




EMBU MUNICIPAL BOARD

Solid Waste Management Policy

OCTOBER 2023

MUNICIPALITY OF EMBU
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.....
(H.E HON. CECILY MUTITU MBARIRE, EGH.) GOVERNOR -Embu County

A handwritten signature in black ink, appearing to read 'Cecily Mbarire', enclosed within a thin black rectangular border. The signature is written in a cursive style with a large initial 'C'.

SEAL OF THE COUNTY GOVERNMENT OF EMBU

FOREWORD

Solid waste management remains one of the major challenges facing Embu Municipality. The impact of the indiscriminate solid waste disposal continues to adversely affect service delivery and it's against this background that Embu Municipal Board has developed a solid waste Management Policy which will also incorporate the emerging issues in the management of solid waste.

The purpose of this policy is to provide a framework to address solid waste problem in the municipality and aims at achieving zero waste generation. It will also ensure that the Municipality, in collaboration with other stakeholders, is able to sustain the provision of adequate and quality services.

The policy will assist the Municipality in the provision of quality services in solid waste management as one of the core functions especially in guiding the Board in implementing solid waste management programs to facilitate effective and appropriate response to solid waste management challenges. This policy is also an affirmation of the Board's commitment to intensify its campaign against improper disposal of solid and liquid waste into the environment and ensure a harmonized society in the Municipality. The ultimate goal of this policy is to guarantee the residents of Embu municipality a clean, healthy and safe environment as enshrined in the constitution.

I wish to thank the representatives from various departments in the County for their efforts and commitment in the development of this policy. I also wish to thank all stakeholders who participated in one way or the other in making this policy.



Raymond N. Kinyua, OGW

CECM Urban Development -Embu County

PREFACE

Solid Waste Management is one of the biggest challenges facing Embu Municipality in its endeavor to provide a clean and healthy environment to the residents of Embu Municipality. In this respect, the Board has demonstrated both concern and commitment by taking concrete steps in the management of solid waste in the entire Municipality.

As a sign of this commitment, the Municipal Board has prepared this policy for solid waste management. The policy addresses the Municipality's solid waste management needs and illustrates the methods by which the municipality will handle all types of wastes generated within its area of jurisdiction. The policy will focus on enhancing solid waste collection, Management, disposal and waste reduction.

This policy builds on the previous planning efforts and describes policy measures for expanding the waste management programs in the Municipality. In this manner, the policy is intended to serve as a management instrument for the board. The document advocates for the adoption of a waste management Hierarchy.

The policy emphasizes on the need for an integrated solid waste management approach that meets sound economic and environmental objectives which often require different wastes generated individually to be sorted throughout the collection, processing, recovery and disposal sequence. Previous practices had all waste types mixed in the management cycle, which resulted in health and environmental hazards and hindered reuse and recycling of the waste resources.

Finally, I wish to extend my deepest gratitude to all those who participated in coming up with this policy. My gratitude also goes to all the people that gave critical comments towards finalization of this policy. My call is for all of us to cooperate in delivering quality and efficient services to the Municipality citizenry through this policy.



Catherine Nyaga
Municipal Manager & Municipal Board Secretary

ACKNOWLEDGEMENT

Special acknowledgment to the able technical team of the Municipality of Embu for the great research and commitment to development of this policy. The good work you have done will guide the Municipality and the county's economic hub into unmatched hygiene levels through integrated waste management.

Special gratitude to the following:

1. The H.E Hon. Cecily M. Mbarire for providing requisite leadership.
2. The County Executive Committee Member for Urban Development Mr. Raymond Kinyua for unreserved support to the Municipality.
3. The Chief Officer for Urban development; Mr. Benjamin Mutisya Muasa for providing technical & financial Support.
4. Special regards and appreciation to the great team comprising of: -
 - (i) Catherine Nyaga -Municipal Manager &Board Secretary
 - (ii) Jacob Kariuki Gititi- Director Urban Development
 - (iii)John Njeru Mucira -Deputy Director Administration - Municipality of Embu
 - (iv)Dennis Munene -Finance Officer Municipality of Embu
 - (v) Nicholas Mogaka Barare – Legal Officer -Embu Countyfor providing technical expertise in the development of this policy.

ABBREVIATIONS

CBD	Central Business District
CBOs	Community Based Organizations
CSOs	Civil Society Organizations
EMB	Embu Municipal Board
ISWM	Integrated Solid Waste Management
EWASCO	Embu Water and Sanitation Company
KIE	Kenya industrial estates
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organization
PCs	Private Companies
PPP	Public Private Partnership
SMEs	Small and Micro Enterprises
SWM	Solid Waste Management

TABLE OF CONTENTS

FOREWORD	2
PREFACE	3
ABBREVIATIONS.....	4
SOLID WASTE MANAGEMENT POLICY FOR Embu MUNICIPALITY	6
1.1 Introduction	6
1.2 Embu Municipality.....	6
2.1 Waste Storage, Collection and Transportation	7
2.4 Institutional Capacity for Solid Waste Management in Embu Municipality.....	9
2.6 Public Participation	9
2.7 Regulatory and Policy frame work on SWM.....	10
2.7.1 National Legislative and Regulatory Framework for Waste Management in Kenya	10
2.7.2 Existing Legislative and Regulatory Framework for Waste Management in Embu Municipality.....	11
3.0 THE POLICY INSTRUMENT	12
3.1 Policy Statement.....	12
3.2 Guiding Principles.....	12
3.4The Integrated Solid Waste Management Strategy (ISWM)	14
4.0 POLICY INTERVENTIONS	15
4.1 The SOLID WASTE MANAGEMENT POLICY	15
5.0 Waste Management Plan.....	23
ANNEX 1 - SOLID WASTE MANAGEMENT POLICY- IMPLEMENTATION MATRIX	24
ANNEX II: SOLID WASTE COLLECTION AND DISPOSAL PROGRAMME	28

1.0 SOLID WASTE MANAGEMENT POLICY FOR EMBU MUNICIPALITY

1.1 Introduction

1.2 Embu Municipality

Embu town is a major trading centre in Eastern Kenya. For a long time, it was the main economic center for the Embu, Mbeere and Kamba communities as well as other communities from central Kenya. Embu is the administrative headquarters of Embu County, a role which the town played for the former Eastern Province. The town, located on the foothills of Mount Kenya, was established in the late 1800s.

The 2009 Census reported Embu urban centre had a core-urban population of 35,736 people; a peri-urban population of 24,937 people; and a total population as 60,673 people. The economy of the town is similar to that of other urban areas in central Kenya, with the agricultural economy of the hinterland strongly linked to the town's economy. Other sectors include commerce, financial services, and the informal economy.

The presence of several institutions of higher learning has led to a significant boost of the town's real estate market, with an increased demand for housing and office space. Urban sprawl is a major challenge confronting urban planning in the town with Embu town being no exception to the myriad urban challenges facing urban areas in Kenya such as inadequate infrastructure and housing, land-use planning challenges, inadequate urban planning, and urban poverty. Despite the challenges, the town remains a key centre for productivity growth in the county and the region.

1.3 Embu Municipal Board (EMB)

Embu Municipal Board is established pursuant to Article 184 of the Constitution of Kenya and the Urban Areas and Cities Act CAP 275 of the Laws of Kenya. The Board was inaugurated in June 2019 following the approval of the Municipal Charter by the County Assembly of Embu. The Board has Eight members headed by the Chairman and the Municipal Manager who is the secretary and head of the Executive. The charter spells out the mandate of the Board and key among them being Solid Waste Management (SWM).

1.3.1 Mandate

The Mandate of Embu Municipal Board is drawn from the Urban Areas and Cities Act CAP 275 of the Laws of Kenya and the Embu Municipal Charter.

The Mandate includes:

- ❖ Overseeing the affairs of the Municipality
- ❖ Developing and adopting policies, plans, strategies and programmes, and setting targets

for delivery of services

- ❖ Formulating and implementing integrated development plan for the Municipality by controlling land use, land sub-division, land development and zoning by public and private sectors for any purpose, including industry, commerce, markets, shopping and other employment centres, residential areas, recreational areas, parks, entertainment, passenger transport, agriculture, and freight and transit stations within the framework of the spatial and master plans for the Municipality as may be delegated by the County Government
- ❖ Promoting and undertaking infrastructural development and services within the Municipality as may be delegated by the County Government
- ❖ Developing and managing schemes, including site development in collaboration with the relevant National and County agencies
- ❖ Maintaining a comprehensive database and information system of the administration and providing public access thereto upon payment of a nominal fee to be determined by the Board
- ❖ Administration and regulating of internal affairs and
- ❖ Implementation of applicable National and County legislation

2.0 SITUATION ANALYSIS

2.1 The Waste Management Problem

Waste management remains one of the major environmental challenges facing most urban centers in Kenya today and Embu Municipality is no exception. It's lack of management therefore has had major implications to the health, Environment, Economy and the Society at large. Lack of good waste management affects negatively the environmental quality indicators such as aesthetics, ecology and human health. Reducing these negative impacts requires best practices in the way waste is generated, stored, transported and disposed.

Bad practices with negative impacts to air, water and soil quality need to be stopped. When materials are burnt, pollutants are released to the air, water soil and life support systems. These negative impacts need to be minimized by introducing best technologies and environmental practices.

Embu Municipality like many other urban areas in Kenya is facing a major challenge in SWM which require an elaborate policy framework for addressing it.

The World Bank Report for African countries the Annual growth rate of waste generation is 2.09 %. Currently, the municipality is estimated to produce 1530 tons of waste every month with much of this waste coming from the fresh produce markets and residential houses.

The Solid Waste Management (SWM) in the Municipality involve three stages and includes; storage and collection, transportation and final disposal.

2.1 Waste Storage, Collection and Transportation

The Municipality is zoned into one zone which consists of Embu Town and its environs. In terms of frequency, Collection and transportation services are provided daily within the Central Business Districts of Embu towns and at least twice a week on the neighboring areas within the Municipality. Garbage collection services are currently provided by the Municipality in partnership with the County Department of Public Health. The street cleaning services which accounts for much of the municipal wastes is also provided within the Embu CBD, and Market within the Municipality.

Waste in the town is largely collected by the County Government while private operators dominate collection in residential areas.

2.2 Solid Waste Disposal Methods

Waste disposal is a major environmental challenge in Embu town. The common methods practiced include open dumping, open burning, use of skips, dust bins and informal waste picking.

Of these methods, open dumping is the main mode of disposal. Disposal site is located at Kagunga ten (10 kilometers from Embu town. The current site is adequate but requires environmental interventions to buffer it from creating negative impacts to the immediate neighbourhood.

2.3 Waste Recovery initiatives

The Municipality's waste is generally organic with substantial quantities of valuable components which account for a smaller percentage of waste generated. Some of the valuable categories of waste that can be reused and recycled include Paper, Cellulose material, plastics, rubber and aggregate material such as glasses and metals. Informal waste recycling initiatives are carried out by waste pickers especially at the dumpsite and residential areas. There are a few waste recycling initiatives in the municipality and they mainly engage in utilization of biodegradable waste from the markets for the preparation of compost manure.

2.4 Institutional Capacity for Solid Waste Management in Embu Municipality.

The Environment unit which currently handles solid waste management matters in the Municipality does not have the requisite personnel for effective Solid Waste Management (SWM) operations. The unit relies on staff from the county department of public health who are mostly not skilled (casuals) to ensure effective delivery of quality services.

2.5 Financial Aspects

As explained above, solid waste management consists of collection, transportation and disposal. The SWM service charges vary depending on the type of businesses. This is a combined fee that caters for the cost of collection, transportation and disposal. A rate is charged through the business permits. However, experience has shown willingness of the people to pay for garbage collection services is very low.

2.6 Public Participation

Community participation in SWM is very low and this is shown by limited awareness and knowledge on the importance of a clean and healthy environment. As such, there is poor handling of waste at the household level including lack of segregation, reuse, reduce and recycling. In addition, negative attitude towards waste management and failure to take individual responsibility has contributed to poor practices such as littering, illegal dumping and open burning. These malpractices are common at the household level where residents indiscriminately dispose garbage without due regard for the health and environmental implications.

2.7 Regulatory and Policy frame work on SWM

2.7.1 National Legislative and Regulatory Framework for Waste

Management in Kenya

- ❖ The Constitution of Kenya (CoK) article 42 states that every Kenyan citizen has a right to a clean and healthy environment that includes the right to have the environment sustainably protected through legislations and other measures. It also devolved solid waste management to the 47 county governments. This is implemented through various policy and regulatory frameworks as follows:
- ❖ Environmental Management and Coordination Act Cap 387 and the EMCA Waste Management regulations (2006) provide a general framework for waste management in Kenya and provide a guide for licensing, transportation and disposal of waste. The generator of waste, transporter, recyclers and institutions that own disposal facilities have obligations to ensure the activities do not deprive citizens the above constitutional right.
- ❖ The Waste Management Regulations- 2006 provide a framework for managing the environment including waste management and classifies waste as hazardous and non-hazardous waste, with a focus on transportation, disposal licensing and burying of waste. National Environment Policy 2013 acknowledges that unsustainable consumption and production patterns leads to excessive waste generation and calls for development of integrated national waste management strategy, promotion of economic incentives to manage waste and promotion of clean production, waste recovery, recycling and reuse.
- ❖ The Occupational Safety and Health Act, 2007 Part IX Chemical Safety, Section 83 Subsection IV states that at every workplace where chemicals or other toxic substances are manipulated, the employer shall develop a suitable system for the safe collection, recycling and disposal of chemical wastes, obsolete chemicals and empty containers of chemicals to avoid the risks to safety, health of employees and to the environment.
- ❖ The National Environmental Management Authority (NEMA) Waste Management Strategy (2015) aims to create a 7R oriented society in Reducing, Rethinking, Refusing, Recycling, Reusing, Repairing and Refilling. Focus areas being waste collection, transportation, and disposal and licensing. The order prescribed by strategy of the 7R is not in any environmental waste management priority. The strategy also focuses attention on the 5 urban centers proposed by Vision 2030.
- ❖ Gazette Notice number 2356 of February 2017 totally banned the manufacture, sale, export and importation of plastic carrier bags in Kenya.

- ❖ The ban of the polythene carrier bags effected in August 2017 had a great impact towards reducing waste generation in Kenya. Waste reduction is considered a key factor for the reduction of green gas house emissions.
- ❖ National Appropriate Mitigation Action (NAMA 2016) proposal for a Circular Economy Solid Waste Management Approach for Urban Areas in Kenya was developed by the MENR in 2016. The NAMA concept include waste sorting, creation of recycling points, recycling of 600 tons of waste per day and composting facilities for organic waste treatment.
- ❖ The National Climate Change Action Plan 2018–2022 proposes to reduce GHG’s emissions through adoption of circular approaches to waste management and engineered landfills.
- ❖ Additional instruments include Kenya vision 2030, Draft chemical regulations, 2019, Pest Control Products Act, Cap 346 Asbestos guidelines, Air quality regulations 2014 and E-waste guidelines (2014).

2.7.2 Existing Legislative and Regulatory Framework for Waste Management in Embu Municipality

Embu Municipality has been operating on the conservancy policy which lay emphasis on collection and disposal of refuse as outlined in local government act CAP 265(repealed). The County Governments Act, 2012 section 104 (2) provides for county planning to include environmental planning.

Other sectorial statutes which provide for SWM are the Public Health Act CAP 242 and Environmental Management and Coordination Act (EMCA) 2015, which allocates considerable property rights as far as various aspects of environmental management are concerned.

NEMA has also enacted solid waste management regulations of 2006 which provide and elaborate guidelines for handling of SWM in general. In addition the County Government of Embu has enacted Embu County Environment Management and Protection Act, 2015, (ECEMPA, 2015) which seeks to promote a clean, safe and healthy environment at the local level. ECEMPA, 2015 addresses issues pertinent to clean and healthy environment, waste management, air pollution, public nuisances, outdoor advertising and noise pollution.

3.0 THE POLICY INSTRUMENT

3.1 Policy Statement

Embu Municipal Board recognizes solid waste should be well managed to ensure a clean, safe and healthy environment for improved quality of life, promotion of ecological integrity and encouragement of economic vitality in a sustainable manner.

3.2 Guiding Principles

The implementation of this Policy will be guided by the following principles:

(i) **Right to a clean and healthy environment:** Under the Constitution, 2010 every person in Kenya has a right to a clean and healthy environment and a duty to safeguard and enhance the environment.

(ii) **Right to sustainable development:** The right to development will be respected taking into account economic, social and environmental needs. Embu Municipality seeks to achieve people-centered development that builds human capabilities, improves people's wellbeing and enhances quality of life.

(iii) **Principle of Environmental Protection:** In undertaking waste management, all entities and individuals should provide high level of human, health and environmental protection.

(iv) **Principle of Proximity:** To minimize environmental impact and transport costs, waste should be processed, treated and disposed as close as possible to the location of its generation.

(v) **Precautionary Principle:** Preventive action should be taken and environmental damage should be rectified at source as a priority.

(vi) **Polluter pays principle:** Those who produce pollutants or waste should bear the costs of managing it to prevent damage to human health or the environment.

(vii) **Zero Waste principle:** The society should aim for zero waste, designing and managing products and processes that reduce and eventually eliminate the volume and toxicity of waste, to conserve and recover waste resources rather than to burn or bury them. The Waste hierarchy establishes preferred program priorities based on zero waste principle and sustainability. The standard outline of the hierarchy ranks 6 approaches to waste management. In order (most preferable to least preferable). These are: prevention, minimization, reuse, recycle (including composting), energy recovery and disposal.

(viii) **Extended producer responsibility:** The producers should be given significant responsibility financially and/or physical for the treatment or disposal of the waste from the products they create. Waste management responsibility is given as an incentive to companies to prevent wastes at the source, promote more environmentally friendly product design and support the achievement of public recycling and materials management goals.

(ix) **System of deposit:** When buying certain products, the buyer shall pay a certain added value to the price of the product, which shall be returned to him/her upon restitution of the used products and the packaging to the seller, provided that there is a possibility for the used products and the packaging to be processed, for which they need to be labelled in a manner that is established by law and another regulation.

(x) **Partnership:** Building partnerships, collaboration and synergies among various stakeholders from the public, government, non-governmental organizations, civil society and private sector, as well as vulnerable communities and populations including women and youth, will be prioritized to achieve effective implementation of this Policy. The private sector will be encouraged to develop capacities for investment, construction and service delivery in recycling and waste management.

(xi) **Devolution and Cooperative government:** Embracing a system of consultation, negotiation and consensus building in implementation of sustainable waste management between and within the National and County governments.

(xii) **Equity and social inclusion:** Ensuring a fair and equitable allocation of effort and cost, as well as ploughing back of benefit's in the context of the need to address disproportionate vulnerabilities, responsibilities, capabilities, disparities, and inter- and intra-generational equity. The communities that benefit from sustainable waste management shall be actively involved in planning and decision-making.

3.3 Policy Objective

To maintain a comprehensive, integrated solid waste management system that addresses collection, transportation, and disposal. The approach will address the Solid Waste Hierarchy elements of source reduction, reuse, recycling, resource recovery, incineration, and landfilling, in proportions appropriate for the municipality's needs.

3.4 The Integrated Solid Waste Management Strategy (ISWM).

Waste management issues run across various aspects of our daily life from households to communities, cities, regions and country level. Each level is comprised of stakeholders that

play a pivotal role to waste management system wherein activities of each directly affect the effectiveness of the system. Recent years have shown the increase of community-oriented approach towards waste minimization in many cities all over world. Partnerships among stakeholders have been built, bridging linkages between the formal and informal players in waste system in both public and private sectors.

Financing is one of the major constraints of many County Government agencies in Kenya to address waste problems. Multi-stakeholder partnership is potentially one of the most viable solutions as it brings and taps in potential financial resources. The increase in participation of external agencies such as international and local organizations as well as private entities in solid waste management (SWM) has also contributed substantially to the inadequacies and limited administrative and technical capacities of county governments.

The increase in community-based approach in waste management is an encouraging feature in many cities in the world. However, many of these initiatives have placed bigger emphasis on waste disposal and recycling. Relatively little has been done to tackle urban organic wastes that generally represent over 50 percent of the total waste generation. Addressing this aspect would amount to achieve benefits for stakeholders like County Governments as it induces savings on operational cost of waste transport and reduce the impact on disposal sites. Furthermore, it reduces waste collection and management costs and opens income opportunities for communities and households.

4.0 POLICY INTERVENTIONS

4.1 THE SOLID WASTE MANAGEMENT POLICY

The overall aim of the Solid Waste Management policy for the Embu Municipality is to enhance solid waste management for provision of a clean and healthy environment to the residents of Embu Municipality. As highlighted above the main solid waste management problems facing Embu Municipality include;

- ❖ Inefficient and ineffective solid waste collection and transportation system
- ❖ Uncoordinated informal solid waste minimization activities
- ❖ Inadequate systems for handling hazardous waste
- ❖ Inadequate capacity in SWM
- ❖ Inadequate financing mechanism for SWM
- ❖ Low coverage of waste collection services
- ❖ Indiscriminate waste disposal
- ❖ Poor waste disposal and treatment
- ❖ Inadequate stakeholder involvement in SWM
- ❖ Irregular collection
- ❖ Inappropriate siting of disposal site

4.2 GOAL FOR SOLID WASTE MANAGEMENT

Reduction and elimination of adverse impacts of waste materials on human health and environment to support economic development and superior quality of life. In order to achieve this goal, the following strategic objectives are proposed to improve solid waste management in the entire Embu municipality;

- i) To provide efficient and economical refuse collection recycling and disposal services.
- ii) To promote waste management through the adoption of waste management hierarchy.
- iii) To promote proper waste disposal and treatment.
- iv) To reduce waste and maximize reuse and recycling.
- v) To educate and sensitize the public on SWM.
- vi) To strengthen institutional and organizational capacity in solid waste management
- vii) To promote sustainable collection and disposal of hazardous waste
- viii) To formulate policies, legislations and economic instruments on SWM
- ix) To inculcate responsible public behavior on waste management

- x) To promote waste segregation at the source
- xi) To establish environmentally sound infrastructure and systems for waste management

These issues will be addressed in the following section, with the identification of each problem, specific objectives and key actions.

xii) **Objective1: To provide efficient and economical refuse collection recycling and disposal services.**

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, inadequate sorting of waste at the house hold level, 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.

Proposed Policy Measures for Waste collection, recycling and disposal.

Waste should be transported in an environmentally sound manner without causing pollution or bad odour 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;
- ❖ Act as basis for waste commercialization i.e. franchise depending on the capacity and level of technology required.

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

Specific objectives

- ❖ To develop a zoning plan to ensure effectiveness and efficiency in the

operational areas.

- ❖ To ensure that waste service providers transport their waste to materials recovery facility and to a landfill.
- ❖ To ensure waste transportation trucks adhere to air quality regulations.
- ❖ To develop guidelines requiring all legal entities or individuals transporting waste within the municipality provide tracking documents of source and destination.

Key actions

- a) Mapping and zoning of solid waste operational areas, and routes
- b) Waste disposal Tracking
- c) Adoption and enforcement of NEMA air quality regulations
- d) Enforcing guidelines on garbage tracking

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.

The following policy measures shall apply to waste segregation.

Specific Objectives

- ❖ To ensure waste segregation is done at the source
- ❖ To 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.
- ❖ To ensure public awareness on waste colour codes and importance of proper sorting

Key actions

- ❖ Enforcement of waste segregation regulations at source based on the national gazetted minimum waste fractions for all waste generators including household level.
- ❖ Provision of waste segregation containers to enable sorting at source of organic waste, recyclable and non-recyclables and educate the waste generators on the prescribed sorting categories and methods.
- ❖ To carry out public awareness on waste colour codes and importance of proper sorting in all public labelled bins for easier sorting.

Objective 3: To promote proper waste disposal and treatment.

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 specific objectives.

Specific Objectives

- ❖ To prioritize waste prevention and minimization in conformance to the waste hierarchy
- ❖ To set aside sufficient land for waste management activities, and generate jobs and livelihoods from waste management activities
- ❖ To establish and improve waste management infrastructure to promote source segregation, collection, reuse, set up materials recovery facilities and controlled disposal in engineered landfills.
- ❖ To identify and prioritize potential and financial requirements for setting up composting plants and technology in the municipality.

Key actions

- ❖ Sensitize the public on 4Rs (Reduce, Re-use, recycle, Recover)
- ❖ Liaise with the County Government of Embu to acquire and/or 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.
- ❖ Design, construct and equip a recycling, material recovery plant, and waste transfer stations
- ❖ Formulate regulations to require institutions to ensure that at least 50% of their produced waste is recycled through a licensed service provider.
- ❖ Setting up composting plants in the municipality
- ❖ Develop a 3-year plan to transit from the current Open dumpsites and adopt land filling for residual waste.
- ❖ Ensure the recyclers, bio-waste processors and material recovery facilities shall obtain environmental compliance licenses from NEMA.

Objective 4: To Educate and Sensitize 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 Embu Municipality. Consequently, a lot of illegal dumpsites and indiscriminate disposal of wastes along the streets, alleys, river banks, open spaces and undeveloped land is a norm rather than the exception.

Specific objective

- ❖ To sensitize the community, leaders and staff on sustainable SWM service provision.

Key actions

- ❖ Undertaking 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 Strengthen the Institutional and Organizational Capacity in Solid Waste Management

Policy Measures on Strengthening the Institutional Framework

Reasons for low collection of waste include insufficient financial outlays, shortage of vehicles, inadequate staff, lack of proper planning and systemic approach by the county Government. The shortcomings of the SWM programme in Embu Municipality are also contributed partly by inadequacy of institutional support on SWM in the past.

Specific objectives

- ❖ To ensure adequate financial provision for SWM services.
- ❖ To build capacity among the stakeholders on proper waste management.

Key Actions

- ❖ Establish a SWM unit with adequately trained personnel and equipment.
- ❖ Develop municipal waste management plans which are aligned to this policy.
- ❖ Licensing and training waste service providers including collectors and transporters.

Objective 6: To enhance proper handling, collection and disposal of hazardous wastes.

The municipality does not have a specific policy to address hazardous waste and medical waste. Medical waste is collected for treatment at the County referral hospital and health

centres and with the increased generation of such wastes, their capacity may be overwhelmed in future.

Specific Objective

- ❖ To enact legislation to provide guidelines for handling hazardous wastes at the municipality level.

Key actions

- Formulation of bills on handling of hazardous wastes
- Baseline surveys on potential hazardous wastes
- Undertaking research from time to time to ascertain the nature, extent and emerging issues in hazardous waste

Objective 7: 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.

Specific objectives

- ❖ To set up a data management system of the Municipality waste streams, volumes generated and how they are handled.

Key Actions

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

Objective 8: 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.

Specific Objective

- ❖ Promote collaborations in waste and waste management related research

Key Action

- ❖ Establish linkages with the county government, academia, private sector, civil society and global sustainable waste management innovation institutions.

5.0 WASTE MANAGEMENT PLAN

Embu Municipality has experienced strong population growth for the past four decades, and recently moderate economic growth, which has translated to a fast growth in waste quantities. Its investment in infrastructure, operational systems and human resource to manage this waste has not kept pace with this growth. The municipality residents now face consequences of improper waste management. This solid waste management plan lays out the framework for a coordinated and well planned response to this waste management crisis. This plan embraces an integrated approach to solid waste with a strong emphasis on local government action in activities such as reduction of waste at source, re-use, resource recovery and recycling. This plan is accompanied by three significant inclusions:

- i) The National Government Environmental Agencies
- ii) Staff of the Department of Environment of Embu County
- iii) Stakeholders in the county's waste management systems.

As the municipality moves forward with the adoption and implementation of this SWM plan, care must be taken to nurture and further strengthen the human capacity base that will prove to be essential to achieve the vision of a healthy, safe, secure and sustainable solid waste management.

**ANNEX 1 - SOLID WASTE MANAGEMENT POLICY-
IMPLEMENTATION MATRIX/WORKPLAN.**

No	Objective	Key actions	Responsible Agency	Time frame
1	To enhance solid waste collection and transportation services in Embu municipality	<p>Review the existing zoning plan to ensure effectiveness and efficiency in the operational areas.</p> <p>Provision of appropriate SWM vehicles and equipment.</p> <p>Promoting an Enabling Framework for Public Private Partnership (includes the</p>	<p>EMB Board</p> <p>EMB Board KMB Board</p> <p>EMB Board</p> <p>EMB Board</p>	<p>2 Years</p> <p>2 Years</p> <p>2 Years</p> <p>2 Years</p>
2.	Public awareness and education on SWM.	<p>Conduct public awareness campaigns on Proper SWM.</p> <p>Designate clean- up days for Embu town quarterly.</p> <p>Hold workshops, seminars on SWM</p>	EMB Board, Embu County Government NEMA, CBOs and NGOs	Monthly (Every Year)
3	Promote waste segregation at source	<p>Enact regulations to promote waste separation at source.</p> <p>Promote waste separation and sorting at household level through incentives.</p> <p>Install litter bins to control littering and promote waste separation</p> <p>Enact and enforce SWM by-laws to support waste separation and sorting.</p> <p>Identify sufficient land for waste management activities</p> <p>Establish small-scale recycling plants</p> <p>Organize and formalize informal waste entrepreneurs into cooperatives/SMEs.</p> <p>Promote wastes composting</p>	<p>EMB Board, County government of Embu County Executive & Embu County Assembly</p> <p>EMB Board</p> <p>EMB Board</p> <p>EMB Board & Embu County Government</p> <p>EMB, Embu County Government</p> <p>NEMA, CBOs and NGOs</p>	<p>3 years</p> <p>3 years</p> <p>1 Year</p> <p>2 years</p> <p>2 Year</p> <p>3 years</p>

4	Improving waste disposal and treatment	Rehabilitate existing disposal site Initiate the process of closure of open dumpsites and establish engineered landfills for disposal of non-recoverable fractions of wastes.	EMB Board & Embu County Government	2 Years
		Introduce controlled tipping system practices and buffers at the disposal sites to remove mal odors, litter and other nuisance and to minimize the problem of flies and vermin.	EMB Board and County	2 Year
		Promote waste to energy technologies and investment ventures through fiscal incentives and infrastructure development.	EMB Board & County Government of Kirinyaga	2 years
		Develop a 3-ye ar plan to transit from the current Open dumpsites and adopt land filling for residual waste.	EMB Board & Embu County Government	3 Years
5	To strengthen institutional capacity	Recruitment of additional staff training on SWM Improvement of working conditions	EMB Board & Embu County Government	2 years
6	Proper handling of hazardous wastes	Promote waste separation at source. Provide incineration services. Contract private sector firm that specializes in handling and disposal of hazardous wastes	EMB Board & Embu County Government	2 years
7	Improved street Drainage, market facilities and parks rehabilitation and maintenance	Provision of adequate litter bins on strategic positions in towns. Provide additional labor. Ensure regular litter collection. Enforce SW by-laws to discourage littering.	EMB Board	2 years
8	Promote community-based waste management initiatives	Encourage and promote the formation of small and micro waste enterprises at neighbourhood level. Provide training to the small-scale entrepreneur on SWM, Provide space or land for community groups engaged in SWM activities. Establish strong partnership with waste cycling industries (to provide market facilities for their products	EMB Board, Embu County Government , NEMA, CBOs and NGOs	3 years

9	Promote research and technological knowledge on solid	Establish linkages with the government, academia, private sector, civil society and global	EMB Board	5 years
	waste management	sustainable waste management innovation institutions Conduct study on SWM <ul style="list-style-type: none"> • Waste classification (characterization and analysis) • Waste minimization potential. • Marketing potential for the recyclables. 		
10	Maintain a data base on SWM in the municipality	Set up data collection system of the Municipality waste streams, volumes generated and how they are handled <ul style="list-style-type: none"> ❖ Incorporate waste management indicators into the Municipality's Integrated Monitoring and Evaluation System 	EMB Board	2 Years
11	Financial aspects	Ensure that adequate resources are allocated for sustainable waste management actions	EMB Board, County Government, and Donor agencies	5 Years

ANNEX II: SOLID WASTE COLLECTION AND DISPOSAL PROGRAMME

TOWN	COLLECTION FREQUENCY	MODE OF DISPOSAL	DOSPOSAL SITE
Embu town and its environs	Daily	Waste skips and trucks	Kagunga