



Industrial Wastewater Management Guide for **GARAGES**

Kampala Pollution Control Task Force

This Wastewater Management Guide provides facility owners, workers, and lead agencies and others with practical information about mitigating water pollution from auto garages.

The objectives of the Guide are to:



To provide garages with a reference tool for avoiding/minimising pollution, and managing wastewater.



To help better understanding of the need for wastewater management and the associated benefits.



To provide key information on the existing institutional and legal framework as well as best practices for cleaner production and resource recovery and reuse optimization.

There are many different wastes produced by the garage sector, many of which are hazardous. This Guide outlines how the various laws apply to each of these and how to best manage them.

This Guide has been developed in close consultation with key stakeholders and through review of relevant literature regarding industrial best practices and cleaner production. In addition, formal and informal technical discussions with members of the Kampala Pollution Control Task Force (PTF) have been used to generate expert opinion on wastewater management for the garages sub-sector.

The preparation of the Guide has been supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Reform of the Urban Water and Sanitation Sector Programme (RUWASS) as well as the International Water Stewardship Programme (IWaSP), implemented by GIZ on behalf of German Development Cooperation and DFID.

Why wastewater management?

It's the law

Proper management of wastewater is required by law. Failure to comply with regulatory and legal requirements may lead to fines and/or other penalties.
(See page 10)

It's better for the environment

Toxic pollutants released in wastewater cause damage to the environment, affecting plant and animal life.

It's better for public health

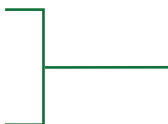
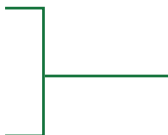
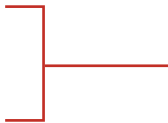
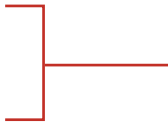
Toxic pollutants in wastewater contaminate surface water and ground water, and may end up in the food chain, exposing people to serious public health issues.

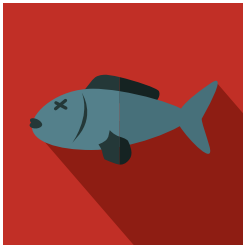
It makes financial sense

Water is a resource like any other, and therefore has an associated cost. The more water used, the higher the costs. By reducing the amount of water used, and by recovering and reusing water wherever possible, companies can save money and be more competitive.

In many cases pollutants in wastewater represent wasted raw materials. When properly handled, these can be recovered and reused leading to cleaner wastewater and cost savings on materials for companies.

Reducing the pollution load in water sent for treatment by NWSC will reduce the cost of treatment. This may in turn translate into reduced costs of water procured from NWSC.





Release of used oil into a water body reduces light penetration and oxygen exchange, in addition to causing dissolved oxygen depletion, thereby affecting aquatic animals like fish. The decreasing fish stock in Lake Victoria is also attributed to pollution and especially pollution by used oil and other decomposable wastes.



Almost all the surface and ground water in Kampala is polluted and the city's inhabitants are therefore exposed to serious health risks associated with water pollution. The increasing cases of cancer in Uganda are partly attributed to increasing pollution. Since the main source of potable water in Kampala is Lake Victoria, polluting it puts the lives of everybody in Kampala, including the person generating the pollution, at a risk of acquiring cancer.



In 2011, Crown Beverages Ltd invested \$18,495 (about UGX 47.2m) to procure and install a 114,000 litre tank for water harvesting. As a result, the company reduced annual tap water consumption by 4,433,000 litres, saving over \$5,400 (about UGX13.7m) annually.



For example, since 2010, Leather Industries of Uganda's investment in cleaner production to prevent pollution and reduce resource consumption has led to a savings of \$2.2m (about UGX7.5b) against investment of \$1.7m (about UGX5.6b), which represents a healthy return of 130% over six years.

What to avoid

WASTE OIL IMPROPERLY STORED

Waste oil stored in uncovered and/or damaged containers

→ Oil spillage & contamination

WASTE FILTERS IMPROPERLY STORED

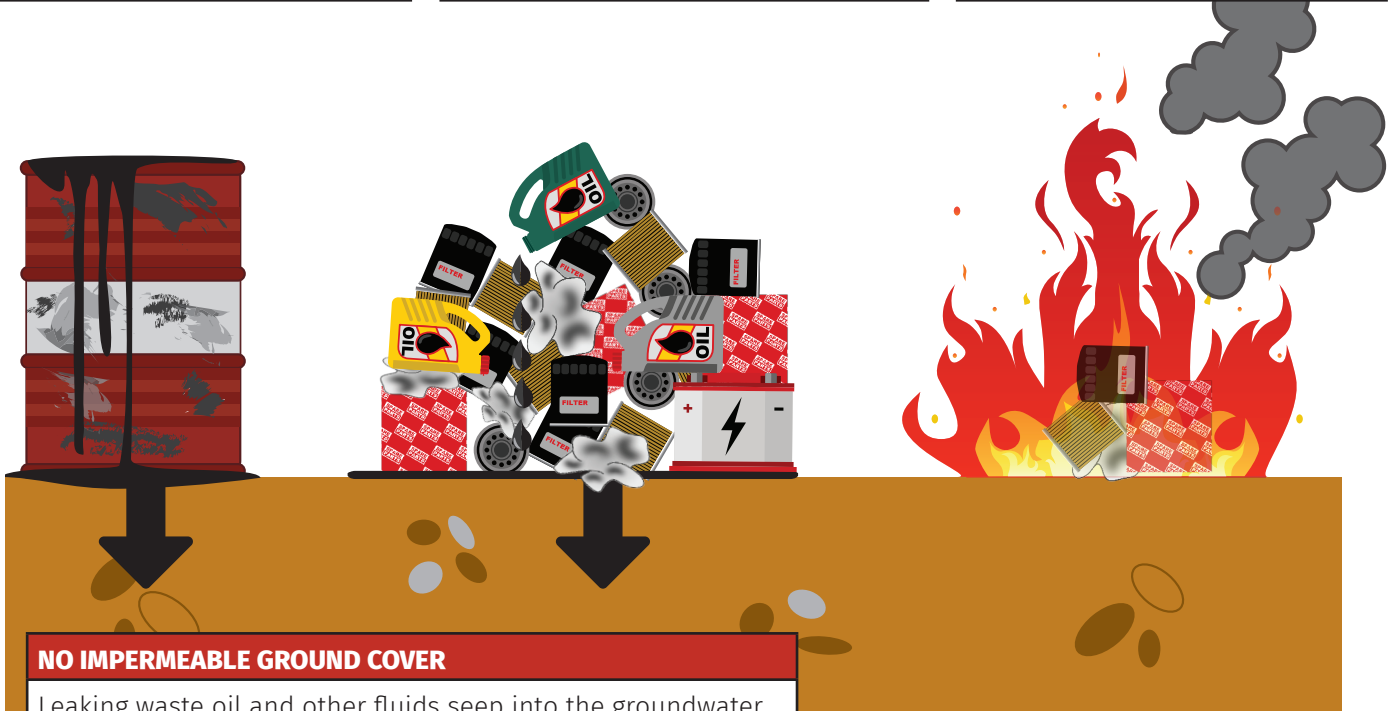
Used oil filters improperly stored and/or mixed with other rubbish

→ Oil spillage & contamination

BURNING CONTAMINATED WASTE

Toxins released into the atmosphere

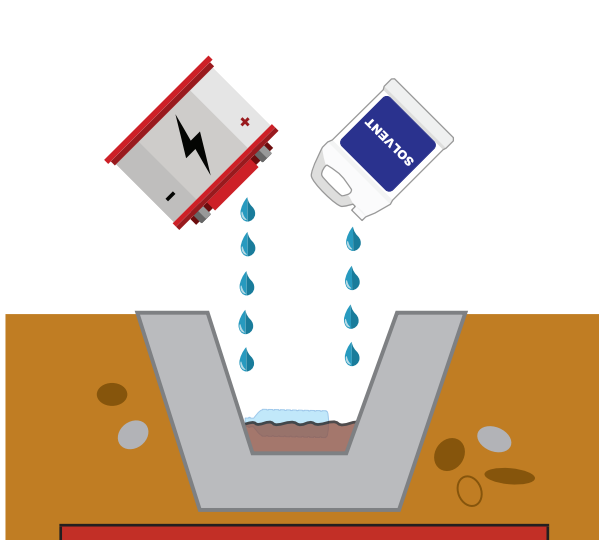
→ Public health issues



NO IMPERMEABLE GROUND COVER

Leaking waste oil and other fluids seep into the groundwater

→ Public health issues & environmental damage



BATTERIES, SOLVENTS & OTHER FLUIDS EMPTIED INTO DRAINS

Battery acid, lead particles and other harmful chemicals may leak into the environment

→ Environmental damage



USING UNLICENSED TRANSPORTERS

Waste may be illegally dumped instead of being properly disposed of

→ Environmental damage

EFFECTIVE WASTEWATER MANAGEMENT RELIES ON A TWO-STAGE APPROACH

1 | Reducing the amount of wastewater generated

Making processes more efficient and reusing water wherever possible will lead to an overall reduction in the amount of wastewater generated.

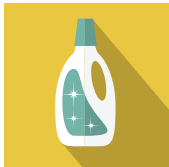
2 | Ensuring wastewater is as clean as possible

Ensuring end-of-pipe wastewater is properly treated and meets effluent discharge standards will lead to a reduction in toxins entering the environment.

1 | STEPS TO REDUCE WASTEWATER GENERATION



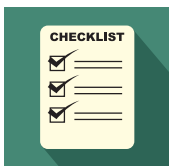
Use pre-clean and dry cleanup methods before wet cleaning. This reduces the volume of water used and the volume of wastewater generated.



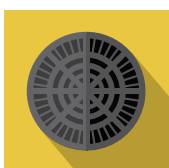
Use the minimum amount of cleaning agents and detergents. This saves on the costs of cleaning agents in addition to minimizing the amount of cleaning agent pollution in wastewater.



Avoid use of wastewater streams as a transport medium. Transfer solids and particulate matter by mechanical means.



Ensure employees are trained and aware of how to minimize water usage and wastewater generation.



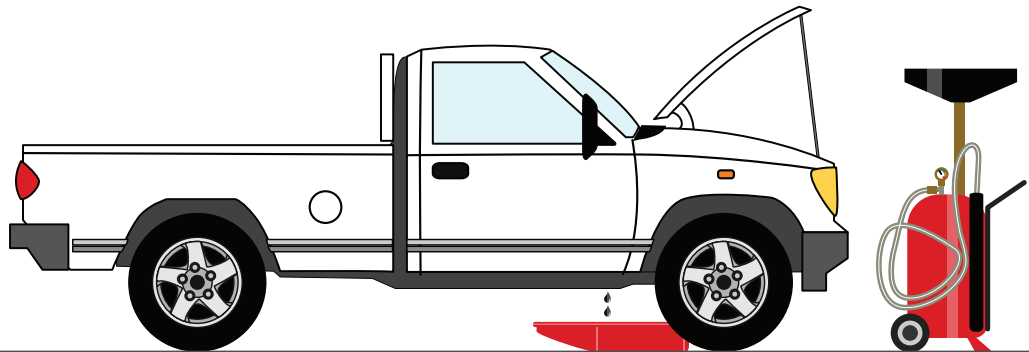
Fit drains with screen and/or traps to prevent solid materials from entering the effluent system.

2 | BEST PRACTICE AND WASTE MANAGEMENT

With proper awareness and good practice, waste management from garages can make a huge difference to our environment and public health without costing a lot.



One of the best devices for managing waste oil is an air powered waste oil drainer - it extracts as much oil as possible, reduces spills almost completely and as it is on wheels it is easy to manoeuvre around the garage.

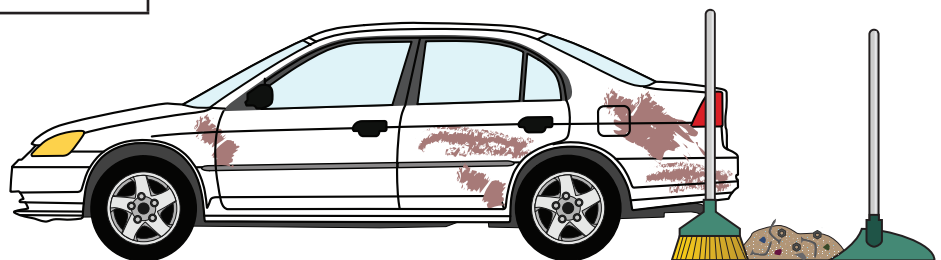


The work area should be surrounded with drainage fitted with an oil interceptor to trap oil from the run-off.

Use drip pans under leaking vehicles to capture fluids, especially on damaged vehicles.

The garage must have a concrete platform/floor to ensure that any spilled waste oil can be recovered.

Post signs above sinks and drainages prohibiting the discharge of vehicle fluids and general wastes as it poses a serious health and environmental danger.



Oil interceptors should be well maintained to ensure operational efficiency.

Collect metal filings, dust, and paint chips from grinding, shaving, and sanding and dispose of properly. Wet mop the floor in machining areas only AFTER all metal particles have been removed.

Managing wastewater

All garage waste should be stored in a separate area with a containment wall and concrete floor to prevent run-off. Preferably the area should be covered to protect waste from rain and sun.

All waste containers should be well labelled to facilitate segregation and reuse as required.

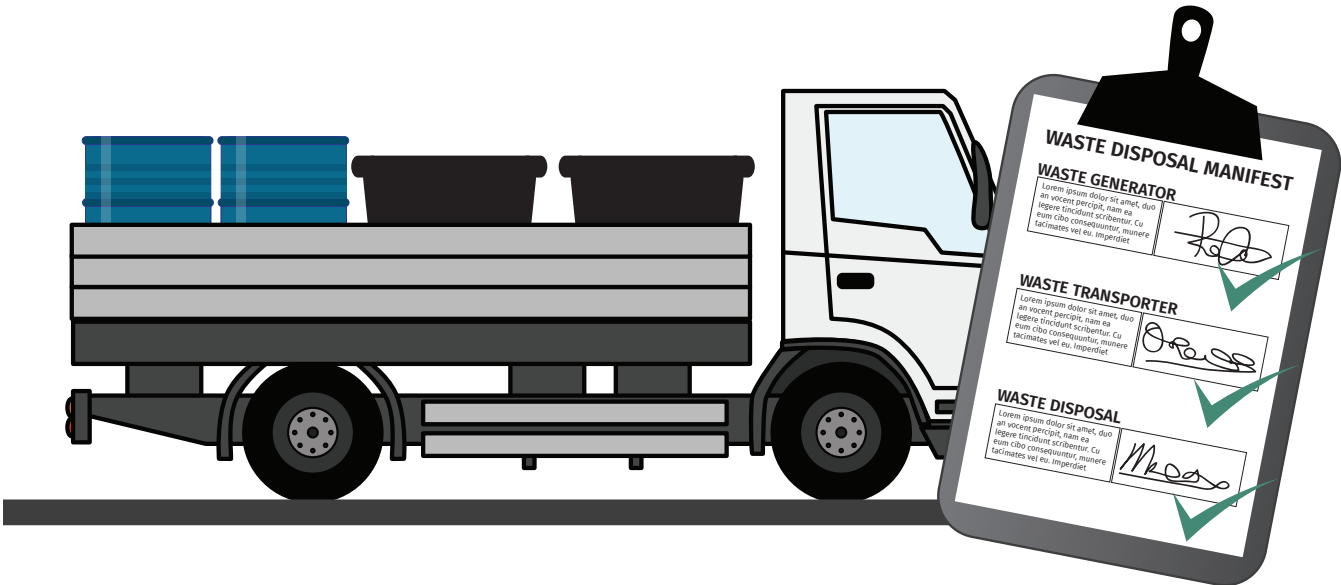
Garage management should dismantle oil filters before transportation by a handler to avoid product reuse.



Always store waste oil in a suitable drum or metal storage tanks.

Store waste in separate leak-proof containers and keep container lids on securely. Keep the storage area clean and dry and regularly inspect the storage area for leaks and spills.

Store batteries on pallets in a secure area. The batteries should be stored intact, including fluids, until collected by NEMA licensed waste collectors.



Ensure that garage waste is transported to a designated disposal facility only by a NEMA licensed waste collector.

Make certain the waste collector provides a waste manifest form. The manifest form tracks the waste from the generation point to disposal facility. It is signed by the generator, transporter and waste disposal facility upon waste receipt.

Always obtain a destruction certificate from the collector with the details of waste type and waste volume destroyed. A destruction certificate is issued by the disposal facility to a waste transporter upon destruction and/or disposal of wastes.

Wastewater regulations

Auto garages should be aware of and comply with the following basic legal requirements for the operations with a special focus on waste and wastewater.

Permit/License/Certificate	Law/Regulations	Fee (UGX)	
EIA Certificate of Approval (for new, expansions or refurbishments)	<ul style="list-style-type: none"> National Environment Act Cap 153 National Environment (Impact Assessment) Regulations, 1998 	If project/business cost is:	
		<50M	250,000
		50M-100M	500,000
		100M-250M	750,000
		250M-500M	1,000,000
		500M-1B	1,250,000
		1B -5B	2,000,000
		>5B	0.1% of the project cost
		Note: The developer also incurs costs for consultant who carries out an EIA	
Pollution License (for activities polluting the environment in excess of standards)	<ul style="list-style-type: none"> National Environment Act Cap 153 	Determined in accordance with Polluter Pays Principle	
License to Own and Operate a Wastewater Treatment and Disposal Plant	<ul style="list-style-type: none"> National Environment (Waste) Management Regulations, 1999 	Application fee	50,000
		License fee	300,000
Wastewater Discharge Permit	<ul style="list-style-type: none"> The Water Act, Cap 152 The Water (Waste Discharge) Regulations SI 152-1 	Permit processing fees	650,000
		Annual discharge fees	depend on volume and the biological and physiochemical quality of waste
		The charges range from 500,000 to 13,000,000 and are calculated based on the criteria set out in the regulations	
License for Waste Storage	<ul style="list-style-type: none"> National Environment (Waste) Management Regulations, 1999 	Application fee	50,000
		License fee	200,000
License to Transport Waste (this can be outsourced to licensed waste transporters)	<ul style="list-style-type: none"> National Environment (Waste) Management Regulations, 1999 Basel Convention on Trans-boundary movement of wastes, in case the batteries are imported 	Application fee	50,000
		License fee	100,000
		Note: If transportation is outsourced, the cost depends on negotiation with the transporter	
Approval for Discharge into NWSC Sewerlines	<ul style="list-style-type: none"> National Water and Sewerage Corporation Act, 1995 	80% of water bill If not NWSC customer, water consumption is estimated	

Issuing Authority	How to Apply	Validity
National Environment Management Authority (NEMA)	Carry out an EIA (EIA conducted by certified EIA practitioners) Submit to NEMA for consideration	Has no validity period but it is subject to implementation of the project starting within five (5) years from the date of issuing an EIA certificate of approval
Pollution Licensing Committee (PLC) - NEMA	Apply to PLC through NEMA as a secretariat with documents indicating the characteristics and quantity of wastewater that will be discharged	Validity period – determined by the discharge i.e. how long will the facility require before rectifying the problem
Pollution Licensing Committee (PLC) - NEMA	Carry out an EIA and obtain an EIA Certificate of Approval Apply to PLC through NEMA as a secretariat and attach the plant designs	One (1) year
Directorate of Water Resources Management (DWRM) - Ministry of Water and Environment (MWE)	Install a wastewater treatment plant Start operations, and then: apply to Director, DWRM	Permit duration between one (1) year and three (3) years
Pollution Licensing Committee (PLC) – NEMA	Apply to PLC through NEMA as a secretariat	One (1) year
Pollution Licensing Committee (PLC) - NEMA	Apply to PLC through NEMA as a secretariat	One (1) year
National Water and Sewerage Corporation (NWSC)	Must first pre-treat wastewater to meet standards for discharge into sewer lines, apply for approval from sewerage department or water quality management department, NWSC for connection	Open

Periodic checks

Periodic checks and audits form an important part of a strategy to identify inefficient use of resources, inadequate management of waste, and opportunities for improvement. Increasing the efficiency of the utilization of resources, and reducing and avoiding the generation of pollutants is integral in protecting and improving the environment, ensuring the health of human beings, promoting sustainable development, and generating economic benefits to businesses.

Below is a summary of periodic checks that may be applicable for garages.

MANDATORY CHECKS

Type	Responsible institution	Frequency	Fees	Procedure
Compliance Environmental Audit	National Environmental Management Authority (NEMA)	Annual	No NEMA fees, only the Environmental Auditor needs to be paid	Engage a NEMA certified Environmental Auditor. (List available from NEMA)

RECOMMENDED CHECKS

Type	Responsible institution	Frequency	Fees	Procedure
Adoption of Cleaner Production Practices	Uganda Cleaner Production Centre (UCPC)	As and when required	UCPC fees depend on the size of the enterprise Small - up to \$2600 Medium - up to \$3800 Large - up to \$6600	Contact UCPC for more information
Self-Internal Audits	Firm/NEMA	As and when required	Environmental Auditor fees - depend on the magnitude of work	Engage a NEMA certified Environmental Auditor. (List available from NEMA)

National Environment Management Authority (NEMA)

Website: www.nemaug.org
Email: info@nemaug.org
Tel: +256 414 251068

Directorate of Water Resources Management (DWRM) - Ministry of Water and Environment (MWE)

Website: www.mwe.go.ug
Tel: +256 414 505942

Kampala Capital City Authority (KCCA)

Website: www.kcca.go.ug
Email: info@kcca.go.ug
Tel: +256 204 660800

National Water and Sewerage Corporation (NWSC)

Website: www.nwsc.co.ug
Email: info@nwsc.co.ug
Tel: +256-313 315 100/312-260 414/5

Uganda Cleaner Production Centre (UCPC)

Website: www.ucpc.co.ug
Email: ucpc@ucpc.co.ug
Tel: +256 414 287938

Licensed Waste Handlers

A full list of licensed waste handlers is available from NEMA. It can be downloaded from the NEMA website by going to <http://nema.go.ug/index.php/enviromental-mgt-complaine/waste-handlers> and clicking on “Click here to download full document”.

For further information or enquiries call the NEMA Hotline on any of the following numbers:

+256 414 251064

+256 414 251065

+256 414 251068

Kampala Pollution Control Task Force

The Kampala Pollution Control Task Force (PTF) was formed with support from the GIZ RUWASS Programme. It comprises of Kampala Capital City Authority (KCCA), the Ministry of Water and Environment's Directorate of Water Resource Management (DWRM), the National Environmental Management Authority (NEMA), and National Water and Sewerage Corporation (NWSC). Uganda Manufacturers Association (UMA) and Uganda Cleaner Production Centre (UCPC) were also brought on board to enhance the engagement of the industrial sector through a Public-Private Dialogue (PPD) regarding Cleaner Production and improved resource recovery and reuse efficiency, with a focus on water, waste and energy optimization.

Key priorities of the task force include the following:

- **Information exchange and collaboration among key government institutions including: DWRM, KCCA, NEMA, NWSC to jointly engage the public and private sector about legal provisions and regulations on wastewater discharge and pollution control.**
- **Launch campaigns to enhance compliance to DWRM/NEMA permit regulations regarding wastewater discharge.**
- **Conduct joint industrial assessments and disseminate pollution monitoring information to the public and private sector.**
- **Engage potential priority polluters and the private sector in general in a dialogue with the public sector through the Kampala Public – Private Wastewater Dialogue on wastewater management and pollution control to increase awareness and trust.**

For more information please visit the PTF webpage at:

<http://www.kcca.go.ug/pollution-control-task-force>

Also available in this series are Industrial Wastewater Management Guides
for the following industries:

Battery Recycling Industries
Paint Industries
Soft Drink Industries
Textile Industries
Dairy Industries
Abattoirs
Steel Rolling Mills

