UGANDA BUREAU OF STATISTICS

RAPID MUNICIPAL SOLID WASTE MANAGEMENT ASSESSMENT REPORT

NOVEMBER 2024

FOREWORD

The relentless growth in global population and urbanization has brought about a profound shift in how societies generate and manage waste, a challenge especially pronounced in cities and municipalities where dense populations and varied economic activities produce vast amounts of waste daily. Urban areas in low- to middle-income countries face severe public health risks due to inadequate waste management systems. In contrast, the escalating waste crisis affects human well-being and environmental health worldwide.

In Uganda, the waste management situation illustrates the complexities of this global challenge. With only 8 percent of the population accessing basic waste collection services, most households dispose of waste improperly, often with serious environmental and health consequences. Uganda's population growth is among the fastest globally, paired with a 5.2% annual rate of urbanization, underscores the urgent need for sustainable waste management solutions as the country's urban population rapidly expands.

To understand the current waste management practices, the Uganda Bureau of Statistics conducted a Rapid Solid Waste Management Assessment (RSWMA) survey across 11 cities and 31 municipalities. The survey aimed to assess current and potential waste mismanagement risks in the cities and municipalities and to determine the population and ecosystems exposed to the dangers.

The Bureau would like to appreciate the national staff from UBOS, the Local Governments, and all the respondents for their support towards the development of this publication.

It is my sincere hope that the statistical information in this publication will be useful.

Chris N. Mukiza (PhD)
EXECUTIVE DIRECTOR / CHIEF STATISTICIAN

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACROMYNS

MC	Municipal Council
MLHUD	Ministry of Lands Housing and Urban Development
MWE	Ministry of Water and Environment
NEMA	National Environment Management Authority
NPHC	National Population and Housing Census
RSWMA	Rapid Solid Waste Management Assessment
UBOS	Uganda Bureau of Statistics
ZARDI	Zonal Agricultural Research and Development Institute

EXECUTIVE SUMMARY

The National Development Plan III earmarked waste management as one of the objectives to ensure progress towards the modernization goal of Uganda. As the country attains population, urbanization, and economic growth, waste generation is anticipated to grow, requiring effective management. Improper waste management is a threat to public health and the environment. The waste sector has also been identified among the key greenhouse gas-emitting sectors responsible for climate change. This is further worsened by the method of disposal.

Waste collection and management in Uganda is a big challenge to most urban authorities, and this has manifested through various ways. The most recent waste disaster at Kiteezi Landfill generated country wide concerns about waste management in Uganda with various key stakeholders both public and private sector players developing more interest in understanding the specific status of waste management across Cities and Municipalities. Specifically, these areas are characterized by higher population densities, urbanization and resultantly higher waste generation, disposal challenges and exposure of the population, air, land and water resources to the risks associated with the negative impacts of waste mismanagement. To safeguard the population from these potential waste related hazards, the UBOS undertook a rapid waste assessment for all Cities and Municipalities in Uganda.

The Key findings are;

- 89% of the cities and municipalities had centralized disposal sites.
- 15 (60%) of the disposal sites in Municipalities are not gazetted and licensed by NEMA
- 7 cities and 23 Municipalities have disposal sites with an area less than 10 acres
- 5 Cities and 3 Municipalities have disposal sites that have exceeded their life span. These are currently still in use.
- 1 City and 3 municipalities have their disposal sites located on hilly landscapes

- 7 Cities and 12 Municipalities have their disposal sites on gently sloping landscapes
- 2 cities and 10 municipalities have their disposal sites located less than 5 kilometers from the city/municipality center
- 71% of cities and municipalities practice open dumping
- 6 cities and 12 municipalities collect less than 50% of the waste generated
- 45% of the cities have excess waste at their current disposal sites; 11% have above and full disposal sites
- 9% of the municipalities have waste above the designed capacity of the sites; 4% have full sites
- 78% of the cities and municipalities do not treat waste
- Waste pickers from 78% of the disposal sites across cities and municipalities do not wear protective gear
- 78% of disposal sites have households living within the buffer zone (500 meters)
- 56% of disposal sites have waterbodies within the buffer zone (500 meters)
- 47% of the waterbodies in buffer zones are used for water consumption by humans and livestock
- 50% of waterbodies in buffer zones are contaminated by waste from disposal sites

ACKNOWLEDGEMENT

This report is a collaborative effort by Principal Health Inspectors, Health Inspectors, Environment Officers, and Solid Waste managers across the cities and municipalities that are committed to addressing the critical issue of waste management in Uganda.

At the Bureau level, the compilation process has been handled by a dedicated Technical Working Group with leadership provided by Mr. Matovu. M. Mulindwa, the Ag. Head of Department for Production and Environment at UBOS. Other members of the Team are presented below. UBOS would like to extend its sincere thanks to the Team members, as well as to all other stakeholders who have been consulted to provide basic data and input to the process.

SECTION ONE: INTRODUCTION

1.0 Background

Global rapid population growth and urbanization have significantly accelerated waste generation, especially in cities, as they are characterized by large populations and a concentration of diverse economic activities. Humans depend on the environment and natural resources to extract raw materials to produce various goods to meet their needs, and these Production and Consumption processes generate residuals (waste). Over the years, various nations across the world have stepped up production of goods and services to improve the socio-economic status of their people and economies. However, with the increased unsustainable production and consumption, the world has been faced with a waste management crisis.

It is estimated that 2 billion people globally don't have access to waste collection services and 3 billion people without access to controlled solid waste disposal facilities. Urban dwellers, especially in low-to middle-income countries are exposed to severe threats to public health due to mismanagement of solid waste. However, if our waste is managed properly and effectively, it turns out to be a resource for a prosperous circular economy, creating green jobs and enhancing the livelihood and income for the urban poor. At the same time, it propels reduction in the use of natural resources hence enhancing the protection of our environment (UN-Habitat, 2021).

In Uganda, 8 percent of the population have access to basic municipal solid waste collection services, and majority of the households, 92 percent dispose waste improperly (NPHC, 2024)

Waste management concerns various socioeconomic and environmental aspects by addressing many challenges linked to health, poverty, food security, resource management, climate change and equal participation. The waste sector is widely and mistakenly assumed to be gender-neutral, and impacts of exposure to hazardous waste and chemicals affect humans differently depending on their sex, age and gender role.

Uganda's Waste Management Policy, guided by the National Environment Act (2019) and the Public Health Act, focuses on environmental protection through proper waste handling, the polluter pays principle, and promoting waste segregation and recycling. It emphasizes sustainable practices to minimize environmental harm and pollution. This is also a guide for cities and municipalities to fulfil their mandates as urban authorities. Urban authorities are mandated to:

i. Collect and dispose of waste,
ii. Ensure public health by managing waste to prevent disease,
iii. Enforce regulations and impose penalties for non-compliance,
iv. Raise awareness about proper waste management, and
v. Monitor and evaluate waste systems for efficiency.

Uganda’s population growth rate is among the world’s fastest, growing at an average rate of 3% per annum. The rate of urbanization at 5.2% per annum with 11 cities, 31 Municipal Councils and 583 Town Councils (MLUHD, 2023). The level of urbanization in Uganda is projected to increase to 50% by 2050 (UBOS, 2014). The National Population and Housing Census 2024 findings indicated that the population of Uganda was 45.9 million people, of which approximately 5.5 million people live in cities (NPHC, 2024).

Waste management in Uganda is a decentralized function vested in local governments, which oversee collection, transportation, and disposal. However, the overwhelming functions due to gross inadequacies in all the stages have compelled most of the City, municipal, and town council authorities to adopt a Public Private Partnership (PPP) by sub-contracting private companies to support in various efforts of waste management from collection to disposal, recycling, among others (GIZ, 2023).

The waste problem is also exacerbated by the fact that majority of waste generators; household and non-households in urban areas in Uganda do not sort waste at source which increases the volumes of waste generated required for collection amidst an inadequate system; infrastructure, funding, manpower and disposal sites capacities (size and fall short of recommended requirements).

The above-mentioned challenges have evolved into a waste crisis across most urban areas over the years, even resulting in loss of lives and property as experienced from the Kiteezi land fill waste slide in September 2024. The Kiteezi incident generated nationwide interest from various key stakeholders both public and private sector players in understanding the specific status of waste management across all the Cities and Municipalities considering their nature as characterized with higher population densities responsible for higher waste generation, disposal challenges and exposure of the population, air, land and water resources to the risks associated with the negative impacts of waste mismanagement.

Knowing the potential of solid waste management and understanding that the risks of mismanaging it are detrimental, the government, especially urban authorities, including cities and municipalities, are eager to find solutions for their ever-increasing mountains of waste. However, without basic data on municipal solid waste generation and management, many cities, municipalities and other urban centers in Uganda cannot make evidence-based decisions. Data is important to enable various urban authorities to identify effective policy interventions and allocate limited resources to build the right kind of infrastructure.

To ensure the safety of the population from the various potential waste-related hazards, the Uganda Bureau of Statistics, under the Department of Production and Environment Statistics, undertook a Rapid Solid Waste Management Assessment (RSWMA) survey for all Cities and Municipalities in Uganda.

1.1 Purpose of the survey

The purpose of this rapid assessment was to establish the current state of waste management in cities and municipalities for evidence-based decision-making to mitigate potential risks.

1.2 Objectives of the survey

i. To understand the current waste management practices used by cities and municipalities.
ii. To assess current and potential waste mismanagement risks in the cities and municipalities.

iii. To assess the population and ecosystems exposed to the risks in the cities and municipalities.

1.3 Scope of the survey

1.3.1 Timeframe

The Rapid Solid Waste Management Assessment (RSWMA) was conducted from September 2024 to October 2024 and focused on providing an analysis of the waste management systems in Uganda's urban centers. This assessment was a digital survey, enabling quick data collection and processing from various cities and municipalities across the country.

1.3.2 Geographical Coverage

The assessment covered a wide range of urban areas in Uganda, targeting Kampala Capital City, 10 cities, and 31 municipalities. These areas were selected based on their high population density, waste generation levels, and the expected capacity of local authorities to manage solid waste.

1.4 Methodology

UBOS conducted a digital survey for this activity and used electronic tools to collect data from respondents in each City and Municipality. This approach allowed for efficient collection of data, minimizing delays often associated with manual or paper-based assessments.

The target group were officers responsible for waste management in cities and municipalities. These included principal health inspectors, city health inspectors, senior health inspectors, senior environment officers, health inspectors and health assistants. The details are in Annex Table 2 and Annex Table 3.

1.5 Response Rate

Out of the 11 cities targeted, 10 cities responded (91.0%), while one City (Mbarara) did not. Among the 31 municipalities targeted, 28 responded (90.3%), while 3 municipalities namely, Koboko, Makindye Ssabagabo and Kira) did not.

The high response rate, particularly in cities and municipalities (90.5%) indicates significant engagement with the assessment process.

However, the 9% average non-response rate across cities and municipalities highlights areas for improvement in future assessments, particularly among the municipalities, to ensure comprehensive data collection as summarized in Table 1.

Table 1: Response Rate

Administrative Unit	Status of Rapid Solid Waste Assessment		
	Response	Non-Response	Total
	%	%	
Cities	90.9	9.1	**11**
Municipalities	90.3	9.7	**31**
Total	90.5	9.5	**42**

SECTION TWO: WASTE MANAGEMENT CHARACTERISTICS

2.0 Introduction

This section looks at the characteristics of the dumping sites in cities and municipalities. A dumping site is a designated area where waste materials, including garbage, construction debris, and other types of refuse are disposed. These sites can vary in type, from landfills which are designed to manage waste in an environmentally controlled way to open dumps, that are often unregulated and may harm the surrounding environment and human health.

Characteristics discussed in this section include the population, the availability and licensing of the sites, the size of the dumping sites, the year of establishment, and life span.

2.1 Population in the cities and municipalities

With the rapid population growth of cities and municipalities as shown in Table 2, waste management has become an increasingly pressing issue. As urban areas expand, the volume of waste generated—from households, businesses, and industries has surged, exceeding the carrying capacity of existing waste management systems. Both cities and municipalities struggle with insufficient infrastructure, limited funding and inadequate waste collection services, leading to widespread dumping in open areas, waterways, and informal settlements. This results in public health risks, and environmental degradation.

Table 2: Population of Cities (2014 – 2024)

Cities	2014	2024
Masaka	103,293	328,485
Jinja	76,057	363,134
Mbale	92,863	371,626
Soroti	49,646	220,698
Gulu	149,802	323,888
Arua	61,951	440,540
Lira	99,511	304,057
Hoima	100,126	190,075
Mbarara	195,160	324,974
Fort Portal	53,628	176,994
Kampala	1,507,114	*2,503,174

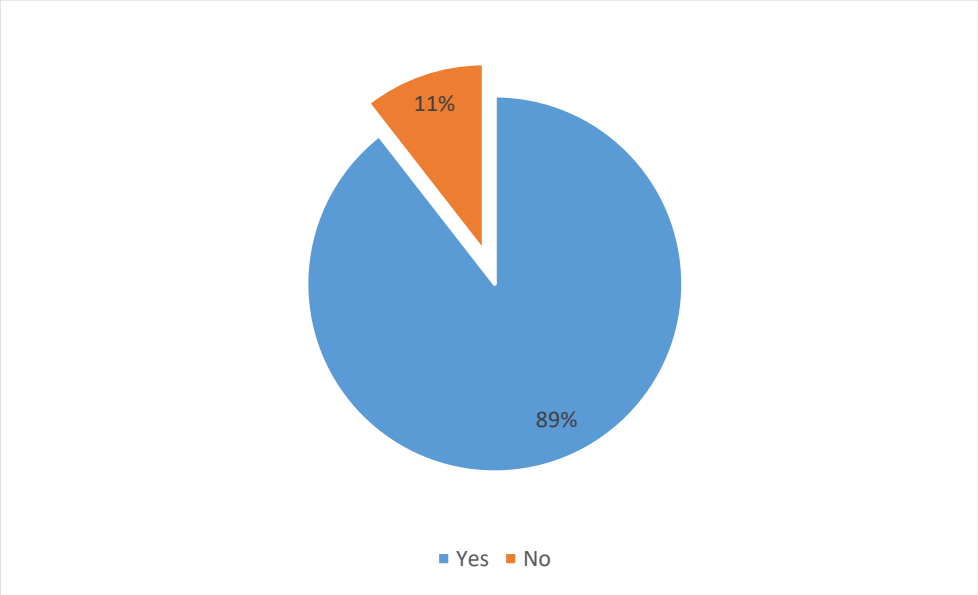
*Source: NPHC 2024, *Kampala – Day Population*

2.2 Availability of Centralized disposal sites and their licensing status.

In Uganda, a centralized disposal site refers to a designated location where waste from various parts of a city or municipality is collected and disposed in one main area. These sites are typically managed by local government authorities or contracted private entities and are intended to centralize waste disposal operations, making waste management more efficient and minimizing the proliferation of smaller, unregulated dumps across the City and Municipality.

The findings showed that 89% of the cities and municipalities had centralized disposal sites while 11% did not. The findings are as shown in Figure 1. For details see appendix table 2.2.1

Figure 1: Percentage distribution of availability of Centralized dumping sites



Within the cities and municipalities, the population is encouraged to use designated dumping sites to ensure compliance with environmental laws and regulations for environmental and public health safety. The licensing of these dumping sites is done by the National Environment Management Authority under the Ministry of Water and Environment (MWE).

According to the survey, out of the 10 cities that responded, only one confirmed that there was no centralized disposal site. Additionally, all the nine Cities with

centralized dumping sites are gazetted and licensed as shown in table 3. For details see appendix table 2.2.1.

Table 3: Availability and licensing status of dumping sites in Cities

	Centralized		Gazetted & Licensed	
Response	**No.**	**%**	**No.**	**%**
No	1	10	1	10
Yes	9	90	9	90
Grand Total	**10**	**100**	**10**	**100**

Furthermore, findings indicate that out of the 28 municipalities that responded, 25 have centralized dumping sites while 3 do not. Of the 25 that have centralized dumping sites, only 10 (40%) are gazetted and licensed by NEMA while 15 (60%) are not as shown in table 4. For details see appendix table 2.2.1.

Table 4: Availability and licensing status of disposal sites in Municipalities

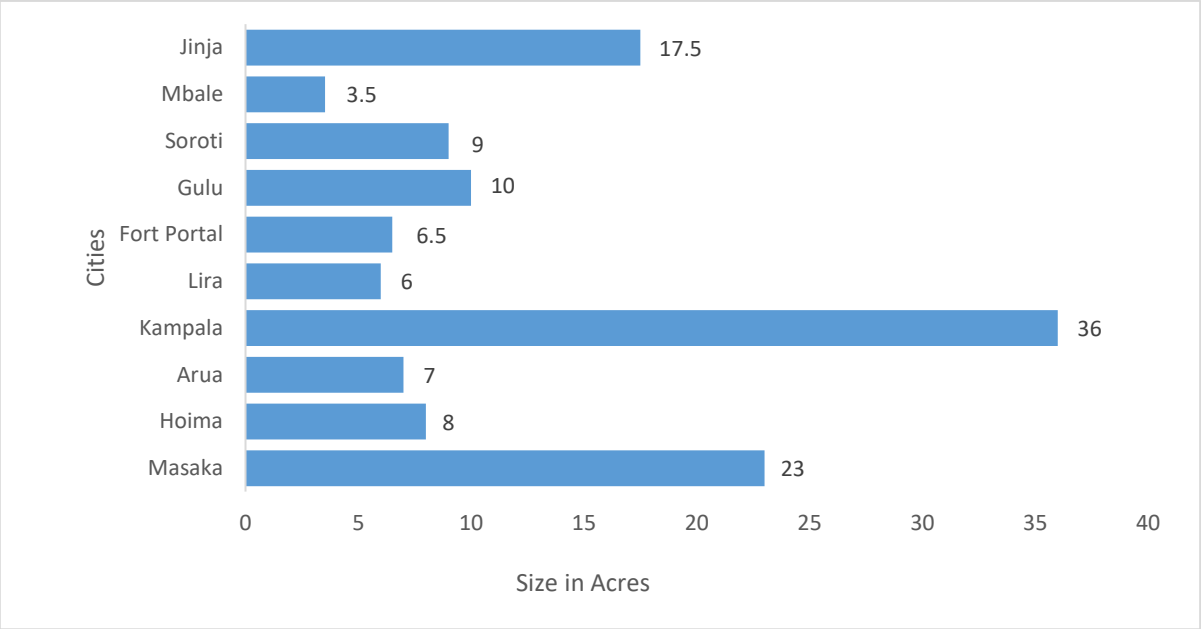
	Centralized		Gazetted & Licensed	
Response	**No.**	**%**	**No.**	**%**
No	3	10.7	15	60
Yes	25	89.3	10	40
Total	28	100.0	25	100.0

2.3 Size of waste disposal sites

As disposal sites are being put in place, some parameters are considered. These include the physical conditions of the site and distance from settlements; proximity to existing and planned land uses; the size of the disposal site; the type and quantities of waste disposed with consideration that hazardous and non-hazardous waste should be handled differently. The current population, the nature of economic activities and their projected growth are also determinants of the size of the dumping sites to be put in place.

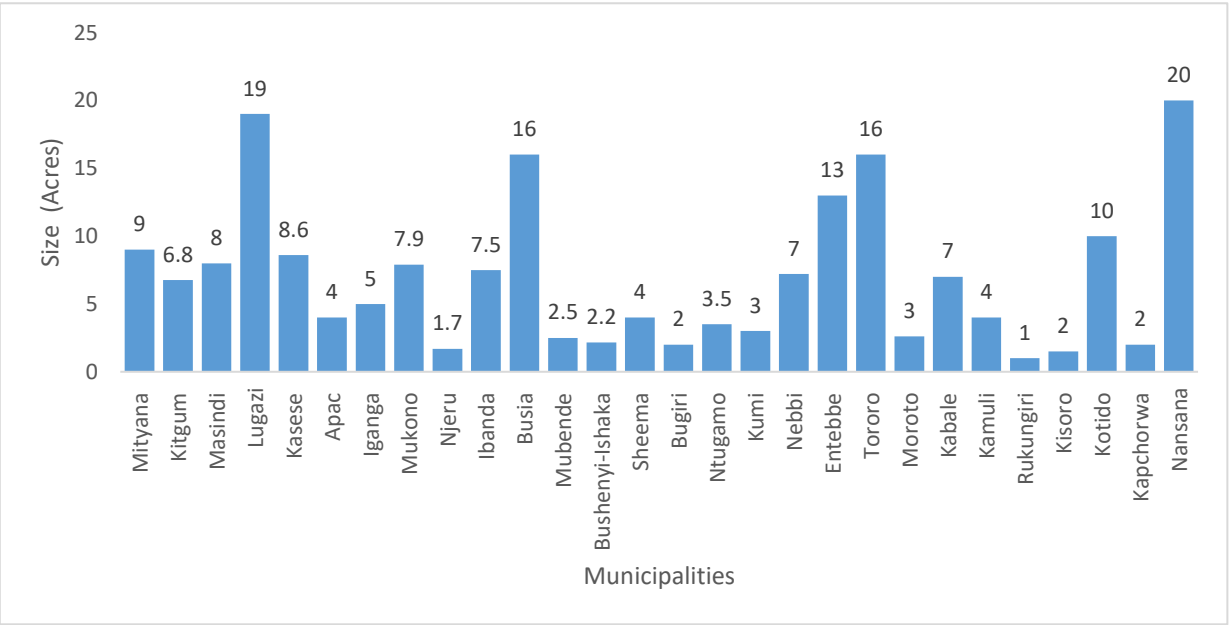
The results in Figure 3 indicated that among the Cities, Kampala had the biggest disposal site (Kiteezi landfill) estimated at 36 acres, followed by Masaka (23 acres) and Jinja (17.5 acres) while Mbale had the smallest (3.5 acres).

Figure 2: Size of Disposal Sites in Cities



For the Municipalities, Nansana had the biggest disposal site at 20 acres, followed by Lugazi (19 acres) while Tororo and Busia with 16 acres each. The disposal sites in Rukungiri and Njeru are the smallest at one acre and 1.7 acres respectively as shown in Figure 4.

Figure 3: Size of Disposal Sites in Municipalities



2.4 Population-to-Disposal Site Area Ratio in Cities

The population-to-disposal site area ratio measures the area of land available to the population of a particular area for waste disposal; and the current waste-carrying capacity stress of the site. The higher the population-to-area ratio the less land available to the population for waste disposal. A ratio of 0.3 and less indicates low stress to the site; a ratio between 0.3 to 0.5 indicates moderate stress; a ratio between 0.5 to 0.7 indicates high stress; a ratio between 0.7 and 1 indicates very high stress; while a ratio of 1 and above indicates excess stress. Coupled with the year of establishment and lifespan of a dumping site, a very high ratio, indicates a higher likelihood of waste excesses at the sites over time.

The fixed nature of land coupled with an ever increasing population implies that, with crude dumping methods and no waste treatment strategies like the 3Rs; recycle, reuse and reduce, many disposal sites cannot sustainably manage the waste.

The results in Table 6 indicated that Mbale City had the highest population-to-area ratio with 1.1, followed by Kampala Capital City (0.7) and Arua City (0.6). Masaka City had the smallest ratio 0.1. This is shown in Table 4.

Kindly note that this must be compared with the site's establishment year (section 2.3), life span (Table 7), method of disposal and current accumulated waste levels reported in 3.4.3.

Table 5: Population – Area Ratios in cities

City	Disposal site Size (Acres)	Day Population ('00000)	Population-Area Ratio
Masaka	23	3.2	0.1
Arua	7	4.4	0.6
Hoima	8	1.9	0.2
Fort Portal	6.5	1.7	0.3
Kampala	36	25	0.7
Lira	6	3	0.5
Gulu	10	3.2	0.3
Mbale	3.52	3.7	1.1
Soroti	9	2.2	0.2

2.5 Year of Establishment

The mandate of Urban authorities is to ensure proper waste management, collection, transportation and proper disposal. It is in this respect that all urban authorities have disposal sites. From the survey conducted, the findings showed that Mbale City has the oldest disposal site established in 1952 with a life span of 80 years while Masaka City has the newest disposal site established in 2021 with a life span of 25 years.

Furthermore, Entebbe Municipality has the oldest disposal site that was established in 1985 with a life span of 50 years while Njeru Municipality has the most recent disposal site that was established in 2021 with a lifespan of 5 years. This is shown in Table 6 below

Table 6: Year of Establishment and Life Spans

City	Year of Establishment	Lifespan	Remaining years to end of Life
Masaka City	2021	25	22
Hoima City	1987	30	-7
Arua City	2013	25	14
Kampala City	1996	28	0
Lira City	2013	10	-1
Fort Portal City	2010	100	86
Gulu City	2003	21	0
Soroti City	2009	50	35
Mbale City	1952	80	8
Jinja City	1975	49	0
Municipality			
Mityana MC	2006	30	12
Kitgum MC	2020	20	16
Masindi MC	2013	13	2
Lugazi MC	2010	20	6
Kasese MC	2005	25	6
Apac MC	2016	8	0
Iganga MC	2010	30	16
Mukono MC	2006	40	22
Njeru MC	2021	5	2
Ibanda MC	2016	10	2
Busia MC	2015	20	11
Mubende MC	2010	30	16
Bushenyi-Ishaka MC	2012	20	8
Sheema MC	2022	5	3
Bugiri MC	-	-	-

City	Year of Establishment	Lifespan	Remaining years to end of Life
Ntugamo MC	2015	10	1
Kumi MC	2017	10	3
Nebbi MC	2014	20	10
Entebbe MC	1985	50	11
Tororo MC	2020	9	5
Moroto MC	-	-	-
Kabale MC	2008	30	14
Kamuli MC	2021	10	7
Rukungiri MC	2004	2	-18
Kisoro MC	2021	5	2
Kotido MC	2010	40	26
Kapchorwa MC	1990	20	-14

SECTION THREE: RISKS AND EXPOSURE

In Uganda, poor waste management presents significant environmental and public health risks, particularly for communities near unmanaged or informal dumps. These sites often contain a mix of hazardous and non-hazardous waste, including plastics, electronic waste (E-waste), medical waste, and organic material. Poorly managed sites can lead to the contamination of soil and water resources due to leachate—a toxic liquid formed when rainwater filters through waste. Leachate carries heavy metals and chemicals, which can infiltrate local water sources and supplies and pose long-term health risks such as respiratory illnesses, skin disorders and even cancer.

This section looks at the lifespans of disposal sites, distances from the City or Municipality center to the site, landscape, waste management practices, climate of the location, population and fragile eco systems within the buffer zone

3.1. Disposal Sites that have exceeded their lifespan

The lifespan of a disposal site is the estimated number of years before the site reaches its full capacity and is no longer acceptable for waste disposal, hence due for decommissioning. Once the site reaches the end of its life span, it typically undergoes closure procedures, including sealing and environmental monitoring, to prevent issues like groundwater contamination or gas emissions.

Table 8 shows that among the Municipalities, the disposal sites in Rukungiri and Kapchorwa have exceeded their lifespan by 18 years and 14 years, respectively, while the disposal site in Apac has reached the end of its lifespan.

For the Cities, the disposal site in Hoima and Lira have exceeded their life spans by seven years and one year, respectively. The disposal sites located in Kampala and Gulu have reached the end of their life spans, as shown in Table 7.

Table 7: End of Life span

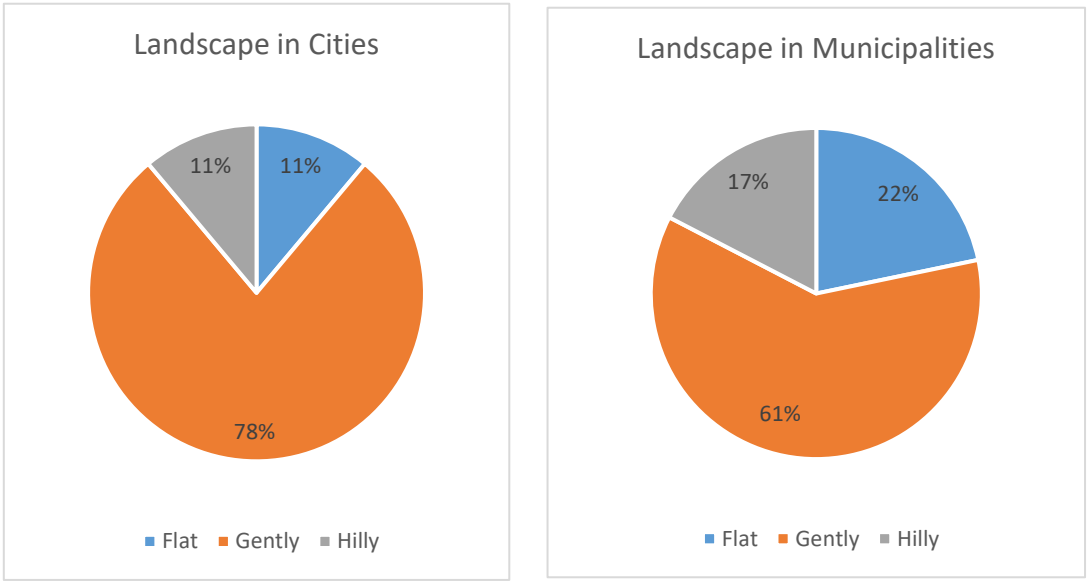
Municipality/City	Year of Establishment	Life Span	Years past life span
Hoima City	1987	30	-7
Kampala City	1996	28	0
Lira City	2013	10	-1
Jinja City	1975	49	0
Gulu City	2003	21	0
Apac MC	2016	8	0
Rukungiri MC	2004	2	-18
Kapchorwa MC	1990	20	-14

3.2 Landscape and Climate

Understanding the landscape helps in making informed decisions about the dumping site's location to minimize potential harm to the environment and surrounding communities. These factors include the proximity to rivers, lakes, or groundwater sources because poorly sited dumping grounds can lead to leachate (contaminated water) polluting these water bodies; the presence of nearby wildlife habitats, protected areas, or residential zones to avoid negative impacts on human health and biodiversity; and accessibility for waste vehicles and close to necessary infrastructure while avoiding disruption to the area's natural and built environments.

The results in Figure 4 show that most of the disposal sites in both Cities (78.0%) and Municipalities (61.0%) are in gently sloping areas. For details see appendix table 3.2.1

Figure 4: Percentage Distribution of Landscape of dumping sites in Cities and Municipalities



Furthermore, disposal sites located in hilly and gently sloping areas have a higher risk of waste pollution and slides. The Cities of Masaka and Jinja as well as the Municipalities of Mityana, Masindi, and Kabale have their disposal sites located in hilly areas

3.3 Climate and Weather conditions in Cities and Municipalities

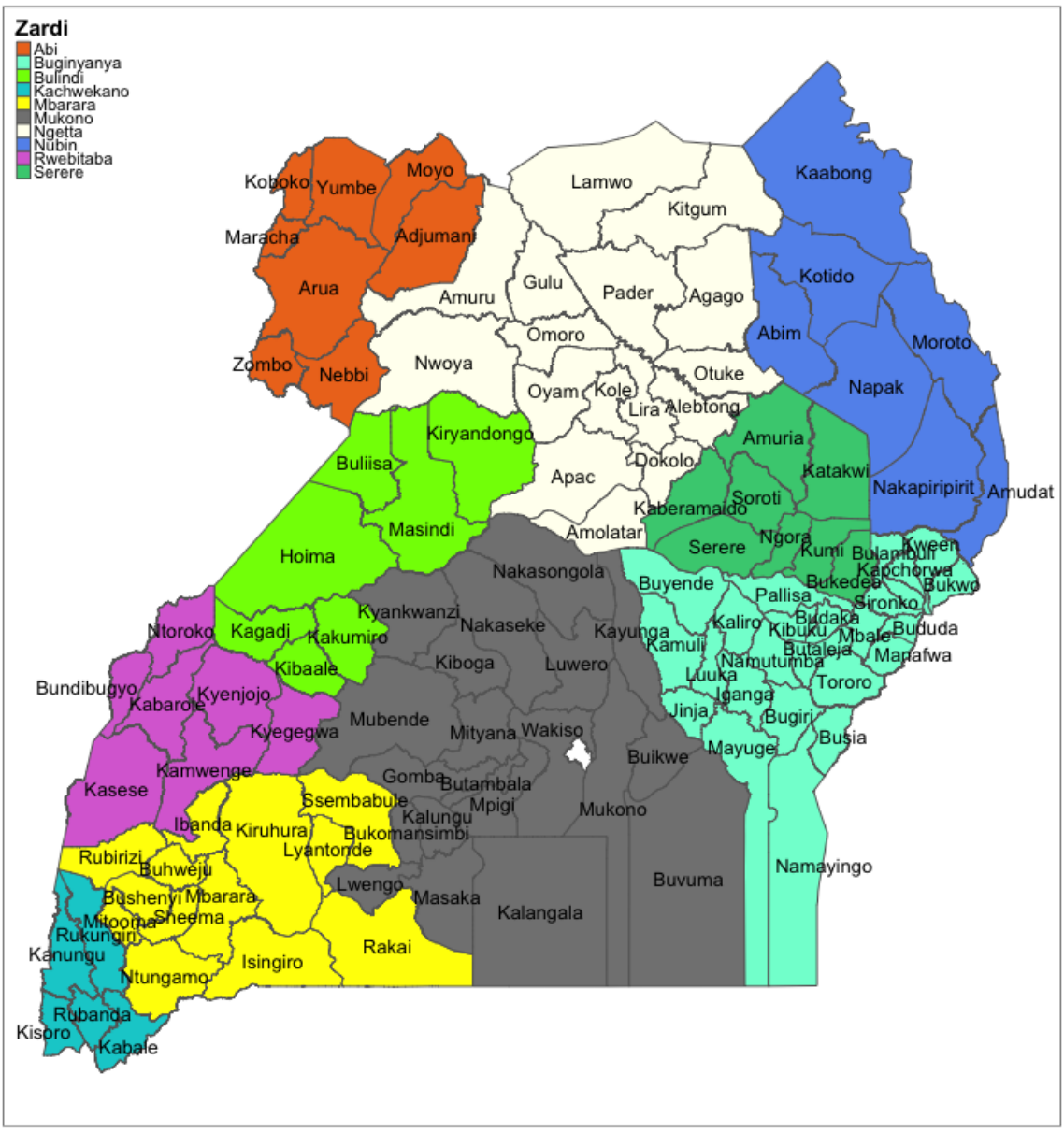
Climate in Uganda, just like other areas in the tropics, is highly influenced by elevation. Precipitation, temperature, wind speed and direction, atmospheric pressure, humidity, cloud cover and sunshine duration, among others. These are important considerations for location of landfills and other dumping sites. Different climatic factors may influence the variability of soil properties. For instance, precipitation influences many soil processes including weathering, leaching, erosion, and acidification.

Areas receiving high amounts of rainfall experience increased leaching of soluble nutrients, especially nitrates and are more prone to pollution from leachate compared to those receiving low rainfall. Higher temperatures increase the rate of microbial decomposition of organic matter. Climate is, invariably, a key consideration for landfill site selection due to its influence on soils, leachate management and settlement of waste (NEMA, 2020).

Most parts of Uganda are characterized by a bi-modal rainfall pattern explaining the reason they receive a lot of annual rainfall.

Uganda is divided into 10 Zonal Agricultural Research and Development Institutes (ZARDIs). The ZARDIs are composed of districts with similar climatological and geological characteristics. See Figure 3.3

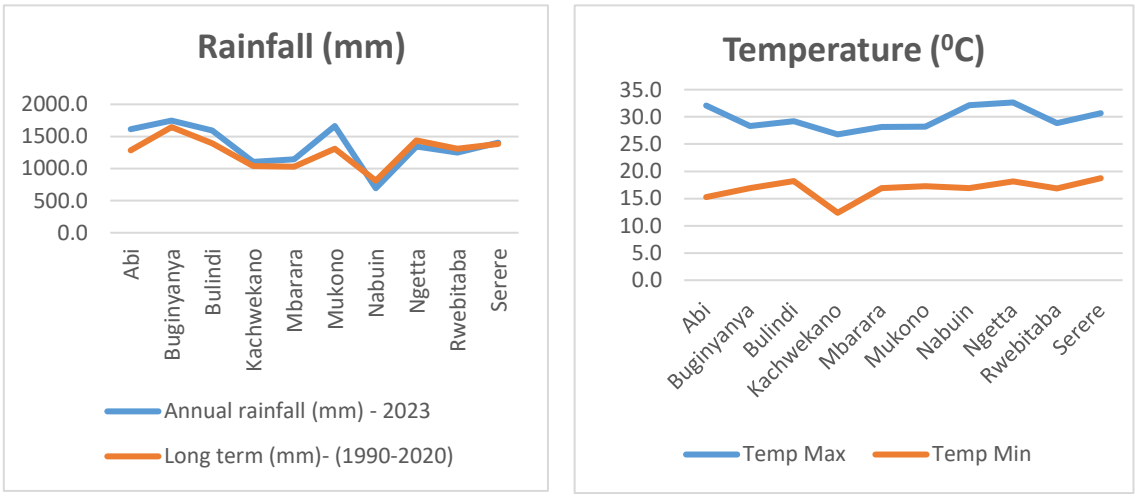
Figure 3.3: Map of the ZARDIs in Uganda



The long term rainfall average (1990-2020) shows that Buginyanya ZARDI which comprises of Mbale City, Bugiri MC, Busia MC, Tororo and Iganga MC has been receiving the most rainfall for the 30 year period followed by Ngetta. This was a

similar trend in 2023 where Buginyanya received the most rainfall with 1746.5mm and was followed by Mukono ZARDI with 1661.4mm. Nabuin with a unimodal rainfall pattern received the least amount of rainfall with 692.6mm as shown in figure 5. For ZARDI details see annex table 1.

Figure 5: Rainfall and temperature patterns in Uganda by ZARDI



3.4 Distance of the site from City/Municipality Centre

The distance of the site from a city or municipality center is very important as disposal sites can emit harmful gases, and unpleasant odors, and attract pests like rodents and insects that may spread diseases. By locating the site at a significant distance from densely populated urban areas, the risk of exposing residents to these health hazards is reduced. Additionally, it limits the potential for groundwater contamination or air pollution affecting large populations.

Findings from the survey showed that most of the disposal sites were located five kilometers away from the cities and municipalities centers. The details are in Figure 6 and 7.

The results also showed that for Cities, Kampala and Lira have their disposal sites located farthest from the city center with 14 kms and 13 kms respectively while Mbale (1.5 kms) has its disposal site located closest to the City center. The findings are shown in Figure 6.

Figure 6: Distance from the City Centre to the dumping site

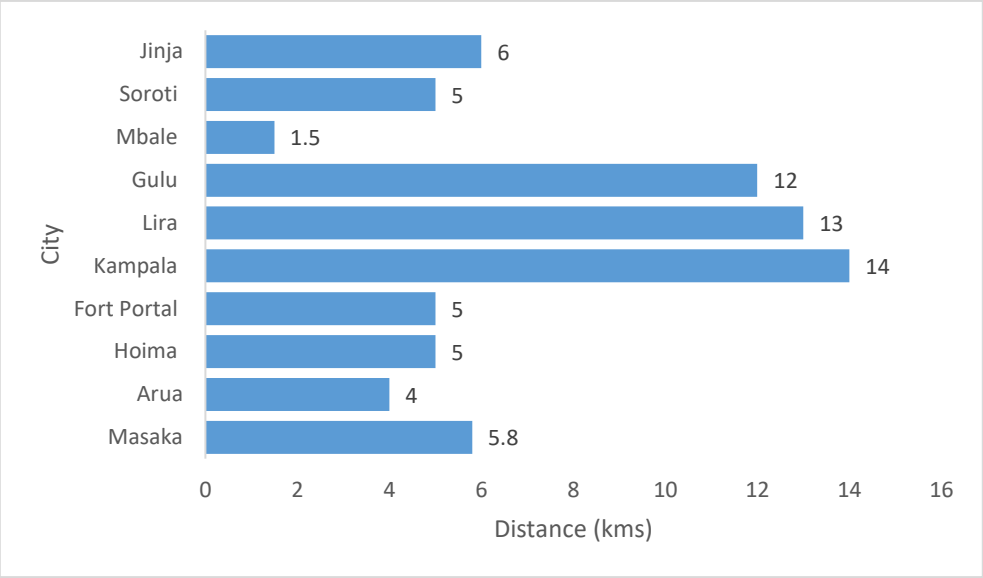
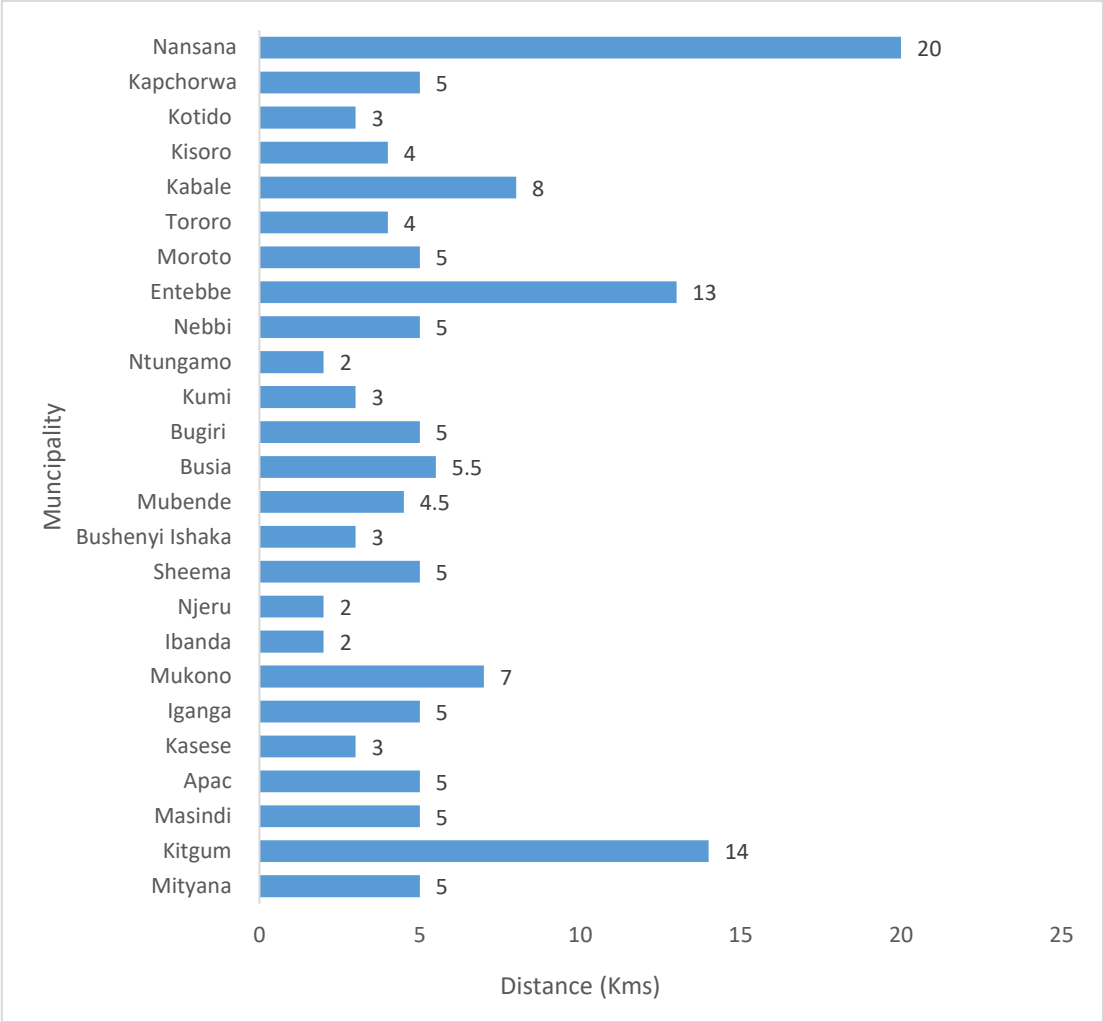


Figure 7 shows that among the Municipalities; Nansana has the furthest disposal site located 20 kms from the center, followed by Kitgum (14 kms) and Entebbe (13 kms). The disposal site in Entebbe is in the moderately populated residential area of Nkumba where any waste hazards potentially threaten public health despite its being 13kms away from the center. Njeru, Ntungamo and Ibanda have their disposal sites located closest to the center with 2 kms.

Figure 7: Distance from the Municipality center to the dumping site



3.5 Waste Management Practices

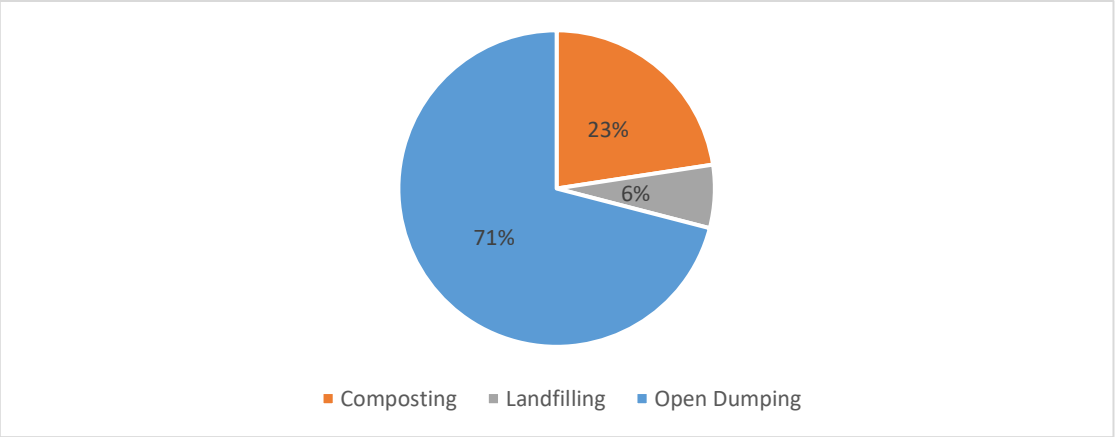
Waste Management Practices refer to the strategies and processes used for the collection, transportation, treatment, and disposal of waste materials. These practices aim to minimize the environmental impact of waste, promote recycling and reuse, and ensure proper handling of hazardous materials. They include methods like landfill use, recycling, composting, waste-to-energy conversion, and proper disposal of hazardous waste

3.5.1 Methods of disposal

There are different methods of waste disposal, namely: Landfilling, Open dumping, Controlled dumping, Ocean dumping, composting, energy recovery, and Incineration. *See photos of different methods of disposal in the annex.*

For this survey, the focus was on Landfilling, Open dumping, and Composting. The study showed that in both cities and municipalities, open dumping (71.0%) was the most practiced method of waste disposal, followed by landfilling (23.0%) and composting (6.0%) as shown in Figure 8. For details, see Appendix Table 3.5.1.1

Figure 8: Percentage Distribution of the Method of Waste Disposal



3.5.2 Amount of waste disposed daily

This is the total quantity of waste materials discarded and managed at a disposal site or waste processing facility each day. It is typically measured in units like tons or kilograms and provides an indicator of the volume of waste generated and processed within a given timeframe.

Waste collection coverage refers to the proportion of a geographic area or population that is regularly served by waste collection services.

Table 8: Amount of waste disposed daily (Tons) and waste collection coverage rate (%) - Cities

City	Amount of Waste (Tons)	Waste Collection Coverage Rate (%)
Masaka City	23	64
Arua City	50	3
Hoima City	25	38
Fort Portal City	90	70
Kampala City	2,500	50
Lira City	1,200	65
Gulu City	55	40
Mbale City	90	30
Soroti City	30	30
Jinja	59	29

Furthermore, Table 8 shows that at the city level, Kampala, with 2,500 tons, had the highest amount of waste disposed off at the disposal site daily, followed by Lira with 1,200 tons each. This was followed by Mbale and Fort Portal with 90 tons each. Masaka, with 23.3 tons registered the lowest amount of waste disposed off daily at the disposal site, followed by Hoima (25 tons)

In terms of Waste collection coverage in Cities, Fort Portal had the highest waste collection coverage with 70.0 percent, followed by Lira (65.0%) and Masaka (64%), while Arua (3.9%) had the lowest waste collection rate, as shown in Table 8.

The results in Table 9 show that at the Municipality level, Mukono with 1,089 tons had the highest amount of waste disposed off at the waste disposal site daily, followed by Nebbi (580 tons). Kumi had the lowest amount of waste disposed off at the disposal site daily, with only one ton.

Additionally, Apac with 80.0 percent had the highest waste collection coverage, followed by Busia (70.0%), while Mityana (20.0%) and Kitgum (25.0%) had the lowest waste collection rate.

Table 9: Amount of waste disposed daily (Tons) and waste collection coverage rate (%) - Municipalities

Municipality	Amount of Waste (Tons)	Waste Collection Coverage Rate (%)
Mityana MC	23	20
Kitgum MC	8	25
Masindi MC	18	34
Lugazi MC	34	33
Apac MC	6	80
Kasese MC	48	48
Iganga MC	15	60
Mukono MC	1,089	38
Ibanda MC	85	60
Njeru MC	210	45
Sheema MC	2	30
Bushenyi Ishaka MC	20	60
Mubende MC	10	50
Busia MC	3	70
Bugiri MC	200	30
Kumi MC	1	50
Ntungamo MC	20	50

Municipality	Amount of Waste (Tons)	Waste Collection Coverage Rate (%)
Nebbi Municipality MC	580	65
Entebbe MC	150	60
Tororo MC	5	46
Kabale MC	30	40
Kamuli MC	28	69
Rukungiri MC	30	45
Kisoro MC	32	75
Kotido MC	120	30
Kapchorwa MC	5	70

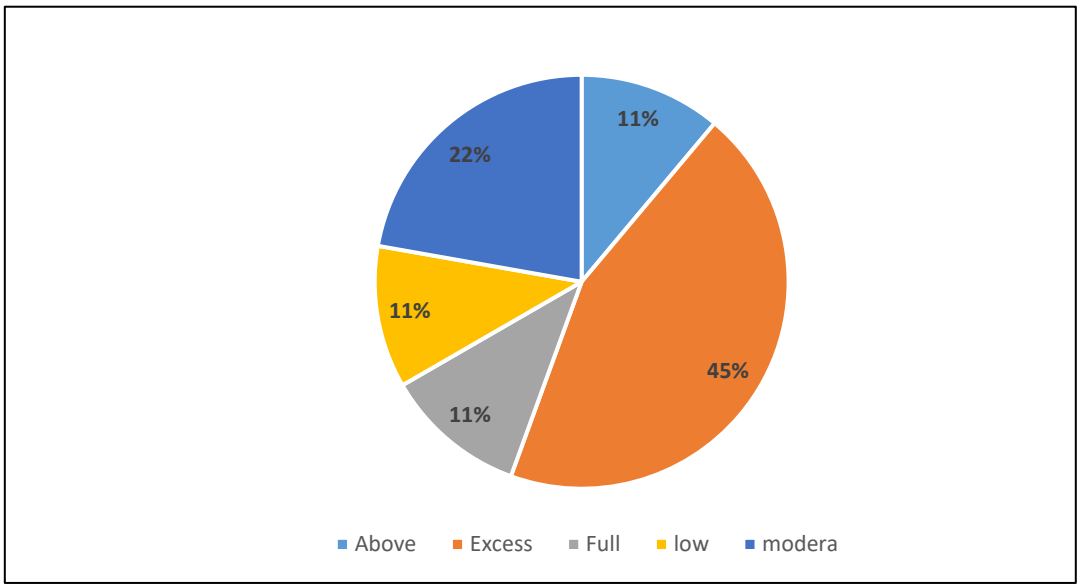
3.5.3 Current Status of waste quantities at the disposal site

The assessment was designed to establish the status of waste disposed off at the various sites across cities and municipalities. The options considered to measure this were as follows;

- **Excess** - The waste quantity far exceeds the designed capacity of the dumping site.
- **Above** - The amount of waste deposited is slightly more than the site's designed capacity
- **Full** - The waste quantity has reached the maximum capacity the site was designed to hold.
- **Moderate** - The waste quantity is within a manageable range but approaching full capacity.
- **Low** - The waste level is significantly below the designed capacity of the dumping site.

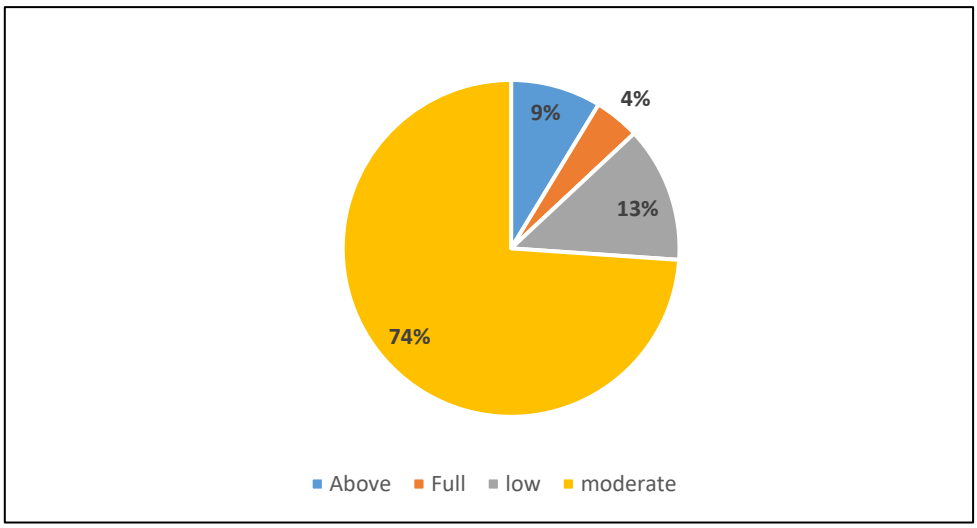
The findings of the survey as shown in figure 9 indicated that 45 percent of the disposal sites in cities had excess waste, 22 percent had moderate waste quantities. Arua, Hoima, Fort Portal and Kampala cities registered excess quantities of waste, while Masaka has a low quantity of waste on the disposal site. **For details see appendix table 3.5.3.1**

Figure 9: Percentage Distribution of Current Status of Waste Quantities in Cities



Furthermore, the results in Figure 10 show that, at Municipality level, 74.0 percent of the disposal sites were moderately full, 13.0 percent were low in waste quantities, 4.0 percent were at full capacity and 9.0 percent were above full capacity. The disposal sites in Mukono and Ibanda have waste quantities above the normal capacity while Mubende, Busia and Entebbe have the lowest waste quantities at the disposal sites. For details see appendix table 3.5.3.1.

Figure 10: Percentage Distribution of Current Status of Waste Quantities in Municipalities

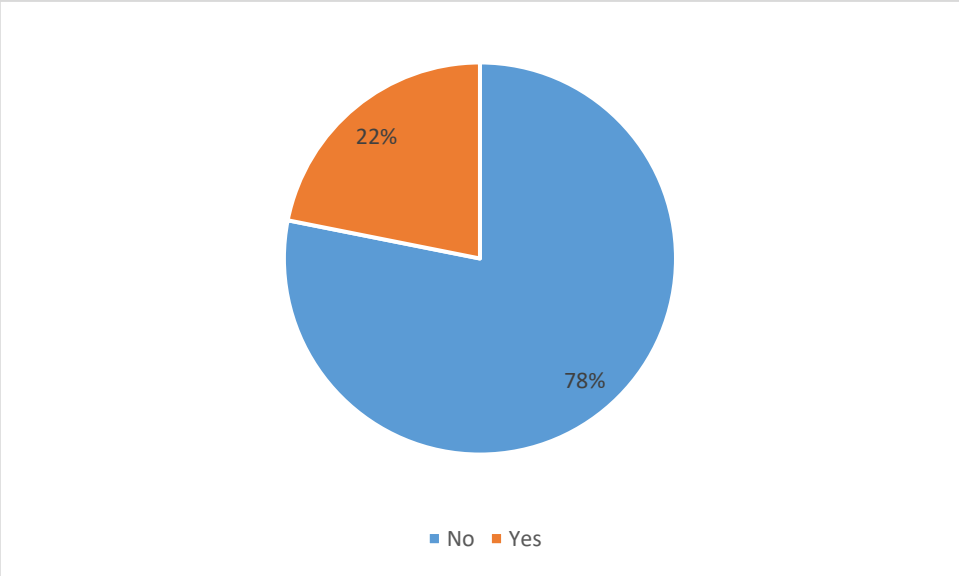


3.5.4 Waste Treatment Status

These are the processes used to change the physical, chemical, or biological characteristics of waste to reduce its volume, make it safer for disposal, or recover valuable materials. The goal is to minimize the environmental and health hazards associated with waste before its final disposal. These include recycling, Composting, Incineration, etc.

Figure 11 shows that in both Cities and Municipalities, only 22.0 percent carry out waste treatment, while 78.0 percent do not. Masindi and Mukono Municipality treat waste daily, while Kabale Municipality treats waste at least once every week. For the cities, Masaka, Lira, and Soroti treat waste daily, while Fort Portal does it at least once every month. For details, see Appendix Table 3.5.4.1

Figure 11: Percentage Distribution of Waste Treatment Status



3.6 Population at risk

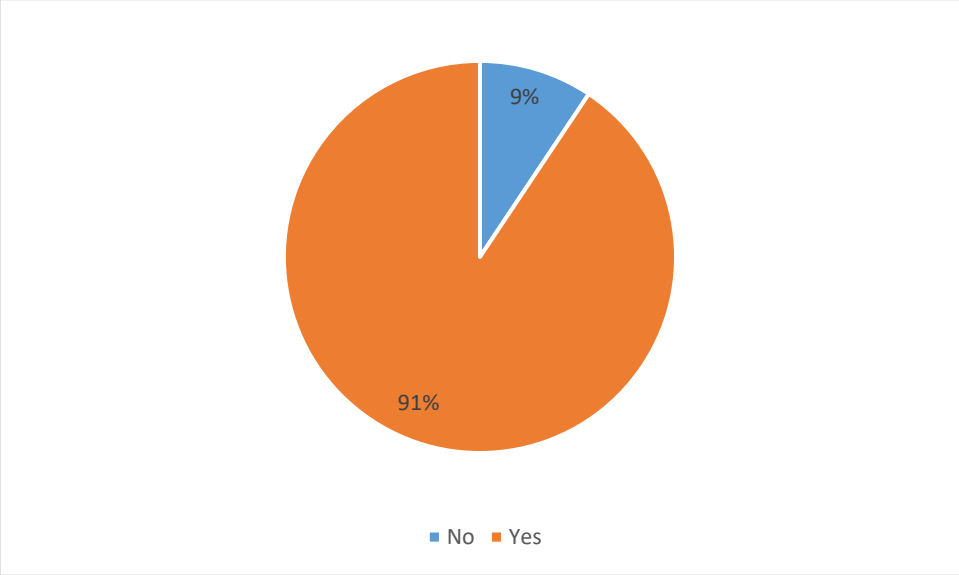
People living and/or working in the buffer zones are most at risk from the impacts of improper waste management at disposal sites. This study focused mainly on two groups that is, the waste pickers and those living in the buffer zone.

3.6.1 Waste Pickers in Disposal Sites

The most common informal economic activity around disposal sites is waste picking. 91.0 percent of the disposal sites in both Cities and Municipalities have

waste pickers while 9.0 percent do not, as shown in Figure 12. For details see appendix table 3.6.1.1

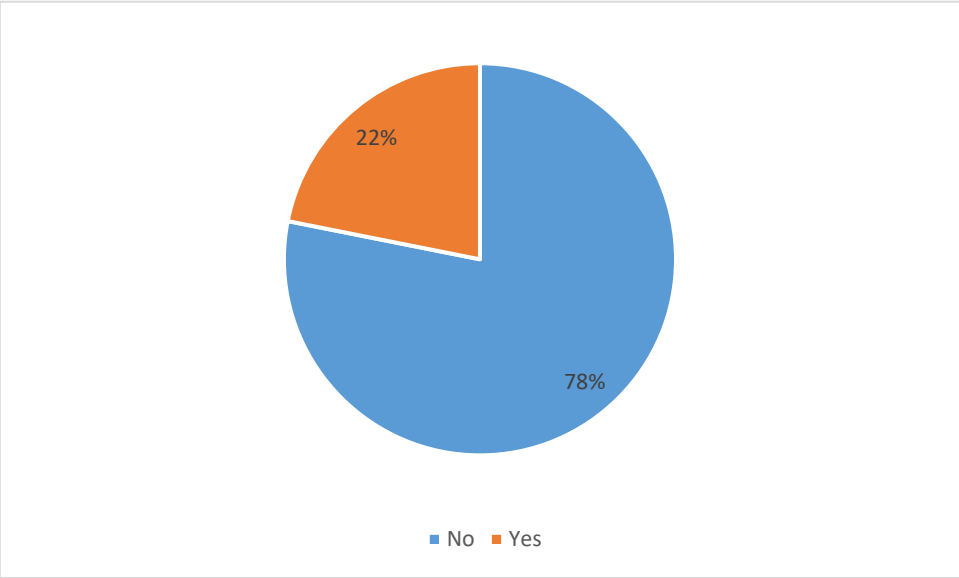
Figure 12: Percentage Distribution of Waste Pickers in disposal sites



Additionally, the findings from the survey show that in the Municipalities there were approximately a total 584 waste pickers while cities had a total of 835 waste pickers. Among the municipalities, Mubende is estimated to have the highest number of waste pickers (205), followed by Bugiri and Entebbe with about 100 waste pickers each while Masindi and Kumi have the least number of waste pickers estimated to have about two (2) waste pickers each.

For the cities, Kampala *(Kiteezi land fill before closure)* was estimated to have the biggest number of waste pickers (600), followed by Mbale with 80 while Gulu has the least number of about four (4) waste pickers. Furthermore, only 22% of the cities and municipalities with waste pickers reported that the waste pickers have protective gear and the remaining 78% did not have which puts them at a high risk. This is shown in Figure 13. For details see appendix table 3.6.1.1.

Figure 13: Percentage Distribution of Waste Pickers with protective gear in dumping sites

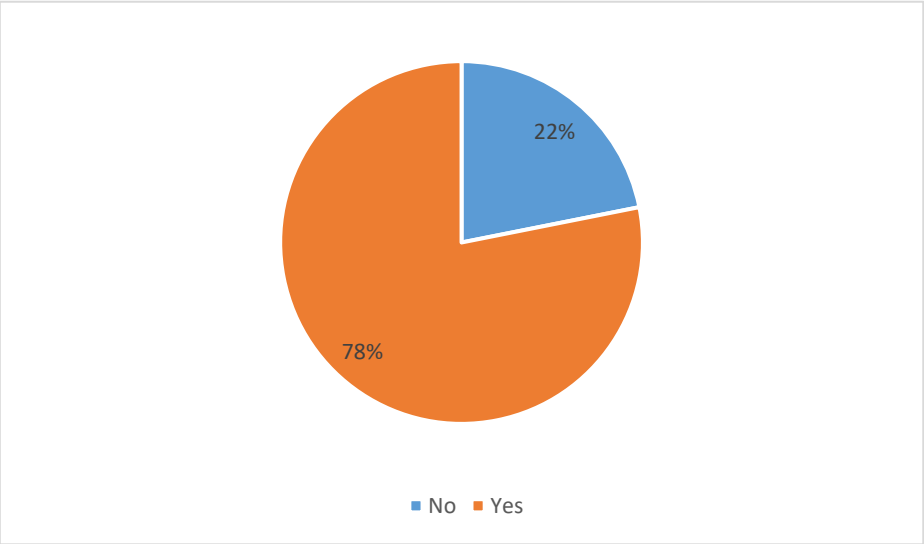


3.6.2 Population living within buffer zone

A buffer zone around a dumping site is a designated area of land surrounding the site that is kept free from residential, commercial, or agricultural development. This zone serves as a protective barrier to mitigate the environmental and health impacts associated with waste disposal activities. *See photos in the annex.*

The NEMA waste management regulations recommend that a landfill or disposal site should be at least 500m from the nearest human settlement or commercial area or sensitive ecosystem like a wetland, lake, and river. The survey, therefore, considered this distance to establish the existence of any households at risk. Figure 14 shows the percentage of disposal sites with people living within the buffer zone. For details, see the appendix table.

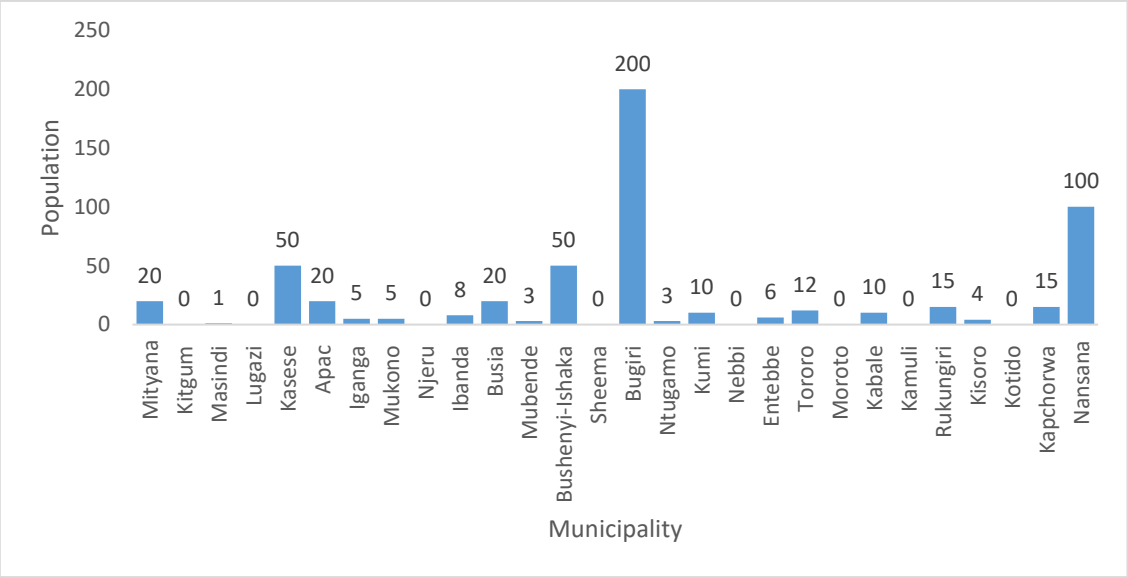
Figure 14: Percentage Distribution of Population living within the buffer zone



Results show that 78.0 percent of the disposal sites across all the cities and municipalities have people living within the buffer zone, while 22 percent do not.

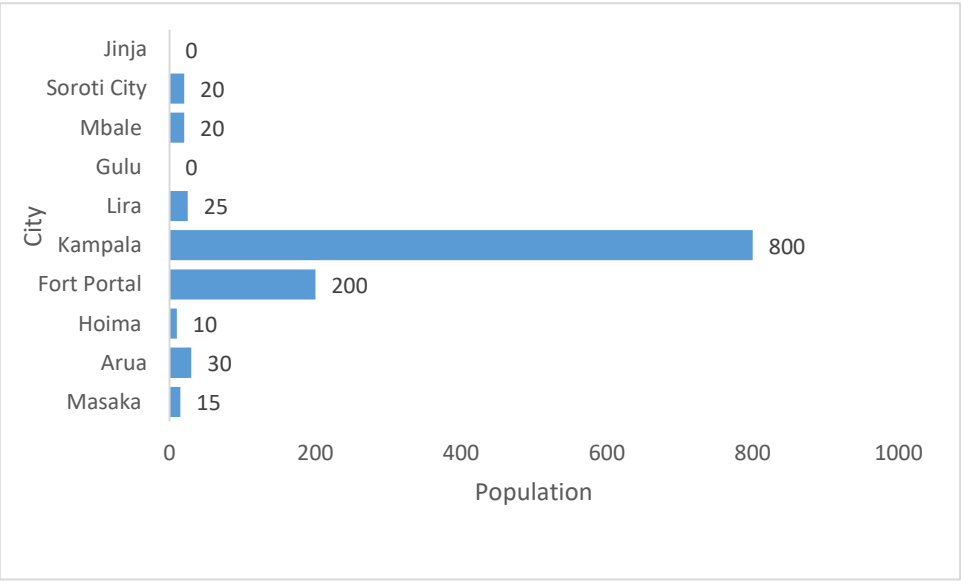
The results also indicate that at the Municipality level, Bugiri (200) had the highest estimated number of households living in the buffer zone, followed by Nansana (100 households) and both Bushenyi–Ishaka and Kasese with 50 households each. Masindi had the fewest number of households living within the buffer zone of the disposal site, with only one household. The disposal sites in Kitgum, Lugazi, Njeru, Sheema, Nebbi, and Kisoro have no households living within the buffer zone. The results are indicated in Figure 15.

Figure 15: Population living within buffer zone – Municipalities



Among disposal sites located in Cities, Kampala had the highest number of households (800) living within the buffer zone, followed by Fort Portal (200) while Hoima recorded the least number (10). Gulu and Jinja had no people living within the buffer zone. This is as indicated in Figure 16.

Figure 16: Population living within buffer zone - Cities



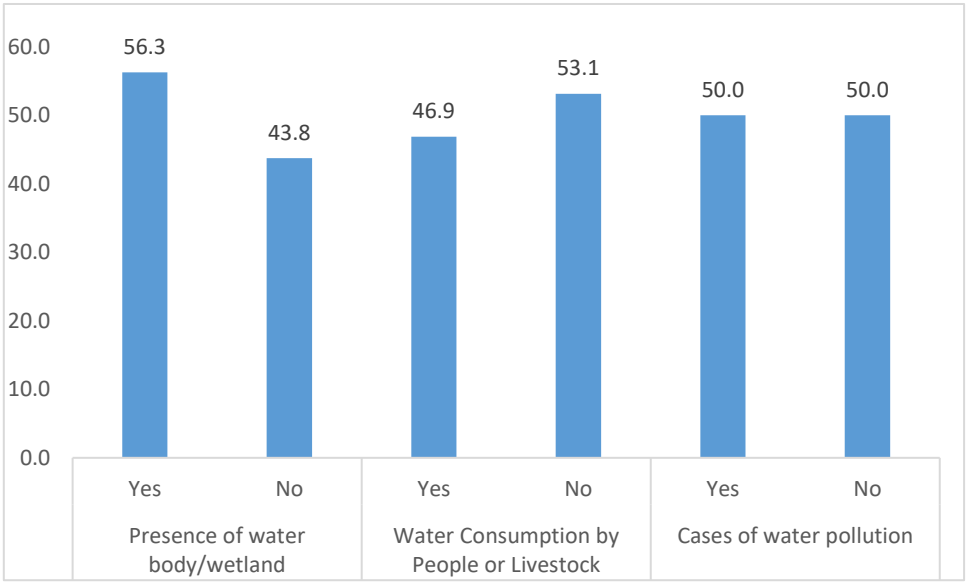
3.7 Eco Systems at risk (Availability and usage)

An ecosystem around a disposal site refers to the biological community and its physical environment in and around the area where waste is deposited. The

ecosystem is typically heavily disrupted and may be characterized by pollution and degradation, which negatively affect biodiversity and ecosystem functions. *See photos in the annex.*

Figure 17 shows the percentage distribution of the Eco-System within the 500-meter buffer zone of the disposal sites that are at risk.

Figure 17: Percentage distribution of Eco-Systems at risk



The results indicate that 56.3 percent of the disposal sites in cities and municipalities combined have open water sources/Wetlands nearby (in a radius of 500 meters). Of these, 46.9 percent had the water source being shared by both humans and livestock. Also, half of the water sources are polluted by effluent and waste from the neighboring disposal sites as shown in Figure 17. For details, see Appendix Table 3.7.1.

3.7.1 Cases of water, land, and air pollution by the site.

The following were the cases of pollution reported

- Land pollution
- Air pollution from the stench and burning of waste at the sites
- Water pollution, especially those drawing water from open sources
- Flooding of some sites during the rainy season

SECTION FOUR: RECOMMENDATIONS

Reported by Cities and Municipalities

1. The Government should construct composting facilities and incinerators for the Cities and Municipalities that are still using crude dumping methods.
2. Provide adequate equipment for waste management; collection, transportation and disposal.
3. Construct lagoons for liquid waste.
4. Provide Molds for recyclable waste, and encourage urban farming for compost manure and animal feeds
5. Conduct Environmental Impact Assessments for the sites to ensure that they are legally licensed.
6. The government is requested to support the renovation of existing but dilapidated compost plants.
7. There is a need to provide more land for waste management in compliance with the waste management regulations. This includes decommissioning and relocation of sites that are a hazard by the assessed risk parameters, landscape, status of waste, etc.
8. Proposed visiting of the sites to enable observation and validation of disposal sites
9. Provide standardized and harmonized data collection tools that can be deployed across the country

SECTION FIVE: CONCLUSIONS

The findings of the current waste management practices in the cities and municipalities showed that waste collection was mainly by the waste handlers who pick the waste from different collection sites i.e. households, business establishments, and institutions to mention but a few. The waste is then transported to disposal sites that on average are five kilometers from the centers and mainly carry out open dumping practices with majority not practicing any waste treatment. To ensure better waste management, constructing composting facilities and incinerators for the Cities and Municipalities would resolve this.

Many disposal sites, especially in municipalities, are not licensed by NEMA indicating they are operating with non-compliance to Environment and Social Impact regulations. There's need to undertake ESIAs for these sites and ensure enforcement for compliance. In this process, the government should support effective waste management by funding the processes towards sustainable waste management.

These current waste management practices in the cities and municipalities have raised potential risks such as disease outbreaks, contamination of the water sources around that are used for households and livestock for consumption, the risk of air pollution during the burning of rubbish and in the worst-case scenario landslides such as the incident in Kiteezi. Cities and Municipalities are required to give a size chunk of land and ensure no households are in the buffer zone.

Also, a significant proportion of cities are operating disposal sites that are full and have excess waste. They are due for closure to minimize negative impacts like excessive pollution.

The findings are intended to support the design and implementation of effective waste management strategies and enable progress towards the various development ambitions of the country as enshrined in the National Development Plans and the Sustainable Development Goals as UBOS plans to undertake more studies on waste management across the various cities, municipalities and Local Governments.

REFERENCES

1. National Population and Housing Census (NPHC) Report; UBOS, 2024
2. Guidelines for management of Landfills in Uganda; NEMA, 2020
3. Waste Wise Cities Tool ; UN-Habitat, 2021
4. Sector Brief Uganda. Waste and Recycling; GIZ, 2023

ANNEXES

Table 2.2.1 Availability of centralized site, Gazetting, and licensing status

City	Availability Of Site	Licensing Status	Municipality	Availability Of Site	Licensing Status
Arua	Yes	Yes	Apac	Yes	No
Fort Portal	Yes	Yes	Bugiri	No	No
Gulu	Yes	Yes	Bushenyi-Ishaka	Yes	No
Hoima	Yes	Yes	Busia	Yes	No
Jinja	Yes	Yes	Entebbe	Yes	Yes
Kampala	No	No	Ibanda	Yes	No
Lira	Yes	Yes	Iganga	Yes	No
Masaka	Yes	Yes	Kabale	Yes	Yes
Mbale	Yes	Yes	Kamuli	Yes	No
Soroti	Yes	Yes	Kapchorwa	No	No
			Kasese	Yes	Yes
			Kisoro	No	No
			Kitgum	Yes	No
			Kotido	Yes	No
			Kumi	Yes	No
			Lugazi	Yes	No
			Masindi	Yes	Yes
			Mityana	Yes	Yes
			Moroto	Yes	Yes
			Mubende	Yes	No
			Mukono	Yes	Yes
			Nebbi	Yes	Yes
			Njeru	Yes	No
			Ntugamo	Yes	Yes
			Rukungiri	Yes	No
			Sheema	Yes	No
			Tororo	Yes	Yes

Table 3.2.1: Landscape of disposal Site

City	Landscape	Municipality	Landscape
Arua	Gently	Apac	Gently
Fort Portal	Gently	Bugiri	Flat
Gulu	Gently	Bushenyi Ishaka	Gently
Hoima	Gently	Busia	Flat
Kampala	Gently	Entebbe	Gently
Lira	Gently	Ibanda	Gently
Masaka	Hilly	Iganga	Gently
Mbale	Gently	Kabale	Hilly
Soroti	Flat	Kasese	Gently
		Kisoro	
		Kitgum	Gently
		Kumi	Flat
		Lugazi	
		Masindi	Hilly
		Mityana	Hilly
		Moroto	Gently
		Mubende	
		Mukono	Gently
		Nebbi Municipality	Flat
		Njeru	Gently
		Ntungamo	Gently
		Sheema	Flat
		Tororo	Gently

Table 3.5.1.1: Method of Solid Waste disposal

City	Waste disposal method	Municipality	Waste disposal method
Arua	Open Dumping	Apac	Landfilling
Fort Portal	Composting	Bugiri	Open Dumping
Gulu	Open Dumping	Bushenyi Ishaka	Open Dumping
Hoima	Open Dumping	Busia	Open Dumping
Kampala	Open Dumping	Entebbe	Open Dumping
Lira	Open Dumping	Ibanda	Composting
Masaka	Open Dumping	Iganga	Open Dumping
Mbale	Open Dumping	Kasese	Composting
Soroti	Composting	Kitgum	Open Dumping
		Kumi	Open Dumping
		Lugazi	Open Dumping
		Masindi	Composting
		Mityana	Open Dumping
		Moroto	Open Dumping
		Mubende	Open Dumping
		Mukono	Composting
		Nebbi Municipality	Landfilling
		Njeru	Open Dumping
		Ntungamo	Open Dumping
		Sheema	Open Dumping
		Tororo	Open Dumping
		Kabale	Composting

Table 3.5.3.1: Status of waste at the disposal sites

Cities	Status	Municipalities	Status
Arua	Excess	Apac	moderate
Fort Portal	Excess	Bugiri	moderate
Gulu	moderate	Bushenyi-Ishaka	moderate
Hoima	Excess	Busia	low
Kampala	Excess	Entebbe	low
Lira	Full	Ibanda	Above
Masaka	low	Iganga	moderate
Mbale	Above	Kabale	moderate
Soroti	moderate	Kasese	moderate
		Kisoro	moderate
		Kitgum	moderate
		Kumi	moderate
		Lugazi	moderate
		Masindi	moderate
		Mityana	moderate
		Moroto	moderate
		Mubende	low
		Mukono	Above
		Nebbi	moderate
		Njeru	moderate
		Ntugamo	Full
		Sheema	moderate
		Tororo	moderate

Table 3.5.4.1: Waste treatment status

city	Waste treatment status	Frequency	Municipality	Waste treatment status	Frequency
Arua	No		Apac	No	
Fort Portal	Yes	Monthly	Bugiri	No	
Gulu	No		Bushenyi-Ishaka	No	
Hoima	No		Busia	No	
Kampala	No		Entebbe	No	
Lira	Yes	daily	Ibanda	No	
Masaka	Yes	daily	Iganga	No	
Mbale	No		Kabale	Yes	Weekly
Soroti	Yes	daily	Kasese	No	
			Kisoro	No	
			Kitgum	No	
			Kumi	No	
			Lugazi	No	
			Masindi	Yes	daily
			Mityana	No	
			Moroto	No	
			Mubende	No	
			Mukono	Yes	daily
			Nebbi	No	
			Njeru	No	
			Ntugamo	No	
			Sheema	No	
			Tororo	No	

Table 3.6.1.1: Availability of waste pickers and use of protective gear

City	Availability of Waste Pickers	Number	Use of Protective Gear	Municipality	Availability of Waste Pickers	Number	Use of Protective Gear
Arua	Yes	20	Yes	Apac	Yes	8	Yes
Fort Portal	Yes	10	No	Bugiri	Yes	100	Yes
Gulu	Yes	4	No	Bushenyi-Ishaka	Yes	6	Yes
Hoima	Yes	20	No	Busia	Yes	-	No
Kampala	Yes	600	No	Entebbe	Yes	100	Yes
Lira	Yes	30	No	Ibanda	Yes	9	No
Masaka	Yes	12	No	Iganga	Yes	20	No
Mbale	Yes	80	No	Kabale	Yes	20	No
Soroti	Yes	9	No	Kasese	No	-	-
				Kisoro	Yes	-	-
				Kitgum	Yes	4	Yes
				Kumi	Yes	2	No
				Lugazi	Yes	0	-
				Masindi	Yes	2	No
				Mityana	Yes	13	No
				Moroto	No	-	-
				Mubende	Yes	205	No
				Mukono	Yes	30	No
				Nebbi	Yes	32	Yes
				Njeru	Yes	12	No
				Ntugamo	Yes	3	No
				Sheema	No	-	-
				Tororo	Yes	15	No

Table 3.7.1: Availability of waterbody/wetland within the buffer zone and pollution status

Administrative unit	Presence of water body/wetland	Water Consumption by People or Livestock	Cases of water pollution
Cities			
Masaka	No	No	No
Arua	Yes	Yes	Yes
Hoima	Yes	Yes	Yes
Fort Portal	No	No	No
Kampala	Yes	Yes	Yes
Lira	Yes	Yes	No
Gulu	No	No	No
Mbale	Yes	Yes	Yes
Soroti	Yes	No	Yes
Municipalities			
Mityana	Yes	Yes	Yes
Kitgum MC	Yes	Yes	No
Masindi MC	No	No	No
Lugazi MC	No	No	Yes
Apac MC	No	No	No
Kasese MC	No	No	Yes
Iganga MC	Yes	Yes	Yes
Mukono MC	Yes	Yes	Yes
Ibanda MC	Yes	No	No
Njeru MC	No	No	No
Sheema MC	Yes	Yes	Yes
Bushenyi-Ishaka MC	Yes	Yes	No
Mubende MC	No	No	No
Busia MC	No	No	Yes
Bugiri MC	Yes	Yes	Yes
Kumi MC	Yes	Yes	No
Ntugamo MC	No	No	No
Nebbi MC	No	No	No
Entebbe MC	Yes	No	Yes
Moroto MC	Yes	Yes	Yes
Tororo MC	Yes	Yes	Yes
Kisoro MC	No	No	No
Kabale MC	No	No	No

Annex 1: Zonal Agricultural Research Development Institutes (ZARDIs)

Municipalities	ZARDI
Nebbi MC	Abi
Bugiri MC	Buginyanya
Busia MC	Buginyanya
Iganga MC	Buginyanya
Tororo MC	Buginyanya
Masindi MC	Bulindi
Kabale MC	Kachwekano
Kisoro MC	Kachwekano
Bushenyi Ishaka MC	Mbarara
Ibanda MC	Mbarara
Ntungamo MC	Mbarara
Sheema MC	Mbarara
Entebbe MC	Mukono
Lugazi MC	Mukono
Mityana MC	Mukono
Mubende MC	Mukono
Mukono MC	Mukono
Njeru MC	Mukono
Moroto MC	Nabuin
Apac MC	Ngetta
Kitgum MC	Ngetta
Kasese MC	Rwebitaba
Kumi MC	Serere
Cities	
Arua City	Abi
Fort Portal City	Rwebitaba
Gulu City	Ngetta
Hoima City	Bulindi
Kampala City	Mukono
Lira City	Ngetta
Masaka City	Mukono
Mbale City	Buginyanya
Soroti City	Serere

Annex 2: List of Cities and Municipalities that responded

City	Municipality
Masaka	Mityana
Hoima	Kitgum
Arua	Masindi
Kampala	Lugazi
Lira	Kasese
Fort Portal	Apac
Gulu	Iganga
Soroti	Mukono
Mbale	Njeru
Jinja	Ibanda
	Busia
	Mubende
	Bushenyi-Ishaka
	Sheema
	Bugiri
	Ntugamo
	Kumi
	Nebbi
	Entebbe
	Tororo
	Moroto
	Kabale
	Kamuli
	Rukungiri
	Kisoro
	Kotido
	Kapchorwa
	Nansana

Annex 3: Photos

Waste in a drainage blocking the flow of runoff water 	***River polluted with plastic waste*** 
Disposal site located within the buffer zone of Lake Victoria creating a risk of water pollution 	***Disposal site in one of the Municipalities located in a wetland*** 
Open dumping on a hill 	**Burning waste at a disposal facility; an air pollution source** 

Annex 4: Densely populated settlements in the buffer zone around Kiteezi Dumping Site

UGANDA BUREAU OF STATISTICS

THE REPUBLIC OF UGANDA

RAPID MUNICIPAL SOLID WASTE MANAGEMENT ASSESSMENT QUESTIONNAIRE – AUGUST 2024

Contact: Director- Economic Statistics; 0772483403
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Uganda Bureau of Statistics,
Statistics House, Plot 9 Colville Street,
P.O. Box 7186, Kampala-UGANDA.
Email: ubos@ubos.org; Office Telephone: 0414 706000

The most recent waste disaster at Kiteezi Landfill has generated country wide concerns about waste management in Uganda. Various key stakeholders both public and private sector players have developed more interest in understanding the specific status of waste management across Cities and Municipalities considering that they are characterised by higher population densities due to high urbanisation rates and resultantly higher waste generation, disposal challenges and exposure of the population, air, land and water resources to the risks associated with the negative impacts of waste mismanagement. In order to safe guard the population from these potential waste related hazards, the UBOS is undertaking a rapid waste assessment for all Cities and Municipalities in Uganda. This is therefore to request that you fill in this questionnaire to provide information on waste management in your city/municipality. The information provided will remain strictly confidential

Section 1: Identification Details

1. Name of City/Municipality: …….....
2. Name of respondent: ……
3. Title:

   …….
4. Tel No:

   …….
5. Email:

   ……..……

Section 2: Waste Management Information

Site details

1. Do you have a centralized dumping site? Yes/No
2. If Yes, Name of Site? ***(Name of main site if more than one)***
3. Is the site gazetted and licensed by the Ministry of Water and Environment? Yes/No
4. If No, why?
5. What is the estimated Size of the dumping site (……. acres)?
6. Year when disposal started at the site.
7. Lifespan of the site (Years)?
8. Main method of waste disposal at the Site? 1 = Open Dumping, 2 = Composting, 3 = Landfilling, 4 = Incineration, 5=Other (Specify)

9. Average amount of waste disposed at the site daily (……..Tonnes)?
10. Is the waste treated at the site? Yes/No
11. If Yes, how often? 1 = daily, 2 = Weekly, 3 = Monthly, 4 = Other (specify)
12. How much waste can the site carry at full capacity (……. tonnes)?
13. What is the current status of waste quantities at the site? 1 = low, 2 = moderate, 3 = Above moderate, 4 = Full, 5 = Excessively full
14. Landscape where is the site located? 1 = Flat, 2 = Gently sloping, 3 = Hilly, 4 = Flood plain
15. Are there waste pickers at the site? Yes/No
16. If yes, estimated number?
17. Do all the waste pickers wear protective gear? Yes/No
18. Distance of the Site from the City/Municipality Centre (……. Kms)
19. Are there people living within a radius of 500 meters from the site? Yes/No
20. If yes, estimated number of Households?
21. Are there any Open water sources/Wetland nearby (in a radius of 500 meters)? Yes/No
22. If yes, are they used for water consumption by people or Livestock? Yes/No
23. Any cases of water, land and air pollution by the site? Yes/No
24. If yes, specify.
25. Waste collection coverage rate in the City/Municipality (%)?
26. Any recommendations?

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