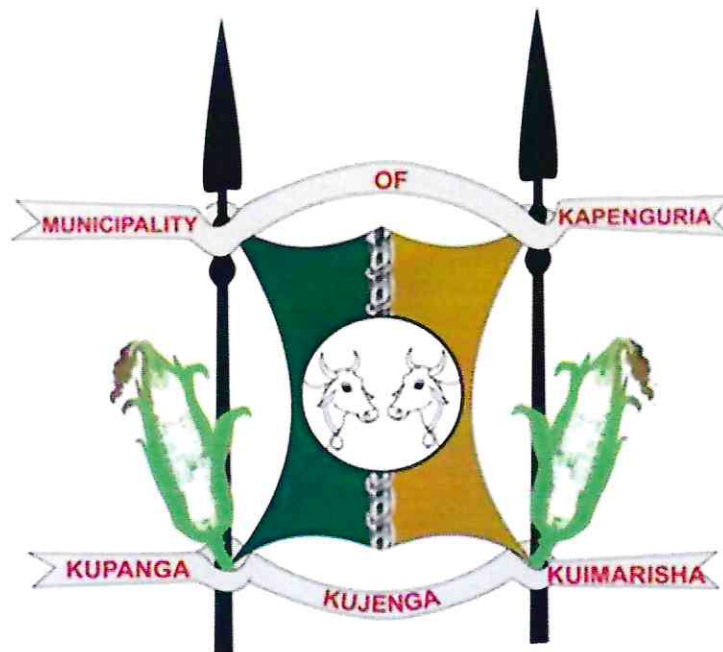


**WEST POKOT COUNTY GOVERNMENT**



**KAPENGURIA MUNICIPALITY**

**SOLID WASTE MANAGEMENT POLICY**

@ 2019

***VISION***

To be a model Municipality in service delivery in Kenya

***Mission***

Provision of effective, efficient and sustainable development

***Core values***

- ❖ Integrity
- ❖ Excellence
- ❖ Client Care
- ❖ Innovativeness
- ❖ Accountability
- ❖ People-centeredness
- ❖ Equity
- ❖ Professionalism
- ❖ Innovativeness
- ❖ Passion

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Accumulated waste deposits are an indication of societal lifestyles, waste management practices and production technology. Some societies at the peak of their development have stagnated due to inadequate management of their waste leading to proliferation of disease; environmental degradation and ultimate impact on livelihoods. Improper management of waste poses a threat to Climate Change and eventually in the achievement of sustainable development. Waste being one of the contributors of greenhouse gases, affects climate change and it is for this reason that as a country, we should develop sustainable waste management policies, technologies and initiatives to curb this growing global challenge. Through our commitment to sustainable development, West Pokot county Government aims to balance the broader economic and social challenges of development and environmental protection. For this reason, the county government subscribes to the vision of a prosperous and equitable society living in harmony with our natural resources. This is also reinforced in the constitution under the fundamental right to a clean and health environment. Sound environmental management entails use of waste reduction technologies, policies in production, sustainable product design, resource efficiency and waste prevention, re-using products where possible; recovering value from products. Although, elimination of waste entirely may not be feasible, systematic application of modern waste management systems should be explored and implemented. The challenge of waste management affects every person and institution in society. The measures set out in this strategy cannot be undertaken without a collective approach to waste challenges, and the involvement of a broad range of stakeholders in their implementation.

**Mr JACKSON YARALIMA**

**CEC - LANDS, HOUSING, PHYSICAL PLANNING AND URBAN DEVELOPMENT**



**Mr Benjamin Lemlem**

Solid waste management remains one of the major challenges facing Kapenguria Municipality. The impact of the indiscriminate solid waste disposal continues to adversely affect service delivery and it's against this background that Kapenguria 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 quality services in solid waste management and establish 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 waste onto the environment and ensure a harmonized society in the Municipality. The ultimate goal of this policy is to guarantee the residents of Kapenguria municipality a clean, health and safety environment as enshrined in the constitution.

I wish to thank Municipality manager and her team and representatives for 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 another in making the policy.

A rectangular stamp containing a handwritten signature in blue ink that reads "Benjamin Lemlem" and the date "23/10/2019". The signature is written over a dotted line.

Mr BENJAMIN LEMLEM  
CHAIRMAN

## KAPENGURIA MUNICIPALITY BOARD

### PREFACE




All residence residing in Kapenguria municipality and its environs are entitled to a clean and healthy environment. The Environment Management and Co-ordination Act 1999 is guided with among others the following principles of public participation in the development of policies, plans and processes for the management of the environment. In line with the principle of inter -generational and intra-generational equity, the polluter-pays principle and the precautionary principle. Solid Waste Management is one of the biggest challenges to the Kapenguria Municipal Board in its endeavor to provide a clean and healthy environment to the residents of Kapenguria Municipality

It is with this spirit that the municipal board strived to develop this policy which will assist the public and institutions involved to be a 7R oriented society, by Reducing; Rethinking; Refusing; Recycling; Reusing; Repairing and Refilling their waste.

All the efforts were driven towards compliance with the Environmental Management and Coordination Act of 1999 and Environmental Management and Coordination (Waste Management) Regulations of 2006 in order to ensure a clean and healthy environment for all, keeping in line with the Article 42, of the Constitution of Kenya 2010.

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

 23/10/2019  
MS LOBOO CHEPKUMUN LUCY  
MUNICIPAL MANAGER  
KAPENGURIA MUNICIPALITY



## ABBREVIATIONS

CBD: Central Business District

CBOs: Community Based Organizations

CSOs : Civil Society Organizations

ISWM: Integrated Solid Waste Management

KMB : Kapenguria Municipal Board

KIE: Kenya industrial estates

NEMA: National Environment Management Authority

NGOs: Non-Governmental Organization

PCs : Private Companies

PS: Private Sector

PPP : Public Private Partnership

SMEs: Small Scale Enterprises

SWM : Solid Waste Management

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# SOLID WASTE MANAGEMENT POLICY FOR KAPENGURIA MUNICIPALITY

## 1.1 Introduction:

Kapenguria Municipality is Located in West Pokot County and comprises of three administrative wards which include; Kapenguria ward, Mnagei ward and Siyoi Ward with its headquarters is in Kapenguria town. The Municipality lies at the Latitude 1° 13' 48" North and Longitude of 35° 7' 12" and covers an area of approximately 154 Km<sup>2</sup>. The Municipality is characterized by a variety of topographic features. Kapenguria Municipality is 2,300 meters above the sea level. There's one gazetted forest within the Municipality Kamatira forest.. Though there are small rivers within Municipality which supplies Water to the residents . Kotoruk is the major source of water in Kapenguria Town and Makutano CBD

Kapenguria Municipality has a bimodal type of rainfall. The long rains fall between the month of April and August while the short rains fall between October and December. The municipality receives a rainfall of about **1,600mm** per annum. The average annual temperature of the Municipality is **15°C**. The high-altitude areas with moderate temperatures experience high rainfall and low Avapro-transpiration hence suitable for crop production. Kapenguria Municipality has Three wards, 8 locations and 24 sub locations. The table below presents the existing administrative units in terms of Wards, Locations and Sub locations

NO	LOCATION	SUB-LOCATION
01	KISHAUNET	Kishaunet
		Liytei
		Sukut
02	KAPKORIS	Chemwochoi
		Tilak
		Kaprum
03	KAPENGURIA	Chewoyet
		Kamatira
		Mwotot
04	KAISAKAT	Siyoi
		Paraywa
		Kapchila
05	TALAU	Chepkoti
		Kapsurum
		Talau
06	KAIBOS	Kipkorinya
		Kaibos
		Kapkatet
07	KERINGET	Lokornoi
		Cheptuya
		Morotome
08	MNAGEI	Tartar
		Keringet
		Psigirio

## **1.2 Kapenguria Municipal Board (KMB)**

Kapenguria 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 on August 2018 following the approval of the Municipal Charter by the County Assembly of West Pokot. The Board has nine members headed by the Chairman and the Municipal Manager who is the secretary and head of the municipality. The charter spells out the mandate of the Board and key among them being Solid Waste Management (SWM).

### **1.2.1 Mandate**

The Mandate of Kapenguria Municipal Board is drawn from the Urban Areas and Cities Act, CAP 275 of the Laws of Kenya and the Kapenguria Municipal Charter. Which include:

- overseeing the affairs of the Municipality
- developing and adopting policies, plans, strategies and programs, 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 CURRENT STATUS ON WASTE MANAGEMENT IN THE MUNICIPLAITY

### 2.1 Overview of current waste management

West Pokot County and Kapenguria municipality has a growing human population and an increase in urbanization. Kapenguria being the main urban centers have attracted a large population of informal settlements dwellers and the middle class. This has consequently led to increased waste generation and complexity of the waste streams. Despite the existence of laws and policies guiding waste management, weak implementation and poor practices have led to the municipality being overwhelmed by its own waste, consequently affecting public health and the environment.

Over the years, West Pokot County Government through Kapenguria municipality did not prioritize the establishment of proper waste management systems and hence allocated meager resources for its management. Further the municipality lacked technical and institutional capacities to manage waste. This has led to the current poor state of waste management which includes indiscriminate dumping, uncollected waste and lack of waste segregation across the municipality

Kapenguria municipality like many other urban areas in Kenya is facing a major challenge in SWM which require an elaborate policy framework for addressing it. A study report carried out by Ministry of Land, Housing and Urban development in the year 2017, indicated that the Municipality is projected to be generating 21 tons of solid waste domestic waste and Non - domestic wastes per day by the year 2020 with an average daily per capita waste generation of 0.19 kgs. Currently, it is estimated that the Municipality generates over 20 tons of garbage per day of which 70% is collected and disposed and 30% remain where it was deposited in the first place,

#### Summary of wastes generation, collection and recovery in municipality sub units

	Estimated Waste generated (tons/day)	%waste collected	% waste recycled	Uncollected waste in %
Makutano CBD	3 ton	80%	0	20%
Kapenguria administrative unit	0.5 ton	80%	0	20%
Kishaunet unit	0.1 ton	50%	0	50%
Siyoi unit	0,2 Ton	30%	0	70%
Murkwijit	0.1 Ton	30%	0	70%
Keringet	0.1 Ton	30%	0	70%
Cheptuya unit	0.02 Ton	40%	0	60%
Kapkoris	0.002 Ton	10%	0	90%
Safari hotel	0.003 Ton	20%	0	80%
Karas	0.04 Ton	10%	0	90%

Tilak	0.003 Ton	50%	0	50%
Tartar	0.05 Ton	20%	0	80%
Kamorow	0.007 Ton	20%	0	80%
Talau	0,03 Ton	10%	0	90%
Kaiboss	0.002 Ton	10%	0	90%
Aramaket	0.03 Ton	10%	0	90%
Sokomoko	0.05 ton	10%	0	90%

### Waste Transportation

Waste transportation is largely rudimentary using open modified tractor and only within kapenguria and Makutano townships. These poor transportation modes have led to littering, making waste an eye-sore, particularly plastics in the environment. Disposal of waste in the county remains a major challenge because the county lacks proper and adequate disposal sites. There is only one designated site which practice open dumping of mixed waste as it lacks appropriate technologies and disposal facilities.



Figure 1 transportation of solid waste to dumpsite

## 2.2 Types of waste streams and their management

There are various waste streams generated in the municipality that can be categorized as domestic, municipal and hazardous wastes. Other emerging waste streams, such as e-waste, waste tyres are as a result of growing industrialization and growth of ICT. The composition of general waste varies considerably between households and businesses

### 2.2.1 Domestic waste:

Domestic waste is also referred to as garbage, refuse or trash and forms 80% of the waste generated within kapenguria municipality. It consists mainly of biodegradable waste which is food and kitchen waste, human waste, latrine and toilet effluents, green waste paper and non-biodegradable such as plastics, glass bottles, cans, metals and wrapping materials.

### **2.2.2 Waste Tyres:**

Waste tyres which forms 2% of the total waste is an emerging waste stream that has reached their end of life due to wear or damage and cannot be recycled or reused. There are no established formal systems for collection and recycling of tyres with the exception of retreading. As such the bulk of the tyres are informally collected and often illegally burnt in the open to recover steel for recycling. This emits harmful gases causing air pollution and soil contamination arising from the residues.

### **2.2.3 Construction and demolition waste:**

This is waste forms 4% of the total waste produced and it is generated as a result of new construction works, remodeling or demolition. Construction waste comprises debris, steel, timber, iron sheets, tiles and ceramics among others. Although construction and demolition waste is not classified as hazardous, it is a mixed waste source that requires separation into component parts for the purposes of recycling. These wastes currently end up in the disposal sites or are used for backfilling in our road networks.

### **2.2.5 Biomedical Waste**

Biomedical waste also referred to as medical waste forms 1% of total waste produced and it refers to waste generated in health facilities, research institutions or during immunization of human beings and animals. It's classified into; Infectious waste, sharps, pharmaceutical wastes, chemical waste and pathological waste. Biomedical wastes pose risks to human health due to its pathogenic characteristics and hence require prior treatment before disposal.

Currently, segregation is fully embraced in most hospitals and clinics based on the guidelines issued by the Ministry of Health. Although the biomedical waste is expected to be disposed through incineration, some find its way to the municipal dumpsites while some is handled through rudimentary facilities such as kilns. While big hospitals have embraced proper biomedical waste management, the major challenge remains the small clinics which practice illegal disposal of these wastes.

### **2.2.6: E-waste:**

E-waste is an emerging waste stream arising from Electrical and Electronic Equipment's (EEEs) becoming obsolete at the end of life. Kenya has experienced a rapid increase of e-waste due to adoption of ICT across all sectors and an influx of low quality EEEs. E-waste comprises of heavy metal components and materials used in the manufacture of electronic goods. Some of these include mercury, brominated flame retardants, and cadmium which are considered hazardous if not well handled during dismantling or recycling can become harmful to human health and the environment.

Batteries can either be alkaline (dry cells) or acid based which support domestic and industrial applications. The acid based (rechargeable and silver oxide) batteries contain heavy metals such

as mercury and cadmium which are classified as hazardous substances. This hazardous material if not properly handled and disposed presents a risk the human health and the environment.

Currently, there are no recycling or disposal facilities for alkaline, rechargeable and silver oxide batteries. As such the batteries are disposed in the open dumpsites alongside domestic waste.

#### **2.2.7: Asbestos Waste**

In kapenguria municipality Asbestos are only found in Kapenguria County referral Hospital as roofing materials. When removed or when the structured with Asbestos is demolished then the wastes become hazardous and present a significant health risk when improperly disposed or reused.

#### **2.2.8 Pesticide Waste:**

Pesticides are chemicals used to control pests. Pesticide waste consists of expired and contaminated pesticides as well as the used containers. Due to their toxicity, potential to pollute and threat to human health, pesticide wastes are extremely hazardous and must be transported, treated and disposed of accordingly. These pesticides can contain persistent organic pollutants (POPs), which can accumulate in the food chain if not well managed. Larger scale generators of pesticides waste incinerate or export the waste to developed countries for treatment or disposal. However small scale generators dispose in their farms.

#### **2.2.9: Used Oil and Sludge:**

Used Oil and Sludge arises from the use of petroleum products. This contains potentially hazardous compounds such as poly-aromatic hydrocarbons that have carcinogenic and mutagenic properties. Used oil and sludge have a slow rate of decomposition and hence any spillage can accumulate in the environment causing soil and water pollution.

#### **2.2.10: Sewage Sludge:**

Sewage sludge is a sediment material that accumulates over time in the sewage treatment plants and ponds. The widespread disposal of industrial effluent via sewage treatment works results in contamination of sewage sludge with hazardous chemicals, thereby posing particular challenges for its disposal. Sewage sludge that is contaminated by heavy metals from industrial effluent can severely contaminate agricultural land to which it is applied. However, a high proportion of the contaminated sewage sludge continues to be disposed in dumpsites. In this regard there is need to pre-treat contaminated sewage sludge before disposal. Uncontaminated sewage sludge has a variety of commercial uses and can be recycled.

### **2.3 Current Waste Management Practices**

#### **2.3, 1: Waste Segregation**

Most of the waste is generated at household, market places, towns and, institutions. Currently within the municipality there is no segregation of waste at all. Recovery of recyclable items like plastics, papers, glass and metals is done by increasing number of informal groups

### 2.3.2 Collection and Transportation

Waste in Makutano CBD and Kapenguria township is largely collected by the County Governments. There are no private operators collecting waste in the municipality

### 2.3.2 Waste Storage, Collection and Transportation

The Municipality is zoned into 17 zones which consist of Kapenguria Town, Makutano CBD, Bendera, Murkwijit, Keringet, Chepuya, Siyoi, Kishaunet, Karas, Aramaket, talau, kaiboss, Kamorow,, Sokomoko, and Lityei, Tartar, Talau, Safari hotel .In terms of frequency, daily Collection and transportation services are provided daily in zones such as Makutano CBD, Bendera and Kapenguria administrative centre. The street cleaning services which accounts for much of the municipal wastes is also provided within the Kapenguria CBD, Markets.



Figure 2 waste collection in Municipality

## 2.2 Solid Waste Disposal Methods

Waste disposal is a major environmental challenge in Kapenguria municipality. The common methods practiced include open dumping, open burning, incineration of medical waste, informal waste picking. Of these methods, open dumping is the main mode of disposal in Kapenguria town. Disposal site is located near Kapenguria county referral hospital. The open disposal site has been in use since 1980's and has reached its optimum capacity. The facility is poses health and environmental threat to neighboring land uses especially the County Referral Hospital which is situated adjacent to it. Attempts by the County Government to relocate the disposal site outside the town Centre has not been successful. The land owners are unwilling to provide land due to

the fears associated with the disposal site menace. A site in Kopoch was identified in the past but could not be relocated owing to public resistance.



*Figure 3 current state of dumpsite*

### **2.3 Waste Recovery initiatives**

The Municipality's waste is generally organic (70%) with substantial quantities of valuable components which account for 30% of waste generated. Some of the valuable category can be reused and recycled such as Paper, Cellulose material, plastic, rubbles 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 no formal waste recycling initiatives within the municipality.

### **2.4 Institutional Capacity for Solid Waste Management in Kapenguria Municipality.**

The Environment department which currently handles solid waste management matters in the Municipality does not have the requisite personnel for effective SWM operations. The unit has a workforce of 35 members of staff who are mostly not skilled to ensure effective delivery of quality service.

### **2.5 Financial Aspects**

As explained above, solid waste management consists of collection, transportation and disposal. Currently, the municipality does not charge any fee on waste collection, transportation and disposal. However, going forward, the municipality will consider charging a fee that will vary depending on the type of businesses. This fee will cater for the cost of collection, transportation and disposal. Consideration will also be made to ensure that a flat rate of Ksh 100 is charged on every household which is connected to the water supply.

### **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 haphazardly without due regard for the health and environmental implications.

## **2.4 Challenges in Waste Management**

Waste management in kapenguria municipality has remained a major challenge due to diverse factors. This range from problems associated with waste management systems, limited knowledge, attitude and practices, political will, technical and financial resources.

### **2.4.1 Lack of awareness and knowledge:**

There is limited awareness and knowledge on the importance of a clean and healthy environment. This has led to poor practices by the Public towards waste management which has led to environmental pollution. 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.

### **2.4.2 Political influence and lack of good will:**

Political good will is key to the ultimate success of proper waste management in the country. Unfortunately, the waste management agenda has not been prioritized , leading to poor investments and funding.

### **2.4.3 Disposal sites: Availability, siting and management.**

The county governments are expected to designate waste disposal sites/facilities within their areas of jurisdiction. However, the availability of public land for the purpose of a disposal site remains a challenge. In situations where the land is available, the neighboring communities are opposed to it being in their backyard. This is as a result of poor management of the existing sites. This has culminated in dumpsites being sited on environmentally sensitive areas such as river banks, forests and wetlands.

### **2.4.5 Funding:**

Lack of prioritization for waste management in the counties has led to inadequate budgetary allocation. As a result management of the entire waste management cycle (collection, transportation and disposal) is hampered. Low funding has also affected investment in waste management facilities and equipment's.

### **2.4.6 High poverty levels:**

High poverty level especially in informal and low income settlements has compromised the ability to pay for waste management services. This has led to lack of collection leading to illegal waste dumping in undesignated areas sites, streams, rivers and highways. The situation is further compounded by lack of access and waste management infrastructure.

#### **2.4.7 Lack of segregation:**

There is lack of waste segregation at source leading to mixed wastes which are collectively disposed of in the dumpsites. Where sorting is done, the problem is compounded by the lack of compartmentalized vehicles for transportation of the sorted waste leading to the remixing. This hampers material recovery, reuse, and recycling. The sorting has largely been relegated to the lowly in society such as the waste pickers and street urchins.

#### **2.4.8 Limited technical competencies:**

As a Country, we are faced by limited technical competencies in waste management. This has led to poor management of our waste management facilities and equipment and their failure to attain optimal operating capacities.

#### **2.4.9 Slow adoption of modern technological options:**

Although there are many waste management technologies in the country, there has been low adoption of the same by the relevant practitioners. This as a result of diverse factors including inadequate financial resources to purchase the equipment's, lack of incentives including tax waivers, resistance to change, lack awareness, unavailability of land and weak enforcement.

## **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 ban on the manufacture, sale, export and importation of plastic carrier bags in Kenya. The ban of the polythene carrier bags effected in August 2017 contributed a positive impact towards minimizing waste generation in Kenya.
- ❖ Kenya Nationally Determined Contribution waste is considered a key mitigation sector for the reduction of green gas house emissions. Nationally 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 Kapenguria municipality**

The challenges facing SWM in Kapenguria municipality is mostly due to inadequate policy and regulatory framework. The County 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 local county government act does not mention SWM but it provides that local authorities are mandated to provide solid waste management services. Section 160 (a) provides that local authorities establish and maintain sanitary services for destruction of ,or otherwise dealing with all kinds of refuse and effluent and where any such service is established , to compel the use of such service by persons to whom the service is available. The provision implies that local authorities are mandated to provide SWM services. Other sectorial statutes which provide for SWM are the public health act CAP 372 and Environmental management and coordination act (EMCA) 1999. EMCA (1999) 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. It is expected that that the Municipal Board will use these guidelines to develop their own SWM by- laws that seeks to domesticate them for the purpose of promoting a clean, safe and healthy environment at the local level.

The County Government of Kapenguria is expected to enact county based Policies and legislation on solid waste management matters. Generally the municipality does not have an elaborate policy and legislation which address SWM matters adequately. The existing by -laws are obsolete and does not adequately provides for the integrated approach of handling SWM. The policy should encompass all aspects of SWM right from the generation to disposal including provision for waste minimization, composting, informal sector and private sector involvement.

### 3.0 THE PREFERRED STATE OF WASTE MANAGEMENT IN THE COUNTRY

The overall aim for solid waste management is protection of human health and the environment in a manner that is affordable, environmentally friendly and socially acceptable. To achieve this

there is need for kapenguria municipality to adopt the principle of integrated solid waste management.

### **3.1 Integrated Solid Waste Management**

Integrated solid use of various approaches of sustainable waste management. It establishes the preferred order of solid waste management alternatives as follows: waste reduction, reuse, recycling, resource recovery, incineration, and landfilling

#### **3.2.1 Waste avoidance and reduction**

Waste avoidance and reduction is the foundation of the waste hierarchy and is the preferred choice for waste management measures. The aim of waste avoidance and reduction is to achieve waste minimization and therefore reduce the amount of waste entering the waste stream.

#### **3.2.2 Recovery, re-use and recycling**

Recovery, re-use and recycling comprise the second step in the waste hierarchy. Recovery, reuse and recycling are very different physical processes, but have the same aim of reclaiming material from the waste stream and reducing the volume of waste generated that moves down the waste hierarchy.

#### **3.2.3 Disposal**

Disposal is any operation that involves the dumping and incineration of waste without energy recovery. Before final disposal, a considerable amount of pretreatment may be necessary to change the characteristics of the waste in order to reduce the quantity or harmfulness of the waste. Landfills are the most common form of waste disposal but the least preferred option in the waste hierarchy.

### **3.3.1 Waste Generation**

Most of the waste is generated at household, market places, cities, towns, institutions and industrial zones. Ideally;

- The waste generator should endeavor to minimize waste by reducing, reusing, refusing, returning waste or by adopting cleaner production technologies;
- All waste generated should be segregated at source;
- The County Governments and the licensed service providers should provide color coded bags or bins as per the NEMA guidance for the segregated waste;

### **3.3.2 Waste Collection**

- Waste collection is the main point of interface between the public and waste service providers who are either the Government or the private sector.
- Collection centers/transfer stations should be established at strategic areas within a town .They should be fully equipped with waste receptacles which should either be colour coded or labeled with the specific waste stream to promote waste segregation.

- All waste collection centers should be zoned/ designated by the County Governments.
- These collection areas should be properly managed and maintained with frequent and timely collection of waste to avoid scattering into undesigned areas.
- adequate measures should be put in place to manage any leachate from the waste receptacles and collection areas;
- The County Governments should embrace Public-Private-Partnerships with organized groups to enhance waste collection within the informal settlements and low income areas.

### **3.3.3 Waste Transportation**

- The County Governments should provide adequate transport for the various segregated waste streams;
- The waste transportation trucks should be closed and suitable for the transportation of the various waste streams to the waste treatment facilities and landfills;
- The trucks waste trucks should be regularly serviced and maintained to avoid littering of waste;
- All waste transportation vehicles should be licensed to operate by NEMA.

### **3.3.4 Waste Treatment**

The following waste treatment technologies are highly recommended to enable the kapenguria municipality achieve reduction of waste directed to landfills and other disposal facilities.

#### **a) Material recovery technologies**

##### **Recycling**

Recycling is the processing of waste material into a new product of similar chemical composition. Recycling prevents wastage of potentially useful materials, reduces the consumption of fresh raw materials and energy usage in addition to reducing pollution. Municipality should embrace full recycling of all recyclable materials to reduce the amount of waste being disposed at the landfill.

##### **Composting**

Composting is the biological decomposition of biodegradable solid waste under controlled aerobic conditions to produce Compost is used as an organic fertilizer in agricultural production. Residence in the municipality should be encouraged and taught to strive to compost all their organic wastes to reduce on organic waste ending at the landfill.

##### **Thermal treatment of waste:**

Thermal treatment is the combustion of waste at specific temperatures with or with no air supply as part of the process and includes waste incineration, gasification and pyrolysis. The un reusable and unrecyclable wastes can be subjected to thermal treatment which is an environmentally sound technology that reduces the volume of waste and inerts any hazardous components. At the same time energy can be recovered as an end product.

**Waste Incineration:**

Incineration is controlled burning of solids, liquids and gaseous waste. The technology is applicable in the management of both hazardous waste streams as well as municipal solid waste. Incineration should be undertaken in facilities that meet the requirements in the Third schedule of the Environmental Management and Coordination (Waste management) Regulations of 2006.

**Gasification:**

Gasification is a process of reacting waste at high temperatures greater than (>700 °C), without combustion, with a controlled amount of oxygen and/or steam to generate useful products such as electricity, chemicals, fertilizers and natural gas. This could be an important option in landfills. Pyrolysis:

**Pyrolysis**

Pyrolysis is a form of treatment that chemically decomposes organic materials by heat in the absence of oxygen. Pyrolysis typically occurs under pressure and at operating temperatures above 400-500 degrees Celsius. It is affordable??

**Biological treatment of waste:**

This is a natural process that occurs where plant and animal materials (biomass) are broken down in the presence of micro-organisms. Biological treatment of waste can either be anaerobic or aerobic. In anaerobic treatment, waste is broken down in the presence of micro-organisms and in the absence of air while in the aerobic treatment, biological degradation of organic waste take place in the presence of oxygen. Useful products are derived from these two processes mainly biogas which produces electricity and organic fertilizer;

## 4.0 THE POLICY INSTRUMENT

### 4.1 Policy Statement

Kapenguria Municipal Board recognizes solid waste as a resource that should be managed so as to ensure a clean, safe and healthy environment for improved quality of life, promote ecological

integrity and encourage economic vitality in a way that facilitates sustainability (as envisaged in the constitution of Kenya 2010)

## 4.2 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. Kenya seeks to achieve people-centered development that builds human capabilities, improves people's wellbeing and enhances quality of life.
- iii. **Principle of Environmental Protection:** There is need to balance socioeconomic development and environmental protection. In undertaking waste management, all entities and individual should provide high level of human, health and environmental protection.
- iv. **Principle of Proximity:** To minimize environmental impact and transport costs. In accordance to the principle of proximity, waste should be processed, treated and disposed as much as possible to the location of its generation.
- v. **Precautionary Principle:** The principle states that measures should be taken even if some causes and effect relationships are not fully established scientifically when an activity or product raises threats of harm to human health or the environment.
- vi. **Polluter pays principle:** The principle states that 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 principles states that 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 principle states that producers should be given significant responsibility financially and/or physical for the treatment or disposal of the waste from the products they create. Beyond easing government budgets for waste management, such responsibility in incentives companies to prevent wastes at the source, promoting more environmentally friendly product design and supporting 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.

### 4.3 Policy Objectives

This policy sets out the aim of the Kapenguria Municipal Board (KMB) to gain control over the waste generated. The policy will lend special emphasis on waste generators responsibility, private sector initiatives, and Solid Waste hierarchy

#### **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.

As 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/local 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 induce 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.

## **4.3 POLICY INTERVENTIONS**

### **4.2.1 The Solid waste management policy**

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

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

### **4.2.2 Goals for solid waste management**

- Protection of public health
- Reduction of poverty
- Reduction of waste management costs
- Protection of environment and ensure sustainable development

## **5.0 Strategic objectives:**

In order to achieve these goals the following strategic objectives are proposed to improve solid waste management in entire Kapenguria municipality;

- To improve waste collection and transportation efficiency and effectiveness.
- Promote waste management through the adoption of waste management hierarchy
- To promote proper waste disposal and treatment
- To reduce waste and maximize reuse and recycling
- To educate and sensitize the public on SWM.
- To promote solid waste recycling initiatives.
- To strengthen the institutional and organizational capacity in solid waste management
- To promote collect and dispose of hazardous waste sustainably
- Enact relevant legislation on SWM
- To formulate policies, legislations and economic instruments to reduce waste quantities
- To inculcate responsible public behavior on waste management
- To promote waste segregation at the source
- To promote resource recovery for materials and energy generation
- To establish environmentally sound infrastructure and systems for waste management

## **5.1 Specific objectives**

These issues will be addressed in the following section, with the identification of each problem, 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;
- Act as basis for waste commercialization i.e. franchise depending on the capacity and level of technology required.

#### **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.

#### **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:

- In 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 Kapenguria 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 Kapenguria

Municipality. Consequently, a lot of illegal dumpsites 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 Kapenguria municipality are also contributed partly by inadequacy of political and institutional support on 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's 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. Medical waste is collected for treatment at the County referral hospital and with the increased generation of such wastes, their capacity may be overwhelmed in future.

#### **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;

- Liaise 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 are informed and are based on credible data.
- Incorporate waste management indicators into the Municipality's Integrated

## **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.

## **6.0 Role of stakeholders**

Successful implementation of this strategy requires the involvement of several actors whose roles are outlined below



### **Ministry of Environment, Water and Natural Resources:**

- a) Give policy direction on solid waste management initiatives country-wide;
- b) Channel funding to NEMA, for benchmarking and for capacity building and technology transfer.

### **NEMA:**

- a) Formulate policies, legislations and economic instruments relevant to achieving sustainable waste management;
- b) Develop and disseminate public information on the regulatory requirements for waste management in Kenya;
- c) Undertake benchmarking regionally and internationally on appropriate waste management technologies;
- d) Enhance the capacity of the county governments on waste management systems and approaches applicable in their respective counties;
- e) Employ social media to attract wider stakeholder participation and change attitudes towards waste management at a national level;
- f) Hold public awareness sessions (for example, school workshops, public consultation exhibitions and public events) on waste management initiatives;
- g) Support the dissemination of waste management research and development findings
- h) Involve mass media dissemination techniques, such as the publication of news articles and press releases, in addition to ensure coverage in both print and media outlets.
- I) Undertake enforcement activities of the laws developed on solid waste management and surveillance exercises on illegal waste related activities. Monitoring and evaluation of the strategy

### **County Governments:**

- a) Responsible for drawing up action plans for implementation of applicable solid waste management systems within their counties;
- b) Source adequate funding for development of sustainable waste management initiatives in the entire cycle;

- c) Put in place measures for enhanced Public-Private-Partnerships (PPP); e) Benchmark on best practices of appropriate technologies;
- d) Undertake periodic clean-up activities within their counties;
- e) Provision of equipment's for waste segregation and transport systems;
- f) Zone the waste operational areas;
- g) Continuous management of activities/facilities to ensure all the waste is transported to the designated waste disposal sites in a timely manner;
- h) Monitoring and evaluation of the strategy
- i) Ensure wide coverage and no littering of waste through improved collection methods and facilities ;
- j) Progressively improve the designated official county disposal site towards a sanitary landfill;

### **Civil Society Organizations (CSOs) and NGOs:**

- a) Promote and /or undertake income generating ventures in waste management initiatives;
- b) Represent the public's interest in the solid waste management agenda, nationwide and in support in identification of illegal waste related activities.
- c). Advocate for change in the public's knowledge, attitude and practice towards sustainable waste management.

### **Private Sector**

- (a) Through PPP, Involvement in the development of effective and efficient solid waste management facilities;
- (b) Prioritize on corporate social responsibility (CSR) on waste management
- (c) Empower communities and other stakeholders in understanding waste management related issues and in finding solutions for the same.

### **The Citizens/Public**

- a) Change in attitude and practice to embrace the concept of a waste generator's responsibility by ensuring waste is appropriately managed at source and/or in all phases of the waste management cycle;

No	Objective	Key action	Responsibility	Time
	To enhance solid waste collection and transportation services in kapenguria municipality	<ul style="list-style-type: none"> <li>• Purchase a well covered and efficient garbage collection vehicle</li> <li>• Outsource solid waste management in kapenguria municipality</li> <li>• Promote enabling environment for public private partnership</li> <li>• Promote informal waste recycling groups</li> <li>• Improve community attitudes on waste management</li> </ul>	KMB	2 years
2.	Public awareness and education on solid waste management	<ul style="list-style-type: none"> <li>• Create community awareness on solid waste management</li> <li>• Designate clean up days</li> <li>• Hold workshops and seminars on proper solid waste management</li> </ul>	KMB Department of health	2 years
3	Promote segregation of wastes at the source	<ul style="list-style-type: none"> <li>• Enact county regulation on promote waste separation at the source</li> <li>• Promote waste separation and sorting at household level</li> <li>• Install litter bins to control littering and promote waste separation at the source</li> <li>• Enact and enforce solid waste management by law</li> </ul>	KMB Department of health Partners	2 years
4	Improve waste disposal and treatment	<ul style="list-style-type: none"> <li>• Identify new disposal site</li> <li>• Rehabilitate solid wastes existing sites</li> <li>• Introduce controlled tipping system practice at the disposal site</li> <li>• Adopt land filling for residual waste</li> </ul>	KMB Department of health	2 years
5	To strengthen institutional capacity	<ul style="list-style-type: none"> <li>• Recruitment of additional staff to be trained on SWM</li> <li>• Improvement of staff working condition</li> </ul>	KMB	2 years

6	Proper handling of hazardous wastes	<ul style="list-style-type: none"> <li>• Promote waste separation at the source</li> <li>• Provide incineration services</li> <li>•</li> </ul>	KMB	3 years
7	Improve street drainage market, parks and cleaning services	<ul style="list-style-type: none"> <li>• Provision of adequate litter bins in strategic places within municipality</li> <li>• Provide additional labor</li> </ul>	Department of health KMB	3 years
8.	Promote community based waste management initiatives	<ul style="list-style-type: none"> <li>• Promote and encourage the formation of small micro wastes enterprises</li> <li>• Provide training to small scale entrepreneur on SWM</li> </ul>	Department of youth affairs KMB	2 years
9,	Promote research and technical knowledge	<ul style="list-style-type: none"> <li>• Establish linkages with government ,academia and private sector on SWM</li> </ul>	Kisii University Kapenguria campus	3 years
10.	Maintain a database of SMW in the county	<ul style="list-style-type: none"> <li>• Set up data collection systems within municipality</li> </ul>	KMB Department of ICT	3 years
11	Financial aspects	<ul style="list-style-type: none"> <li>• Support municipality with 2 adequate funds</li> </ul>	Partners	3 years