



# **Solid Waste Management Policy**

## **Siaya Municipality**

## **FOREWORD**

Waste generation in urban centers in Kenya has been on the rise, this is mainly attributed to the rapid urbanization and population growth in urban centers. Waste management has therefore become an emerging urban challenge within Siaya municipality whose population continues to increase thus significantly contributing to alteration of the environment through pollution. In that regard, it is integral for the Municipality management to develop a framework that addresses solid waste management, specifically its collection, recovery, storage and disposal. In view of that and noting the challenges bedeviling solid waste management within the Municipality including; inefficient waste collection and transportation as well as illegal dumping the Siaya Municipal Board has developed a Solid Waste Management Policy. The policy aims to provide an efficient and sustainable solid waste management system in line with Vision 2030 and address the realization of the right to a clean and healthy environment as anchored in the Constitution of Kenya, 2010. It also signifies the Board's commitment to safeguard realization of the aforementioned right and its contribution towards beautification of the Municipality through proper solid waste management practices. The Board makes key recommendations in the policy to facilitate the enhancement of an efficient waste collection and transportation system and proposes a waste management hierarchy. It also recommends the inclusion of key stakeholders in solid waste management i.e. through education and sensitization of the public as well as job creation for waste collectors and transporters. Further the policy introduces a demographic of the municipality population, who were previously not captured in the solid waste management framework i.e. individual households. We acknowledge and appreciate the support accorded by the Departments responsible for Urban Development and Trade respectively for their technical guidance as well as residents of the Municipality whose input has been instrumental in the development of this policy. The Solid Waste Management Policy is a product of consultation and collaboration and it is our hope that it will improve solid waste management within the Municipality and may be a key reference tool for solid waste management best practice for upcoming urban areas and market centers within our great County.

**Chairperson**  
**Siaya Municipal Board**

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## **ABBREVIATIONS AND ACRONYMS**

NEMA	National Environment Management Authority
HDI	Human Development Index
ISWM	Integrated Solid Waste Management
UNEP	United Nations Environment Programme
EMCA	Environmental Management and Co-ordination Act
NAMA	Nationally Appropriate Mitigation Action
NCCPS	National Climate Change Response Strategy
LECB	Low Emission Capacity Building
UNDP	United Nations Development Programme
SDGs	Sustainable Development Goals
GIS	Geographical Information System
NCCRS	National Climate Change Response Strategy

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## **CHAPTER 1: BACKGROUND AND SITUATIONAL ANALYSIS**

### **1.1. Introduction**

Solid waste management remains one of the critical development challenges globally, nationally and at the county level. Solid waste is inevitable due to ordinary human activities such as industrial production, consumption at household level, construction and commercial processes among others. However, accumulation of solid waste has environmental, health, social and economic implications in the long term. Consequently, public interventions in solid waste management coupled with engagement with private actors are required in order to achieve optimal results.

This policy provides for the guiding framework for solid waste management in Siaya Municipality. The policy shall guide the Municipality solid waste management actors providing effective, efficient and sustainable services while utilizing solid waste as an economic resource.

### **1.2. Policy Development Process**

This policy was developed through a consultative process. The key policy actors in solid waste management in the county were engaged during the preparation process. Specifically, national and county departments involved in solid waste management, which included National Environment Management Authority (NEMA), county departments in charge of public health, public works and enterprise were consulted. In addition, private actors in solid waste management such as solid waste collectors and transporters, resident associations, waste sorters and recyclers participated in the process.

### **1.3. Geographic Location and Size**

The Municipality is located in the Alego-Usonga Sub-County of Siaya County, which is situated between longitude 6511.56m N and latitude 643137.52 E. The Municipality covers a total land area of approximately 67Km<sup>2</sup>. It is comprised of 12 urban centres, namely; Siaya, Boro, Mbagu, Ndere, Segere, Liganua, Southlands, Rabango, Ramba, Ombwede, Awelo and Usenge.

### **1.4. Administrative Structure**

The Municipality cuts across four wards namely; Siaya Township, North Alego, Central Alego and South East Alego.



## **1.5. Social and Economic Context**

### **1.5.1. Social Context**

#### **a) Poverty index**

The Siaya county population that lives in poverty is estimated to be 38% percent.

#### **b) Human Development Index**

The Human Development Index (HDI) is a summary measure of average achievements in key dimensions of human development, a long and healthy life (life expectancy at birth), knowledge (expected years of schooling) and a decent standard of living (Gross National Index Per Capita). The HDI of less than 0.550 signifies a low human development, 0.550 – 0.699 signifies medium human development, 0.700 – 0.799 for high human development and 0.800 or greater for very high human development.

Siaya County has a Human Development Index of 0.55. This implies extent to which the county population meets the 3 criteria of HDI a long and healthy life, knowledge and a decent standard of living. From the HDI categorization, the county has a medium human development level.

#### **c) Education**

The county's literacy rate stands at 57 percent. The level of education has implications to the level of uptake of the solid waste management policy measures such as information, adoption of modern solid waste management practices and investment in solid waste management.

#### **d) Demographic context**

According to the 2019 population census, the Municipality has a population of 120,684 people (Kenya National Bureau of Statistics), with 48% being male and 52% female. The population density in the municipality stands at 2240 persons per km<sup>2</sup>.

### **1.5.2. Economic context**

The main forms of economic activities in the Municipality are subsistence farming, livestock keeping, small scale trading and jua kali industry. The economic activities that have high generation of solid waste in the municipality are small scale trading and jua kali industry. The small scale trading and industrial activities are concentrated in Siaya town. The major

employers include the county government and national government as well as the eateries industry. The larger population is engaged in self-employed.

### **1.6. Solid Waste Management Conceptual Framework**

Solid waste emanates as a result of human activities. The term “waste” in common terms implies something that has no value and that should be discarded. Management of solid waste is a public issue that has health, environment, economic and social effects at household, local, national and international level. The level of waste generation is directly related to population size, human behaviour such as production (including production processes) and consumption patterns and management, recovery or utilization of waste products at the point of production or intermediate level. Waste generated at one point may be raw materials for another production process.

#### **1.6.1. Waste Streams and Sources**

Solid waste management is based on identifiable waste streams from the various identifiable sources. Waste is ordinarily classified according to the waste streams for purposes of effective management. A waste source may produce different waste streams e.g. a household may produce food and kitchen waste, agricultural waste, papers and e-waste. There are different methods of collecting, recovering, processing, treating and disposing the various waste streams. The common waste streams are outlined in table 1–

**Table 1 Waste Streams**

<b>Waste Streams</b>
<ul style="list-style-type: none"><li>▪ Food, kitchen and garden waste</li><li>▪ Ferrous metals (iron and steel)</li><li>▪ Non-ferrous metals (aluminium, copper, lead)</li></ul>

<ul style="list-style-type: none"> <li>▪ Automotive waste (oil, tyres, end of life</li> <li>▪ vehicles (or vehicle parts)</li> <li>▪ Paper and cardboard</li> <li>▪ Agricultural waste</li> <li>▪ Textiles</li> <li>▪ Mining waste</li> <li>▪ Electrical and electronic waste (e-waste)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction and demolition waste</li> <li>▪ Special health care waste</li> <li>▪ Sewage sludge</li> <li>▪ Batteries</li> <li>▪ Expired chemicals and pharmaceuticals</li> </ul>
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The most common waste sources are outlined in table 2 below–

**Table 2 Waste Sources**

Waste Sources	
<ul style="list-style-type: none"> <li>▪ Households</li> <li>▪ Offices</li> <li>▪ Eateries</li> <li>▪ Stalls</li> <li>▪ Schools</li> <li>▪ Retail operations (e.g. shops, supermarkets)</li> <li>▪ Markets</li> <li>▪ Public facilities (sports ground, parks, street sweeping and cleaning)</li> <li>▪ Hospitals and other health care facilities</li> <li>▪ Mines and mineral processing facilities</li> <li>▪ Agriculture and food processing facilities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fishing and fish processing facilities</li> <li>▪ Forestry operations</li> <li>▪ Building sites</li> <li>▪ Manufacturing facilities</li> <li>▪ Water treatment and sewage</li> <li>▪ Treatment facilities</li> <li>▪ Bus stations Car yards and car repair shops</li> </ul>

Whereas there are different waste streams, waste is normally divided into hazardous and non-hazardous waste. The manner of managing the two types of waste is very different due the potential health risks and hazardous. Waste may in addition be classified broadly as municipal solid waste or industrial waste and post-consumer waste.

One of the key concepts in solid waste management is municipal solid waste. Municipal solid waste is regarded as waste generated by households and waste of similar nature generated by commercial and industrial premises, institutions such as schools, hospitals and other facilities inhabited by people, construction and demolition of buildings, and from public spaces such as streets, markets, slaughter houses, public toilets, bus stops, parks and gardens.

**1.6.2. Functional elements of a solid waste management system**

Functional elements of a solid waste management system describe the value chain in the core functions of a solid waste management system. Regulatory and management system for solid

Waste management is mainly based on the functional elements. Table 3 below describes the functional elements of a solid waste management system–

**Table 3 Functional Elements of a Solid Waste Management System (or waste elements system)**

<b>FUNCTIONAL ELEMENT DESCRIPTION</b>	
Waste generation	Encompasses activities in which materials are identified as no longer being of value and are either thrown away or gathered together for disposal
Waste handling	Involves activities associated with managing wastes until separation, storage they are placed in storage containers for collection. Handling also entails the movement of loaded containers to and processing at the point of collection. Separation of waste components at source facilitates effective handling and storage of waste, particularly for recycling and reuses purposes.
Collection	Includes gathering of solid wastes and recyclable materials and the transport of these materials, after collection, to the location where the collection vehicle is emptied, such as materials-

	processing facility, a transfer station, or a landfill
Transfer	Involves two steps (a) transfer of wastes from the smaller transport collection vehicle to the larger transport equipment (b) subsequent transport of wastes, usually over long distances to a processing or disposal site. Transfer normally takes place at a transfer station
Separation	Entails separation of waste and recovery or processing of processing and waste materials, which had been separated at source. This transformation of takes place at materials recovery facilities, transfer stations, solid waste combustion facilities and disposal sites. Transformation processes are used to reduce the volume and weight requiring disposal and to recover conversion products and energy. Combustion (to produce energy) and composting are some of the most common transformation processes.
Disposal	Disposal by landfill or land spreading is the ultimate destination of solid waste whether its waste collected and transported from source or from transformation facilities (e.g. residues of composting or combustion). The best practice is to dispose waste through sanitary landfill which prevents public health hazards and nuisances

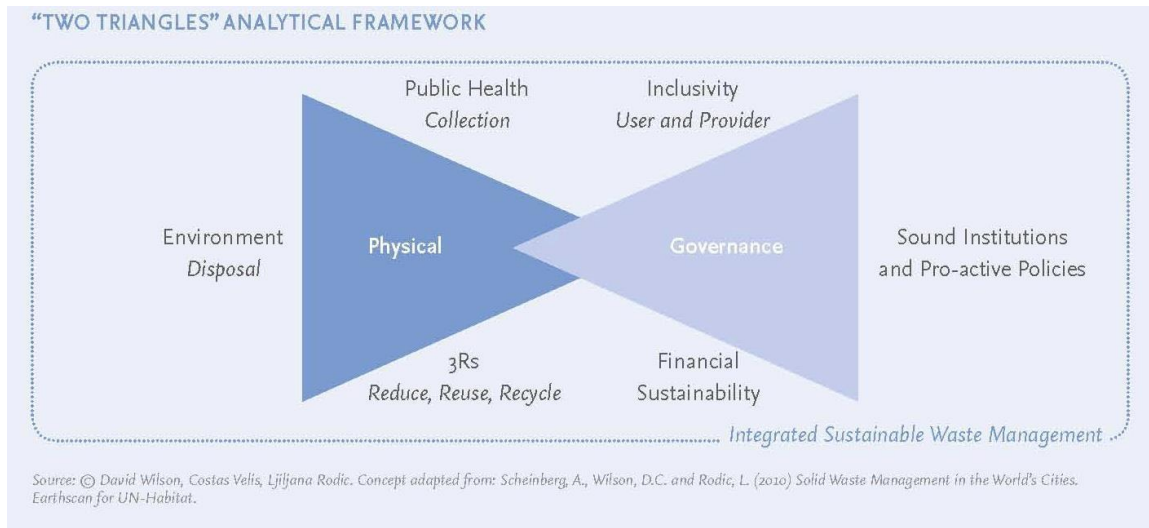
**Source:** Kieth and Tchobanoglous (2002), Handbook of Solid Waste Management, McGraw-Hill, USA.

### **1.6.3. Integrated Solid Waste Management (ISWM)**

The modern approach to effective and sustainable waste management is what has come to be commonly referred to as the Integrated Solid Waste Management (ISWM). This integrated approach has been advanced by United Nations Environment Programme (UNEP) and the UN-Habitat. The approach may be viewed from different analytical frameworks. The UNEP and UN-Habitat have developed 2 complementary analytical frameworks on ISWM. The analytical frameworks are the “two-triangles” ISWM analytical framework advanced by UN-Habitat and the Waste Management Hierarchy advanced by UNEP.

### a) “Two-triangle” ISWM analytical framework

The “Two-triangle” analytical framework categorizes solid waste management system into two pillars (triangles) i.e. the physical elements and governance features. Table 4 below outlines the “Two-triangle” analytical framework.



**Figure 1 Two-Triangle” Analytical Framework**

The first triangle comprises the three key physical elements of the ISWM system, which are–

- i) Public health which entails maintaining healthy conditions in cities and urban areas through a good waste collection service.
- ii) Environment which entails protection of environment throughout the waste chain, especially during treatment and disposal.
- iii) resource management which may be described as ‘closing the loop’ since it entails returning both materials and nutrients to beneficial use, through preventing waste and striving for high rates of organics recovery, reuse and recycling.

The second triangle comprises of the governance features of the ISWM system, which supports sustenance of the first triangle. The governance features entail a system that is;

- ✓ Inclusive, providing transparent spaces for stakeholders to contribute as users, providers and enablers,
- ✓ Financially sustainable, which implies cost-effective and affordable waste management system, rest on a base of sound institutions and pro-active policies.

### b) Waste Management Hierarchy ISWM analytical framework

The waste management hierarchy indicates an order of preference for action to reduce and manage waste. The waste hierarchy is presented as an inverted pyramid with the most preferred action being prevention of waste generation followed by reduction of waste generation (e.g. through re-use), followed by recycling (including composting or anaerobic digestion), followed by material recovery and waste-energy processes such as combustion and pyrolysis and the final action being disposal either in landfills or through incineration without energy recovery for waste that was not prevented, diverted or recovered.

The ISWM system forms a good foundation for solid waste management policy framework and strategy development.

### **1.7. Policy and Legislative Framework on Solid Waste Management**

The policy and legislative framework for county solid waste management consist of the constitution of Kenya and various statutes, sessional papers and sectoral plans among others. This part highlights the laws and policies that relate to solid waste management at county and Municipality level.

#### **1.7.1. Constitution of Kenya, 2010**

The constitution of Kenya, 2010 underscores the right to a clean and healthy environment and further mandates the County governments to make provision for the management of waste i.e. refuse removal, refuse dumps and solid waste disposal. National values and principle of governance relating to transparency is also inculcated in protection of the environment.

Article 69 makes provision encouraging public participation in the management, protection, and conservation of the environment thus promoting transparency. Article 10 entrenches sustainable development as one of the national values. Solid waste management is one of the key drivers of sustainable development.

Article 43 guarantees the right to highest attainable standard of health, reasonable standards of sanitation and clean and safe water. Solid waste is a major contributor to prevalence of risk factors to communicable and non-communicable diseases and conditions. Consequently, effective, efficient and sustainable management of solid waste especially in urban areas has will drastically reduce incidences of communicable or non-communicable diseases and conditions and related health care burden as well as reduce associated public nuisance of unmanaged solid waste.

Article 69 of the Constitution provides for encouragement of public participation in the management, protection and conservation of the environment; establishment of systems of environmental impact assessment, environmental audit and monitoring of the environment; elimination of processes and activities that are likely to endanger the environment.

Section 2 (g) of the Fourth Schedule assigns to the county government the function of refuse removal, refuse dumps and solid waste disposal.

### **1.7.2. The Environmental Management and Co-ordination Act (Cap 387)**

The parent act on the environmental management outlines the right and duties regarding protection and management of the environment as well as the framework of waste management. The Environmental Management and Co-ordination Act Cap 387 provide general framework for the waste management in Kenya and a guide for licencing, transportation and disposal of waste. The generator of waste, transporter, recyclers and institutions that own disposal facilities have obligations under the Act to ensure that their activities do not deprive citizens the realization of their right to a clean and healthy environment.

The Environmental Management and Co-ordination Act, Cap 387 including subsidiary legislation is the main national statute that governs environment protection, conservation and management, which includes solid waste management. In regard to solid waste management, the Act provides among others for–

- a. Development of county environment action plans which provide for environment management systems.
- b. The standards of waste including issues such as handling, storage, transportation, segregation and destruction of any waste prohibition of handling dangerous waste classification and management of hazardous and toxic waste

### **1.7.3. National Environment Policy, 2013**

The policy provides for governance framework for environment management. In regard to solid waste management, the policy recognizes inefficient production processes, low durability of goods and unsustainable consumption and production patterns lead to excessive waste generation. In order to address these challenges, the policy provides for development of



an integrated national waste management strategy, promotion of use of economic incentives to manage waste and promotion of establishment of facilities and incentives for cleaner production waste recovery, recycling and re-use.

#### **1.7.4. Occupation Safety and Health Act, Cap 514**

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

#### **1.7.5. Kenya Vision 2030**

This is a blue print on development plans for the country which principally focuses on sustainable development which is also impacted by access to a clean and healthy environment. It proposes strategic initiatives which include pollution and waste management noting the high rates of population growth envisioned in Vision 2030. The key projects that can be undertaken in that regard include development of a national waste management system.

The Kenya Vision 2030 lays the foundation for social and economic development in Kenya. In regard to solid waste management, Kenya Vision 2030 provides for development of solid waste management systems in at least 5 municipalities, and in the proposed economic zones, regulation on use of plastic bags, development and enforcement of mechanisms targeting pollution and solid waste management regulations, strengthening of institutional capacities of multi-sectoral planning and strengthening linkages between institutions of planning and environment management, development of national waste management system and use of market based environment instruments for providing incentives or disincentives in solid waste management and establishment of initiative to clean the Nairobi River as well as rivers and water fronts in Kisumu, Siaya and Nakuru.

#### **1.7.6. The National Solid Waste Management Strategy, 2015**

The waste management strategy obligates County governments to implement the minimum requirements across the waste management cycle i.e. waste collection, transportation and disposal site as well as licencing. It further encourages County governments to strive for

continuous improvement of collection methods, transportation and disposal facilities thus delivering a clean and healthy environment for all through effective waste management system. The waste management strategy makes the following proposals on the waste management cycle;

**a) Waste collection**

The strategy proposes that the waste collection areas should be zoned, with timely and regular collection of all solid wastes either through door to door collections or from centralised collection points. Additionally, waste collection facilities such as skips, bulk containers and waste cubicles should be regularly emptied and are not eye-sores

**b) Waste transportation**

The strategy provides that all collected waste should be transported by NEMA licenced vehicles to the designated disposal sites.

**c) Waste disposal site**

The strategy advances the need for designated sites for waste disposal which are secured with a fence and a gate that is manned by a county government official thus controlling dumping and spread of waste outside the site. It also proposes that all incoming wastes should be weighed or estimated and the quantities recorded in tonnes. Accessibility within the disposal site is also provided with a proposal to develop and maintain motorable roads inside the site for ease of access during disposal. The strategy proposes that waste should be spread, covered and compacted at regular intervals and appropriate control measures be put in place for management of dumpsite fires. Security of the disposal sites is also safeguarded with a proposal for enhancement of security and control of the disposal site to contain illegal activities.

**d) Licensing**

The strategy provides for the licensing of waste transportation vehicles and operators of waste disposal sites.

The National Solid Waste Management Strategy, 2015 is anchored on the Kenya Vision 2030. It lays the foundation for strategic management of solid waste in Kenya.

The strategy provides for among others for–

- a) definitions and classification of solid waste
- b) the national context and status on solid waste management
- c) the common waste management practices in Kenya
- d) the challenges facing solid waste management in Kenya

#### **1.7.7. NAMA Proposal for a Circular Economic Solid Waste Management Approach for Urban Areas in Kenya**

The NAMA 2016 is an approach jointly developed by the Ministry of Environment and Natural Resources and UNDP Low Emission Capacity Building (LECB) programme. It promotes an alternative to the existing waste value chain collected for disposal only. It makes provision for waste sorting, creation of recycling points, daily recycling and composting facilities for organic waste treatment. The circular economy approach aims at making waste management affordable through recycling, reducing disposal costs, generate additional revenue from sale of recyclable materials and compost as well as fees by waste processors i.e. owning and managing recycling points.

#### **1.7.8. National Climate Change Action Plan (NCCAP)**

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

#### **1.7.9. Global Policy Related to Solid Waste Management**

The global policy related to solid waste management is mainly contained in the United Nations conventions and policies that provide for framework for solid waste management and which have implications on county solid waste management policies and laws. They include–

- a. **United Nations Convention on Climate Change.** Article 4 on commitments provides for promotion and cooperation in development, application and diffusion including transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases in sector such as waste management sectors

- b. **The Kyoto Protocol to the United Nations Convention on Climate Change.** Article 1 (viii) provides for States' obligation to limitation or and reduction of methane emissions through recovery and use of waste management. The Protocol obligates States to formulate and implement solid waste management programmes that are intended to mitigate climate change
- c. **The Basel convention on the Control of Trans boundary Movement of Hazardous Wastes and their Disposals.** However, the control of international movement of hazardous waste is a mandate of National Government.
- d. **The Rio Declaration on Environment and Development (Agenda 21-Global Programme of Action on Sustainable Development).** Chapter 7 provides for sustainable human settlements which include provision of basic services such as waste collection, Chapter 20 provides for managing hazardous wastes and Chapter 22 provides for managing solid wastes and sewage which encourages waste minimization and increase reuse and recycling.

In addition, the United Nations' Sustainable Development Goals (SDGs) establishes a global framework and commitment for sustainable development. Specifically, key SDGs that have direct implications on solid waste management and which shall be integrated in the Municipal model policy shall include –

Goal 3: Ensure healthy lives and promote wellbeing for all at all ages

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

### **1.7.10. Other Policies and Laws with Implications on Municipal Solid Waste**

#### **Management Policies and Laws**

There are other national policies and laws that have implications on municipal solid waste

management (or the process and institutional frameworks for Municipal policies and laws).

These include–

- a) County Governments Act, No. 17 of 2012, which provides for the governance and management system and process in the county including development planning, decentralization, citizen participation and policy development among others
- b) Public Finance Management Act, Cap 412 C, which provides for financial planning and management at the national and county levels including linkage of development planning, budgeting and public expenditure.
- c) Urban Areas and Cities Act, Cap 275, which provides for integrated development planning in urban areas. The Act provides for development of urban integrated development plans for urban areas and cities which includes planning for solid waste management
- d) Physical Planning Act, No. 6 of 1996, which provides for physical planning and development control in Kenya, which is mainly a county function. Integrated Solid Waste Management System requires functioning and effective spatial planning, zoning and land laws.
- e) Legal Notice No. 137 on Transfer of Functions to County Governments, 2013, which provides for unbundling of county functions stipulated under Part 2 of the Fourth Schedule to the Constitution
- f) Siaya County Vision 2035, which envisages a scenario of a developed integrated waste management facility, enacted waste segregation at source, a recycling rate of 50%, and restricted illegal dumping and open burning of waste.

### **1.8. Municipality Context on Solid Waste Management**

Solid waste management remains one of the major challenges to the Municipal. The most common forms of solid waste generated is the organic waste which is mainly generated at household level, restaurants, eateries and agricultural produce/food markets such a Siaya Modern Market. Approximately 23 percent of the waste is composed of plastics, cardboard, paper and metals. Other Inorganic waste such as e-waste, construction waste and junk constitute an estimate of 14 percent of the waste stream. Public and private health facilities generate biomedical waste. In addition, industrial solid waste is also generated in substantial quantities from the industries located in the municipality.

Solid waste generated in the peri urban parts of the municipality is disposed within the households mainly through disposal in pits or open burning. Most of biodegradable waste such as agricultural or human food waste is reused as food for farm animals or composted to produce manure for agricultural production. Non-biodegradable waste such as containers are reused for other house hold uses such as storage. Most of the solid waste generated in town centers is disposed in undesignated open grounds areas such as behind the stadium and other buildings. Most solid waste is disposed in the same form as it was generated without being recycled or reused or recovered. Open disposal of solid waste has continuously posed negative environmental health impact through leachate and direct flow into water sources. In addition, the disposal methods in the municipality have been a contributor to public nuisance. There is limited investment in solid waste recycling and recovery systems in the municipality.

Collection and transportation of solid waste generated at commercial and industrial level in the municipality is undertaken by the Municipal office together with the Department of Enterprise. Currently the Municipality does not have waste collection bins and waste collection containers installed. There is no registered designated dumpsite. The dumpsite is poorly management and does not meet the prescribed environment health standards. The county government has made budgetary allocation for solid waste collection but the allocations have been low below the desired financial investment for solid waste management.

### **1.9. Policy Rationale**

The Municipal Office seeks to establish an effective, efficient and sustainable solid waste management system in order to facilitate realization of its development goals. This solid waste management policy will be instrumental in advancing the social and economic development of the Municipality. This policy is therefore developed in order to –

- a) Provide for a policy mechanism for implementing functions related to solid waste management as assigned under the Constitution of Kenya
- b) Provide for adoption of Integrated Solid Waste Management system and processes in the Municipality.
- c) Facilitate adoption and compliance with relevant international and national standards for solid waste management.
- d) Facilitate the realization of Kenya Vision 2030 as it relates to solid waste management.

## **CHAPTER 2: THE POLICY FRAMEWORK**

### **2.1. Introduction**

In order to comprehensively address solid waste management, a framework setting the policy direction to be pursued by the Municipal Office and other stakeholders is essential. This chapter describes the policy framework consisting of the core policy measures to be pursued. In addition, the chapter lay out the policy vision, mission and guiding principles.

### **2.2. Policy Goal**

To minimize waste generation and promote re-use, recovery and recycling of waste materials and sustainable waste disposal.

### **2.3. Policy Mission**

To promote a sustainable, effective and integrated solid waste management system

### **2.4. Policy Objectives**

The policy shall pursue the following objectives–

- a) Delivering a waste management system that is effective, equitable, responsive and sustainable under the prevailing conditions
- b) Provision of public services (e.g. waste collection, transport, treatment and disposal) suited to the needs of and affordable for local users
- c) Protection of public and occupational health and the environment
- d) Contributing to sustainable use of natural resources, e.g. through materials recovery and recycling, soil improvement, energy generation
- e) Contributing to economic development, including through fostering resource efficient production and developing waste recovery and recycling operations
- f) Providing employment and enterprise development opportunities
- g) Deploying technologies appropriate to prevailing conditions
- h) Building the capacities of those forming part of the waste management system
- i) Encouraging and inviting research and development into technologies and governance approaches for sustainable resource and waste management

### **2.5. Policy Principles**

The following shall be the guiding principles for the solid waste management policy–

- a) Proximity principle which implies that waste should be managed close to where it is generated
- b) Self-sufficiency principle which implies that where possible and practical, each urban area or zone should manage its own waste
- c) Polluter pays principle whereby those who generate waste should bear the cost of managing the waste to minimize risk to human health and the environment
- d) Precautionary principle whereby appropriate policy measures may be taken in order to safeguard human health and environment. Even if scientific evidence is not conclusive it would be essential to adopt precautionary approach
- e) Sustainable development which is development that meets the needs of the present without compromising the ability of future generations to meet their own needs
- f) Inter-generational equity which implies that waste should not be managed in a way that bequeaths legacy problems to subsequent generations
- g) Intra-generational equity which implies that waste management resources and services should be equitably accessible to all citizens or residents in the same generation. All interested parties should have equitable possibilities to provide services and equitable burden-sharing in terms of waste management facilities (environmental justice)
- h) Extended producer responsibility

## **2.6. Policy Measures**

The Municipality shall adopt an integrated approach to solid waste management as described in Chapter 1 as well as the principles of solid waste management that form the foundation of this policy. The policy measures shall be based on a combination and integration of the functional elements in solid waste management, solid waste management hierarchy and the two-triangle framework both of which form the integrated solid waste management system. This part shall prescribe the policy measures that the government shall pursue. The policy measures shall be in the form of policy statements, which prescribe the appropriate policy instruments in solid waste management. In addition, the policy measures are based on the constitutional functional assignment of county governments as well as constitutional provisions.



### **2.6.1. Solid Waste Generation**

Generation of waste depends on product demands, production processes, consumption demands, behaviour and patterns among others. Waste generation has implications on resources used for production of products, which result in varying levels of waste generation. Waste generation exists throughout the product lifecycle.

Most waste generated emanates from consumption of processed products at household, commercial and industrial levels. Whereas, the Municipal Board has no legal mandate to regulate production processes, which would reduce amount of waste generated, it has a duty to promote appropriate production processes, change in consumption behaviour and patterns. The aim is to prevent generation of waste where possible through appropriate means.

#### **Policy Measures**

In order to promote and facilitate prevention of solid waste generation through sustainable waste generation processes, the Municipal Board shall –

- a) Promote prevention of waste generation among product users through awareness creation on behaviour change, consumer choices and consumption practices to reduce excessive consumption or use and waste of diverse products.
- b) Collaborate and coordinate with national government and other stakeholders in adopting measures for promoting resource conservation and management to prevent or avoid excessive utilization of resources which lead to excess generation of solid waste.
- c) Establish partnership and collaboration with manufacturers wholesalers and retailers in adopting appropriate measures and strategies for preventing waste generation.
- d) Engage with national government and other County departments to adopt appropriate measures for preventing waste in the product value chain and life-cycle such as product and packaging design, manufacture, distribution and product use.
- e) Promote in collaboration with relevant stakeholders the adoption of modern technology in product manufacture so as to reduce excessive generation of solid waste.
- f) In collaboration with other relevant public and private stakeholders, promote reuse of products or materials e.g. containers or packaging materials in order to reduce generation of waste.

- g) The Municipal Board shall establish an inventory for all the waste streams which shall be disaggregated according to the respective sources.

### **2.6.2. Solid Waste Handling and Separation, Storage and Processing at Source**

Waste handling and storage before collection and transport determines the effectiveness of the rest of solid waste management system. Waste handling and storage at point of generation requires adoption of public and environmental health standards. In order to facilitate reduction, recycling and recovery of solid waste, waste separation or segregation at source is essential. Currently, the Municipality experiences poor solid waste handling, storage and separation at the sources. This is mostly common in the urban areas due to high population density and low awareness of sustainable waste handling, separation and storage processes. Other challenges faced include storage of organic and inorganic waste in the same containers, open storage of waste or disposal of waste in outdoor open places directly from the source/point of generation or storage of waste in open spaces within premises which is a threat to public and environment health.

#### **Policy Measures**

In order to ensure effective and appropriate solid waste handling, storage and separation, the following policy measures shall be adopted—

- i) The Municipal Board shall in collaboration with relevant stakeholders' carryout awareness creation and capacity development to waste generators on handling, storage and processing of solid waste at source.
- ii) Solid waste shall be segregated or separated at source or point of generation into dry (recyclables) and wet waste (food waste and organic matter), which shall be further segregated and stored under each of the two categories into different forms of waste in accordance with the standards and stored in appropriate receptacles in accordance with the prescribed guidelines and standards.
- iii) The Municipal Board shall in collaboration and coordination with the county government, generators of solid waste and relevant stakeholders develop and adopt strategies, measures and standards to promote and facilitate segregation of solid waste at source or point of generation.
- iv) In accordance with the building code and development control laws and policies, owners or occupiers of residential, commercial or industrial premises shall install

appropriate containers and spaces for waste handling and storage within the premises for purposes of ease of collection and which meet public and environment health standards for purposes of ease of collection.

- v) Solid waste generated from any premises or source shall be separated and stored within the premises before being collected and transported for recovery and final disposal.
- vi) The Municipal Board shall ensure adoption of appropriate measures and processes for waste segregation at the point of generation.
- vii) Disposal of waste in open grounds or in non-designated collection points by a waste generator shall be prohibited.

### **2.6.3. Solid Waste Collection**

Waste collection is the removal of waste from the point of generation or production (residential, industrial, commercial or institutional) to the point of treatment, recovery or disposal. Waste collection methods are determined by the location of waste generation (i.e. public places, residential, commercial, industrial or commercial). Uncollected waste leads to public and environmental health hazards such as diseases and health conditions, public nuisance, and blockage of drainage system, seepage of waste into water and soil among others.

The waste collection process is required to be efficient and carried out through appropriate means. Waste collection services for public areas are carried out through municipal services provided by the county government. Solid waste in the municipality is characterized with disposal of waste in open areas before collection (open dumping) and inefficient and inadequate waste collection services in both public and private places. Some localities in urban areas where there lacks organized waste collection services experience environmental and health challenges associated with open disposal of waste. Other challenges include inadequate waste collection points and containers or bins as appropriate and low funding of waste collection services.

### **Policy Measures**

In order to address challenges associated with waste collection, the following policy measures shall be adopted—

1. The Municipal Board shall in collaboration with other relevant public and private actors establish an efficient, responsive and coordinated solid waste collection services system which shall among others include stakeholder consultation, mobilization and participation, compliance with public and environment health standards and collection of solid waste from public and private places and maintenance of clean public streets and places.
2. The Municipal Board shall in consultation with National Environment Management Authority and other relevant stakeholders designate, gazette and develop waste collection points in each ward according to the solid waste management spatial map.
3. The Municipal Board shall in consultation with respective local residents representing residential, commercial, institutional and industrial areas, place or install appropriate waste collection containers, receptacles and bins in strategic public places for purpose of collection of solid waste.
4. All institutions such as schools or health facilities shall place or install appropriate waste collection containers, receptacles and bins in strategic places within the facilities for purpose of collection of solid waste which shall conform to the prescribed standards.
5. Solid waste collection services provided by public or private actors shall comply with the prescribed standards and operating procedures.
6. Solid waste collection services from households, commercial, institutional or industrial premises shall be carried out by private sector service providers in accordance with prescribed standards and guidelines, unless in areas where there are no established private sector service providers for solid waste collection.
7. The Municipal Board shall establish a system for collecting solid waste in informal settlements which do not have access to private sector provision of waste collection services.
8. A solid waste generator shall deposit any waste generated to the appropriate waste collection point located within the geographical locality of the waste generator and in the appropriate waste segregation or separation collection receptacles.
9. There shall be established a system of registration of solid waste collectors including waste pickers for the purposes on coordinating solid waste collection, facilitating stakeholder capacity development and ensuring compliance with prescribed guidelines and standards.

10. The Municipal Board shall in consultation and collaboration with National Environment Management Authority and other relevant stakeholder designate, gazette and develop waste transfer stations according to the solid waste management spatial map and prescribed standards. The Municipal Board may establish or facilitate establishment of specialized transfer stations for specific types of solid waste.
11. The Municipal Board shall promote and facilitate establishment of intermediary community based waste sorting centres which shall be integrated with the county solid waste management system.
12. The Municipal Board shall in collaboration with the department responsible for public health maintain waste collection points in conformity with prescribed public and environment health standards.
13. The Municipal Board shall in collaboration with the department (s) responsible for women, youth, and persons with disabilities or other vulnerable groups and county treasury develop initiatives for the groups to participate in co-management of waste collection points and waste collection services for purposes of promoting economic empowerment of the groups.
14. The Municipal Board shall initiate and develop public private partnership programmes for sustainable solid waste collection services.
15. In accordance with Access to Government Procurement Opportunities Policy, the Municipal Board shall provide preferential treatment to youth, women and persons with disabilities in accessing thirty percent of contracts for solid waste collection services.
16. In procuring services for provision of solid waste collection services, the Municipal Board shall consider a supplier's integration of service delivery with youth, women and persons with disabilities empowerment

#### **2.6.4. Solid Waste Transfer and Transportation**

Waste transfer and transportation is directly related to waste collection. Waste is generally collected for the purposes of transfer or transportation to the next point of waste management system. Solid waste in the Municipality is normally transported from collection points directly to the final disposal sites. This has meant that there has been limited intermediate waste processing such as recovery, recycling and composting. The common mode of waste transportation is through a truck or wheelbarrows for transfer of waste from households or

premises to waste collection points. the truck is open which leads to waste dropping off during transportation.

### **Policy Measures**

In order to address challenges associated with solid waste transfer, the following policy measures shall be adopted—

- Save for biomedical and hazardous waste, all solid waste shall be transferred or transported to solid waste transfer stations or to material recovery facilities for sorting and separation or processing after which waste shall be transported to the appropriate site for final disposal as appropriate. However, Construction and demolition waste may be transported to specific areas approved by the relevant authority in accordance with the standards
- All solid waste transporters shall be registered and licensed by the Municipal Board as prescribed
- Solid waste transportation services including plant and equipment shall conform to the prescribed standards
- The Municipal Board shall in collaboration with other public and private stakeholders establish market linkages between waste transporters and women, youth, persons with disabilities or other vulnerable groups involved in co-management of waste collection and for purposes of economic empowerment of the groups and effective service delivery
- In accordance with Access to Government Procurement Policy, the Municipal Board shall provide preferential treatment to youth, women and persons with disabilities in accessing thirty percent of Municipal contracts for transfer and transportation of solid waste
- In granting contracts for provision of solid waste transfer and transportation services, the Municipal Board shall consider a supplier's integration of service delivery with youth, women and persons with disabilities empowerment
- Solid waste transfer and transportation services from households, commercial, institutional or industrial premises shall be carried out by private sector service providers in accordance with prescribed standards and guidelines

- The sector responsible for solid waste management shall establish a system for transfer and transportation solid waste in informal settlements which do not have access to private sector provision of waste collection services
- The sector responsible for solid waste management with the departments responsible for physical planning and transport and National Environment Management Authority and in consultation with solid waste transportation service providers designate specific routes and time schedule to be followed in transfer and transportation of solid waste.

### **2.6.5. Solid Waste Separation, Processing and Transformation**

Sustainable management of solid waste leads to processing and transformation of waste into economic value. As a result, very minimal waste is actually disposed in the final landfill. Waste separation entails separating waste according to potential use such as recycling or recovery. Waste is separated into for example organics and recyclables (which are further separated into for example e-waste, plastics, metals, papers and junks such as wood among others). Waste processing and transformation entails material recovery processes such as composting, combustion and recycling of materials to make useful products.

The Municipality lacks a structured system of separation, processing and transformation of solid waste into useful materials that may be utilized for other purposes. Most of the waste generated, which comes from urban areas, is disposed through open dumping in dumpsites. The Municipality lacks a coordinated system for separation of waste and recycling. However, there are few to initiatives for collection of recyclable materials especially metal and plastics.

#### Policy measures

In order to address the problem of poor waste separation, processing and transformation, the following policy measures shall be adopted–

- a) The sector responsible for solid waste management shall in collaboration with other relevant stakeholders mobilize local communities and neighbourhoods to promote and facilitate collection and separation of recyclable solid waste
- b) The Municipal Board shall set aside such land as may be appropriate, in a single or multiple lots for purposes of materials recovery and processing

- c) The sector responsible for solid waste management shall in collaboration with national government and other relevant stakeholders establish a system for facilitating and promoting solid waste separation, processing and transformation (material recovery and recycling which shall among others include facilitation of enterprises involved in waste processing and transformation to access solid waste placed in transfer stations, technology acquisition, technical assistance and capacity development.
- d) Final waste separation shall be undertaken at the transfer stations. Other waste processing and transformation processes may take place at a transfer station
- e) The Municipal Board shall adopt appropriate economic incentives to promote private sector participation in solid waste separation, processing and transformation such as reduced fees, charges and levies for enterprises involved in waste processing and transformation
- f) The Municipal Board shall in collaboration and coordination with national government and relevant stakeholders promote investment in solid waste processing and transformation and establishment of wholesale and retail outlets for sale of recycled products or recovered materials
- g) The Municipal Board shall in accordance with the Public Procurement and Disposal Act undertake purchase of appropriate products produced from processed and transformed solid waste in order to promote market development in solid waste management
- h) The sector responsible for solid waste management shall in collaboration with national government entities and relevant stakeholders develop and adopt guidelines, standards and operating procedures for separation, processing and transformation applicable to each solid waste stream in accordance with the established standards and best practices. All waste generators shall comply with the established guidelines
- i) Where there is no capacity to recycle any waste stream or type of waste, the Municipal Board shall promote and facilitate market linkages between local and external investors for purposes of supply chain management
- j) The sector responsible for solid waste management shall, in collaboration with relevant stakeholders establish technology and innovation hubs for development of solid waste management technology



### **2.6.6. Solid Waste Disposal**

Solid waste disposal is the final stage in the process of discarding solid waste. Any material that cannot be recycled or recovered is disposed mainly in the landfills or through incineration especially for biomedical waste. A sustainable solid waste management system is where few materials of solid waste are finally disposed.

However, most of the solid waste generated in the Municipality is disposed through dumping in open grounds in public places. This, as noted earlier poses a threat to public and environmental health. The dumpsite in the Municipality is poorly sited especially in relation to residential areas and do not meet the appropriate standards. The Municipality has no sanitary landfill hence the waste disposed in the open grounds has direct negative impact on the environment and water resources. The ultimate goal is to have zero waste to landfills.

#### **Policy Measures**

In order to address challenges associated to waste disposal, the following policy measures shall be adopted–

- a) The sector responsible for solid waste management shall in collaboration with the department responsible for physical planning, National Environment Management Authority, residents in the potential areas for siting landfills and other relevant stakeholders designate, gazette and develop controlled sanitary landfills in accordance with the solid waste spatial plan and the Municipal spatial plan.
- b) All the open public places where solid waste is dumped shall be cleared and placed under the respective intended public use.
- c) The Municipal Board responsible for solid waste management shall ensure and facilitate solid waste treatment before final disposal.
- d) The Municipal Board responsible for solid waste management shall develop a system and standard operating procedures for management of sanitary landfills.
- e) For purposes of disposing biomedical waste, the department responsible for health in collaboration with the Municipal Board and relevant county and national government agencies shall adopt appropriate modern technology and processes for disposal of biomedical waste and shall ensure that private health facilities dispose biomedical waste in accordance with national standards.

- f) The Municipal office may provide services to private health facilities for purposes of managing and disposing biomedical waste.
- g) The Municipal Board shall implement and where applicable, enforce national law and policy that prohibits disposal of solid waste into rivers and water resources.

### **2.6.7. Solid Waste Management Financing**

Provision of sustainable solid waste management services requires substantial funding. It requires coordinated financial investment from public, private and voluntary sectors. Some of the solid waste management processes such as processing, transformation, treatment and disposal are capital intensive. Consequently, for the Municipality to achieve intended objectives for solid waste management, there is need for adoption of diverse funding models and instruments. In addition, cost sharing through user fees and charges are effective mechanisms for sustainable solid waste management. Currently, there is low funding for solid waste management in the Municipality. There is low private sector investment in solid waste management. In addition, public funding in the sector is below the levels required for financing the municipal solid waste management services.

#### **Policy Measures**

In order to address the policy challenges in financing solid waste management, the following policy measures shall be adopted–

- a) There shall be levied appropriate user fees and charges for solid waste management. The fees and charges shall be levied in accordance with the tariff policy stipulated under the County Governments Act.
- b) The Municipal Board shall provide incentives for promoting solid waste recycling and waste material recovery which may include reduced fees, levies and charges for enterprises engaged in the two processes
- c) The Municipal Board shall in consultation with national government adopt public-private partnership model of financing various processes in solid waste management. Such partnership shall be based on efficiency, cost effectiveness and sustainability of the model in provision of solid waste management services
- d) The Municipal Board shall facilitate its officers to acquire technical skills and develop competencies for public private partnerships management especially in initiation,

development, negotiation, award and management of public private partnerships in solid waste management

- e) Subject to Public Finance Management Act, at least fifty percent of the user fees and charges collected from solid waste management services shall be utilized for the purpose of defraying operational costs associated with provision of solid waste management services
- f) The Municipal Board shall subsidize solid waste management services to low income areas and informal settlements in accordance with the County Governments Act
- g) The Municipal Board shall progressively increase budgetary allocations for implementation of this policy and laws related to solid waste management
- h) The Municipal Board shall mobilize resources in the form of grants and donations from development partners for financing solid waste management processes

#### **2.6.8. Solid Waste Management and Informal Sector**

Informal sector is a key player in solid waste management. Most informal actors in solid waste management include waste pickers, community based organizations, self-help groups, small and micro enterprises and individual actors such as waste pickers and sorters among others. They play a significant role in the whole solid waste management value chain.

However, their work exposes them to numerous health conditions and diseases especially respiratory ones. In addition, whereas they generate some income from their activities, the incomes are very low. Due to limited access to capital, most of their work is undertaken manually. The Municipal Board recognizes the valuable role the informal sector plays in solid waste management and the strategic need to facilitate their role so as to promote employment creation.

#### **Policy Measures**

In order to promote participation of informal sector in solid waste management, the following policy measures shall be adopted in addition to measures described below –

1. The Municipal Board shall facilitate the informal groups or individuals involved in solid waste management value chain to access affordable capital for solid waste management enterprise development.

2. The Municipal Board shall initiate capacity development programs for informal sector engaged in solid waste management as well as facilitate and support the sector to adopt health requirements.
3. The Municipal Board shall in collaboration with other relevant stakeholders facilitate and promote market linkage between the informal sector and investors in solid waste management.
4. The Municipal Board shall where appropriate develop service agency agreements with the informal sector in the provision of solid waste management services.

### **2.6.9. Solid Waste Management and Land Use Planning**

The quantities of various waste streams generated depend on the population density of waste generators in a given locality. Different zones produce different types of waste and in various quantities. The location of waste collection points, application of waste collection, transfer and transportation services are based on spatial planning in a given locality. Further, the siting of waste disposal areas is based on physical characteristics of the locality such as soil structure, terrain, population density and impact of the locality to other physical resources such as water resources. Consequently, land use planning has a significant role to play in ensuring sustainable solid waste management. The Municipality has no solid waste management spatial plan to, which guides various interventions in solid waste management services.

#### **Policy Measures**

In order to ensure that there is sustainable solid waste management, it will be essential to have appropriate and effective zoning for solid waste management. In this regard–

The department responsible for spatial planning in collaboration with the Municipal Board and other relevant stakeholders, shall–

- Carry out solid waste management survey using Geographical Information System (GIS), which shall consider –
  - i) Land use: topography, drainage and soil
  - ii) Infrastructure (transport, communications, health, education, water and energy)
  - iii) Economic base of the area (urban informal economic base)
  - iv) Human settlements (density and land use)

- v) Institutions such as schools and other government institutions, industries and commercial enterprises and non –state organizations
- vi) Develop the Municipal solid waste management spatial plan
- vii) Designate the location of the collection points, transfer stations, composting sites, waste recovery facility and landfills in accordance with the solid waste management spatial plan.
- viii) Regulate solid waste management in accordance with the solid waste management spatial plan.
  - The Municipal Board shall in collaboration with departments responsible for spatial planning and county administration map the Municipality into solid waste management zones for purposes of ensuring efficiency in service delivery and coordination of stakeholder participation in solid waste management
  - The Municipal Board shall ensure that the county spatial plan designates zoning and setting up of industries that are integrated in terms of use of waste generated in some industries which is utilized as raw materials in other industries.

#### **2.6.10. Planning, Partnerships, Participation and Inter-Governmental Relations**

Solid waste management is complex due to multiplicity of social, economic and environmental determinant factors and stakeholders. There is no single policy measure or stakeholder that can manage solid waste effectively. There is need for inclusivity of diverse stakeholders in solid waste management processes. Users and providers of solid waste management services must partner and collaborate in order to deal with all aspects of solid waste management. All the stakeholders should be involved in identifying policy options and implementing programmes related to solid waste management

#### **Policy Measures**

In order to ensure inclusion and participation of users and providers of solid waste management services, the following policy measures shall be adopted–

1. The Municipal Board shall in collaboration with relevant stakeholders prepare a solid waste management plan which shall provide a framework for implementing this policy, national policy and any law enacted for purposes of implementing this policy.
2. The Municipal Board responsible for solid waste management shall in collaboration with relevant stakeholders –

- i) Initiate programmes for mobilizing and creating awareness among residents, local communities and neighbourhoods to participate in sustainable solid waste management.
  - ii) Establish mechanisms to receive and handle complaints related to solid waste management service delivery from the respective localities
  - iii) Facilitate community or area-based forums for users and providers of solid waste management services to deliberate on emerging issues in solid waste management to as to enhance efficiency in service delivery
  - iv) Promote and facilitate stakeholder-led initiatives on solid waste management
3. The Sector responsible for solid waste management shall consult, inform and coordinate with relevant stakeholders on any matters related to service delivery on solid waste management.
  4. The Municipal Board shall liaise, consult, collaborate and coordinate with the national government and neighbouring counties on matters related to solid waste management.

#### **2.6.11. Information, Education and Communication**

Solid waste management depends on a combination of regulatory, service delivery and Information-based tools. Whereas regulatory tools are instrumental command and control Instruments in behaviour in matters such as generation, handling and disposal of solid waste, they cannot be fully effective unless they are complemented by behaviour change by users and providers of solid waste management services. Sustainable solid waste management depends on value- based approach by individuals and entities. Strategic communication and messaging on solid waste management is instrumental in shaping public opinion and support. The Municipal Board lacks effective information, education and communication system and processes. There is low awareness on sustainable solid waste management in the Municipality.

#### **Policy Measures**

In order to increase awareness and change behaviour on solid waste management, the following policy measures shall be adopted–

- The Sector responsible for solid waste management shall in collaboration with relevant stakeholders develop and implement information, education and communication system and strategies targeting diverse users and providers of

solid waste management services and shall ensure that such information is available to all stakeholders and municipal residents

- The department responsible for education and municipal sector responsible for solid waste management shall in collaboration with national government ministry responsible for education and relevant stakeholders develop information, education and communication materials and initiate dissemination, education and awareness creation programmes targeting children and youth on solid waste management
- The sector responsible for solid waste management shall in collaboration with the department responsible for information technology develop technology-based communication strategies on solid waste management
- The sector responsible for solid waste management shall in collaboration with the department responsible for information technology and relevant stakeholders establish a solid waste information management system

#### **2.6.12. Research and Development**

Solid waste generation is dynamic and changes as society develops. The form of waste streams changes as production processes change and new products and packaging emerge. Consequently, there is need for continuous innovation in intervention measures and strategies in solid waste management. In addition, there is need for evidence-based decision making on solid waste management. There are minimal research efforts undertaken by the Municipal Board in regard to solid waste management.

#### **Policy Measures**

In order to address the policy gaps in research and development, the following policy measures shall be adopted—

- i) The Municipal Board shall facilitate a capacity development programme for personnel in research and development.
- ii) The Municipal Board shall establish a research unit to coordinate, promote and undertake research and development related to environment management and governance.

- iii) The Municipal Board shall undertake and collaborate with other relevant research institutions and institutes of higher learning in carrying out research and development in solid waste management.
- iv) The Municipal Board shall in collaboration with relevant stakeholders disseminate research findings.
- v) The Municipal Board shall establish a research data management system.
- vi) The Municipal Board shall ensure that evidence generated through research informs decisions related to solid management.

### **2.6.13 The Siaya Municipality Solid Waste Management Strategy (SWM)**

The municipality's strategy for solid waste management is not only anchored on the aforementioned principles, but is also focused on promoting social inclusion and equity. The policy seeks to allocate fair and equitable effort and cost in waste management for all stakeholders including the public. Noting the challenges of solid waste management relating to infrastructure and human resource as well as the lack of adequate financing for its sustainability, the policy will not only propose stakeholder inclusion and sufficient financing, it will also focus on enhancing protection of public health and the environment as well as reduction of waste management costs through recycling and waste minimization.

The municipal Board is keen to promote proper waste disposal and treatment as well as sensitize the municipality residents and maintain infrastructure to reduce waste and maximize reuse as well as recycling and promoting resource recovery. The Board notes the need to actively engage the residents by promoting the inculcation of responsible behaviour on waste management from tender years as well as in the setting up of environmentally sound systems and structures of solid waste management and having their proposal in mind. In that regard, the Board proposes the following strategies to enhance solid waste management within the Municipality.

#### **1. To enhance Waste Collection and Transportation Efficiency and Effectiveness**

Solid waste collection efficiency is hampered by lack of suitable infrastructure for effective management i.e. collection, storage, transportation, segregation and destruction. Waste should be transported in an environmentally sound manner without presenting imminent and substantial danger to the public health, the environment and natural resources; this should also incorporate a tracking system for waste transportation.



The solid waste management plan can therefore be formulated considering the municipal coverage which can involve suitable stakeholders.

This can be achieved through;

- i) Mapping and subsequent zoning of collection and storage points.
- ii) Issuance of service contracts by the Board whenever required.
- iii) Effective coordination thus minimising duplication of efforts and resources.

Act as basis for waste commercialization i.e. franchise depending on the capacity and level of technology required.

### **Policy Statement**

The Board shall;

- i) Review the existing municipality categorization plan to ensure effectiveness and efficiency in the operational areas.
- ii) Enhance waste collection and transportation capacity.
- iii) Ensure that waste service providers transport their waste to designated facilities.
- iv) Ensure waste transportation trucks adhere to air quality regulations.
- v) Develop guidelines requiring all legal entities or individuals transporting waste within the municipality to provide tracking documents of source and destination.
- vi) Ensure the transportation of recycled materials and waste is conducted in an environmentally sound manner.

## **2. Promote Waste Management Through the Adoption of Waste Management Hierarchy**

This policy sets priority order for managing waste in the municipality by adopting policy measures detailed below.

### **Policy statement**

The Board shall;

- a) In liaison with the County Government align municipal waste management laws and strategies to the waste management hierarchy.
- b) Prioritize waste prevention and minimization in conformance to the waste hierarchy when developing waste management plans and legislation.

- c) Liaise with County Department of Lands, Physical Planning, Housing and Urban Development to set aside sufficient land for waste management activities. This will generate jobs and improve livelihoods from waste collection, recycling and waste management activities aligned to the waste hierarchy.
- d) Establish and improve waste management infrastructure to promote source segregation, collection, reuse, set up materials recovery facilities and controlled disposal in designated sites.
- e) Provide well managed centralized collection centres for material that can be harvested from waste and reused.
- f) In consultation with County Government institute County regulations to require institutions to ensure that a percentage of their produced waste is recycled through licensed service provider.
- g) In concert with the County Government, identify and prioritize potential and financial requirements of setting up composting plants and technology in the municipality.
- h) Ensure the recyclers, bio-waste processors and material recovery facilities obtain environmental compliance license from NEMA.
- i) Develop a medium term plan to transit from the current disposal mechanism; open dumpsite and adopt land filling for residual waste.
- j) Initiate the process of closure of open dumpsites and establish engineered landfills for disposal of non-recoverable fractions of wastes.
- k) Promote the establishment of incineration (waste-to-energy programs)

### **3. Promote waste segregation at source**

Waste segregation includes all measures to ensure quality of materials extracted from waste and reprocessed thus promoting environmental protection. The following policy measures shall apply to waste segregation.

#### **Policy Statement**

The Board shall;

- a) Enforce waste segregation regulations at source based on the gazetted minimum waste fractions for all waste generators including at the household level.

- b) Ensure separate waste segregation containers are provided to enable sorting at source for organic waste, recyclable and non-recyclable and educate the waste generators on the prescribed sorting categories and methods.
- c) Develop waste segregation colour codes for ease of sorting waste.
- d) Carry out public awareness on the waste colour codes and importance of proper sorting in all public labelled bins for easier sorting.

#### **4. To Educate and sensitize the Public on Solid Waste Management (SWM)**

Uncontrolled and non-environmentally friendly waste disposal is a major hindrance towards achieving sustainable SWM in Siaya Municipality. This can be addressed through enhance awareness on environmental management.

##### **Policy Statement**

The Board shall;

- a) Undertake community awareness and sensitization programmes for sustainable SWM in Siaya Municipality.
- b) Training and sensitization of staff on SWM.
- c) Institute clean up days in collaboration with stakeholders.

#### **5. To strengthen the Institutional and organizational Capacity in Solid Waste Management**

The shortcomings of the SWM programme in Siaya Municipality can be mitigated through the initiatives outlined below.

##### **Policy Statement**

The Board shall;

- a) Ensure adequate financial provision through a budget vote for SWM services.
- b) Establish SWM unit with adequate trained personnel and equipment.
- c) Develop municipal waste management plans which are aligned to this policy.
- d) Ensure that waste service providers are trained and licensed including collectors and transporters.
- e) Build capacity among the stakeholders on proper waste management.

#### **6. To enhance proper handling, collection and disposal of hazardous waste**

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

### **Policy Statement**

The Board shall;

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

## **7. Enhance Financial Mechanism for SWM**

### **Policy Statement**

The Board shall;

- a) Liaise with the County government to ensure that adequate resources are allocated for sustainable waste management actions in the county budgetary processes and supplement it with donor support.
- b) Build capacity to mobilize and enhance absorption of resources for sustainable waste management interventions.
- c) Promote creation of new jobs by establishing an enabling policy framework for investment, creating business friendly regulatory environments in recycling, green economy and sustainable waste management.
- d) Support waste management enterprise at the Municipality level, including those that are run by vulnerable and marginalized groups.
- e) Safeguard prudent management of finances.
- f) Introduce a levy for waste generators mandating individuals and households to contribute towards the cost of waste management services.

## **8. 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, waste disposal practices, waste minimization, reuse and recycling opportunities, as well as the impacts of the waste management initiatives on public health and the environment.

### **Policy Statement**

The Board shall;

- a) Develop a data collection system of the municipality waste streams, volumes generated and how they are handled.
- b) Ensure service providers have the requisite licenses in compliance with environmental management regulations.
- c) Incorporate waste management indicators into the Municipality's Integrated Monitoring and Evaluation System.

### **9. Promote Research and Technological Knowledge On Solid Waste Management**

Waste management requires consistent research and innovation as new waste streams are released regularly. Collaboration with institutions of higher learning and research entities will therefore play a critical role in generating data to guide decision making as well as innovation development for waste management.

#### **Policy Statement**

The Board shall;

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

## **CHAPTER 3: POLICY IMPLEMENTATION, MONITORING AND EVALUATION**

### **3.1. Introduction**

This chapter outlines the mechanisms for implementing, monitoring and evaluating the policy. For intended policy outcomes to be achieved, there is need for effective policy implementation, monitoring and evaluation. This will require strong institutional development, inclusion of stakeholders in governance, legal and administrative reforms and integration with the county performance management system.

### **3.2. Policy Implementation**

#### **3.2.1. Institutional framework**

In order to ensure effective and efficient solid waste management, the following institutions shall be established–

##### **1) County solid waste management team**

There shall be established the Municipal Solid Waste Management Committee which shall consist of–

- i. Municipal Manager, who shall be the chairperson;
- ii. Municipal Public Health Officer;
- iii. Municipal Environment Officer;
- iv. Municipal Head of Trade;
- v. Municipal Planner;
- vi. One person representing the National Environment Management Authority;
- vii. One person representing the county environment committee established under the Environment Management and Coordination Act;
- viii. One person representing community based organizations or non-governmental organizations engaged in solid waste management in the county;
- ix. One person representing generators of industrial waste;
- x. One person representing entities engaged in solid waste recycling, composting or material recovery in the county;
- xi. One person representing residents or neighbourhood associations;
- xii. One person representing private waste collectors and transporters; and
- xiii. One professional qualified and experienced in matters related to environment and solid waste management

The team shall be responsible for –

- i. Coordinating public and private sector engagement in solid waste management in the Municipality;
- ii. Providing platform for public-private dialogue, consultation and collaboration and
- iii. Participation in solid waste management;
- iv. Facilitating mobilization of municipal residents on solid waste management;
- v. Ensuring harmonization of public and private sector plans and programs on solid waste management in the municipality;
- vi. Receiving and considering reports from the community and advising the Manager on appropriate policies, strategies and plans to be adopted in the Municipality on solid waste management;
- vii. Monitoring and evaluating the implementation of Municipal solid waste management policies, strategies, plans and programs; and
- viii. Adjudicating in disputes emanating from solid waste management processes in the Municipality.

The Committee shall hold meetings on a quarterly basis and shall regulate its own procedure. The term of office for persons who are not public officers shall be 3 years' renewable for one and final term of 3 years.

### **3.2.2. Planning and Performance Management**

Implementation of the policy shall be undertaken through development of environment sectoral plan (or sectoral plan dealing with solid waste management). In accordance with the County Governments Act, the environment sectoral plan shall be part of the County Integrated Development Plan (CIDP 2018-2022). The county Medium Term Expenditure Framework (MTEF) and the County Fiscal Strategy Paper shall adequately cover the strategies and programmes provided under the environment sectoral plan. The sectoral plan shall be implemented annually through the annual development plan.

Implementation of this policy shall be integrated with the county performance management system through the sectoral plan. The annual performance contracting and targets for

respective sector responsible for implementation of this policy shall be aligned to activities and programmes in the environment sectoral plan so as to ensure complementarity and inter-sectoral approach in implementing this policy. Data related to policy implementation shall be collected on a continuous basis in order to inform decision making by the Manager and other sector stakeholders.

### **3.2.3. Legal and Administrative Reforms**

In addition to programmes and projects to be designed under the environment sectoral plan (or sectoral plan dealing with solid waste management), appropriate legal reforms related to solid waste management shall be undertaken. There shall be prepared for enactment or adoption laws, guidelines, standards and frameworks. Key among them shall be enactment of Municipal Solid Waste Management Bill.

### **3.2.4. Collaboration with National Government**

As stipulated under Article 6 and 189 of the Constitution, the county government shall institute measures to cooperate, collaborate, consult and partner with the national government in implementing this policy as well as implementing national policies, laws and standards related to solid waste management. In this regard, the Municipal Board shall initiate intergovernmental collaboration mechanisms with the national government ministry of environment and other agencies responsible for matters related to environment.

### **3.2.5. Staff Capacity Development**

The Municipal Board shall in collaboration with the department responsible for human resource management and the County Public Service Board resource the department as well as other county departments responsible for implementing this policy, with highly qualified professional staff in line with respective policy measures. In addition, the Municipal Board and department responsible for human resource management shall develop and facilitate continuous professional and capacity development for all relevant officers in various sectors responsible for implementing this policy.

## **3.3. Policy Monitoring and Evaluation**

### **3.3.1. Design of Indicators**

In order to ensure effective implementation of this policy, there shall be a continuous monitoring of the results of programmes and activities undertaken to implement this policy.



The Municipal Board shall in collaboration with national and county stakeholders design the core outcome indicators to be adopted in measuring the results.

### **3.3.2. Monitoring and Evaluation Framework and System**

This policy shall be evaluated in accordance with overall county monitoring and evaluation framework, standards and system. The following requirements shall apply in regard to policy monitoring and evaluation–

1. The Municipal Board shall designate staff to be responsible for coordinating monitoring and evaluation of implementation of this policy.
2. In each period of 3 months, the sector responsible for solid waste management shall prepare a report on the progress made in implementing the policy, which shall be submitted to the Municipal Manager for consideration and decision-making.
3. There shall be annual policy review, which shall involve all solid waste management stakeholders. The review shall provide feedback on successes, progress and challenges related to policy implementation and whether policy outcome have been met in each year. The policy review report shall be submitted to Municipal Board for consideration and decision-making.
4. The policy shall be evaluated at the end of each period of 5 years to assess the extent to which policy outcomes have been realized including policy impact
5. The sector responsible for solid waste management shall disseminate policy evaluation reports to county solid waste management stakeholders.