**REPUBLIC OF KENYA**

**COUNTY GOVERNMENT OF NYANDARUA**

**LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVELOPMENT**

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Ol'Kalou

# ENGINEER MUNICIPALITY SOLID WASTE MANAGEMENT POLICY

# Foreword

This Solid Waste Management Policy marks a major milestone in the journey toward sustainable development and environmental protection within our Municipality. Poor waste management has long posed challenges to public health, ecological balance, and urban growth. This policy provides a clear, integrated, and participatory roadmap that aligns with the Constitution of Kenya 2010, the Environmental Management and Coordination Act (EMCA), Vision 2030, and the Sustainable Development Goals (SDGs).

It outlines strategies to minimize waste generation, improve collection, transportation, promote recycling, recovery, and ensure safe disposal. By adopting inclusive and innovative approaches, it seeks to transform waste from a burden into an opportunity for green jobs, cleaner cities, and a healthier environment for all.

# Acknowledgements

**From the Governor / CECM Lands**

On behalf of the County Government, I affirm our commitment to supporting Municipality in the implementation of this policy. Solid waste management is a shared responsibility that demands strong leadership, adequate resources, and active participation of all citizens. We recognize the critical role of partnerships—between government, the private sector, community-based organizations, and development partners—in making this policy a reality. Together, we can build resilient, **livable** towns and safeguard the well-being of future generations.

**Municipal Board Chairperson**

On behalf of Engineer Municipal Board, I extend my sincere appreciation to the technical team, our development partners, and the dedicated community of Engineer Municipality. Your collective expertise and active engagement have been vital in developing this forward-thinking Solid Waste Management Policy. This policy is a testament to our shared commitment to a cleaner, healthier, and more sustainable future for all.

Thank you.

Tabitha Wambui

Chairperson, Engineer Municipality Board

Nyandarua County

**From the Municipal Board Chairperson**

The Municipal Board has a mandate to provide strategic oversight in service delivery, including solid waste management. This policy gives us a framework to improve accountability, strengthen partnerships, and expand services to all areas—urban and rural alike. We call upon households, institutions, and businesses to take up their responsibilities under the Polluter Pays Principle, and to embrace segregation, recycling, and responsible waste practices. With collective action, we will achieve a clean, green, and prosperous municipality.

**From Municipal Manager**

The preparation of this policy was made possible through the dedicated efforts of many stakeholders. We acknowledge the leadership of the County Government, the guidance of the Municipal Board, the technical contributions of our staff, and the active participation of community groups, civil society, and private sector actors. Special thanks go to our development partners for providing both technical and financial support.

This policy is a living document, shaped by the voices of our people, and will be implemented with their continued engagement.

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# Acronyms and Abbreviations

**CBO** – Community-Based Organization

**CIDP** – County Integrated Development Plan

**CSO** – Civil Society Organization

**EPR** – Extended Producer Responsibility

**FBO** – Faith-Based Organization

**GHG** – Greenhouse Gas

**ISWM** – Integrated Solid Waste Management

**ISSWM** – Integrated Sustainable Solid Waste Management

**MRF** – Material Recovery Facility

**Municipality** – Engineer Municipality

**NEMA** – National Environment Management Authority

**NGO** – Non-Governmental Organization

**OHS / OSHA** – Occupational Health and Safety / Occupational Safety and Health Act

**PPP** – Public-Private Partnership

**SBCC** – Social and Behavior Change Communication

**SDGs** – Sustainable Development Goals

**SWM** – Solid Waste Management

## Definitions of Key Terms

**Municipality:** A town or district that has local government.

**Municipality board:** A municipality board is a governing body or committee established by a municipality (like a city, town, or village) to handle specific issues or administer certain functions

**E-Waste:** Any discarded items with plugs, cords and electronic components.

**Solid Waste**: Any discarded material, whether generated from households, businesses, institutions, or industries that is no longer useful in its current form.

**Integrated Solid Waste Management (ISWM)**: A comprehensive approach that promotes waste reduction, segregation, collection, recycling, treatment, and environmentally sound disposal.

**Circular Economy**: An economic model where materials are continuously reused, repaired, recycled, or repurposed to minimize waste and resource extraction.

**Polluter Pays Principle**: The principle that those who generate waste should bear the cost of managing it responsibly.

**Material Recovery Facility (MRF)**: A specialized facility where collected waste is sorted, processed, and prepared for recycling or recovery.

**Hazardous Waste**: Waste that poses risks to human health or the environment, such as biomedical waste, e-waste, or chemical residues.

**Waste Segregation at Source**: The practice of separating waste at the point of generation into categories such as organic, recyclable, and hazardous.

**Public Participation**: The involvement of citizens, communities, and stakeholders in decision-making processes regarding SWM planning, implementation, and monitoring.

# Executive Summary

This Solid Waste Management Policy provides a strategic framework for Municipality to address growing challenges in waste management. Anchored in the principles of inclusivity, accountability, circular economy, and climate resilience, the policy sets out a vision of a clean, healthy, and sustainable environment supported by integrated waste systems.

Key priorities include:

- Waste minimization at source through 7Rs principles.
- Household and institutional segregation of waste.
- Expansion of efficient collection and transportation systems.
- Promotion of recycling, composting, and recovery enterprises.
- Safe disposal through sanitary landfills and treatment facilities.
- Stronger management of hazardous, biomedical, and e-waste.
- Continuous community education, awareness, and participation.

- Mobilization of resources through PPPs, county allocations, donor support, and innovative financing.

The policy also sets measurable outcomes with Key Performance Indicators (KPIs), linked to a robust Monitoring, Evaluation, Reporting, and Learning (MERL) framework. Through periodic reviews, the policy will remain dynamic and responsive to emerging challenges.

By adopting this policy, Municipality affirm their commitment to protecting public health, enhancing environmental sustainability, creating green jobs, and contributing to the national and global sustainability agenda.

# Chapter One: Introduction

## 1. Location and Situation

The Engineer municipality is among the three (3) newly created Municipalities in Nyandarua County. It was declared a municipality in 2023 and has a geographical size of 528.3km2.

It squarely lies within Kinangop Sub-County. It consists of four (4) wards namely, Engineer, Murungaru, North Kinangop and Gathara Ward. Engineer municipality is made up of several peri-urban and rural shopping centers. The major shopping centers includes Engineer, Ndunyu Njeru, Murungaru,Ndinda, and Munyaka. Rural Shopping Centers are Kahuruko,Weru,Kambaa,Lower Munyaka, Matundura, Soweto,Thindi, Memo,Chobe ,Gathara among others . These centers form the commercial and social backbone of the municipality.

## 2. Climate

The municipality experiences a cool highland climate with the following characteristics:

- **Temperate and Mild:**

  As part of Central Kenya, Engineer's high altitude keeps temperatures comfortable, avoiding the extreme heat often associated with equatorial regions.

- **Altitude:**

  The town's elevation contributes to its generally pleasant weather, providing a consistent and mild climate year-round.

- **Sunny & Dry:**

  The majority of the year in Engineer and the surrounding Central Kenya area is characterized by sunny and dry conditions.

- **Rainy Seasons:**

  There are two rainy seasons, the longer one from March to May and a shorter one from November to December.

- **Comfortable Temperatures:**

  Average afternoon temperatures in the rainy season are around 27 degrees Celsius (81 degrees Fahrenheit), with the dry season offering even more temperate condition

  - Implications for Solid Waste Management: The high rainfall and organic waste share require covered transport, well-drained transfer points, and storm-water controlled landfills.

# 3. Population

The population of Engineer Municipality is over 61,663 residents, as at November 2024 (Kenya Urban Support Program) and 19752 households Settlement and growth is concentrated in trading centers and along major transport routes.

# 4. Economic Activities and Growth Drivers

The economic foundation of Engineer Municipality is diverse and dynamic, driven by the following:
- Agriculture: Potatoes, dairy, and horticulture farming, with high volumes of agricultural produce.
- Trade: Weekly market days and retail/wholesale trading across the listed centres.
- Land subdivision: Rapid peri-urban housing and plot development that generates additional waste.
- Emerging drivers: Recycling ventures, agri-waste valorisation, and youth-led waste management enterprises.

# 5. Solid Waste Management Situation

The municipality generates an estimated 40 tons of waste per day. The waste is predominantly organic, augmented by plastics, paper/cardboard, and a rising stream of e-waste. Current waste management faces several challenges:
- Minimal segregation at source, with most recyclables recovered informally.
- Collection services are limited to major centers, leaving peri-urban areas underserved.
- The municipality lacks a sanitary landfill and Materials Recovery Facility (MRF).
- Open dumping and burning are common, creating public health risks.
- Enforcement of waste management regulations remains weak.

Opportunities exist to establish zoned transfer points, develop PPPs for recycling, and expand SBCC campaigns to increase segregation at source and improve compliance.


# 6. Waste Generation

Waste generation estimates based on an average of 0.65 kg/person/day, distributed evenly across the four wards:

| | POPULATION | ESTIMATED | ESTIMATED |
|---|---|---|---|
| | | Waste per Week(kg) | Waste Per Month(kg) |
| Engineer | 5,324 | 24,224 | 96,896 |
| Murungaru | 3,400 | 15,470 | 61,880 |
| Ndunyu Njeru | 4,354 | 19,811 | 79,244 |
| Other Shopping Centres | 2,000 | 9,100 | 36,400 |
| Total | 15,078 | 68,605 | 274,420 |

## Waste classification

| Type of waste | Percentage |
|---|---|
| Organic | 51% |
| Plastics | 11% |
| Paper and paper products | 9% |
| Glass | 5% |
| Metals | 2% |
| Inerts such as sand, rubble, dirt etc. | 4% |
| Others (totally mixed waste at collection) | 18% |

Table 2. Classification of waste by percentage (Source: Kinangop sub county public health office)

# 7. Human Resources

The municipality currently depends on 14 county government cleaners (contracted staff). This workforce is supported by a limited number of supervisors, drivers, and informal recyclers. As the municipality develops transfer points and MRFs, staffing requirements will need to scale up accordingly.

# 8. Rationale and Justification for Policy Development

The formulation of a comprehensive Solid Waste Management Policy for Engineer Municipality is critical for the following reasons:
- Rapid urbanization and increased population density have led to growing volumes of waste that exceed current capacity.
- Poor waste handling practices such as open dumping and burning pose significant public health risks, contravening the Public Health Act, Cap 242.
- Inadequate infrastructure (absence of sanitary landfill and MRFs) undermines compliance with the Sustainable Waste Management Act, 2022, and Environmental Management and Coordination Act (EMCA).
- Economic potential in waste-to-resource opportunities (composting, recycling, energy recovery) remains untapped.
- Behaviour change interventions are urgently needed to encourage segregation at source, recycling, and payment of waste service fees.

Developing and implementing this policy will ensure that waste is managed sustainably, environmental quality is preserved, public health is safeguarded, and socio-economic opportunities in waste management are harnessed for the benefit of all residents.

### Link to County, National, and International Frameworks

As a devolved function under the Constitution of Kenya 2010, solid waste management in Engineer aligns with county-level strategies, including unified budgeting and evaluation frameworks to ensure transparency and accountability. Nationally, Kenya's transition to a circular economy is supported by legislation such as the 2017 ban on single-use plastic bags, the Extended Producer Responsibility Regulations 2021, and the Sustainable Waste Management Act

2022, which promote resource efficiency and waste reduction. At the county level, Engineer's strategies emphasize governance, social inclusion, and environmental protection. Internationally, the municipality adopts frameworks from the United Nations Environment Programme (UNEP) and UN-Habitat, which prioritize waste reduction, reuse, recycling, resource recovery, incineration, and landfilling as a last resort. These frameworks guide the implementation of Integrated Solid Waste Management (ISWM) systems, ensuring alignment with global sustainability goals and Kenya Vision 2030 for a cleaner, healthier, and more sustainable future

# Chapter Two: Policy and Legal Framework

Solid Waste Management in Kenya is governed by a multi-layered policy and legal framework that integrates international, national, and county-level policy and legislation. This chapter outlines the key policies and legal framework influencing SWM in the Kenya's urban areas.

**International and Regional Conventions and Treaties**

Solid waste management is increasingly recognized as a global development and environmental priority. As such, at the global context, the SWM concern is guided by international conventions, frameworks, and agreements, which Kenya has signed and ratified, making them binding on both the national and county levels of government. As a semi-autonomous County entity, the Municipality is bound to implement these obligations through delegated county functions.

They include: -

**Rio Declaration on Environment and Development (1992)**
Kenya participated in the 1992 Earth Summit in Rio de Janeiro where the Rio Declaration was adopted. Though not legally binding, it sets foundational principles for sustainable development, including the **precautionary principle,** the **polluter-pays principle**, and **public participation** in environmental governance. These principles now inform Kenya's constitutional and legislative framework, and by extension, the Municipality's waste management practices.

**United Nations Framework Convention on Climate Change (UNFCCC, 1992)**
Kenya signed the Convention in 1992 and ratified it on **30 August 1994**. The UNFCCC obliges Kenya to monitor and reduce greenhouse gas emissions, including those from the waste sector (methane from landfills, carbon dioxide from burning, and nitrous oxide from treatment plants). The Municipality, as part of Kenya's devolved system, is bound to adopt waste management practices that contribute to national climate commitments under the Convention.

**Kyoto Protocol (1997)**
Kenya signed the Protocol on **25 April 1997** and ratified it on **25 February 2005.** The Protocol introduced legally binding emission reduction targets and

mechanisms such as the **Clean Development Mechanism (CDM)**, which allowed waste-to-energy, landfill gas capture, and composting projects to generate carbon credits. The Municipality is expected to design waste projects that can contribute to such emission reduction mechanisms and attract climate financing.

**Paris Agreement on Climate Change (2015)**

Kenya signed the Agreement on **22 April 2016** and ratified it on **28 December 2016**. The Agreement commits parties to reduce greenhouse gas emissions, including from waste management (landfills, open burning). The Municipality is bound to align its waste management practices with Kenya's Nationally Determined Contributions (NDCs), by promoting waste minimization, recycling, and climate-smart disposal methods.

**Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)**

Kenya signed the Convention on **22 March 1989** and ratified it on **1 June 2000**. The Convention obliges Kenya to control import, export, and disposal of hazardous wastes in an environmentally sound manner. At the devolved government level, the Municipality is responsible for ensuring environmentally sound management of hazardous and special waste streams within its jurisdiction, in line with national commitments.

**Sustainable Development Goals (SDGs, 2015 – 2030)**

Adopted by the United Nations in September 2015, Kenya committed to achieving the SDGs, particularly Goal 11 (sustainable cities and communities) and Goal 12 (responsible consumption and production). These goals provide a framework for integrated waste management at municipal level. As a devolved entity, The Municipality contributes to Kenya's reporting and implementation of the SDGs through its waste management systems.

**African Union Agenda 2063 (2015)**

Kenya is a member of the African Union and therefore a party to Agenda 2063, adopted in **January 2015.** Aspiration 1 emphasizes environmentally sustainable and climate-resilient economies, encouraging circular economy approaches, including recycling and waste-to-energy. The Municipality, as part

of a county within Kenya, must integrate these aspirations into its urban development and waste management initiatives and align its policies with Agenda 2063 through sustainable waste management initiatives.

These global commitments require local governments, including Municipality, to adopt sustainable, climate-sensitive, and inclusive waste management systems.

**Policy statement**

*The Municipality shall:*

1. *Align its solid waste management practices with Kenya's international obligations, by promoting waste minimization, environmentally sound disposal, and reduction of greenhouse gas emissions.*
2. *Contribute to global sustainable development commitments, including the SDGs and AU Agenda 2063, by fostering circular economy approaches such as recycling, composting, and waste-to-energy, while ensuring inclusivity and resilience in urban waste systems.*
3. *Apply international principles such as the precautionary principle, the polluter-pays principle, and participatory governance to ensure that global environmental standards are translated into local action.*

**National Policies and Legislation**

Kenya's national framework for solid waste management is comprehensive, grounded in constitutional principles, legislative mandates, planning standards, and progressive national policy. These frameworks provide both direction and enforceable obligations and include: -

**The Constitution of Kenya (2010)**

The **Constitution of Kenya (2010)** guarantees the right to a clean and healthy environment under Article 42, and the right to sanitation under the right to health under Article 43. Article 69 imposes a duty on both the State and citizens to safeguard the environment. Crucially, the **Fourth Schedule** designates **refuse removal, refuse dumps,** and **solid waste disposal** as

exclusive functions of county governments, functions that Municipality are mandated to administer under delegated authority.

**Legal Notice No. 137 of 2013**

This was issued by the Transition Authority and gave legal effect to devolution of functions under the fourth schedule of the CoK by breaking down SWM functions into actionable tasks, such as **waste collection, transport, treatment**, and **disposal**. It thus laid a firm constitutional and operational foundation for local-level SWM governance.

**Environmental Management and Coordination Act (EMCA, 1999, as amended)**

The Act aims to create a structured, environmentally sound system for waste management that minimizes health risks, reduces environmental pollution, and promotes sustainability in Kenya. Under the **Act**, counties must regulate SWM through **licensing, environmentally sound practices,** and penalties for violations.

**Key EMCA 1999 provisions on solid waste management include:**

a) Adoption of an **integrated approach** promoting waste reduction, reuse, recycling, and safe disposal.

b) **Licensing and regulation** of waste handlers, transporters, treatment, and disposal facilities by NEMA.

c) Prohibition of **illegal dumping,** with emphasis on designated sites and sanitary landfills.

d) Promotion of **public participation and awareness** in waste management.

e) Application of the **polluter-pays principle**, making waste generators responsible for costs and impacts.

f) **Enforcement measures** including fines and penalties for non-compliance.

**Waste Management Regulations (Legal Notice No. 178 of 2024)**

These **Regulations**, issued under the **EMCA1999,** strengthen Kenya's legal framework on solid waste. They provide detailed standards on **waste storage, segregation at source, collection, transportation, treatment, and final disposal,** and classify waste streams including **biomedical, industrial, hazardous, and radioactive waste**. These regulations place binding obligations on counties and Municipality to ensure waste is managed in an **environmentally sound and health-conscious manner**, with clear penalties for non-compliance.

**Public Health Act (Cap. 242)**

The Act gives local authorities the mandate to enforce sanitation and hygiene standards. This ensures that waste facilities, collections, and dumpsites do not pose health risks, especially during outbreaks.

**Physical and Land Use Planning Act (2019)**

The Act requires that Municipality prepare **local physical and land use development plans** consistent with broader county and national spatial strategies. These must include **zoned areas for waste infrastructure,** protective buffer zones, and ensure compliance with **development control standards.** Additionally, County governments also may develop specific **subject plans,** such as SWM plans for markets or industrial zones, aligned with national spatial and planning guidelines.

**Sustainable Waste Management Act, 2022 (No. 31)**

The Act, represents a landmark reform in Kenya's waste governance framework. It establishes the **National Waste Management Council** which provides policy direction and coordination and the National Sustainable Waste Management Authority which serves as the implementing and enforcement agency. The Act anchors modern principles of **segregation at source, extended producer responsibility (EPR), circular economy, zero-waste, public participation, and incentives for recycling and recovery.**

For devolved governments, the Act places clear obligations on **counties and Municipality,** including:

a) Enacting local waste management legislation and by-laws within one year.

b) Developing infrastructure for **material recovery, recycling, and sanitary landfills.**

c) Promoting **segregation at source**, managing waste within county boundaries (unless otherwise agreed), and submitting **regular reports** to the national Authority.

**Extended Producer Responsibility (EPR) Regulations (2024)**

The **Regulations** were enacted under the **Sustainable Waste Management Act, 2022 (No. 31)** to operationalize the principle that producers are accountable for the full lifecycle of their products and packaging. The Regulations establish clear obligations for producers, importers, and brand owners to ensure environmentally sound management of waste arising from their products.

Key provisions include:

a) **EPR Schemes:** Producers must establish or join collective EPR schemes registered with the **National Sustainable Waste Management Authority**, covering collection, segregation, transport, recycling, and safe disposal.

b) **Take-Back Mechanisms:** Producers are obligated to put in place take-back and buy-back systems for products such as plastics, electronics (e-waste), tires, and batteries.

c) **Circular Economy Measures:** The Regulations promote product redesign, eco-labeling, use of recyclable materials, and investment in recycling infrastructure to reduce waste at source.

d) **Reporting and Compliance:** Producers must submit periodic reports on quantities placed in the market, recovery rates, and waste management measures, with non-compliance attracting penalties.

e) **Support to Counties and Municipality:** EPR schemes are required to collaborate with counties and Municipality by financing waste collection, recycling, and awareness campaigns, ensuring that the cost burden of waste management does not fall solely on local governments.

**The County Government Act 2012**

The **Act** decentralizes waste management, giving counties the mandate to manage waste within their boundaries. Counties are responsible for the **collection, transportation, treatment, and disposal** of waste, and must develop supporting **policies, plans, and infrastructure**.

The Act places obligations and mandates on Counties to:

a) Integrate solid waste management into **urban planning and development strategies**, including zoning for landfills, recycling centers, and disposal sites.

b) Conduct **public participation** in planning and implementation to ensure accountability and responsiveness to community needs.

c) Adopt **sustainable waste management practices** such as recycling, waste reduction, and proper disposal, in line with **EMCA 1999** to protect ecosystems and public health.

d) Engage in **public-private partnerships (PPPs)** and to **outsource services** such as waste collection and recycling, to improve efficiency.

e) Levy **fees and charges** for waste management services, with revenues ring-fenced to maintain and expand SWM systems.

**Urban Areas and Cities Act, Cap 275**

Provides for integrated development planning in urban areas. The Act provides for development of urban integrated development plans for urban areas and cities which includes planning for solid waste management

**Public Finance Management Act, Cap 412 C**

Provides for financial planning and management at the national and county levels including linkage of development planning, budgeting and public expenditure.

Key provisions for Counties and Municipality include:

a) Empowers counties to allocate resources to Municipality for delegated functions, ensuring that **funds follow functions** as required by the Constitution.

b) All revenues, including **waste management fees and charges**, must be paid into the **County Revenue Fund** and appropriated through the County Assembly.

c) Operationalizes the principles of **fiscal responsibility and transparency**, requiring that counties and Municipality demonstrate efficient use of public resources in service delivery. In practice, this means that when solid waste management functions are transferred from a county department to a municipal board, the **accompanying budgets, staff, and assets** must also be transferred to enable effective implementation.

d) Encourages Municipality to explore **diversified financing mechanisms**, including user charges, conditional grants, and partnerships with the private sector and development partners, to ensure sustainability of waste management systems.

**Occupation Safety and Health Act, Cap 514**

The Act provides for safety, health and welfare of workers and persons lawfully present at workplaces. It obligates workplaces that manipulate chemicals or toxic substances, such as the solid waste management unit, to develop a suitable system for the safe collection, recycling and disposal of chemical wastes, obsolete chemicals and empty containers of chemicals. This ensures that the employer avoid risks to safety, health of employees and the environment.

**National Environment Policy, 2013**

The policy provides for governance framework for environment management. Regarding solid waste management, the policy recognizes inefficient production processes, low durability of goods and unsustainable consumption and production patterns lead to excessive waste generation. To address these challenges, the policy provides for development of an integrated national waste management strategy, promotion of use of economic incentives to manage waste and promotion of establishment of facilities and incentives for cleaner production waste recovery, recycling and re-use.

**Kenya Environment, Sanitation and Hygiene Policy 2016-2030.**

This policy provides a national framework for achieving universal access to adequate sanitation and a clean, healthy environment. It emphasizes **expanded access to rural and urban sanitation,** elimination of public health nuisances, and **private sector participation** in service delivery. It further promotes **strong governance, sustainable financing, enabling laws and regulations, research and innovation, and effective monitoring and evaluation systems.**

For counties and Municipality, the Policy requires integration of sanitation and hygiene into **local development plans**, investment in waste and sanitation infrastructure, and collaboration with communities and private actors to ensure public health protection and environmental sustainability.

**National Climate Change Action Plan (NCCAP) (2018 – 2022)**

It is Kenya's first climate change action plan developed to implement the National Climate Change Response Strategy (NCCRS). The action plan encourages proper management of solid waste which contribute to improved ground water quality, local air quality and safety as well as hygienic conditions. It is also aimed at reducing emissions through mitigation and adaptation strategies.

**National Waste Management Strategy (2015)**

The Strategy provides Kenya's roadmap for transitioning to sustainable and resource-efficient waste systems. It set an ambitious target of achieving **80%**

**waste recovery by 2030**, primarily through **segregation at source, recycling, composting, and energy recovery**, thereby reducing reliance on landfills. The Strategy emphasizes **Integrated Solid Waste Management (ISWM),** which combines waste minimization, resource recovery, safe disposal, and stakeholder participation.

For counties and Municipality, the Strategy provides both direction and benchmarks, requiring them to **develop localized waste management plans**, strengthen **public-private partnerships,** and adopt **circular economy practices** that align with the national recovery target.

**Vision 2030**

Vision 2030 highlights SWM as essential in urban infrastructure investments supporting sustainable urban growth. It recognizes the need for efficient and sustainable waste management systems to be established as the country develops into a newly industrialized state by 2030. It aligns solid waste management with the broader agenda of industrialization, infrastructure development, and environmental sustainability. Municipal solid waste management is an essential aspect of achieving the country's goals of sustainable urban development, environmental conservation, and improved public health. As Kenya experiences rapid urbanization, effective waste management is seen as a critical factor in transforming urban areas into clean, healthy, and livable environments.

These National policies and legislation are binding on County governments and Municipality with regard to sustainable, climate-sensitive, and inclusive waste management systems.

Policy Statement

*The Municipality shall:*

1. *Operationalize the constitutional right to a clean and healthy environment by implementing its devolved mandate over refuse removal, dumps, and solid waste disposal in compliance with the Constitution of Kenya (2010) and Legal Notice No. 137 of 2013.*

2. *Align its waste management practices with national legislation and shall enforce national environmental and public health standards within its jurisdiction.*

3. *Integrate national policy directions into its local systems to promote sustainable consumption, resource recovery, and climate-smart waste management.*

**County and Municipal Context**

At the devolved level, Nyandarua County and the Municipality operate under the national framework but must adopt county-specific policies and systems:

**Nyandarua County Public Participation and Civic Education Act No.....**
The Act was developed in line with Article 10 of the Constitution and Section 91 of the County Governments Act which recognize public participation as a mandatory element in planning and implementation of SWM. The Municipality will be required to integrate this principle by engaging residents, business owners, CBOs, waste workers and other relevant stakeholders in decision-making processes.

**The Nyandarua County Integrated Development Plan 2023-2027**

The Plan includes solid waste management as a critical priority. The county government is focusing on implementing projects that involve sorting waste at the source, improving collection systems, and using environmentally sustainable methods to manage increasing waste levels. These efforts aim to reduce pollution and improve public health. Additionally, the county is exploring waste recycling programs to create economic opportunities and promote environmental conservation as part of its broader development goals.

**The Ol'Kalou Municipality Integrated Development Plan 2020 - 2025**

The Plan aims to guide sustainable solid waste management to ensure a healthy, safe and secure environment for all. This will be achieved through the following strategies: -

i. Awareness creation on safe waste disposal methods and reuse.

ii. Increasing collection by provision of solid waste bins and transfer stations in the strategic areas.

iii. Purchase of refuse trucks to facilitate transfer to these transfer stations.

iv. Sensitization on circular economy of waste

v. Promotion of technologies and enterprises on waste recycling and reuse

vi. Adoption of polluter pays principle.

vii. Licensing and regulating the small-scale private waste collectors.

**The Engineer Municipality Strategic Plan 2023 - 2027**

Provides for effective waste management, which is essential for reducing pollution, conserving resources, and safeguarding public health. It also encourages investment in waste collection, recycling infrastructure, and public education campaigns to promote waste reduction and recycling behaviors among residents and businesses.

In summary, the county and municipal framework establishes the Municipality as the frontline actor in solid waste management within its area of jurisdiction, operating under delegated authority from Nyandarua County. The Municipality is therefore obligated to translate national and county policies into **localized systems, by-laws, and infrastructure,** ensuring efficient service delivery and accountability to residents.

**Policy statement**

*The Municipality shall:*

1. *Implement solid waste management as a devolved function of Nyandarua County and shall exercise delegated authority under the Urban Areas and Cities Act to provide efficient, transparent, and accountable services.*
2. *Develop and enforce by-laws consistent with county and national frameworks, while ensuring active public participation and stakeholder*

*engagement in planning, service delivery, and monitoring of waste management.*

3. *Integrate solid waste management priorities into the planning and budgeting instruments, including the municipal development plans, to guarantee sustainable financing, institutional capacity, and long-term accountability.*

# Chapter Three: Policy Vision, Mission, Goal and Objectives

## Vision

A future where Engineer Municipality is a model of sustainable waste management, transforming waste into resource and fostering a clean, healthy, and environmentally prosperous community for all.

## Mission

To safeguard public health and the environment through efficient, innovative, and collaborative solid waste management. We are committed to providing reliable collection services, promoting reduction, reuse, and recycling (3Rs), and ensuring the safe and scientific disposal of residual waste, in partnership with our residents, businesses, and stakeholders.

## Policy Goal

To establish an integrated, sustainable, and financially viable solid waste management system that protects human health, conserves the environment, fosters climate resilience, and generates green jobs while ensuring equity, accountability, and citizen participation across all levels of society.

## Policy Objectives

The specific objectives of this policy are to:

1. **Promote Waste Minimization** – Encourage sustainable consumption and production practices that reduce waste generation at source.
2. **Strengthen Segregation, Collection, and Transportation** – Ensure waste is properly segregated, efficiently collected, and safely transported using environmentally sound systems.
3. **Enhance Recycling and Resource Recovery** – Support the growth of recycling industries, composting, and other circular economy initiatives that maximize material recovery.
4. **Ensure Safe Disposal** – Provide adequate, sanitary, and environmentally compliant waste disposal facilities, including engineered landfills.
5. **Address Hazardous and Special Waste** – Establish systems for the safe handling, treatment, and disposal of biomedical, industrial, e-waste, and other hazardous waste streams.
6. **Strengthen Institutional and Human Resource Capacity** – Build technical, managerial, and operational capacity of Municipality to deliver quality SWM services.
7. **Promote Partnerships and Participation** – Foster collaboration among households, communities, private sector, CSOs, and development partners in SWM.
8. **Mobilize Financing and Investments** – Establish sustainable funding mechanisms through municipal revenues, PPPs, grants, and innovative instruments (e.g., carbon credits).
9. **Enhance Public Awareness and Behavior Change** – Implement continuous education and advocacy campaigns to foster responsible waste practices at household and community level.
10. **Mainstream Climate Change and Resilience** – Align SWM practices with climate change adaptation and mitigation strategies, reducing greenhouse gas emissions from waste.

# Chapter Four: Guiding Principles

Guiding principles define the approach and ethos under which Municipality shall implement Solid Waste Management (SWM) and sanitation strategies. They provide the foundation for consistent decision-making, strengthen governance, ensure inclusivity, and align interventions with sustainable development goals.

The following principles shall guide policy and practice:

## Right to a Clean and Healthy Environment

Every resident has a constitutional right to live in a clean and healthy environment. Waste management systems and services shall be designed to progressively realize this right, with equal attention given to urban, peri-urban, and rural settings.

## Public Participation and Inclusivity

Communities, households, businesses, and civil society organizations shall be meaningfully involved in decision-making on SWM. Platforms such as barazas, school programs, and digital platforms will be used to ensure all voices are heard, especially marginalized groups.

## Polluter Pays Principle

Waste generators, whether households, institutions, or industries, shall bear the cost of managing the waste they produce. This includes compliance with service charges, levies, and penalties for illegal dumping or non-segregation.

## Precautionary Principle

Where there is risk of serious or irreversible environmental damage from waste mismanagement, precautionary measures shall be taken even in the absence of full scientific certainty. This principle shall apply especially to hazardous, biomedical, and e-waste management.

## Circular Economy and 7Rs (Reduce, Reuse, Recycle, Rethink, Refuse, Repair, Refill)

Municipality shall transition from a linear "collect–transport–dispose" model to a **circular economy** approach. Resource recovery and value addition shall be prioritized through the **7Rs framework**, turning waste into raw materials, energy, compost, or other usable products.

## Intergovernmental and Inter-agency Collaboration

Effective SWM requires synergy between Municipality, county governments, national agencies (such as NEMA), private sector actors, and development partners. Clear roles, service-level agreements, and information-sharing mechanisms shall be established to avoid duplication and ensure accountability.

## Equity and Social Inclusion (Gender, Youth, Disability)

Waste management policies and programs shall integrate gender equity, empower youth through employment and innovation opportunities, and mainstream disability inclusion in service delivery, workplace safety, and public awareness initiatives.

## Climate Change Adaptation and Resilience

SWM systems shall contribute to climate resilience by:

- Reducing greenhouse gas emissions through diversion of organics, recycling, and improved disposal.
- Adopting adaptive infrastructure to withstand flooding, drought, and other climate-related risks.
- Promoting green jobs and climate-smart technologies.

# Chapter Five: Thematic Policy Areas and Strategic Interventions

## Waste Generation and Minimization

**Policy Statement:** Municipality shall promote waste minimization at source by reducing overall waste generation and encouraging sustainable consumption practices.

**Strategic Interventions:**

- Enforce the 3Rs principle (Reduce, Reuse, and Recycle) across all sectors.
- Introduce incentives for industries and businesses that adopt cleaner production and packaging practices.
- Develop by-laws discouraging single-use plastics and non-biodegradable packaging.
- Promote home-based composting and sustainable farming practices to reduce organic waste volumes.

## Waste Segregation at Source

**Policy Statement:** Waste shall be segregated at the point of generation into organic, recyclable, hazardous, and residual fractions to enhance recovery and safe disposal.

**Strategic Interventions:**

- Establish mandatory household and institutional waste segregation guidelines.
- Provide color-coded bins and collection receptacles to support segregation.
- Train waste collectors and handlers on handling segregated waste streams.
- Link segregated streams to specialized recovery, recycling, and treatment facilities.

## Collection and Transportation of Waste

**Policy Statement:** Municipality shall ensure efficient, reliable, and environmentally sound waste collection and transportation systems.

**Strategic Interventions:**

- Strengthen fleet capacity by acquiring modern, closed-body waste trucks.
- Adopt route optimization technologies to improve efficiency and reduce fuel costs.
- Expand coverage to underserved areas, including informal settlements and peri-urban zones.
- Promote Public-Private Partnerships (PPPs) for cost-effective service delivery.
- Establish performance-based Service Level Agreements (SLAs) with private collectors.

## Recycling, Composting, and Resource Recovery

**Policy Statement:** Recycling, composting, and resource recovery shall be prioritized to reduce waste volumes sent to disposal sites and create green jobs.

**Strategic Interventions:**

- Establish and operationalize Material Recovery Facilities (MRFs) in Municipality.
- Support youth and community groups to develop enterprises in recycling and composting.
- Provide incentives for industries using recycled materials and producing eco-friendly products.
- Introduce extended producer responsibility (EPR) programs in line with national regulations.
- Promote circular economy models to integrate waste as a resource.

## Treatment and Safe Disposal (Landfills, Incineration, Sanitary Sites)

**Policy Statement:** Residual waste that cannot be recycled or recovered shall be safely treated and disposed of in engineered facilities.

**Strategic Interventions:**

- Identify, acquire, and gazette sanitary landfill sites in compliance with NEMA standards.
- Phase out open dumping and uncontrolled burning of waste.
- Invest in modern treatment technologies such as waste-to-energy, biogas digesters, and sanitary incineration.
- Fence and secure dumpsites to prevent scavenging and illegal dumping.
- Develop environmental safeguards to protect soil, air, and water from leachate and emissions.

## Hazardous and Biomedical Waste Management

**Policy Statement:** Hazardous and biomedical waste shall be handled separately and treated with strict adherence to environmental and health standards.

**Strategic Interventions:**

- Establish designated hazardous waste collection and treatment systems.
- Strengthen monitoring of hospitals, laboratories, and industries to ensure compliance.
- Adopt environmentally sound biomedical treatment methods (e.g., autoclaving, microwaving, incineration).
- Train health and waste management personnel on handling hazardous waste.
- Enforce licensing and reporting requirements for all facilities handling hazardous waste.

## E-waste and Special Waste Streams

**Policy Statement:** E-waste and special waste streams shall be formally managed through regulated systems to prevent environmental pollution and promote recovery of valuable materials.

**Strategic Interventions:**

- Establish e-waste collection centers and partner with certified recyclers.
- Create awareness among households and institutions on safe disposal of e-waste.
- Regulate construction and demolition waste through designated collection and reuse systems.
- Integrate e-waste management into extended producer responsibility (EPR) schemes.
- Develop data systems to track and report on e-waste flows.

## Public Awareness, Education, and Behavior Change

**Policy Statement:** Public awareness and education shall be central to changing behaviors and promoting sustainable waste management practices.

**Strategic Interventions:**

- Institutionalize community education and awareness programs (CEAPs).
- Integrate environmental education, with emphasis on SWM, into school curricula from ECD to tertiary level.
- Conduct periodic awareness campaigns through barazas, media, and digital platforms.
- Encourage community participation in clean-up days, recycling fairs, and competitions.
- Promote behavioral change communication strategies to discourage littering, illegal dumping, and open burning.

# Chapter Six: Institutional and Governance Framework

Solid waste management in the Municipality is delivered through a multi-level governance structure anchored in the Constitution of Kenya (2010), the Urban Areas and Cities Act (2011), and other national and county legislation.

Responsibility flows hierarchically from the **National Government**, which provides overarching policy and legal direction, to the **County Government** - through the County Executive Committee - which holds the devolved mandate, and further to **the Municipal Board and its administrative structures,** which manage day-to-day service delivery.

Alongside these formal government actors, **regulatory agencies, civil society, private enterprises, and residents** play complementary roles in ensuring that waste is managed in a manner that safeguards public health, protects the environment, and promotes sustainable urban development.

## 6.1. National Government Institutional Structures

### 6.1.1. Role of the National Government

The National Government plays a key role in overall policy direction, sets the legislative framework and technical standards, and undertakes sector oversight. The National Government shall:

i. Develop national legislation, policies, and strategies on solid waste management.
ii. Provide conditional grants and other forms of financial support to counties.
iii. Ensure compliance with international environmental treaties and commitments.
iv. Facilitate research, innovation, and national awareness campaigns.

### 6.1.2. Role of the National Environment Management Authority (NEMA)

NEMA operationalizes national laws and ensure compliance with environmental laws and standards.

NEMA shall:

i. Issue licenses and permits for waste collection, transportation, treatment, and disposal facilities.
ii. Monitor compliance with environmental laws and taking enforcement actions against offenders.
iii. Conduct environmental audits and impact assessments for waste-related projects.

iv. Provide technical guidance and capacity-building support to counties and municipalities.

### 6.2. County Government Institutional Structures

Within the national framework, the County Government assumes direct responsibility for solid waste management as a devolved function under the Constitution, translating national policies into county-specific legislation, plans, and budgets.

#### 6.2.1 Role of the County Executive Committee

The County Executive Committee is responsible for providing overall policy direction, resource allocation, and oversight of solid waste management within the County.

The County Government through the County Executive Committee shall:

i. Enact enabling county - level legislation and approve municipal by-laws, and frameworks for SWM.
ii. Allocate budgetary support and mobilize external resources for waste management.
iii. Facilitate inter-municipal collaboration and ensure alignment with the County Integrated Development Plan (CIDP).
iv. Coordinate county-wide awareness campaigns and ensure equitable service provision.

To discharge this mandate effectively, the County Government works through its technical departments, which provide policy oversight, technical support, and regulatory alignment to municipalities in the implementation of solid waste management functions.

6.2.2. Role of County Technical Departments

Although the Municipality manages solid waste on a day-to-day basis, certain **technical departments in the mainstream County Government of Nyandarua** shall provide oversight, regulatory alignment, and specialized support as follows:-

i. **Department of Water, Environment, Natural Resources, Climate Change and Tourism** shall provide overall policy guidance on environmental conservation, climate change integration, and sustainable waste practices. It ensures municipal actions align with county and national environment policies.
ii. **Department of Health Services shall** oversee public health and sanitation standards in waste handling, disposal sites, and waste-related disease prevention, in line with the Public Health Act.

iii. **Department of Lands, Housing, Physical Planning and Urban Development shall g**uide spatial planning and zoning for waste management infrastructure, including landfill sites, transfer stations, and recycling plants, ensuring compliance with the Physical and Land Use Planning Act (2019).

iv. **Department of Finance and Economic Development shall a**llocate funds to the Municipality for delegated functions, manages conditional grants, and ensures that waste management priorities are integrated into county budgets and development plans.

v. **Department of Roads, Public Works, Energy and Transport shall p**rovide technical expertise on the design, construction, and maintenance of waste management infrastructure such as sanitary landfills, drainage systems, and access roads to disposal sites.

These county departments play a **supportive and supervisory role**, ensuring that the Municipality's waste management systems are well-resourced, compliant with legal requirements, and aligned with broader county development priorities.

### 6.3. Municipality Institutional Structures

At the municipal level, the Municipal Board acts as the primary governance body, ensuring that delegated functions, including solid waste management, are executed in line with county policies and national standards.

#### 6.3.1. Role of the Municipal Board

The Municipal Board provides strategic guidance and oversight of solid waste management functions at the municipal level.

The Board shall: -

i. Provide overall oversight of solid waste management within the Municipality by adopting policies, strategies, and targets that align with county and national waste management frameworks.
ii. Review and approve municipal SWM plans, by-laws, and annual budgets, and ensure that adequate resources are allocated for waste management services.
iii. Regulate solid waste management services provided by the Municipality or contracted service providers, ensuring compliance with environmental laws, public health standards, and NEMA regulations.
iv. Facilitate effective public participation in SWM decision-making, promote community ownership of waste management initiatives, and monitor the impact of policies and programmes.
v. Promote partnerships with the private sector, civil society, and informal actors (such as waste pickers and recyclers), and mobilize additional resources to enhance SWM services.
vi. Safeguard public health and the environment by ensuring waste is managed sustainably and in line with constitutional principles of a clean and healthy environment.

### 6.3.2. Role of the Municipal Manager

To translate the Boards governance decisions into practice, the Municipal Manager serves as the chief executive and accounting officer, responsible for the day-to-day leadership and management of solid waste services. The Municipal Manager plays a central role in the effective implementation of solid waste management functions.

The Manager shall:

i. Ensure that all policies, plans, and resolutions of the Board relating to solid waste management are executed efficiently and in a timely manner.
ii. Provide leadership and supervision in the day-to-day operations of municipal waste management services, including collection, transportation, recycling, and disposal.
iii. Act as the accounting officer for SWM, approving expenditure, authorizing payment of funds, and ensuring prudent financial management in line with the Public Finance Management Act (2012).
iv. Oversee the staffing, performance management, and capacity building of officers within the Solid Waste Management section and other relevant units.
v. Coordinate technical departments, contracted service providers, and stakeholders involved in SWM, and prepare regular performance and financial reports to the Board.
vi. Ensure that municipal SWM practices comply with applicable national and county legislation, NEMA regulations, and public health standards.

### 6.3.3. Role of the Director of Public Health, Environment, Trade & Tourism

To strengthen institutional capacity, the Municipality shall establish a Directorate in charge of Public Health, Environment, Trade and Tourism within its organogram**.** The Directorate shall be headed by a Director, supported by other technical officers.

The Director shall support the Manager, and provide overall leadership on environmental health and sanitation, ensuring compliance with waste management laws and standards.

### 6.3.4 Public Health Unit

To strengthen institutional capacity, the Municipality shall establish a Unit in charge of Public Health within the Directorate of Public Health, Environment, Trade and Tourism. The Unit shall be headed by a Public Health practitioner, supported by other technical officers.

The Unit shall ensure compliance with public health standards in waste handling, collection, and disposal to protect community health.

### 6.3.5. Role of the Solid Waste Management Section

To strengthen institutional capacity, the Municipality shall establish a section in charge of Solid Waste Management within the Public Health Unit**.** The Solid Waste Management Section shall be headed by a Public Health practitioner, supported by other technical officers.

The SWM Section shall:

i. Lead in the planning, coordination, and operational delivery of all solid waste management services in the Municipality, including collection, transportation, treatment, recycling, and disposal.
ii. Enforce municipal SWM by-laws and standards, monitor compliance by service providers and residents, and apply penalties in accordance with relevant laws and regulations.
iii. Develop and implement municipal by-laws, operational guidelines, and technical standards, and establish robust data collection and management systems for monitoring waste generation, recovery, and disposal.
iv. Promote waste minimization, recycling, recovery, and circular economy initiatives, including public education and partnerships that support climate-smart and sustainable waste practices.
v. Oversee the development, operation, and maintenance of SWM infrastructure such as transfer stations, recycling centres, material recovery facilities, and sanitary landfills.
vi. Provide training to municipal staff and awareness programmes for communities to encourage waste segregation at source, responsible waste handling, and active citizen participation.

### 6.3.6. Role of Other Municipality Technical Units

The Municipality shall operationalize its mandate through other specialized technical units, each with distinct responsibilities but working collaboratively to support the solid waste management unit:

i. **Environment, Water and Natural Resources Unit** shall oversee environmental conservation, waste minimization, and sustainable resource use within the Municipality.
ii. **Inspectorate and Enforcement Unit** shall enforce SWM by-laws, issue penalties for illegal dumping, and ensure compliance with licensing and regulations.
iii. **Lands and Physical Planning Unit** shall provide zoning and spatial planning for waste management infrastructure such as landfills, transfer stations, and recycling plants.
iv. **Building Control and Housing Unit** shall ensure building approvals integrate proper waste management facilities (e.g., waste chambers and collection points).

v. **Roads and Transport Unit** shall support the development and maintenance of road access for waste collection vehicles and transport of waste to disposal facilities.
vi. **Finance, Economic Planning & Accounts Unit** shall manage budgeting, revenue collection (waste fees, charges), and financial accountability for SWM services.
vii. **Trade and Enterprise Development Unit** shall promote circular economy initiatives, recycling enterprises, and partnerships with waste sector entrepreneurs.
viii. Legal Unit shall draft municipal by-laws, undertake legal and compliance audits, and support dispute resolution in waste management services.
ix. **Inspectorate and Enforcement Unit** shall enforce compliance with SWM by-laws and regulations and deters illegal dumping or littering.

These technical units shall work closely with the Public Health Unit, under the coordination of the Municipal Manager, to deliver integrated and efficient solid waste services.

### 6.4. Non-State Actors

Beyond municipal structures, effective waste management also depends on partnerships with non-state actors, including civil society, private enterprises, and the informal sector, who contribute innovation, investment, and community engagement.

#### 6.4.1. Role of CSOs, NGOs, CBOs, Faith-Based Organizations

Civil society organizations (CSOs), non-governmental organizations (NGOs), community-based organizations (CBOs), and faith-based organizations play a complementary role.

The non-state actors shall:

i. Conduct public awareness and advocacy on safe waste practices.
ii. Mobilize communities to participate in clean-up exercises and SWM initiatives.
iii. Support recycling, composting, and other sustainable practices at the community level.
iv. Act as watchdogs to promote accountability and transparency in waste management.

### 6.4.2. Role of Private Sector and Informal Sector (Waste Pickers, Recyclers)

The private sector and informal actors contribute significantly to waste recovery and recycling.

They shall:

i. Provide waste collection, transportation, and recycling services under contracts, concessions, or PPP arrangements.
ii. Innovate solutions, technologies, and business models to enhance waste recovery and value addition.
iii. Create jobs and livelihoods for waste pickers, recyclers, and other informal workers.
iv. Expand coverage and efficiency of waste services through partnerships with municipalities.

### 6.5. Role of Households and Residents

Ultimately, the success of the policy relies on the active participation of households and residents who are the primary waste generators and thus play a critical role in ensuring effective SWM.

They shall:

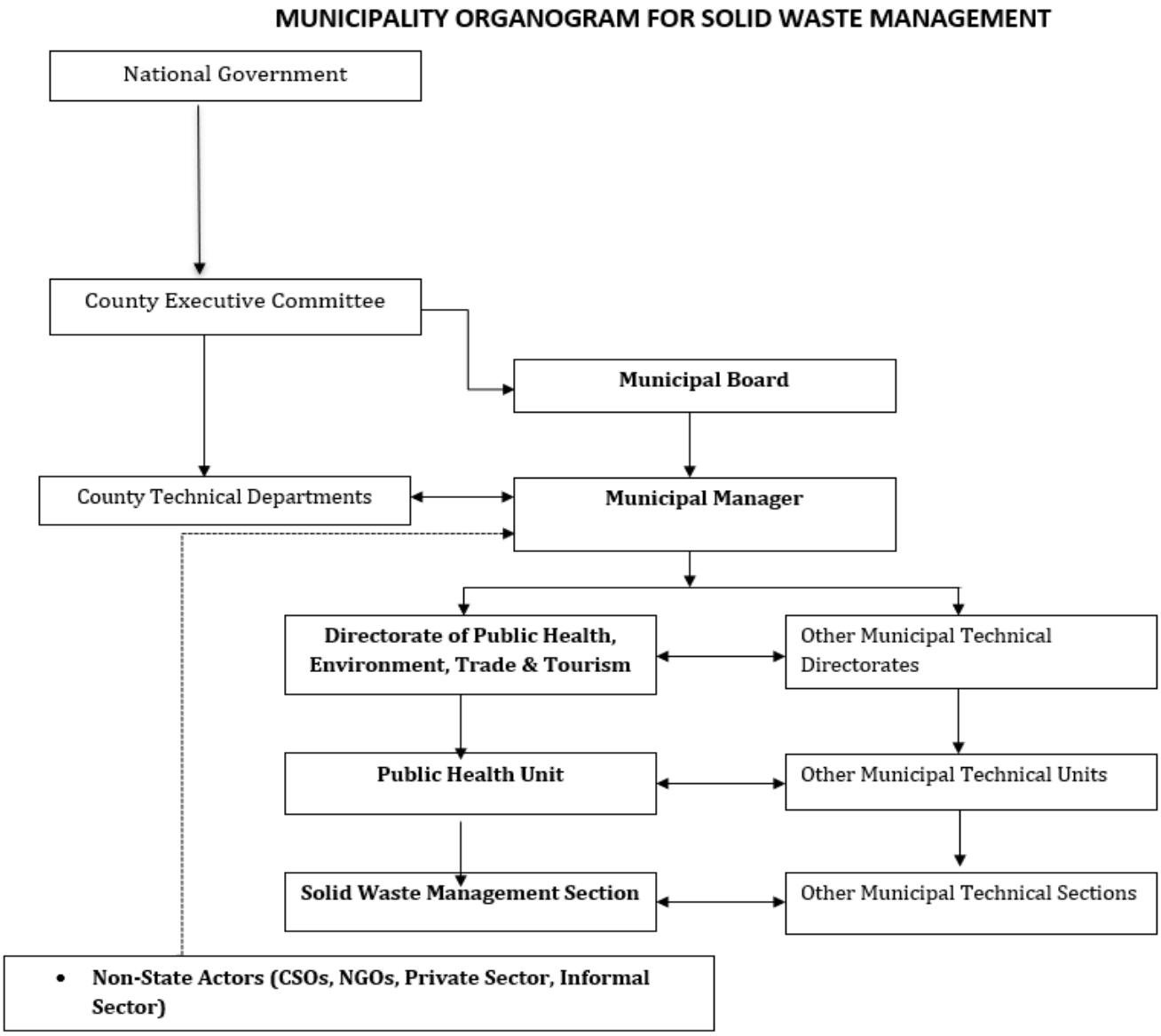
i. Practice waste segregation at source (organic, recyclable, and hazardous).
ii. Pay service charges, levies, and fees to support SWM operations.
iii. Participate in community clean-up activities and public consultations.
iv. Avoid illegal dumping and open burning of waste.
v. Act as watchdogs by reporting poor service delivery or violations of SWM regulations.

### 6.6. Organizational Structure for Solid Waste Management

To effectively deliver solid waste management services, the Municipality has adopted an institutional structure that defines clear reporting lines, accountability mechanisms, and technical support units. The structure integrates governance (oversight by the Municipal Board), executive leadership (the Municipal Manager), technical operations (the Directorate, Unit and Section and other supporting departments) and the private sector.

The organogram below illustrates how SWM functions are embedded within the Municipality's governance and administrative framework, ensuring that

responsibilities are well-coordinated across directorates, units, and support services.




***[Figure ...: Organizational Structure for Solid Waste Management in the Municipality]***

By embedding SWM functions across multiple levels of the Municipality, the structure promotes accountability, efficiency, innovation and private sector participation in delivering a clean, healthy, and sustainable environment for all residents.

**Policy statement**

*The Municipality shall ensure clear coordination and accountability across all institutional actors.*



# Chapter Seven: Financing and Resource Mobilization

## Public Finance Management Act Provisions

Funding for the implementation of this policy shall be guided by the provisions of the Public Finance Management Act. This ensures accountability,

transparency, and proper utilization of public resources allocated for solid waste management in Engineer Municipality.

## Municipal Revenue Sources (Service Charges, Levies, Fees)

The Municipality shall generate revenue from waste generators through service charges, levies, and fees. These revenues will support waste minimization at source, efficient collection and transportation, and final disposal of non-recyclable or non-reusable waste.

## County Transfers and Conditional Allocations

The County Government of Nyandarua shall provide budgetary transfers and conditional allocations to support the Municipality's solid waste management programs, ensuring alignment with county-wide priorities.

## Public-Private Partnerships (PPP) and Concessions

Engineer Municipality shall actively apply and enhance Public-Private Partnership (PPP) approaches in the implementation of solid waste management strategies. PPPs and concessions will be explored for infrastructure development, collection systems, recycling, and waste-to-energy initiatives.

## Donor and Development Partner Support

The Municipality shall seek funding and technical assistance from development partners and donors to strengthen solid waste management programs and introduce best practices in line with international standards.

## Innovative Financing Mechanisms (Carbon Credits, Recycling Revenues)

To ensure long-term sustainability, innovative financing mechanisms such as carbon credits, recycling revenues, and other green financing instruments shall be pursued. These will help integrate environmental and economic benefits into all phases of the waste management system.

# Chapter Eight: Cross-Cutting Issues

## Gender and Youth Inclusion in SWM

Engineer Municipality recognizes that effective solid waste management (SWM) requires the participation of all stakeholders, including youth, women, and community-based organizations (CBOs). The Municipality shall adopt an inclusive approach to public participation by:

- Engaging youth and women in waste collection initiatives through the formation and registration of CBOs tasked with waste collection in zoned areas.
- Encouraging the participation of women and youth groups in recycling and recovery activities to create employment opportunities.
- Promoting equal representation of women, men, and youth in decision-making forums, public awareness campaigns, and environmental protection committees.

## Disability Mainstreaming

The Municipality shall ensure that persons living with disabilities are not excluded from SWM programs. Measures will include:

- Providing accessible participation channels (e.g., barazas, social media, radio broadcasts) to gather feedback on waste services.
- Including persons with disabilities in awareness campaigns and SWM education initiatives.
- Encouraging CBOs and private sector actors to create roles within SWM that are inclusive of persons with disabilities, in both collection and recycling processes.

## Climate Change Adaptation and Mitigation in SWM

Poor SWM contributes to climate-related risks such as pollution, open burning, and greenhouse gas emissions. Engineer Municipality shall:

- Integrate climate change considerations into public education and awareness programs, emphasizing safe waste disposal and the consequences of illegal dumping and open burning.
- Promote waste segregation, recycling, and extended producer responsibility to reduce emissions from unmanaged waste.
- Involve schools, religious institutions, and community organizations in climate-conscious waste practices, embedding environmental responsibility from early childhood through Environmental Education in schools' curricula.

## ICT and Innovation in Waste Management

To enhance inclusivity, accountability, and feedback mechanisms, Engineer Municipality will adopt ICT solutions and innovative approaches. These will include:

- Establishing hotline phone numbers and active social media platforms to allow residents to provide feedback on SWM services.
- Exploring ICT-based platforms to map waste collection zones, monitor service delivery, and report illegal dumping.
- Encouraging innovation among youth and private actors in recycling technologies, waste-to-energy solutions, and eco-friendly waste processing methods.

## Occupational Health and Safety for Waste Workers

The safety and health of waste workers is a priority for the Municipality. In accordance with the Occupational Health and Safety Act (2007), Engineer Municipality shall:

- Provide annual training on occupational safety and health (OSHA) for all waste collectors, including loaders and CBO members.

- Require all waste handlers to use full Personal Protective Equipment (PPE) at all times, with semi-annual refresher training.
- Issue PPEs to municipal loaders, while requiring CBOs and private groups to procure their own equipment.
- Ensure that all waste workers receive relevant vaccinations, such as tetanus, with proof provided through vaccination cards.
- Establish and monitor compliance through Environmental Inspectors to safeguard workers against occupational risks and uphold public health standards.

# Chapter Nine: Implementation Arrangements

### Implementation Strategy

The Municipality will adopt an Integrated and Sustainable Solid Waste Management (ISSWM) approach that emphasizes waste minimization, segregation at source, recycling, composting, and safe disposal. Implementation will be guided by:

- **Policy and legal compliance:** Aligning with the Constitution of Kenya (2010), the Environmental Management and Coordination Act (EMCA), and the Urban Areas and Cities Act (2011).
- **Planning and prioritization:** Developing annual and medium-term solid waste management action plans, budgets, and targets.
- **Community participation:** Involving citizens through forums, sensitization campaigns, and household-level segregation to enhance compliance and ownership.
- **Technology and innovation:** Adopting appropriate, cost-effective technologies for collection, transportation, and disposal, while exploring innovative waste-to-energy and recycling opportunities.
- **Monitoring and evaluation:** Establishing a results-based framework for tracking performance, service coverage, and environmental impact.

### Phased Transfer of SWM Functions to the Municipality

Solid waste management functions currently under the County will be transferred progressively to the Municipality in a phased manner to ensure capacity readiness. The phases will include:

- **Phase I – Preparatory Stage:** Establishment of legal, institutional, and policy frameworks; initial recruitment of staff; and acquisition of equipment.

- **Phase II – Partial Transfer:** Gradual handover of waste collection and transportation functions in pilot towns (Engineer, Murungaru, Ndunyu Njeru).
- **Phase III – Full Transfer:** Comprehensive transfer of SWM functions including waste treatment, recycling, disposal, and enforcement of by-laws across all wards.
- **Phase IV – Consolidation:** Strengthening of operations through continuous improvement, stakeholder involvement, and integration of climate resilience measures.

**Service Level Agreements (SLA) between County and Municipality**

To ensure clarity of roles and accountability, the County Government and Municipality will enter into formal Service Level Agreements covering:

- **Roles and responsibilities:** Clearly outlining County oversight and Municipality execution in SWM.
- **Resource allocation:** Budgetary and technical support from the County to the Municipality.
- **Performance standards:** Agreed benchmarks on service coverage, frequency of collection, environmental standards, and compliance monitoring.
- **Dispute resolution:** Mechanisms for addressing operational challenges or overlapping mandates.
- **Review and renewal:** Periodic reviews to realign SLAs with evolving needs and priorities.

**Capacity Building and Human Resource Development**

Successful implementation requires strengthening institutional and human resource capacity through:

- **Recruitment and deployment:** Engaging adequate technical staff, casual workers, and enforcement officers.

- **Training and skills development:** Building competencies on waste segregation, recycling technologies, occupational health and safety, and customer service.
- **Knowledge sharing:** Organizing exchange programs with other Municipality and learning institutions.
- **ICT integration:** Training staff on digital systems for data collection, monitoring, billing, and reporting.
- **Occupational health and safety:** Equipping waste handlers with protective gear and safety training to minimize occupational risks.

**Partnerships and Collaborations**

The Municipality recognizes that SWM is a shared responsibility and will foster partnerships with:

- **Community-based organizations and residents' associations** to promote waste segregation, collection, and recycling initiatives.
- **Private sector and investors** in recycling, waste-to-energy, and other innovative waste recovery ventures.
- **National and County government agencies** for technical, policy, and financial support.
- **Development partners, NGOs, and donor agencies** to mobilize resources, share best practices, and support sustainable waste management models.
- **Academic and research institutions** for innovation, research, and piloting of new technologies.

Through these arrangements, Engineer Municipality will progressively build a solid, efficient, and sustainable solid waste management system that ensures a clean, healthy, and livable environment for present and future generations.

**Thematic Policy Areas, Strategic Interventions, Outcomes, KPIs, and M&E Linkages**

| Thematic Area | Strategic Interventions | Strategic Outcomes (Targets/Results) | KPI Alignment (Monitoring Indicators) | Link to M&E Chapter (10.1–10.5) |
|---|---|---|---|---|
| **5.1 Waste Generation and Minimization** | Promote 3Rs, incentivize cleaner production, discourage single-use plastics, promote home composting | • Waste generation per capita reduced by 15% by 2030<br>• 50% of households adopt home composting by 2028 | • Kg of waste generated per capita per year• % of households practicing composting• # of businesses adopting 3R practices | **10.1–10.2:** Monitor waste reduction trends**10.3:** Report to municipal board annually**10.4:** Review impact every 5 years**10.5:** Share best practices on 3Rs |
| **5.2 Waste Segregation at Source** | Enforce segregation guidelines, provide color-coded bins, train collectors, link segregated streams to recovery facilities | • 70% of households and institutions practicing segregation by 2027<br>• 80% of collection points equipped with segregation facilities | • % of households segregating waste• % of waste collected in segregated form• # of segregation bins distributed | **10.1–10.2:** Segregation KPIs tracked quarterly**10.3:** Public reporting dashboards**10.4:** Mid-term evaluation of segregation adoption**10.5:** Knowledge |

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| | | | | exchange across Municipality |
| **5.3 Collection and Transportation of Waste** | Acquire modern trucks, expand coverage, optimize routes, establish PPPs | • 90% collection coverage in urban areas and 60% in peri-urban/informal settlements by 2028<br>• 70% reduction in missed collection days | • % of households covered by collection services• # of operational collection trucks• Frequency of missed collection per route | **10.1:** Service delivery monitoring**10.2:** SLAs tracked via KPIs**10.3:** Municipal and county reporting**10.4:** End-term review of coverage**10.5:** Route optimization lessons shared |

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|---|---|---|---|---|
| **5.4 Recycling, Composting, and Resource Recovery** | Establish MRFs, support youth/community enterprises, incentivize industries, promote circular economy | • 30% of waste recycled/recovered by 2030<br>• 5 new youth/community enterprises operational by 2027 | • % of total waste recycled or composted• # of active recycling/composting enterprises• Tons of recovered materials sold annually | **10.1–10.2:** Recovery rates tracked**10.3:** Public progress reports**10.4:** Mid-term/End-term review of circular economy programs**10.5:** Disseminate enterprise case studies |
| **5.5 Treatment and Safe Disposal** | Identify/gazette sanitary landfills, phase out open dumping, invest in treatment technologies | • 100% closure of open dumpsites by 2028<br>• At least one sanitary landfill operational in each municipality by 2030 | • # of open dumpsites closed• # of sanitary landfills operational• % of waste disposed in compliant facilities | **10.1:** Disposal facility monitoring**10.2:** Landfill performance KPIs**10.3:** Reports to regulators & public**10.4:** End-term evaluation of compliance**10.5:** Replication of |

| | | | | |
|---|---|---|---|---|
| | | | | safe disposal models |
| **5.6 Hazardous and Biomedical Waste Management** | Establish hazardous waste systems, strengthen monitoring, adopt safe treatment methods, train staff | • 100% of biomedical waste treated through approved methods by 2027<br>• Annual compliance reporting by all health facilities | • % of biomedical waste safely treated• # of compliance reports submitted• # of staff trained on hazardous waste handling | **10.1–10.2:** Hazardous waste audits**10.3:** Annual compliance reports**10.4:** Review of safe treatment systems**10.5:** Share verification tools as best practices |

| | | | | |
|---|---|---|---|---|
| **5.7 E-waste and Special Waste Streams** | Establish e-waste centers, raise awareness, regulate construction waste, integrate EPR | • 3 formal e-waste collection centers by 2026<br>• 40% of construction/demolition waste reused or recycled by 2030 | • # of e-waste collection centers established• Tons of e-waste safely collected/recycled• % of construction waste reused/recycled | **10.1:** Monitoring special waste flows**10.2:** Track e-waste KPIs**10.3:** Reports to NEMA & county**10.4:** Mid-term review of EPR performance**10.5:** Lessons shared with private sector |
| **5.8 Public Awareness, Education, and Behavior Change** | Run education campaigns, integrate SWM into school curricula, promote clean-up days | • 4 major awareness campaigns annually• 80% of schools incorporate waste management into curricula by 2027 | • # of awareness campaigns conducted• % of schools with SWM in curricula• % of residents aware of and practicing 3Rs | **10.1–10.2:** Awareness tracked via surveys**10.3:** Public reporting mechanisms**10.4:** Mid-term review of behavior change**10.5:** Documentation of awareness models |

# Chapter Ten: Monitoring, Evaluation, Reporting and Learning (MERL)

## Monitoring Framework

Environmental monitoring will be a key component of municipal Solid Waste Management Plans (SWMPs). Poor solid waste management has direct and indirect impacts on public health, environmental quality, and climate change, and must therefore be regularly monitored. The monitoring framework will:

- Track waste generation and disposal rates in relation to population growth, economic activity, and social dynamics.
- Assess compliance with established environmental quality standards.
- Provide a basis for future planning, including the establishment of landfills, transfer stations, and material recovery facilities.
- Measure the effectiveness of public awareness and education programs, as well as other policy interventions.

## Key Performance Indicators (KPIs)

The monitoring system shall include measurable indicators to track progress in SWM. Key Performance Indicators will cover, but not be limited to:

- Waste generation per capita and per household.
- Percentage of waste collected versus waste generated.
- Recycling and recovery rates.
- Reduction in illegal dumping and open burning incidents.
- Compliance with occupational health and safety standards for waste workers.
- Greenhouse gas emissions avoided or reduced through improved waste management practices.

## Reporting Mechanisms (to Municipal Board, County, Public)

To ensure transparency and accountability, reporting mechanisms will be established as follows:

- Municipal staff will compile regular monitoring reports for submission to the Municipal Board.
- Consolidated reports will be submitted to the County Government for integration into county-wide planning and resource allocation.
- Public reporting will be undertaken through community meetings, media channels, and digital platforms to keep citizens informed and engaged.

## Mid-term and End-term Reviews

Monitoring and evaluation will be carried out through structured reviews at mid-term and end-term stages of the policy cycle. These reviews will:

- Assess progress against planned outputs and outcomes.
- Identify gaps, lessons, and areas requiring adjustment.

- Provide recommendations for scaling up best practices or revising strategies.

## Knowledge Management and Continuous Learning

The monitoring and evaluation system will also serve as a learning tool. Municipality shall:

- Collect and share lessons learned from daily implementation of SWM activities.
- Develop means of verification for greenhouse gas emissions reduced or avoided.
- Document and disseminate best practices within the municipality, across counties, and nationally for replication.
- Build institutional memory and improve future waste management strategies through continuous learning.

# Chapter Eleven: Policy Review and Amendments

## Review Period

This Solid Waste Management Policy shall be subject to periodic review to ensure its continued relevance, effectiveness, and alignment with evolving national legislation, county frameworks, and global best practices.

- The standard review period shall be every **five (5) years**, unless emerging challenges, opportunities, or legislative changes necessitate an earlier review.
- Interim assessments may be conducted at mid-term intervals to evaluate implementation progress and recommend adjustments.

## Amendment Procedure

Amendments to this Policy may be initiated by the Municipal Board, County Government, or any other authorized body responsible for oversight of waste management. The procedure shall include:

1. **Proposal of Amendments** – Draft proposals may originate from municipal departments, county authorities, stakeholders, or community representatives.
2. **Technical Review** – A designated technical committee shall assess proposed amendments for feasibility, legal compliance, and alignment with broader development goals.
3. **Approval Process** – Final amendments shall be approved through the established county legislative process before adoption by the Municipal Board.
4. **Communication of Amendments** – Approved changes shall be communicated to all stakeholders, with updated policy documents disseminated through official platforms.

## Stakeholder Participation in Reviews

Stakeholder participation shall be central to the review and amendment process to ensure inclusivity, transparency, and ownership. The Municipality shall:

- Conduct consultative forums with communities, waste service providers, private sector actors, civil society organizations, and development partners.
- Collect feedback through public participation platforms, including community barazas, digital platforms, and structured surveys.
- Ensure that vulnerable groups—such as women, youth, persons with disabilities, and informal waste workers—are actively engaged in the review process.
- Integrate stakeholder feedback into the revised policy to strengthen legitimacy and sustainability.

# Annexes

Annexe 1: baseline and KPIs Assessment survey

# Survey: Baseline & Periodic KPI Assessment — Solid Waste Management

## Intro / Consent (to appear at top of the form)

Hello — we are conducting a survey on solid waste management to help plan and evaluate municipal services. Your responses are confidential and will be used for planning and monitoring. Participation is voluntary. Estimated time: 10–20 minutes.

Do you consent to participate? ☐ Yes ☐ No

# A. Household / Residential Survey

**A1. Respondent details**

1. Interview ID: _____
2. Date (YYYY-MM-DD): _____
3. Location (Ward / Village / Zone): _____
4. Enumerator name: _____
5. Household head / respondent name (optional): _____
6. Household size (number of people): ____

**A2. Waste generation & composition**

7. How many bags/containers of solid waste does this household generate per week? __ _____ (specify container size e.g., 50L bags)

8. Estimate the average total mass of waste generated per week (kg): __ _____ (if unknown leave blank)

9. What proportion of your household's waste is: (tick one for each)

- Organic/food waste: ☐ 0–25% ☐ 26–50% ☐ 51–75% ☐ 76–100%
- Recyclables (paper, plastic, glass, metal): ☐ 0–25% ☐ 26–50% ☐ 51–75% ☐ 76–100%

- Hazardous (batteries, chemicals, medical): ☐ Yes ☐ No (approx % ___)
- Other (describe) _____

**A3. Collection & service**

10. Who collects your household waste? ☐ Municipal/Council ☐ Private company ☐ CBO/Community collectors ☐ Informal collectors/waste pickers ☐ Self/neighbor ☐ No collection (dumped)

11. How often is waste collected from your household? ☐ Daily ☐ 2–3 times/week ☐ Weekly ☐ Fortnightly ☐ Monthly ☐ Never

12. Is there a regular fee for the waste collection service? ☐ Yes — amount per month KES/other: _____ ☐ No ☐ Don't know

13. If there is a fee, do you pay it on time? ☐ Always ☐ Usually ☐ Sometimes ☐ Never ☐ Not applicable

**A4. Disposal & practices**

14. Where do you dispose of the waste that is not collected? ☐ Official landfill ☐ Community dump/transfer station ☐ Burn on site ☐ Dump in river/ditch ☐ Open dump (nearby) ☐ Other (specify) _____

15. Do you and your household separate waste at source? ☐ Always ☐ Sometimes ☐ Never

16. If separated, what categories do you separate? ☐ Organic ☐ Plastics ☐ Paper ☐ Glass ☐ Metal ☐ Hazardous

**A5. Recycling & recovery**

17. Do you sell/give recyclables to scavengers or recycling collectors? ☐ Yes — approximate income per month KES/other: _____ ☐ No ☐ Sometimes

18. Do you compost food/organic waste? ☐ Yes ☐ No — If yes, method: ☐ Home composting ☐ Community composting ☐ Other

**A6. Awareness & attitude**

19. Have you received any public awareness/education on waste management in the past 12 months? ☐ Yes ☐ No — If yes, source: ☐ Municipality ☐ Radio/TV ☐ Community baraza ☐ School ☐ CBO ☐ Social media

20. How would you rate your awareness of safe waste disposal practices? ☐ High ☐ Moderate ☐ Low

21. Are you aware of penalties for illegal dumping or open burning in your area? ☐ Yes ☐ No

**A7. Satisfaction & feedback**

22. Overall, how satisfied are you with waste services? ☐ Very satisfied ☐ Satisfied ☐ Neutral ☐ Dissatisfied ☐ Very dissatisfied

23. Main reasons for dissatisfaction (tick all that apply): ☐ Irregular collection ☐ High fees ☐ Poor cleanliness ☐ Illegal dumping ☐ Lack of containers ☐ Other _____

24. Do you have suggestions to improve waste services? (open) _____

**A8. Occupational health & safety (if household member works in waste collection/recycling)**

25. Is any household member engaged in waste collection, recycling, or scavenging? ☐ Yes ☐ No

26. If yes, do they have PPE and vaccinations (e.g., tetanus)? ☐ PPE: ☐ Yes ☐ No ☐ Vaccination card: ☐ Yes ☐ No

# Institutional / Commercial / Public Facility Survey

**B1. Respondent & facility details**

1. Interview ID: _____
2. Date: _____
3. Facility name/type: ☐ School ☐ Health Facility ☐ Market ☐ Hotel/Restaurant ☐ Shop ☐ Office ☐ Other _____
4. Location (Ward/Zone): _____
5. Contact person & phone: _____ (optional)

**B2. Waste generation & composition**

6. Average waste generated per day (estimate kg): _____

7. Major waste types (tick): ☐ Organic ☐ Paper ☐ Plastic ☐ Glass ☐ Metal ☐ Hazardous (medical/chemical) ☐ Other

**B3. Collection & service**

8. Who collects the waste? ☐ Municipal ☐ Private contractor ☐ CBO ☐ Self/outsourced ☐ No collection

9. Frequency of collection: ☐ Daily ☐ 2–3x/week ☐ Weekly ☐ Other _____

10. Are there service agreements (SLA/contract) in place? ☐ Yes (attach copy if possible) ☐ No

**B4. Segregation & disposal**

11. Do you segregate waste at the facility? ☐ Yes ☐ No — If yes, which categories? ☐ Organic ☐ Recyclables ☐ Hazardous

12. How is hazardous waste managed/disposed? ☐ Collected by specialized contractor ☐ Incineration on site ☐ Sent to landfill ☐ Other _____

**B5. Recycling & recovery**

13. Do you sell recyclables or use a recycling service? ☐ Yes ☐ No — approximate monthly revenue from recyclables: _____

**B6. Awareness, training & OHS**

14. Have staff received training on waste handling and OHS in the past 12 months? ☐ Yes ☐ No

15. Do staff have PPE and vaccinations (where applicable)? ☐ PPE: ☐ Yes ☐ No ☐ Vaccination records: ☐ Yes ☐ No

**B7. Satisfaction & suggestions**

16. How satisfied are you with municipal/contractor waste services? ☐ Very satisfied ☐ Satisfied ☐ Neutral ☐ Dissatisfied ☐ Very dissatisfied

17. Suggestions: _____



# KPI Mapping & Calculation (how survey feeds KPIs)

Below are common KPIs, the survey questions that feed them, and calculation guidance.

1. **Waste generation per capita (kg/person/day)**
    - Data source: Household Q8 (weekly kg) or institutional daily kg.

- Calculation: (Weekly household kg / household size) / 7 = kg/person/day.

2. **Percentage of waste collected (%)**

   - Data source: Household Q10 and Q14.

   - Calculation (survey-based estimate): % households reporting regular collection divided by total households sampled. For weight-based: (total collected mass / total generated mass) * 100 (requires mass data).

3. **Segregation at source (%)**

   - Data source: Household Q15 and Institutional Q11.

   - Calculation: % of respondents answering “Always” or specifying segregation practices.

4. **Recycling/recovery rate (%)**

   - Data source: Household Q17, Q9 (recyclable proportion), Institutional Q13.

   - Calculation: (Mass sold/recovered ÷ total mass generated) * 100. Survey proxy: % of households/institutions that sell/recover recyclables.

5. **Incidence of illegal dumping/open burning**

   - Data source: Household Q14 (self-report of disposing in river/open), plus observational checks during fieldwork.

- Calculation: % of respondents reporting illegal dumping or burning in their area.

6. **Service coverage (%)**

   - Data source: Household Q10 (who collects) and B8.

   - Calculation: % households/institutions with an active formal collection service.

7. **Cost recovery / payment compliance (%)**

   - Data source: Household Q12–13.

   - Calculation: % households paying fees and paying on time.

8. **OHS compliance (%)**

   - Data source: Household Q26 & Institutional Q15.

   - Calculation: % of workers with PPE and vaccination records.

9. **Public awareness (%)**

   - Data source: Household Q19–21.

   - Calculation: % of respondents who received awareness info in the last 12 months or rate their awareness as Moderate/High.

10. **GHG verification indicators (proxy)**

    - Data source: Waste composition Q9 + recycling rates.

- Note: For accurate GHG calculations, link to waste tonnages and standard emission factors (requires technical modelling beyond the survey).

## Data Collection Guidance & Sampling

**Sampling**

- Household baseline: stratified random sampling by ward/zone. Suggested minimum sample per municipality size:
- Small town (<10,000 pop): 200 households
- Medium (10,000–50,000): 400–800 households
- Large municipality: 1,000+ households
- Institutional/commercial: purposive sampling of key facilities (all health facilities, largest markets, representative schools, top 50 businesses, etc.).

**Frequency**

- Baseline: once (comprehensive).
- Routine KPI monitoring: quarterly for service coverage, collection frequency and user satisfaction; semi-annually for recycling/recovery and OHS; annual for waste generation per capita and GHG proxy

calculations.

- Mid-term & end-term: more comprehensive reviews (mid-term: 2–3 years; end-term: at project/strategy end).

**Data collectors & training**

- Enumerators: train for 1–2 days on definitions (e.g., what counts as recyclable), use of weighing where possible, consent, and safety.
- Tools: provide paper forms or mobile ODK/KoBo forms with skip logic.
- Observations: enumerators should record observational notes (presence of collection points, bins, illegal dumpsites) and, where feasible, take geo-tagged photos.

**Quality checks**

- Supervisor re-interviews 5–10% of sample.
- Daily submission and spot checks.

- Consistency checks between mass-based and self-reported quantities; flag outliers.

# Short Data Collection Template (example fields for mobile form)

- interview, date, enumerator, ward, gps_lat, gps_lon, household_size, waste_week_kg, collection_provider, collection_freq, fee_amount, segregate (Y/N), recovers_recyclables (Y/N), composts (Y/N), awareness_last12m (Y/N), satisfaction_level, oHS_worker_present (Y/N), PPE_present (Y/N), vaccination_card (Y/N), observations, photo_id.

# Suggested Reporting & Use of Results

- Produce a baseline report with: sample characteristics, average kg/person/day, service coverage, recycling rate estimates, hotspots for illegal dumping, recommendations.
- KPI dashboard: simple Excel dashboard or GIS map showing collection coverage, dumpsites, and trends over time.
- Use results to inform placement/size of transfer stations, number of collection vehicles, community education targeting, and OHS interventions.

**Annexe 2:**

| **Stakeholder Group** | **Key Roles & Responsibilities** | **Level of Influence** | **Level of Interest** | **Engagement Strategy** |
|---|---|---|---|---|
| **County Government** | Policy development, budgeting, resource allocation, inter-municipal coordination, enforcement of by-laws | High | High | Policy alignment, budgetary allocation, legislative oversight, intergovernmental forums |
| **Municipal Board** | Approves plans/budgets, ensures compliance, mobilizes resources, | High | High | Strategic planning meetings, reporting requirements, capacity-building workshops |

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|---|---|---|---|---|
| | promotes participation | | | |
| **Municipal Manager & Technical Departments** | Daily operations, planning, supervision, equipment management, awareness campaigns | High | High | Performance contracts, operational guidelines, technical support, regular reviews |
| **National Government** | National policy, legislation, funding, research, treaty compliance | High | Medium | Policy guidance, conditional grants, technical assistance, compliance monitoring |
| **County Department of health & other Regulators** | Licensing, monitoring, enforcement, audits, technical guidance | High | Medium | Regulatory enforcement, inspections, capacity-building, compliance incentives |
| **CSOs, NGOs, CBOs, FBOs** | Advocacy, community mobilization, education, recycling initiatives, accountability | Medium | High | Partnerships in awareness campaigns, sub-grants, collaboration on pilot projects |

| | | | | |
|---|---|---|---|---|
| **Private Sector (formal)** | Service provision (collection, transport, recycling), technology innovation, job creation | High | High | Public-Private Partnerships (PPP), concessions, incentives for innovation, business-friendly policies |
| **Informal Sector (waste pickers, recyclers)** | Waste recovery, recycling, livelihood creation | Medium | High | Formalization into cooperatives, capacity-building, access to microfinance, inclusion in policy dialogue |
| **Households & Residents** | Waste segregation, paying fees, avoiding illegal dumping, participation in awareness programs | Low | High | Community education, user fee systems, public barazas, feedback channels (hotlines, apps) |



**Annexe 3:**

# Municipality Solid Waste Management M&E Dashboard

**Reporting Period:** Q1 / Q2 / Q3 / Q4 – Year ____

**Prepared by:** _____ | **Date:** _____

| **Thematic Area** | **Target** | **Current Status** | **% Achievement** | **Rating (✓/⚠/✗)** | **Comments / Key Issues** |
|---|---|---|---|---|---|
| Waste Generation & Minimization | Reduce per capita waste by 15% (by 2030) | 3.8 kg/person/week | 10% reduction | ⚠ | Progress slow; more awareness needed |
| Segregation at Source | 70% households segregating by 2027 | 25% | 36% | ✗ | Lack of bins and low enforcement |
| Collection & Transportation | 90% urban coverage | 80% | 89% | ✓ | More trucks needed for rural expansion |
| Recycling & Resource Recovery | 30% waste recycled by 2030 | 12% | 40% | ⚠ | Youth groups active; contamination still an issue |
| Safe Disposal | 100% dumpsite | 1/3 sites closed | 33% | ⚠ | Landfill project delayed |

| | | | | | |
|---|---|---|---|---|---|
| | closure by 2028 | | | | |
| Hazardous & Biomedical Waste | 100% treated safely | 92% | 92% | ✓ | Training ongoing |
| E-waste & Special Streams | 3 e-waste centers by 2026 | 1 operational | 33% | ⚠ | Private partnerships needed |
| Public Awareness & Education | 4 campaigns/year | 2 | 50% | ⚠ | Funding gaps delayed activities |

**KPI Tracking (Detailed)**

| **KPI** | **Baseline (Year 0)** | **Target** | **Current** | **Variance (+/-)** | **Source of Data** | **Responsible Department** |
|---|---|---|---|---|---|---|
| Waste generated per capita (kg/person/week) | 4.2 | 3.5 | 3.8 | -0.3 | Household surveys | Municipal SW Dept |
| % of households segregating waste | 10% | 70% | 25% | -45% | Community audits | Health & SW Dept |

| | | | | | | |
|---|---|---|---|---|---|---|
| Collection coverage (urban areas) | 65% | 90% | 80% | -10% | Collection records | Logistics/Transport Unit |
| % of waste recycled/composted | 5% | 30% | 12% | -18% | MRF reports | PPP/Recycling Unit |
| # of open dumpsites closed | 0 | 3 | 1 | -2 | NEMA site inspections | Environment Dept |
| % of biomedical waste treated safely | 70% | 100% | 92% | -8% | Hospital compliance reports | Public Health |
| # of e-waste centers established | 0 | 3 | 1 | -2 | PPP contracts | ICT & Environment |
| # of awareness campaigns conducted annually | 1 | 4 | 2 | -2 | Campaign reports | Communications Unit |