REPUBLIC OF KENYA

COUNTY GOVERNMENT OF KIAMBU

LIMURU MUNICIPALITY

DEPARTMENT OF MUNICIPAL ADMINSTRATION AND URBAN DEVELOPMENT

SOLID WASTE MANAGEMENT POLICY

August, 2025

MUNICIPAL MANAGER
LIMURU MUNICIPALITY

FOREWARD

Limuru Municipality is undergoing rapid transformation, evolving into a dynamic urban center characterized by a growing population, expanding commerce, and increasing infrastructure development. While this growth presents tremendous opportunities for economic advancement, it also brings significant challenges—particularly in the management of solid waste. Effective and sustainable waste management is no longer optional; it is a critical component of public health protection, environmental conservation, and urban resilience. Improperly managed waste contributes to flooding, water and air pollution, the spread of diseases, and the deterioration of the Municipality's overall livability and investment potential.

The management of solid waste remains a key challenge facing Limuru Municipality. Indiscriminate waste disposal continues to adversely affect service delivery and environmental quality. This situation has necessitated the Board of Limuru Municipality to develop this Solid Waste Management Policy, which incorporates emerging issues and provides a structured framework for addressing current and future waste management challenges.

This Policy will greatly assist the Board in delivering quality solid waste management services one of its core mandates. It provides guidance in planning, implementing, and monitoring waste management programs to ensure effective and appropriate responses to existing challenges. Furthermore, this Policy affirms the Board's commitment to intensifying its campaign against improper waste disposal practices.

The ultimate goal of this Policy is to guarantee the residents of Limuru Municipality a clean, healthy, and safe environment, as enshrined in the Constitution of Kenya.

I wish to sincerely thank the representatives from various departments within the County Government of Kiambu and all stakeholders whose participation, dedication, and commitment made the development of this Policy possible.

MUNICIPAL MANAGER
COUNTY GOVERNMENT OF KIAMBU
DELIVERING EXCELLENCE
LIMURU MUNICIPALITY

Municipal Manager
Limuru Municipality

LIST OF TABLES

ABBREVIATIONS

CBD	– Central Business District
CEVs	- Community Environment Volunteers
CIDP	– County Integrated Development Plan
ISWM	- Integrated Solid Waste Management
NEMA	- National Environment Management Authority
NIMBY	– Not In My Back Yard
PGC	- Private Garbage Collectors
TMS	- Time and Motion Study
UNEP	– United Nations Environment Programme
SWM	- Solid Waste Management

Table of Contents

GLOSSARY OF COMMONLY USED TERMS

Waste – Any material that is discarded or disposed of

Municipal Solid Waste – This is waste generated by commercial, residential (households) and industrial premises as well as institutions, public spaces like parks and streets and construction sites. It mainly comprises of plastics, paper, food waste, textiles, glass, metal, rubber, wood and disposal diapers

Solid Waste Management - the collection, transfer, treatment, recycling, resource recovery and disposal of solid waste

Garbage Truck – a truck that is specifically designed to collect and transport municipal solid waste from point of generation to recycling facility, transfer station and/or final disposal site

Skip - a bin made of slightly heavy durable metallic material that can be used to store away waste and allows for bulk collection

Waste Streams - These are the flows of solid waste from the point of generation to the point of recovery, recycling and disposal. These are specific for the various types of solid waste generated

Final Disposal Site – Any space specially equipped with disposal facilities and designated for disposal of waste materials that are non-recyclable and have no further use.

Recycling – Re- utilization of waste by processing it into a new product for similar or different use

Composting - The biological decomposition of organic waste materials by bacteria and other organisms

Commingled waste – Mixed waste materials where no segregation has been done and is collected and managed together

Transfer Station – a temporary holding facility where waste is deposited by smaller garbage trucks and allows for sorting before the bulk of the waste is transported by a larger truck to the final disposal site

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

Limuru Municipality is a key administrative and commercial center within Kiambu County and plays a significant role in the socio-economic development of the region. The municipality supports a growing urban population driven by rapid urbanization, expanding residential settlements, vibrant agricultural activities, agro-processing enterprises, and a steadily developing market economy.

Limuru, a dynamic and expanding urban center, faces increasing challenges in managing solid waste effectively due to population growth, changing consumption patterns, and pressure on existing waste management infrastructure. Inadequate segregation, irregular collection, and limited disposal infrastructure have contributed to environmental degradation and public health concerns. This Policy therefore provides a comprehensive framework to ensure environmentally sound, economically viable, and socially acceptable solid waste management practices within the municipality.

According to the 2019 Kenya Population and Housing Census conducted by the Kenya National Bureau of Statistics, Limuru Sub-County had a population of approximately 159,314 persons. Limuru Municipality accounts for a significant proportion of this population and continues to experience steady growth associated with peri-urban development and improved connectivity to the Nairobi Metropolitan region.

The population distribution of Limuru Municipality, as per the 2019 Census, is detailed below:

Administrative Unit	Male Population	Female Population	Total Population
Limuru Sub-County	78, 730	80, 584	159, 314
Total	78, 730	80, 584	159, 314

2019 Kenya Population and Housing Census

Currently, limuru faces significant challenges in Solid Waste management, including:

- Limited infrastructure for waste collection and disposal
- nadequate public awareness of proper waste disposal practices
- The prevalence of open dumping and burning, which threaten public health and the environment.
- Insufficient financial and human resources to address the growing waste burden.

This policy acknowledges the urgent need to address these challenges comprehensively. It provides a structured approach for minimizing waste, promoting recycling, and ensuring safe sustainable disposal.

Guided by the principles of environmental stewardship, community participation, and economic viability, the policy aims to transform limuru into a model for effective waste management in kiambu County and beyond. The policy aligns with national and international frameworks including

- Kenya's Vision 2030,
- Environmental Management and Coordination Act(EMCA) CAP 387
- Sustainable Development Goals(SDGs) particularly goal number 11 on sustainable cities and goal 12 responsive consumption and production.

By adopting the policy, limuru seeks to protect public health, conserve natural resources and create economic opportunities while fostering clean and livable urban environment

1.1 Vision

To establish a clean, healthy, and sustainable environment in Limuru Municipality through efficient, equitable, and integrated solid waste management.

1.2 OBJECTIVES OF THE SWM POLICY

The solid waste management policy will seek to achieve these objectives.

1. To minimize waste generation through public awareness, education, and behavioral change.
2. To promote segregation, recycling, reuse, and recovery of waste materials.
3. To improve waste collection, transportation, and disposal systems in line with national and county environmental regulations
4. To engage residents, businesses, community groups, and other stakeholders in waste management planning, decision-making, and implementation.

2.0 SITUATION ANALYSIS

2.1 SOLID WASTE MANAGEMENT SITUATION

For both developing and developed countries, solid waste still remains a major threat to public health and the environment; they also face major challenges in ensuring that everyone has access to waste collection services as well as sustainable disposal methods. With an unprecedented urbanization rate, delivering effective waste management is seen to be constrained by varying socio-economic activities, financial and human resource capacity and waste characteristics. With lack of proper waste management strategies, waste generators may opt for convenient means of waste disposal such as crude dumping along the streets, storm water drains, on idle plots or result to open burning of waste (UNEP 2015). Municipalities have a role to ensure that environmental impacts are reduced by promoting sustainable solid waste management practices in order to help achieve sustainable development goal 11 on 'Make cities inclusive, safe, resilient and sustainable'.

2.2 PUBLIC HEALTH RISKS ASSOCIATED WITH SOLID WASTE

Air, Water and Soil Pollution - When municipal solid waste is managed poorly, uncollected or crude disposal of solid waste, it may lead to contamination of surface and ground water as well as soil through seepage of leachate. Pollution of air occurs due to poor methods of solid waste disposal where open burning of waste and open dumping methods are applied. This will lead to emission of greenhouse gases that is methane, carbon dioxide, black carbon and nitrous oxide; further depleting the ozone layer and increased respiratory complications.

Diseases and infection transmission - Malaria, Salmonella and dysentery among others are transmitted by unsanitary conditions created by uncollected or poorly disposed of solid waste. The likelihood of disease transmission is largely increased by infestation of flies, vermin and other scavenging animals in sites with piled up solid waste.

2.3 SOLID WASTE STREAMS

Here, solid waste management process will be discussed from the point of generation, storage, collection, transportation and disposal or recycling of solid waste.

2.3.1 SOLID WASTE GENERATION

Municipal solid waste generation is continuously increasing due to rapid population growth in urban areas. This can be linked with increased economic activity and rural urban migration

which further leads to continued rise in number of waste generators. Data on the amount of waste generated and solid waste composition is important to ensure that waste is managed effectively. Most municipalities rely on the amount of waste collected to estimate the waste generated in a municipality, which may underestimate the actual information.

There are various sources of waste generated in a municipality which include hotel industries, markets, retail and wholesale outlets, supermarkets, institutions, petrol stations, households and medical facilities.

According to JICA report, it is estimated that rate of generation of solid waste is 0.53 to 0.65 Kg per Person per Day and that it is likely to increase in the future (JICA 2010). As per the estimated projected population of 159,314 and production of 0.65 kg/person/day, the municipality has a waste generation of approximately 103 tons per day.

The waste collected per day is approximately 50% which translates to approximately 52 tons (this leaves behind approximately 51 tons of unaccounted generated wastes) by the following entities,

1. Municipal tipper collecting commercial waste
2. Seven private garbage collectors, collecting mainly residential wastes namely,friends of cretion,zero ten investment ,lazz cleaners and stepkia .

Table 3 shows a comparison of population increase against expected increase in amounts of waste generated in the municipality.

Table 3: Population growth and amount of solid waste generated

Administrative Unit	2019 Census	Amount of waste generated (Tons)	2030 (Projections)	Amount of waste generated (Tons)
Bibirioni	25,269	16,424	31,333	20,366
Ngecha Tigoni	62,735	40,777	77,791	50,564
Ndeiya	30,819	20,032	38,215	24,839
Limuru East	12,057	7,837	14,950	9,717
Limuru Central	28,437	18,484	35,261	22,919
	159,314	**103,554**	**197,550**	**128,405**

2.3.1.1 TYPES OF WASTE

1. Household waste

This consists of wastes that are generated by household from activities like sweeping, food preparation, clearing of unwanted clothing, shoes, utensils, furniture or other household material. Other activities also include from gardening, animal rearing and disposal of packaging and reading materials.

2. Commercial waste

This is waste generated by all commercial premises that is shops, retail stores, banks, service stations, entertainment centres, offices, restaurants and hotels. The waste comprises of packaging materials, office supplies, food waste, glass, plastics, metal, rubber, used oil, e-waste among others.

3. Municipal waste

This category includes waste from open public spaces and mainly is collected from street sweeping such as ash, dirt and leaves. Street waste may also comprise both commercial and domestic waste, especially where waste collection from these two sources is poor.

4. Institutional waste

This category covers wastes from schools, churches, government offices, hospitals and police station. Waste composition is mostly paper, plastics and when the institutions involve residents, most of the wastes are similar to those of households. The waste from hospital constitutes of infectious and hazardous materials and is managed within the medical facility by incineration.

5. Industrial waste

They come from processing and non-processing industries. Industrial waste constitutes of by-products of manufacturing wastes, construction and demolition wastes. The composition of industrial wastes is site specific and depends on the raw resources and product which provide the base for a given industrial activity.

6. Agricultural waste

This is waste from animal and crop husbandry such as manure and crop remains. This waste is mostly generated in the market, from traders selling farm products.

The table 5 below summarizes the various waste categories, source and type of solid waste.

Table 5: Category, Source and Type of solid waste

NO	CATEGORY OF WASTE	SOURCE	TYPE OF WASTE
1.	Organic	Market, hotel industry	Food remains, rotten vegetables and fruits
2.	Recyclables	Institutions, Households, Retail and wholesale outlets,	glass, plastics, metal, rubber, wood
3.	Non Recyclables	Petrol Stations, Construction sites, Commercial premises	Rubber, E – waste
4.	Hazardous waste	Medical facilities, Industries	paints, used batteries, used oil, solvents, cleaning agents, pesticides, medical waste

2.3.2 WASTE STORAGE

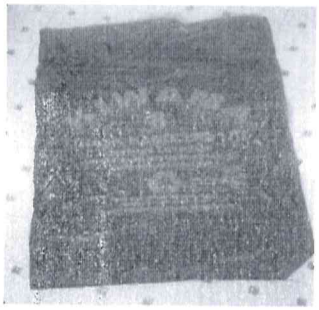
This entails keeping waste material that have no more value to the waste generator as they await its collection for disposal. The waste storage facilities differ depending on the source of waste and the quantity of waste generated.

For most households and commercial premises, litter, dust bins, waste liners, sacks, shallow pits and oil drums are mostly used to contain their waste. While for markets and street sweeping waste, skips are provided to help contain the waste awaiting collection.

Picture 1: Litter bin

Picture 2: Dust bin

Picture 3: Sack



Picture 4: Waste liner used in households

Picture 5: Skip at the Market

For the storage containers, the type of container and their distribution is determined by number of waste generators, type of solid waste and the frequency of emptying the container. For Limuru Municipality, skips shall serve all markets and the Limuru main bus stage, as per the quantity of waste generated and sacks are used to contain waste from street sweeping.

2.3.3 WASTE COLLECTION

Collection of solid waste is a very crucial part in the solid waste streams especially in municipality to avoid littered streets, piled up waste in markets which lead to unsanitary conditions and a breeding ground for vector-borne diseases (UNEP 2015). For effective collection of solid waste it is determined by an inclusive waste collection schedule and the availability and capacity of garbage trucks. For effective collection, more attention is accorded to areas characterized with a large human population and rate of waste generation

considered high. An example of a waste collection schedule is given in table 6 below, which helps ensure that there is less pile up of waste and all areas within the municipality get access to waste collection services.

Table 6: An example of Truck Collection Schedule

Day Of The Week	Area
Monday	Limuru CBD, Kwambira
Tuesday	Limuru CBD, Ngararíga, Murengeti
Wednesday	Limuru CBD, Rironi, Red Hill
Thursday	Limuru CBD, Bibirioni
Friday	Limuru CBD, Ndeiya
Saturday	Limuru CBD, Ngecha Tigoni

With only a collection of 50% of the total solid waste generated in the municipality, there is need for an efficient and consistent collection system to allow for 100% collection rate and further avoid overwhelming storage facilities.

For this to be achieved, it is necessary to classify various areas in the municipality into red zones; those with high generation rate of waste, orange zones; average rate of generation and waste generators and green zones with lesser amounts of waste generated. To help in improving collection services, areas in each ward have been classified into red, orange and green zones as described below.

A. RED ZONE

These are in urban centres which are considered as hot spots due to high human population and the rate of waste generation is considerably higher as compared to other areas. These areas require regular collection of waste to avoid causing eye sores / loss of aesthetic and causing pollution and ill health to the public. There is also a lot of illegal dumping done along the streets in most of these areas.

B. ORANGE ZONES

These are semi urban areas which require moderate attention as the rate of waste generation is slightly lower than that of the red zones.

C. GREEN ZONE

These areas are mostly rural where there is scarce human population and low rate of waste generation. These areas are mostly maintained by regular clean ups.

TABLE 7: TABLE SHOWING AREA CLASSIFICATION

RED ZONES	ORANGE ZONES	GREEN ZONES	AREAS WITH CHRONIC WASTE DUMPING
Limuru bas park	Ngecha	Ndeiya	Farmers /Karajee
Limuru market	Rironi	Tigoni	Kwambra
Limuru CBD	Kabuku	Red hill	Rironi
Nairobi–Nakuru Highway	Bibirioni		Murengeti
Farmers / Karajee	Murengeti		Ngarariga
Kwambira	Ngarariga		

With increasing generation of municipal solid waste, zoning will help improve and safeguard the health of the environment and community at large by prioritization of areas in the waste collection schedule depending on the urban population and amounts of municipal solid waste generated.

2.3. 4 WASTE TRANSPORTATION

At this stage, collected solid waste is transported to the final disposal facility and there are three main modes of transportation which are either human powered, animal drawn and motorized. Examples of human powered are wheel barrows and hand drawn carts which are used to transport waste to temporary storage facilities.

Motorized vehicles are however an appropriate mode of transport due to the long distance haulage to the final disposal site. In Limuru Municipality, the modes of transportation used is motorized in which it is served by one garbage truck with a capacity of 22 tons. With well-maintained and fully operational trucks, refuse collection services can be carried out efficiently.

2.3.5 WASTE DISPOSAL

The last stage of solid waste management is the final disposal of waste in an environmentally sound and sustainable manner. There are three options; landfill, recycling and incineration. The disposal site in Limuru Municipality at Gitogothi was was closed down citing reasons of the foul smell emanating from the dump site before the closure, it had attracted a lot of scavengers such as hyenas, wild pigs, dogs and flies, it had become dumping site for animal carcass, some unscrupulous waste collectors had been leaving waste along the roadside, they cited a child had died as a result of a disease they alleged was connected to the dump site, allegation of iron sheet corrosion and the issue of thugs which posed security threat thus unable to sufficiently serve as a disposal site sustainably. Kiambu County has one operational dumpsite, Kangoki dumpsite in Thika Municipality which is almost full as disposal method practiced is open dumping. Recycling efforts of waste materials are done mostly by the private sector, where materials such as cartons, metal, glass, plastics among other materials are recovered and sold to recycling companies.

3.0 FINANCIAL ASPECTS

Solid waste management activities generate revenue from the services provided by the municipality. The municipality charges commercial premises, hotel industry, transport industry, professional firms, institutions and manufacturing industry fees for solid waste management fee that range from Ksh 1,200 to Ksh 9,600 which is determined by its location either within or outside town. Other solid waste management charges are from tipping charges where industrial waste is between Ksh 1,500 to Ksh15,000 per trip while domestic is at Ksh 200 per ton. For domestic waste, private garbage collectors are charged for transportation of solid waste in which youth groups and CBOs pay a fee of Ksh 3,000 and private companies pay a fee of Ksh 15,000 annually.

4.0 LINKAGE BETWEEN POPULATION GROWTH RATE AND SWM

Limuru municipality is a metropolitan area experiencing rapid population growth and with very limited space for expansion. As per the 2019 population and housing census projections, population of waste generators is expected to continually increase and that means the rate of municipal solid waste generation will substantively increase and hence need for sustainable solid waste management measures for the municipality.

5.0 INSTITUTIONAL FRAMEWORK

The institutional framework defines the roles and responsibilities of key actors involved in solid waste management within Limuru Municipality. These include government agencies, private sector entities, community organizations, and other stakeholders. Effective coordination among these actors is essential to achieve sustainable and efficient waste management.

5.1. Limuru Municipality

Role

Serve as the lead agency in planning, coordinating, and implementing solid waste management initiatives. Develop waste management strategies, allocate resources, and oversee day-to-day waste management operations.

Responsibilities

- Enforce municipal waste management by-laws.

- Establish and manage waste collection, transfer, and disposal facilities.
- Coordinate with stakeholders, including private waste collectors and recyclers.
- Monitor service delivery and ensure compliance with standards.

5.2 Kiambu County Government

Role

Provide legislative and policy support to Limuru Municipality.

Allocate budgetary resources for waste management infrastructure and programs.

Responsibilities

- Monitor compliance with county and national environmental laws.
- Facilitate technical assistance and capacity building for waste management personnel.
- Collaborate with the National Environmental Management Authority (NEMA) to enforce environmental regulations.

5.3 National Environmental Management Authority (NEMA)

Role

Ensure compliance with national environmental laws, including the Environmental Management and Coordination Act (EMCA).

Responsibilities

- Review and approve Environmental Impact Assessments (EIAs) for waste management projects.
- Monitor and enforce pollution control measures at waste disposal sites.

7. LEGAL FRAMEWORK

The Limuru Solid Waste Management Policy is anchored in a comprehensive legal framework comprising national and county legislation governing environmental protection, public health, and waste management in Kenya. This framework provides the statutory authority for planning, regulation, enforcement, and oversight of solid waste management activities within Limuru Municipality.

The Policy aligns with existing national laws while allowing for the formulation and enforcement of municipal by-laws tailored to address Limuru's unique urban, peri-urban, agricultural, and market-related waste management challenges. Through this alignment, the Municipality ensures that its waste management systems operate within established environmental standards and contribute to sustainable development objectives at both county and national levels.

6.1 National Legal Provisions

6.1.1 Environmental Management and Coordination Act (EMCA)

The Environmental Management and Coordination Act (EMCA) provides the overarching legal framework for environmental management and conservation in Kenya. It establishes the legal and institutional structures for the protection and sustainable use of environmental resources, including the management of solid waste.

Under EMCA, the National Environmental Management Authority (NEMA) is mandated to exercise general supervision and coordination over all matters relating to the environment. The Act empowers NEMA to regulate waste handling, transportation, treatment, and disposal; enforce pollution control standards; and require Environmental Impact Assessments (EIAs) for proposed waste management projects.

EMCA further provides enforcement mechanisms, including compliance orders, restoration orders, and penalties for violations, thereby ensuring accountability and environmental protection.

6.1.2 Waste Management Regulations

The Waste Management Regulations, enacted under EMCA, provide detailed operational guidelines for the handling, segregation, transportation, treatment, and disposal of various waste streams. These Regulations assign clear responsibilities to waste generators, transporters, recyclers, and local authorities.

They require waste to be segregated at source, transported by licensed operators, and disposed of in designated and approved facilities. The Regulations also prohibit illegal dumping, open burning, and uncontrolled disposal of waste, and provide standards for the safe handling of hazardous and non-hazardous waste.

For Limuru Municipality, these Regulations serve as a key operational reference in ensuring compliance with national environmental standards.

6.1.3 Sustainable Waste Management Act

The Sustainable Waste Management Act provides a modern and comprehensive framework for integrated waste management in Kenya. The Act shifts the national focus from traditional waste disposal approaches to sustainable waste reduction, reuse, recycling, and recovery strategies.

It introduces the principle of Extended Producer Responsibility (EPR), requiring producers to take responsibility for the lifecycle of their products, including post-consumer waste management. The Act also mandates segregation of waste at source, promotes circular economy principles, and establishes national recycling targets.

This legislation strengthens collaboration between national and county governments and encourages public-private partnerships in waste management. Limuru Municipality aligns its waste management strategies with the objectives and standards established under this Act.

6.1.4 Public Health Act

The Public Health Act provides legal provisions for safeguarding public health and preventing environmental conditions that may pose risks to human health. It mandates local authorities to ensure proper sanitation, cleanliness, and safe waste disposal practices within their areas of jurisdiction.

Under this Act, the accumulation of waste, creation of nuisances, and conditions that may lead to disease outbreaks are prohibited. Local authorities are empowered to issue notices, enforce corrective measures, and take legal action against individuals or entities responsible for unsanitary conditions.

For Limuru Municipality, the Public Health Act reinforces the obligation to maintain clean urban and peri-urban environments and to prevent public health hazards associated with improper waste management.

7.0 ROLE OF STAKEHOLDERS IN SOLID WASTE MANAGEMENT

a) Municipalities

This is the government body responsible for monitoring the waste generated through the waste stream (From point of generation to safe disposal). The Municipality charges the commercial waste generators a solid waste management fee which is included in the business permits issued annually. Municipalities are also tasked to render municipal services of street sweeping and collecting waste. For household waste, municipalities have licensed private garbage collectors (organized groups or private companies) to properly handle and manage.

b) National Government

This includes government ministries and agencies that have a mandate to enhance environmental protection. This includes the Ministry of Environment and National Environment Management Authority. They promote effective solid waste management through formulation and implementation of environmental laws and policies, for example the ban of single use plastic bags in Kenya (Gazette Notice published on 28th February 2017), has tremendously improved the state of the environment.

c) Waste generators

This includes anyone who generates waste from commercial, industrial, institutional or domestic activities. The number of waste generators is continually increasing in the municipalities due to rural – urban migration. Almost all socio-economic activities result in generation of waste as the products made available in the market have a life span after which, waste is generated.

d) Private Garbage Collectors

They are major stakeholders in solid waste management as they manage a larger amount of the waste generated (household waste), roughly estimated to be about 70 percent of the total waste collected

8.0 SOLID WASTE MANAGEMENT POLICY

For an effective solid waste management policy, strategic improvements are necessary to enhance the current system and ensure that residents of Limuru Municipality enjoy a clean, safe, and healthy environment.

Table 9: Solid waste management policy

TARGETS	CURRENT SITUATION	COUNTER MEASURES/ IMPROVEMENTS NEEDED	JUSTIFICATION FOR COUNTER MEASURES	ACTION FOCAL PERSON
Reduce waste and maximize reuse and recycling	Commingled waste is collected and transported to the final disposal site, only 10% of waste materials are recovered for recycling	Establish at least 2 sorting sites to promote resource recovery Segregation of solid waste at point of generation: Sorting of organic waste at Limuru market and segregation of glass bottles during collection Encourage separation of household waste by generators and ensure	Recovery of materials for potential use e.g. recycling and composting To reduce amount of waste materials transported and disposed of at the final disposal site Enhanced economic development through creation of jobs in recycling of solid waste	Municipal Manager Environment Officer

		PGC sustainably manage the sorted waste		
Restore cleanliness and aesthetic value of the town and general environment	There are illegal dumps within the Municipality	Ensure removal of illegal dumps Erect No Dumping sign posts to help create awareness to the public Come up with TMS that will ensure non recurrence of garbage heaps	Reduce loading time taken and allow for 100% coverage of daily collection schedule Clean and healthy environment for all	Municipal Manager Environment Officer
Improve waste collection and transportation	No zoning for solid waste management Time and motion Study activity has not been carried out	Classify areas into Red, Orange, Green zones as per the rate of waste generation and human population accessing the specific area Carry out a time and motion study Maintain regular and convenient waste collection services in the municipality Establishment of a transfer station Provision of additional skip at markets and main bus stations	Allow for extension of services to areas not covered Improve waste collection services Reduced number of collection points on each route to ensure efficiency Build confidence and ensure satisfaction of our clients	Municipal Manager Environment Officer

Encourage community participation in Solid waste management	No engagement of the public in matters pertaining solid waste in the Municipality Negative attitude by the public towards solid waste	Identification of persons with passion on Environmental issues and also willing to work as volunteers Liaise with CEVs for pertinent information in regards to solid waste management in their areas	Partner with key persons who will assist in monitoring and disseminating information on matters pertaining solid waste their area Carry out education and awareness campaigns for ISWM in institutions Improved working relationship with the community	Municipal Manager Environment Officer
Implementation and enforcement of environmental policy and legislations	Illegal dumping of solid waste within the municipality	Surveillance needed in the red zones to curb illegal dumping Educate the community on the generator's role in waste minimization and recycling initiatives	Compliance to the national legislative and regulatory framework for solid waste management	Environment Officer
Capacity building of staff	Inadequate capacity in solid waste management	Capacity building of staffs - team building, training courses, hiring of more skilled personnel	Strengthen the environment department workforce Building	Municipal Manager Environment Directorate
Prompt and efficient communication	Monthly reports are done	Timely submission of weekly and monthly reports of environmental activities carried out in the municipality Regular meetings with stakeholders in solid waste management Establish and maintain an updated database on solid waste generated and handled	Improve communication with the directorate	Environment officer

9.0 SPECIFIC OBJECTIVES AND KEY ACTIONS

Objective1: To Enhance Waste Collection and Transportation efficiency and effectiveness

Solid waste collection efficiency and effectiveness is hampered by Inaccessible roads, lack of payment for waste services, lack of zoning of waste collection areas, poor scheduling of waste collection, low budgetary allocation for operations, Low investment in acquisition of compliant waste trucks and inadequate transport in which the available vehicles are old and which are always prone to breakdown leading to lapse in the provision of services.

Waste collection at the house hold level where sorting of waste is not done.

Proposed Policy Measures for Waste collection and Transportation.

Waste should be transported in an environmentally sound manner without causing pollution or bad odor or further littering. A waste manifest system enables tracking of transportation of both hazardous and non-hazardous waste till it reaches its disposal destination.

A Waste management zoning plan provides that the framework for the town's spatial coverage of solid waste management is needed. This arrangement aims to provide an enabling environment for the realization of public-private-partnerships through;

- The issuance of service contracts by the Board whenever required.
- Elimination of the problem of coordination, duplication of efforts and resources;
- Curb unhealthy competition by waste management stakeholders;
- Reduce long travel routes in search of customers and thus increase level of service provision through benchmarking;

The policy will also seek to embrace the Involvement of community groups and private sector in waste collection and transportation

Policy statements

The board shall:

- Review the existing zoning plan to ensure effectiveness and efficiency in the operational areas.
- Enhance waste collection and transportation capacity
- Ensure that waste service providers transport their waste to materials recovery facility and to a landfill.
- Ensure waste transportation trucks adhere to air quality regulations.
- Develop guidelines requiring all legal entities or individuals transporting waste within the municipality provide tracking documents of source and destination.
- Ensure that transportation of recycled materials and waste should be conducted in an environmentally sound manner.

Objective 2: Promote waste segregation at source

Waste segregation includes all measures to ensure quality of materials extracted from waste and reprocessed is maintained for the realization of maximum value of resources and environmental protection from waste.

The following policy measures shall apply to waste segregation.

Policy statements

- Enforce waste segregation regulations at source based on the national gazette, minimum waste fractions for all waste generators including household level.
- Ensure separate waste segregation containers are provided to enable sorting at source of organic waste, recyclable and non-recyclables and educate the waste generators on the prescribed sorting categories and methods.
- Carry out public awareness on waste colour codes and importance of proper sorting in all public labelled bins for easier sorting

Objective 3: Promote waste management through the adoption of waste management hierarchy

Proposed Policy Statements

This policy sets priority order for managing waste as a resource that should be harnessed in the municipality according to the waste management hierarchy by adopting the following policy measures.

The board shall:

- liaison with County Government align County waste management laws and strategies to the waste management hierarchy.
- Prioritize waste prevention and minimization in conformance to the waste hierarchy when developing waste management plans and legislation.
- Liaise with the County Government of Kiambu to set aside sufficient land for waste
- management activities, and generate jobs and livelihoods from waste collection, recycling,
- and waste management activities according to the waste hierarchy.
- Establish and improve waste management infrastructure to promote source segregation,
- collection, reuse, set up materials recovery facilities and controlled disposal in engineered landfills.
- Provide well managed central collection centers for materials that can be harvested from waste and can be reused.
- In consultation with county government institute county regulations to require institutions to ensure that at least 50% of their produced waste is recycled through a licensed service provider
- In consultation with County Government, identify and prioritize potential and financial requirements of setting up composting plants and technology in the municipality.
- Establish clear procedures for providing incentives to encourage private sector participation in composting ventures
- Ensure the recyclers, bio-waste processors and material recovery facilities shall obtain environmental compliance licenses from NEMA.
- Develop a 3-year plan to transit from the current Open dumpsites and adopt land filling for residual waste.
- Initiate the process of closure of open dumpsites and establish engineered landfills for disposal of non-recoverable fractions of wastes.
- Promote the establishment of incineration (waste-to-energy programs)

Objective 4: To Educate and Sensitization the Public on SWM

Negative attitudes and lack of cooperation from the community on SWM and environmental cleanliness is a major constraint towards achieving sustainable SWM in Limuru Municipality. Consequently, a lot of illegal dumpsite and indiscriminate disposal of wastes along the streets, alleys, river banks, and open spaces and undeveloped land is a norm rather than the exception.

Policy statements

The board shall;

- Undertake community awareness and sensitization programmes for sustainable SWM service provision.
- Training and sensitization of leaders and staff on SWM.
- Institute clean up days.

Objective 5: To promote community small scale waste management initiatives

The income earned by the informal waste pickers is extremely low for long hours of work. This is attributed to exploitation by brokers, lack of access to market and inadequate flow of information on market dynamics. Moreover, the Private Collectors and municipal refuse collection crew has a better waste recovery opportunity than their counterparts in the informal sector because they have access to key waste production points in the town as well as transportation facilities.

Objective 6: To Strengthen the Institutional and Organizational Capacity in Solid Waste Management

Policy Measures on Strengthening the Institutional Framework, the reason for low collection include insufficient financial outlays, shortage of vehicles, inappropriate employment and allocation of staff and lack of proper planning and systematic approach by the Environment Unit. The shortcomings of the SWM programme in Limuru.

Municipality are also contributed partly by inadequacy of political and institutional supporton SWM in the past. Consequently, SWM is not adequately prioritized by the County as well as National government in allocation of funds for purchase of facilities, equipment and operational costs. Policy statements

The Board shall;

- Ensure adequate financial provision for SWM services
- Establish SWM unit with adequate trained personnel and equipment
- Develop municipal waste management plans which are aligned to this policy.
- Ensure that waste service providers are trained and Licensed including collector and transporters.

- Build capacity among the stakeholders on proper waste management

Objective 7: To enhance proper handling, collection and disposal of hazardous wastes.

The municipality does not have an adequate policy to address hazardous waste and medical waste.

Policy statements

The board shall;

- Enact legislation to provide guidelines for handling hazardous wastes at the municipality level

Objective 8: Enhance Financial Mechanism for SWM Policy Statements

The board shall;

- Liase with County government to ensure that adequate resources are allocated for sustainable waste management actions in county budgetary processes and solicit for donor support.
- Build capacity to mobilize and enhance absorption of resources for sustainable waste management interventions.
- Promote the creation of green jobs by establishing and enabling policy framework for investment, creating business friendly regulatory environments in recycling, green economy, and sustainable waste management.
- Support waste management enterprises at the Municipality level, including those that are run by vulnerable and marginalized Groups.
- Oversee sector specifics; anti-corruption, transparency, accountability and integrity mechanisms to safeguard prudent management of finances.
- Waste generators including individuals and households shall contribute to the cost of waste management services

Objective 9: Maintain a data base on SWM in the municipality

The Municipality's ability to respond effectively to the waste challenge requires enhanced data collection on waste generation, current waste disposal practices, waste minimization, reuse and recycling opportunities, as well as the impacts of the current poor state of waste management on public health and the environment.

Policy statements

The board shall

- Set up data collection system of the Municipality waste streams, volumes generated and how they are handled.

- Register service providers to ensure that all policy and regulatory decisions at the Municipality level is informed and are based on credible data.
- Incorporate waste management indicators into the Municipality's Integrated Monitoring and Evaluation System

Objective 10: Promote research and technological knowledge on solid waste management

Waste management is a dynamic paradigm and requires consistent research and innovation as new waste streams are released regularly. Universities and research institutions play a critical role in generating data to guide decision making as well as innovation development.

Currently, there is inadequate research being carried out on waste management.

Policy statements

The board shall;

- Establish linkages with the government, academia, private sector, civil society and global sustainable waste management innovation institutions.
- Identify research and technology needs for enhancing SWM in the municipality

REFERENCES

1. County Government of Kiambu. (2023). Kiambu County Integrated Development Plan (CIDP) 2023–2027. Kiambu: County Government of Kiambu.
2. Government of Kenya. (2000). Environmental Management and Co-ordination Act (Cap. 387). Nairobi: Government Printer.
3. Kenya National Bureau of Statistics (KNBS). (2020). 2019 Kenya Population and Housing Census, Volume I: Population by County and Sub-County. Nairobi: KNBS.
4. Sustainable Waste Management Act, Cap. 387C, Government of Kenya, 2022