

# Entebbe Municipal Council

## 5-Year Solid Waste Management Strategy and Plan

Involving Everyone in Keeping Entebbe Clean

**Draft**

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## 1 INTRODUCTION

### 1.1 THE PROBLEM

Entebbe Municipality is experiencing urban population growth. This has brought imbalance between the generation of solid waste and disposal. The generation is high and the ability of the municipal authority to disposal waste is not matching it. Therefore, the demand for effective and efficient systems of managing solid waste is needed. This Municipal Solid Waste Strategy and Plan will be the principal document of Entebbe Municipal Council to guide the sustainable management of municipal solid waste.

### 1.2 STEPS IN THE DEVELOPMENT OF THE STRATEGY



**Situational Analysis:** The purpose of the situational analysis report was to assess the situation and identify feasible strategies for improved management of municipal solid waste.

**The Issues Paper** provided a summary of key issues arising from the situational analysis. The Paper that was sent out to stakeholders provided an opportunity to have their input and to identify and agree on the problems and challenges that the Strategy should seek to address.

## 2 CHARACTERISTICS OF ENTEBBE MUNICIPALITY

### 2.1 LOCATION

Entebbe Municipality lies at 0°.04N, 32°.28E, which is 37 kilometres South of Kampala, the Capital City of Uganda. It is situated in Wakiso District. The municipality is located on a peninsular into Lake Victoria covering an area of approximately 56.2 Sq km.

### 2.2 ADMINISTRATIVE STRUCTURE

The Municipality is divided into two Divisions, four wards and 24 villages/cells. Division A comprises of 15 cell as compared to Division B with only 10 cells/villages. The Council is the highest political authority in the Municipality with 19 members under the leadership of the Mayor. The Municipal has got a technical team headed by the Town Clerk, distributed in eight directorates and departments. Each of the departments has a head and under every directorate, there are Sections. The role of the Municipal Executive Committee is to initiate and formulate policies for approval by the Council. It also oversees the implementation of policies made by the Council and the central Government.

### 2.3 POPULATION AND DEMOGRAPHICS

With an area of 56.2 square kilometres and a population of 69,958 persons (UBOS, 2014), Entebbe Municipality's population growth since 2002 stands at 2%. The population increased by 50 percent from 1980 to 1991 and by 22 percent from 1991 to 2002. The increase in population size is attributed to the Kampala urban spill and the search for employment.

Table 1: Table Showing Population and Demographics

Division	Number of HHs	Average Size of HHs	Males	Females	Total
Division A	9,659	3.9	18,870	19,983	38,853
Division B	7,950	3.8	14,484	16,621	31,105

(Source: UBOS, 2014)

### 2.4 URBANIZATION

Entebbe municipality is a peri- urban with the biggest proportion being urban. Entebbe is growing at very fast rate with an increased number of hotels good road network, schools and health facilities.

### 2.5 SOCIO-ECONOMICS

There are a number of livelihood groups that contribute to the social economic development of Entebbe Municipality and these include; civil servants, contractors, casual laborers, pensioners, artisan, brick makers, vehicle repairers, fisher folk, farmers, traders, hoteliers and aviation related occupations. Entebbe Municipality is one of the areas with low poverty levels in Uganda. However, there are certain arrears that are specifically hurt by poverty namely; Lwamuny landing sites, Musoli, in Kigungu ward, Lugonjo-Nakiwogo and Kitoro Central in Kwafu ward, and Katabi-Busambaga in Katabi ward. These particular areas are characterized by high population densities and are the centers of low enforcement and some are respectively hard to reach.

### 2.6 TOURISM

Entebbe Municipality has got a wide tourism product mix which is nature based and centered on District geographical areas. The nature of the attractions includes; - Eco-Tourism, Cultural Heritage, Faith-based tourism, and Community Development Tourism. The tourism/

historical sites in Entebbe include Muzinga park, Abagowa (first Goans settlement), Mutti gwe Ddembe, Equator point Mapeera site, BOMA (first Governor's residence), Ntebbe Za Mugula, St. John's Protestant Church, First National Achievements (data bank at NARO Offices), Amasiro Kabaka Buganda, Nakiwogo Ferry, Bugonga Cathoric Church, Fishing community at Nakiwogo Nsamizzi Hill, and the Oldest tree in Entebbe.

## **2.7 LANDMARKS**

The most prominent landmark in Entebbe is the international airport which is the only one of its kind in the country. It's therefore the entry and exit point to and from Uganda. Of recent Entebbe has become a major recreation and tourist centre owing to the presence of many beaches and state of the art hotels. The municipality is also home to the country's only wildlife center (Uganda Wildlife Education Centre) at which various wild animals are kept captive in conditions closely related to their natural habitats.

## **2.8 SOLID WASTE AND ITS MANAGEMENT IN ENTEBBE MUNICIPALITY**

### **2.8.1 KEY SOURCES**

There are a number of waste generators with different categories of waste and rates of waste generation. These include an abattoir located in Division A in Katale Namate Village, shops and malls especially in Kitooro in Division B such as Victoria Mall, the largest shopping centre in the Municipality. There are a total of eight (8) health facilities: one government hospital (Entebbe Hospital); three HC IIs; two HC III; two private-for-profit HC III and the soon to be completed HC III in Katabi Ward. State House, Entebbe, is arguably the largest government institution in the Municipality, being the official residence of the President. The International Airport as well as other important government installations are the other major institutions in the Municipality. Entebbe MC has a number of large hotels that generate a lot of food waste.

### **2.8.2 SOLID WASTE QUANTITIES AND PER CAPITA GENERATION**

The amount of solid waste received at the Katabi Dumpsite is only a small fraction of the wastes generated from the Municipality. The poor state of the dumpsite and lack of records preclude the possibility of accurate trends and volumes. Household waste generation is estimated at over 40 tonnes per day. The annual traffic of over 2 million at Entebbe International Airport generates more than 60 tonnes of solid waste per day. The hotels and beaches also likely generate at least some 20-30 tonnes per day. But Entebbe has a day population of over 150,000 people. It is therefore estimated that at **150-200 tonnes per day** of solid waste is generated.

### **2.8.3 COMPOSITION**

Close to 70% of the waste generated is organic mainly from the hotels.

### **2.8.4 STORAGE, COLLECTION AND TRANSPORT**

There are 12 skips in each of the two Divisions that are located strategically in areas with high waste generation rates. There are also some collection points for temporary storage until the waste is collected. For the case of the informal settlements in Entebbe, there is a total of 21 garbage disposal points. There are designated spaces within the settlements where the garbage generated by the residents is dumped. In some places, however, residents collect the garbage at individual household level. In most settlements, there are garbage collection trucks from the Municipal Council that collect the garbage – usually, once a week. At household

level, plastic bags (*kaveera*) are the most commonly used to store waste before it is collected/disposed.

In terms of waste transport, there are 24 skips that are operational, 2 compressor trucks with only one that's operational, 2 skip loaders, 1 Wheel Loader and 2 Tata trucks. The waste is brought using skip loaders, a compressor truck, lorries and tractors. This arrangement is left in the charge of the Divisions. The route chart and fuel expenses are covered by the Divisions but in a few cases, this is done by the Municipal Council. There are 5 active premises in the private sector that collect waste from some businesses and households. The charges vary according to distance and amount of waste generated. This method is efficient as it ensures collection of waste on time. Collection of solid waste in EMC is evident in the cleanliness of the town, with little littering and illegal dumping. This is due to the high profile of the Municipality as the gateway to the country, having the country's largest airport as well as being the official town hosting State House, the official residence of the President of the Republic.

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#### **2.8.5 SEGREGATION, REUSE AND RECYCLING**

The waste segregation practices are mainly present in premises and businesses that use the services of the private sector. The private sector mostly provides two bags; one for biodegradable and one for non-biodegradable waste. For the general public whose solid waste is collected by the Municipal Council, segregation is not practiced. The recycling or reuse of solid waste is a thriving but private sector initiative, with scavengers taking advantage of the absence of regulation and restrictions at the dumpsite, to collect whatever valuables that they can recover.

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#### **2.8.6 DISPOSAL**

Entebbe Municipality has a dump site that is **8 acres** in area. It is located in Katabi Village in Nkumba Sub County, outside the Municipality boundaries and of 13 km from Municipality centre. This dumping site has been used by EMC for the last 20 years. There is no compost plant within the Municipality that could be used to process the waste generated. However, there could be some cases of composting at household level.

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#### **2.8.7 INSTITUTIONAL SET-UP FOR WASTE MANAGEMENT**

The two Divisions (Division A and Division B) oversee daily activities of SWM including fuelling and maintaining the vehicle fleet. The solid waste collection services are provided by both the Municipal authorities and private providers across the municipality. There are at least five solid waste private service providers registered with the municipal authorities. Other solid waste service providers are informal providers, who are basically hired to take garbage from the primary source-generators to the secondary collection points.

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#### **2.8.8 FINANCING**

SWM is financed through locally generated revenue. The contribution of local revenue to the overall municipal budget for the last five financial years has been oscillating between 13% and 25%. The Division Local Government is a locus of solid waste activities. The budget for solid waste activities comes from the Health Department's budget. In the last four years, realization has been high. This kind of performance results into stable allocation for solid waste services.

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#### **2.8.9 CONCLUSION**

Although the Municipal Council has registered success in waste collection and maintaining most parts of the municipality clean, involvement of the private sector and collection of garbage fees, the continued reliance on dumping as a waste disposal method is an area that requires intervention.

### 3 SWOT AND GAP ANALYSIS AND NEEDS ASSESSMENT

#### 3.1 SWOT ANALYSIS

This section identifies the strengths, weaknesses, opportunities and threats (SWOT) in order to form a basis for our way forward. The table below provides this detailed analysis:

<b>STRENGTHS</b> <ul style="list-style-type: none"> <li>• EMC has 3 dedicated trucks to collect</li> <li>• There is a sufficient legal framework for implementation of waste management activities</li> <li>• There is a dedicated team to handle waste management activities.</li> </ul>	<b>WEAKNESSES</b> <ul style="list-style-type: none"> <li>• The wastes are not segregated according to their categories;</li> <li>• There is insufficient capacity to handle all wastes i.e. in terms of funds, trucks, skips;</li> <li>• Limited market for manure and recovered materials;</li> <li>• The attitude of the people towards waste is still poor leading to littering;</li> <li>• Physical planning aspects have not been integrated into the SWM process.</li> </ul>
<b>OPPORTUNITIES</b> <ul style="list-style-type: none"> <li>• The ban on polythene carrier bags in the country will lead to reduction in the quantity of plastics handled;</li> <li>• The Private Sector is interested in solid waste management activities.</li> <li>• NEMA is committed to supporting EMC to start up the compost project to sell off carbon credits.</li> </ul>	<b>THREATS</b> <ul style="list-style-type: none"> <li>• Increasing volumes of waste but the financing is not matching the increase;</li> <li>• The rejects from the composting process are quickly eating up landfill space</li> <li>• Unwillingness to pay for waste management services</li> <li>• Public attitude and belief that solid waste is the responsibility of the Council because “people pay taxes”</li> </ul>

#### 3.2 GAP ANALYSIS AND NEEDS ASSESSMENT

Based on the gaps identified, the needs for Entebbe Municipality are identified and subsequently addressed as part of the target setting and formulation of the action plan in subsequent chapters.



**Table 2: Gap and Needs Analysis**

Priority Areas	Gaps	Needs
Waste generation data	The amount of solid waste received at the Katabi Dumpsite is only a small fraction of the wastes generated from the Municipality. The poor state of the dumpsite and lack of records preclude the possibility of accurate trends and volumes.	The MC therefore needs proper records of deliveries and the characterization of the waste received at the dumpsite. There is need to establish proper data collection systems at waste facilities and ensure good record keeping.
Collection	Collection of solid waste in EMC is evident in the cleanliness of the town, with little littering and illegal dumping. This is due to the high profile of the Municipality as the gateway to the country, having the country's largest airport as well as being the official town hosting State House, the official residence of the President of the Republic. However, vehicles and other equipment break down every other time, leading to failure of garbage collection. In addition, man power for collection is an issue, for example in Division A, only 3 men operate the garbage vehicles.	There is need to ensure that waste management services are reliable, prevent the recurrent breakdown of the vehicles, solve the fuel problem and be good at time management, among others. There should be preparation of a proper route chart and informing the public about the collection days so that they plan properly on when to dispose of their waste.
Disposal	Entebbe Municipality has a dump site that is 8 acres in area. It is located in Katabi Village in Nkumba Sub County, outside the Municipality boundaries and of 13 km from Municipality centre. This dumping site has been used for the last 20 years. There is no compost plant within the Municipality that could be used to process the waste generated. This situation of utilizing a dumpsite requires urgent attention to ensure that the whole solid waste collection process, up to disposal, is worthy of the status of the Municipality.	The Municipal Council is expected to contribute to delivering sustainable waste management processes by driving waste up the waste hierarchy, towards prevention and away from disposal methods (such as landfill without recovery of value from the material).
Hazardous Waste	Households also generate hazardous waste such as e-waste, pesticide containers, solvents, etc. The household hazardous wastes are emptied into skips and litter bins and these end up	There is need to educate the people on the safe handling and disposal of hazardous waste. It may be critical to prepare and disseminate a "Household Hazardous Waste Brochure" to

	being mixed with non-hazardous waste and pose environment and public health risks.	guide segregation, handling, reducing, recycling and disposing of different types of hazardous materials in homes.
	Inappropriate disposal of medical wastes by open burning, some are mixed together with domestic wastes are dumped at the skips.	Hazardous waste such as that generated from certain industries and health centres have to be handled by those industries/healthcare service providers in accordance with the permits issued by NEMA or in line with guidelines issued by the Ministry of Health. The Divisions need to strengthen oversight of hazardous waste, to ensure that the generators of hazardous waste do not harm the general public through poor handling and management of hazardous wastes.
	No proper compartments for disposal of hazardous waste at the open dumpsite. All waste is mixed and disposed together.	There is need for creating separate compartments for the disposal of hazardous waste.
<b>Attitudes</b>	The attitude of the people towards waste management is poor.	If solid waste management is not a felt need, this will have consequences for community participation hence the need for creating awareness. Education is needed to maintain community participation, to establish a 'spirit of responsibility' towards environmental problems and the most suitable ways of dealing with them. Moreover, it is necessary for the Municipal Council to inform households about the benefits and practice of separation at source, the benefits and schedule of collection, the tasks and responsibilities of households (time and place to deliver the garbage) and the ways of payment.
<b>Regulation and Enforcement</b>	There are no bye-laws in place but the drafted ones were forwarded to Solicitor General for approval. The Local Government Act empowers Local Councils to make bye-laws at Lower Local Councils, for areas of their jurisdiction.	It is important to make sure that communities are involved in the development of the solid waste byelaws and understand their role in achieving the goals of planned programmes and targets. A byelaw should be comprehensive, practical in its address to the problem, easy to enforce, and capable of achieving the desired objective. It should, therefore, be acceptable to the community where it is to apply and should

		permit voluntary compliance. Awareness and education programmes are therefore imperative during development/update of byelaws. Public consultation during such review processes is encouraged in order to expose stakeholders and get their buy-in in such legislative frameworks.
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### 4.1 VISION, GOAL, PRINCIPLES AND OBJECTIVES

#### Vision

The vision of the Solid Waste Management Strategy:

**To effectively manage the solid waste generated in Entebbe Municipality through approaches that are socially, environmentally and economically responsible.**

#### Goal

The goal of this Municipal Solid Waste Management Strategy is:

**To reach a solid waste reduction of 20% and a materials recovery rate of 30% by 2021**

### 4.2 GUIDING PRINCIPLES

The EMC Solid Waste Management Strategy is anchored on the premise that:

*Solid waste management is associated with the control of **generation, storage, collection, transfer and transport, processing, and disposal** of solid waste in a manner that is in accordance with the best principles of **public health, economics, engineering, conservation, aesthetics, and other environmental considerations** and that is also responsive to **public***

The Strategy is based on a series of broadly accepted guiding principles. They are:

**The solid waste issue is much wider than SWM:** The strategy acknowledges that solid waste management is no more a limited public health engineering responsibility. It is a much wider task and, therefore, must be seen in the context of comprehensive planning and management of the total municipal environment.

**Lack of financial resources is not the main issue:** As in all other Municipalities in Uganda, EMC too spends a considerable percentage of its annual budget of solid waste management. The amount spent daily is substantial. The reason for inadequate management is more a problem of strategy and administration than a lack of finances.

**Enforcement of Bye-laws** is important to bring offenders to book and ensure compliance with the regulations/guidelines. Creation of offences in relation to waste management is also important.

**Recognize the Informal sector as a vital partner:** The informal sector is a critical part of the whole waste management system of the municipality. For the first time in Entebbe, a municipal strategy is recognizing the presence of the informal sector in SWM and proposing municipal assistance and facilitation of its operations.

**People need affordable solutions:** The society seeks after easy solutions convenient and affordable to the individual and family. Changing their attitude and habits is a formidable task. It can be done only by introducing innovative solutions that do not call them to go out of their way and routine. Home level composting appears to be an effective primary mode to meet this challenge. Home-based composting alone can prevent at least 60% of the household waste from being a municipal problem and an environmental hazard.

**Promote and facilitate peoples' participation:** Citizen engagement is an important element of this strategy. It recognizes public education as an important corollary in the context of current socio-economic pressures and complexities. Public participation and education goes a long way to ensure that the communities are conscious of the way they handle the solid wastes right from generation to disposal for all aspects like waste reduction, re-use and recycling (the waste management hierarchy).

**Political support** in terms of passing bye-laws and adopting guidelines and plans is of utmost importance as well as mobilizing communities for education and participation in solid waste management activities as well as appropriation of the budget for solid waste management

**Administrative and institutional changes are vital for an effective MSWM system:** Integration of jurisdictional and financial aspects across departments is necessary.

**Free services are less sustainable:** EMC can no more provide waste collection services free of charge. In addition to being financially unsustainable, free services permit careless and unrestrained anti-social behaviour which is also a moral hazard. Moreover, free waste collection and disposal is also a discriminatory practice because the bulk producers of waste are treated in the same manner as those who generate less. The proposed strategy is based on the premise that generators of waste must share the costs of waste management according to the volume they generate. However, this will be gradually rolled out in phases.

**Documentation is extremely important for continued planning:** The municipal record-keeping methods are weak. They do not provide vital information required by the administrators and planners to understand the Division-specific, Ward-specific quality and quantity of generated waste. It does not even provide leading information to plan the cadre and vehicle deployment effectively. Hardly any records exist that can indicate the types and volumes of different waste to help planners determine the different recycling modes and processes that can be used.

## **4.3 LEGAL FRAMEWORK**

### **4.3.1 THE NATIONAL LEGAL ARRANGEMENTS FOR WASTE MANAGEMENT**

The principle legislation governing waste management in Uganda include; the 1995 Constitution, the National Environment Act Cap 153 and regulations there under, the Land Act Cap 227, the Local Government Act Cap 243, the Mining Act, The Finance Act 2009 and Water Act.

### *The Constitution of the Republic of Uganda*

Principle XXVII of the National objectives in the Constitution mandates the state to; promote sustainable development and public awareness of the need to manage land, air, water resources in a balanced and sustainable manner and ensure that utilization of the natural resources meets the development and environmental needs of present and future generations; take all possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution or other causes. National Objective XXIX (c) of the Constitution provides that rights and freedoms enshrined in the constitution are inseparable from the duty to every citizen to contribute to the well-being of the community where that citizen lives.

### *The National Environment Act*

Under section 1 of the National Environment Act (NEA), “waste” is defined as any matter prescribed to be waste, whether liquid, solid, gaseous or radioactive of the discharged, emitted or deposited in the environment in such volume, composition or manner as to cause an alteration of the environment. Waste is also hazardous substance and means any chemical, waste gas, medicine, drug, plant, animal or micro-organism which is injurious to human health or the environment and can be in form of pollutants.

Under Section 2 Water Act, waste includes sewage and any other matter or thing, whether wholly or partly in solid, liquid or gaseous state, if added to any water may cause pollution.

Similarly, under section 53 of the NEA, hazardous waste is any waste which has been determined by the Authority to be a hazardous waste or to belong to any category of waste.

Under section 52 of the NEA, every person has a duty to manage any waste generated by his or her activities or the activities of those persons working under his or her direction so as not to cause ill health to people or damage the environment. Similarly, every person who generates waste must employ measures for the minimization of waste through treatment, reclamation and recycling. All waste disposal however generated must be in accordance with the National Environment Act and any prescribed manner.

Under section 53 of the NEA, guidelines on how to handle and manage hazardous categories of waste are issued by NEMA and discharge without a license is an offense. Under section 54 of the NEA, it is illegal to import hazardous waste that is extremely hazardous, corrosive, flammable, persistent, toxic, explosive or radioactive waste without a license.

Under section 19 of the National Environment Act and the 3<sup>rd</sup> schedule rule 12, any person involved in waste disposal shall submit a project brief for the following: Sites for solid waste disposal; Sites for hazardous waste disposal; Sewerage disposal works; Major atmospheric emissions; Offensive odour.

### *The Finance Act 2009*

The Finance Act banned used fridges, freezers, computers, TVs, and plastic carrier bags in response to the several environmental issues and risks that the law seeks to address associated with industrial pollution; contamination of soils, air water; and Health hazards.

### *The Local Government Act Cap 243*

Under section 30 and 31, the Act specifies functions and services for central government, district councils, urban councils and those to be devolved by the district council to lower local government councils.

### *The National Environment (Waste Management) Regulations*

The regulations provide for the detailed management measures required of any person in possession of waste. Under regulation 4, a list of wastes and by-products from domestic waste according to the categories is regularly published. NEMA is mandated to specify the quantity and method by which the waste and by products should be sorted and disposed of. The person responsible for waste generation is required to sort the waste separating hazardous waste from non- hazardous and may dispose of non-hazardous waste in an environmentally sound manner provided it is within acceptable quantities.

#### **4.3.2 INTERNATIONAL CONVENTIONS AND PROTOCOLS**

Waste Management has been on the International environmental agenda since the early 1980s. Montreal Protocol on Substance that Deplete the Ozone Layer was adopted in 1987. In 1989, the Basel convention on control of hazardous waste was adopted and has been in force since 1992 to counter the increasing deposits of toxic wastes which is mostly imported from industrialized states.

Following the Basel convention, several international instruments have been agreed and ratified committing Uganda and other member states to oblige with the principles and agreed actions at the Conference of Parties. These include; The 1991 Bamako Convention on the Ban of the Import into Africa and the Control of Trans-Boundary Movement and Management of Hazardous Wastes within Africa; the Framework Convention on Climate Change, 1992; the Vienna Convention for the Protection of the Ozone Layer; and the Stockholm Convention on Persistent Organic Pollutants 2004 to address challenges of environmentally sound management of hazardous substances at different stages of their life cycle.

There has also been several protocols and strategies designed to ensure effective implementation of the conventions addressing waste management by member states, such as the PPP initiatives for the management of the end of life electronic devices and electronic waste (2003 – 2008); The Bali Declaration on Waste Management for Human Health and Livelihoods (COP 2008); The Rotterdam Convention on the Prior Informed Consent Procedure for certain Hazardous Chemicals and Pesticides in International Trade among others.

#### **4.4 STRATEGIC OBJECTIVES**

The Municipal Solid Waste Management Strategy and Plan has twelve (12) strategic objectives:

1. **SO 1:** Implement sustainable waste minimisation, separation at source, reuse, recycling and recovery programmes
2. **SO 2:** Promote and ensure effective delivery of waste services to all waste generators within the municipality
3. **SO 3:** To safely handle and dispose of solid waste through best practices
4. **SO 4:** Integrate physical planning in all solid waste management activities and decisions
5. **SO 5:** Promote public participation and inclusion in the solid waste management system
6. **SO 6:** Promoting the participation and involvement of the private and informal sectors in the municipal solid waste management system
7. **SO 7:** Develop solid waste management byelaws of EMC and enforce them.
8. **SO 8:** Institute sound budgeting and financial management for waste services
9. **SO 9:** Ensure adequate staffing, remuneration and capacity for solid waste management

10. **SO 10:** Establish and implement a Waste Information System and effectively report on status and progress

#### 4.5 STRATEGIES AND INTERVENTIONS/ACTIVITIES

### **SO 1: Implement sustainable waste minimisation, separation at source, reuse, recycling and recovery programmes**

#### **Future Solid Waste Generation Scenarios**

The peoples' socioeconomic status (usually measured by a combination of education, income and occupation) is a determining factor for solid waste generation rates and composition. In addition, there is positive correlation between solid waste generation rates and GDP and population growth. The future waste generation trends will be dependent on population growth as well as the level of affluence. The quantity of solid waste generated can be estimated by computing the product of the future population growth and per capita waste generation.

Four scenarios are envisaged for 2016-2021, namely;

- **Scenario 1:** Low Affluence (per capita income) with Low Population Growth Scenario (i.e. business as usual);
- **Scenario 2:** Low Affluence and High Population Growth Scenario;
- **Scenario 3:** High Affluence and High Population Growth Scenario; and
- **Scenario 4:** High Affluence and Low Population Growth.

The scenario descriptions are based as far as possible on assumptions, based on the situational analysis and from existing forecast studies.

Population Growth	High	<b>Scenario 2 Medium Quantities</b> <ul style="list-style-type: none"> <li>• Population growth of 5%</li> <li>• Per capita income of \$900 p.a.</li> </ul>	<b>Scenario 2 High Quantities</b> <ul style="list-style-type: none"> <li>• Population growth of 5%</li> <li>• Per capita income of 1500 p.a.</li> </ul>
	Low	<b>Scenario 1 Low Quantities</b> <ul style="list-style-type: none"> <li>• Population growth of 2%</li> <li>• Per capita income of \$800 p.a.</li> </ul>	<b>Scenario 4 Medium Quantities</b> <ul style="list-style-type: none"> <li>• Population growth of 3%</li> <li>• Per capita income of \$1200 p.a.</li> </ul>
		Low	High
		Affluence (per capita income)	



Traffic forecast summary for Entebbe International Airport.

	Total Movements	Total Passengers	Cargo (tons)	Estimated waste generation (ton/year)
<b>2012</b>	43,449	1,475,631	55,907	14,756
<b>2018</b>	55,500	2,377,700	77,100	23,777
<b>2023</b>	76,300	3,810,700	100,700	38,107
<b>2033</b>	123,700	7,667,700	172,100	76,677

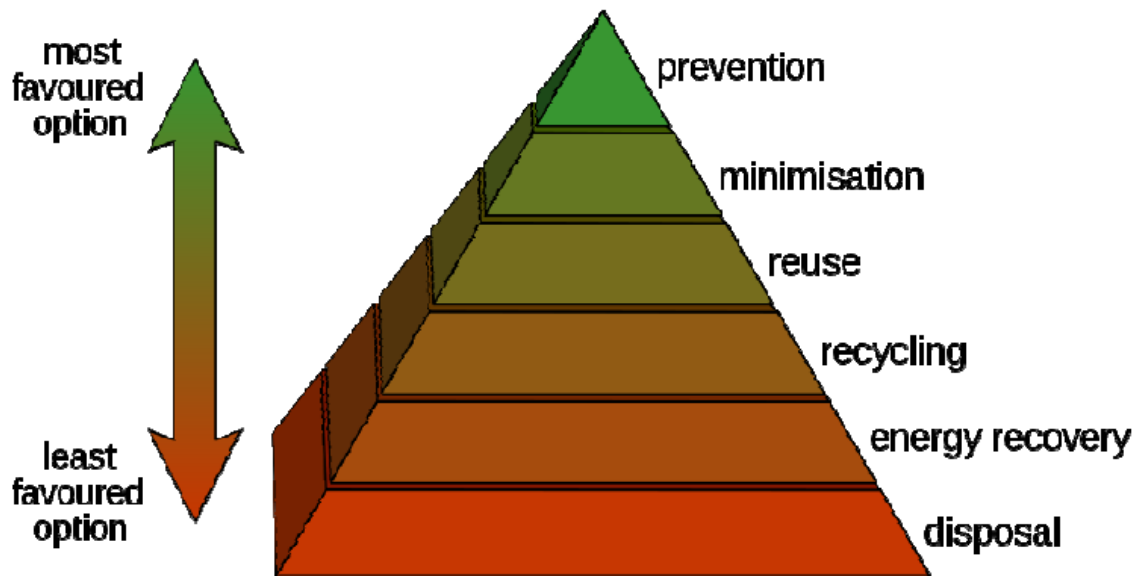
Source: Civil Aviation Authority / INECO: Entebbe International Airport Master Plan, June 2014.

By 2021, over 90 tonnes per day will be generated at Entebbe International Airport. The population of Entebbe Municipality will be generating over 60 tonnes per day. The hospitality industry is steadily growing in Entebbe and the total solid waste from the hotels and beaches may increase to over 100 tonnes per day. A hotel guest is estimated to generate up to 1 kg of waste per day on average.

Based on the above scenario, the estimated total solid waste generated will be about **250-300 tonnes per day by 2021.**

## Waste Management Hierarchy

The conceptual approach to waste management is underpinned by the waste hierarchy. The strategy is based on the broadly accepted “**Hierarchy of waste management**” which gives a priority listing or the waste management options available. The hierarchy gives important general guidelines on relative desirability of different management options.



According to this waste hierarchy, the most effective environmental solution is to reduce (prevention and minimization) the generation of waste, while products and materials can sometimes be used again, for the same or a different purpose.

**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.

**Reuse, Recycling and Recovery:** 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. The definition of ‘reuse’ means “any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

**Disposal:** Disposal is any operation that involves the dumping and incineration of waste without energy recovery. As the least favoured option in the waste management hierarchy, landfill should be reserved for stabilised wastes from which no further value may be recovered.

*Waste Reduction Target:*

**20% reduction of waste disposal to landfill by 2021, based on 2016 disposal tonnage.**

*Waste Recovery Target:*

**30% of recyclable materials recovered by 2021 assuming there will be sustained markets for all diverted materials.**

**Key Strategies and Activities**

1. Develop and implement awareness and education programs to popularize segregation of solid waste at the source.
2. Sensitize the community with the right messages, which encourage, and even reward, directly or through business opportunity, those involved in reuse and recycling.
3. Closely work with NEMA to expedite the commencement of the Municipal Compost Program;
4. Promote and implement Home Composting programs.
5. Prepare, disseminate and promote a "Good Composting Guide".
6. Develop and initiate school programmes that will enhance the principles of waste minimisation and recycling.
7. Establish a Waste Exchange campaign to link waste generators to those interested in reusing it (e.g. connect restaurants with banana peelings to livestock farmers).
8. Awareness raising and education on composting at household levels on an on-going basis.
9. Include provisions in support of waste minimisation, reuse, recycling and recovery in waste By-laws.
10. Design and implement an awareness raising and capacity building programme for waste minimisation, reuse, recycling and recovery.
11. Develop a recycling financial model to ensure the financial sustainability of all initiated programmes.
12. Develop an Operations and Business Plan for the proposed Compost Program.
13. Procure a Shredder and packaging materials for the recovered plastics.
14. Train staff at the compost plant in shredding
15. **Lead by Example:** EMC propagate minimisation, reuse, separation at source, recycling and recovery principles. Awareness of solid waste issues should be created amongst all levels of decision makers. Clear guidance should be provided on how to overcome the challenges related to solid waste management. Each municipal official should understand the importance of, have the knowledge to implement, and publicly practice minimisation, re-use, separation at source, recycling and recovery. The behaviour of municipal officials should be such that it serves as a good example of how waste should be dealt with.

## **SO 2: Promote and ensure effective delivery of waste services to all waste generators within the municipality**

### **Future Service Delivery Scenarios**

Four scenarios are envisaged for 2016-2021 that will shape the service delivery, namely;

- **Scenario 1:** Low Waste Quantities with Low Municipal Capacity;
- **Scenario 2:** Low Waste Quantities and High Municipal Capacity;
- **Scenario 3:** High Waste Quantities and High Municipal Capacity; and
- **Scenario 4:** High Waste Quantities and Low Municipal Capacity.

The scenario descriptions are based as far as possible on assumptions, based on the situational analysis and from existing forecast studies.

High	<b>Scenario 2 Excellent Service</b> <ul style="list-style-type: none"> <li>• Low solid waste quantities</li> <li>• High technical and financial capacity of Municipal Council</li> </ul>	<b>Scenario 2 Moderate Service</b> <ul style="list-style-type: none"> <li>• High solid waste volumes</li> <li>• High technical and financial capacity of Municipal Council</li> </ul>
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Capacity (technical & financial)	<ul style="list-style-type: none"> <li>• High collection rates</li> </ul> <p><b>SUSTAINABLE SCENARIO!!!</b></p>	<ul style="list-style-type: none"> <li>• Moderate collection rates</li> </ul> <p><b>ACCEPTABLE SCENARIO</b></p>
	<p>Scenario 1 <b>Poor Service</b></p> <ul style="list-style-type: none"> <li>• Low solid waste quantities</li> <li>• Low technical and financial capacity of Municipal Council</li> <li>• Low collection rates</li> </ul>	<p>Scenario 4 <b>Very Poor Service</b></p> <ul style="list-style-type: none"> <li>• High solid waste quantities</li> <li>• Low technical and financial capacity of Municipal Council</li> <li>• Low collection rates</li> </ul>
Low	Solid Waste Quantities generated	High

**Objectives:**

- Extend at least a basic waste management services to all areas within the EMC including informal settlements.
- Extend appropriate waste services to all un-serviced areas and continually improving the level of service given.
- Ensure an efficient and effective waste management service.
- Ensure an optimal route chart
- Combat littering of waste

**Target:**

**All households within the Entebbe Municipality must receive a basic level of waste collection service.**

**Key Strategies and Activities**

1. Develop a Service Area Map for Entebbe Municipality
2. Identify areas where service needs improvement and initiate and implement appropriate waste collection systems.
3. Reassess the existing route configurations and collection schedules
4. Provide more skips and litter bins to areas with inadequate numbers
5. Provide avenues for receiving feedback on collection from the communities as well as handling of collection complaints by establishing a hotline.
6. Review waste collection operations, in order to make them as efficient as possible, with due regard to value for money in the area of municipal waste collection.
7. Investigate and implement waste collection systems that are appropriate for informal settlements and high density areas.

### **Waste Collection in Informal Settlements**

- For improving solid waste collection in such places, EMC will provide litter bins in different points within the informal settlements. The selection of the collection points should be easily accessible by both solid waste collectors and local community. Waste from inaccessible locations shall be collected in residential improvised bins including plastic bags. Then, these shall be carried on shoulders and heads or using wheelbarrows to the nearest skips.
- EMC will work with the Entebbe Waste Pickers Association (EWPA) to pick waste from informal settlements at a fee paid by households under an MoU with EMC.
- Closely work with/facilitate the Slum Dwellers' Association and the MDF to encourage/mobilize people to transport their waste to the nearest skips or collection vehicle route. This will be enforced using the byelaws.

### **Equipment:**

- Develop a SWM Equipment and Tools Specifications List
- Develop a SWM Equipment and Tools Management Policy
- Develop an Equipment Maintenance Schedule

### **Complaint Redress**

- EMC will follow the Complaints Handling System initiated under the USMID Program to facilitate the receipt, recording and resolution of inquiries and complaints from all categories of service users.
- All service complaints will be recorded in a register, noting the name and address of each complainant, date and time of complaint, nature of complaint, and nature and date of resolution.
- Using the records from the register of complaints, EMC will then compile a summary statistical table of all complaints.
- EMC will respond to all customer complaints within a specified time.
- EMC will identify the responsible staff and take necessary action to resolve complaints.

### **Service Area Map**

The Service Area Map to be developed will at a minimum:

- give all relevant information about SWM activities performed by EMC.
- show the entire boundary of the Service Area.
- include the different land use patterns within the Entebbe Municipality area.

### **Route Plan**

The size of each route will depend on:

- The amount of waste collected per stop.
- Distance between stops.
- Loading time.
- Traffic conditions.
- Method of collection.

## **SO 3: To safely handle and dispose of solid waste through best practices**

All activities in solid waste management involve risk, either to the worker directly involved, or to the nearby resident. Risks occur at every step in the process, from the point where residents handle wastes in the home for collection or recycling, to the point of ultimate disposal.

### Dumping Site Issues

EMC has a dump site outside the municipality. However, open dumping is a crude method for disposal of waste and poses a number of environmental risks based on the existing practices.

### Household Level Issues

Open burning is the most common disposal method at household level but this poses environmental and health risks.

### Key Strategies and Activities for the Open Dumpsite

1. Undertake controlled dumping in the short-term to avert environmental risks;
2. Continue to engage NEMA to expedite the Municipal Composting Program in Entebbe.

### Operating Guidelines for Controlled Dumps

Criteria/Activity	Guidelines
Operating hours	<ul style="list-style-type: none"><li>• Operating hours should be in accordance with the collection schedules of the garbage collection vehicles.</li><li>• Night- time operations should be avoided as much as practical.</li></ul>
Use of the facility	<ul style="list-style-type: none"><li>• Only municipal solid wastes are accepted.</li><li>• Toxic or hazardous wastes are not allowed.</li><li>• Vehicles entering the facility register, weighed upon entry, and checked before being allowed to proceed to the present working area.</li><li>• Site personnel record all pertinent data, such as the truck number, time it entered the facility, etc.</li></ul>
Unloading of the waste	<ul style="list-style-type: none"><li>• Waste is unloaded at the working area/face.</li><li>• Unloading of the waste is supervised.</li></ul>
Spreading and compaction of the waste	<ul style="list-style-type: none"><li>• The active filling area or “working face” is minimized as much as practical. An appropriate size is about 2 to 3 times the width of the compactor vehicle.</li><li>• Waste is spread and compacted in layers not greater than 0.6m (2 ft.) after compaction.</li><li>• Compaction of the waste should be on a slope of about 20-30% and worked from the bottom of the slope to the top</li></ul>
Application of daily cover	<ul style="list-style-type: none"><li>• A soil cover of at least 0.15m (0.5 ft.) thick is placed over the waste and compacted, preferably at the end of each working day.</li><li>• Inert material such as carbonized rice hulls or non-hazardous ash may also be used as cover material.</li><li>• Daily cover material is provided near the disposal area to facilitate covering of the waste.</li><li>• Inactive areas are covered with an intermediate cover of at least 0.30m (1 ft.).</li></ul>
Litter barrier	<ul style="list-style-type: none"><li>• A fence is installed downwind of the active area to trap litter</li></ul>
Record keeping	<ul style="list-style-type: none"><li>• Basic record keeping includes the volume of waste received daily, special occurrences such as fires, accidents, spills, unauthorized loads, and daily waste inspection logs.</li></ul>

Waste picking	<ul style="list-style-type: none"> <li>Waste picking is managed and controlled in order not to disrupt operations and prevent accidents.</li> </ul>
Operations supervision	<ul style="list-style-type: none"> <li>Trained personnel supervise site operations</li> <li>An Operations Manual should be available to guide field personnel.</li> </ul>

### Key Interventions and Activities at Household level

1. Develop an information, education and communication package about solid waste management environmental and health risks and how to mitigate them
2. Promote Household Composting programs.
3. Prepare a “Household Hazardous Waste Brochure” to guide reducing, recycling and disposing of different types of hazardous materials in homes.

### Worker Health and Safety Risks

Waste management personnel frequently encounter the following hazards:

- Busy roads and heavy traffic.
- Rough and sharp-edged containers during collection and sorting that can cause cuts and infections.
- Dust and bad smells.
- Exposure to injury from loading machinery.
- Carrying heavy loads/containers that can cause back injuries.
- Dangers from discarded household hazardous wastes such as herbicides, pesticides, solvents, fuels, batteries, etc.
- Dangers from medical waste thrown into the skips.

### Strategies and Interventions for Worker Health and Safety

To minimize injuries, the MC will have an ongoing safety programme. The safety programme will include, at a minimum, the following items:

- Procedures and training in proper lifting methods, material handling, equipment operation and safe driving practices;
- A record keeping and reporting procedure for accidents during collection, transport, processing, materials recovery and disposal of solid waste;
- Provide PPE such as gloves, goggles, safety shoes, high-visibility vests, nose masks, etc. to all workers.
- Frequent refresher sessions to remind workers of safe working habits and department requirements.

## SO 4: Integrate physical planning in all solid waste management activities and decisions

### Short-term Strategies and Activities

1. Map the locations of all collection points and skips in the municipality
2. Identify all locations for skips incompatible with land uses
3. Identify suitable areas and spaces fit for locating skips

### Long-term strategic interventions



1. Recruitment of 1 more Physical Planner to support the current officer.
2. Develop an integrated land use plan that takes into account solid waste management.

## **SO 5: Promote public participation and inclusion in the solid waste management system**

Stakeholder participation is the fulcrum of this strategy. The strategy is built on the premise that solid waste management is not a mere public health engineering exercise. It requires the participation of every single resident and user of municipal facilities. The objectives of community sensitization include:

- Ensuring that the community and the Municipal Council become partners in the management of solid waste in the Municipality;
- Ensure that there is less of coercive action but more of voluntary actions by the community, especially in the placement of the waste in the right place, sorting at the household level and compliance in general.
- Community must be able to see the benefits of the improved management of solid waste;
- Community must feel part of the management of solid waste.

While participatory initiatives and the provision of information are needed, the provision of an enabling environment is also necessary to encourage the correct waste management behaviour. The public has the right to contribute to municipal decision-making processes. Therefore, the municipal council must establish appropriate mechanisms, processes and procedures to enable public participation in the municipal affairs. The convenience factor is important to ensure participation in waste minimization, reuse, recycling and recovery initiatives.

### **Key Strategies and Activities**

- Develop an IEC Strategy to promote public participation
- Strengthen the “Keep Entebbe Clean” campaign in order to encourage community active participation in solid waste management.
- Creation of Institutional mechanisms such as working groups and regular municipal consultations to involve the residents individually and collectively.
- Conduct of community-based civic education programmes.
- Revitalizing School Clubs to get involved in social mobilization.
- Publication and dissemination of waste collection schedules
- Engagement and facilitation of NGOs and CBOs.

### **Critical IEC Aspects**

Several communication actions are needed to raise awareness about the solid waste management actions. These actions include communications between municipal departments, within municipal departments, between the municipal council and industry/businesses, and between the Municipal Council and the public. Communication should be such that every person understands the importance of responsible solid waste management and is empowered to take part in initiatives with confidence.

### **Communicate for Public Awareness**



Public buy-in is essential for the implementation of this strategy. The level of public buy-in will be determined by the communication between EMC and the public, the knowledge the public has about waste management, how convenient it is for the public to take part in the waste management initiatives, the sense of pride the public takes in their environment, and the example set by the municipal council.

### **The Message**

The message that is communicated to the public should encourage good waste management practices. The communication will be designed to capacitate the public to actively participate in waste minimisation, reuse, recycling and recovery initiatives. The following types of information will be communicated:

- Why it is necessary to reduce reliance on landfill disposal
- Ideas on how to minimize waste
- Ideas on how to re-use “waste”
- How to separate at source
- What can be recycled or recovered
- How to recycle
- Frequency of collection
- Information on municipal targets and progress in reaching such targets
- How the community/municipal residents can contribute in helping to reach such targets
- Information on opportunities to take part in municipal decision-making processes
- Avoidance of littering
- Dates of the regular public meetings and the “Keep Entebbe Clean” campaign

## **SO 6: Promoting the participation and involvement of the private and informal sectors in the municipal solid waste management system**

### **Private Sector Involvement**

Currently, there is no involvement of the private sector in the MSWM system. However, one of the municipal development strategies is public-private partnership approach. In this approach, the private sector is to be interested to participate in the development of the municipality through public-private partnership. EMC has indicated readiness to partner with the private sector in solid waste management. Another aspect the municipal council considers for the inclusion of the private sector is the improvement on the effectiveness and efficiency in service delivery.

For the inclusion of the private sector, however, the municipal authority needs to have a good understanding of costs involved, and have in place an effective and responsive regulatory and supervision framework so as to monitor operations of the private providers. It is not enough to bring the private providers on board, systems, procedures and processes must be in place, and effective and responsive enough. It is of interest to investigate potential areas of private sector engagement such as transporting of solid waste, separation and recycling of waste. It is essential to study what it will take to get the private sector to play a role in these areas.

### **Key Strategies and Activities**

1. Establish areas for involvement for the private sector
2. Develop a costing model for private contractors
3. Advertise and prequalify potential private waste service providers

4. Develop appropriate/standard ToRs for a municipal waste contractor and develop key performance targets (measures) for private sector participants in solid waste management.

### **Recognition and involvement of the informal sector**

In Entebbe municipality, some people sustain themselves and their families by reclaiming reusable and recyclable materials from what others have cast aside as waste. Informal sector poses a major policy dilemma. This group of people needs to be recognized and be seen as a key group in municipal solid waste management in Entebbe?

#### **Key Strategies and Activities**

1. Conduct a census of individual Waste Pickers and dealers in recyclable materials and register them and support them to create the Entebbe Waste Pickers Association (EWPA)
2. Train EWPA on materials recovery and best practices
3. Provide identification and licenses to Waste Pickers and Dealers as recognized partners of EMC in solid waste management.
4. Sign a cooperation agreement or MoU and designate a legitimate work space for Waste Pickers for establishment of materials recovery facilities.

### **SO 7: Develop solid waste management byelaws of EMC and enforce them.**

A critical component to the implementation of the strategy is the supporting legal framework. The municipality needs byelaws which will give the plan a binding legal standing. This will also allow for levying of service fees and punitive measures in cases of non-compliance. The EMC byelaws are currently being drafted. The byelaws should be aligned with the strategy and Plan in order to ensure relevance and effectiveness.

#### **Objectives:**

- Conduct systematic monitoring of compliance with regulations and permit conditions
- Create a culture of compliance with by-laws
- Establishment of an anonymous non-compliance reporting system.
- Successful prosecutions of waste offenders

#### **Target:**

### **Achieve compliance by all waste management generators and handlers**

#### **Key Strategies and Activities**

1. Draft Byelaws and have them approved.
2. Establish a hot line for reporting non-compliance.
3. Establish a compliance and enforcement Team within the Public Health Department.
4. Training to the compliance and enforcement Team.

## **SO 8: Institute sound budgeting and financial management for waste services**

Sound financial management is essential in SWM in order to:

- identify actual cost spent on SWM activities.
- explore cost saving possibilities.
- performance monitoring.

### ***Objectives:***

- Sound financial planning for waste services
- Full cost accounting for waste services
- Cost reflective and volumetric tariffs implemented
- Waste services sustainably financed

### ***Targets:***

- **Full cost accounting for waste services to be implemented**
- **Cost reflective tariffs/garbage fees**

### **Key Strategies and Activities**

1. Undertake a full cost accounting exercise for waste management services to include aspects of collection, transportation, landfill, street cleaning, and revenue from waste related activities. Implementing recycling programmes will reduce the disposal costs and generate revenue for the municipality. The cost accounting exercise referred to above could include the costs of these recycling programmes against their gains in terms of real monetary returns as well as cost savings relating to increased landfill life span through saved air space.
2. Establish the costs for collection, transport, processing and disposal of 1 tonne of solid waste in Entebbe and establish the key cost drivers;
3. Establish the optimal garbage fees for households and commercial entities and prepare a plan for rolling out garbage fees.

## **SO 9: Ensure adequate staffing, remuneration and capacity for solid waste management**

Capacity building of all stakeholders in MSWM is critical in ensuring sustainability, quality and continuity of operations, as well as monitoring and evaluation of the program. The objectives of capacity building are several:

- To ensure that there is a cadre of staff in the Municipality and Divisions with adequate management and technical skills to handle all aspects of MSWM.
- To ensure that the private and informal sectors that are desirous of participating in MSWM is trained and equipped with the skills and tools needed to carry out their roles and responsibilities in MSWM.
- To ensure reporting mechanisms for noncompliance are elucidated to all stakeholders.
- To ensure equal opportunities to all who may want to benefit from opportunities offered by MSWM in the municipality and beyond

### ***Targets:***

- **All vacant posts relevant to solid waste management filled.**
- **Staff equipped with the relevant skills in SWM.**

#### **Key Strategies and Activities**

1. Identify vacant positions relevant to solid waste management and fill them up
2. Increase staff in priority areas
3. Identify key areas and needs for training and conduct training. Address such issues such as driving skills, first aid, safe lifting methods, identification of household hazardous wastes, avoidance of substance abuse and stress management.
4. Formal and on-the-job training and capacity building for municipal staff; benchmarking with better managed systems in nearby municipalities and even abroad.
5. Tender to get private companies with the best technical and managerial expertise and provide for skills and knowledge transfer in the contract for MSWM.
6. Review remuneration packages for the solid waste management staff.

### **SO 10: Establish and implement a Waste Information System and effectively report on status and progress**

#### **Objectives:**

- Generate reliable MSWM information to guide planning.
- Establish a monitoring and reporting framework to track MSWM system performance.

#### **Target:**

- **An operational WIS with all waste management data captured and disseminated to users.**
- **Reliable MSWM data is available and disseminated.**
- **All sections/departments responsible for waste functions within EMC submit monthly and annual performance reports.**

#### **Waste Management Data/Information Needs:**

##### **Planning Data:**

- Number of residential dwelling units and housing densities.
- Number of generators by type (hospitals, schools, restaurants, markets, abattoirs, etc.).
- Kilometres, width and condition of streets and roads.
- Status of road infrastructure.
- Land use patterns.
- Waste generation per capita.
- Population (Day and Resident)
- Population growth rate
- Income per capita
- Available landfill space.

##### **Treatment and Disposal**

- Quantities generated (Total and per capita rates)

- Waste Composition
- Expertise

#### ***Operations Cost Data***

- Staff (Drivers, labourer, etc.) salaries.
- Equipment and tools (vehicles, skips, brooms, gloves, aprons, boots, etc.).
- Fuel and equipment repair/maintenance
- Insurance/License and Depreciation.
- Overheads.

#### **Key Strategies and Activities for WIS**

1. Undertake a comprehensive waste survey, including waste quantities and characterisation every 2 years.
2. Establish and operate a Waste Information System (WIS).
3. All departments related to waste management should register and report on the WIS.
4. Training of staff on data capture, verification and entry.
5. Empower the Health Inspector to coordinate WIS within EMC.

#### **Strategies for Monitoring and Reporting**

1. Implement a monitoring framework to ensure achievement of targets
2. Prepare monthly and annual performance reports based on data from the WIS.

## FIVE YEAR IMPLEMENTATION PLAN

Thematic Component	Activity	Targets	Indicators	Time	Outputs	Responsibility	Budget (UGX)
<b>SO 1: Implement sustainable waste minimisation, separation at source, reuse, recovery and recycling programmes</b>							
	Design and implement an awareness raising and capacity building programme for waste segregation, waste minimisation, reuse, recycling and recovery.	Separate collection of segregated wastes			IEC Program	Health Inspector Municipal CDO	120,000,000
	Establish a Waste Exchange campaign to link waste generators to those interested in reusing it (e.g. connect restaurants with banana peelings to livestock farmers).	30% reduction in waste delivered to the compost plant			Waste Exchange Register	Health Inspector Municipal CDO	
	Promote and implement Home Composting programs by preparing and disseminating a "Good Composting Guide".	20% of organic waste composted at household/community level			Reduced costs of disposal of waste	Health Inspector Municipal CDO MEO Mayor	
	Include provisions in support of waste minimisation, reuse, recycling and recovery in waste Byelaws.				Approved Byelaws		
	Develop an Operations and Business Plan for the proposed Compost Program.					Town Clerk	10,000,000
<b>SO 2: Promote and ensure effective delivery of waste services to all waste generators within the municipality</b>							
	Develop a Service Area Map for Entebbe Municipality and identify areas where service needs improvement.	75% of all households to receive a regular waste collection			List of areas that need improvement in collection.		10,000,000

	service					
Reassess the existing route configurations and collection schedules and make adjustments where necessary.				A map showing an optimal route for collection with the respective collection times.	Municipal Engineer MEO, Health Inspector.	10,000,000
Develop and publicise waste collection schedules for each village or street.						
Develop a SWM Equipment and Tools Specifications List	Equipment commensurate with service requirements and equipment maintained operational			Specs List to guide procurement of equipment and tools.	Municipal Engineer	5,000,000
Develop a SWM Equipment and Tools Management Policy				Proper use of equipment.		
Develop an Equipment Maintenance Schedule				Reduced downtime due to mechanical failures.		
Procure waste collection tools (folks, spades, wheelbarrows, brooms, etc.) and protective gear (gloves, gumboots, coveralls and masks).				Tools available and workers protected against occupational health and safety risks.	Municipal Treasurer MEO & Health Inspector.	100,000,000
Procure skips and litter bins						
Sign an MoU with the Entebbe Waste Pickers Association (EWPA) and provide tools to collect waste from informal settlements.						200,000,000
Facilitate the Slum Dwellers' Association and the MDF to mobilize people to transport their waste to the nearest skips or collection vehicle route.						

### **SO 3: To safely handle and dispose of solid waste through best practices**

Undertake controlled dumping activities at the existing open dumping site in the short-term to avert environmental risks.				Controlled Dump Site	Municipal Engineer  Municipal Environment Officer	200,000,000
Develop an information, education and communication (IEC) package on solid waste management environmental and health risks and how to mitigate them.  Prepare a “Household Hazardous Waste Brochure” to guide reducing, recycling and disposing of different types of hazardous materials in homes.				IEC Health and Environmental Risks Package		30,000,000
SO 4: Integrate physical planning in all solid waste management activities and decisions						
Map the locations of all existing collection points and skips in the municipality.				Map of collection points	Municipal Physical Planner	10,000,000
Identify all locations for skips incompatible with land uses that require relocation.				List of locations incompatible with land use	Municipal Environment Officer	
Identify suitable areas and spaces fit for relocating skips				List and map of suitable locations		
SO 5: Promote public participation and inclusion in the solid waste management system						
Develop an IEC Strategy to promote public participation.					Health Inspector	
Facilitate the “Keep Entebbe Clean” campaign to ensure community active					Municipal CDO	



participation in solid waste management.					Mayor  Councillors  Media Houses	300,000,000
Publication of waste collection schedules and dates of the regular public meetings and the “Keep Entebbe Clean” campaign						
Revitalizing School Clubs to get involved in social mobilization.						
Engagement and facilitation of NGOs and CBOs.						
SO 6: Promoting the participation and involvement of the private and informal sectors in the municipal solid waste management system						
Establish areas for involvement for the private sector.	Release non-core aspects of SWM to the private sector			List of areas for involvement	Town Clerk MEO Health Inspector	20,000,000
Develop a costing model for private contractors.	Standard charges for waste collection by the private sector			Standard costing model	Town Clerk	
Develop appropriate/standard ToRs for a municipal waste contractor and develop key performance targets (measures) for private sector participants in solid waste management.				Standard ToRs for private companies	Town Clerk	
Advertise and prequalify potential private solid waste service providers.	Have a pool of potential service providers in waste collection			List of prequalified companies	Town Clerk	
Conduct a census of Waste Pickers and dealers in recyclable materials and register them	To identify and register all waste pickers in the municipality			Number of Waste Pickers	Municipal CDO Health Inspector	30,000,000
Support waste packers create the Entebbe Waste Pickers Association (EWPA), provide identification and licenses and	Organize waste pickers into a formal association			EWPA formed I.Ds and licenses Training Report	Municipal CDO Health Inspector	

train them on materials recovery and best practices.						
Sign a cooperation agreement or MoU and designate a legitimate work space for Waste Pickers for establishment of materials recovery facilities.				Signed MoU Workspace gazetted	Town Clerk and Mayor	
<b>SO 7: Develop solid waste management byelaws of EMC and enforce them</b>						
Draft Byelaws and have them approved.	Deepen enforcement of SWM practices.			Approved Byelaws	Health Inspector	20,000,000
Establish a hot line for reporting non-compliance.	Apprehend and sanction offenders			Hot-line in place	Health Inspector	
Establish a compliance and enforcement Team within the Public Health Department.	Ensure compliance to waste management practices.			Names and contacts of Team	Health Inspector	
Training to the compliance and enforcement Team.	Impart expert knowledge of SWM			Competent Enforcement Team	Health Inspector	
Procure motorcycles and bicycles for the enforcement team.						30,000,000
<b>SO 8: Institute sound budgeting and financial management for waste services</b>						
Undertake a full cost accounting exercise for waste management services and establish the costs for collection, transport, processing and disposal of 1 tonne of solid waste and establish the key cost drivers.	To enable sufficient financial allocation and cost recovery to manage all wastes generated				Town Clerk  Municipal Treasurer	30,000,000
Establish the optimal garbage fees for households and commercial entities.	Producer responsibility for managing waste				Municipal Treasurer	
Prepare a plan for rolling out garbage	Gradual compliance					

fees and implement it.	by the waste generators					
<b>SO 9: Ensure adequate staffing, remuneration and capacity for solid waste management</b>						
Identify vacant positions relevant to solid waste management and fill up all vacant positions.	Adequate staffing of waste management service			All positions filled.	MEO, Health Inspector and Municipal HRO	
Increase staff in priority areas.	Improved service delivery.			Adequate number of staff.	Municipal HRO	
Identify key areas and needs for training Conduct training for key personnel.	Properly equip waste management staff with appropriate knowledge.			Competent staff.	MEO and Health Inspector	
Review remuneration packages for the waste drivers and staff of the compost plant.	Motivated workers to drive the improvement process.			New remuneration packages.	Town Clerk and Municipal HRO	
<b>SO 10: Establish and implement a Waste Information System (WIS) and effectively report on status and progress</b>						
Undertake a comprehensive waste survey, including waste quantities and characterisation every 2 years.	Accurately quantify amount of waste generated in Entebbe Municipality			Waste Survey Data		30,000,000
Hire a Consultant to design and establish the WIS.				WIS developed and functional		25,000,000
All departments related to waste management should register and report on the WIS.	To have a single database for waste management			WIS system installed in key departments		
Training of staff on data capture, verification and entry.				Completed training		5,000,000
Procure computers and install WIS				Computers fully installed with WIS		20,000,000

Prepare monthly and annual performance reports based on data from the WIS				Tracking performance and progress.	Health Inspector MEO Town Clerk	
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### 5.1 PLANNING ASSUMPTIONS AND RISKS

This strategic plan is a guiding management document and therefore is subjected to administrative processes and procedures in the implementation. Solid waste planning and implementation is challenging because of the number of actors involved so it is important to understand the planning assumptions that have been made and the risks.

#### **Planning assumptions**

The following are some of the assumptions:

- Adequate funding for the planned activities, including capacity building at a number of levels (municipal headquarters, division level, wards, village/cells, private operators, community organisations...).
- Local revenue for solid waste management forth coming.
- External support for solid waste management forth coming. The implementation of the on-going revenue reforms has benefited from external resources. Any disruption to the availability of the external resources before alternative local sources are in place may reduce the pace of implementation.
- Pro-active participation by the key departments/sector actors, which is a challenge.
- Acceptance of the present strategy by the key stakeholders.

#### **Risks**

Some of the risks to successful strategic plan implementation include:

- low level of buy in by residents
- low level of buy in by individual departments/sectors and local governments,
- insufficient capacity for timely implementation,
- bureaucracy tendencies and other poor governance facts that prevent effective use of resources and discourages private sector participation,
- unpredictability and lack of funding,
- increasing population against available resources,
- lack of reliable data,
- no buy in and take up by the different departments/ sectors,
- inadequate estimation of future needs,
- poor succession management and understaffing,
- procurement delays and arising costs,
- other risks arising from the political, economic, social, technological, and environmental factors.

### 5.2 ROLES AND RESPONSIBILITIES

There is a wide range of actions to be undertaken to achieve the intent of the sustainable solid waste management strategy and plan (SSWMSP). This, therefore, requires the involvement of a numbers of implementers, with Entebbe Municipal Council (EMC) taking the lead coordinating role in the implementation. Various actions require various implementers (Division Local governments, departments, CBO, private sector, institutions/organisations, business entities, individuals, etc.). It is worth noting that there are clear institutional implementation arrangements, some defined by the law and others to be defined by the guidelines or contracts as issued by EMC. Since this SWMSP is defined within the framework of EMC, it is inevitable that it follows the established institutional architecture.

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### 5.2.1 MUNICIPAL COUNCIL

The Municipal Council will be responsible for :

- Approving the plan.
- Approving interventions and the projects

All these will be done in accordance with prevailing procedures including the involvement of Executive Committee, Sectoral Committee and Technical Planning Committee. Through this process, the SWMSP will be ensured that has linkages with Development Plan, annual work plans and financial budget. The SWMSP will be coordinated by the Municipal Council Health Department while the implementation will be done by respective departments, Divisions, wards, Village/cells, communities, private operators.

**Health Department:** The Health Department is the department that houses the Waste Management. Some issues although specific to waste management are best handled at a broader level of environmental concerns due to the overlaps in disciplines and the integration required in dealing with such. One pertinent issue relates to compliance and enforcement.

**Line Department Officers:** Other line Departmental Managers within EMC where relevant will be responsible for:

- Ensuring that staff under their control is aware of the strategy and that the mandatory training requirements of staff are fulfilled.
- Ensuring that where appropriate operational plans in relation to the implementation of the Plan are developed and progress reporting in relation to same is undertaken.

The Municipal Council will retain overall strategy direction, user fee setting, contracting of private sector players, management of the disposal facilities and ownership of staff, equipment and infrastructure. It will also be responsible for recruitment of staff.

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### 5.2.2 DIVISIONS

The entry point of all solid waste management interventions shall be the Divisions. They will be responsible for the planning, collection, fee collection, transportation and oversight of all solid waste management activities in the Divisions.

They will carry out the following:

- Planning for the interventions
- Financing and implementation
- Carry out supervision, monitoring and inspection

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### 5.2.3 MUNICIPAL AND DIVISION STAFF RESPONSIBILITIES

**Town Clerk:** In charge of ensuring that the goal and objectives of this strategy are achieved.

**Municipal Environment Officer:** Responsible for the coordination of waste management activities to ensure integration.

**Municipal CDO:** Take a lead in community mobilization to ensure participation in municipal solid waste activities.

**Municipal Physical Planner:** Provide guidance on location of collection points and other waste management infrastructure.

**Municipal HRO:** Address human resource issues required under the strategy.

**Municipal Treasurer:** Ensure adequate budget allocation and funding of waste management activities. Ensure that waste management activities generate revenue for the municipal Council

**Municipal Health Inspector:** Coordinate the public cleaning activities (Keep Entebbe Clean) and collection and transportation of waste. Responsible for health Assistants at Division level

**Municipal Engineer:** Responsible for fleet maintenance and structural integrity of the waste composting plant and any other waste related structures

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#### **5.2.4 ROLE OF THE MUNICIPAL DEVELOPMENT FORUM**

Continue to act as a bridge between the Council and the general public in supporting identification of the community needs, advocacy, ensuring that the Council accountable and implementation processes are transparent.

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#### **5.2.5 ROLE OF THE PRIVATE AND INFORMAL SECTORS**

The private sector and informal sector will be involved in the implementation through agreed arrangement with the municipal and Division authorities. The particulars of arrangement will be made with each operator depending upon activity or activities to be implemented.

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#### **5.2.6 ROLE OF NGOS, CSO, CBO AND FAITH BASED ORGANISATIONS**

The specific roles of these organisations in this SWMSP will be determined according to their areas of comparative, their already involvement in the sector and their willingness to implement some components. However, it is clear from the situation analysis that some of these organisations are good at changing attitude and some particularly faith based have influence among their followers. It would be advantageous to involve them in the dissemination of messages and information. Already, some of them have development collaboration arrangement with the Municipal Council and their development plans aligned and integrated with the municipal development plan. This implies that the implementation of their plans has a direct bearing in the implementation of the Municipal Council Development Plan.

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#### **5.2.7 ROLE OF WARDS/PARISHES AND VILLAGES/CELLS**

Under the current decentralisation arrangement, at these levels- wards and cells, they have plans they implement out of or part of what the pass upwards. Also, there are funds passed to them to execute those plans. Solid waste is one of those areas they are involved. Besides, they are in the level where the generation of waste takes place. Therefore, they are most suited for the implementation of some interventions, supervision and monitoring.

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#### **5.2.8 WASTE GENERATORS**

Waste that is disposed into the skips or bunkers in a proper manner shall become property of the Division. Solid waste that is in the premises of the generator remains the property of the generator. Solid waste that is not disposed of in the correct manner or in the correct location remains property of the generator of the solid waste and he or she shall remain responsible for its proper disposal in the approved manner to the approved location.

Hazardous waste such as that generated from certain industries will be handled by those industries in accordance with the permits issued by NEMA. The Divisions will retain the oversight of hazardous waste, to ensure that the generators of hazardous waste do not harm the general public through poor handling and management of hazardous wastes.

## Summary of Roles for different Stakeholders

	Stakeholder	Role
1.	Public	<ul style="list-style-type: none"> <li>Practice source reduction and source segregation</li> <li>Cooperate with EMC in identification of sites for waste management facilities and their operation</li> <li>Pay for waste management</li> </ul>
2.	Politicians	<ul style="list-style-type: none"> <li>Lead the 'Keep Entebbe Clean' campaign and work in unison towards the interest of a clean town</li> <li>Mobilize communities and send out good messages to the public.</li> </ul>
3.	MDF	<ul style="list-style-type: none"> <li>Mobilize communities and send out good messages to the public.</li> <li>Convey feedback and complaints from communities to the Municipal Council.</li> </ul>
4.	NGOS/social Workers	<ul style="list-style-type: none"> <li>Take lead in forming village and cell committees and supporting EMC in community participation;</li> <li>Mobilize people to participate in the 'Keep Entebbe Clean' campaigns.</li> </ul>
5.	Teachers/Academia	<ul style="list-style-type: none"> <li>Influence minds on the culture of solid waste management</li> <li>Inculcate a strict discipline in the children's mind with regard to solid waste</li> <li>Carry out relevant research and development</li> </ul>
6.	Institutions/Corporate Businesses	<ul style="list-style-type: none"> <li>Ensure that all employees understand the gravity of the situation and not only take serious actions on the cleanliness front within the office/factory premises but they also spread the message across the Municipality</li> <li>Provide dustbins outside the office/company premises so that the passers-by do not throw garbage on the road</li> <li>Sponsor 'Keep Entebbe Clean' campaigns.</li> </ul>
7.	Hospitals	<ul style="list-style-type: none"> <li>Follow the requirements and guideline issued by the Ministry of Health to manage healthcare waste.</li> </ul>
8.	Households	<ul style="list-style-type: none"> <li>Segregate garbage at home</li> <li>Take the waste to the skips or store the waste as they wait for the collection trucks</li> </ul>
9.	Vendors/shop Owners	<ul style="list-style-type: none"> <li>Ensure that the waste/litter is properly put in a nearby garbage bin</li> <li>Ensure to keep waste bins outside their businesses</li> <li>Ensure that customers do not throw the garbage just outside the shops</li> </ul>
10.	Private and informal sectors	<ul style="list-style-type: none"> <li>Partnerships with municipalities to manage waste</li> <li>Waste picking by informal sector</li> </ul>
11.	The Media	<ul style="list-style-type: none"> <li>Mobilise and sensitise the public</li> <li>Publicise challenges and good practices</li> <li>Public Education</li> <li>Where possible, provide free airtime to EMC to educate the people on proper solid waste management</li> </ul>



### 5.3 INSTITUTIONAL CAPACITY NEEDS

The institutional capacity needs vary according to the levels, responsibilities, functions and mandates. The Table below gives details of the institutional capacity needs.

*Table: Institutional Needs*

Institution/Level	Identified capacity needs	What to be done	Possible ways of addressing	Expected results
<b>Municipal headquarters</b>				
<i>Departments/Units:</i>				
Health				
Environment				
Works				
Community Development				
Enforcement				
Council				
Physical Planning				
<i>Facilities, equipment and structures</i>				
Trucks				
Equipment and tools				
<b>Divisions</b>				
<i>Departments/Unit</i>				
Health				
Environment				
Works				
Community Development				
Enforcement				
Council				
<i>Facilities, equipment and structures</i>				
<b>Wards/parishes/Cells</b>				
<i>Facilities, equipment and structures</i>				
<b>NGOs, CSO, CBO and Faith Based Organisations</b>				
<b>Private Operators</b>				

### 5.4 FINANCING ARRANGEMENTS

## **Central Government**

Central Government through a number of mechanism provides financial resources to the municipal council. The mechanism includes grant transfers and development grants.

## **International donors**

The municipality receives development assistance. Currently, the municipal is implementing USMID that is involved in number of infrastructure programmes. Others are UNICEF, USAID, etc.

## **Private investments**

The use of the Public-Private Partnership (PPP) mechanism is potentially highly appropriate for the solid waste management. There is need to consider viable PPPs. This SWMSP tends to address this and also some activities earmarked to be implemented by the private sector.

## **NGOs financing**

Some of the activities in the SWMSP will be implemented by the NGOs either through their funding or in partnership with the municipal council.

## **User Fee financing**

User fee will be charged especially for those facilities where the collection is feasible and can attract private exclusive use. Funds from such sources will be used for the implementation of this strategic plan. Also, further exploration of areas where costs can be transfers to the consumer will be done. Already, some institutions/organisations as well as individuals are paying for collection of their garbage. This will be expanded and pricing mechanism reviewed.

## **Revenue from Municipal Solid Waste Composting financing**

Revenue from the compost manure has not been forth coming due to lack of demand for manure locally. During the planned period, efforts will be made to promote this and catalyse demand. Hopefully, this will go a long way in financing some aspects of solid waste management.

## **Cost Recovery financing**

It is hoped that with strengthened enforcement system, the Municipal Council can recovery some money from those who illegally dump to meet the costs of removing the waste. Also, charge those who want to use the landfill particularly contractors.

## **Conclusions**

This strategic plan explores new concepts of financing representing a new opportunity for attracting and combining different financing opportunities. The fundamental principle of the financing strategy is to maximise private sector. Transfer the ownership of solid waste more to the generator.

## 6 MONITORING AND EVALUATION

### 6.1 MONITORING

The strategic objective of monitoring and evaluation is to enable the Municipal Council regularly and systematically track progress of implementation of MSWMSP in accordance with agreed objectives and monitoring indicators. It will feed into the overall municipal system. This will enable the Municipal Local Government, Division Local Governments and other stakeholders to know whether and understand how the planned activities have been undertaken and general use of resources and attainment of results including the processes.

### 6.2 PERFORMANCE INDICATORS

Performance indicators are a measure of performance, and they are commonly used to help define and evaluate how successful a strategic/action plan is, in terms of making progress towards its long-term goals. The performance indicators will allow Entebbe Municipal Council to assess the progress of the strategy and plan.

Phase	Indicator
<b>MSW Composition</b>	<ul style="list-style-type: none"> <li>Percentage of specific MSW components (glass, metal, organic material, paper, plastic etc.) (%)</li> </ul>
<b>MSW Generation</b>	<ul style="list-style-type: none"> <li>Annual MSW production per capita (kg/cap/annum) or Daily MSW production per capita (kg/capita/day)</li> <li>Rate of total amount of MSW generation increasing</li> </ul>
<b>MSW storage, collection and transfer indicators</b>	<ul style="list-style-type: none"> <li>Amount of waste received at the composting plant</li> <li>Population covered by MSW collection service (%)</li> <li>Ratio between kilometre run and the amount of waste collected for the route chart truck</li> <li>Number of complaints</li> </ul>
<b>Integration of the Informal Sector</b>	<ul style="list-style-type: none"> <li>Number of Waste Pickers and Dealers registered</li> <li>Number of Waste Pickers trained in best practices</li> </ul>
<b>Materials Recovery</b>	<ul style="list-style-type: none"> <li>Amount of plastics recovered (tonnes/annum)</li> <li>Amount of glass recovered per (tonnes/annum)</li> <li>Amount of metal recovered per (tonnes/annum)</li> <li>Value of materials recovered (UGX/annum)</li> </ul>
<b>Composting</b>	<ul style="list-style-type: none"> <li>Percentage of total collected MSW that is treated at the composting facility per annum (%)</li> <li>Total amount of waste processed at the composting facility per annum (tonnes/year)</li> <li>Amount of residue generated at the composting facility per capita (tonnes/capita)</li> <li>Amount of compost sold per year or per capita (kg compost sold/capita)</li> </ul>
<b>MSW Treatment Indicators</b>	<ul style="list-style-type: none"> <li>Amount of MSW treated per capita (tonnes /capita)</li> </ul>
<b>MSW Disposal</b>	<ul style="list-style-type: none"> <li>Total amount of MSW land filled</li> <li>Available landfill lifespan (<math>\text{m}^3</math> capacity/<math>\text{m}^3</math> incoming waste)</li> </ul>

	per annum)
<b>Cost Indicators</b>	<ul style="list-style-type: none"> <li>• Average cost per MSW collected (UGX/tonne)</li> <li>• Average cost per MSW treated/composted (UGX/tonne)</li> <li>• Local revenue spent on waste management per capita (UGX/cap)</li> </ul>
<b>Environmental awareness</b>	<ul style="list-style-type: none"> <li>• Number of environmental awareness raising events and percentage of population reached</li> <li>• Coverage of the environmental campaigns launched</li> </ul>

### 6.3 PERFORMANCE REPORTING

Performance reporting requires collection of critical information, which is not just for keeping the records up-to-date, but used effectively for taking corrective measures as well as proper planning for the future. Once the relevant data is collected, it is the duty of EMC to formulate reports for the use of citizens and council members, and for the technical staff to inform them about performance and future planning.

#### Useful Information Required to Prepare the Monthly Performance Reports

<b>General Information</b>	Name of Division	
	Total Area	Km <sup>2</sup>
	Total Population	
	Total Length of Roads	Km
	Monthly Budget Allocation for SWM	UGX
<b>Collection Service</b>	Served Population	
	Served Roads/Streets	
	Served Area	
<b>Collection Quantity</b>	Total waste collected	Tonnes
<b>Collection Crew</b>	Actual hours spent by collection workers	Hours
	Total number of collection workers	Hours
	Total hours scheduled for collection workers	Hours
	Total hours lost due to absenteeism of permanent collection workers	Hours
	Total hours lost due to absenteeism of temporary collection workers	
	Total overtime (OT) hours	Hours
<b>Transportation</b>	Total fuel used for collection this month	Litres
	Amount spent on repairs and maintenance of fleet	
<b>Collection Monitoring</b>	Total number of complaints handled	No.
	Average of actual collection time, in hours and daily average for this month	Hours
<b>Collection Cost</b>	Total cost for fuel	UGX
	Total salary paid to permanent collection workers	UGX
	Total salary paid to temporary collection workers	UGX
	Total collection cost	UGX
	Total cost for OT payments of collection workers	UGX
	Monthly Budget Allocation for SWM	UGX
<b>Disposal</b>	Total cost for fuel	UGX
	Total cost of salary for compost plant staff	UGX
	Cost for meals	UGX

## Useful Performance Indicators for **Division Level** Monthly Performance Reports

<b>Collection Service</b>	Percentage of collection area in km <sup>2</sup>	(Collection Area /Total Division Area) X 100	%
	Percentage of served population	(Served Population / Total Population) X 100	%
	Percentage of roads served	(Length of Served Roads / Total Length) X 100	%
<b>Collection Quantity</b>	Weight of solid waste collected per UGX 1000 of collection cost	(Total Weight of SW / Total Collection Cost) X 1000	kg/UGX 1000
	Population served per worker	(Served Population / Total Collection Worker)	No./Person
<b>Collection Gangs</b>	Amount of SW collected in an hour	Total Weight of SW Collected / Hours spent by Collection Workers	kg/Hour
	Weight of solid waste collected per collection worker	(Total Weight of SW / Total of Collection Workers)	kg/Person
	% of hours lost by permanent collection workers	(Total Hours of Absenteeism by Permanent Collection Workers / Total Hours Scheduled for Collection) X 100	%
	% of hours lost by temporary collection workers	(Total Hours of Absenteeism by Temporary Collection Workers / Total Hours Scheduled for Collection) X 100	%
<b>Transportation</b>	Waste collected per unit of fuel	Total Weight of Collected SW / Total Amount of Fuel Used for Collection	kg/Litre
<b>Collection Monitoring</b>	Complaints received	Number of Complaints Received Per Month	Complaints/ Month
	Collection Time	Actual Time Spent on Collection	Hours
<b>Collection Cost</b>	Collection cost per unit of waste	Total Collection Cost / Total SW Collected	UGX/kg
	Collection cost per population	Total Collection Cost /Total Population	UGX/Person
	Fuel cost per unit waste	Total Fuel Cost / Total Waste Collected	UGX/kg
	% in budget allocation	(Total Collection Cost /Average Monthly Budget Allocation) X 100	%
	% of cost for permanent collection worker	(Total Salary Expenses of Permanent Collection Worker / Total Collection Waste) X 100	%
	% of cost for temporary collection worker	(Total Salary Expenses of Temporary Collection Worker / Total Collection Waste) X 100	%
	% of Over Time (OT)	(Total OT Cost of Collection	%

	cost	Workers /Total Collection Waste) X 100	
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#### **6.4 CONTRIBUTION TO MUNICIPAL LOCAL GOVERNMENT DEVELOPMENT PROGRESS REPORTING**

SSWMSP forms part of the input to the overall Municipal Development Plan and progress reporting. Therefore, it will be periodically reported within the Municipal Joint Budget Performance Reviews which is based on quarterly basis involving political leaders at all levels, Municipal headquarters and Division technical staff as well as key stakeholders including participating development partners.

#### **6.5 MID AND END OF TERM EVALUATION**

The mid and end term evaluation review of the SSWMSP will be conducted through a highly participatory approach involving all stakeholders in the entire process. The steps to follow will be as stipulated in the municipal planning guidelines since this strategic plan is part of the municipal sectoral plan.

#### **6.6 STAKEHOLDERS IN MONITORING AND EVALUATION**

The stakeholders in monitoring of this Strategy and Plan are at various levels, the municipal headquarters, Division Local Government, Ward, Village/Cell and community. In all these various levels, Municipal Headquarters will coordinate and will consolidate all the information and make available to the Council. However, at the Division level, the Division will ensure that it has also a report for its Council. This is to avoid duplication of monitoring and reporting endeavors and to maximize synergies. The information from the Division feeds into the Municipal monitoring and evaluation framework. This is in line with the principle of decentralised planning and implementation.