WALTER SISULU LOCAL MUNICIPALITY

INTEGRATED WASTE MANAGEMENT PLAN

(2024-2029)

DOCUMENT INFORMATION SHEET

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EXECUTIVE SUMMARY

Walter Sisulu Local Municipality (WSLM) (EC-145) has identified a need to develop an Integrated Waste Management Plan (IWMP) in accordance with the relevant environmental management legislation, namely, the National Environmental Management: Waste Act (Act No.59 of 2008) as amended, the IWMP guideline by the Department of Environment, Forestry and Fisheries (DFFE) and the National Waste Management Strategy (NWMS). This is the first IWMP for Walter Sisulu Local Municipality after the amalgamation of Gariep and Maletswai Local Municipalities.

WSLM is a category B municipality located in the west of the Joe Gqabi District of the Eastern Cape Province, south of the Orange River and Gariep Dam. The Orange River separates Walter Sisulu LM from both the Northern Cape and Free State Provinces.

This IWMP is intended for use as a sector plan within the Walter Sisulu Local Municipality for planning and budgeting of waste management activities for a period not exceeding 5 years. In most instances, the formulation of the IWMP ensures a waste management planning process that is sustainable, implementable, acceptable, incorporate, and most importantly tailored to suit the needs of the people of Walter Sisulu Municipal area, both in rural and urban areas.

The IWMP should provide greater integration in terms of the provision of waste management services as current services do not address the needs of all inhabitants of the Local Municipality. The main steps undertaken in formulating the IWMP include Situational Analysis/Status Quo:

- Waste Characterization Exercise
- Gap Analysis and Needs Assessment
- Development of Objectives, Targets and Policies
- Development of Programme, Project and Activities
- Communication and Stakeholder Participation
- Implementation Plan and Project Activities
- Monitoring and Evaluation of IWMP
- Final IWMP

The Situational Analysis Chapter forms the basis or baseline for the formulation of this IWMP. It includes collecting and evaluating existing waste management information, analyzing, and synthesizing information to identify deficiencies to plan for the next 5 years in terms of waste management. It provides the context in which the IWMP falls as well as provides an understanding of the current situation of waste management within the Walter Sisulu Local Municipality.

Information on existing waste management services was evaluated against the waste hierarchy as outlined in the NWMS, 2020, which leads to the identification of gaps and needs in waste

management within the WSLM. Identification of gaps and needs then informed the desired state of waste management of the WSLM and assisted in addressing inefficiencies in current waste management practices. A workshop was held to determine the gaps and identify the needs of the municipality which are captured in the gaps and needs chapter of the IWMP.

During the status quo assessment exercise, a preliminary desktop analysis of the following aspects was conducted for WSLM, and a few observations were made:

- **Finances and Budgeting** – The operational budget is very low and there is less financial recovery. The budget provision for the function is inadequate within the WSLM. It could be due to competing needs and demands for service delivery within the Municipality.

- **Organizational Structure** – The waste management organogram for WSLM has vacant posts and they are not filled due to budgetary considerations and constraints. There is a designated Waste Management Officer in the Organogram, which is a requirement in terms of the National Environmental Management: Waste Act (Act 59 of 2008).

- **Training and Skills Development** - No training and skills development plan could be provided by the local municipality during the preliminary assessment. There is also no item for skills development in the operational budget for waste management. It is important to note that extensive training is required among the general workers, supervisors, operators, etc. in the waste management chain of the Local Municipality.

- **Waste Information Management** - The WSLM does not report its waste quantities to the South African Waste Information Centre (SAWIC) for all the Landfill or Disposal sites. There are reports for one landfill site, namely, James Calata. There are no weighbridges in all landfill sites, only access control personnel that record manually the trucks/ bakkies entering the sites. There is a measuring methodology for all transport modes entering landfill sites to estimate the volumes of waste entering. It is important to note that the rate of reporting to SAWIC in terms of waste quantities affects future planning for waste management. The information is therefore essential for the quality management of waste and forecasting future waste management requirements.

- **Waste Minimization and Recycling** – WSLM does not have any functional municipal-supported recycling project and does not practice waste separation at source as part of waste minimization. The Materials Recovery Facility (MRF) funded by DEDEAT still has challenges that the Municipality is resolving. There are plans in place to resuscitate the MRF. The current waste management system is less economical and not environmentally satisfactory.

- **Local Waste Generation** - Most of the waste is generated within the urban areas which is where the local municipality provides collection service adequately. Some small township areas are currently not regarded as waste generation centroids and have received little attention regarding waste collection. Pilot projects should be tested for effective waste management in rural areas.

- **Waste Collection** - The Local Municipality provides different waste collection frequencies to different areas. The CBD receives weekly collection; business premises receive tailor-made collection, and once a week for residential areas. The frequency of waste collection is often determined by the capacity of the waste receptacle, which in turn is informed by the waste generation rate of the particular area/property.

- **Transfer Stations** - There are two transfer stations at WSLM located in Maletswai town. Currently, some challenges are being attended to by the Community Services Department. Furthermore, there is a composting facility that is also located in the vicinity of the MRF in Maletswai.

- **Waste Disposal** - There are 5 operational municipal landfill sites in each of the towns. Some of these landfill sites have been licensed for closure. This requires careful rethink to find an effective solution that is lasting and economical. Some sites may be converted into transfer stations that would be fitting for the volumes of waste generated in that area.

This IWMP incorporates the assessment of the current situation within the WSLM as it relates to waste management and best practices. It also evaluates briefly the South African Waste Management issues.

According to the information that has been gathered during the status quo analysis phase, it is evident that most of the waste that is currently generated within the WSLM is general waste. After the analysis, a set of goals and targets have been formulated to ensure that WSLM reaches the desired end state about waste management matters. This set of goals is aligned with various projects undertaken by the municipality to ensure guided service delivery to the citizens of the area.

It is worth noting that the IWMP is a living document that must be reviewed annually in five years. An IWMP is fundamentally linked to the Integrated Development Plan (IDP) hence its review cycle should be aligned with that of the IDP process. Although an IWMP is reviewed every five years, an annual internal update is, however, encouraged to ensure that the IWMP remains relevant and effective. A longer review period may result in the IWMP being less relevant and hence stakeholders losing faith in it and finally not using it.

In terms of the way forward, the IWMP must be submitted to the Municipal Council for adoption before submission to the Member of the Executive Council (MEC) of the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) as per Section 11 (4)(a) ii of the National Environmental Management: Waste Act 2008 (Act No.59 of 2008) for endorsement. The submission of the final IWMP to the MEC for endorsement is dependent on primarily, the necessary having been followed, in terms of Section 29 of the Municipal Systems Act, 2000 (Act No.32 of 2000). The MEC for COGTA approves the final IWMP document.

Once adopted by the Council and endorsed by the MEC of DEDEAT and approved by the MEC for COGTA, regular and ongoing monitoring of the IWMP is required to ensure the objectives of the IWMP are accomplished. Monitoring the success of projects during the IWMP implementation phase will ensure that corrective action is taken when necessary. A closedown report will be completed in the year 2029 at the end of this IWMP's 5-year lifespan. The closedown report will evaluate the successes and challenges associated with the proposed project.

Table of Contents

LIST OF ACRONYMS

ACRONYM	FULL NAME
BRR	Basic Refuse Removal
CAPEX	Capital Expenditure
CBD	Central Business District
CBO	Community-Based Organization
JGDM	Joe Gqabi District Municipality
CMIP	Consolidated Municipal Infrastructure Programme
CSD	Community Services Directorate
COGTA	Department of Co-operative Governance and Traditional Affairs
DBSA	Development Bank of Southern Africa
DFFE	Department of Forestry, Fisheries and Environmental
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism.
DM	District Municipality
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
ECSECC	Eastern Cape Socio-Economic Consultative Council
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspector
FEL	Front End Loader
FY	Financial Year
GEF	Global Environmental Fund
GW	General Worker
HCRW	Health Care Risk Waste
HR	Human Resources BRR Human Resources
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IandAps	Interested and Affected Parties
IFC	International Finance Corporation
IndWMP	Industrial Waste Management Plan
IWMP	Integrated Waste Management Plan

WSLM	Walter Sisulu Local Municipality
KM2	Square Kilometer
LDV	Light Duty Vehicle
LM	Local Municipality
MAE	Mean Annual Evaporation
MAP	Mean Annual Precipitation
MEC	Member of the Executive Council
MFMA	Municipal Finance Management Act (Act No.56 of 2003)
MIG	Municipal Infrastructure Grant
MIGA	Multilateral Investment Guarantee Agency
MIIU	Municipal Infrastructure Investment Unit
MRF	Materials Recovery Facility
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:AQA	National Environmental Management Air Quality Act (Act 39 of 2004)
NEM:WA	National Environment Management: Waste Act (Act 59 of 2008)
NWA	National Water Act (Act 36 of 2008)
NWMS	National Waste Management Strategy
OPIC	Overseas Private Investment Corporation
PIWMP	Provincial Integrated Waste Management Plan
PPP	Public Participation Process
REL	Rear End Loader
SAEDF	Southern Africa Enterprise Development Fund
SAWIC	South African Waste Information Centre
SDF	Spatial Development Framework
SMME	Small, Medium and Micro- Enterprise
SMIF	Special MIG Innovation Fund
WIS	Waste Information System
WMO	Waste Management Officer

TECHNICAL DEFINITIONS

Basic Refuse Removal	Baseline service level as established under Clause 9.1 of the National Policy of Refuse Removal to indigent households.
Building and Demolition Waste	Waste excluding hazardous waste, which is produced during the construction, alteration, repair, or demolition of any structure, and includes rubble, earth, rock, and wood displaced during that construction, alteration, repair or demolition as outlined in Schedule 3 of the NEM:WA, as amended.
Business Waste	Waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment, or government administration purposes.
Buy- Back Centre	A facility where people sell recyclable materials they have collected, and recycling companies buy recyclable materials from the buy-back center and pay only for the materials they can use.
Bylaw	Legislation passed by the Council of a Municipality which is binding in the municipality on persons to whom it applies on the person to whom it applies.
Cell	A project-defined series of blocks within a waste management area is generally filled with a volume of waste and covered on all horizontal surfaces with soil (per day).
Communal Landfill	The smallest landfill classification with a capacity of less than 25 tons per day.
Composting	The controlled aerobic biological decomposition of organic matter, such as food scraps and plant matter into compost, a soil-like material. Aerobic is the decomposition in the presence of oxygen.
Controlled Landfill	A solid waste management facility used for the disposal of non-hazardous domestic and non-infectious medical waste, which employs compaction of wastes, covering of waste with soil cover material, and the management of leachate and gaseous materials produced by the organic decomposition of the landfilled waste, all in such a manner as not to harm to human health and minimize negative impacts to the environment.
Daily Cover	A daily application and compaction of approximately 15 centimeters of soil on top of the solid waste, to control blowing litter, odor, files, rats, and fires intended for an exposure of less than one week.
Design Drawing	Drawings prepared by the landfill designer and include dimensions specifications and other technical data regarding the construction of the landfill.

Disposal	The burial, deposit, discharge, abandoning, dumping, placing or release of waste into, or onto any land.
Domestic Waste	Waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, institutional, retail, health care, sports or recreation purposes which include garden and park wastes, office waste, municipal waste, and food waste.
Final Cover	An application and compaction of soil on the landfill after it has reached its designed elevation. The final cover material shall be relatively impermeable and have a thickness of approximately 50 centimeters.
Garden Waste	Any organic biodegradable waste material generated from plant material such as grass, flower, hedge cutting, or tree trimmings.
Groundwater	All waters flowing or existing under the ground surface.
Hazardous Waste	Any waste, which because of chemical reactivity or toxic, explosive corrosive, or other characteristics causes danger or is likely to cause danger to human health and/or to the environment, whether alone or in combination with other wastes. Hazardous waste is categorized into four hazard ratings with 1 being the most hazardous and 4 being the least hazardous.
Incineration	The controlled combustion of solid waste employs closed combustion chambers, controlled combustion air, temperature monitoring and control to ensure complete combustion of organic matter with a minimum of undesirable air emissions and wastewater discharges.
Inert Waste	Waste that does not: Undergo any significant physical, chemical, or biological transformation after disposal. Bum reacts, physically or chemically biodegrades or otherwise adversely affects any other matter or environment with which it may come into contact and impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is significant.
Intermediate Cover	An application and compaction of cover having the same functions as daily cover but applied at a thickness of 30 centimeters, intended to be exposed for a period of one week to one year.
Landfill Classification	A system for classification of waste disposal sites, previously under the DFFE Minimum Requirements for classifying landfills according to the type and size of the landfill, and its potential for significant leachate generation, and currently under the DFFE Waste Classification and Management

	Regulations.
Landfill Site	A Site for the controlled disposal of waste materials
Landfill Gas	The gaseous by-product of organic decomposition of landfilled waste. Landfill gas contains significant concentrations of methane gas, which is explosive at concentrations exceeding 5%.
Leachate	The liquid by-product of organic decomposition of landfilled waste or any liquid that comes in contact with solid waste in a sanitary landfill.
Material Recovery Facility	A specialized facility that receives, separates, and prepares recyclable materials for marketing to end-user manufacturers and/or recycling materials.
Medical Waste (Health Care Risk Waste)	Any waste generated by hospitals, clinics, nursing homes, doctor's offices, medical laboratories, research facilities, and veterinarians, which is infectious or potentially infectious.
Operating Plan	Consists of drawings, descriptions, and other documents regarding the operation of the landfill, placement of waste, building daily cells and lifts, leachate management, landfill gas management, and all other functions related to the operation of the landfill.
Perimeter Drains	Open ditches surrounding the landfill are installed to prevent surface water from entering the landfill.
Reclaiming	The separation of solid waste for reusable and recyclable materials and food for human consumption.
Recycling -	The sorting, processing, and transportation of solid waste materials, products, or containers for remanufacture or reuse.
Solid Waste -	Waste of a solid nature generated by a person, business, or industry.
Solid Waste Management Facility	Any facility used for the transportation, processing, or disposal of solid waste, and includes transfer stations, recycling facilities, composting facilities, waste incinerators and landfill sites.
Sorting -	The authorized separation of solid waste materials for re-use and/or recycling or disposal, either at the source of generation or at a solid waste management facility.
Special waste -	A non-hazardous waste, which due to its nature requires special or separate handling at a sanitary landfill. Special waste includes but is not limited to tyres, asbestos, demolition waste, industrial sludges of a non-hazardous nature, paper mill sludge, olive oil waste, abattoir wastes and petroleum

	waste oil.
Surface water -	All water in or coming from a water source, which is found on the surface of the ground, excluding water under the surface of the ground and seawater.
Transfer Station -	A waste management facility that provides temporary storage of waste before final disposal and/ or processing.
Vectors -	Birds, insects, and rodents that can carry disease-causing bacteria, viruses or fungi from one host to another.
Waste Management Hierarchy	The Waste Management Hierarchy reflects the different waste management options, from reduction (more preferred) through to reuse, recycling, recovery, treatment/destruction, and lastly disposal (least preferred), which should all form part of an integrated waste management system.
Waste Information System	A computerized database containing information about waste management organizations and agencies, as directed to be established as part of the implementation of the National Waste Management Strategy of South Africa.
Waste Management License	A license for a waste management facility (transfer station, MRF, landfill site, etc.) is issued in terms of section 49 of the National Environmental Management, Waste Act, 2000.
Waste Management Officer	A person designated in terms of Section 10 of NEM:WA, (Act 59 of 2008) who is responsible for coordinating matters about waste management in the municipality.
Water Balance	A method for determining the potential for significant leachate generation, which includes climatic conditions (rainfall and evaporation) and site conditions. It also provides approximations relating to water use and management at an operation/facility.
Working Area	The area of the landfill where waste is unloaded, compacted, and covered. It generally includes adequate space for several trucks to unload at the same time for waste compaction and storage of covered soil.

1. CHAPTER 1: INTEGRATED WASTE MANAGEMENT PLANNING

1.1. INTRODUCTION AND BACKGROUND

In the past decades, waste management planning has moved from being purely based on a remove-and-dump system to a more sophisticated Integrated Waste Management Planning system based on the waste management hierarchy adopted by South Africa's Waste Management Strategy (NWMS).

The NWMS offers a wide range of options for waste management and requires translation of its goals and objectives into practice. These goals and objectives must be implemented in conjunction with an agreed action plan. The action plan must be crafted along the following key elements of the strategy:

- Integrated waste strategy
- Waste Information System
- Capacity Building
- Education, Awareness and Communication.

The elements of education, awareness, and communication include the following:

- Waste collection
- Waste Prevention and Minimization
- Generation of waste (generation areas and waste stream analysis)
- Separation of waste at source
- Waste collection, transfer and transport
- Reduce, reuse, and recycling of waste and
- Disposal of waste (as a last resort).

This element involved the identification of specific waste minimization strategies, whether it is separation at source or collection. The following Diagram illustrates the waste management hierarchy of the DEFF as adopted in 2020. The hierarchy is premised on three (3) of the key principles of the NWMS 2020, namely waste minimization, waste prevention and waste as a resource. The official hierarchy in the NWMS is as follows (Error! Reference source not found.**)**.

Figure 1*:* Waste Management Hierarchy as adopted in the NWMS (DFFE, 2020).

The objectives of the Waste Act are structured around the steps in the waste management hierarchy, which is the overall approach that informs waste management in South Africa. The waste management hierarchy consists of options for waste management during the lifecycle of waste, arranged in descending order of priority: *waste avoidance and reduction*, *reuse and recycling*, *recovery*, and *treatment and disposal* as the last resort.

An example of waste avoidance and reduction intervention at the government level was the introduction of a levy on plastic bags. This initiative spurned the production of better-quality bags that people are more likely to reuse, therefore reducing the number of plastic bags entering the waste stream and damaging the environment.

An IWMP also requires extensive public and key stakeholder consultation. Such consultation is required to facilitate informed decision-making and to build capacity and understanding of the principle of IWMP Planning.

1.2. OBJECTIVE

The main objective of an Integrated Waste Management Plan (IWMP) is to integrate waste management into or within municipal services and respond to increasing levels of waste management throughout the municipal area. This is done for the Municipality to:

Identify plan future waste management needs and requirements.

- Minimize waste management costs by optimizing the efficiency of the waste management system.
- Minimize adverse social and environmental impacts related to waste management and thereby improve the quality for all citizens.
- Avoid and minimize the generation within a municipality.

- Promote and ensure the effective delivery of waste services: re-using, recycling, and recovering the waste.
- Waste to energy feasibility.

Section 11(4)(a) of NEM:WA states that each municipality must submit its IWMP to the MEC of DEDEAT for endorsement and must include the endorsed IWMP in its Integrated Development Plan contemplated in Chapter 5 of the Municipal Systems Act.

In line with achieving compliance with NEM:WA and in giving effect to the primary NEM:WA, WSLM has embarked on a process of developing an IWMP. The main objective of the IWMP for WSLM is thus, to give effect to the objectives of the NEM:WA and other relevant legislation, inter alia, Chapter 5 of the Municipal Systems Act.

It is also important that WSLM invests in feasible and practical solutions for resolving waste management challenges. These practical solutions should be developed, implemented, and monitored adequately.

1.3. SCOPE OF THE IWMP

This IWMP outlines integrated waste management for the WSLM in the Eastern Cape Province and applies to all geographical areas that fall within the jurisdiction of the WSLM. A map of the WSLM is provided in Error! Reference source not found.. The plan is expected to be driven by the Community Services Directorate, but it applies to all directorates of the WSLM.

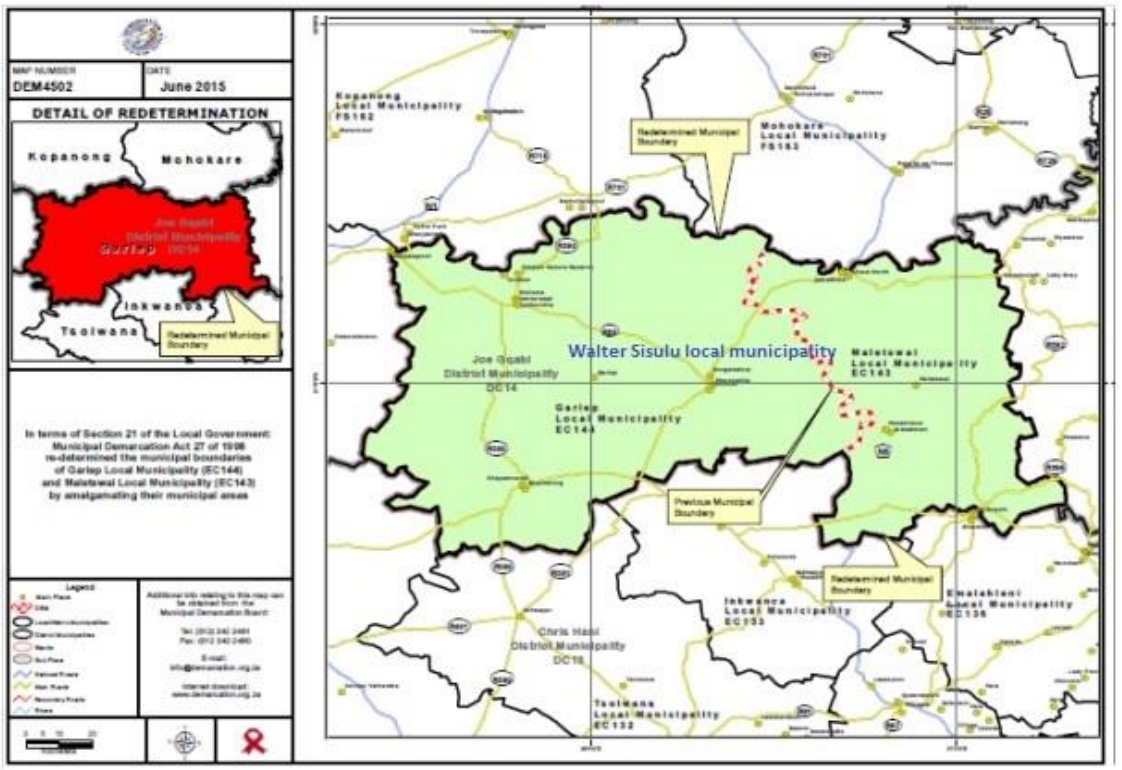


Figure 2: Map of the WSLM (Source: WSLM Integrated Development Plan (IDP)- (2023-2028))

1.4. THE NEED FOR AN IWMP

In terms of the NEM:WA, as amended, a local municipality is required to develop an IWMP and to submit such IWMP to the Member of Executive Council (MEC) for endorsement. The contents of an IWMP are detailed in Section 12 of the NEM:WA.

1.5. METHODOLOGY

The following research methodologies were applied in developing the IWMP for the Municipality:

1.5.1. Qualitative Research Method

Document Review: A thorough review of existing reports was done, such as research studies and other relevant document to collect relevant data from WSLM.

Site Visits: This activity was done to close the gaps identified in the document review process. The exercise also assisted in ensuring that there was a proper understanding and visual assessment of waste management activities to make informed decisions. Waste management facilities (municipal landfill sites and materials recovery facilities/buy-back centers), waste generating areas, waste management fleet and equipment were visited and assessed as part of this activity.

Conducting Interviews: Interviews with senior personnel in waste management within the WSLM were conducted. These interviews were restricted to staff members from the Municipality, waste recyclers and senior management responsible for the function. The purpose was to understand the current situation and the strategy and future of the WSLM.

1.5.2. Quantitative Research Method

A document review on the socio-economic profile of the area was done to extract quantitative data elements to incorporate into the analysis for waste management of WSLM.

1.5.3. Limitations of the study

In the data collection process for the study, the following were relevant limitations to this study:

1. The data presented in this report is limited to the information generated from the interview sessions with staff members and the few documents that have been reviewed. The other set of data was generated from the desktop review with the Statistics South Africa (Stats SA) website (2011 Census and 2016 Community Survey), Municipality's website, and Demarcation Board website.
2. The Municipality's waste management practice was assessed for a single day for each town, thus limiting the gathered information on the visual inspection on that day.
3. There is no adequate Waste Information System (WIS) for the Municipality except for James Calata. The information is not adequate for use in the decision-making process regarding waste management in the Municipality. Accurate data availability would have facilitated a comprehensive process of accurately determining waste streams for the Municipality.

2. CHAPTER 2: POLICY AND LEGAL FRAMEWORK

Waste Management Planning must be contextualized within the framework of national, provincial, and local government regulatory and policy framework. The implementation of legislation is only as good as the institutional arrangements that are in place to enforce, monitor, and report on the legislation.

South Africa has a myriad of legislated acts, policies, and guidelines relating to waste management, the most significant of these being NEM:WA which is now the country's central piece of legislation dealing with waste management. This section discusses these Acts, policies and guidelines thereby providing a context to waste policy and legislation. It further highlights aspects of these Acts and policies that apply specifically to the local government municipalities. This section is not exhaustive but presents the broader legislative framework and highlights more aspects for consideration in this IWMP development.

2.1. DESCRIPTION OF POLICY AND LEGAL BACKGROUND

2.1.1. The Role of the National Government

DFFE developed a NWMS in 2020, meant to be a framework for waste management and requires the translation of its goals and objectives into practice together with short-term (five-year) priority Action Plans for the following key elements of the Strategy:

- Integrated waste strategy
- Waste information systems.
- General waste collection
- Waste treatment and disposal and
- Capacity building, education awareness and communication.

The policy covers waste management of domestic, commercial, agricultural, mining, industrial, metallurgical, power generation, nuclear, medical, and hazardous waste as well as litter. The policy addresses the management of the entire waste-handling process, from generation to disposal. The policy seeks to encourage among other things:

- Waste avoidance, minimization, and prevention.
- Recycling and re-use
- Treatment
- Handling, Storage and Final Disposal of Waste

DFFE also has a responsibility to formally designate a national Waste Management Officer (WMO) who will be responsible for coordinating matters of waste management in the national government. The National WMO is responsible for the provision of capacity support and capacity building to provincial and local government when required, amongst other roles.

2.1.2. The Role of Provincial Government

The Department of Economic Development, Environment and Tourism (DEDEAT) as the provincial Department responsible for environmental management as well as waste management, has the exclusive responsibility to ensure that the local government carries out functions of refuse removal and solid waste disposal effectively. Specific responsibilities of DEDEAT include:

- Designation of the Provincial WMO for local government capacity building and other roles.
- Implementation of the national waste management strategy and national norms and standards.
- Setting of additional, complementary provincial norms and standards.
- Development of provincial implementation plans
- Review of IWMPs received from the municipalities and where necessary, assist with the drafting of these municipal IWMPs.
- Develop and enforce provincial regulations for general waste collection and support local government in the implementation of waste collection services.
- Act on environmental hazards as required.
- Ensure that all industries have access to appropriate waste disposal facilities.
- Implementing and enforcing waste minimization and recycling initiatives and promoting the development of voluntary partnerships with industry.
- Monitoring and provision of support of local government and promoting the development of local government capacity to enable municipalities to perform their functions and manage their affairs.
- Allocation of more and appropriate resources towards the local government function to improve spending and outcomes in municipalities.

2.1.3. The Role of the District Municipality

As per Section 10 of NEW:WA, municipalities (Joe Gqabi District Municipality (JGDM) included) must formally designate a WMO who will provide capacity building and support for the district and local municipalities. The JGDM has the following duties:

- Ensuring integrated development planning for the district. This includes the development of a framework for IDPs and ensuring that the IWMPs form part of the IDP process for the district as well as the Local Municipalities.
- Promoting bulk infrastructure development and services for the district. The infrastructure refers to facilities such as the establishment of regional waste disposal sites and bulk waste transfer stations that can easily be used by more than one local municipality within the district.
- Building local municipal capacity. Where a local municipality fails to perform its management functions, the district municipality can enter into a service level agreement (SLA) with the local municipality to provide the service for a stipulated period until such time the local municipality can offer the service and
- Promoting the equitable distribution of resources between the local municipalities in its area, for example, ensuring that resources are deployed in municipalities within their area of jurisdiction, where it

is more needed.

- It also assists in conducting monthly waste management monitoring where illegal dumping points are identified within the community setting and local authority solid waste sites are monitored.

2.1.4. The Role of Local Government

Walter Sisulu Local Municipality is responsible for providing waste management services, which include managing waste disposal facilities (landfill sites) within the municipal area of jurisdiction. Specific functions to be carried out by the WSLM include:

- Formal designation of a WMO.
- Compiling and implementing IWMP and integrating the IWMP into the Municipal IDP.
- Implementing public awareness campaigns
- Collecting data and reporting to WIS.
- Collecting waste from waste generators, transportation of waste-to-waste management facilities and managing waste disposal facilities within areas of authority.
- Implementing and enforcing appropriate waste minimization and recycling initiatives, such as promoting the development of voluntary partnerships with industry, including the introduction of waste minimization clubs.
- Where possible, regional planning, establishment, and management of landfill sites especially for regional-based waste landfills.

The WSLM has by-laws that regulate waste management to ensure that there is general compliance with waste management aspects at a municipal level.

2.2. SUMMARY OF THE RELEVANT LEGISLATION AND POLICIES

2.2.1. The Constitution (Act 108 of 1996)

The South African Constitution is the supreme law of the country. All other laws, including environmental waste management laws, must comply with the Constitution. Any law or conduct that is inconsistent with it is invalid, and the obligations imposed by it must be fulfilled.

The Constitution contains a Bill of Rights, set out in Sections 7 to 39. The Bill of Rights applies to all laws and binds the legislature, the executive, the judiciary, and all organs of state. A provision of the Bill of Rights binds a natural or a juristic person if, and to the extent that is applicable, considering the nature of the right and the nature of the duty imposed by the right.

Section 24 of the Constitution states that everyone has the right to:

- An environment that is not harmful to their health or well-being; and
- To have an environment protected for the benefit of present and future generations, through legislative and other measures that:
  - Prevent pollution and ecological degradation
  - Promote conservation and
  - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic or social development.

The Constitution imposes a duty on the state to promulgate legislation and to implement policies to ensure that this right is upheld. All departments of state or administration in the national, provincial, or local levels of government have similar obligations. The principles of co-operative governance are also set out in the Constitution and the roles and responsibilities of the three levels of government are defined.

According to the Constitution, responsibility for waste management functions is to be devolved to the lowest possible of government. Local government therefore is assigned the responsibility for refuse removal, refuse dumps and solid waste disposal. The provincial government has the exclusive responsibility to ensure that local government carries out these functions effectively.

2.2.2. The National Environmental Management Act (Act 107 of 1998), as Amended

The National Environmental Management Act, 1998 (NEMA Act 107 of 1998) as amended, gives effect to the “Environmental Right” of the Constitution as is South Africa’s overarching framework for environmental legislation. The objective of NEAM is to provide for cooperative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will provide cooperative governance and procedures for coordinating environmental functions exercised by organs of state. An important function of the Act is to serve as the enabling Act for the promulgation of legislation to effectively address integrated environmental management.

NEMA sets out several principles that aim to implement the environmental policy of South Africa. These principles are designed to serve as a framework for environmental planning as guidelines by which organs of state must exercise their functions and to guide other laws concerned with the protection or management of the environment. The principles include several internationally recognized environmental law norms and some principles specific to South Africa. The core principles of NEMA are the following:

- Accountability
- Affordability
- Cradle of Grave Management
- Equity
- Integration
- Open Information
- Polluter pays.
- Subsidiary
- Waste Avoidance and Minimization
- Co-operative Governance
- Environmental Protection and Justice

Chapter 7 of the Act imposes a duty of care in respect of pollution and environmental degradation. Any person who has caused significant pollution or degradation of the environment must take steps to stop or minimize the pollution. The environmental impact assessments that are required for the establishment and management of waste facilities are conducted under the legislation. Section 24 of the Act makes provision for the application and enforcement of waste management licenses. The duty of care and the remediation of environmental damage are addressed in Section 28 of the Act. The principles enunciated in the NEMA need to inform waste management decision-making and practices.

2.2.3. The National Environmental Management: Waste Act (Act 59 of 2008) as Amended

The Waste Act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IMWPs, definition of priority wastes, waste minimization, treatment and disposal of waste, industry waste management plans, licensing of activities, water information management, as well as addressing contaminated land.

The National Environmental Management: Waste Act's objectives are:

- To protect health, well-being, and the environment by providing reasonable measures to:
  - Minimizing the consumption of natural resources
  - Avoiding and minimizing the generation of waste
  - Reducing, re-using, recycling and recovering waste
  - Treating and safely disposing of waste as a last resort
  - Preventing pollution and ecological degradation

- Securing ecologically sustainable development while promoting justifiable economic and social development.
- Promoting and ensuring the effective delivery of waste services
- mediating land where contamination presents, or may present a significant risk of harm to health or the environment and
- Achieving integrated waste management reporting and planning

- To ensure that people are aware of the impact of waste on their health well-being and the environment and
- Generally, to give effect to Section 24 of the Constitution to secure an environment that is not harmful to people's health and well-being.

The Waste Act also places considerable emphasis on the development of an integrated waste planning system, through the development of interlocking Integrated Waste Management Plans (IWMPs) by the provincial and local spheres of government and specified waste generators. This planning system is the primary tool for cooperative governance within the sector. Section 11 (4) of the NEM:WA, as amended, requires each municipality to submit the IWMP to MEC for endorsement and include the endorsed IWMP in the Municipal IDP. Section 12 of the Waste Act elaborates on the contents of the waste management plans, while Section 13 provides for the requirements for the implementation and reporting of IMWPs.

2.2.4. The National Environmental Management: Air Quality Act (Act of 39 of 2004) as Amended

The National Environmental Management: Air Quality Act (NEM:AQA) as amended, amongst others provides for the implementation of a National Framework of national, provincial, and local ambient air quality management plans.

Consideration must be given to the emissions arising from waste management practices, processes, and procedures. Many facets of waste management are associated with atmospheric emissions, for example, greenhouse gases such as methane and carbon dioxide are released from landfill sites.

Part 2 of Chapter 2 of the Act sets out national, provincial, and local ambient air quality and emission standards, chapter 3 states institutional and planning matters including a requirement for each municipality to designate an Air Quality Officer, and to include in its IDP and Air Quality Management Plan. Chapter 4 states that air quality management measures (priority areas, listing of activities resulting in atmospheric emissions, controlled emitters, controlled fuels and other emitters). Chapter 5 describes the procedures to apply for licenses for listed activities, while Chapter 7 describes the offenses and penalties for non-adherence.

2.2.5. The National Water Act (Act 36 of 1998)

The National Water Act is South Africa's overarching piece of legislation regarding water resource management. It contains several provisions that impact waste management including the disposing of

waste in a manner that detrimentally impacts a water resource and the discharge into a water resource. The Act allows the Minister to make regulations for:

- Prescribing waste standards, which specify the quantity, quality and temperature of waste that may be discharged or deposited into or allowed to enter a water resource.
- Prescribe the outcome or effect, which must be achieved through management practices for the treatment of waste before it is discharged or deposited into or allowed to enter a water resource.
- Requiring that waste discharged or deposited into or allowed to entire a water resource be monitored and analyzed according to prescribed mechanisms.

2.2.6. The National Health Act (Act 61 of 2003)

The National Health Act controls nuisance (such as the one that can be caused by waste) and compels local governments to take steps to prevent the occurrence of hygienic conditions. The implementation of this Act is of particular importance for local government.

The National Health Act provides a framework for a structured uniform health system within the Republic, considering the obligation imposed by the Constitution and other laws on the national, provincial, and local government concerning health services, and to provide for matters connected therewith.

Section 32 of the Health Act (Act 61 of 2003) requires provincial Health MEC to assign environmental health functions to district and metropolitan municipalities. The definition of these functions in the Health Act includes environmental pollution control, waste management and water quality monitoring. The National Health Act does not address the disposal of healthcare risk waste as such.

2.2.7. The Hazardous Substances Act (Act 15 of 1973)

The Hazardous Substance Act governs the control of substances that may cause ill health to humans because of the substance's toxic corrosive, irritant, inflammatory or pressure effects. The Act provides for the regulation of the importation, manufacture, storage, sale, use, application, modification, handling, labeling, disposal or dumping of hazardous substances. Hazardous substances are classed into Groups 1, 11, and 111. A license is required for the storage, handling, and selling of Group 1 substances. Disposal of empty containers for Group 1 substances is regulated by Section 29 (1) of the Act. Section 29 of the Act stipulates that the Minister has the designated authority to authorize, regulate or prohibit dumping of hazardous substances. Industries that generate hazardous waste must have an industrial Waste Management Plan.

2.2.8. Occupational Health and Safety Act (Act 85 of 1993)

The role of this Act is to provide for the health and safety of people at work, the health and safety of people in connection with the use of plant and machinery. It is also concerned with the protection of people other than people at work against hazards to health and safety in connection with the activities of people at work

to establish an advisory council for occupational health and safety and to provide for matters connected therewith.

The principles and core duties of the employers and employees as legislated in Sections 8, 9, and 14 of the Act. Section 14 (a) imposes the duty of every employee at work to take reasonable care for the health and safety of themselves and the other people who may be affected by their acts or omissions. An employee is also required to cooperate with the employer concerning the duties and to obey health and safety rules and procedures laid down by the employer.

2.2.9. The Municipal Structures Act (Act 117 of 1998)

The main object of the Municipal Structures Act is to provide for the establishment of municipalities in accordance with the requirements relating to categories and types of municipalities and to provide for an appropriate division of the functions and powers between categories of municipalities. It is one of a set of legislation that is aimed at the transformation of local government into a more financially sustainable and performance-orientated sphere of government.

The Act is aimed at creating the permanent structures mandated by the Constitution, which will replace the transitional structures created by the Local Government Transition Act. Municipalities are categorized as either A, B or C depending on the level of development.

Chapter 5 of this Act sets out the functions and powers of the municipalities in terms of Sections 156 and 229 of the Constitution.

2.2.10. The Municipal Systems Act (Act 32 of 2000)

The Municipal Systems Act describes the core principles, mechanisms and processes which are necessary for municipalities to progressively move towards the social and economic upliftment of communities and ensure access to services that are affordable to all community members. The focus of the Act is primarily on the internal systems and administration of the municipality.

The Act enables the process of decentralization of functions by assigning powers of general competence to local government. A municipality is responsible for the effective delivery of services to the local communities and the municipality must provide an appropriate policy and regulatory framework. Performance management systems are to be reported annually to local citizens and other spheres of government. The process to be followed in planning, drafting, and adopting the IDP is set out.

A municipality must give effect to the provisions of the constitution and give priority to the basic needs of the local community, promote the development of the local municipality, and ensure that all members of the local community have access to at least a minimum level of basic service.

Municipal services must be equitable and accessible, and provided in a manner that is conducive to prudent, economic, efficient, and effective use of available resources. The municipal services must be

financially and environmentally sustainable and be regularly reviewed with a view to upgrading, extension, and improvement.

In terms of tariff policy (Section 74) the following must apply:

- All people must be treated equitably in the application of tariffs.
- The levy for services must be in proportion to the consumption of services.
- Poor households should at least have basic services.
- Tariffs must reflect the costs of providing the service and be financially sustainable.
- Any cross-subsidies must be fully disclosed.
- Recycling and other principles of environmental management must be promoted for the efficient, efficient, and economical use of municipal resources.
- Tariff policies may vary between different users provided these are not fair or discriminatory.

2.2.11. Promotion Of Administrative Justice Act (Act 03 of 2000)

The purpose of the Promotion of Administrative Justice Act (PAJA) is principally to give effect to the right to administrative action that is lawful, reasonable, and procedurally fair, and to the right to written reasons for administrative action as contemplated in Section 33 of the Constitution, and to provide for matter incidental thereto.

Administrative law governs the relationships between public bodies and between public and private bodies and/or individuals. Many activities that affect the environment, including certain waste management activities, require authorization from a public body. Because environmental conflicts may arise during the authorization process from the exercise of administrative decision-making powers, administrative law principles are of relevance to environmental law generally, specifically in the context of the environmental authorization requirements stipulated by the provisions of Section 24 of the MEMA read with its subordinate legislation regulating Environmental Impact Assessment (EIA).

2.2.12. Promotion of Access to Information, (Act 2 of 2000)

Closely linked to the notion of administrative justice is the right of access to information. Without access to information, a person may be unable to determine whether his or her right to just administrative action (or to an environment not harmful to human health or well-being or for that matter, any other Constitutional right) has been infringed. The purpose of the Promotion of Access to Information Act (PAIA) is to give effect to the Constitutional right to access any information held by the State and any information that is held by another person that is required.

2.2.13. Protection of Personal Information Act, Act No. 3 of 2023

This Act sets out the minimum standards regarding accessing and processing of any personal information belonging to another. All organizations in South Africa, (of any size) and individuals that are in a position to obtain, handle and store the personal information of another individual whether it be in terms of their employment or as suppliers or service providers, must adhere to the requirements of the Act and implement steps to safeguard the information.

2.2.14. The Spatial Planning and Land Use Management Act (Act 16 of 2013)

SPLUMA aims to develop a new framework to govern planning permissions and approvals, sets parameters for new developments, and provides for different lawful land uses in South Africa. SPLUMA is a framework law which means that the law provides broad principles for a set of provincial laws that will regulate planning.

The objectives of the Act include:

- Provision for a uniform, effective, and comprehensive system of spatial planning and land use management for the Republic.
- Ensuring that the system of spatial planning and land use management promotes social and economic inclusion.
- Provision for development principles and norms and standards.
- Provision for the sustainable and efficient use of land.
- Provision for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government.

SPLUMA will be important for the municipality when planning for future waste management activities such as transfer stations and landfill sites.

2.2.15. Local Agenda 21

Agenda 21 is a comprehensive document for global action on environmental and sustainable development to take the world into a more sustainable 21st century. The document must be taken globally, nationally, and locally by organizations of the United Nations, Governments, and major groups in every area in which humans impact the environment. The document was adopted by the United Nations Conference on Environmental and Development (UNCED) at the Rio De Janeiro Summit in Brazil in June 1992. The document has 40 chapters which are divided into four sections, which cover a wide range of issues such as atmosphere, waste materials, oceans, land resources, poverty, etc.

It resolved that each nation should develop its own “Local Agenda 21” to translate and interpret the principles of sustainable development to local areas. Local Agenda 21 focuses on developing partnerships that involve the public, private and community sectors that can resolve urban environmental management problems and strategically plan for long-term sustainable management.

One of the key features of sustainable development is the requirement to integrate economic and environmental factors into all decision-making processes. Agenda 21 initiatives are an essential vehicle for the implementation of various aspects of an IWMP. The key goals of Agenda 21 are as follows:

- Sustainable Development
- Eradication of poverty
- Elimination of threats to the environment
- Creation of sustainable job opportunities

The focus of an IWMP is to strive to attain the above goals in all facets thereof. The following key activities require attention to satisfy Local Agenda 21:

- Garnering local political support
- Managing and improving local authorities' environmental performance
- Integrating sustainable development is within local authorities' policies and activities.
- Awareness raising and education.
- Consulting and involving the general public.
- Forging partnerships with other interest groups and activities.
- Measuring, monitoring and reporting on progress towards sustainability.

2.2.16. The National Waste Management Strategy (GNR 344 of 2011)

NWMS is a legislative requirement of NEM:WA. The NWMS adopts the internationally accepted waste management hierarchy approach. The NWMS describes how the generation of waste should first be reduced. If it is not reduced, it is then to be re-used. If reuse is not possible, then it must be recycled. If recycling is not possible, waste-to-energy methods should be considered and disposal should be a last resort. The strategy defines eight strategic goals with several targets, as presented in **Table** 1.

Table 1: Goals of the 2011 NWMS.

Goal	**Description**
Goal 1	Promote waste minimization, reuse, recycling, and recovery of waste.
Goal 2	Ensure the effective and efficient delivery of waste services.
Goal 3	Grow the contribution of the waste sector to the green economy.
Goal 4	Ensure that people are aware of the impact of waste on their health, well-being, and the environment.
Goal 5	Achieve integrated waste management planning.

Goal 6	Ensure sound budgeting and financial management for waste services.
Goal 7	Provide measures to remediate contaminated land.
Goal 8	Establish effective compliance with and enforcement of the Waste Act.

The strategy outlines the functions and responsibilities of the three levels of government and where possible, firm plans and targets are specified. The roles and responsibilities in terms of the NWMS for Local Government include:

- Integrated waste management planning: Local government will be responsible for the compilation of general waste management plans for submission to the Provincial Government.
- WIS: Local Government will be responsible for data collection.
- Waste Minimization: Local Government will implement and enforce appropriate national waste minimization/initiatives and promote the development of voluntary partnerships with industry.
- Recycling: Local Government is to establish recycling centers and/or facilitate community initiatives.
- Waste Collection and Transportation: Local Government is to improve service delivery. Private public partnerships to assist service delivery are encouraged.
- Waste Disposal: Local Government is to take responsibility for the establishment and management of landfill sites, and to promote the development of regionally based facilities. Formalizing and controlling unauthorized waste reclaiming is the responsibility of the permit holder.

2.2.17. The National Waste Management Strategy (NWMS) (2020)

National Waste Management Strategy, 2020 is a revision and update of the NWMS 2011 strategy, which provides government policy and strategic interventions for the waste sector. NWMS 2020 broadly focuses on preventing waste and diverting waste from landfills by leveraging the concept of circular economy to drive sustainable and inclusive economic growth. In waste management, circular economy is an approach to minimize the environmental impact of economic activity by reusing and recycling processed waste material. The strategy is aligned and responsive to the Sustainable Development Goals (SDGs) and to the National Development Plan (NDP): Vision 2030, which is South Africa's specific response to SDG's overall socio-economic development plans.

2.2.18. The Polokwane Waste Summit Declaration

A national waste summit was held in Polokwane in Limpopo Province in September 2001. It was attended by key stakeholder groups in the waste field to jointly chart a way forward in terms of national waste management. The resultant Polokwane Declaration includes a vision and goal for the management of waste of all waste, i.e., domestic, commercial and industrial.

Vision: To implement a waste management system that contributes to sustainable development and a measurable improvement in the quality of life by harnessing the energy and commitment of all South Africans for the effective reduction of waste.

Goals: To reduce waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for zero waste by 2022. Key actions in the Polokwane Declaration included the following:

- Implement the National Waste Management Strategy
- Develop and implement legislative and regulatory framework.
- Waste reduction and recycling and
- Develop waste information and monitoring systems.

While the vision of the declaration remains intact, the timeframes set for the goals for waste reduction have not been met and are, in hindsight, generally considered unrealistic.

2.2.19. National Policy for the Provision Oo Basic Services to Indigent Households (GN. 413 of 2011)

The purpose of the policy is to ensure that indigent households have access to at least basic refuse removal (BRR) service. This policy aligns with existing relevant legislation, such as Section 74 (2)(c) of the Municipal Systems Act, 2000 (Act No.32 of 2000) poor households must have access to at least basic services and Section 9 (2) of NEM:WA (Act 59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services including waste collection, waste storage and waste disposal, by ensuring access for such services.

The objectives of the policy are to identify households that can be enrolled for the BRR service, establish bylaws to enforce tariff policies that will support the BRR service and raise awareness within the municipality regarding the correct handling of domestic waste and the need to minimize waste and recycle.

Implementation Plans include each municipality:

- Declaring specific localities as the recipients of basic refuse removal services
- Maintaining an accurate and updated register of indigent people
- Taking action in the event of malpractice
- Integrating basic refuse removal into basic indigent policies
- Designating the administration of the policy to the “most appropriate department” and
- Raising necessary awareness

The policy includes a “grid of responsibilities) for each sphere of government and a policy monitoring and evaluation plan. According to the grid of responsibilities, the national government will take responsibility for building capacity and the provincial and municipal levels, with the provincial determining municipal capacity and assisting district municipalities in “drawing up guidelines.”

2.2.20. The National Domestic Waste Collection Standards (GNR 21 of 2011)

The National Domestic Waste Collection Standards aim to provide a uniform framework within which domestic waste should be collected in South Africa. This came after a consultative process with provinces, municipalities, and the public to redress the past imbalances in the provision of waste collection services. The standards aim to guide municipalities on how to provide acceptable, affordable, and sustainable waste collection services to human health and the environment.

The standards cover the level of service, separation at source (between recyclable and non-recyclable material, collection vehicles, receptacles, collection of waste in communal collection points, and most importantly the frequency of collection.

Key requirements for municipalities include the following:

- Non-recyclable material such as perishable food waste must be collected at least once a week and recyclable material such as paper, plastic, glass etc., must be collected at least once every two weeks.
- Municipalities have a choice to provide different types of bins taking into consideration the types of vehicles they use; however, the bins must be rigid and durable to prevent spillage and leakage.

2.2.21. The National Waste Sector Plan (GNR 270 of 2011)

The development of the waste sector plan came as a response to the Cabinet's call to all sector Departments to account for all service backlogs and to develop a plan to address such service backlogs. The Municipal Waste Sector Plan aims to assist Municipalities to fast-track the provision of waste services including the storage, collection, transportation, recycling, and safe disposal of waste. The Sector plan has three key strategic objectives:

- To reduce the amount of general and hazardous waste disposed in the country.
- To ensure that all waste is disposed of appropriately and does not damage the environment or human health.
- To provide adequate waste collection services across the country.

2.2.22. National Waste Information Regulations (GNR 625 of 2013)

The National Waste Information Regulations came into effect on 01 January 2013. These regulations cover the registration of a person who conducts waste management activities and their duty to keep records. Annexure 1 of the regulations lists activities including recovery and recycling, treatment, and disposal of waste for which the person conducting the activity must register. The municipality has a duty in terms of waste disposal to land (as well as operating waste recycling or treatment facilities) to report waste types and quantities in accordance with these regulations to SAWIC quarterly.

2.2.23. Tyre Regulations (GNR 149 of 2009)

The purpose of the regulations is to regulate the management of waste tyres by providing regulatory mechanisms. The regulations apply uniformly in all provinces in South Africa and affect waste tyre producers, waste tyre dealers, waste tyre stockpile owners, landfill site owners and tyre recyclers. In summary, the regulations:

- Prohibit recycling, recovery or disposal of a waste tyre at any facility or on any site, unless such activity is authorized by law.
- Prohibit the recovery or disposal of a waste tyre in a manner that may or may potentially cause pollution.
- Prohibit disposal of a waste tyre at a waste disposal facility, two years from the gazette date, unless such waste tyre has been cut into quarters and prohibits disposal of tyres in five years unless these are shredded.
- Provide regulations in terms of tyre producers, tyre dealers and tyre stockpile owners.

2.2.24. National Waste Classification and Management Regulation of 2013

The purpose and the application of the National Waste Classification and Management regulation. Regulate classification and management of waste to give effect to provisions of the Act. Prescribes general duties of waste generators, transporters, and managers. Establish a mechanism for the listing of waste management activities that do not require a waste management license. Prescribes requirements for disposal of waste to landfill. Prescribe requirements and timeframes for the management of certain wastes.

Waste Classification:

- Waste must be classified according to GHS – SANS 10234 “South African National Standard Globally Harmonized System of Classification and Labelling of Chemicals (GHS)”
- Classify waste within 180 days of generation.
- Any waste that has been treated must be re-classified.
- Any waste must be re-classified if there are modifications to the process or activity that generated the waste.

2.2.25. National Norms and Standards for Storage of Waste (GNR. 926 of 2013)

These standards specify the minimum requirements for waste storage facilities in the interest of the protection of public health and the environment. The standards aim to ensure that waste storage facilities are managed according to best practices and to provide a minimum standard for the design and operation of the new and existing waste storage facilities.

Hazardous waste storage facilities should be in areas zoned as industrial. Where storage facilities are in residential areas, a buffer of at least 100 meters must be assigned to the site. General waste storage facilities must be in an area that is easily accessible to the public.

The standards also specify design requirements for waste storage facilities. These include access roads and the specifications of signage at the entrance of the facility. The standard also requires that waste is separated at source into recyclables and non-recyclables. A new condition for the management of waste storage facilities is the requirement for bi-annual internal audits and biennial (one in two years) external audits.

2.2.26. National Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening of Waste (GN 1093 of 2017)

The National norms and standards for sorting, shredding, grinding, crushing, and screening of waste (GN 1093 of 2017) require all waste facilities (used for sorting, shredding, grinding, crushing, and screening of waste (less than 100m2 in size to register with the competent authority and provide details including the location, types of waste processed and civil design drawings of the facility as set out in Section 4 of the standard, as well comply with the requirements of the location, design, construction, access control and signage. Operational requirements in Section 8 of the standard address management of operational impacts such as control of hazardous substances, air emissions, discharging of wastewater, and noise and odor emissions. The standard also covers training, emergency response, monitoring and reporting, general requirements, requirements during the decommissioning phase and transitional provisions.

2.2.27. National Norms and Standards for Assessment of Waste for Landfill Disposal (GR.635 of 2013)

These norms and standards require the assessment of waste before disposal at a landfill. The assessment of waste before disposal must include identification of the total and leachable concentrations of different chemicals. The concentration of chemicals determines the classification of the waste which in turn dictates the type of disposal site where the waste can be disposed of.

2.2.28. National Norms and Standards for Disposal of Waste to Landfill (GR. 636 of 2013)

These norms and standards specify the minimum engineering design requirements for landfill sites. These design requirements vary depending on the type of waste to be disposed of at the site. Landfill sites are designed with one of the four designs (Class A- Class D). The landfill design classes vary in the types of liner used. Class A landfill sites require multiple lining and leachate collection systems whereas a Class D landfill site is much simpler in design requiring only a 150mm base preparation layer. Different classes of landfills are required for different types of waste.

2.2.29. National Norms and Standards for the Extraction Faring or Recovery of Landfill Gas (GR. 924 of 2013)

The purpose of these norms and standards is to aim at controlling the flaring, extraction, or recovery of landfill gas at a facility to prevent or minimize the potential negative impacts on the bio-physical and socio-economic environments. It describes how these facilities must be designed, operated, monitored, and decommissioned.

2.2.30. National Norms and Standards for Organic Waste Composting (Gn. 68 of 2021)

These norms and standards as gazette on the 25th of June 2021, apply to organic waste composting facilities that can process over 10 tons but less than 100 tons of compostable organic waste per day and describe how such a facility must be designed, operated, monitored, and decommissioned.

2.2.31. National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (GN. 467 of 2014)

The purpose of these norms and standards is to provide a uniform national approach to determine the contamination status of an area and to limit uncertainties about the most appropriate criteria and method to apply in such an assessment. These norms and standards also provide minimum standards for assessing necessary environmental protection measures for remediation activities.

2.2.32. The Eastern Cape Provincial Integrated Waste Management Plan, 2022

The Provincial Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) has developed a provincial IWMP. The Provincial IWMP has been endorsed and is expected to be implanted in 2026. The following are the objectives of the Provincial IWMP, which apply to all Eastern Cape municipalities.

- Ensure sufficient institutional capacity to implement integrated waste management.
- All municipalities are to have a designated WMO appointed by year 1.
- Improved integrated waste management planning:
  - Development of a Provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, Public drop-off facilities and construction and demolition waste crushing facilities.
- Both Metros to develop a waste infrastructure masterplan by year 5. All municipalities are to have integrated IWMP projects into IDPs.
- Development of guidelines for challenging problematic waste streams as needed for example- E-waste and organic waste, domestic hazardous Abattoir waste.
- All municipalities to have current IWMPs which are endorsed by DEDEAT by year 5
- All municipalities are to report on IWMP implementation on an annual basis to DEDEAT.
- Increased waste minimization, re-use, recycling, and recovery

- All municipalities' waste managers are to attend the DEDEAT quarterly waste management forum.
- Municipalities to create an enabling environment for composting by 2022.
- All metros, B2 and B3 municipalities to facilitate the development of at least one recycling public drop-off center in the main town by 2022.
- All municipalities need to implement a waste recycling program by 2020.
- Effective Waste Information Management
    - At all waste facilities without weighbridges, a manual system for estimating incoming waste is to be implemented to allow waste disposal tonnages to be estimated (from 2019).
    - All municipalities are to be reporting on SAWIC by 2019.
    - Improved waste facility management
    - All landfill sites must be permitted by 2026.
    - Provide effective and financially viable services.
    - Achieve at least a 10% increase in refuse collection rates (% of households serviced) in all municipalities by 2026.
    - Revision of waste tariffs to be informed by full cost accounting exercises to be undertaken by all LMs by 2025.
- Improved education, awareness, and waste information sharing
    - All municipalities to develop and implement an awareness programme
- Effective Compliance Monitoring
    - All municipal landfill facilities are to be audited internally by municipalities at least once per annum (or more frequently if required by license conditions), and audit reports are to be submitted to DEDEAT.

2.2.33. Joe Gqabi District Integrated Waste Management Plan

The JGDM does not have an endorsed and gazetted IWMP, yet. Should the district wide IWMP be available during the process, the IWMP for WSLM will also be aligned with the IWMP for the District.

2.2.34. Walter Sisulu Integrated Development Plan (IDP)

The WSLM's current Integrated Development Plan (IDP) covers the period 2023-2026. The IDP notes a commitment to providing quality and sustainable waste management services to the residents of the municipal jurisdiction and includes waste management targets and projects.

2.2.35. Walter Sisulu Waste Management By-Laws

Chapter 7 of the South African Constitution provides that a municipality may make and administer by-laws for the effective administration of matters which it has the right to administer and that the by-laws shall not conflict with national provincial legislation. This is further supported in Chapter 3: Section 11 of the

Municipal Systems Act (MSA Act No.32 of 2000) for a municipality to exercise authority within its boundaries to implement applicable laws. Section 75 of the MSA provides for the municipal council to adopt bylaws to give effect and enforce its tariff policy. These are existing bylaws for waste management for WSLM. There is also a schedule of fines for various offenses in the by-laws as developed by the Municipality.

3. CHAPTER 3: STATUS QUO REPORT

3.1. INTRODUCTION

The National Environmental Management: Waste Act, (Act No. 59 of 2008), which came into effect on July 1, 2009, stipulates the need for an Integrated Waste Management Plan (IWMP). Its objective is to change the traditional approach to waste management, which consists of collection and disposal, into a sustainable practice that prioritizes environmental sustainability and waste minimization. The creation of an IWMP is required since it serves as a crucial instrument for determining the demands that currently exist for a municipality's waste management services and as a road map for environmentally friendly waste management practices.

3.2. GEOGRAPHICAL OVERVIEW

Walter Sisulu Local Municipality (EC 145) is an amalgamation of two municipalities, namely, former Gariep LM and Maletswai LM). Currently, WSLM is constituted by the following urban centers/towns:

- Burgersdorp
- Maletswai
- Venterstad
- Steynsberg
- James Calata

Walter Sisulu Local Municipality (Figure 3) is a municipality located in the west of Joe Gqabi District area in the Eastern Cape Province, south of the Orange River and Gariep Dam. The Orange River separates Walter Sisulu Local Municipality from both the Northern Cape and the Free State Provinces. It is the largest of the three municipalities in the Joe Gqabi District, making up half of its geographical area 13 280.2 sq km. (Source: WSLM-IDP, 2023-2028).

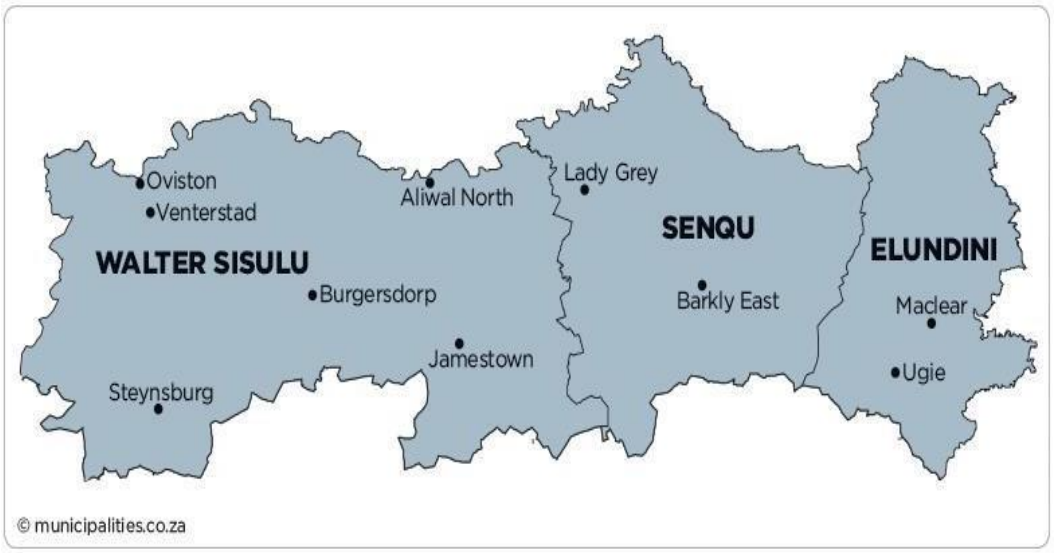


Figure 3: Map of the locality of Walter Sisulu Local Municipality (Source: SALGA Website).

3.2.1. Base Population

Walter Sisulu Local Municipality (

Figure 4) is ranked third in terms of population size in Joe Gqabi District Municipality, lesser than Senqu Local Municipality which is ranked number one (1) and Elundini ranked as number two (2). According to Stats SA-2022, WSLM has experienced an increase in the number of people living in the Municipality with a population size of 104 213 compared to Stats SA-2011 with a population size of 77 477.

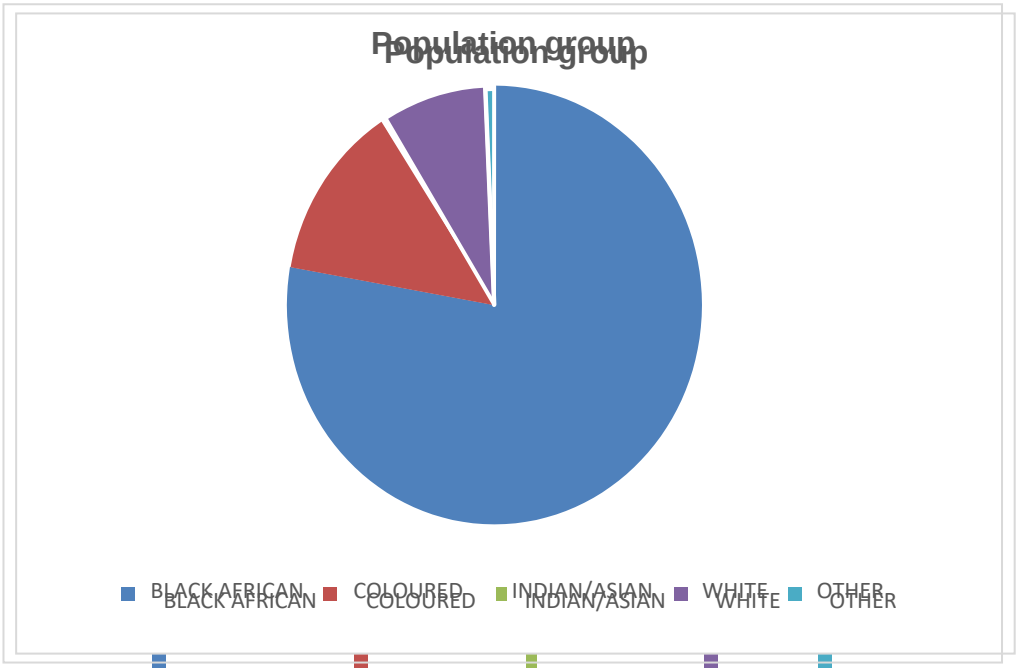


Figure 4: The population groups within WSLM (Source: StatsSA (2022)*).*

3.2.2. Age Distribution

Age Distribution (Figure 5) is essential in matters related to waste management as it depicts the economically active groups in society. The number of young children between the ages of 0-14 years in WSLM is 28% of the population. The working population aged between 15-64 years with a population of 64.6% higher than that of 2011 StatsSA which was 625. The municipality has a low population of elderly above age +65 years with a percentage of 7.1% which is higher than 6% of 2012 StatsSA.

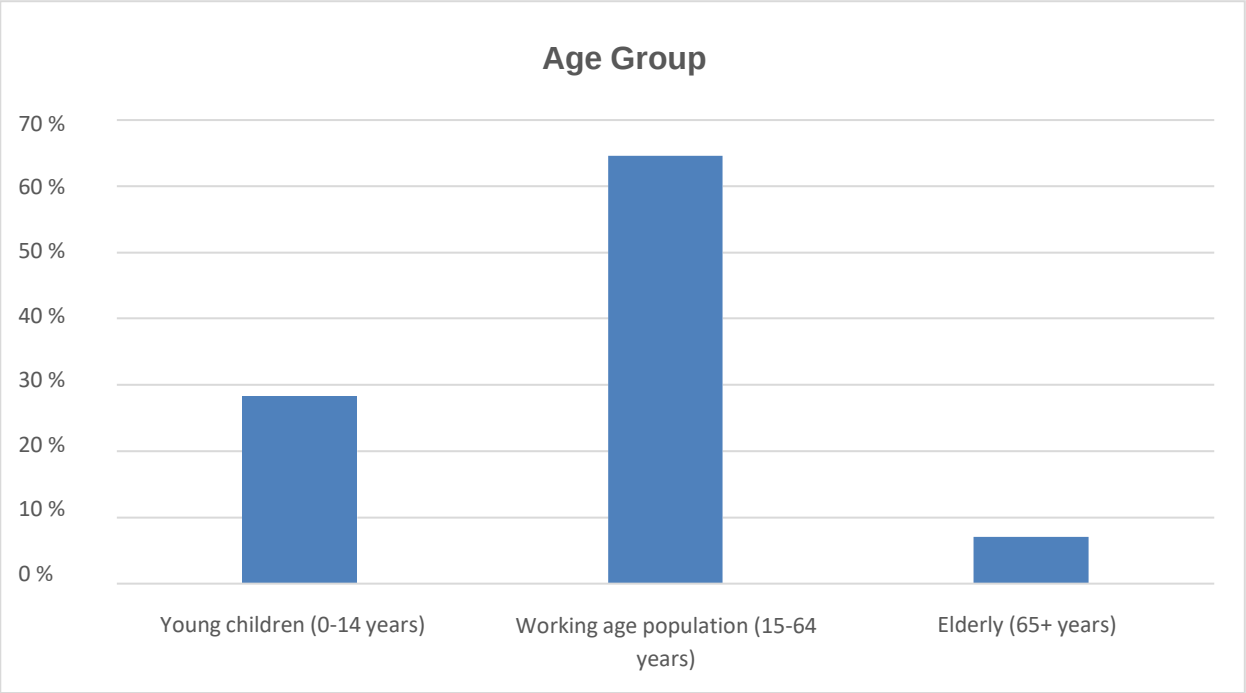


Figure 5: The Age group - Source: StatsSA (2022).

3.2.3. Gender

According to StatsSA, (2011), there are 49 461 males in the municipality which make up 47.5% of the population (Figure 6). Females constitute 52.5% of the population which is 54 752. This shows that females are more than males.

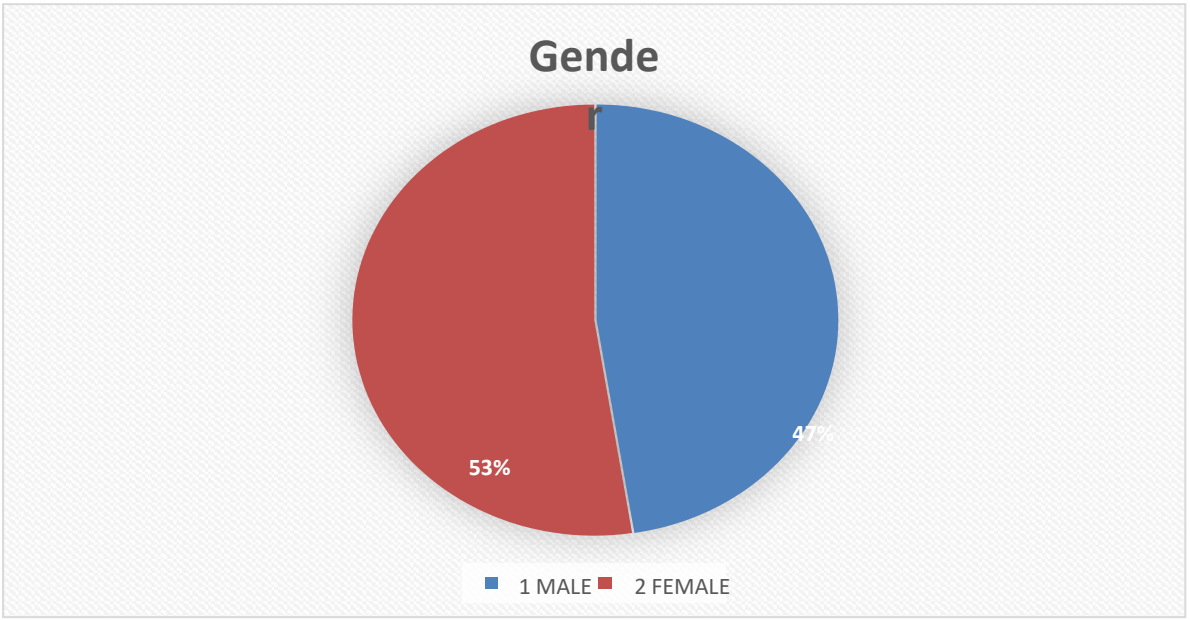


Figure 6: The gender split in the Municipality. (Source: Stats S.A (2022)).

3.2.4. Number of Households

The number of households in the municipality is estimated at 34 171 higher than the number of households in 2011 (Stats SA) which was 21 874 (Figure 7). Formal dwellings make up 94.4%, meaning that the remaining 5,6 % are informal dwellings.

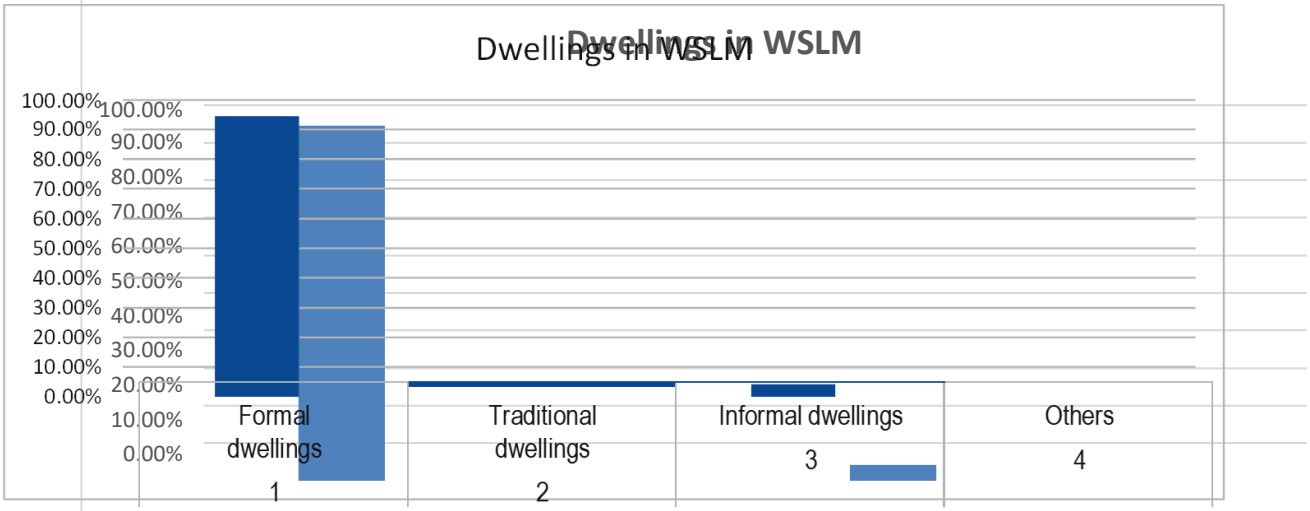


Figure 7: The types of dwellings. (Source: Stats S.A (2022)).

3.2.5. Access to Basic Services

The municipality has provided flushing toilets connected to sewerage to 89,7% of the population and other toilet facilities fall under the remaining percentages (10.3%). Access to piped water in the dwellings is 66.7% and the electricity for lighting is 94.7%.

3.2.6. Refuse Disposal Services.

Table 2 below represents refuse disposal services on percentages within the WSLM.

Table 2: Refuse disposal services on percentages within the WSLM (Source- WSLM IDP- 2023-2028).

NAME	PERCENTAGE
Removed by the local authority at least once a week.	84.4%
Removed by local authority less often	2%
Communal Refuse Disposal (Dump)	0.6%
Communal container/ central collection point	2.2%
Own refuse dump	8.5%

No rubbish disposal	1.9%

3.3. ECONOMIC PROFILE

3.3.1. Education

Stats SA indicates that 26 505 people are fortunate enough to go to school making up 73.5% of the population and about 9 604 are not attending school making up 26.6% of the population of the WSLM (Figure **8**).

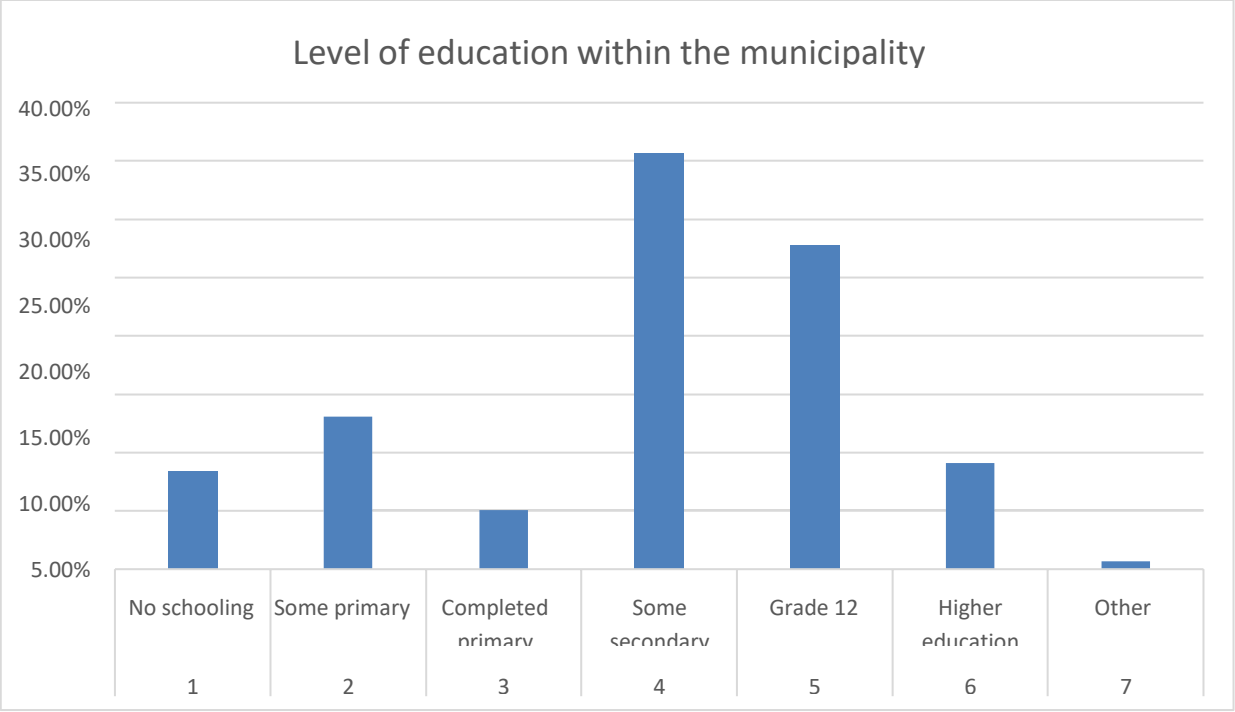


Figure 8: The level of education within the population of WSLM. *(*Source: Stats S.A (2022)).

3.3.2. Main economic sectors

Table 3 represents the economic activity within WSLM.

Table 3: Economic Activity within WSLM. Source: WSLM IDP, 2023-2028

SECTOR	%
Manufacturing	11%
Agriculture	7%
Trade	19%
Construction	4%
Government services	1%
Community services	33%
Transport and Communication	9%

Finance and Business Services 16%

4. CHAPTER 4: WASTE MANAGEMENT WITH WSLM MUNICIPALITY

4.1. SERVICE AREA AND SOLID WASTE MANAGEMENT

Solid waste management is the process of gathering, handling, and getting rid of stuff that is thrown away because it has outlived its usefulness or served its purpose. The solid waste management is the responsibility of the municipality and WSLM has a manager appointed for waste management issues. The waste in WSLM is collected from town and residential areas weekly. **Table 4** to Table 8 illustrate how waste is being collected in each town.

Table 4: Collection Plan for Maletswai town (8394 households).

Weekdays	Areas
Mondays	Block A, B, C, D, E, F, and Hilton Murray, Somerset, Myburgh, Young up to the corner of Durban Street. Queens Terrace up to the corner of Durban Street. Durban Street up to Queens Terrace, Smith up to the corner of Smuts Avenue. Durban Street up to Margaret Street and Smith Street up to Smith Street Collin, Warwick, levy, and Cole Street
Tuesdays	Block G and Hilton, Corner of Smuts Avenue up to King's Drive (Smith Street), King's Drive, Valk and Suikker bekier Street, Durban Street up to Queen Terrance, Cathcart, and Spyker Street. Barkly, Grey, Collin, Young, Levy, Bekker, Kintore, Margaret, Benson, Griffith and Faure Street. Ackerman and Johanna Street.
Wednesday	Joe Gqabi, Myburgh Street, Bank Street, lower part of Levy Street (Between Durban and King's Drive). Burnet Street (round table) and Springs, New Joe Gqabi Area.
Thursday	Limakatso Lodge to Block H2, Grey Street and Arborview
Friday	Block H1, Chris Hani section, Mandela section, Block G, and Area 13 Only businesses.

Table 5: Collection Plan for Burgersdorp town (4549) households.

Weekdays	**Area**
Monday	Town
Tuesday	Buitendag, Harmoney, Transnet Area, Town-Streets

Wednesday	New rest and town-Streets
Thursday	Thembisa and town-Streets
Friday	Maramastad, Eureka, and town-Streets

Table 6: Collection Plan for James Calata (2049 households).

Weekdays	**Areas**
Mondays	Mzamomhle Street, Mzingisi Street, Msobomvu Street, Samson Street, Bongani Street, Lukhanyo Street, Nkqubela Street, Ramashala Street, Mathetha Street, Bakaqane Street, Mdukiswa Street, Morosi Street.
Tuesdays	None
Wednesdays	None
Thursdays	Voortrekker, De Beer, Wagennar, Kidwelhill, Von Hirschberg, Kaptein Strydom street
Fridays	None

Table 7: Collection Plan for Steynsburg town (3503 households).

Weekdays	**Areas**
Mondays	Town, Greenfields and Westville
Tuesdays	Businesses
Wednesdays	Zwelitsha, New brighten, old location, Zwide, Donkorpoort, New Area location and Verganoeg
Thursdays	Town, Greenfields and Westville
Fridays	None

Table 8: Data for Venterstad missing

Weekdays	**Areas**
Mondays	Oviston & Town
Tuesdays	Luciumville & Mandela

Wednesdays	Nozizwe & Tambo
Thursdays	Magaleni & Takalani
Fridays	Businesses

It is also important to note that the municipality is collecting refuse from the following informal settlements detailed below:

- Phola- Park
- R58 Informal settlement
- Block H1and2
- Chris Hani Section
- Soul City
- Joe Gqabi

The municipality only provides waste receptacles for CBD, and for townships households have their receptacles which are collected by the municipality weekly. According to Stats SA, 2022, there is a weekly refuse disposal service of 53.3% which is better than the 41.0% in 2011 Stats SA.

4.2. MUNICIPAL BY-LAWS PERTAINING TO WASTE

National Environmental Management: Waste Act 59 of 2008 aims to reform the law regulating waste management to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development and also to provide for institutional arrangements and planning matters. As a result of the promulgation of the NEM:WA, the need has been identified to develop solid waste management by-laws and to ensure that the by-laws cover all aspects addressed and required in the Act. The municipality currently does have Council-approved by-laws about waste management, and they require enforcement budget and tools.

4.3. WASTE GENERATION and QUANTITIES

Estimations on the amount of waste generated can be calculated per week, per month or year. The 2006 State of the Environment Report (SOER) indicated that South Africa generated 42 million m3 of solid waste per year. This amounted to 0,7 kg per person per day. The generation rates were further broken down into generation rates per income category and the results were as follows:

- Low income= 0.41kg/per person/day or (0.41kgx365 days) =149.65kg/person/year
- Middle income=0.74kg/per person/day or (0.74kgx 365days) = 270.1kg/person/year
- High income= 1.29kg/person/day or (1.29kgx365days) = 470.85kg/person/year

In this instance, an assumption is made that the current waste domestic generation rates are according to the 2006, SOER figures, and it is classified according to settlement types.

Table 9: Determining current domestic waste generation rates per capita in South Africa *(*Source: State of the Environment Report (SOER) 2006*)*.

There are no accurate records of waste volumes/quantities from the collection itinerary or the

Type of settlement	**Base population**	**Growth estimates9**	**Population distribution**	**Current domestic waste generation rates per capita10(per year in kg's11)**
High-income, low-density	100 000	0.86% per annum	Age: youth: 50 000, middle age: 40 000 and old age: 10 00012 Gender: male: 40 000, female: 60 000 Education: Primary: 30 000, secondary: 40 000 and tertiary: 30 000	100 000x470.85 kg = 47 085 000 kg/person/year Then convert to tons: 47 085 000÷1000 = 47 085 tons
Middle-income, middle density	200 000	1.62% per annum	Age: youth: 100 000, middle age: 60 000 and old age: 40 000 Gender: male:70 000, female: 130 000 Education: Primary: 60 000, secondary: 90 000 and tertiary: 50 000	200 000x 270.1kg = 54 020 000 kg/person/year Then convert to tons: 54 020 000÷1000 = 54 020 tons
Low income, high density (including Informal settlements)	500 000	3.8% per annum	Age: youth: 250 000, middle age: 150 00 and old age: 100 000 Gender: male: 200 000, female: 300 000 Education: Primary: 300 000, secondary: 150 000 and tertiary: 50 000	500 000x 149.65kg= 74 825 000 kg's person/year Then convert to tons: 74 825 000 ÷ 1000 = 74 825 tons
Rural settlements	300 000	2.5% per annum	Age: youth: 150 000, middle age: 90 000 and old age: 60 000 Gender: male: 110 000, female: 190 000 Education: Primary: 140 000, secondary: 90 000 and tertiary: 70 000	300 000x 149.65kg = 44 895 000 kg per person/year Then convert to tons: 44 895 000 ÷ 1000 = 44 895 tons

landfill sites at WSLM. The accurate volumes of waste being disposed of in the municipal area are currently unknown and not quantified.

4.4. GROWTH PROJECTIONS

4.4.1. Population Growth Trends and Projections for WSLM

Table 10 shows the predicted increase in population for the WSLM and the implication thereof for waste management. The annual population growth rate of 1.1% has been used. In 2029, the estimated population will be 105,960.

Table 10: Projected population increase over the period of 2024 to 2029.

Year **Municipal Area**	**2024 (Base Population)**	**2025**	**2026**	**2027**	**2028**	**2029**
WSLM	102 213	103 337	104 474	105 623	106 785	107 960

A projected increase in annual waste generation for each area for WSLM between 2024 and 2029 is shown in Table 11.

Table 11: Annual Waste Generation Projections at 1%, 2%, and 3% increase annually.

Municipal Area	**Baseline Waste Tons**	**@1 %**	**@2%**	**@3%**
Maletswai	12,225,67	12 225,67	12 470.18	12 844.29
Burgersdorp	5,606,83	5 606.83	5 718.97	5 890.54
Steynsburg	1,828,9	1 828.9	1 865.48	1 921.44
James Calata	784	784	799.68	823.67
Venterstad	735	735	749.7	772.19

4.4.2. Generation Quantities for WSLM

The types and volumes of waste generated in the area need to be identified for the municipality to be able to plan for future waste management activities. All municipalities are required by law to determine quantities and types of waste generated within their municipal boundary. This involves establishing the

current quantities of waste generated, recycled, treated, and disposed of. This information can be obtained from the following sources:

- Private waste transporters and waste managers: Waste transporters, as well as waste managers of treatment or disposal facilities, keep records of waste handled for billing purposes.
- Municipal records: The municipality should keep a record of waste collected as well as waste disposed to landfill. Currently, there are landfill sites with no records owing to a lack of access control.
- Waste Information System: DFFE and some provinces have developed waste information systems (WIS) that can provide waste data. The Municipality needs to utilize these systems for better planning processes for waste management.

4.4.3. Waste Receptacles

Walter Sisulu Local Municipality utilizes bins in the commercial areas and does not provide any receptacles for residential areas, therefore residents have their receptacles. The municipality accepts any number of bags or bins per household, meaning there is no specific limit. The bags are placed on the curb outside the property on the scheduled day of collection. Street receptacles are a combination of plastic containers, and steel and concrete-mounted bins.

Common General storage containers used in WSLM are the following (

Figure **9**):

- Metal Bins for street placement
- Plastic Refuse Bags for residential households, and
- Skip Bins for some business premises

20L Round waste bin

50L Round waste bin

30L White transparent waste bin

210L Drum waste bin

Figure 9: Photos of the types of waste bins in WSLM.

- The following maps (Figure 10 to Figure 13) shows how bins are distributed in each town.
- There were only three bins were found in the main street of the commercial areas in James Calata town of WSLM (Figure 10).

Figure 10: Bin distribution in James Calata town of WSLM.

There were 23 waste bins found in the CBD of Maletswai or Aliwal North (Figure 11).

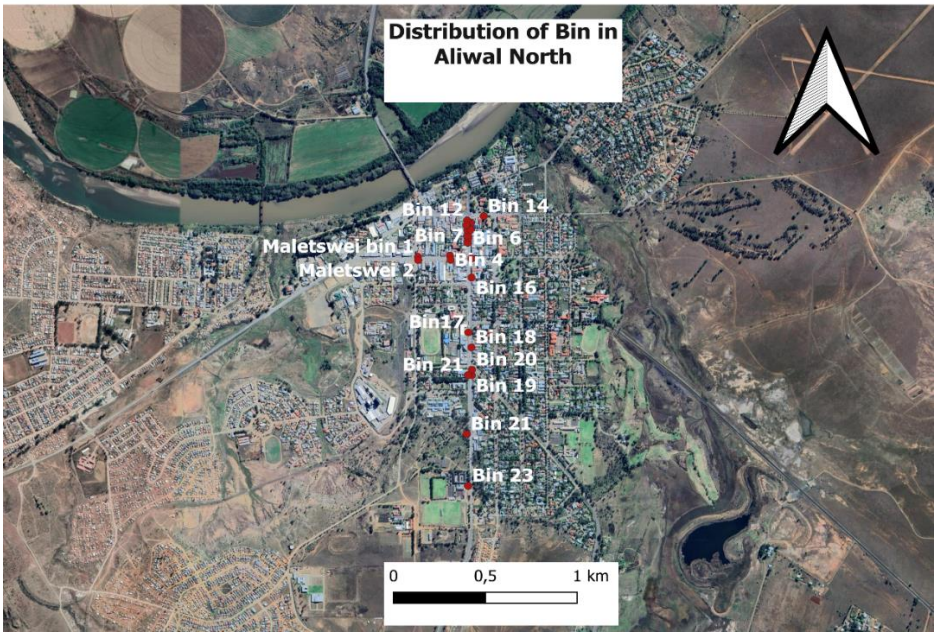


Figure 11*: B*in distribution in Maletswai town *(Aliwal North)*.

There were about 29 bins found in the town of Burgersdorp, particularly, on the main roads, therefore this shows that the distance between the bin is less than 100m to each other (Figure 12).

Figure 12: Bin distribution in the Burgersdorp town.

There were 17 bins observed in the main street of Steynsburg town (Figure 13).

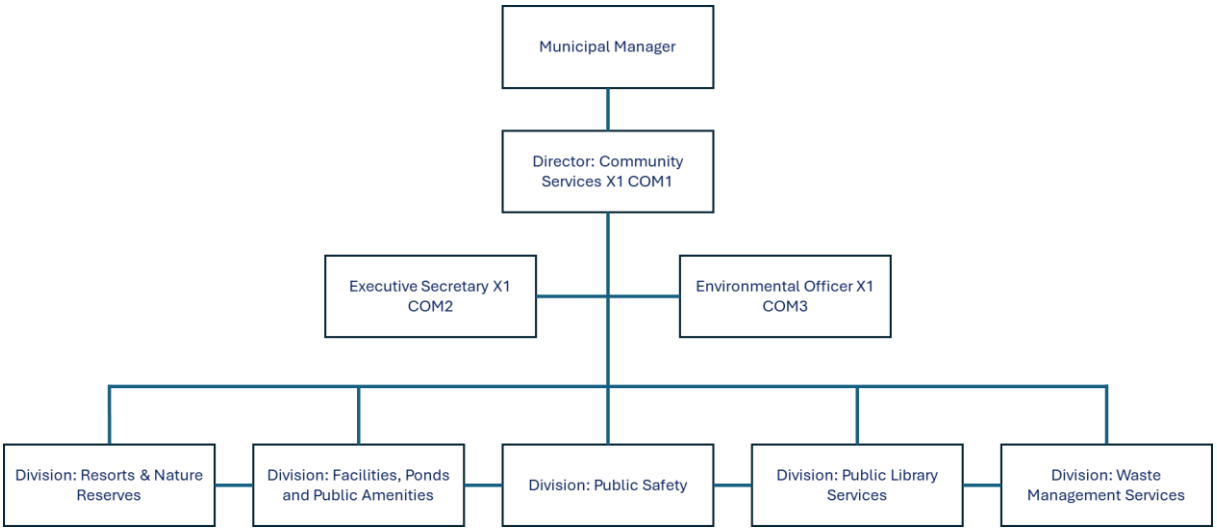
Figure 13: Bin distribution in the Steynsburg town.

The map in Figure 14 shows how bins are being placed in Venterstad commercial areas or towns, as shown in the map 24 bins in the area are placed near the shops or in areas that generate more waste.

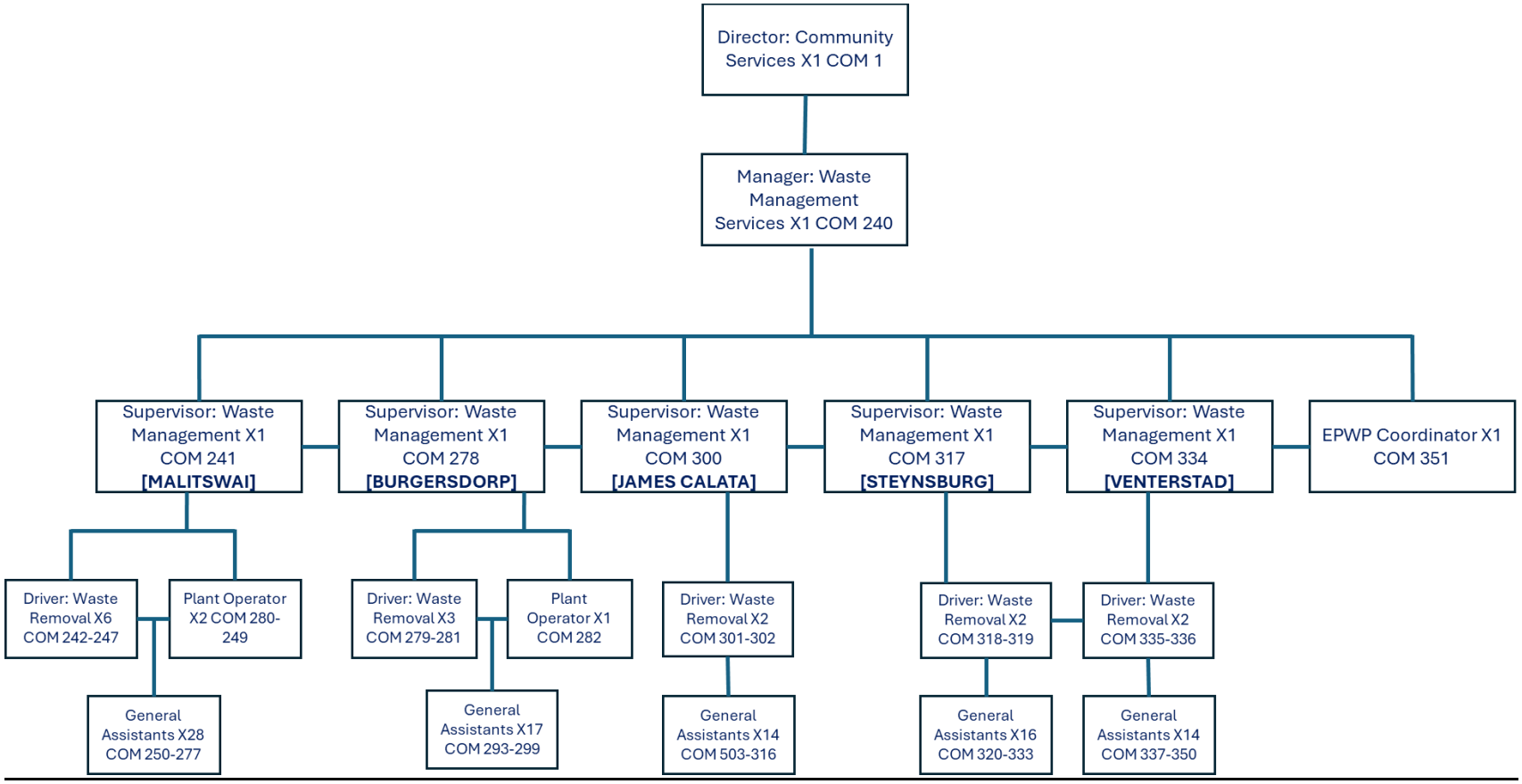
Figure 14: Bin distribution in Venterstad town.

4.5. PERSONNEL

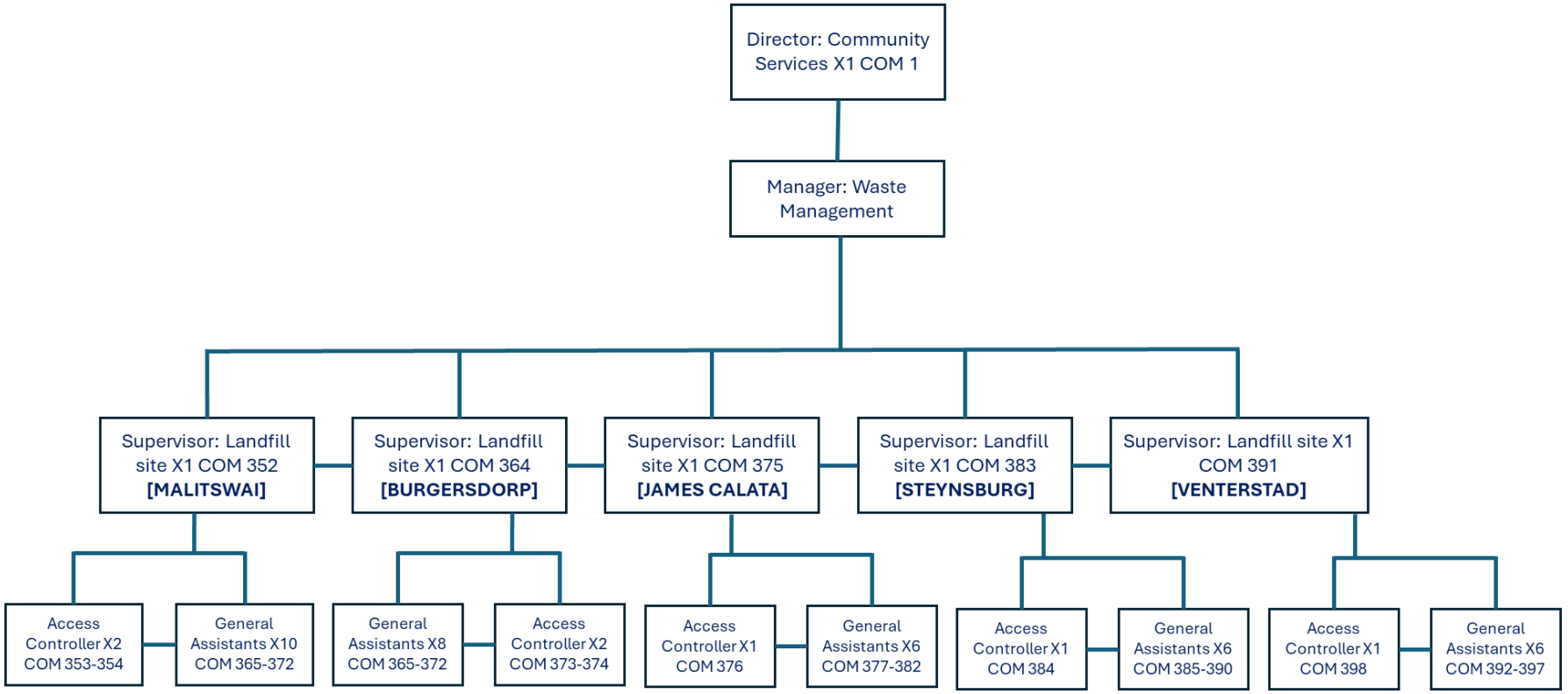
4.5.1. Directorate: Community Service



4.5.2. The Directorate: Community services for waste management services at WSLM.



4.5.3. Community services for waste management continuous



4.6. FLEET AND EQUIPMENT FOR WASTE MANAGEMENT

The fleet is a crucial component of the waste management strategy. A fleet helps transport waste from households to transfer stations, materials recovery facilities, and finally to landfill sites for ultimate disposal and landfilling, which improves the overall outlook of waste management in a municipality.

WSLM has a fleet for solid waste collection and disposal but 4 fleet were noticed during the statusquo assessment. These include compactor trucks, tipper trucks, a tractor-and-trailers. These are assigned to five towns as detailed below:

4.6.1. State of Waste vehicles in each town

Table 12: Fleet used in Malitswai town. Source: (Waste management unit of WSLM).

Type of Waste **Vehicles used**	**Vehicle Registration**	**Driver / Operator**	**Status of vehicles**
Refuse truck	DSP 756 EC	V Khendwa	Under repairs
Bakkie	DCK 624 EC	T Loni	Broken, due for auction
Refuse truck	HBF 733EC	BJ Spofana	Broken, awaiting issuing of Order
Front-end-loader	FPS 641 EC	BJ Spofana	Broken,
Refuse Tractor and Trailer	DKX 093 EC	E Z Tshezi	Broken, awaiting the repairs
Refuse tipper truck	JTV796EC	T Loni	Operational.
TLB	JZH520EC	K Mpobole	Operational
REFUSE TRUCK	JZD720EC	V Khendwa	Operational

Table 10: Fleet used in Burgersdorp town

Type of Waste Vehicles used	Vehicle Registration	Driver / Operator	Status of vehicles
REFUSE TRUCK	JZD722EC	Sizani	Operational
Refuse Tractor	DYD 242 EC	Mnyombolo/ Dumezweni	Operational. Major service is Required
Bakkie	DZS 8527 EC	-	Broken

Table 11: Fleet used in Venterstad town

Type of Waste Vehicles used	Vehicle Registration	Driver/ Operator	Status of vehicles
Tractor	DYD 236 EC	DJ Thukani	Operational. But needs attention.
Bakkie	FNL 784 EC	M Mnqayi	Broken,
Tractor	FNM 822 EC	MJ Mnxeba	Operational
Truck	CXM 853 EC	S Siyoko	Broken.

Table 12: **Fleet used in Venterstad town**

Type of Waste Vehicles used	Vehicle Registration	Status of vehicles
Tractor	DYD 236 EC	Operational. But needs attention.

Table 13: Fleet used in Steynsburg town

Type of Waste Vehicle used	Vehicle Registration	Driver /	State of vehicle
Bakkie	DZJ 042 EC	S Ngqongonya	Broken.
Tractor	DYD 247 EC	Vuyisile Buda/ Sokazi – Driver	Operational

The photos below show the fleet identified during the status quo assessment.

Photo 1: Shows a tractor collecting waste in Masakhane township in James Calata town.

Photo 2: Two compactor trucks for waste collection in Maletswai town.

Photo 3: The truck was identified at the Burgersdorp Landfill site.

Figure 14: Private fleet that were identified on site.

4.7. BUDGET FOR WASTE MANAGEMENT AT WSLM

The following is an approved operational budget for waste management for the 2023/2024 financialyear as obtained from the waste management unit of the WSLM.

ITEM	BUDGET
REVENUE	
Exchange refuse removal	R34 360 104, 60
Exchange refuse removal indigent relief	R6 013 559,09
EXPENDITURE	
Bargaining Council	R14 733, 15
Unemployment insurance	R241 657,09
Basic salary and wages	R16 417 334,26
Pension	R2 955 120,16
Non-structured	R523 643,16
Structured	R261 821, 58
Basic salary and wages	R3 933 712, 77
Medical	R6 835 553, 17
Maintenance of unspecified Assets	R32 949,08

Pest control and fumigation	R5 491, 51
Maintenance of unspecified assets	R219 660,59
Skills development fund levy	R259 287, 88
Moto vehicle license and registrations	R94 152,44
Wet -Fuel	R88 137,13
CAPITAL EXPENDITURE	
Construction work-in progress roads	R880 000,00

The utilization of MIG funds for waste management related projects and future use of such provisions.

For the 2021/2022 FY, two (2) compactor trucks servicing Malesia and Burgersdorp have been purchased under the MIG funding. The plan to purchase 3 x 10-ton cage trucks and a dozer is underway.

4.8. ILLEGAL DUMPING

Cases of illegal dumping have been noted in open spaces in and around the residential areas and other properties in all five towns of WSLM. Illegal dumping is an issue in WSLM. Illegal dumping also creates dangerous runoff that eventually contaminates soil and drinking water. The municipality assists with the removal of illegal dumping.

Photo 4: Illegal dumping in Masakhane township in James Calata.

Photo 5: Illegal dumping in Maletswai

Photo 6: Illegal dumping in Mzamomhle location at Burgersdorp town.

Photo 7: Illegal dumping in Khayamandi township in Steynsburg town

Figure 15: Shows illegal dumping activities in WSLM.

Figure 16: shows Venterstad's open space where illegal dumping usually occurs but the municipality consistently cleans the area, and some waste is being burned.

Figure 16: Venterstad's open space with illegal dumping

4.8.1. Municipality Strategy for Illegal Dumping

The municipality has a team that deals with the removal of illegal dumps assisted by the Joe Gqabi District Municipal Environmental Health Practitioners (EHP). Below is the process that is followed in addressing illegal dumps:

- All illegal dumps are recorded.
- A plan is made for removal.
- On the day of removal, there is an awareness campaign done concurrently.
- When an illegal dump is to be removed, a before picture reflecting date is taken.
- After an illegal dump has been removed, the site is beautified using recyclable material.
- An after picture is taken reflecting dates.
- The field workers (peace officers) monitor the site to detour people from continuous dumping.
- Waste Management Bylaw will be used to monitor compliance and a “polluter pays principle” will be used.

- Out of the five towns of the municipality, 4 times a year a municipality competition will be held to evaluate which town is cleaner.

As much as the municipality has strategies to minimise illegal dumping, some places still have illegal dumps.

4.9. TREATMENT AND DISPOSAL

4.9.1. Treatment

WSLM does not undertake any waste treatment processes for solid waste before landfilling. In terms of the Waste Classification and Management Regulations (DFFE, 2013), waste must not be treated if treatment will reduce the potential for re-use, recycling, and recovery or where treatment will not be controlled.

Treatment of general waste is currently not a pre-requisite for general household waste. The waste currently either goes to the buy-back centres or the landfill sites. Waste is occasionally burned at the landfill sites. The burning of waste has serious implications both in terms of human health and the environment and it contributes to the thinning of the ozone layer and may contribute to climate change in the form of global warming. It is therefore not allowed.

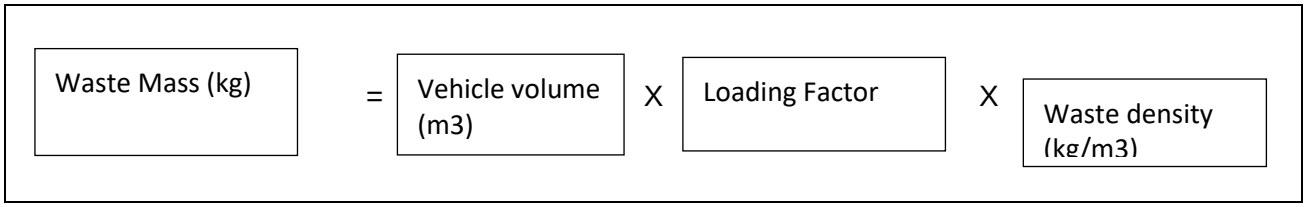
4.9.2. Waste Disposal

Waste in WSLM is disposed of at five municipal landfill sites, one in each town (James Calata, Aliwal North, Burgersdorp, Steynsburg, and Venterstad). Two landfill sites are licensed for operation (James and Steynsburg), and three are licensed for closure (Burgersdorp, Venterstad, and Maletswai landfill sites. A project for the development of two landfill sites in Maletswai and Burgersdorp has been registered with MIG.

The monitoring of disposal sites has been stepped up. The municipality appointed officials to access landfill sites, which are marked with boundaries. There are plans to track the type of waste being dumped at the landfill and to keep track of the amount of waste dumped there every day.

The waste estimation systems use a formula that requires a waste volume, waste density and waste loading to determine the mass of waste entering the landfill.

The formula is detailed below:



Source: ***Guidelines on implementing the waste information system (DFFE),***

The estimated amount of waste will differ depending on the size of the truck, how full the truck is (loading), and the type of waste that the vehicle is carrying. The estimated volumes of waste being disposed of in each of the landfill sites. The volumes of waste disposed of at all landfill sites for the period December 2022 to July 2023 are as presented below:

Table 14: Showing estimated waste volumes in each landfill site- (Source: WSLM records)

Landfill Site	Estimated Volumes of Waste
Maletswai	12,225,67 tons
Burgersdorp	5,606,83 tons,
Steynsburg	1,828,9tons,
James Calata	784 tons
Venterstad	735 tons.

4.9.3. License situation for all Landfill Sites in WSLM

WSLM operates five landfill sites. There is a landfill site in each of the municipal towns of WSLM. The table below summarizes the status and classification of the landfill in the Municipality.

Landfill Name	License number	License Status	Classification	Waste Allowed
Maletswai	JG/A/14/001/2022	Licensed for closure	G:C:B-	General waste
Burgersdorp	HO/A/14/L041/14	Licensed for closure	G:C:B-	General waste
James Calata	HO/A/10/L037/14	Licensed for operation	Class B- GC B-	General waste
Steynsburg	HO/A/10/L035/14	Licensed for operation	G:C:B-/ class B	General waste

Venterstad	HO/A/14/L042/14	Licensed for closure	G:C:B+	General waste

Table 15: Landfill status and classification of each of the landfill Sites in WSLM.

4.9.4.
4.9.4. Summary of the State of WSLM Landfill Sites

A summary checklist shown below was developed to audit the main requirements for each of the landfill sites as per the minimum requirements for waste disposal. The table below summarizes the state of landfill sites of the Walter Sisulu Local Municipality.

Table 16: Summary of the state of the Landfill Sites at WSLM.

Checklist	James Calata Landfill	Maletswai Landfill	Burgersdorp Landfill	Steynsburg Landfill	Venterstad Landfill
Is the site licensed for operation (O) or closure (C)	Yes (for operation)	Yes (for closure)	Yes (for closure)	Yes (for operation)	No (for closure)
Does the site have a credible fence?	Yes	No	Yes	Yes	Yes
Does it have a cell for the disposal of waste?	No	No	No	No	No
Does it have a gate controller?	Yes	Yes	No	No	No
Does it have information on the waste that is disposed of?	No	No	No	No	No
Does it have an all-weather road for trucks?	No	No	No	No	No
Is there burning of waste evidenced?	Yes	Yes	Yes	Yes	Yes

4.9.5. WSLM Landfill Site Pictures

The pictures below show the current situation of landfill sites in each town of WSLM.

Figure 17: Showing the James Calata Landfill and disposal system

Figure 18: Showing the Maletswai Landfill and disposal mechanisms.

Figure 19: Showing the Burgersdorp Landfill and disposal mechanism

Figure 20: Showing the Steynsburg and its disposal mechanism

Figure 21: Showing the Venterstad Landfill and its disposal mechanism

4.10. TRANSFER STATIONS

A Transfer Station is defined as a place or facility where waste is temporarily stored before it is transported more economically to either a recycling centre or a landfill site. There are two transfer stations within the geographical area of Walter Sisulu Local Municipality at present, namely, Buy Back Centre and Compost facility.

As per the report from the Municipality, the Buyback transfer station is no longer working. It was reported that the transfer station was burned down incidentally on 24 April 2023. A report was submitted to the Asset Management unit for the insurance, and the Unit is still in the process of sourcing

quotations. A quotation was sourced from the person who built that structure, to have the structure in its original form, however the quotation has not been received thus far. The composting facility is in an unusable condition due to vandalism that took place, and the acts were first noticed in June 2023. The report has been submitted for insurance by the WSLM and has been approved and will be shortly commencing with renovation.

4.11. LITTERING

Litter pickers (street sweepers) are employed by the municipality to clean around urban areas. The frequency of litter removal by street sweepers varies between towns. Streets are cleaned daily in the CBDs of both towns while township areas are cleaned occasionally (once to thrice a week). EPWP workers are used to assist with litter picking and street cleaning.

4.12. IMPLEMENTED/ FUNDED PROJECTS RELATED TO WASTE MANAGEMENT AND THEIR OBJECTIVES IN WSLM

Project Name	Status ofProject	Job Opportunities	Project Location	Key Objectives of the Project	Project Funder	Budget
Cleaning, Greening and the Beautification project	Implementation	62	Maletswai, Burgersdorp, James Calata, Steynsburg, Venterstad	Removal of illegal dumping, beautification of open spaces	Municipal Incentive Grant	
Pick It Up	Implementation	41	Burgersdorp, Steynsburg a ndVenterstad	Removal of illegal dumping and beautification of open spaces	Municipal Incentive Grant	

Walter Sisulu Waste Management	Implementation	110 and 2 supervisors	All wards of WSLM	Removal of illegal dumps and beautification of open spaces	DEDEAT	R5m
Flood Moping	Implementation	The project has 127 Job opportunities	All wards of WSLM	Cleaning, picking up of litter and removal of illegal dumps	DFFE	
Establishment of a new landfill site – Maletswai	Planning stage	Afro-team appointed to undertake feasibility studies	Maletswai	Establishment of a Landfill site	MIG	

4.13. HAZARDOUS WASTE

The National Environmental Management: Waste Act (NEM:WA) defines hazardous waste as "any waste that contains organic or inorganic elements or compounds that may have a detrimental impact on the environment and human health due to the waste's inherent physical, chemical, or toxicological characteristics." Batteries, paints, chemicals, fluorescent lightbulbs, and certain e-waste components are among the hazardous materials frequently discovered in the domestic waste stream.

4.14. AGRICULTURAL WASTE

There are various agricultural activities scattered around the WSLM area, from the commonage to the non-urban areas. The agricultural activities are a combination of livestock, game and crop farming. Hazardous wastes generated by the agricultural sector include:

- Pesticides / Fungicides / Insecticides and Herbicides;
- Seed Treatments;
- Plants growth regulators;
- Empty chemical containers;

- Animal manure and animal waste (including animal tissues and carcasses)

Ideally, chemical containers are triple rinsed, dried and securely stored for collection by accredited agencies. Alternatively, the containers are rinsed with water, holes punched and flattened prior to disposal. Typically, farmers are known to burn items such as empty plastic chemical containers and empty fertilizer bags in open fire on farms. Other materials that cannot be burned are buried. In other instances, chemical containers piled on farms are used for secondary activities such as water containment. If not disposed of properly, these toxic chemicals could bio-accumulate in the food chain and have the potential to cause severe impacts on human and ecological health.

WSLM does not collect agricultural waste. Agricultural waste is the sole responsibility of the Department of Agriculture at a Provincial level.

The NEM:WA prohibits the disposal of hazardous waste, including hazardous agricultural waste, at a municipal landfill site. The NEM:WA National Standards for the Disposal of Waste to Landfill (DFFE, 2013) prohibits infectious animal carcasses and animal waste from being disposed of in a municipal landfill.

4.15. INDUSTRIAL WASTE

In general, WSLM is not an industrial town. According to the Waste Act, certain properties may produce hazardous waste that needs to be disposed of. The Industrial Waste Management Plans (IndWMP) framework is outlined in the Waste Act. Although putting together an IndWMP is optional, some industries are obliged to do so.

The following industries must prepare their IndWMP in consultation with DFFE:

- Tyre Industries
- Paper and Packaging Industries
- Lighting Industries
- Pesticide Industries
- Electrical and electronic equipment Industries

Industrial Waste is not treated or disposed of as part of WSLM waste management. Rolfe Laboratories is the only major company that produces Industrial waste. They procure services from a private company for their

waste collection services and disposal at a registered landfill site outside of the municipal area. General waste from the small industries is collected by the municipality as part of the municipal services.

4.16. HEALTHCARE RISK WASTE

Healthcare risk waste (HCRW) is waste that contains infectious agents, sharps, hazardouschemicals or pharmaceuticals or is genotoxic or radioactive. HCRW consists of items such as:

- Infectious waste (waste from isolation wards)
- Sharps (needles and other sharp objects)
- Pathological waste
- Chemical waste (discharged chemicals and pharmaceuticals/medication)
- Radio-active waste

Needles and medication are all classified as HCRW and are generally found as part of the domestic waste stream. The main producers of HCRW in WSLM are:

- Hospitals
- Clinics
- Surgeries
- Funeral Parlors

Generally, HCRW should be treated and then disposed of at a hazardous landfill site or a general site if delisted after treatment. There are no hazardous landfill sites within the WSLM. There is no HCRW treatment facility in the WSLM; the closest facility is the autoclave in Berlin, East London. All healthcare institutions (i.e., hospitals, clinics, private surgeries, etc.) must adhere to the SANS 1248-1:2008 Management of Healthcare Waste (Part 1: Management of Health Care Risk Waste from a healthcare facility). This document outlines the procedures for implementing sound management practices for the collection, handling, and disposal of HCRW.

The management of HCRW does not fall within the ambit of the local municipalities but is the responsibility of the Department of Health. The local municipality's role is to report the illegal dumping of hazardous waste and dumping of hazardous waste in refuse bags/bins or disposal of hazardous waste at the municipal landfill site.

Provincial healthcare facilities in the Eastern Cape and WSLM, specifically, are serviced by a private company called Buhle Wastewhich collects HCRW and transports it to facilities outside of the municipal

area. Private healthcare facilities also use the services of Compass Waste to collect their HCRW. An insignificant percentage of HCRW is generated at the household level and ends up as part of the municipal waste stream.

Funeral undertakers are all licensed as accredited waste generators within the municipalities. There have not been transgressions reported in the municipality.

4.17. WASTE

Electronic Waste (E-Waste) refers to discarded computer parts, electronic equipment, old batteries, compact fluorescent lamps (CFLs) as well as household appliances. Certain components found within discarded computers and electronic equipment contain contaminants such as lead and cadmium which pose environmental and health risks.

The heavy metals found in household batteries, such as lithium and nickel can potentially leach into the soil, groundwater, or surface water which ultimately negatively affects the environment and human health. The mercury vapor contained in CPLs has harmful effects on the environment especially within aquatic ecosystems because mercury accumulates within the fish that passes through different levels of the food chain.

The accidental human consumption of mercury-contaminated animals can lead to mercury poisoning. Currently, there are no policies that govern the safe disposal of E-Waste, but certain private organizations have initiated drop-off receptacles for certain E-Waste in other parts of the country. No records of e-waste management could be found for WSLM.

5. CHAPTER 5. PRIVATE SECTOR PERFORMANCE

5.1. DESCRIPTION OF FORMAL AND INFORMAL PRIVATE SECTOR ENGAGEMENT

The private sector as one of the stakeholders in waste management is an essential element in the analysis of the status quo in waste management in the WSLM. The private sector assumes several roles in waste management and can be involved at various levels and stages of the waste management system.

There is limited information available about the size and contribution of the formal and informal sectors in the waste management involvement at the WSLM area. Information on the informal sector is very limited except for observations that have been made about its existence with no quantitative data in so far as its contribution to employment, the gross geographic product, and its activities about waste generation, collection, transfer, disposal, and treatment.

Private Sector as a Waste Generator: In the normal production and consumption processes of the private sector, waste is generated. At this level, the private sector contributes as a waste generator. The waste that is generated is either hazardous or non-hazardous type. There is limited to encourage the private sector to adopt cleaner production practices for the limited number of producers found in the area.

Private Sector as a Waste Removal Contractor: This is an area of great potential for partition of the private sector, the removal of waste from generators, and its transfer to a disposal site. WSLM does not use the private sector in waste removal services. However, other private companies provide their waste removal services for disposal at municipal landfill sites or other landfill sites outside of the municipal boundaries in the case of hazardous waste.

Private sector participation in the management of waste disposal sites: WSLM manages their waste disposal sites on their own. There is an opportunity for public-private partnerships in the management of a single landfill site, transfer stations and the regional landfill site in the future.

Private sector participation in the treatment of waste at the waste disposal sites: There is no private sector participation in this function. The municipality is also not doing this function as operations are non-existent.

Private Sector in recycling initiatives: There is active participation by the private sector in this area within the municipality. The facilities need municipal support for advice in record keeping and reporting. It is against this background that WSLM should increasingly identify a role for private sector participation and improve it through mutually beneficial relationships. Walter Sisulu Municipality has three recycling facilities, two of those, the Material Recovery Facility and Buyback Centre are leased to

Maletswai Waste Recycling Co-operative. The two facilities have been mainly used by the lessee as waste storage facilities. The buyback centre is no longer in use.

5.2. RATIONALE FOR PRIVATE SECTOR PARTICIPATION

The participation of the private sector must also be looked at in the context of the commitments in the Waste Summit held at Polokwane in 2001. The following commitments were made by the private sector at the summit:

- There was a commitment to a process of engagement with government and civil society of partnership between government and business to achieve sustainable waste management.
- Commitment to utilize cleaner production technologies and methods of production.
- Commitment to comply with legislation, regulation and standards.
- Commitment to meet waste reduction targets as agreed upon in the World Summit on Sustainable Development, and in addition makes voluntary commitments to exceed the targets.
- Commitment to strengthen the relationship between government and business-to-business and civil society by improving and promoting transparency.
- Commitment to manufacture safer environmentally friendly products.
- Commitment to contribute towards improved networking and information sharing.
- Commitment to engage in programmes that promote responsible advertisement of products.
- Commitment to the promotion of sustainable Public and Private Partnerships to improve Waste Management service delivery. The Partnerships will be based on shared responsibility, accountability, competency, reliable service provision and compliance with norms and standards.
- Commitment to the promotion of sustainable recycling opportunities, and engagement in activities that will grow the recycling industry.

These commitments therefore provide a basis against which private sector participation in waste management must be analyzed and also provide pointers on the conditions for private sector performance. by 30% by 2022.

5.3. CONDITIONS FOR PRIVATE SECTOR PERFORMANCE

Awareness: there is a need for overall awareness about the strategy of the municipality, policy, and regulatory framework relating to waste management and initiatives/ programmes of the municipality. Awareness programs would have several spin-offs including the following:

- Waste minimization initiatives geared at the management of levels of waste generated from production and consumption processes and targeting zero waste.

- Cleaner production initiatives relating to the adoption of production processes and technologies that produce less waste.
- Responsible disposal of waste that is in line with the practices of the municipality and protects the community and the environment from harmful repercussions of irresponsible dumping of waste.
- Awareness campaigns led by the private sector from the shop floor to top management andwith consumers.
- Accountability and transparency regarding waste generation, transfer, and disposal activities through proper cooperative arrangements with the public sector and communities.

Clear policy and regulatory framework that would define the roles and responsibilities of various stakeholders and regulate their conduct in the waste management system:

- Capacity: technical and management capacity at the level of the municipality enabling the municipality to give direction and monitor the performance of different role players in waste management.
- Clear cooperative governance arrangements with other spheres of government and with other municipalities geared at ensuring economies of scale when performing functions and engaging the private sector.
- Returns against minimal risks: given the low-income levels in most households of the WSLM that require municipal waste collection services, services that are dependent on residents paying a fee might be difficult to launch and sustain. Private operators are interested in generating optimal returns from their investments within an acceptable risk profile.

5.4. LIST OF RECYCLERS AT WSLM.

TOWN	GENDER	AREA OF COLLECTION	COMPANY NAME
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Bottle stores and Landfill site	Vuyo James Disability Center
Maletswai	Male	Landfill site	Cotat General Trading and Green Society
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukatole	N/A
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	
Maletswai	Female	Dukathole	Maletswai Waste and Recycling
Maletswai	Female	Dukathole	

Maletswai	Female	Dukathole	
Maletswai	Male	Dukathole	Vuyo James Disability Center
Maletswai	Male	Aliwal North	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Maletswai Waste and Recycling
Maletswai	Female	Dukathole	Maletswai Waste and Recycling
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Burgerdorp	Male	Landfill site	Cotat General Trading and Green Society
Burgerdorp	Male	Landfill site	Cotat General Trading and Green Society
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Burgersdorp	Male	Mzamomhle	Cotat General Trading Green Society
Maletswai	Female	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Dukathole	Vuyo James Disability Centre

Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Female	Area not	Vuyo James Disability Centre
Burgersdorp	Male	Mzamomhle	Cotat General Trading Green Society
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre
Maletswai	Male	Dukathole	Vuyo James Disability Centre

6. CHAPTER 6: WASTE CHARACTERIZATION

6.1. OVERVIEW

This chapter seeks to characterize the waste generated in the WSLM area for authorities to determine the feasibility and sustainability of a recycling facility or facilities towards the creation of job opportunities for indigent communities. Waste Analysis and Characterization study is the process of gathering information on the quantity (such as tons per day, cubic meter per day, and kilograms per household per day) and composition such as biodegradable) of solid waste generated from various sources. The benefits of this exercise are mainly to assess future environmental impacts of the disposal. It also provides detailed guidelines for the efficient segregation and measurement of the different types of waste from the sample obtained from the generators.

In summary, it is a method used to determine the types and proportions of materials that are being discarded in a waste stream.

6.2. WASTE STREAM SURVEY

The WSLM needs to determine waste streams to make informed decisions on matters of waste management. This enhances the ability to design an efficient waste reduction strategy with the sole aim of targeting the waste generators systematically. A waste stream survey is an instrument used to assess materials that are disposed of by both commercial and domestic households in a study area.

This process enhances the WIS and helps in determining the transport system befitting the waste generated and may lead to reduced volumes of disposal in the landfill site.

6.3. METHODOLOGY

The following methodology was used for WSLM as part of the waste characterization exercise:

Information gathering: This included site visits to the municipal landfill sites on the 27th of November 2023. A set number of samples were obtained from municipal trucks/fleet for each landfill site. They were emptied and segregated into different waste streams and weighed using the scale as depicted below.

Analysis: This has included the interpretation and consolidation of waste information obtained from all landfill sites of WSLM.

6.4. PRACTICAL WASTE CHARACTERIZATION

A waste characterization exercise was undertaken in which grab samples of both domestic and commercial waste were collected from households by waste pickers and hand-sorted into the following categories:

- Paper (newspapers, magazines, paper bags, white/office paper, etc.)
- Cardboards
- Glass (e.g., window glass, glass bottle, etc.)
- PET (Hard Plastic) (plastic containers and other labelled plastic, plastic cups)
- Soft Plastic (shopping bags, wrap materials, etc.)
- Metals (tins/ cans)
- Nappies
- Textiles/Clothes
- Mixed (fine material and mixed waste, food waste, electronic waste, garden waste)

The sample of 100 waste bags was taken for all landfill sites, 30 waste plastic bags from James Calata, 30 bags from Aliwal North, 20 bags from Burgersdorp, 10 from Venterstad, and 10 for Steynsburg. The waste plastic bags were from fleets. The different categories of waste were weighed and defined as a percentage of the weekly total waste streams.

Table 17: Number of Waste samples per Landfill Site

Name of the Landfill Site	No. of Samples
Maletswai	30
Burgersdorp	20
Steynsberg	10
Venterstad	10
James Calata	30

6.5. DATA ANALYSIS

A total of one data set per landfill site was analyzed independently:

Assessment of disposal sites

6.6. SURVEY RESULTS

Waste stream assessment is an important management tool that should be used in the waste operations and strategic planning of WSLM. It should also be used to assist the municipality in prioritizing its waste reduction activities. Waste stream assessment should provide the municipality with the following benefits:

- Identifying the major waste materials and quantities.
- Analysing the discovered materials and checking their impacts on the local waste stream.
- Identifying specific commercial/ industry types or any other facility that could be used for waste reduction; and
- Assisting in making local educational material that could be used for various campaigns dealing with environmental waste management.

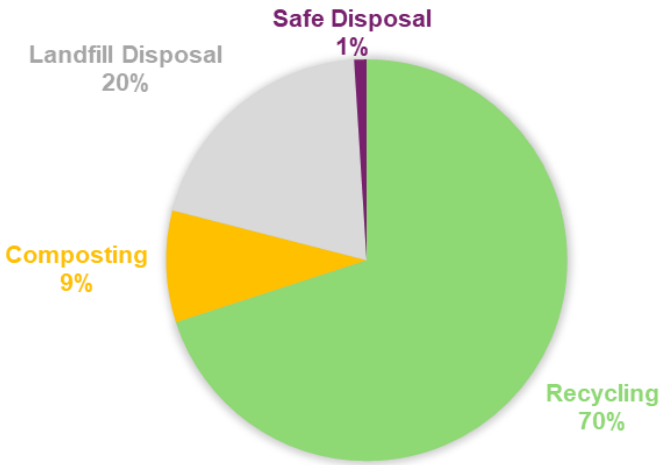
According to the baseline study undertaken in 2011 and reported in the National Waste Information Baseline Report (DFFE, 2012), South African landfills receive approximately 90% of all waste generated. While the policy exists for moving waste up the hierarchy away from landfilling towards reducing, reusing, recycling and recovery, landfilling remains the predominant method of waste management. Understanding waste composition/ characterisation can help support the waste management hierarchy. Waste characterisation is based on mass rather than volume.

The results of the characterization exercise, achieved primarily from the Practical Characterization are discussed below:

6.6.1. Overview of the Walter Sisulu Local Municipality

In summary, WSLM has a great opportunity to divert waste from landfill for recycling. Approximately 70% of the waste stream is recyclable and a further 9% consists of organic material suitable for composting.

Figure 20: Pie chart illustrating opportunities for diverting waste away from landfill in WSLM



The waste stream was divided into nine categories. The category that recorded the greatest mass was sanitary (nappy waste), followed by cardboard. There is a great opportunity to support recycling organizations to limit the number of recyclables going to landfills.

6.6.2. Overall Waste (kg) WSLM

Table 18 shows the total mass for the waste surveyed according to each waste category in all 5 landfill sites of WSLM.

Table 18: Total mass for the waste surveyed.

Waste Category	James Calata	Maletswai	Burgersdorp	Venterstad	Steynsburg	TOTAL
Paper	5,5	13,2	2,4	2,4	10,3	33,7
Plastic	2,4	3,3	9,5	25,2	5,2	45,6
PETs	2,1	4,7	9,0	12,5	13,6	42,0
Metals	2,2	1,6	2,5	0,6	6,5	13,5
Sanitary	6,0	1,2	3,1	32,5	57,3	100,1
Glass	6,0	5,5	3,2	22,6	11,0	48,4
Cardboard	2,4	3,5	6,4	25,3	13,0	50,7
Fabric/Clothes	0	0	0	0	7,0	7,0
Mixed	12,1	7,7	13,3	0	0	33,0
					Total	**374,0**

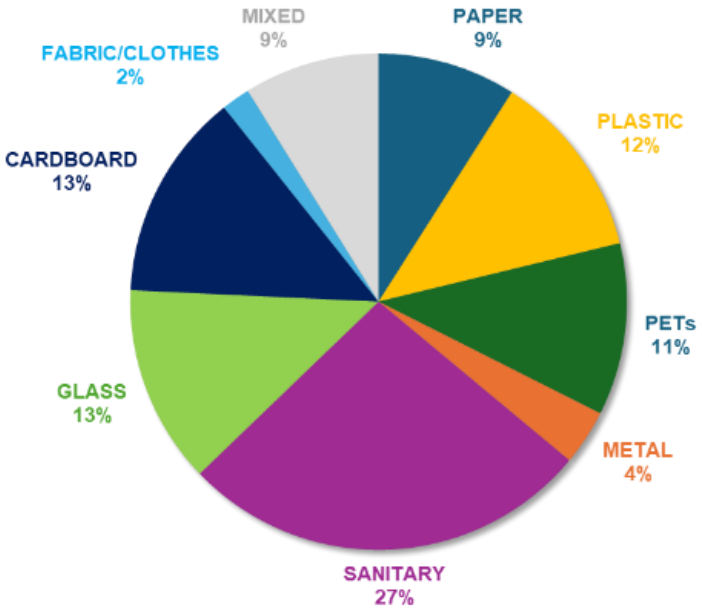


Figure 23: The percentage of waste per waste category in WSLM

6.6.3. Overview of Waste categories in each town of WSLM.

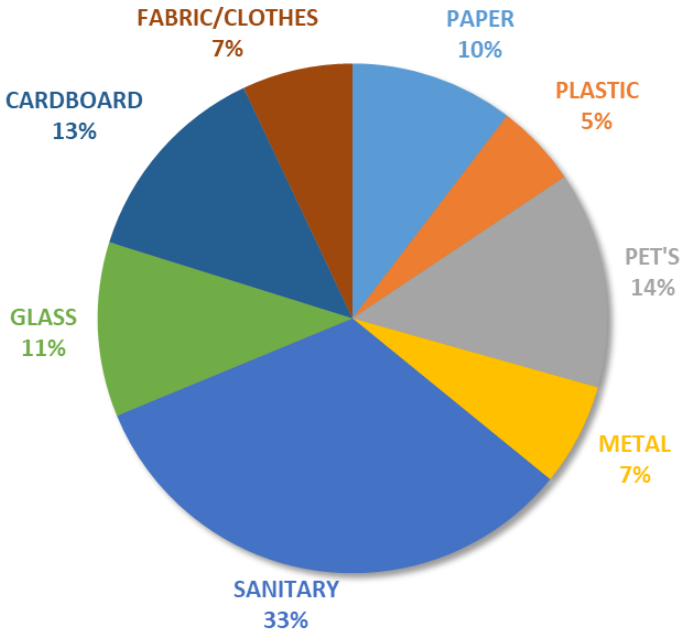


Figure 24: Waste categories (percentage) in James Calata

Table 19: Waste categories (kg) in Jamestown/James Calata Landfill site

Waste Category	S.1	S.2	S.3	S.4	S.5	S.6	S.7	S.8	S.9	Total
Paper	1,365	1,685	0,685	1,7	2,525	2,35				10,31
Plastic	2,6	2,64								5,24
PET's	2,905	2,28	2,765	2,05	2,35	1,305	2,2	1,875	1,6	13,655
Metal	2,95	1,85	1,68							6,48
Sanitary	8,1	12,4	12,2	12,3	12,3					57,3
Glass	6,608	4,4								11,008
Cardboard	1,555	1,915	2,13	2,89	2,745	1,835	2,405			13,07
Fabric/ Clothes	5,02	1,965								6,985
									Total	**124,048**

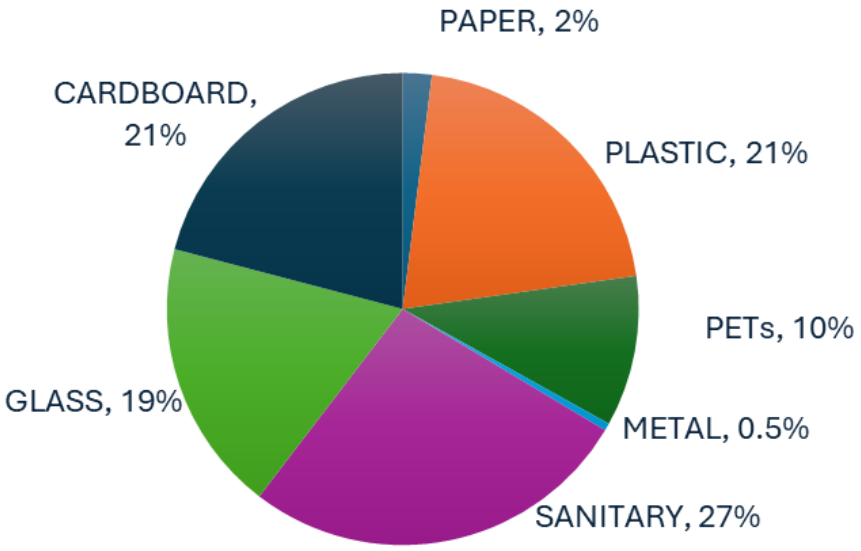


Figure 25: shows the waste categories (in percentage) in Maletswai.

Table 20: Waste categories (kg) in Maletswai

Waste Category	S.1	S.2	S.3	S.4	S.5	S.6	S.7	S.8	S.9	Total
Paper	1,04	1,36								2,4
Plastic	2,325	3,56	1,88	1,275	2,405	2,55	2	2,14	7,025	25,16
PET'S	0,43	2,455	2,445	1,95	2,23	1,19	1,81			12,51
Metal	0,525	0,09								0,615
Sanitary	5,223	7,635	10,356	9,263						32,477
Glass	8,6	7,3	2,84	3,895						22,635
Cardboard	1,77	2,93	1,71	1,66	1,03	1,19	1,6	9,645	3,795	25,33
Fabric/ Clothes										0
									Total	**121,127**

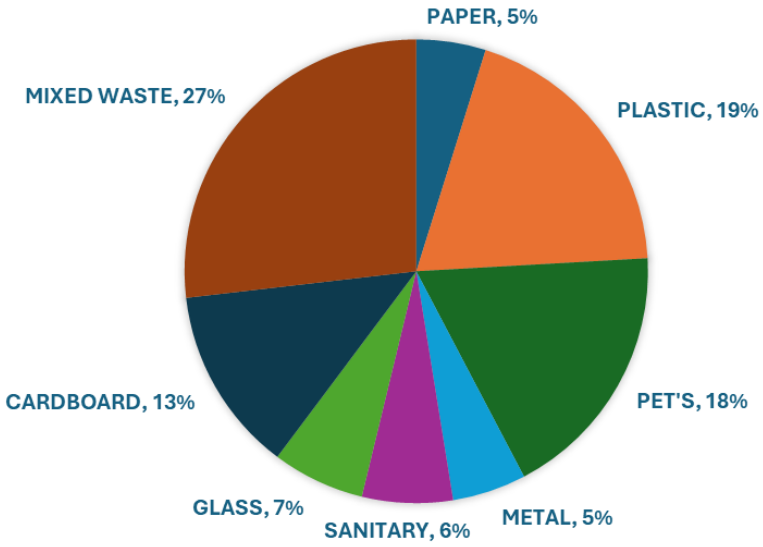


Figure 26: Shows the waste categories (in percentage) in the Burgersdorp landfill site.

Table 21: Waste categories (kg) in Burgersdorp

Waste Categories	S.1	S.2	S.3	S.4	S.5	Total
Paper	2,395					2,395
Plastic	2,47	2,785	2,72	1,025	0,54	9,54
PET'S	1,67	2,045	2,2	1,85	1,245	9,01
Metal	2,55					2,55
Sanitary	3,135					3,135
Glass	3,195					3,195
Cardboard	0,595	2,175	1,785	1,85		6,405
Mixed Waste	8,785	4,5				13,285
					Total	**49,515**

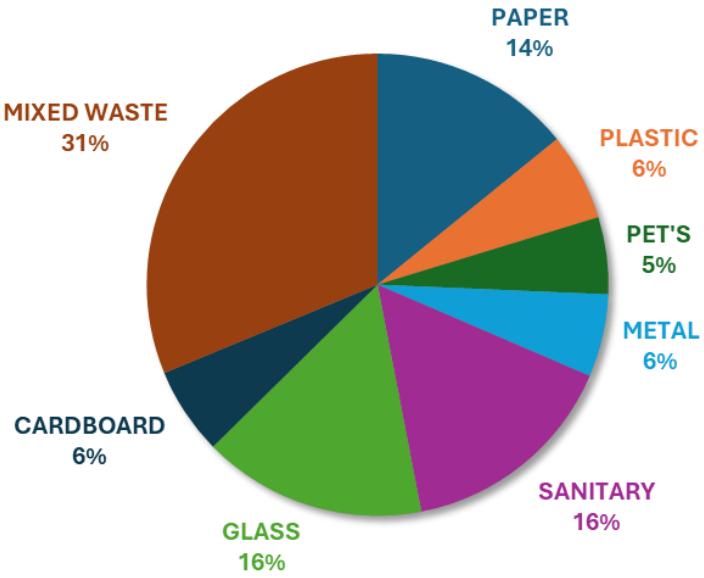


Figure 27: Waste categories (in percentage) in the Venterstad landfill site.

Table 22: Waste categories (kg) in Venterstad

Waste Categories	S.1	S.2	S.3	Total
Paper	5,465			5,465
Plastic	2,365	2		2,365
PET's	2,08	1,915	1,81	2,08
Metal	2,235			2,235
Sanitary	5,985			5,985
Glass	6,05			6,05
Cardboard	2,365	2,575		2,365
Mixed	12,06			12,06
			Total	**38,605**

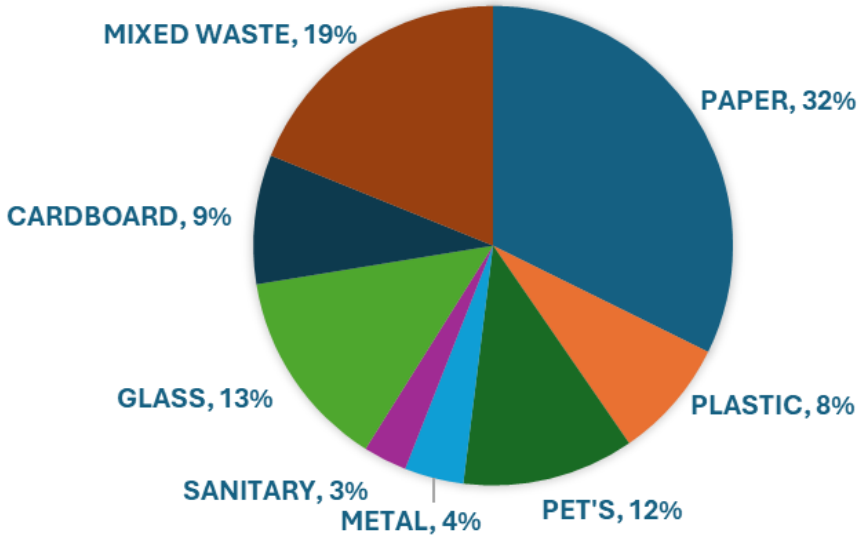


Figure 28: Waste categories (in percentage) in Steynsburg

Table 22: Waste categories (kg) in Steynsburg

Waste category	S.1	S.2	S.3	S.4	Total
Paper	5,96	7,2			13,16
Plastic	1,2	2,1	1,52	0,9	3,3
PET'S	1,76	2,96	2,567		4,72
Metal	1,626				1,626
Sanitary	1,2				1,2
Glass	5,5				5,5
Cardboard	1,72	1,83	1,44		3,55
Mixed	0,935	6,75	5,5		7,685
				Total	**40,741**

As mentioned above, the WSLM should look at ways of increased diversion of organic waste and recyclable material from entering the landfills as this makes up more than half of their waste stream. About (70%) of the local waste stream is comprised of recyclable materials. The greatest categories of waste found in WSLM were nappy waste, food waste, glass bottles, textiles, and mixed waste. WSLM's waste stream is then evenly spread between the other waste categories.

It must be noted that the waste characterization study measured the waste in terms of mass and not by volume. One factor that was noted in the waste characterization exercise is that mass is influenced

by moisture/water content. Mixing waste at source rather than sorting has many disadvantages as it discourages re-use and recycling of materials, and exposes the waste.

7. CHAPTER 7:GAP ANALYSIS AND NEEDS ASSESSMENT

7.1. GAP ANALYSIS

Following the completion of the Status Quo Process within WSLM, the following gaps were identified and allocated to various waste management goals with the desired end state and several recommendations.

Waste Management Goals	Status Quo Gaps	Desired End State	Recommended Actions
1. Waste Avoidance and Minimisation	• The waste minimisation strategies in WSLM are not fully implemented. • No information is available on public education and awareness programmes on waste reduction. • There is no municipal driven or supported waste minimization initiative.	• Waste minimisation strategies are implemented by the WSLM. • Improved awareness levels for communities and businesses on waste management. • All proposed development applications to have a waste minimisation strategy. • Garden waste is completely diverted from disposal at municipal landfill sites. • Waste sorting at the landfill site is controlled and formalized.	• Develop waste minimisation strategies to ensure waste reduction in generation areas. • Introduce education and awareness programmes to residential, and commercial areas and institutions such as schools. Clean-up campaigns must be linked to waste minimisation programs that enhance waste avoidance, minimization, reuse, and recycling. • Encourage community 'waste avoidance' programs and activities e.g., competitions for community and schools that reward resource waste minimization and recovery initiatives. • Introduce and where available, enhance clean-up campaigns including in informal and non-urban settlements.

2. Collection, Cleansing and Transportation	• Waste collection is currently limited to urban, peri-urban centres, and residential areas. No collection in farming areas. • The municipality has a shortage of fleet and bins for waste collection. • There are no bins provided in residential areas. • The Municipality has some transfer stations in Maletswai that are not fully operational	• Waste collection is done in all areas under the WSLM's jurisdiction, all areas including farming areas. • There is an adequate number of fleet and bins for waste management. • Public drop-off facilities are created at waste generation areas (e.g., placement of skip bins at strategic points in residential areas). • There are many operating transfer stations in WSLM	• Introduce a pilot project for waste collection in all residential areas and farming areas. • If the pilot project is successful, gradually expand waste collection services to all other previously un-serviced areas. The pilot project should be integrated into the collection services plan of the WSLM. • A budget must be set aside for the purchase of additional fleet and equipment for waste management, replacement, and maintenance of existing ones. • Introduce public drop-off facilities/depots in all feasible areas, starting in the residential areas.
3. Re-Use	• Except for limited composting at the household level, composting of garden waste is currently not done within WSLM. • Re-use of the various waste materials is very limited despite the potential for reuse based on the waste stream survey.	• Improved awareness and development of composting initiatives. • Garden waste is completely diverted from landfill sites to composting initiatives. • Reuse of other elements of the waste stream. • Development of Waste Exchange platforms.	• It must be noted that composting for commercial purposes will not be feasible in the WSLM, which is in the dry Karoo region. However, other non-commercial composting can be initiated, such as composting for landscaping/rehabilitation purposes, donations to communal small-scale farmers, private individuals, etc. • Education and awareness campaigns must also include and encourage composting of other biodegradable materials at the household level. • The WSLM must also encourage community-related initiatives of making products out of recycled materials.

4. Recycling	• The recycling companies are currently operating on a small scale, thus not contributing enough to the diversion of recyclable waste from the landfill sites. • Separation at the source of waste is not practiced within the WSLM households. • Office waste separation is not practiced in WSLM. • There are no facilities for waste separation at landfill sites. • Waste pickers at landfills are not registered and not supported by the municipality.	• Increased operational capacity of recycling companies. • Enhanced provision of support to recycling companies and initiatives. • Separation of waste at source at the household level is encouraged and practiced. • Office waste separation is encouraged and practiced. • Public awareness was established to support waste separation initiatives. • Waste management licenses are amended to incorporate waste pickers' access to the site. • Registration system established in all landfill sites for monitoring of waste pickers.	• Mentoring and support to the recycling companies/ cooperatives to maximise operational capacity, sustainability and growth. • Partnerships with established recyclers that have experience with the management of recycling facilities must be encouraged. • Encourage separation of waste at the household level. This could be a collaborative effort with NGOs or companies buying recycling materials in the Municipality. • Introduce Office Waste Separation at all municipal and Departmental Offices. • Provide facilities and infrastructure to assist businesses, community as well as municipal offices in undertaking resource recovery practices, e.g., kerbside recycling containers. • A registration facility for informal waste collectors must be established to ensure proper monitoring. • Register informal waste pickers and provide the necessary support.
5. Treatment	• There is no solid waste treatment facility within the WSLM	• There is no need to have a treatment facility in the immediate future.	• The Status Quo will remain. No recommendations are suggested.
6. Disposal	• Only two municipal landfill sites are licensed for operations, and three landfill sites do not comply with either DFFE Minimum	• All landfill sites are internally audited biannually and externally audited biennially for	• Ensure that the monthly internal auditing and annual external auditing for the landfill sites are undertaken as specified in the waste

	Requirements for landfill sites as well as DFFE National Norms and Standards. • There are no Spotters of hazardous or medical waste in the landfill sites. • There are no compaction machines at the landfill sites. • There are lots of illegal dumping areas in WSLM. • .	compliance and evaluation. • Recommendations from the audit report considered and implemented. • Spotters employed or designated and provided with accredited training to assist in performing their duties. • Compaction machines are provided at the landfill sites. • Penalty system for illegal dumping introduced and enforced. • Have a continuous training program for landfill operations and management.	management licenses. • Ensure that all landfill sites have environmental monitoring plans and that all plans are implemented. • Ensure specialised landfill operation and management training for all personnel operating the landfills. • Operating machinery must be procured with maintenance plans. • Undertake an Airspace Audit for the landfill sites and make recommendations for future planning.
7. Institutional Matters	•	• All relevant posts are budgeted for in the IDP, advertised and filled.	• A Compliance and Enforcement Unit must be established within the municipality. This will not only oversee public compliance of municipal by-laws but also municipal compliance with legislative requirements (undertakes audits or out-source reviews). • Additional general workers are required to beef up the waste management Unit. This will also be important when expanding service areas in the municipality.
	• Waste is not recorded in any of the waste hierarchy levels	• Research and surveys were undertaken to gather relevant	• • Provide staff training on compliance and

	in the municipality. • Waste records are not submitted to SAWIC.	decision-making information. • The WSLM reports to SAWIC.	enforcement of waste management by-laws. • Submit waste records to SAWIC. Necessary training for the operating staff must be provided.

7.2. NEEDS ASSESSMENT

7.2.1. 7.2.1. Collection, Transportation and Disposal Needs

Population and economic growth are the major drivers of increased waste generation through increased production, consumption, and intensified construction.

Only estimates information was provided on the volumes or quantities of waste collected and disposed of by the Municipality. However, an increase in population and household numbers as well as an expansion of serviceable areas will require efficient planning of collection, transportation and disposal.

This will necessitate the following:

- Additional collection vehicles i.e., refuse collection trucks (quantity/size/capacity will be determined by the amount of waste to be collected in each area, waste collection plan, etc.);
- Additional waste containers. Skip bins (skips) will be required in high-density residential areas, particularly in informal areas and formal areas that are prone to illegal dumping.
- 240ℓ or similar bins will be required for each of the households. Plastic bags should also be provided for residential waste separation (i.e., separation at source);
- Additional recruitment of and training of staff such as drivers and general workers; and
- Budgetary provisions must be made for the acquisition of the above-mentioned facilities and training of workers.

7.2.2. Need for Recycling Initiatives

Domestic waste constitutes the largest volume of waste generated and disposed of. This is where recycling initiatives should be targeted. The municipality must assist in promoting recycling initiatives and the establishment of recycling companies.

Small-scale and communal backyard composting must be encouraged and supported by the municipality. The WSLM must devise a plan for the diversion of domestic garden waste away from being disposed of in landfill sites.

7.2.3. Institutional and Organizational Needs

Waste Management By-Laws: The municipality ensures that waste management by-laws are approved and gazetted. The by-laws should be reviewed from time to time for relevance.

Training of officials on enforcement and compliance with waste management by-laws must also be undertaken. Public awareness must be carried out to inform the communities of the by-laws.

Infrastructure: The concern regarding the lack of waste management infrastructure is a problem within WSLM. There is currently insufficient equipment for waste management activities in the form of street bins, collection fleet, and landfill equipment and infrastructure.

Institutional capacity: There is currently limited staff that is skilled in waste management. Furthermore, there is insufficient capacity in terms of man-power, and the analysis of the organogram revealed that there are staff vacancies. This insufficient capacity may lead to a lack of staff commitment due to existing staff being overworked.

Recruitment and training: The audit of the landfills in the WSLM revealed a lack of capacity of the operational personnel to ensure that the waste license requirements are complied with. In addition to that, there are no operational plans for the municipal landfill sites. A service provider must be appointed to provide training to operational staff for the local municipality.

The current waste management organogram of WSLM is geared towards waste disposal and not minimisation. There is a need to consider staffing in accordance with the waste hierarchy and consideration of the National Waste Management Strategy.

7.2.4. Financial Requirements (Sound Budgeting)

The implementation of the IWMP would require sufficient funds for the recruitment and training of staff, procurement of receptacles, machinery, and fleet and construction of waste management facilities, among others. The implementation of the IWMP should be done in a phased manner, taking into cognisance the WSLM priorities at the time. Additional sources of funding must be investigated, particularly with, inter alia, the following institutions: Municipal Infrastructure Grant (MIG), Development Bank of Southern Africa (DBSA), DFFE, JGDM, and donor funding.

Tariff structure: The WSLM, with the assistance of the JGDM, must ensure that the tariff structure takes into consideration:

(1) the current situation in the LM,

(2) self-sufficiency and

(3) continued feasibility.

The structure must be reviewed at regular intervals and updated if necessary. The allocation of waste related funds must go to waste projects and infrastructure.

8. CHAPTER 8. GOALS, POLICIES AND OBJECTIVES

8.1. OVERVIEW

This section of the IWMP focuses on the objectives, targets and policies that the WSLM should agree to, and strive to commit to, covering short-term (0 to 5 years). Please refer to the Implementation Plan of the IWMP for specific projects to achieve the objectives outlined in this section, as well as responsibilities for implementation. The report is informed by the Status Quo and Gap Analysis and Needs Assessment Report. The review of this IWMP should be done against the agreed objectives and targets.

The overarching waste management objectives for the WSLM should include the following:

- Waste Management by-laws and standards to be effectively implemented and enforced.
- A reduction in the volume of the waste stream through the supporting strategy for the waste recycling programmes;
- Provision of efficient and economical refuse collection, recycling and disposal services; and
- Provision of a fleet for the efficient transportation of waste generated in the WSLM, which will ultimately be transported to the landfill site.

8.2. OBJECTIVES, GOALS AND TARGETS FOR WASTE MANAGEMENT IN WSLM

Objectives	Targets
Goal 1: Institutional and Planning Matters	
Ensure sufficient institutional capacity for both human and financial resources to address integrated waste management.	Submission of the IWMP to DEDEAT for endorsement by 2024
	Implementation of endorsed IWMP from 2024/25 financial year
	Ensure the inclusion of IWMP in IDP before the end of 2024.
	Revise the current budget system for waste management services to fully accommodate the waste management needs.
	Revise the current organogram to have additional personnel such as landfill site personnel (e.g., landfill manager/operator, landfill access controller, security, etc.)
	Training of waste management officers
	Waste Engineer should be assigned for Leachate Management in identified Landfill Sites
Goal 2: Minimum Service Standards and Cost Recovery	
Establish minimum service standards	Adopt the National Domestic Waste Collection Standards by the end of 2024.
	Ensure that 100% of urban households receive a minimum of weekly waste collection services by 2026.
	Improve waste collection services delivered at the minimum service level in rural and farming areas.
Cost recovery of waste management services	Service fee collection needs to cover at least 70% of the waste management operation cost by 2026.
	Adopt and implement the tariff model developed by DFFE by 2026.
Goal 3: Minimization, Re-use, Recycling and Recovery of Waste	
Increase re-use, recovery, and recycling of waste to ultimately, reduce the disposal of waste to landfill sites	Increase the re-use, recovery and/or recycling of waste by at least 5% by 2025.
	Provide receptacles/ refuse bags to the communities.
Initiate programmes for the separation of waste at the source	Initiate a pilot programmed for the separation of waste at source by 2024.

Engage in district-wide and provincial waste management forums	Participation of a designated WMO at district and provincial waste management forums.
Support the formalization of waste recycling practices	Formalize at least one waste recycling initiative, practice and/or structure, with community involvement.
	Create more recycling facilities and the department should have its recycling facilities.
Goal 4: Landfill Management	
In the short term, upgrade the landfill sites to curb the current environmental issues.	Collect all the currently disposed waste into one area and cover/cap it as per the waste management license.
	Construct an area (a cell) within the site for future waste disposal according to Norms and Standards for waste disposal.
Provision of the necessary infrastructure, equipment and personnel which is needed for landfill functions.	Provide the necessary facilities such as ablutions and a guard house at landfill sites.
	Employ more landfill personnel, such as landfill operators, spotters, etc.
	Install a weighbridge for waste recording
	The landfill site must be well-fenced and there must be access control
	The landfill site must be lined.
	SAPS must be involved in landfill sites.
Formulate a long-term phase-out and closure strategy for the municipal landfill sites.	Commence with the site identification process and the next processes for a new municipal landfill site.
Goal 5: Waste Information System	
Initiate the process of reporting waste records to SAWIC for all waste management sites.	Registration of all waste management activities outlined in the Waste Information Regulations by 2024.
	Engage DEDEAT on the approach of proper waste management recording and reporting to SAWIC
	Reporting of all registered waste management facilities as required by 2025.
	Submit waste management records to SAWIC monthly.
Development of waste transporters register	Establish a waste transporter register by 2025.

Goal 7: Education and Awareness	
Increase awareness of waste management among members of the public.	Create awareness of integrated waste management with the public including youth and school children by increasing the use of social media, community radios, print, etc.
	Encourage leaders and councilors to always talk about the By-laws on waste management.
Build capacity at the ward level.	Increase in awareness of waste management of municipal officials.
	The WSLM must partner with JGDM and DEDEAT for awareness campaigns
	Development and attendance of training courses
	Creating and filling posts where required.
Increase awareness and capacity concerning the reuse, recycling, and recovery of waste.	An increase in awareness of the reuse, recycling, and recovery of waste in the public and municipal structures.
Raise awareness of industries about the need to develop industry waste management plans.	An increase in awareness of industries about the need to develop industry waste management plans.
Goal 8: Monitoring compliance, enforcement, and remediation	
Monitor waste management services at a local authority level	Ensure that waste audits are performed, in association with JGDM, on waste management services rendered and ensure development and compliance with waste management by-laws.
Compliance and enforcement with the waste management license conditions	Ensure compliance of operations at all waste management facilities with the conditions of waste management licenses on an annual basis.
	Post regulations and legislations relating to waste management in business areas including fines for non-compliance.
Monitoring of IWMP obligations	Monitor the implementation of IWMP annually.
Identify non-compliance and problem areas	Address non-compliances
	Follow-up/intervene where required for non-compliance.
Remediation of contaminated land	Analyze to determine if there are any contaminated land
	Monitor the progress of remediation of contaminated land.
	Visibility of enforcement e.g., issuing of fines to reduce illegal dumping.

9. CHAPTER 9. RECOMMENDATIONS

9.1. OVERVIEW

This chapter seeks to outline recommendations and an implementation programme for consideration by the WSLM. These recommendations should be aligned with the IDP of the WSLM for effective implementation. The recommendations have been outlined along the eight (8) focus areas for ease of reference and to properly guide the implementation process.

9.2. WASTE COLLECTION INFRASTRUCTURE

This aspect relates to the fleet for waste management. WSLM does not have sufficient fleet and infrastructure for effective waste management.

Due to the quantities of waste produced within the rural areas, the removal of waste from the individual households, however, remains the responsibility of each individual as no formal collection is conducted in these areas by the LMs. This situation is not ideal because non-removal of waste may pose a health risk and lead to illegal dumping at more convenient locations throughout the settlements. To this end, it seems higher.

If the WSLM wants to expand their service areas, the following aspects should be taken into consideration:

- Purchase additional fleet that can be solely dedicated to waste management;
- Sell fleet which is no longer useful or is problematic;
- Continuously assess the fleet and be in line with resolutions on extending the service coverage.
- Ensure that all waste receptacles in town are at least 100m apart from each other. This can be undertaken to comply with the norms and standards for waste management.

9.3. INSTITUTIONAL CAPACITY AND HUMAN RESOURCES

This aspect involves the identification of human resource shortcomings and alteration to employee structures. The following is therefore recommended for WSLM:

- The CSD should review its organogram to strengthen the waste management function.
- The Unit should develop by-laws, have a synthesis of the WIS, and interact with the private sector in the municipal area.
- The current staff members should be trained continuously on the function for them to perform better. This would help them to understand various forms of waste and report any wrongdoing to the authorities.

9.4. DISPOSAL INFRASTRUCTURE DEVELOPMENT

This area relates to the development, upgrading, and legalization of disposal infrastructure. This includes the identification of new infrastructure where required, the upgrading of the current infrastructure as well and the improvement of management practices at the various locations. The following is recommended for the WSLM:

- Improve access control at the landfill sites to avoid indiscriminate disposal, scattering of waste outside of the site, entry after hours and disposal of unsuitable materials.
- Temporarily upgrade the landfill sites to comply with National Norms and Standards. A properly lined cell should be constructed and the current waste be collected in a single place and covered. Fencing should be improved and access control be provided. Necessary facilities such as ablutions should also be provided.
- Commence with the construction of necessary perimeter fencing, a lined landfill cell, guard house, ablutions, etc. at landfill sites; and
- Install signage with necessary information within the landfill sites.

9.5. FINANCIAL RESOURCES

This aspect relates to existing and required financial structures and strategies. The WSLM, with support from JGDM, should consider the following:

- A pre-paid system for waste management where a voucher system can be devised for private disposers.
- Tariffs for private disposers should be determined and standardized.
- Ensure continuous improvement of ratepayer numbers every year to generate more revenue.

9.6. ECONOMIC INSTRUMENTS

Financing of waste management services is dependent on accurate costing of the required services. The full cost of waste service provision is seldom understood by both municipal officials as well as the general public. This results in waste management services often being under budgeted and/or communities' reluctance to pay the rightful cost of the service. Tariffs have the potential to fully cover the costs of providing the services, but the charges are often set below actual costs. Below are some of the interventions that can be implemented.

- Undertake a full cost accounting exercise for waste management services to include aspects of the collection, transportation, landfill, street cleansing, fee collection, debt payment and

depreciation. Implementing recycling programmes will reduce disposal costs and generate revenue for the municipality. The cost accounting exercise referred to above could include the costs of 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.

- Increasing the service charges to correlate with the actual costs may be a challenge to low-income groups, given the current backlog specifically to those areas. The concept of Pay-As-You-Throw may then be a better approach, where the service charge is proportional to the waste produced per household. The WSLM with assistance from the JGDM, should investigate this option.

The financial needs for a complete waste management system include the following:

- Human resources – salaries, pensions, medical aid contributions;
- Development of primary and secondary infrastructure for waste management including:
  - Development of a WIS;
  - Waste collection services to all un-serviced areas;
  - Recycling facilities;
  - Waste treatment facilities e.g., composting facilities;
  - Transfer stations and MRFs;
  - Landfill site development (upgrade of the current landfill site to contain the current health and environmental issues associated with the site, rehabilitation of illegal waste dumps).
- Equipment for operations of waste management services;
- Additional surveys or studies (e.g., feasibility studies, EIAs for specific infrastructure for waste management;
- Awareness, capacity building, training and skills development; and
- Plans, projects, programmes i.e., the implementation of the IWMP; etc.

The implementation of this IWMP can necessitate both capital and operational costs which can be funded through potential avenues listed in the table below. The sources listed below are not exhaustive. Further, it must be recognised that some sources could provide financing for project planning, while others may be suited to project implementation.

9.7. FUNDING OPTIONS

Some of the funding organizations that can assist the WSLM in implementing waste management activities are listed in Table 23 below:

Table 23: Some of the funding sources for waste management projects.

LOCAL FUNDING SOURCES
JGDM, the environmental management unit provides support to environmental management related projects to local municipalities.
DEDEAT, funding of environmental management related projects, inclusive of waste management.
The Municipal Infrastructure Investment Unit (MIIU), is a source of support for municipalities that are committed to investigating Municipal Service Partnerships
The DBSA, willing to finance a portion of solid waste facilities
MIG funding. This funding will be geared towards landfill construction.
Special MIG Innovation Fund (SMIF) has been established to encourage and support innovative projects in municipalities. The SMIF has been established to: • Actively support innovation in local government. • Enable municipalities to implement projects that are linked to, but not currently part of, their IDPs. • Identify cutting-edge projects that carry acceptable levels of risk and that will result in sustainable benefits in the municipal area. • Encourage municipalities to work more effectively with a wide range of stakeholders, including the private sector (corporates and Small, Medium, and Micro Enterprises (SMMEs)), Community Based Organizations (CBOs), labor, and other spheres of government. • Facilitate lesson-learning and knowledge sharing across projects, to enable successful innovations to be replicated and policy and procedures to be informed by outcomes on the ground.

• Promote a culture of pride and confidence in the ability of South Africans, and the public sector in particular, to innovate and create a better life for all South Africans
The Industrial Development Corporation (IDC) publicly committed to funding infrastructure projects
Capital Expenditure Programme (CAPEX), which finances capital projects such as the development of buy-back centers.
The South Africa Infrastructure Fund, which is composed of numerous insurance and pension fund members, with an interest in funding infrastructure projects in South Africa.
Black Empowerment Groups (investment groups).
Companies with international affiliations may have access to greater and/or lower cost capital through their international partners.
Department of Trade and Industry / Department of Transport, through the Spatial Development Initiative, may provide support to initiatives that can encourage direct foreign investment.
DFFE through its Environmental Protection and Infrastructure Programme (EPIP)
GOVERNMENT FUNDING SOURCES
Equitable Share Grant: The Equitable Share Grant from the National Government is provided in support of the accelerated implementation of free basic services to poor households. All municipalities are therefore being pressurized by the National Government to prioritize the provision of free basic services to poor households, including better targeting and performance reporting.
The Municipal Infrastructure Grant (MIG): According to the National Treasury, the MIG complements the equitable share allocations to give effect to national objectives to: Expand the delivery of basic services to all households, including the delivery of free basic services to poor households and other poverty alleviating objectives; and stimulate local economic development and job creation over the medium term. Municipalities are also required to use their capital budgets to promote labor-based infrastructure methods (Expanded Public Works Programme) for projects where this

is appropriate. In direct contrast with the former Consolidated Municipal Infrastructure Programme (CMIP) funding, the MIG does not fund specific projects but is designed to complement the capital budget of a Municipality. Reporting on MIG therefore focuses on the entire capital budget of a municipality. The District Municipality has a responsibility to ensure that low-capacity local municipalities such as WSLM are supported in their applications for MIG funds and that they will comply with the requirements of the Municipal Finance Management Act 2003 (Act No. 56 of 2003) (MFMA) and the 2005 Division of Revenue Bill in terms of budgeting. Section 37(2) enables municipalities to receive MIG funding provided that they prepare sector plans showing how backlogs are being addressed relating to the key sectors such as electricity, water, sanitation, waste removal, roads and transport.
Capacity Building and Restructuring Grant The capacity building grants were set up to assist municipalities in improving management, planning, technical and financial management skills and capacity for effective service delivery, with the major portions of grants flowing directly to municipalities. The following programmes are being supported by this grant: • Financial Management Grant; • Municipal Systems Improvement Programmes; and • Restructuring Grant.
INTERNATIONAL FUNDING SOURCES
International Finance Corporation (IFC), a member of the World Bank Group, is a private sector division that finances private sector projects in developing countries and helps companies access financing in international markets. It promotes sustainable private sector investment in developing countries as a way to reduce poverty and improve people's lives
The Southern Africa Enterprise Development Fund (SAEDF), which is a U.S. Government funded, privately managed venture capital fund, which takes an equity position of up to 25% in its investments
New African Advisors, a U.S. based private venture capital fund with guarantees provided by the Overseas Private Investment Corporation (OPIC)
The OPIC Global Environment Fund (GEF), a U.S. based investment fund that sponsors and manages investment entities with equity involvement in infrastructure projects
Various U.S. based private investment funds have expressed interest in South African infrastructure projects

The following agencies can assist in obtaining, structuring, and/or insuring investments
Various merchant banks in South Africa have declared an interest in structuring financing for Municipal Service Partnerships.
The Export-Import Bank of the United States (Ex-Im Bank), helps to finance sales of U.S.A goods and services outside the U.S.A.
The Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, provides insurance to private investors against risks such as currency transfer, expropriation and civil disturbance, as well as technical assistance.
The OPIC is a U.S. government agency that provides both financing and insurance to U.S. companies involved in international investments.

9.8. RISKS ASSOCIATED WITH FUNDING

Several potential risks to investors for projects include such risks as construction risk, operational risk, regulatory risk, market risk, and political risk. A detailed risk analysis should however be part of a financial analysis of the various projects and elements of the project. The following discussion gives a brief description of the different risk groups listed above together with comments on mitigating the risks from the perspective of investors in private sector projects and/or Private Public Partnerships.

Construction risk is the risk that the project elements will not be constructed (or completed) on time, within budget, or the parameters originally specified. This risk can be mitigated by various measures, including the use of qualified construction companies, the use of insurance, and the provision of bonus and penalty clauses in construction contracts.

Operational risk is the risk that the project elements will be faulty and not operate efficiently or within the parameters specified by the owner and/or by the regulatory agencies. A certain amount of operational risk is unavoidable; therefore, lenders must protect their position through for example minimum debt service coverage ratio, limitations on capital expenditures, limitations on long-term debt, and limitations on guarantees.

Regulatory risk refers to the potential for the regulatory controls on the project elements to change during the life of the project, thereby influencing the requirements for project performance. Should the performance requirements change, the costs of investments for upgrading, and the increased operational costs, must be addressed. Strategies used to manage regulatory risk include the appropriate identification of responsibilities for upgrading contracts.

Market Risk fluctuates depending on the implementation model within which the project elements operate. For example, in an unregulated competitive market, such as the recycling market, the project faces risks related to the market size, price, and payments. However, if the market is regulated, the market size is controlled, and price and payments can be controlled through a regulatory agency. Several strategies are used by lenders to reduce market risks, including guarantees by government agencies, letters of credit, limitations on debt exposure, and independent appraisals.

Political Risk signifies a variety of potential events that can be triggered through local political actions, and which cannot reliably be predicted, such as expropriation, confiscation, and nationalization of assets; forced abandonment; currency inconvertibility; funds transfer risk; violence such as strikes, riots, or civil commotion.

9.9. INFORMATION MANAGEMENT AND DISSEMINATION

This aspect covers the need for effective record-keeping and reporting to the SAWIC, the sharing of available information as well as cooperation with the various stakeholders within the WSLM. It is recommended that the municipality should:

- Report waste records to the SAWIC. The municipality can enlist the support of the JGDM and Provincial Department (DEDEAT) on how to accurately collect information and submit it to SAWIC.
- Procure weighbridges for the landfill sites to accurately determine the volumes of waste disposed of in the facilities; and
- Develop a comprehensive awareness campaign/ programme and waste education for the WSLM community. The municipality can enlist the services of the JGDM and DEDEAT to create awareness of waste matters.

9.10. MANAGEMENT OF ILLEGAL ACTIVITIES

This focus area relates to illegal dumping activities within the municipal area. This involves the identification of possible illegal dumping hot spots, development of clean-up and anti-dumping campaigns, possible revision of by-laws as well as revision of collection strategies. The following is recommended for the WSLM:

- Undertake a comprehensive audit of open spaces (erven) within the municipal area. This is to assist in identifying illegal dumping hotspots. This will be done to formulate a strategy for each of those areas.
- Place skip bins and place signboards on those potential hotspots with a view of deterring illegal dumping;
- Other open spaces may be recommended for recreational parks or landscaped green spaces to improve cleanliness and control; and
- Develop a penalty system for illegal dumping activities. This should be aligned with the waste management by-laws.

9.11. WASTE MINIMISATION STRATEGIES

This focus area involves the identification of specific waste minimisation strategies, whether it is separation and collection at the source, privatization of recycling activities, and development of collection points throughout the area as well as public awareness/ education strategies. The following is recommended for WSLM.

- Strengthen the functionality of the existing recycling project by ensuring that there are more recyclables fed into the project to meet the required volumes.

- Introduce a two-bag system for all households and businesses to improve separation at source. This would also improve recyclables going to the aforementioned project.
- Strengthen the participation of private sector companies whether as donors or in transferring the skill to the cooperatives.

10. CHAPTER 10: IMPLEMENTATION PLAN

10.1. INSTITUTIONAL AND PLANNING MATTERS

FOCUS AREA	WASTE SERVICES DELIVERY
Objective	To improve the institutional and human resources to effectively execute the waste management function.

RECOMMENDATION	STRATEGY/ACTION	TIMEFRAMES (FY)					RESPONSIBILITY	ESTIMATED COST
Recruit human resources for the waste management unit as per the Council approved organogram.	Submit the human resources requirements to HR for the waste management unit.	**24/25**	**25/26**	**26/27** **X**	**27/28** **X**	**28/29**	CSD and Corporate Services	R0
Continuously train the current staff members in waste management for them to perform better. This would help them to understand various forms of waste and report any wrongdoing to the authorities.	Undertake a skills audit for all the employees of the function.			X			25/26	26/27
	Determine training gaps and develop individual development programmes.			X				R0
	Contact a service provider to train the staff			X				R100 000
Ensure the inclusion of the IWMP into the municipal IDP	Present the IWMP to the Council for approval before inclusion in the annual revision of IDP.		X				CSD	R0

Ensure that members of the Council are fully aware of waste management, its function, legal aspects, and resource requirements.	Conduct awareness sessions with Council members regarding waste management. Specific emphasis should be placed on councilors who are members of the mayoral committee dealing with waste.						CSD/DEDEAT/ COGTA/JGDM	R0

10.2. MINIMUM SERVICE STANDARDS AND COST RECOVERY

FOCUS AREA	**Effective and Efficient Delivery of Waste Services**							
Objective	To improve the waste collection infrastructure of the WSLM							
Recommendation	**Strategy/Action**	**Timeframe (FY)**					**Responsibility**	**Estimated Cost**
Establish minimum service standards for the municipality.	Adopt the National Domestic Waste Collection Standards.	**24/25**	**25/26**	**26/27**	**27/28**	**28/29**	CSD	R0
	Achieve 100% waste collection services at the minimum service levels in urban areas.				X	X	CSD	R0
	Introduce waste collection services to townships		X	X	X		CSD	R0
The municipality should enhance the	Re-determine waste collection routes					X	CSD	R0

scheduling of workers and fleet for efficient service.	for cost saving. Monitor the outlook every semester.					X		
Re-assess the number of households for improved collection and billing.	Ensure that there is a GIS alignment for the houses serviced. Ensure systematic billing of all those receiving services from the Municipality.					X X	CSD and GIS Unit	R200 000
Cost recovery of waste management services	Achieve at least a 10% increase in refuse collection rates (% of households serviced).					X	CSD	R0
	Undertake a full cost accounting exercise to determine the rate increase of waste tariffs.			X	X	X	CSD	R0 (In-house) or R90 000.00 (consultant)
	Adopt and implement the tariff model developed by DFFE.			X	X	X	CSD	R0

10.3. WASTE MINIMIZATION, RE-USE, RECYCLING AND RECOVERY

GOAL	**PROMOTE MINIMIZATION, RE-USE, RECYCLING AND RECOVERY OF WASTE**							
Objective	To improve waste minimization strategies for diverting waste away from landfill sites for materials recovery and to preserve its airspace.							
Recommendation	**Strategy/Action Plan**	**Timeframe (FY)**					**Responsibility**	**Estimated Amount**
Develop a strategy for waste separation at source. Examine existing best practices elsewhere in the country.	Identify an area for piloting and seek Council approval.	**24/25** **X**	**25/26** X	**26/27**	**27/28**	**28/29**	CSD/ Portfolio Head	R0 (In-house/ internal budget)
Introduce a two-bag/ bin system for all households and businesses to improve separation at source.	Pilot, publicize, and launch the two-bag system for effective communication.		X	X	X		CSD, Councilors	R500 000
	Roll out to other areas where possible			X	X	X		R600 000 per annum
Divert garden waste from going to landfill sites by identifying and implementing a municipal composting project.	Identify and develop garden refuse drop-off centers for each town.		X				CSD	R50 000
	Set a team to process organic matter into compost.			X	X		CSD	R70 000 per annum
Strengthen the participation of private	Identify more companies/co-						Councilors and	R200 000

sector companies whether as donors or in transferring the skill to the cooperatives.	operatives that may be interested in the recycling activities of the area.		X	X	X		CSD	
	Incentivize companies/cooperative participation in the recycling activities in the Municipality.				X	X	CSD	R200 000

10.4. LANDFILL MANAGEMENT

FOCUS AREA	**DISPOSAL INFRASTRUCTURE DEVELOPMENT – LANDFILLS**							
Objective	To improve the solid waste disposal infrastructure of WSLM							
Recommendation	**Strategy/Action**	**Timeframe (FY)**					**Responsibility**	**Estimated Cost**
Upgrade the James Calata and Steynburg landfill sites to avoid the current environmental and health issues associated with the sites.	Collect all the currently disposed waste into one area and cover/cap it as per the waste management license.	**24/25**	**25/26** X	**26/27**	**27/28**	**28/29**	CSD	R500 000.00
	Construct an area (a cell/mini-cell) within the site for future waste disposal according to Norms and Standards for waste disposal.		X				CSD	R2.5 million
	Provide the necessary infrastructure		X	X	X		CSD	R2 Million

	(guard house, ablutions) equipment (weighbridge, landfill compactor), and personnel which is needed for landfill functionality (Landfills licensed for Operations							
	Employ landfill personnel, such as landfill operators, spotters, etc.			X	X	X	CSD	R200 000 per annum
Construct the planned Maletswai Municipal landfill site into a Sanitary/Engineered Landfill as its Waste Management License and per DFFE Norms and Standards.	Source a budget for the upgrade of the landfill site into a Class B Sanitary Landfill.			X			CSD	R0
	Appoint a contractor to construct the Landfill Site			X	X	X		R30 Million

10.5. WASTE INFORMATION MANAGEMENT

FOCUS AREA	WASTE INFORMATION MANAGEMENT							
Objective	**Ensure proper waste recording and improvement in information dissemination for effective waste management function**							
Recommendation	**Strategy/Action**	**Timeframe**					**Responsibility**	**Estimated Cost**
Initiate the process of reporting waste records to SAWIC for all waste management sites (MRFs/Buy Back Centers and landfill sites)	Engage DEDEAT to help with the approach of reporting to SAWIC on all functional waste management sites.	**24/25** **X**	**25/26**	**26/27**	**27/28**	**28/29**	WMO	R0
	Ensure proper waste management recording			X			WMO	R0
	Ensure submission of records daily for analysis							
	Ensure monthly submission of records to SAWIC		X	X	X	X	WMO	R0

10.6. RURAL WASTE MANAGEMENT

FOCUS AREA	**RURAL WASTE MANAGEMENT**							
Objective	Ensure that waste management services are provided in rural areas of the municipality							
Recommendation	**Strategy/Action**	**Timeframe (FY)**					**Responsibility**	**Estimated Cost**
Expand waste management services to informal areas (waste collection, transportation, and disposal, at a minimum)	Identify and address possible problems in informal areas where waste management services can be piloted.	**24/25**	**25/26**	**26/27**	**27/28**	**28/29**	CSD and Councilors	R0
	Introduce communal skips which can be collected once a week at informal areas for their feasibility.							R100 000.00
	If feasible, gradually introduce the skips into other areas				X	X		R200 0000.00

10.7. EDUCATION AND AWARENESS

FOCUS AREA	**EDUCATION AND AWARENESS**							
Objective	Ensure improvement in information dissemination and disposal information for effective management of the waste management function							
Recommendation	**Strategy/Action**	**Timeframe (FY)**					**Responsibility**	**Estimated Cost**
Develop a comprehensive awareness strategy/programme for waste management awareness education for all the community/stakeholder groups.	Develop a programme that will target specific communities such as schools, businesses, residents, government institutions, etc.	**24/25**	**25/26**	**26/27**	**27/28**	**28/29**	Environmental Health Manager and WMO	R100 000.00
	Form a partnership with local newspapers for message resonance with communities. The Municipality can enlist the services of DEDEAT to create awareness on waste matters		X				WMO	R50 000 per annum
Increase awareness of waste management among members of the general public	Undertake constant messaging using various platforms (local radio stations, newspapers, social media, municipal website, etc.)			X	X		CSD	R80 000.00

Increase awareness and capacity with regard to the re-use, recycling and recovery of waste	Develop partnerships with businesses in the recycling space.						WMO	R0
Increase public awareness about the issue of illegal dumping	Organize and publicize clean-up activities, particularly in areas that experience a high incidence of illegal dumping.						WMO	R50 000.00 per annum

10.8. MONITORING COMPLIANCE AND ENFORCEMENT

FOCUS AREA	**MONITORING COMPLIANCE AND ENFORCEMENT**							
Objective	To effectively contain the illegal dumping of waste in various hotspots within the WSLM.							
Recommendation	**Strategy/Action**	**Timeframe (FY)**					**Responsibility**	**Estimated Cost**
Monitor the operations of the landfill sites.	Monitor compliance with the conditions of waste management license to be 90% or higher.	**24/25** **X**	**25/26** **X**	**26/27** **X**	**27/28** **X**	**28/29** **X**	WMO	R0
Monitoring of IWMP obligations	Monitor the implementation of the IWMP.	X	X	X	X	X	WMO	R0
Identify non-compliance and problem areas	Address non-compliances and make follow-up/interventions where required for non-compliances							
Undertake a comprehensive audit of	Appoint a service provider to map out the open spaces with the potential of becoming		X				CSD	R500 000.00

open spaces (erven) within each town to identify illegal dumping hotspots.	dumping hotspots							
	Validate the hotspots for appropriate action.		X					R200 000.00
	Determine appropriate action for each open space			X				R200 000.00
	Erect 'no dumping' signs at illegal dumping sites.			X				R50 000.00
	Educate residents about illegal dumping		X	X	X	X		
	Review the sites annually for improvement		X	X	X	X		
Enforce a penalty system for all illegal dumping activities by individuals and businesses	Determine penalties and communicate with the relevant authorities		X	X			CSD	R500 000.00
	Communicate penalties with communities		X	X			WMO	R200 000.00
	Enforce the by-laws	X	X				EMI	R0

REFERENCES:

1. Stats SA (2022)
2. SALGA Website
3. Walter Sisulu Local Municipal Integrated Development Plan
4. Gariep IWMP
5. Maletswai IWMP
6. Provincial IWMP
7. State of the Environment Report (SOER)
8. National Waste Management Strategy, 2020