town Council
- Kisoga-Ntenjeru Town Council
- Wakiso Town Council
- Kajjansi Town Council
- Kasangati Town Council
- Katabi Town Council
- Kyengera Town Council
- Kasanje Town Council
- Masulita Town Council
- Namayumba Town Council
- Mpigi Town Council
- Buwama Town Council
- Kayabwe Town Council

5) Main Points of Discussion

- In this meeting, many participants are from outside GKUGA within GKMA. They had not experienced any participation in the meetings/workshops of GKMA-IUDMP. Therefore, questions and answers on the Project were held.
- In response to the explanations by the JICA Expert Team, participants raised comments on the location of industrial growth centres/industrial growth corridors and specific projects, such as Mpigi Multi-Petroleum Terminal and the area along Mityana-Jezza-Bujuko road. The JICA Expert Team responded to these comments by explaining that they see Namanve as a future industrial hub and recognized the potential for development along the corridor from the petroleum terminal.
- Other comments included how environmental considerations were incorporated into the plan, requests for mixed commercial and residential areas, and the need for bolder intervention in Uganda's land tenure system and its operation.

(4) Third Sub-Technical Working Group Meeting 1: Transportation and Land Use

1) Objectives

- To explain the outline of the project for Integrated Urban Development Master Plan for GKMA and share the current progress of the project.
- To inform the analysis of current transport network for Greater Kampala Urban Growth Area (GKUGA) and proposed transport network scenarios to be tested for the discussion.
- To discuss on the following topics:
  - Future Road and Public Transport Network Scenarios for GKUGA
  - Future Spatial Structure and Suburban Centres in GKUGA
  - Issues of Transport Sector in GKUGA

2) Date

Third Sub-TWG Meeting 1 was held on 16th December 2022.

3) Venue

Third Sub-TWG Meeting 1 was held at the Board Room, Office of President, Ministry of Kampala Capital City Authority and Metropolitan Affairs, as well as online.

4) Participants

27 members participated from the Ugandan side. In addition, 10 members participated from the JICA Expert Team.

Members who participated, excluding the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Works and Transport (MoWT)
- Uganda National Roads Authority (UNRA)
- Uganda Railways Corporations (URC)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Local Government (MoLG)
- National Planning Authority (NPA)
- Uganda Investment Authority (UIA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District Local Government
- Mukono District Local Government
- Mpigi District Local Government
- Kira Municipality
- Nansana Municipality
- Kajjansi Town Council
- Mpigi Town Council
- Kasanje Town Council
- Kira Division

5) Main Points of Discussion

- Regarding the proposed Urban Centres, questions were raised about the hierarchy and naming of some proposed centres against the current situation. The JICA Expert Team presented again the hierarchy of Urban Centres, the functions of each Centre and the reasons for their designation.
- In terms of tourism, it was pointed out that it is necessary to refer to the Tourism Hub included in the tourism strategy developed by the MoT.
- UIA pointed out that there are additional areas to be considered as Industrial Growth Centres, as there are some growing private industrial parks. The JICA Expert Team responded that some of the areas pointed out were already included in the proposal.
- The need for wetland conservation was raised several times with regard to sustainability, and the JICA Expert Team explained that the three-layer system of PDPs is a set of land use controlling tools, paying attention to wetlands in land use and infrastructure development planning.
- The JICA Expert Team mentioned the implementation of SEA is included in the project.
- The MoLG mentioned the MoLG's promotion of the Parish Development Model (PDM), the focus on traditional transport modes and the perception that the Ugandan land tenure system

might inhibit BRT and rail projects

- For the question that how the Secondary Cities and National Expressways proposed in the NPDP are reflected in the GKMA Plan, the JICA Expert Team answered that the proposed Three-Layer PDPs and corridors are based on the understanding of existing Uganda Vision 2040 and development plans, including the NPDP III.

A.2.3 Multi-Sectoral Technical Committee Meeting for SEA

A Multi-Sectoral-Technical-Committee (MSTC) was set up as a first step to take forward for the SEA study for the project, and consultations were held to approve the screening report.

(1) First Multi-Sectoral Technical Committee Meeting for SEA

The First Multi-Sectoral Technical Committee Meeting for SEA was held under the chair of Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To gather the members of the Multi-Sectoral Technical Committee and confirm the purpose of the committee
- To review the contents of SEA Screening Report prepared by the MKCC & MA with support from JICA Expert Team

2) Date

The First Multi-Sectoral Technical Committee Meeting for SEA was held on 6th June 2022

3) Venue

The First Multi-Sectoral Technical Committee Meeting for SEA was held at the Committee Room, Office of the President.

4) Participants

11 members participated from the Ugandan side. In addition, eight members participated from the JICA Expert Team. Also, two participants joined from local consulting farm which commissioned to work on SEA.

Participants, excluding the JICA Expert Team and SEA consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Water and Environment (MWE)
- Ministry of Tourism, Wildlife and Antiquities (MoTWA)
- National Environment Management Authority (NEMA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Mukono District

5) Main Points of Discussion

- The outline of GKMA-IUDMP project was explained by JICA Expert Team, and then contents of the SEA Screening Report was presented by the Local Consultant for SEA.
- After the presentations, some comments and questions on the project, SEA study and screening report were delivered from the MSTC members.
- Participants were also asked to submit comments on the screening report by the 2nd MSTC meeting.

(2) Second Multi-Sectoral Technical Committee Meeting for SEA

The Second Multi-Sectoral Technical Committee Meeting for SEA was held under the chair of the Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To approve the SEA Screening Report through the discussion in the Multi-Sectoral Technical Committee.

2) Date

The Second Multi-Sectoral Technical Committee Meeting for SEA was held on 13th June 2022

3) Venue

The Second Multi-Sectoral Technical Committee Meeting for SEA was held in the Committee Room, Office of the President.

4) Participants

Nine members participated from the Ugandan side. In addition, eight members participated from the JICA Expert Team. Also, one participant joined from the local consulting firm which was commissioned to work on SEA.

Participants, excluding the JICA Expert Team and SEA consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Water and Environment (MWE)
- National Planning Authority (NPA)
- National Environment Management Authority (NEMA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Mukono District

5) Main Points of Discussion

- Responses were given to each comment, mainly by the consultants, and explanations on the purpose of the SEA and its study process were explained.
- After the discussion on each comment, it was confirmed that the screening report was approved, and the SEA team took the next step, which is the First Stakeholder Consultation Meeting.

A.2.4 Stakeholder Consultation Meeting for SEA

After approval of the Screening Report at the Second MSTC Meeting, the First Stakeholder Consultation Meeting for SEA was held for the purpose of scoping. The meeting had participants from the Ugandan side as stakeholders, including MDAs, local governments, NGOs, private sector and so on.

(1) First Stakeholder Consultation Meeting for SEA

The First Stakeholder Consultation Meeting for SEA was held under the chair of Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To explain and discuss the outline of the Project, progress of the project and the procedure of SEA for the stakeholders

- To discuss the environmental and social consideration in the Project
- To discuss and analyse the impact on the 14 strategic perspectives which were proposed by the JICA Expert Team for upgrading the current KPDF and KPDP through group discussions

2) Date

The Meeting was held on 15th June 2022.

3) Venue

The Meeting was held at the Conference Hall, Golf Course Hotel at Kampala.

4) Participants

68 members participated from the Ugandan side. In addition, 17 members participated from the JICA Expert Team. Also, six participants joined from the local consulting farm which was commissioned to work on SEA.

Participants, excluding the JICA Expert Team and consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Local Government (MoLG)
- Ministry of Water and Environment (MWE)
- Ministry of Gender, Labour and Social Development (MoGLSD)
- Ministry of Works and Transport (MoWT)
- Ministry of Energy and Mineral Development (MoEMD)
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- Ministry of Tourism, Wildlife and Antiquities (MoTWA)
- National Environment Management Authority (NEMA)
- Uganda Railway Cooperation (URC)
- Uganda Electricity Transmission Company Ltd. (UETCL)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Kira Municipality
- Mukono Municipality
- Nansana Municipality
- Mpigi Town Council
- Kisoga-Ntenjeru Town Council
- Kasangati Town Council
- Katosi Town Council
- Kasanje Town Council
- Katabi Town Council
- Kajjansi Town Council

Non-government Entities

- Uganda Manufactures Association
- Uganda Small Scale Industries Association

- Federation of Small and Medium size Enterprises –Uganda
- Uganda Association for Impact Assessment
- Uganda Society of Architects
- Uganda Forest Working Group
- National NGO Forum
- National Association of Women Organizations
- Uganda Women Entrepreneurs Association Limited
- Cities Alliance
- Slum Dwellers International
- Buganda Kingdom

5) Main Points of Discussion

- After a description of the project was given, questions, comments and opinions were presented by many participants on various aspects of the project. MKCC and MA, the JICA Expert Team and the SEA consultant responded to these.
- As the final activity of the meeting, the participants were divided into five groups to discuss and select the most important five likely positive and negative impacts that could be brought by the selected 14 strategic perspectives for the Project. (See Chapter 16 for details.)

A.2.5 Meetings for Local-Level Detailed Physical Development Plan

The JICA Expert Team have had six meetings with Kampala Capital City Authority, and two meetings with Wakiso District and Mukono District during Phase 2 to discuss and determine the pilot areas for Local-Level Detailed Physical Development Planning within around Kampala capital city area.

(1) First Meeting for Local-Level Detailed Physical Development Plan with KCCA

1) Objectives

- To share the objectives of the formulating the detailed physical development plan in the GKMA
- To discuss how to select pilot areas for detailed physical development planning (model planning)
- To discuss problems on the existing national physical planning standards and guidelines

2) Date

The First Meeting for Local-Level Detailed Physical Development Plan with KCCA was held on 7th June 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA.

4) Participants

Six members participated from the KCCA side. In addition, 11 members participated from the JICA Expert Team.

Positions of members who participated from KCCA side are as follows:

- Ag. Director Physical Planning
- Officer Landscape
- GIS Officer
- Coordinator Technical Review Team

- Physical Planners

5) Main Points of Discussion

- Existing physical development plans that have been considered and proposed were reviewed and the situation was shared between the KCCA and JICA Expert Team sides.
- Various challenges currently faced in physical planning were explained by participants from KCCA.
- The need for discussion on the most suitable planning scale in terms of approval was identified.
- Selection procedure for pilot areas and typology of them for formulation of local level detailed model plan in GKMA were proposed by the JICA Expert Team.

(2) Second Meeting for Local-Level Detailed Physical Development Plan with KCCA

1) Objectives

- To discuss the selection flow of pilot areas for the formulation of local-level detailed physical development plans (model plans) and typology of pilot areas.

2) Date

The Second Meeting for Local-Level Detailed Physical Development Plan with KCCA was held on 22nd June 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA, as well as online.

4) Participants

Seven members participated from the KCCA side. In addition, 11 members participated from the JICA Expert Team.

Positions of members who participated from KCCA side as follows:

- Ag. Director Physical Planning
- Physical Planner Makindye Division
- Physical Planner Nakawa Division
- Road Safety Engineer and Transport Planner
- GIS Officer
- Coordinator Physical Planner

5) Main Points of Discussion

- A specific and detailed flow for the selection of pilot areas and the typology were described by the JICA Expert Team.
- Ideas for new typologies to be added were presented e.g., preservation of wetlands.
- The KCCA side presented a strong awareness of problems related to urban slums and is concerned about possibilities of formulation and implementation of local-level detailed physical development plans to contribute to slum improvements.

(3) Third Meeting for Local-Level Detailed Physical Development Plan with KCCA

1) Objectives

- To Identify wards with characteristics consistent with the established typology within the KCC area by interviewing KCCA planners

2) Date

The Third Meeting for Local-Level Detailed Physical Development Plan with KCCA was held on 13th July 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA, as well as online.

4) Participants

Four members participated from the KCCA side. In addition, 10 members participated from the JICA Expert Team.

Positions of members who participated from KCCA side as follows:

- Physical Planner of KCCA Headquarters
- Physical Planner of Lubaga Division
- Physical Planner of Nakawa Division
- GIS Officer

5) Main Points of Discussion

- After the flow of the selection of pilot areas for detailed physical development plans (model plans) was mentioned, the previous discussions were reviewed and the JICA Expert Team explained the decided typologies and the working procedure for the day.
- The need for a new pilot area based on a different perception from the KPDP and the meaning and the purpose of detailed plans were discussed again.
- Wards with characteristics consistent with the typology for selection and considered high priority for planning were identified and extracted for five divisions in the Kampala Capital City area.

(4) Fourth Meeting for Local-Level Detailed Physical Development Plan with KCCA

1) Objectives

- To discuss candidate areas considered and set up by the JICA Expert Team based on the words obtained from the previous meeting
- To confirm the relationship between the scale of the detailed plan and the planning area between KCCA and the JICA Expert Team
- To discuss the direction of the planning standards and guidelines

2) Date

The Fourth Meeting for Local-Level Detailed Physical Development Plan with KCCA was held on 17th August 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA, as well as online.

4) Participants

Eight members participated from the KCCA side. In addition, nine members participated from the JICA Expert Team.

Positions of members who participated from KCCA side are as follows:

- Ag. Director Physical Planning of KCCA Headquarters
- Physical Planner of Central Division
- Physical Planner of Nakawa Division

- Physical Planner of Kawempe Division

5) Main Points of Discussion

- After the explanation of the selection flow again, the JICA Expert Team showed some notes on the planning scale and area, and then suggested candidate areas generated from the outputs of the previous meeting.
- For the selection of pilot areas, the future urban structure and road network must also be taken into account. In addition, to secure that, more engineers, directors and planners should be involved in meetings, which can also lead to training and capacity building.
- With regard to planning standards and guidelines, Uganda should incorporate the standards for density and specific land use permissions and prohibitions and so on contained in the Ghanaian planning document.

(5) Fifth Meeting for Local-Level Detailed Physical Development Plan with KCCA

1) Objectives

- To mutually confirm the flow of the pilot area selection and the discussions so far, and to share the contents of previous discussions with the new participants.
- To discuss candidate areas in Kampala Capital City proposed by KCCA, consisting of Kasubi ward, Lubya ward and Kikoni area.

2) Date

The fifth Meeting for Local-Level Detailed Physical Development Plan with KCCA was held on 19th October 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA, as well as online.

4) Participants

10 members participated from the KCCA side. In addition, nine members participated from JICA Expert Team.

Positions of members who participated from KCCA side are as follows:

- Ag. Director Physical Planning of KCCA Headquarters
- Physical Planner of Central Division
- Physical Planner of Nakawa Division
- Physical Planner of Kawempe Division

5) Main Points of Discussion

- As some participants from KCCA side were attending the meeting on the Local-Level Detailed PDP for the first time, the basic flow of the selection of the pilot area was explained again by JICA Expert Team. The KCCA officials then explained the current characteristics of the candidate areas proposed by their side.
- The criteria for selecting the pilot areas with the potential to become sub-centres or suburban centres in GKUGAs through the construction of new highways was proposed, and based on future plans for road development, attention to Busega and Lubya in the Rubaga Division of Kampala City was explained. From here, the possibility of setting up a pilot area, which would also include parts of Wakiso District was discussed.
- The KCCA side proposed to JICA Expert Team that the structure of the Kasubi and Lubya ward and the reasons for their selection would be reviewed and considered again, and the

results would be explained to JICA Expert Team.

(6) First Meeting for Local-Level Detailed Physical Development Plan with Wakiso District

1) Objectives

- To explain the selection flow and criteria of pilot areas for Local-Level Detailed Physical Development Planning (model planning) in the Project to Wakiso District from JICA Expert Team
- To share the progress of the meeting about the pilot area selection with KCCA,
- To discuss the idea which determines the pilot area for Local-Level PDP incorporating the part of Kampala Capital City area and Wakiso District area between Wakiso District and JICA Expert Team

2) Date

The first Meeting for Local-Level Detailed Physical Development Plan with Wakiso District was held on 21st October 2022.

3) Venue

The Meeting was held online.

4) Participants

Five members participated from the Wakiso District side. In addition, 11 members participated from the JICA Expert Team.

5) Main Points of Discussion

- After a sharing of the progress of the discussions with KCCA and the selection criteria of the pilot area for local-level detailed model PDP, the JICA Expert Team proposed the idea of establishing a pilot area in the area between KCCA and Wakiso District: the area around Busega at one end of the Mpigi-Kampala Expressway, and the area around Namanve Industrial area.
- After the explanation from the JICA Expert Team, Wakiso side provided two suggestions. The first was to add a part of Bulenga to the Busega and Kyengera candidate area, and the second was the area around Nakigalala to be a second candidate area, which is the connection point for the Southern Bypass and is being considered for a BRT route and the establishment of a new government campus.
- Related to the first suggestion, a concern was expressed from the Wakiso side that when more than one municipality is included in a pilot area for detailed PDP, some obstacles or difficulties might emerge in project implementation, including aspects such as administration, financing and monitoring. For this concern, the JICA Expert Team suggested that it might be useful to establish guidelines to assist such collaborative planning implementation effort.
- Related to the second suggestion, there could be a dilemma that if a BRT route or urban development takes place in the target area, this could lead to further road congestion and overcrowding in residential areas. The JICA Expert Team responded that some kind of development control measures need to be introduced.

(7) First Meeting for Local-Level Detailed Physical Development Plan with Mukono District

1) Objectives

- To explain the selection flow and criteria of pilot area for Local-Level Detailed Physical Development Planning in the Project to Mukono District from the JICA Expert Team

- To share the progress of the meeting about the pilot area selection with KCCA and Wakiso District.
- To discuss the idea which determines the one pilot area for Local-Level PDPs (model plans) incorporating the part of Kampala Capital City area and Mukono District area between the Mukono District and the JICA Expert Team.

2) Date

The first Meeting for Local-Level Detailed Physical Development Plan with Mukono District was held on 11th November 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA, as well as online.

4) Participants

Two members participated from the Mukono District side. In addition, 11 members participated from JICA Expert Team.

5) Main Points of Discussion

- The JICA Expert Team first explained to Mukono the criteria for the selection of the detailed PDP pilot areas and the current status of discussions with KCCA and Wakiso District. It was emphasized that of the four criteria presented here, the third of "Strategic importance in promoting Future Urban Structure" was recognized to be the most important.
- Mukono District side explained that Kisoga-Ntenjeru and Katosi are good sites for the promotion of urbanisation. These proposals were based on future plans for a ring road through southern part of Mukono.
- Information was also shared on the plans for Mpatta, where a large port is being considered, and Buzira Njovu Island, which is designated as a Spatial Planning Area by MoLHUD.
- It was agreed that the JICA Expert Team should visit the above areas, Bweyogerere-Namanve area and the surrounding areas of Kasenge-Namawojjolo when they arrive in Kampala in December 2022.

(8) Sixth Meeting for Local-Level Detailed Physical Development Plan with KCCA

1) Objectives

- To review the progress of previous meetings for the selection of pilot areas for the Local-Level Detailed PDPs (Model Plans).
- To share the results of the internal discussions of KCCA side on the re-selection of a candidate area in the western part of Kampala Capital City.
- Based on the results shared, to proceed with the discussion to narrow down and decide on the pilot areas for model planning.

2) Date

The sixth Meeting for Local-Level Detailed Physical Development Plan with KCCA was held on 7th December 2022.

3) Venue

The Meeting was held at the Physical Planning Boardroom, KCCA, as well as online.

4) Participants

10 members participated from the KCCA side. In addition, nine members participated from JICA Expert Team.

5) Main Points of Discussion

- At the last meeting, KCCA proposed an area including Makerere and Kasubi as a candidate area, but at this meeting Busega Area and Natete Area near a major expressway interchange of Northern Expressway and Kampala-Mpigi Expressway were proposed.
- JICA Expert Team stated that the KCCA's proposal was in line with current situation, given that the Busega-Kyengera area is designated as a Secondary Urban Centre and based on prior discussion with Wakiso District.
- The KCCA Team was also aware of the importance of jointly formulating a detailed PDP for Busega-Kyengera Secondary Urban Centre together with Wakiso District Local Government.

(9) Second Meeting for Local-Level Detailed Physical Development Plan with Wakiso District

1) Objectives

- To clarify the potential areas identified by the Wakiso District Planning Officer for a detailed PDP (model plan).
- To obtain more specific planning needs and considerations for the areas around Kyengera and Bulenga, which were raised in the previous meeting.

2) Date

The second Meeting for Local-Level Detailed Physical Development Plan with Wakiso District was held on 19th December 2022.

3) Venue

The Meeting was held at the Central Administrative Office of Wakiso District.

4) Participants

Five people participated from the Wakiso District side including the CAO, physical planners and engineer. In addition, six members participated from JICA Expert Team.

5) Main Points of Discussion

- For the area around Kyengera, Kabojja B and Nkokonjeru A and Kyengera Central were mentioned as specific wards. For the area around Bulenga, Nankuwadde and Sentema were indicated as possible extended areas. When developing these areas, the needs were found to consider the protection, conservation, and sustainable use of the Lubigi Wetland, and to improve the existing road network.
- The newly proposed areas are as follows: (i) Nakabugo and Ssumbwe in Wakiso subcounty, which is located away from the boundary with Kampala Capital City; (ii) Kasanje town council along the Kampala-Mpigi Expressway
- The need for a detailed plan for Kajjansi, where a new government campus is coming, was also mentioned again as a possible pilot site.
- Based on the discussions held in the two meetings, the JICA Expert Team and Wakiso District Local Government came to a conclusion that Kengera Area covering Kyengera, Bulenga、Ssumbwe、Kasenge Parishes is the selected pilot area for model detailed planning in Wakiso District.

(10) Second Meeting for Local-Level Detailed Physical Development Plan with Mukono District

1) Objectives

- To develop a general consensus on candidate pilot areas in relation to Jinja-Kampala Expressway for detailed model PDP in Mukono District.

- To identify specific needs of Mukono District in relation to the formulation of detailed model PDP
- To confirm the resources available in Mukono District for the formulation of detailed model PDP.

2) Date

The second Meeting for Local-Level Detailed Physical Development Plan with Mukono District was held on 20th December 2022.

3) Venue

The Meeting was held at the Central Administrative Office of Mukono District.

4) Participants

Three members participated from the Mukono District side including Deputy CAO and a physical planner. In addition, six members participated from JICA Expert Team.

5) Main Points of Discussion

- Based on field visits to some of the potential sites mentioned in the previous meeting, it was agreed that a detailed model PDP is needed to guide development and to avoid unorderly development, especially in Namataba Town Council.
- At the stage of the detailed model PDP formulation, it was requested by Mukono District to confirm the alignment of the proposed infrastructure, e.g. Jinja-Kampala Expressway, Standard Gauge Railway (SGR) and interchange area, and to integrate the wetland extent in the PDP and protect them from settlement encroachment.
- The Mukono side could provide resources for the detailed model PDP formulation, including Satellite image, Shapefiles of wetland and boundary, and information from Wetland Atlas.
- Apart from above, the Deputy Chief Administrative Officer of Mukono District expressed her appreciation for the work done so far on the GKMA-IUDMP project and future cooperation.

A.2.6 Study on Issues and Potential Projects

(1) Studies for Reviewing and Upgrading the Current KPDF and KPDP

Sector specialists and urban planning and development experts of the JICA Expert Team intensively conducted sectoral and urban studies toward the updating of the current KPDF and KPDP by staying in Kampala from 13th May to 29th June, 2022. The JICA Expert Team members came up with some ideas on possible measures and strategies in their technical assignments, and then they discussed the ideas on measures and strategies with their counterparts.

In October, a specialist of the transport infrastructure visited Uganda and held meetings with MoWT, URC, UNRA and technical officials from some municipalities, and conducted a site survey in Mpigi District. In the above meetings, the possibility of extending the railway, the provision of a new Matatu service was discussed, and then a review of the future transport network structure and the future urban structure was conducted. In addition, the road widths and public transport networks and these future scenarios were also studied in December.

(2) Study on Local-Level Detailed Physical Development Plans (Model Plans)

The JICA Expert Team members who are in charge of detailed planning conducted studies regarding the Local-Level Detailed Physical Development Plans (model plans) including the meeting with KCCA officers from June to August and the site seeing of the candidate area in KCC area during the staying at Kampala in June 2022.

In December, the JICA Expert Team members who were involved in the Local-Level Detailed PDPs visited the candidate sites for detailed physical development planning (model planning) and held a series of meetings with the relevant local entities, KCCA, Wakiso District and Mukono District, to discuss the needs and suitability of the candidate sites for the detailed planning. In addition, the preparation of land use planning base maps was carried out in parallel.

The drat guideline and manual currently being prepared by MoLHUD for the formulation of PDP was also reviewed.

A.3 Progress Made in Phase 3

A.3.1 Joint Coordinating Committee Meeting and Technical Working Group Meeting

(1) The Third Technical Working Group Meeting

The Third Technical Working Group (TWG) Meeting was held with TWG members under the chair of Ministry of Kampala Capital City & Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of Progress Report 2 (the second Study Report) for the Project
- To explain and generally agree on the amended schedule of the project
- To explain and generally agree on the amended future spatial structure
- To discuss and generally agree on the name of the future urban conurbation in Greater Kampala Metropolitan Area
- To explain and generally agree on the areas for model planning under the project

2) Date

The TWG Meeting was held on 16th March 2023.

3) Venue

The Third TWG Meeting was held at the Conference Hall, Office of the President, and online via Zoom

4) Participants

56 members participated from the Ugandan side, while 13 members participated from the JICA Uganda Office and the JICA Expert Team. Members who participated, excluding JICA, the JICA Expert Team are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Works and Transport (MoWT)
- Ministry of Local Government (MoLG)
- Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- National Environment Management Authority (NEMA)
- National Planning Authority (NPA)
- National Information Technology Authority Uganda (NITA-U)

Territorial Entities

- Kampala Capita City Authority (KCCA)
- Wakiso District

- Mukono District
- Mpigi District
- Katabi Town Council
- Wakiso Town Council
- Kajjansi Town Council
- Kyengera Town Council
- Kasangati Town council
- Mpigi Town Council
- Katosi Town Council
- Masulita Town Council
- Buwama Town Council
- Nansana Municipality
- Makindye Ssabagabo Municipality
- Kira Municipality
- Entebbe Municipality
- Mukono Municipality
- Kawempe Division

5) Main Points of Discussion

- Project Schedule: The TWG unanimously agreed for the extension of the project schedule, given the delays caused by the COVID-19 pandemic and the Ebola outbreak in Uganda.
- Three-Layer System of PDPs: The proposed three-layer system of PDPs and their plan contents were accepted. It is also agreed that the second layer of the Three-Layer System of PDPs should be called "Greater Kampala Urban Growth Area (GKUGA)".
- Target Years of PDPs: There was a consensus by members of TWG to revise the target years of three-layer PDPs. Suggested target years are;
  - GKMA-PDP: Year 2050
  - GKUGA-PDP: Year 2050
  - KCC-PDP: Year 2040
- Visions for the Project: The proposed Vision for GKMA/GKUGA should be prepared to satisfy the following conditions:
  - GKMA Integrated Urban Development Master Plan (GKMA-IUDMP) should support the operationalising of GKMA Economic Development Strategy.
- Pilot Areas for Model Planning: The following two comments/questions were raised:
  - Why the size of pilot model planning area in Kampala Capital City is smaller than that in Wakiso District and Mukono District?
  - Why Namanve Area was not selected as a pilot area for model local-level detailed planning?
- In response, the following three selection criteria are given as important elements for the model planning exercises:
  - Transformative nature of the areas
  - Proximity to expressway entrances/exits
  - Two different types of urban centres (secondary urban centre and suburban centre) are covered by the two pilot areas
- Spatial Structure for GKUGA, the Urban Centres and Population Framework:
  - Definition of Urban Sub-Centres and Suburban Centres: Some participants at the TWG meeting argued that there is no difference between an Urban Sub-Centre and a Suburban

Centres on the same corridor. However, this was observed to be a misunderstanding of economic geography. The definition of the proposed Suburban Centres was elaborated with a table that explains the Hierarchy of Urban Centres in GKMA and GKUGA. It was also agreed that Industrial growth corridors should be added in the table of Hierarchy.

  - The selected location and roles of suburban centres, such as Wakiso Town, Mukono Town, and Mpigi Town, were all understood by the participants.
  - Secondary Urban Centres: In the proposed spatial structure for GKUGA in Progress Report 2, there is no Secondary Urban Centres in the northern part of GKUGA. Therefore, the participants asked why no such proposal were made. In response, the JICA Expert Team indicated that at the moment, the proposed Secondary Urban Centres are selected depending on current high growth potentialities to support the Primary Urban Centres (CBDs).

- TOD Land Use Policy and Spatial Structure in GKUGA: Concerning BRT System on Expressways within GKUGA, the following two questions were asked.
  - Are there any TOD transit nodes outside GKUGA within GKMA?
  - Are BRTs on expressways are connecting KCC's CBD and Secondary Urban Centres with urban bus-centres and suburban centres within GKUGA?
- It was argued that a long-range planning should be done for securing lands for future large infrastructure for MRT/LRT infrastructure. At the same time, the JICA Expert Team considers it necessary to promote the development of public transportation network of BRTs on expressways in the short and medium terms.
- Target Population for BRTs (Target BRT Users) and TOD Land Use Policy: During the TWG meeting, it was argued that along expressways, there are not so many target users of BRTs. However, by applying densified mixed uses along BRT routes on expressways in a land use zoning plan, target users of BRTs should be induced along the expressways. This is a TOD land use policy.
- Wetlands: TWG member agreed that wetlands should be maintained as wetlands, and not changed to any other land uses in the general land use plan for Kampala Capital City. It was further added that it is acceptable or a good idea to put functions of tourism and recreations on wetlands.
- Informal Settlements: There was an opinion on the need to address problems of informal settlements in the land use policy for KCC. However, it was understood that it is not so easy for physical development plans or land use plans alone to tackle such problems.
- Lakeshore Development: The lakeshore area spans across KCC and the three districts so a question was asked as to how the area could be utilised in GKMA and GKUGA PDPs. The response was that the lakeshore should be developed in an attractive manner, such as for tourism, recreation, and marine sports.
- Tourism Circuits: it was agreed that the GKMA tourism circuits should be embedded in the spatial structure of GKMA or GKUGA.
- In conclusion, the following were also suggested by the TWG chair:
  - ICT hub consideration
  - Government Campus Headquarters at Bwebajja (Kajjansi Town Council)
  - Innovative utilisation for wetland conservation and development
  - Strategic interconnection/benefit of Mpigi being the less urbanised district
  - Consideration of other modes of transport i.e., water transport
  - Technologies for solid waste management

- Secure infrastructure/utility corridor and resource mobilisation, and land acquisition
- Political leadership engagements for GKMA and resource for coordination and implementation

(2) The Third Joint Coordinating Committee Meeting

The Third Joint Coordinating Committee (JCC) Meeting was held with JCC members under the chair of Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of the Progress Report 2 (the second Study Report) for the Project
- To share the discussions of the Third Technical Working Group (TWG) Meeting on 16th March 2023
- To explain and generally agree on the amended schedule of the project
- To explain and generally agree on the amended future spatial structure
- To discuss and agree on the name of the future urban conurbation in Greater Kampala Metropolitan Area
- To explain and confirm areas for model planning under the project

2) Date

The Third JCC Meeting was held on 17th March 2023

3) Venue

The JCC Meeting was held at the Conference Hall, Office of the President.

4) Participants

40 members participated from the Ugandan side. In addition, 18 members participated from the JICA headquarters, JICA Uganda Office and the JICA Expert Team. Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Office of the Prime Minister
- Ministry of Works and Transport
- Ministry of Local Government
- Ministry of Agriculture, Animal Industries and Fisheries
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- Ministry of Energy and Minerals Development
- National Planning Authority
- Uganda National Roads Authority
- National Environment Management Authority
- Uganda Investment Authority

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mukono District
- Mpigi District

- Kawempe Division
- Makindye Division
- Nakawa Division
- Nansana Municipality
- Makindye-Ssabagabo Municipality
- Entebbe Municipality
- Mukono Municipality

5) Main Points of Discussion

- The contents of the Progress Report 2 were explained by the JICA Expert Team and the contents were generally accepted by the members of JCC.
- Project Schedule: The JCC agreed that the project timeline has been affected by both the COVID-19 pandemic and Ebola Pandemic in Uganda, so the project schedule be extended to August 2024.
- Target Years of PDPs: The JCC agreed to amend the target years of the PDPs to be formulated in the Project as follows:
  - GKMA-PDP: Year 2050
  - GKUGA-PDP: Year 2050
  - KCC-PDP: Year 2040
- Name and Area of the Planning Area for the Second Layer of PDP: The second layer of the PDP was agreed to be called the "Greater Kampala Urban Growth Area" or "GKUGA" for short. This is the continuously urbanising area from Kampala Capital City to its surrounding. Additionally, the whole of Muduuma Sub County in Mpigi District was agreed to be included in GKUGA.
- Vision Statements for the Three-Layer System PDPs: it was agreed that each layer of PDP must have its vision statement since each has different characteristics. It was added that the vision of GKMA-IUDMP should support the operationalising of GKMA Economic Development Strategy.
- GKUGA's Spatial Structure: The spatial structure of GKUGA was generally accepted with the consideration of adding a secondary urban centre in the area around Matugga.
- The hierarchy of the urban centres in GKUGA was also generally accepted; subject to elaboration of definitions of centres and criteria for choosing the centres.
- Population Framework: The JICA Expert Team explained to the JCC members that the future population for GKMA and GKUGA should be set considering the effective measures for promoting industrial and urban development outside GKUGA.
- TOD and Spatial Structure: There was a consensus for proposed BRTs to utilise existing and proposed expressways but when demand increases, expressways should be widened to 6 lanes, and dedicated lanes for BRT should be established.
- General Land Use Policies for Kampala Capital City: JCC emphasised that wetlands should remain as wetland in the general land use plan for Kampala Capital City in order to prevent the illegal encroachment of other land uses into the wetlands.
- Model Planning Areas: The rationale and criteria for selection the two pilot areas for model planning for local-level detailed PDPs in Kyengera and Namataba was discussed and was accepted by all the JCC.

A.3.2 Meetings at District Level

Several kinds of meetings at the district level were held during Phase 3. In Mpigi District, a sensitisation meeting for the district council members and district technical officers was held, while in Kampala Capital City a sensitisation meeting for the senior technical officers of KCCA was held, and in Mukono District a stakeholders meetings were held.

(1) Sensitisation Meeting at Mpigi District

1) Objectives

- To explain the overall overview of GKMA-IUDMP project.
- To explain the Three-Layer System PDPs.
- To explain the selected Model Planning Areas for the projects
- To explain the institutional structure for the execution of the project activities, for which Mpigi district is a member.

2) Date

The Mpigi District Stakeholder Engagement Meeting was held on Tuesday, 07th March 2023.

3) Venue

The Meeting was held at the Council Chambers, District Local Government, Mpigi.

4) Participants

There were more than 40 participants that participated in the stakeholders meeting excluding the members of the JICA Expert Team. Some of the participants are listed below:

- Chief Administrative Officer
- Deputy Chief Administrative Officer
- Deputy Resident District Commissioner
- Senior District Environmental Officer
- District Physical Planner
- District Natural Resource Officer
- Assistant District Community Development Officer
- District Information officer
- District Internal Auditor
- District Councillor/Chairperson Finance and Administration Committee
- District Councillors for LCs
- Chairperson - LC 5
- District Clerk
- District Woman Councillor
- Representative - Resident District Commissioner
- Accountant - Natural Resource & Physical Planning
- District Senior Finance Officer
- Senior Human Resource Officer
- Planner – Urban Development and Housing, National Planning Authority

5) Main Points Discussed

The Expert Team gave a presentation on the scope and activities of the GKMA-IUDMP, and two main issues were discussed based on questions raised by some participants. The first was whether the plan would give guidance on the development of rural areas outside GKUGA and the second sought an explanation into whether the plan would provide information on houses that may be

affected by infrastructure projects. In response to the issues raised, the JICA Expert Team explained them through the following points:

- At the GKUGA level, the scale of the plan would make it possible to know the houses that may be affected by infrastructure projects. However, beyond the boundary of GKUGA, within GKMA, the scope is very schematic and can't be definitive on buildings that may be affected by infrastructure projects.
- For areas outside GKUGA, within GKMA, the plan makes proposals for other projects such as the need for market upgrade, location of new markets, and road improvement strategies.

(2) Sensitisation Meeting with Senior Management Officers of Kampala Capital City Authority

1) Objectives

- To explain the overall overview of GKMA-IUDMP project.
- To explain the Three-Layer System PDPs
- To explain the Land Use Policies for Kampala Capital City
- To explain the selected Model Planning Areas for the projects
- To explain the Transportation Policies for the project

2) Date

The engagement meeting with the Senior Management Officers of KCCA took place on 14th March 2023.

3) Venue

The meeting was held at the Mayor's Parlor, KCCA.

4) Participants

Participants were from the following offices.

- Office of the Executive Director
- Directorate of Physical Planning
- Directorate of Engineering and Technical Services
- Directorate of Internal Audit

5) Main Points of Discussion

- The importance of coordination among other MDAs (such as MoWT and MoF) and LGs for the implementation of the plan were stressed.
- There was also a comment on KCCA Act that this has been the cause to the coordination issue at the metropolitan level. KCCA Act should not include the content on planning at the metropolitan level, but rather this should be stated by a different Act.
- There were other comments that the coordination at the metropolitan level has been causing the difficulty usually incurred in implementing infrastructure such as BRT.
- There was also a strong opinion that Wetland should remain as wetland on the land use plan.
- However, there was also a comment that the untouched areas along the lake should be developed.
- There were comments about the necessity of amending the land act on land acquisition for public interest.
- Some concerns about the landfill site for GKUGA were raised.
- There was a suggestion population projection shouldn't on be nighttime population but also daytime population.

(3) Mukono District Stakeholders Meeting

1) Date

The Mukono District Stakeholders Meeting was held on Thursday, 23rd March 2023.

2) Venue

The Meeting was held at the Mukono District Headquarters Council Hall.

3) Participants

Participants for the Mukono District stakeholder' meeting were grouped into three to deliberate on the issues of development concerns raised during the presentation, as well as provide inputs to the proposed spatial structure. The participants include:

- Speaker - Nakisunga Sub-County
- Speaker - Mukono District
- Deputy Speaker - Mukono District Local Government
- 20 Councillors from Mukono Municipal Council
- 10 Councillors from Mukono District Council
- Chairperson of LC 3 - Kasawo Town Council
- Elder, Namataba Town Council
- Town Clerk - Ntenjeru-Kisoga
- Senior Assistant Secretary (SAS) - Kasawo Subcounty
- Senior Assistant Secretary (SAS) - Mukono District
- Secretary Finance and Planning - Mukono District
- Physical Planner - Nakifuma-Naggalama Town Council
- Physical Planner - Mukono Municipal Council
- Physical Planner - Katosi Town Council
- Researcher / Program Coordinator - Advocates Coalition for Development and Environment (ACODE)
- Chairperson Mukono District Muslim Youth Council E/B
- Representative – People with Disabilities (PWDs)
- Chairperson Works Committee - Mukono District
- Representative, SACAO – Mukono District
- Representative, Red Cross Society – Mukono
- Representative, Mukono District Youth Council
- JICA Expert Team members

4) Main Points of Discussion

Participants discussed their perceived negative and positive aspects of the proposed spatial structure for GKMA, and especially the proposals within Mukono District in GKMA. To this regard, there was a general consensus that that, the spatial structure would promote orderly development and enhance integrated urban development in the district because the urban centres are well distributed. Furthermore, the participants indicted that the proposed spatial structure would promote infrastructure development within the district. However, they highlighted that, the proposed spatial structure may enhance the possibility that authorities may implement the plans by focusing the development of infrastructure only in the urban centres proposed within the major urban and industrial corridors to the detriment of other urban centres. Additionally, some participants had the view that, the proposed spatial structure may instigate problems such as traffic congestion, environmental degradation, displacement of the poor and further cause pressure infrastructure due to population increase that may be caused by the urban centres. Beside the above,

the participants made the following suggestions to be incorporated in the spatial structure if possible.

- The industrial corridor proposed in Mukono District should consider the neighbouring Buikwe District along the Jinja highway after Namagunga, because the district has several industries such as steel factories.
- The JICA Expert team should also consider Non-Motorized Transport on certain roads in the district.

Additionally, the participants suggested that strategies must be put in place to improve the following road networks to enhance the spatial structure.

- Jokas-Namilyango-UCU-Mukono Road (Old Jinja Road)
- Seeta-Bajjo-Ntawo-Nasuuti Road
- Seeta-Bukerere-Kiyunga Road
- Kisenyi-Katikolo Road
- Namataba-Nakaseeta-Kanyogoga-Mayangayanga-Nakifuma Road
- Kayanja-Seeta Nazigo- Nakayaga Kisoga Road

Furthermore, there were suggestion for additional areas to be considered as urban centres in the district. They include Suburban Centres in Kisoga, Seeta, Kasawo, Kyetume, and Nakifuma. Others include Service Centres in Mbalala, Kateete, Kabembe and Mpunge.

A.4 Progress Made in Phase 4

A.4.1 Joint Coordinating Committee Meeting and Technical Working Group Meeting

(1) The Fourth Technical Working Group Meeting

The Fourth Technical Working Group (TWG) Meeting was held with TWG members under the chair of Ministry of Kampala Capital City & Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of Progress Report 3 (the third Study Report) for the Project
- To discuss about Land Use Plans being formulated at GKMA, GKUGA, KCCA and Local level.
- To discuss introduction of LRT and MRT in addition to BRT in transport planning, based on traffic demand forecasts.
- To explain the need for an implementation framework and have an initial discussion
- To explain and generally agree on the purpose of capacity development for physical development planning and its approach

2) Date

The TWG Meeting was held on 24th August 2023.

3) Venue

The Fourth TWG Meeting was held at the Conference Hall, Office of the President.

4) Participants

23 members participated from the Ugandan side, while 17 members participated from the JICA Uganda Office and the JICA Expert Team. Members who participated, excluding JICA, the JICA Expert Team are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Works and Transport (MoWT)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Local Government (MoLG)
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- National Planning Authority (NPA)

Territorial Entities

- Kampala Capita City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Buwama Town Council
- Kayabwe Town Council
- Makindye Ssabagabo Municipality
- Kira Municipality
- Entebbe Municipality
- Mukono Municipality

5) Main Points of Discussion

- Visions for the master plan: There was an opinion that visions for the master plan needs to capture key issues but at the same time be brief enough so that people can remember.
- Institutional Framework: It was agreed that the newly established Planning Department of MKCC&MA shall work with LGs and Entities as the Institutional Framework for project implementation. The following three comments were raised:
  - MoLHUD is to send staff to the MKCC&MA to set up a structure for implementation.
  - Regarding the membership of the committee, 9 entities should be involved, including 5 Municipalities in addition to the 4 LGs.
  - The roles and responsibilities of the Planning Department of the MKCC&MA should be clarified.
  - The government does not envision setting up a new organization to implement the new.
- Urban Centres: The participants agreed on the new proposed Metropolitan Centres as Urban Centres. The following three comments were identified.
  - The Terminology of Urban Centres needs to be clearly stated for future explanation.
  - Within Kampala Capital City, the current residential land use could be converted to CBD use, and residential areas could be relocated to the suburban area.
  - Entebbe is currently considered a Sub-urban Centre but should be placed above Suburban Centres as it was once the capital city and has been decided to become a "City".
- In response, it was clarified that planned introduction of multiple expressways and the prospect of future development are given as important elements for the Suburban Centre selection.
- Lakefront Development: The importance of a strategy dedicated to lakefront conservation and development was shared, and an understanding was expressed regarding the policy of regulating the use of the 200 m from the lakeshore, rather than taking away ownership of the land.
- Public Transport: The importance of TOD development was emphasized by meeting participants, and following three comments were raised.

  - ➢ It should be considered installing LRT in the area from Kampala Capital City to the south.
  - ➢ Water transportation should be given more importance.
  - ➢ Railway should be introduced in Mpigi district where two suburban centres were located.
- Industrial Development: It was argued that JICA Expert Team should advise on where and how to relocate the industry should to suburban area.
- Detailed PDPs: should be prioritized in the project and implemented promptly because of the expected budget from the World Bank.
- Capacity Building: A participant suggested that capacity building should include the implementation of a GIS system so that municipalities would be able to manage and track the implementation of PDPs.
- In response, the direction was given to implement a capacity building program that would ensure that urban planners can work together with GIS person without having to purchase expensive GIS software for urban planning.

A.4.2 Sub-Technical Working Group Meetings

(1) The First Sub-Technical Working Group Meeting 2: Environment, Wetland, Drainage and Land Use

The Sub-Technical Working Group (Sub-TWG) Meeting 2 was held under the chair of Ministry of Water & Environment (MWE) and the deputy chair of Ministry of Lands, Housing and Urban Development (MoLHUD).

1) Objectives

- To discuss on actual strategies, plans and projects for environment, wetland, drainage, and land use.
- To discuss the following substantial themes: How to transform degraded wetlands into green open spaces? / How to enforce development control for wetland conservation? / How to promote nature-based eco-tourism?

2) Date

The Sub-TWG Meeting 2 was held on 22nd August 2023

3) Venue

The Sub-TWG Meeting 2 was held in the Committee Room, Office of the President

4) Participants

44 members participated from the Ugandan side. In addition, 13 members participated from the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Water & Environment (MWE)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- National Planning Authority (NPA)
- Uganda National Roads Authority (UNRA)
- Uganda Investment Authority (UIA)

Territorial Entities

- Wakiso District

- Mpigi District
- Mukono District
- Nansana Municipality
- Mukono Municipality
- Entebbe Municipality
- Kira Municipality
- Makindye Ssabagabo Municipality
- Kakibi Town Council
- Kakiri Town Council
- Kajjansi Town Council
- Wakiso Town Council
- Kasangati Town Council
- Katosi Town Council
- Kisoga Ntenjeru Town Council
- Namayumba Town Council

5) Main Points of Discussion

JICA Expert Team gave presentations on the latest future spatial structures and the preliminary ideas on conservation and utilization of wetlands.

Suggestions were made by participants on how to use and conserve wetlands, and information was shared on the current status and challenges of wetlands.

It was suggested that there is need to establish collaborative wetland management system.

The need for continued meetings to share information was identified, and participants discussed on how to have more intensive discussions in the Sub-TWG 2.

(2) The Fourth Sub-Technical Working Group Meeting 1: Transportation and Land Use

The Sub-Technical Working Group (Sub-TWG) Meeting 1 was held under the chair of Ministry of Works and Transport (MoWT) and the deputy chair of Ministry of Lands, Housing and Urban Development (MoLHUD).

1) Objectives

- To explain the updated future spatial structure for GKMA, GKUGA and KCC
- To share the preliminary result of travel demand model development
- To share the preliminary ideas on phased development and projects for transport sector
- To discuss on the desirable transport modes and routes for public transport to satisfy increasing transport demand for exceeding BRT capacities in GKUGA.

2) Date

The Sub-TWG Meeting 1 was held on 24th August 2023

3) Venue

The Sub-TWG Meeting 1 was held in the Library Conference Hall, Office of the President

4) Participants

23 members participated from the Ugandan side. In addition, 15 members participated from the JICA Expert Team.

Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Works and Transport (MoWT)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Uganda Railway Corporation (URC)
- National Planning Authority (NPA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mpigi District
- Nansana Municipality
- Entebbe Municipality
- Kira Municipality
- Makindye Ssabagabo Municipality
- Kakibi Town Council
- Buwama Town Council
- Kayabwe Town Council
- Katosi Town Council
- Kisoga Ntenjeru Town Council

5) Main Points of Discussion

JICA Expert Team gave presentations on the latest spatial structures and the preliminary ideas on phased development and projects for transport sector.

The idea of BRT on expressway and the timeline for proposed development projects was unanimously agreed.

For sections exceeding the BRT capacity, the upgrading of conventional railway and establishment of MRT/LRT are planned.

A.4.3 Meetings at the District Level

Stakeholders meetings were held in Mpigi District, Wakiso District and Kampala Capital City during Phase 4.

(1) Mpigi District Stakeholders Meeting

1) Date

The Mpigi District Stakeholders Meeting was held on Thursday, 11th August 2023.

2) Venue

The Meeting was held at the Mpigi Council Chambers.

3) Participants

Participants for the Mpigi District stakeholder' meeting were grouped into three to deliberate on the issues of development concerns raised during the presentation, as well as provide inputs to the proposed spatial structure. The participants include:

- Vice Mayor -Mpigi District
- Deputy Chief Administration Officer (DCAO) Mpigi District
- District Natural Resource Officer-Mpigi District
- District Engineer- Mpigi District
- Physical Planners- Mpigi District

- District Community Development Officer Mpigi District
- Chief Financial Officer Mpigi District
- Senior Community Development Officer
- Senior Procurement Officer -Mpigi District
- Senior Education Officer-Mpigi District
- Labour Officer Mpigi District
- Deputy District Internal Security Officer
- Information Officer
- Assistant Secretary-Mpigi District
- Coordinator -Mpigi District NGO Forum
- Councillors Mpigi District
- Deputy Mayor Kayabwe Town Council
- Executive Director -Answered World Wide
- Representative for Chairman LIII Buwama Sub-county
- Senior Assistant Secretary Kiringente Sub County, Buwama Sub County, Mudumma Sub County, Kamengo Sub County
- Rep. Town clerk -Kayabwe Toun Council
- District Internal Security Officer (DISO)- Mpigi District
- Women Councillor -Kituntu
- Economist for Town Clerk -Buwama Toun Council
- Project Assistant Mpigi Women With Disabilities Association
- Chairperson -Mpigi Private Sector Forum
- Secretary -Christian Uganda Limited
- Resident District Commissioner (RDC)
- Secretary - Suubi Development Link
- Secretary for Works-Mpigi Town Council
- Secretary Production- Mpigi District
- Secretary Finance Mpigi District
- Councillor -Muduuma
- Chairman LCIII Muduuma Subcounty
- Representative- Office of District Community Development Officer
- Chairperson Youth Mpigi Development Association
- Coordinator DFA
- Coordinator -Help the Sick (HES)
- Personal Assistant -MoKCC& MA
- Physical and Urban Development Planning -National Planning AuthorityJICA Expert Team Members

4) Main Points of Discussion

After presentation about outline and status of the project and GKUGA's Spatial Structure, participants discussed the good aspects and bad aspects of the selected urban spatial structure for GKUGA. On the positive side, there was general agreement that the spatial structure of the GKUKA would facilitate orderly development and help the development of Mpigi district in harmony with the GKMA area. There was also an understanding of the idea of locating the industrial centre outside the GKUKA. On the negative side, with regard to the rating of the centre, some commenters pointed out that Metropolitan Centre is not located in Mpigi District. It was also argued that the proposal should include promoting tourism in the Ramsar wetlands in Mpigi District through the development of international water transportation.

Other proposals of locations for centres, industrial potential areas and arterial roads for development were raised as follows.

- Location Proposed as Centres
  - Suburban Centre; Buwama, Kayabwe, Katende and Nakirebe
  - Strategic Centre; Katende and Kamengo
  - Service Centre; Katend, Lalagola Nakirebe
  - Any kinds of Centre; Nkozi, Nakilebe and Jjezza
- Proposed industrial potential areas; Lufuka and Kayabwe
- Proposed arterial roads for development; Mpigi – Muduuma road, Bujjuko -Katende-Kajjansi road, Nakilebe- Buyala road, Mpigi-Muduuma road**,** Kibukuta – Kituntu road, Katonga- Golo Road, Kiringente- Mpigi TC, Mitala Maria- Jalamba, Kamengo - Buvumbo landing site road, Kikuyu- - Kibango road, Bugaya-Kitebo road, Nakirebe – Sekiwunga – Buyala road, Mbale – Mpigi Town Council road, Kalagala - Kasanje Entebbe route

(2) Wakiso District Stakeholders Meeting

1) Date

The Wakiso District Stakeholders Meeting was held on Tuesday, 16th August 2023.

2) Venue

The Meeting was held at the Wakiso Council Chambers.

3) Participants

Participants for the Wakiso District stakeholders meeting were as follows:

- Chief Administrative Officer-Wakiso District
- Senior Commercial Officer -Wakiso District
- Physical Planners-Wakiso District
- Physical Planner -Kakiri Town Council, Namayumba Town Council
- Women Councillor-Wakiso District
- Town Engineer-Wakiso District
- Tourism Officer-Wakiso District
- District Production Officer-Wakiso District
- District Community Development Officer -Wakiso District
- Project Coordinator -Development & Relief Initiative Uganda
- Councillor Kasangati A Town Council, Kasangati B Town Council, Kasangati 2 Town Council, Kasangati 1 Town Council, Bweyogerere Town Council, Kakiri Town Council, Bukasa Town Council, Kajjansi Town Council, Katabi Town Council
- Vice Chairperson -Wakiso District
- Chairperson Works Committee-Wakiso District
- District Agricultural Officers -Wakiso District
- Chairperson Finance Planning & General Duties-Wakiso District
- Senior Physical Planner -Nansana Municipal Council
- Senior Environment Officer-Wakiso District
- Member of Parliament- Entebbe
- Town Clerk -Wakiso Town Council, Kasangati Town Council, Kasanje Town Council
- Commercial Officer-Wakiso District
- Community Development officer -Kakiri Town Council

- Senior Health Inspector-Kasangati Town Council
- Town Agent (Rep.) Town Clerk -Namayumba Town Council
- Secretary Production-Wakiso District
- Secretary Health & Education-Wakiso District
- Population Officer-Wakiso District
- Project Officer-Wakiso District
- Social Worker-Mercy Child Home
- Member of Parliament -Kyadondo East
- Environmental Officer-Wakiso District
- Senior Engineer-Wakiso District
- Assistant District Health Officer-Wakiso District
- Town Engineer -Kasangati Town Council, Wakiso Town Council
- Physical Planner -Katabi Town Council
- Councillor-People With Disabilities (PWD)
- Chairperson Natural Resources-Wakiso District
- Deputy Speaker -Wakiso District
- Secretary for Gender-District
- Chairperson Health, Education, & Social Services
- Senior Physical Planner -Entebbe Municipality
- Wetlands Officer- Wakiso District
- Assistant Secretaries-MKCC&MA
- Physical Planners -National Planning Authority
- JICA Expert Team Members

4) Main Points of Discussion

After presentation about the project outline and key points of the master plan including GKUGA's Spatial Structure, participants were divided into four groups. Then group discussions were held concerning the good aspects and bad aspects of the proposed/selected urban spatial structure for GKUGA. On the positive side, it was noted that the proposed multipole spatial structure would contribute to reducing traffic congestion and providing urban services. They also commented that ecological and environmental issues were well considered in the Spatial Structure proposal.

As concerns, it was noted that although the city is more rapidly urbanized than Kampala in terms of both area and population, Wakiso District is still positioned as a Rural District, and as a result, infrastructure and facilities are lagging behind. Participants also discussed the need for thoughtful consideration of funding, land ownership, community relocation, and waste management when implementing plans based on the proposed spatial structure.

Other proposals of locations for centres, industrial potential areas and arterial roads for development were raised as follows.

- Location Proposed as Centres
  - Metropolitan Centre: Entebbe
  - Suburban Centre: Boluba
  - Strategic Centre: Bussi
- Proposed industrial potential areas: Masulita and Mende
- Proposed arterial roads for development: Entebbe (Nakiwogo Landing Site) – Buwaya Landing Site - Kasanjje – Mpigi road, Bussi – Kasanje road, Sentema-Kakiri Expressway, Kira – Kasangati – Matuga – Wakiso – Buloba – Nsangi road

(3) Political Leaders Stakeholders Meeting for Kampala Capital City

1) Date

For the Kampala Capital City, a Stakeholders Meeting was held for political leaders, as well as for high-ranking officers of KCCA, on Thursday, 18th August 2023.

2) Venue

The Meeting was held at Hotel Africana.

3) Participants

Participants for the Kampala Capital City's Stakeholders Meeting were as follows:

- Lord Mayor-KCCA
- Deputy Lord Mayor-KCCA
- Mayor -Lubaga Division
- Mayor -Makindye Division
- Mayor- Nakawa Division
- Executive Secretary -Public Health-KCCA
- Executive Secretary for Works &Physical Planning-KCCA
- Authority Speaker-KCCA
- Executive Secretary Finance and Administration-KCCA
- Deputy Authority Speaker-KCCA
- Personal Assistant to Speaker-KCCA
- Personal Assistant Deputy Lord Mayor-KCCA
- Human Settlement Officer -KCCA Headquarters
- Economist-Economic Policy Research Centre
- Supervisor Drainage Development-KCCA
- Representative for Mayor Uhuru-KCCA-Central Division
- Officer Financial Reporting-KCCA Headquarters
- Deputy Director Treasury Services-KCCA Headquarters
- Licensor of Lord Mayor-KCCA
- Deputy Director Strategy-KCCA
- Physical Planner-KCCA-Central Division
- Physical Planner -Kawempe Division
- Supervisor Human Settlement-KCCA
- Deputy Director Gender Welfare and Community Service-KCCA
- Manager Research and Strategy-KCCA
- Ag. Manager Roads & Drainage Maintenance-KCCA
- Senior Assistant Secretary-MKCC&MA
- Town Clerk -KCCA -Central Division
- Chairperson -Directorate of Engineering and Technical Services
- Ag. Supervisor Technical Review Team-KCCA
- Communications (Public Relations) -KCCA
- Supervisor Revenue-KCCA
- Supervisor Internal Audit-KCCA
- Compliance Officer-KCCA
- Director Administration and Human Resource-KCCA
- Supervisor Roads Development-KCCA
- Director Public Health & Environment-KCCA

- Forester -KCCA
- Personal Assistant -Mayor Kawempe
- Forester -Makindye Division
- Forester-Kawempe Division
- Forester-Central Division
- Ag. Town Clerk -Makindye Division
- Landscape Officer-KCCA
- Ag. Supervisor Geographical Information System-KCCA
- Ag. Deputy Director Physical Planning-KCCA
- Architect-KCCA
- Undersecretary-MKCC&MA
- JICA Expert Members

4) Main Points of Discussion

After presentation about the project outline and key points of the master plan, participants divided into four group and discussed following topics.

- Whether CBD expansion in Kampala Capital City is necessary, and where and how
- What land use regulatory system is needed for lakefront development
- Preservation of historic architecture

It was unanimously agreed that the CBD area needs to be expanded because of its many benefits, including improved services to citizens, promotion of economic activity, and reduced traffic congestion. It was also generally agreed that some sort of land use regulations or zoning rules are needed for the expansion of the CBD. Participants suggested relocating government agencies currently located within the CBD, informing citizens of the need for CBD expansion, and establishing a land fund and so on. Since all possible proposals for the scope of the extension were made and no conclusion was reached, it was recognized that there is a need to continue the discussion among the stakeholders.

Regarding land use regulations for the lakeshore, it was proposed that a detailed plan be developed and that a buffer zone be established 200 meters from the lakeshore to provide compensation to landowners.

As a measure to enable the preservation of historic buildings, it was suggested that experts be placed within KCCA and that a system for public notice and maintenance of historic buildings be established.

A.4.4 Multi-Sectoral Technical Committee Meeting for SEA

(1) Second Multi-Sectoral Technical Committee Meeting for SEA

A Multi-Sectoral-Technical-Committee (MSTC) was held as a second step to take forward for the SEA study for the project, and consultations were held to approve the scoping report.

1) Objectives

- To review the contents of SEA Scoping Report prepared by the MKCC & MA with support from JICA Expert Team
- To decide whether to approve Scoping Report before proceeding to the next step of Strategic Environmental Assessment

2) Date

The Second Multi-Sectoral Technical Committee Meeting for SEA was held on 22nd August 2023

3) Venue

The Second Multi-Sectoral Technical Committee Meeting for SEA was held at the Committee Room, Office of the President.

4) Participants

11 members participated from the Ugandan side. In addition, eight members participated from the JICA Expert Team. Also, two participants joined from local consulting farm which commissioned to work on SEA.

Participants, excluding the JICA Expert Team and SEA consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Tourism, Wildlife and Antiquities (MoTWA)
- National Environment Management Authority (NEMA)
- Ministry of Energy and Mineral Development (MoEMD)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Mukono District
- Kira Municipality

5) Main Points of Discussion

- The status and outline of GKMA-IUDMP project, as well as GKUGA Spatial Structure Alternatives were explained by JICA Expert Team. Then contents of the SEA Scoping Report were presented by the Local Consultant for SEA.
- The SEA Scoping Report was tentatively approved subject to gathering comments from committee members and finalizing it accordingly.
- In discussion held after the presentations, some comments and questions on the project, SEA study and scoping report were delivered from the MSTC members.
- It was decided to consider that the comparison of spatial structure alternatives be done for each layer, including GKMA and KCC, as well as GKUGA, as a hierarchy to be compared.

A.4.5 Stakeholder Consultation Meeting for SEA

The Second Stakeholder Consultation Meeting for SEA was held After tentative approval of the Scoping Report at the Third MSTC Meeting.

(1) Second Stakeholder Consultation Meeting for SEA

The Second Stakeholder Consultation Meeting for SEA was held under the chair of Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To explain the four GKUGA Spatial Structure Alternatives and the comparison of alternatives through an initial environmental impact assessment.
- To have group discussion and exchange of ideas among participants on the environmental and social impacts of each alternative

2) Date

The Meeting was held on 31st August 2023.

3) Venue

The Meeting was held at Hotel Africana.

4) Participants

47 members participated from the Ugandan side. In addition, 14 members participated from the JICA Expert Team. Also, 9 participants joined from the local consulting farm which was commissioned to work on SEA.

Participants, excluding the JICA Expert Team and consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Local Government (MoLG)
- Ministry of Water and Environment (MWE)
- Ministry of Gender, Labour and Social Development (MoGLSD)
- Ministry of Works and Transport (MoWT)
- Ministry of Energy and Mineral Development (MoEMD)
- National Environment Management Authority (NEMA)
- National Water and Sewerage Corporation (NWSC)
- Uganda Railway Cooperation (URC)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Kira Municipality
- Mukono Municipality
- Nansana Municipality
- Entebbe Municipality
- Katosi Town Council
- Katabi Town Council
- Namataba Town Council
- Kawempe Division
- Makindye Division

Non-government Entities

- Uganda Manufactures Association
- Uganda Small Scale Industries Association
- Uganda Association for Impact Assessment
- Uganda Society of Architects
- Uganda Road Fund
- Uganda National Chamber of Commerce and Industry
- Buganda Kingdom
- ACTogether Uganda

5) Main Points of Discussion

After a description of the status and outline of the project, the four alternatives of GKUGA Spatial Structure, and the comparison of alternatives through an initial environmental impact assessment, questions, comments, and opinions were presented by many participants on various aspects of the project. MKCC and MA, the JICA Expert Team and the SEA consultant responded to these.

As the end of the meeting, discussion and evaluation were held on the possible positive and negative impacts for different categories if each alternative was selected. The participants were divided into four groups, with one group responsible for one alternative, after which each team's evaluation of the alternatives was shared with the entire participants.

A.4.6 Capacity Development Activities (Training Sessions)

Capacity Development Activities were conducted for the formulation of Local-Level Detailed Physical Development Plans (PDPs).

(1) In-Person Training for Metropolitan Planning and Detailed PDP on the 30th of August 2023 (First Training Session)

1) Objectives

The Training had mainly the following two objectives:

- To provide not only basic ways of thinking in metropolitan planning, but also practical tools for planning
- To make the participants "real planners" who are able to formulate plans, rather than those who can only comment on plans and planning

2) Date

The Training was held on 30th August 2023.

3) Venue

The Training was held at Training Room, BMK House in Kampala Capital City.

4) Participants

A total of 30 participants from MDAs and Territorial Entities attended.

30 members participated from MDAs and Territorial Entities. In addition, 11 members from the JICA Expert Team supported participants.

Participants are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority (NPA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Kira Municipality
- Mukono Municipality
- Nansana Municipality
- Entebbe Municipality
- Makindye-Ssabagabo Municipality
- Kyengera Town
- Wakiso Town
- Mpigi Town

5) Programme of Training

Lectures on metropolitan planning, and detailed planning were given.

The contents of the hands-on training are as follows:

- Hands-on training on how to calculate population growth rates and ratios using Excel was provided. It was explained to the participants that the concentration of population in the metropolitan area and the comparison of population growth rates by region can be used to examine where within the metropolitan area population growth is expected to occur.
- Using Google Earth Pro, a free GIS software programme, the participants were trained on how to check for changes in urbanisation; how to create point, line and polygon data; how to exchange data with GIS staff; how to display shapefiles; and how to check elevation data.

(2) Online Training for Metropolitan Planning on the 30th of November 2023 (Second Training Session)

1) Objectives

The Training mainly had two objectives as follows:

- To make an opportunity to recap the content of the first training held in August 2023
- To provide further explanation of metropolitan planning and specifics of the zoning system

2) Date

The Training was held on 30th November 2023.

3) Venue

The Training was held online.

4) Participants

A total of 23 members from MDAs and Territorial Entities participated, of which 17 attended physically at BMK House. On the JICA side, four participants, including the lecturer, participated online and five supported the participants at BMK House.

Participants are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority (NPA)
- Ministry of Local Government (MoLG)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Mukono Municipality
- Nansana Municipality
- Entebbe Municipality
- Kyengera Town
- Wakiso Town
- Mpigi Town

5) Programme of Training

Lectures were given on population and urban functions in metropolitan planning, and zoning systems for land use regulation. Also, it was explained how to develop a general land use plan.

Training was provided on how to calculate floor area ratio (FAR) and building coverage ratio (BCR), which are key components of the zoning system.

(3) In Person and Online Training (Hybrid Meeting) on Detailed PDP on 13th December 2023 (Third Training Session)

1) Objective

To gain a better understanding of specific points about formulating detailed physical development plans

2) Date

The training programme was held on the 13th December 2023.

3) Venue

The training programme was held at JICA Kyushu Centre, BMK House in Kampala City, and online.

4) Participants

A total of 37 officers from MDAs and local government entities participated in the training. Among them, 14 physically participated at the JICA Kyushu Centre, and 17 joined physically at BMK House, and 6 attended online. From the JICA expert team, five members participated at JICA Kyushu Center and five at BMK house apartment.

Participants are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority (NPA)
- Ministry of Local Government (MoLG)
- Ministry of Kampala Capital City and Metropolitan Affairs (MMKCC&MA)
- Uganda National Roads Authority (UNRA)
- Uganda Railway Corporation (URC)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Mukono Municipality
- Nansana Municipality
- Entebbe Municipality
- Kira Municipality
- Kyengera Town
- Kajjansi Town
- Mpigi Town

5) Programme of Training

A lecture was given on the land use zoning system and its role in development control of detailed plans. It was also explained how to develop a detailed PDP from the regional plan, by dividing the process into steps.

Using Google Earth Pro, the participants were trained on how to input, edit, and share spatial information, as well as how to stand up specific icons and draw circles. It was explained that using GIS software is an important technique for GIS officers and physical development planners to work together to develop detailed PDP.

6) Remarks

This training workshop was held during the Second Study Tour in Japan (December 4-14, 2023), which was also conducted as part of GKMA-IUDMP.

A.5 Progress Made in Phase 5

A.5.1 Joint Coordinating Committee Meeting and Technical Working Group Meeting

(1) The Fifth Technical Working Group Meeting

The Fifth Technical Working Group (TWG) Meeting was held with TWG members under the chair of Ministry of Kampala Capital City & Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of Interim Report for the Project, including Overall Strategies for GKMA, Phased Development Plan, Institutional Framework, and Local - Level Detailed PDPs.
- To discuss the revised GKMA Vision.

- To explain the results of the traffic demand forecast for the year 2050 and to describe the proposed phased development plan in the field of transport.
- To discuss the establishment and structure of the Technical Coordination Group.

2) Date

The Fifth TWG Meeting was held on 27th February 2024.

3) Venue

The Fifth TWG Meeting was held at the Conference Hall, Office of the President.

4) Participants

41 members participated from the Ugandan side, while 17 members participated from the JICA Uganda Office and the JICA Expert Team. Members who participated, excluding JICA, the JICA Expert Team are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Works and Transport
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Water and Environment
- Ministry of Local Government
- Ministry of Agriculture animal Industries and Fisheries
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- National Planning Authority
- Uganda Railways Corporation

Territorial Entities

- Kampala Capita City Authority
- Wakiso District
- Mukono District
- Mpigi District
- Makindye Ssabagabo Municipality
- Kira Municipality
- Entebbe Municipality
- Mukono Municipality
- Nansana Municipality
- Kampala Central Division
- Kawempe Division
- Katabi Town Council
- Namayumba Town Council
- Katosi Town Council
- Masulita Town Council

5) Main Points of Discussion

- Visions for the master plan (GKMA-IUDMP): It was agreed that Visions should be short like "Liveable and Sustainable GKMA" or "A liveable and Sustainable Metropolitan Area as a Regional hub".
- Overall Strategies: It was argued that strategies for implementation should be made understandable or classified implementable phases for Immediate/ short-term, medium-term and long-term strategies that can have direct policy implementation.
- Technical Coordination Committee for Coordinating and Collaborating the Implementation of the Master Plan: The establishment of the technical coordination committee was generally agreed. In addition, there was a proposal to include the Ministry of Finance Planning and Economic Development (MFPED) as a member.
- Law: It was suggested that a responsive new law needs to be enacted for the implementation of the GKMA-IUDMP.

- In reply, the Chairperson stated that the MKCC&MA should take the lead and amend the Physical Planning Act and the KCC Act. and called for stakeholders to provide technical support the MKCC&MA in amending the law.
- Engagement: The participants mention to the need to involve the NWSC and MFPED in the development of the Master Plan and to consider integration of their plans and this MP.
- Transport: The following comments were made by participants.
  - BRT should be mentioned in the MP.
  - Water Transportation should be considered.
- In response, the JICA Expert team clarified that BRT is mentioned in the ITR, and securing space for BRT is particularly important both for the successful introduction and for future conversion to LRT and MRT.
- Social impact: it was stated by a participant that social impacts of the plan need to be considered alongside the environmental impacts.

(2) The Fourth Joint Coordinating Committee Meeting

The Fourth Joint Coordinating Committee (JCC) Meeting was held with JCC members under the chair of Ministry of Kampala Capital City and Metropolitan Affairs.

1) Objectives

- To explain and discuss key points of Interim Report for the Project, including Overall Strategies for GKMA, Phased Development Plan, Institutional Framework, and Local - Level Detailed PDPs.
- To discuss the revised GKMA Vision.
- To explain the results of the traffic demand forecast for the year 2050 and to describe the proposed phased development plan in the field of transport.
- To discuss the establishment and structure of the Technical Coordination Group.

2) Date

The Fourth JCC Meeting was held on 5th March 2024

3) Venue

The JCC Meeting was held at the Cabinet Library, Office of the President.

4) Participants

40 members participated from the Ugandan side. In addition, 19 members participated from the JICA headquarters, JICA Uganda Office and the JICA Expert Team. Members who participated, excluding JICA and the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Office of the President
- Ministry of Works and Transport
- Ministry of Local Government
- Ministry of Water and Environment
- Ministry of Trade, Industry and Cooperatives (MoTIC)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority
- Uganda Railways Corporation
- National Water Sewerage Corporation

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Makindye-Ssabagabo Municipality
- Mukono Municipality
- Katosi Town Council

5) Main Points of Discussion

- Interim Report: The contents of the Interim Report were explained by the JICA Expert Team and the contents were generally accepted by the members of JCC.
- Declaration of Special Planning Area and Waiver of Display Period: The MKCCMA shared that there was a need to work on Declaration of GKMA as a Special Planning Area and Waiver for Display period immediately towards the end of the project.
- Technical Coordination Group (TCG): it was generally agreed to establish a TCG, the Steering Committee of the MP. The Chair insisted on the need for the TCC to be defined in the MoU. Also, it was suggested that MoLG and some municipalities should be added as members.
- Transportation: participants were positive about the proposal for BRT on motorways. The need for air and water transport was also suggested.
- Transportation Network: Extension of the railway to Mpigi and Mityana was proposed. It was also promised that road plans would be provided by UNRA to the JICA Expert team.
- Phased Development: it was suggested that some long-term projects be tackled at an earlier stage.
- Infrastructure Plan: The need for enhanced waste treatment in metropolitan areas and sewage planning was discussed. In addition, the need for early land acquisition for infrastructure development was emphasised.
- Detailed PDP: The development of a Detailed PDP in the area around the oil terminal in Mpigi District was proposed.
- Vision: some participants provided several alternatives and comments.

A.5.2 Sub-Technical Working Group Meetings

(1) The Second Sub-Technical Working Group Meeting 2: Environment, Wetland, Drainage and Land Use

The Sub-Technical Working Group (Sub-TWG) Meeting 2 was held under the chair of (MoLHUD).

1) Objectives

- To obtain comments on the proposed wetland management strategy
- To Agree on the direction of the wetland management strategy
- To discuss the key role of each relevant agency in the wetland management strategy

2) Date

The Sub-TWG Meeting 2 was held on 4th March 2024

3) Venue

The Sub-TWG Meeting 2 was held in the Conference Hall, Office of the President

4) Participants

17 members participated from the Ugandan side. In addition, 10 members participated from the JICA Expert Team.

Members who participated, excluding the JICA Expert Team, are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)

Territorial Entities

- Wakiso District
- Mpigi District
- Mukono District
- Katosi Town Council
- Wakiso Town Council

5) Main Points of Discussion

- The JICA Expert Team gave a presentation on the outline and latest contents of GKMA-IUDMP including the five wetland management strategies.
- After the presentation, participants made comments, questions and recommendations, mainly on the five wetland management strategies, which were answered by the JICA Expert Team, and the wetland strategies were generally agreed upon.
- Participants then provided their views on the key role of each relevant agency for each of the five wetland management strategies and adjustments were made.

A.5.3 Technical Coordination Committee Meetings for Coordinating and Collaborating the Implementation of the Master Plan

(1) The First Technical Coordination Committee Meeting

The Technical Coordination Committee Meeting (TCC) was held under the chair of Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA).

1) Objectives

- To review the past discussion about the platform for coordination and collaboration for implementation of GKMA-IUDMP
- To consider the preparation of Memorandum of Understanding for the establishment of the coordination platform (Technical Coordination Committee)
- To start preparing the TOR for the coordination platform (Technical Coordination Committee)
- To determine and understand what to do next
- To select the logo for GKMA-IUDMP

2) Date

The Technical Coordination Committee was held on 11th April 2024

3) Venue

The Technical Coordination Committee was held in the Conference Hall, Office of the President. It was also held online.

4) Participants

14 members participated from the Ugandan side. In addition, 8 members participated from the JICA Expert Team.

Members who participated, excluding the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority (NPA)
- Uganda National Roads Authority (UNRA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Nansana Municipality
- Entebbe Municipality
- Makyende Ssabagabo Municipality

5) Main Points of Discussion

- It was agreed that instead of preparing a Memorandum of Understanding for the TCC, it would be a policy document by including content on the TCC in the Cabinet Memorandum for this Master Plan.
- The ToR was discussed and the method of formulation and the person in charge were decided.
- It was decided that the JICA Expert Team will prepare the Costing of Priority Projects for implementation in order to obtain the Certificate of Financial Implications of GKMA-IUDMP.
- Participants commented on the proposed logo design, which was to be revised.

(2) The Second Technical Coordination Committee Meeting

The Technical Coordination Committee Meeting (TCC) was held under the chair of Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA).

1) Objectives

- To prepare Terms of Reference for Establishment and Operation of the Technical Coordination Committee
- To discuss the Plan Approval Process (Steps)
- To discuss Public Relation (PR) for the GKMA-IUDMP and Logo for the plan
- To review the draft Financial Implications (Estimated Costs) for Implementing the Master Plan
- To discuss the Relationship between GKMA Economic Development Strategies and GKMA Integrated Urban Development Master Plan

2) Date

The Technical Coordination Committee was held on 20th May 2024

3) Venue

The Technical Coordination Committee was held in the Conference Hall, Office of the President.

4) Participants

15 members participated from the Ugandan side. In addition, 11 members participated from the JICA Expert Team.

Members who participated, excluding the JICA Expert Team, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Works and Transport (MoWT)
- National Planning Authority (NPA)
- Uganda National Roads Authority (UNRA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mpigi District
- Mukono District
- Katosi Town Council
- Entebbe Municipality
- Mukono Municipality
- Makyende Ssabagabo Municipality

5) Main Points of Discussion

- Terms of Reference: Members reviewed and discussed that the draft sample be shared for their input and that the final ToR should be presented to Cabinet for approval when presenting the Memorandum.
- Approval Process of GKMA-IUMP: Members observed that there was need to expedite the process of declaration of GKMA-Special Planning Areas; and the finalization and getting the necessary approvals of the plan.
- Public Relation: It was acknowledged that the plan needs to be shared widely with the public through various media, as the display period could be shortened if sufficient public input is allowed to be collected by the National Planning Board. The logo design was to be revised.
- Estimated Costs for implementing the plan: It was suggested that land acquisition costs for infrastructure development be reduced by shortening project phases.
- Relationship between the GKMA-IUDMP and the GKMA-Eds: members agreed that there is no conflict and are well linked.

A.5.4 Multi-Sectoral Technical Committee Meeting for SEA

(1) Third Multi-Sectoral Technical Committee Meeting for SEA

A Multi-Sectoral-Technical-Committee (MSTC) was held as a third step to take forward for the SEA study for the project, and consultations were held to approve Draft Strategic Environmental Assessment (SEA) Report.

1) Objectives

- To review the contents of Draft Strategic Environmental Assessment (SEA) Report prepared by the MKCC & MA with support from JICA Expert Team
- To decide whether to approve Draft Strategic Environmental Assessment (SEA) Report.

2) Date

The Third Multi-Sectoral Technical Committee Meeting for SEA was held on 29th February 2024

3) Venue

The Third Multi-Sectoral Technical Committee Meeting for SEA was held at the Committee Room, Office of the President.

4) Participants

16 members participated from the Ugandan side. In addition, five members participated from the JICA Expert Team, and five participants from local consulting farm which commissioned to work on SEA.

Participants, excluding the JICA Expert Team and SEA consultants, are as follows:

MDAs

- Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Ministry of Water and Environment (MWE)
- Ministry of Tourism, Wildlife and Antiquities (MoTWA)
- Ministry of Local Government (MoLG)
- National Environment Management Authority (NEMA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Mukono District
- Wakiso District

5) Main Points of Discussion

The outline and status of GKMA-IUDMP project, as well as contents of Interim Report including overall strategies and Future Spatial Structure of GKUGA were explained by JICA Expert Team. Then contents of the draft SEA Report were presented by the Local Consultant for SEA.

During the discussion, comments, questions, and recommendations on the content of the GKMA-IUDMP and the SEA report were raised by the participants and responded to by MKCCMA, JICA Expert Team and the local consultant in charge of SEA.

The draft SEA report was tentatively approved with recommendations and comments that should be looked at and incorporated into the report.

A.5.5 Stakeholder Consultation Meeting on Formulation of Detailed Plans

The Stakeholders Meetings on Formulation of Detailed Plans was held in each of the two model detailed physical planning areas, Busega- Kyengera and Namataba.

(1) First Stakeholders Meeting on Formulation of Detailed Plans in Busega – Kyengera Model Planning Area

1) Objectives

- To explain the project for formulating the GKMA Integrated Urban Development Master Plan as well as the importance of Metropolitan Approach
- To explain and discuss the importance of the Busega-Kyengera Area as Secondary Urban Centre for the GKMA
- To explain and discuss the formulation of Detailed Physical Development Plan in Busega-Kyengera Area in an integrated manner
- To hear views and voices from local stakeholders on development and environment in Busega-Kyengera Area by organizing a plenary session and group discussion sessions

2) Date

The Meeting was held on 21st May 2024.

3) Venue

The meeting was held at the Pope Paul VI Memorial Hotel, Kampala

4) Participants

31 members participated from the Ugandan side. In addition, eight members participated from the JICA Expert Team.

Participants are as follows:

- Representative GKMA Urban Development Programme- Ministry of Kampala Capital City and Metropolitan Affairs
- Representative Directorate of Transport -MoWT
- Wetlands Officer-MWE
- Senior Physical Planner -MLHUD Wakiso
- Network Planning and Engineering- Uganda National Roads Authority (UNRA)
- Physical Planner - KCCA
- Land use Planning - KCCA
- Engineer/Manager Transport &Traffic Management - KCCA
- Senior Assistant CAO-Wakiso District
- Natural Resources Officer -Wakiso District
- Principal Physical Planner-Wakiso District
- Town Clerk -Kyengera -Town Council
- Senior Development Officer -Kyengera Town Council
- Physical Planner -Kyengera Town Council
- Environment Officer-Kyengera-Town Council
- Town Engineer-Kyengera Town Council
- Representative Commercial Drivers -Uganda Taxi Owners and Drivers Association
- Community Development Officer -Wakiso Sub-County
- Women Representative- Ssumbwe & Bulenga
- Local Council Chairman -Bulenga
- Physical Planner-Buganda Land Board
- Spokes Person -KACITA Uganda
- Representative - Real Estate Association

5) Main Points of Discussion

- JICA Expert Team gave a presentation on the overview of the GKMA-IUDMP project and the role of Busega-Kyengera in the GKMA, and proposed alternative spatial structures for the Busega-Kyengera area.
- During the discussion, participants raised a variety of opinions and questions, especially suggestions for reducing traffic congestion in the Busega-Kyengera area. Other issues to be considered in the detailed plan were provided by participants in terms of wetland conservation, social services, employment, management, tourism, market, open space, safety and security in the area, and so on.
- As the end of the meeting, participants were divided into three groups for group discussion on the future vision of the area, concerns about becoming a Secondary Urban Centre and thoughts on the proposed spatial structures. The results showed that Busega-Kyengera stakeholders

were generally positive about becoming Secondary Urban Centre and the alternative spatial structure that increase connectivity within the area were preferred.

(2) First Stakeholders Meeting on Formulation of Detailed Plans in Namataba Model Planning Area

1) Objectives

- To explain the project for formulating the GKMA Integrated Urban Development Master Plan as well as the importance of Metropolitan Approach
- To explain and discuss the importance of the Namataba Area as Suburban Centre for the GKMA
- To explain and discuss the formulation of Detailed Physical Development Plan in Namataba Area in an integrated manner
- To hear views and voices from local stakeholders on development and environment in Namataba Area by organizing a plenary session and group discussion sessions

2) Date

The Meeting was held on 23rd May 2024.

3) Venue

The meeting was held at the HM Comfort View Hotel, Namataba

4) Participants

47 members participated from the Ugandan side. In addition, seven members participated from the JICA Expert Team.

Participants are as follows:

- Mayor/Chairperson LC3 – Namataba Town Council
- Deputy Mayor – Namataba Town CouncilDistrict Physical Planner – Mukono District Local Government
- Graduate Physical Planner – Mukono District Local Government
- Health Inspector – Mukono District Local Government
- Inspector of Schools – Mukono District Local Government
- Deputy Chief Administrative Officer – Mukono District Local Government
- Senior Health Inspector – Mukono District Local Government
- District Natural Resource Officer – Mukono District Local Government Graduate
- Senior Physical Planner – Lugazi Municipal Council
- Town Clerk – Namataba Town Council
- Physical Planner – Namataba Town Council
- Assistant Agricultural Officer – Namataba Town Council
- Secretary for Health – Namataba Town Council
- Youth Chairperson – Namataba Town Council
- Businessman – Namataba Town Council
- Chairperson, Area Land Committee – Namataba Town Council
- Community Development Officer – Namataba Town Council
- Gombolola Internal Security Officer – Namataba Town Council
- Chairperson, Boda Boda Riders – Namataba Town Council
- Chairperson, Women Council – Namataba Town Council
- Secretary for Production – Namataba Town Council

- Secretary for Culture – Namataba Town Council
- Chairperson LC2 – Namataba Town Council
- Assistant Fisheries Officer – Namataba Town Council
- Assistant Town Clerk – Namataba Town Council
- Businessman – Namataba Town Council
- Male Councillor for PWDs – Namataba Town Council
- Chairperson of LC1s – Namataba Town Council
- Speaker – Namataba Town Council
- Senior Assistant Secretary – Nagojje Sub County
- Health Assistant – Nagojje Sub County
- Senior Assistant Chief Administrative Officer – Nama Sub County
- Community Development Officer – Nama Sub County
- Landlord – Namagunga Ward
- Secretary for Women – Kayanja Village
- IMAAM (Leader of the Mosque) – Kayanja Village
- Pastor (Leader of the Church) – New United Pentecostal Churches Forum
- Executive Director – Capital for Life
- Deputy General Manager, Administration – Sugarcane Cooperation of Uganda Limited
- Officer in Charge, Station – Uganda Police Force
- Publicity Secretary – Namataba Youth Leadership
- Church Leader – Namagunga Catechist
- Principal Urban Planning Specialist – Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)
- Principal Assistant Secretary – Ministry of Kampala Capital City and Metropolitan Affairs (MKCC&MA)

5) Main Points of Discussion

JICA Expert Team gave a presentation on the overview of the GKMA-IUDMP project and the role of Namataba in the GKMA and proposed alternative spatial structures for the Namataba area.

During the discussion, participants raised a variety of opinions and questions. The potential for industrial and commercial development was highlighted. It was also identified that issues to be considered at the planning stage included population change, environmental protection and equality of social services.

As the end of the meeting, participants were divided into three groups for group discussion on the future vision of the area, concerns about becoming Suburban Centre and thoughts on the proposed spatial structures. As a result, Namataba stakeholders were generally positive about becoming a Suburban centre. It was also found that alternative spatial structure that would promote more industrial development and enhance the road network in the area were desired by participants.

A.5.6 Capacity Development Activities

Capacity Development Activities were conducted for the formulation of Local-Level Detailed Physical Development Plans (PDPs).

(1) In-Person Training on Detailed PDP on the 6th of March 2024 (Fourth Training Session)

1) Objectives

The Training mainly had the following three objectives:

- To provide explanation of the objectives of general land use plan and how they are prepared,

with examples from the MP.

- To explain how to identify developable areas using thematic maps in formulation of detailed PDPs.
- To gain an understanding of the participatory planning process of developing detailed PDPs.

2) Date

The training was held on 6th March 2023.

3) Venue

The training was held at Training Room, BMK House in Kampala Capital City.

4) Participants

A total of 24 participants from MDAs and Territorial Entities attended. 10 participated from JICA Expert Team side.

Participants are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Ministry of Local Government (MoLG)
- National Planning Authority (NPA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Kira Municipality
- Mukono Municipality
- Nansana Municipality
- Makindye – Ssabagabo Municipality
- Kajjansi Town
- Mpigi Town

5) Programme of Training

In the first session, the participants were given a lecture on how to formulate General Land Use Plan. Then in the second session they learned about the methodology for analysing developable areas and the public participation process, which is an important step in the preparation of a detailed PDPs.

Hands-on training was held to prepare concept drawings in the pilot area of the detailed district plan (establishing three different urban cores and urban axes). Participants were divided into four teams, with two teams working on Bussega-kyengela area and the other two on Namataba area.

(2) Online Training for Detailed PDP on the 12th of April 2024 (Fifth Training Session)

1) Objectives

- To understand how to prepare alternative spatial structures utilizing contents in previous lectures, such as conceptual plan.

2) Date

The Training was held on 12th April 2024.

3) Venue

The Training was held online.

4) Participants

A total of 27 members from MDAs and Territorial Entities participated, of which 24 attended physically at BMK House. 10 participated from JICA Expert Team including the lecturer attending online and five supporting the participants at BMK House.

Participants are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority (NPA)
- Ministry of Local Government (MoLG)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Mukono Municipality
- Nansana Municipality
- Kira Municipality
- Makindye Ssabagabo Municipality
- Entebbe Municipality
- Wakiso Town
- Mpigi Town

5) Programme of Training

Lectures were given on how to prepare alternative spatial structure using conceptual plan and developable area maps (explained in the fourth seminar), showing examples in Busega - Kyengera area.

Participants were divided into three groups to create an alternative spatial structure in the Busega - Kyengera area. They then selected one of five land use types (Commercial, Commercial Mixed, Workshop and Residential Mixed, Ideal High Density Residential, Ideal Medium Density Residential) and the FAR and BCR were calculated towards the plot that was considered typical of that selected land use. Finally, presentations were made and the results were shared with the whole members.

(3) In-Person Training on Detailed PDP on the 24th of May 2024 (Sixth Training Session)

1) Objectives

The Training mainly had the following three objectives:

- To give step-by-step lectures on how to develop Concept Plans, General Land Use Plans and Zoning Maps.
- To provide an opportunity to amend the proposed General Land Use Plan and apply Land Use Categories by workshop to increase understanding of the General Land Use Plan and Zoning System.

2) Date

The Training was held on 24th May 2024.

3) Venue

The training was held at Training Room, BMK House in Kampala Capital City.

4) Participants

A total of 26 participants from MDAs and Territorial Entities attended, in which 21 participated in person at the venue. The participants are as follows:

MDAs

- Ministry of Lands, Housing and Urban Development (MoLHUD)
- National Planning Authority (NPA)

Territorial Entities

- Kampala Capital City Authority (KCCA)
- Wakiso District
- Mukono District
- Mpigi District
- Kira Municipality
- Mukono Municipality
- Nansana Municipality
- Entebbe Municipality
- Makindye – Ssabagabo Municipality
- Kyengera Town
- Mpigi Town

5) Programme of Training

The participants were given explanations of how to gradually make the plan more concrete by creating Concept Plan, General Land Use Plan and Zoning Map, starting from Alternative Spatial Structure covered in the previous lecture.

Hands-on training was provided to give the participants the opportunity to develop Zoning Map from General Land Use Plan. The participants were divided into three groups and made modifications to the proposed General Land Use Plan for the Namataba model-planning area and further adapted zoning categories.

A.5.7 Meeting on Final Draft Uganda Standards (FDUS)

A meeting was held on the National Physical Planning Standards and Guidelines prepared by MoLHUD at the TC/417 Urban planning and sustainable development, one of the Technical Committees (TC) organised by the Uganda National Bureau of Standards (UNBS). The scope of this TC is standardisation in the field of sustainable aspects to help all Cities and Communities and their interested parties in both rural and urban areas become more sustainable.

(1) The 10th virtual meeting for UNBS/TC 417 – Urban Planning and Sustainable Development

1) Objectives

- To resolve the comments on National Physical Planning Standards and Guidelines that received from the Public Review Stage
- To finalize the standards to the status of Final Draft Uganda Standards (FDUS)

2) Date

The Meeting was held on 6th June 2024.

3) Venue

The meeting was held online.

4) Participants

Around 10 members participated from the Ugandan side. In addition, four members participated from the JICA Expert Team.

Participants are as follows:

- Uganda National Bureau of Standards (UNBS)
- Ministry of Lands, Housing and Urban Development (MoLHUD)
- Kampala Capital City Authority (KCCA)
- Makerere University
- Consumer Centre
- JICA Expert Team Members

5) Main Points of Discussion

- Participants discussed and decided on responses to some of the comments from the public review, which are organised in the table.
- The JICA Expert Team provided explanation on the critical comments submitted during the public review period on the following points.
  - Deficiency of Zoning Category Provisions
  - Need to Distinguish among Zoning Categories, Planning Standards and Building Standards
  - Too Large Minimum Lot Size for Residential Zones
- The Chairperson from UNBS appreciated the critical comments from the JICA Expert Team and decided to hold a bilateral meeting on a separate date for further discussion.
- As not all comments were addressed due to time constraints, UNBS and MoLHUD decided to meet on a separate date.

A.6 Study Tour in Japan

As part of the project, two Study Tours were held in Japan to improve the capacity of the participants by providing lectures and field visits to gain insight and knowledge on issues, in order to ensure sustainable development in Kampala Capital City and GKMA as a whole.

A.6.1 First Study Tour in Japan

(1) Introduction

15 counterparts from Uganda undertook a study tour (training) in Japan from May 22, 2023, to June 2, 2023. The study tour in Japan was aimed at improving the capacity of the participants by providing lectures and field visits to gain insight and knowledge on issues covering urban planning, wide-area infrastructure development, public transport, wetland conservation, new town planning and redevelopment, in order to ensure sustainable development in Kampala Capital City and GKMA as a whole.

Among the trainees, six were from the MDAs, while nine were from the local government entities that make up the GKMA. Table A.6.1 shows the composition of the trainees. The objective of the training was to improve the participants' know-how in the formulation and implementation of planning activities that cut across local government boundaries, such as in the GKMA. Since the participants were drawn from different MDAs and local government areas, the training also served as an opportunity for the participants to exchange views and ideas on relevant development issues in GKMA.

Table A.6.1 Participants for the First Japan Training Tour

No	Position	Organisation
1	Under Secretary	Ministry of Kampala Capital City and Metropolitan Affairs
2	Principal Assistant Secretary	Ministry of Kampala Capital City and Metropolitan Affairs
3	Assistant Commissioner	Ministry of Works and Transport
4	Commissioner	Ministry of Lands, Housing and Urban Development
5	Principal Urban Officer	Ministry of Local Government
6	Planner	National Planning Authority
7	Ag. Deputy Director Physical Planning	Kampala Capital City Authority
8	Physical Planner	Mpigi District Local Government
9	Principal Physical Planner	Wakiso District Local Government
10	Physical Planner	Mukono District Local Government
11	Senior Physical Planner	Mukono Municipal Council
12	Physical Planner	Kira Municipal Council
13	Senior Environment Officer	Nansana Municipal Council
14	Senior Planner	Entebbe Municipal Council
15	Physical Planner	Makindye Ssabagabo Municipal Council

Source: JICA Expert Team

(2) Training Outline and Location

The content of training included lectures in metropolitan and municipal planning, transport planning, urban park development and environmental protection. Others included an overview on the development of suburban centres, industrial parks, and alternative transport systems. The trainees also made courtesy call to the JICA Headquarters in Tokyo, as well as site visits to waste treatment centres, wetlands and park facilities, bus stops on the expressways among others. The training tour provided the opportunity for the trainees to reflect of issues of development in GKMA. During the visits to several municipalities, many trainees were interested in the fact that Japanese municipalities also put a lot of effort into promoting their own municipal characteristics. Therefore, some trainees started to think of a catchphrase for their municipalities/local government areas as a simple action they could back home first. Table A.6.2 shows the outline and the location of the training.

Table A.6.2 Training Outline and Location of the First Study Tour in Japan

Date	Method	Contents	Location
5/22/2023	Lecture	Orientation	Tokyo
	Lecture	Briefing of the Objective of the Programme	
		Courtesy Call to JICA HQ	
5/23/2023	Lecture	Tokyo Megalopolis Regional Framework for Greater Tokyo Area, Urban Master Plan for Tokyo, Urban Redevelopment Projects, Coordination for Urban Road Development Plan	
	Site Visit	Tokyo Metropolitan Government Building Observatories	
	Lecture	Development and Challenges of Transport Network in Greater Tokyo Area	
	Discussion	Capacity Building in the Formulation of Detailed Physical Development Plan	
5/24/2023	Lecture	Development of Regional Roads (Central Circular Route Expressway etc.)	
	Lecture	Introduction of Urban Planning in Japan, Metropolitan Area Development Plans and Plan Formulation in Municipalities.	
5/25/2023	Lecture	Urban Parks and Toyano Lagoon Park Development	Niigata
	Site Visit	South Shore of Toyano Lagoon (Wetlands and Surrounding Land Use)	
	Lecture	Role of Central Government Agencies in Project Implementation and the Niigata Station Transport Terminal Development Project	

	Site Visit	Site Visit Around Niigata Station and Bandai City Bus Centre	
2023/5/26	Lecture	Niigata Transport Strategic Plan, Implementation Plan and Review Study of Bus Rapid Transit (BRT), etc.	
	Lecture	Concept of Garden Style Environmental City Niigata, Wetland Municipality Certification Scheme	
	Site Visit	Riding BRT from Niigata City Hall Bus Stop to Bandai City Bus Stop	
	Site Visit	Sakata Lagoon (Wetland and Park Facilities)	
	Site Visit	Bus Stop at Maki-Katahigashi IC Stop on the Expressway	
	Site Visit	Maki-Katahigashi IC to Tsubame-Sanjo Station (via Sakae PA) (Bus Tour)	
2023/5/27	Site Visit	Tokyo City Centre Tour	Tokyo
5/29/2023	Site Visit	Site Visit of Yokohama Bay Area (on Foot)	Kanagawa
	Lecture	Transport Oriented Development (TOD), Urban Development in Nagareyama City Otakanomori	Chiba
	Site Visit	Area around Nagareyama Otakanomori Station	
5/30/2023	Lecture	Industrial Park Development, How to Attract Businesses	
	Lecture	Development of Waterfront Commercial and Residential Area	
	Site Visit	Makuhari New Urban Centre Area (Bus Tour)	
5/31/2023	Site Visit	Tama Waste Disposal Plant (Intermediate Treatment Facility)	Tokyo
	Lecture	New Town Development in Wester Tokyo (Tama Area)	
	Site Visit	Tama Urban Centre Area and Housing Complex Area	
	Discussion	The Roles of Urban Centres in the Greater Kampala Metropolitan Area	
2023/6/1	Site Visit	Fujimi Industrial Park	Saitama
	Lecture	LRT Development Project in Utsunomiya City	Tochigi
	Site Visit	LRT Route (Bus Tour)	
2023/6/2	Discussion	Reflection Session	Tokyo
	Presentation	Presentation of the Reflection	
	Discussion	Evaluation of Programme	
		Closing Ceremony	

Source: JICA Expert Team

(3) Review of the Training Tour and Presentation of Action Plans by Trainees

After all lectures, visits and tours, a review of the training was held at the JICA Tokyo Centre. During the review process, each trainee summarised and made a presentation on an "action plan" to be implemented after returning to Uganda, based on what has been learnt during the training. They were given time to prepare their own presentation materials, after which each person had five minutes to make a presentation. For the purpose of this report, the presentation and discussions are summarised into observation, lessons learnt, and actions to be taken upon return to Uganda.

1) Observations

The following items were presented as the observations during the training tour as presented by the trainees.

- Development planning should have a well-defined strategic direction and must be supported by accurate data.
- Wetland preservation is key for development and the Urban Parks and Toyano Lagoon Park Development in Niigata City present a useful experience.
- Cross-city collaboration is important for waste management such as the example of Tama Refuse Incineration Plant which is set up as a joint project between Tama, Hachioji and Machida cities.
- Constant update of master plans is very critical given the changing population needs and

demands.

- The existence of policies and guidelines in regard to urban greening, land readjustments, land use developments are important for sustainable development.
- Land availability is key for the creation of new centres thus the need for land adjustment regulations.

2) Lessons Learnt

- Land ownership issues should be prioritised and addressed at the initial stages of project formulation and implementation.
- There should be a holistic approach to any development and must include community participation, government involvement, and private sector involvement.
- We should apply a holistic approach to planning in order to strike a balance between urban development, nature conservation and movement of people, goods and services.
- Infrastructure development and nature conservation can be achieved at the same time. Therefore, communities should be engaged in wise use of wetlands.
- New Town Development strategy or approach is widely used in Japan and is the best way to achieve the planned city objectives and to stir up economic growth.

A.6.2 Second Study Tour in Japan

(1) Introduction

14 counterparts from Uganda undertook a study tour (training) in Japan from December 4, 2023, to December. Trainees are shown in Table A.6.2

Table A.6.3 Participants for the Second Japan Training Tour

No	Position	Organisation
1	Under Secretary	Ministry of Kampala Capital City and Metropolitan Affairs
2	Principal Assistant Secretary	Ministry of Kampala Capital City and Metropolitan Affairs
3	Commissioner	Ministry of Lands, Housing and Urban Development
4	Senior Planner	National Planning Authority
5	Physical Planner	Mpigi District Local Government
6	Principal Physical Planner	Wakiso District Local Government
7	Physical Planner	Mukono District Local Government
8	Physical Planner	Kampala Capital City Authority
9	Physical Planner	Kampala Capital City Authority
10	Senior Physical Planner	Nansana Municipal Council
11	Senior Physical Planner	Entebbe Municipal Council
12	Physical Planner	Kyengera Town Council
13	Manager Transport Planning	Uganda National Roads Authority
14	Principal Corporate Planning Officer	Uganda Railways Corporation

Source: JICA Expert Team

(2) Training Outline and Location

The content of training included lectures in regional strategies, municipal master plans, development of different centres, wetland conservation and utilization, BRT development. The trainees also went site visits to different kinds of urban centres, wetland and tourism facilities, and a station for both BRT and Railway. The training tour provided the opportunity for the trainees to reflect of issues of development in GKMA. Table A.6.4 shows the outline and the location of the training.

Table A.6.5 Training Outline and Location of the Second Study Tour in Japan

Date	Method	Contents	Location
12/4/2023	Lecture	Orientation	Fukuoka
	Lecture	Briefing of the Objective of the Programme	
	Site Visit	The History and Current Situation of Kitakyusyu City	
12/5/2023	Lecture	Briefing of the Objective of the Programme	
	Lecture	Urban Planning System in Japan	
	Lecture	Development of the Higashida District	
	Site Visit	History of pollution in Kitakyushu City and Current Efforts	
	Site Visit	Site Visit to the Area around Space World Station and Yahata District	
12/6/2023	Lecture	Kitakyushu City Urban Planning Master Plan and District Plans	
	Lecture	"2050 City Development Vision"" and ""Kokura-Kurasaki Revitalization (Rebuild + Invitaion)" （Deregulation for guiding development by private sector and promoting attraction of enterprises)	
	Site Visit	Site Visit to Kokura area	
	Site Visit	Site visit to Kurosaki area	
12/7/2023	Lecture	Development of New Industrial Area and Attraction of Enterprises	Saga
	Site Visit	Site Visit to New Industrial Area	
	Site Visit	Higashiyoka-Higata (Tidal Flat) Visitor Center	
	Lecture	Saga Prefecture's Plan for the Regeneration of The Ariake Sea	
12/8/2023	Lecture	Formulation of Fukuoka City Urban Planning Master Plan Following Upper-Level Plans, Redevelopment around Ohashi Station in Fukuoka City (Secondary Urban Centre)	
	Site Visit	Site Visit to Soeda Station (BRT and Railway Station)	
	Discussion	Reflection Session	
12/11/2023	Lecture	Overview of Itoshima Urban Planning Master Plan, Expansion of Industrial Area in Urbanization Control Area	Fukuoka
	Site Visit	Development of Surrounding Areas of Chikuzen Maebaru Station, Development of Industrial Site in the Vicinity of Maebaru Interchange (IC)	
	Site Visit	Site Visit to Surrounding Areas of Tenjin Station (CBD)	
	Lecture	Regional Strategies in Fukuoka Region (The Mechanism of Industry-Academia-Government-Private Sector Collaboration and its Results)	
12/12/2023	Site Visit	Site Visit to Fukuoka City Centre (CBD)	
	Site Visit	Move from Hakata Station to Nakano Station, Higashi Line (via the site of the former Yumearu Ohashi and a beer brewery of Asahi Breweries, Ltd.) (by bus)	
	Site Visit	Site Visit to Kashii and Chihaya Areas (Secondary Urban Centre)	
	Discussion	GKUGA 2050 Vision	
12/13/2023	Discussion	Institution Framework	
	Discussion	Discussion on the Formulation of Detailed Plans for the Model Planning Areas	
	Discussion	Detailed Planning in Kampala Metropolitan Area	
	Discussion	Reflection of Training and Presentation Preparation	
	Exercise	Capacity Building Session (Hybrid with Participants from Uganda)	
12/14/2023	Presentation	Presentation of the Reflection	
	Discussion	Evaluation of Programme	
		Closing Ceremony	

Source: JICA Expert Team

(3) Review of the Training Tour and Presentation of Lessons and Action Plans by Trainees

After all lectures, visits and tours, a review of the training was held at the JICA Kyushu Centre. During the review process, each trainee summarised and made a presentation on a “lessons and

action plan" to be implemented after returning to Uganda, based on what has been learnt during the training. They were given time to prepare their own presentation materials, after which each person had five minutes to make a presentation. For the purpose of this report, the presentation and discussions are summarised into observation, lessons learnt, and actions to be taken upon return to Uganda.

1) Observations

The following items were presented as the observations during the training tour as presented by the trainees.

- Urban planning and infrastructure development are integrated, especially public transportation-oriented development (TOD) and industrial land development at highway exits are common.
- In Japan, development is systematically controlled by drawing a line between urbanized areas and urbanization control areas. Within the urbanization zone, infrastructure development plans are formulated, and at the same time, development is controlled by designating building-coverage ratio (BCR) and floor-area ratio (FAR).
- In the Fukuoka metropolitan area, a do & think tank called Fukuoka Directive Council is promoting the entire process from strategy formulation to promotion in the city region through industry-government-academia collaboration.
- Among the forms of redevelopment projects, there is the land readjustment project method, which integrates infrastructure development and urban development.
- In the Ariake Sea, tidal flats are being used for tourism while being preserved.

2) Lessons Learnt

Lessons learnt through the study tour are as follows:

- In urban planning, urban development needs to be considered as an integral part of infrastructure development. Especially there is potential for development as commercial business districts at transportation infrastructure nodes, and there is potential for development of industrial sites, around suburban expressway interchanges.
- Cooperation between the public, private, and academic sectors is needed in the development and implementation of urban area plans. Also. detailed planning requires the participation of local communities in addition to the above.
- Comprehensive plans need to be integrated and coordinated across organizations and sectors.
- Development should be based on plans, and individual project acceptance criteria should include, at a minimum, contribution to the goals of the plan.
- Providing access can promote tourism use while preserving and protecting nature, culture, and religion.

A.7 Way Forward

The major project activities in the next phase of the Project (from July 2024 to August 2024) are as follows:

- Capacity Development and Publicity Activities
- Finalisation of Guidelines for Local-Level Detailed Physical Development Plans
- Formulation of Local-Level Detailed Physical Development Plans (Model Plans)
- Regulation for Collaboration and Coordination Platform for Promoting the Implementation of Physical Development Plans