LETSEMENG LOCAL MUNICIPALITY

DRAFT INTEGRATED WASTE MANAGEMENT PLAN 2026- 2031

Contents

Contents 2
Definitions i
Acronyms vi
Executive summary 1
1. **Scope of plan** 10
1.1 Overall aim and goals 10
1.2 IWMP Responsibilities 10
1.3 Waste Management Principles 10
2 **Methodology** 12
2.1 Waste management needs 12
2.2 Geographical area 12
3 **Policy and Legislation** 14
4 **Situation analysis** 21
4.1 Geographic Profile 21
4.1.1 Environmental profile 21
4.2 Demographics (Population and Development Profiles) 22
4.2.1 Koffiefontein 23
4.2.2 Petrusburg 23
4.2.3 Jacobsdal 23
4.2.4 Oppermansgronde 23
4.2.5 Luckhoff 23
4.2.6 Population 24
4.2.7 Age and Gender Profile 24
4.2.8 Households 25
4.2.9 Employment 25
4.2.10 Annual Household Income 26
4.2.11 Economy 27
4.3 Determining current waste generation and estimating future waste generation rates and quantities 27
4.3.1 Service level standards 27
4.3.2 Households 28
4.3.3 Businesses 28
4.3.4 Farming 29
4.3.5 Healthcare Facilities 29
4.3.6 Waste generation rates 29
4.4 Waste Characterisation 31
4.5 Specific Waste Stream 33
4.5.1 Health care risk waste 33

4.5.2 Hazardous Waste....33
4.6 Waste Recycling, Treatment and Disposal....35
4.6.1 Status Quo of Waste Recyclers....35
4.6.2 Status Quo of Waste Disposal Facilities....35
4.6.3 Status Quo of illegal dumping (Bulk cleansing)....57
4.6.4 Status Quo of Garden Waste and Builder's Rubble....58
4.7 Status of Waste Collection Services....58
4.7.1 Waste Removal....58
4.8 Reporting on the Integrated Pollutant and Waste Information System (IPWIS) 59
4.9 Waste Management Financing....59
4.9.1 Waste Management....59
4.9.3 Tariff Structure....60
4.10 Organisational and Institutional Matters....61
4.11 Equipment....63
4.11.1 Fleet used for refuse collection....63
4.12 Other Waste Management Systems and Practices....**Error! Bookmark not defined.**
4.12.1 Existing waste avoidance in LLM....65
4.12.2 Waste minimization strategies....65
4.12.3 Waste Reduction....65
4.12.4 Composting....65
4.12.5 Alternative waste treatment initiatives....65
4.12.6 Public cleansing....65
4.12.7 Awareness and education....65
5 **Gap Analysis and needs assessment**....66
5.1 Governance....66
5.1.1 Waste Policy and By-Laws....66
5.1.2 Institutional and planning matters....66
5.2 Sustainability Study....67
5.3 Waste Avoidance....67
5.4 Disposal Facilities....67
5.4.1 Extension/upgrading of landfill sites....67
5.4.2 Closure of landfill sites....67
5.4.3 Waste transfer stations/ drop off facilities....67
5.5 Treatment and Recycling....68
5.5.1 Establishing Separation at Source Initiative....68
5.5.2 HCRW Treatment Facilities....68
5.5.3 Hazardous waste....68
5.5.4 Garden waste and builders' rubble....68
5.6 Collections....68
5.6.1 Collection Services....68
5.7 Fleet Management and Equipment....69
5.7.1 Challenges faced with regards to equipment and logistics....69
5.7.2 Equipment/vehicle considerations (collection/transportation)....69
5.7.3 Equipment Required....69

5.8 Waste Information System 72
5.9 Education and Awareness 73
5.10 General 75
6 **Desired end state** 77
6.1 Setting strategic goals, targets and indicators 77
7 **Communication and Stakeholder Participation** 91
7.1 Consultation Process Summary 91
8 **Implementation Instruments** 93
8.1 Partnerships 93
8.2 Legislative instruments: Development and enforcement of by-laws 94
8.3 Funding mechanisms 95
8.4 LLM responsibilities 96
8.4.1 Municipal Manager 96
8.4.2 Waste Management Officer 96
8.4.3 Waste Management Section 96
8.4.4 Line Managers 97
8.4.5 Stakeholder Responsibilities 97
9 **Implementation and Financial Plan** 99
10 **Reporting and Monitoring** 100
10.1 Monitoring of IWMP 100
10.2 Communication and public participation plan 102
10.2.1 Public Review and Approval Process 102
10.2.2 Approval Process for IWMP 102
10.3 Review of IWMP 103
11 **References** 104

Definitions

Definitions listed below that are defined in terms of the National Environmental Management: Waste Act, 2008 has the same meaning as in the Act and are listed below for ease of reference.

Accreditation

Accreditation for stakeholders is necessary to prove that they are registered and meet a general standard of quality with a recognized institution.

Aquaculture

Cultivation of aquatic animals and plants, especially fish, shellfish, and seaweed, in natural or controlled marine or freshwater

Basic waste management service

A basic waste management service means to have access to at least once-a- week refuse removal services.

Building and demolition waste

Building and demolition waste means waste, excluding hazardous waste, 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.

Buy-back Centre

Buy-back Centre means a location where discarded materials can be exchanged for money for further transportation to a recycling facility. The price for the waste is determined by the current markets and the quantities of waste.

Business Waste

Business Waste means waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes.

Compost

Compost is decayed organic material used as a fertilizer for growing plants to which no plant nutrients have been added and that is free of substances or elements that could be harmful to man, animal, plant or the environment

Composting

Composting means biologically degrading organic materials in the presence of oxygen, yielding carbon dioxide, and heat and stabilised organic residues that may be used as a soil additive.

Container

Container means a disposable or re-usable vessel in which waste is placed for the purposes of storing, accumulating, handling, transporting, treating or disposing of that waste, and includes bags, bins, bin-liners and skips.

Disposal

Disposal means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land.

Domestic Waste

Domestic Waste means waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health, sport or recreation purposes, which include:

a) Garden and park wastes
b) Municipal waste
c) Food waste

Designated Waste

Designated Waste Management Officer means a person in the employ of the Council authorized to be a designated officer in terms of (Section 10(3) to be a

Management Officer

Designated officer with the responsibility set aside in (section 10 (5)) of the NEMWA, Act 59 of 2008

General waste

General waste means waste that does not pose an immediate hazard of threat to health or to the environment, and includes-

a) Domestic waste
b) Building and demolition waste
c) Business waste and
d) Inert waste

Garden waste/ green waste

Garden waste or green waste is meant as biodegradable waste material generated from the likes of a typical garden such as flower cuttings, hedge trimmings, wood pieces from pruning etc.

Hazardous waste

Hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles.

High income group

High income group means households which fall within the Living Standard Measure (LSM) of 5 – 10).

Inert Waste

Inert Waste means waste that—

- ✓ Does not undergo any significant physical, chemical or biological transformation after disposal;
- ✓ Does not burn, react physically or chemically biodegrade or otherwise adversely affect any other;
- ✓ Matter or environment with which it may come into contact; and
- ✓ Does not impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is insignificant.

Integrated Waste Management Plan

Integrated Waste Management Plan means a plan prepared in terms of section 12 of NEMWA.

Landfill

Waste disposal facility means any site of premises used for the accumulation of waste with the purpose of disposing of that waste or on that premise.

Low income group

Low income group means households which fall within the Living Standard Measure (LSM) of 1 – 5

Materials Recovery Facility

Materials Recovery Facility means a centre for the reception and transfer of materials recovered from the waste stream for recycling. Materials are sorted by type and treated (cleaning and compression).

Organic waste

A carbon-based material of animal or plant origin (that is defined as waste in terms of the South African gazetted National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008:) that naturally enhances fertility of soil through a natural degradation process (natural occurring fertilizer) but excludes human made organic chemicals (such as solvents, chemicals and cleansing agents) and naturally occurring organic chemicals which have been refined or concentrated by human activity (such as oil, petroleum, diesel and tar products). “Organic Waste” will generally comprise materials that can be accepted for disposal at a licensed municipal general waste landfill facility (i.e. excludes infectious, poisonous, health-care and hazardous organic wastes)”.

Pollution

- ✓ Pollution means any change in the environment caused by-
- ✓ Substances;
- ✓ Radioactive or other waves; or
- ✓ Noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person, or organ of state, where that changes has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in future

Recovery

Recovery means the controlled extraction of a material or the retrieval of energy from waste to produce a product.

Recycle

Recycle means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.

Re-use

Re-use means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.

Separation at Source

Separation at Source means the separation of recyclable material from other waste at the point and time the waste is generated. This includes separation of recyclable material into its component categories and may include further separation within each category.

Treatment

Treatment means any method, technique or process that is designed to— (a) change the physical, biological or chemical character or composition of a waste; or (b) remove, separate, concentrate or recover a hazardous or toxic component of a waste; or (c) destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal.

Waste

Act No. 26 of 2014: National Environmental Management: Waste Amendment Act, 2014

“waste” means-

a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re- used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or

b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette, but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste-

   i. once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered

   ii. where approval is not required, once a waste is, or has been re-used, recycled or recovered

   iii. where the Minister has, in terms of section 74, exempted any waste or portion of waste generated by a particular process from the definition of waste; or

   iv. where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste

Waste Avoidance

Waste Avoidance aims to achieve waste minimization therefore reducing the amount of waste entering the waste stream. This is especially important where the recycling, recovery, treatment or disposal is problematic.

Waste generator

A waste generator will be treated as a waste holder as defined in the National Environmental Management: Waste Act. 2008, Act No. 59, 2008

A holder of waste must, within the holder’s power, take all reasonable measures to-

a) avoid the generation of waste and where such generation cannot be avoided, minimize its production

b) to minimize the toxicity and amounts of waste that are generated

c) reduce, re-use, recycle and recover waste

d) where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner

e) manage the waste in such a manner that it does not endanger health or the

f) environment or cause a nuisance through noise, odor or visual impacts,

g) prevent any employee or any person under his or her supervision from contravening this Act, and

h) prevent the waste from being used for an unauthorized purpose

Waste Hierarchy

The management hierarchy concept provides a systematic and hierarchical approach to integrated waste management, addressing in turn waste avoidance, reduction, reuse, recycling recovering treatment and the safe disposal of waste as a last resort.

Waste Management Services

Waste Management Services means waste collection, treatment, recycling and disposal services

Waste Minimization

Waste Minimization means techniques used to keep waste generation at a minimum level in order to divert materials from landfill. The term waste minimization is also applied to recycling and other efforts to reduce the amount of waste going into the waste stream.

Waste Transfer Facility

Waste Transfer Facility means a facility that is used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility.

Wood waste

Wood waste is a material from pruning or tree removal operations that would otherwise be discarded in a landfill.

Acronyms

DEEF: Department of Forestry, Fisheries & the Environmental Affairs
DWAF: Department of Water Affairs and Forestry
DWS: Department of Water and Sanitation
EIA: Environmental Impact Assessment
EMP: Environmental Management Plan
IDP: Integrated Development Plan
IPWIS: Integrated Pollutant and Waste Information System
IWMP: Integrated Waste Management Plan
IDZ: Industrial Development Zone
GDP: Gross Domestic Product
NEMA: National Environmental Management Act No 107 of 1998, as amended
NEMWA: National Environmental Management: Waste Act No 59 of 2008, as amended
NWMS: National Waste Management Strategy of 2011
PPP: Public Private Partnerships
SDF: Spatial Development Framework
SLA: Service Level Agreement
LLM: Letsemeng Local Municipality
MISA: Municipal Infrastructure Support Agent
WIS: Waste Informantion System

1. Executive summary

The Letsemeng Local Municipality reviewed its Integrated Waste Management Plan (IWMP) in-house with the assistance of the DFFE. As required by the National Waste Management Strategy (NWMS) 2020 and the Integrated Development Plan (IDP) process all municipalities are obliged to develop an IWMP and review it every five years.

The plan covers all 7 wards of the municipality, which includes Koffiefontein, Petrusburg, Jacobsdal, Luckhoff and Oppermansgronde. It reviews services currently rendered and sets goals to be achieved in order to meet the requirements of the National Environmental Waste Management Act (NEWMA) (2008), as amended and the NWMS (2020).

Several plans contribute to the development of the Integrated Development Plan (IDP) and Comprehensive Municipal Infrastructure Plan (CMIP) of which the IWMP is one of them. An IWMP is a high level strategic document that looks broadly at the waste management offering within a defined area and if necessary, proposes further steps that the responsible authority might consider taking to achieve a comprehensive integrated waste management service. The development of the plan included the following steps:

1. Background study.
2. Status quo analysis.
3. Establishing strategic objectives and priorities.
4. Gap analysis.
5. Review of goals, objectives and strategies.

The desired end state identified priorities and goals that the municipality should attain with regards to waste management. Using the information collected on the historical and current waste management situation the following strategic goals for the IWMP were developed:

Goal 1: Promote recycling and recovery of waste

To implement sustainable waste minimization, reuse, recycling and recovery programs through strategic interventions including the promotion of composting, waste-to-energy and other reuse and recycling initiatives supported by introduction of waste separation at source programs.
Programs should contribute towards uplifting the quality of life of the people within the municipality by ensuring a clean environment and by identifying, promoting and supporting potential job opportunities within the sector

Objectives:

- ✓ Establish community drop-off centers with containers for different waste streams at municipal facilities
- ✓ Separation or segregation of waste stream at source to reduce the waste disposed to landfill by 40% within 5 years
- ✓ Encourage of co-operatives responsible for recycling and implementation of appropriate economic instruments and other financial incentives
- ✓ Reuse of garden waste and building material

- ✓ Develop waste avoidance guidelines.

Target:

- ✓ 40% of waste diverted from landfill within 5 years (NWMS 2020)
- ✓ Medium term – 55% within 10 years
- ✓ Long term - at least 70% within 15 years leading to Zero-Waste going to landfill.

Focus Area	Current Status	Mitigation Measures	Desired State
Community drop-off centers for recyclable material	There are no community drop-off centers for recyclable materials	Identify and establish drop off points at landfill sites/municipal infrastructure	5 Community drop-off centers.; with containers for different waste streams, one in each town
Separation of waste at source.	No separation at source	Implement a two bag system to separate waste into wet and dry components	Separation or segregation of waste stream at source to reduce waste to landfill by 20% by 2025.
Co-operatives/SMMEs	There are privately owned SMMEs for recyclable material	Encourage Co-operatives	Co-operatives responsible for recycling
Reuse of garden waste and building rubble	Garden waste and building rubble is not recycled/reused.	LLM should investigate the reuse of building rubble and undertake a market survey (both internal and external). LLM should investigate composting of garden waste. Appoint EPWP workers to assist with waste recovery. Appoint a recycling contractor to oversee the project	Equipment and facilities that are adequate for: **Composting:** Chipper Tractor with bucket loader or front end loader **Building rubble:** Crushed material to be used as cover material

Build capacity to improve waste recovery initiatives	Limited waste recovery initiatives implemented	Appoint EPWP workers to assist with waste recovery. Appoint a recycling contractor to oversee the project Establish a waste forum for all the role players in LLM	Increased waste recovery

Goal 2: Ensure the effective and efficient delivery of waste services

To promote and ensure effective delivery of waste services to all waste generators within the municipalities by extending appropriate waste services to all un-serviced areas and continually improving the level of service given in a safe and clean environment.

Objectives:

- ✓ Funded and filled posts.
- ✓ Businesses/industries responsible for waste services (receptacles)
- ✓ Community based services should be rendered to areas where the municipality have no capacity
- ✓ No illegal

  dumping

  Target:

All households within the municipality must receive a basic level of waste service according to waste level National/Provincial standards in a safe and clean environment.

Focus Area	**Current Status**	**Mitigation Measures**	**Desired State**
Institutional arrangement	New organizational structure was approved in 2023. Insufficient human resources due to vacant and unfunded	Funding of critical posts. Filling of vacant posts.	Institutional capacity and trained human resources to effect all aspects of waste management services

	critical posts (e.g. driver/workers).	Continuous training of personnel. Review Organisational structure (and/or certain post profiles) to include law enforcement activities.	
Illegal dumping	Inadequate law enforcement and services to prevent illegal dumping (cleared by LLM, often from outskirts of settlements)	Provide a waste collection service for indigent areas in LLM Train/Appoint personnel for law enforcement. Develop and enforce new by-laws and identify the hot spots. Educate community. Develop clean up schedule Set up sign boards prohibiting illegal dumping and where waste can be disposed of legally	No illegal dumping
Route planning	Refuse collection routes per service area are planned per day	Revisit (redesign) and Implementation of a GIS route planning model	Proper GIS route planning
Fleet	Fleet vehicles are old and/or in poor condition	Replace fleet with the appropriate vehicles and increase number of vehicles. Diversify fleet for specific use.	Sufficient and maintained fit-for-purpose vehicles available 8 hours per day

Businesses/ industries/ New developments	Waste management plans are not available for businesses / industries / new developments	Develop waste management plan	Waste Management plans in place for all industries

Goal 3: Ensure that legislative tools are developed to deliver on the NEMWA and any other applicable legislation

To ensure that legislative tools are developed and enforced.

Objectives:

- ✓ Implemented waste management policy
- ✓ Implemented

by-laws Target:

To prevent illegal dumping increase enforcement of by-laws by 20%.

Focus Area	Current Status	Mitigation Measures	Desired State
Waste management policy	No Waste policy	Develop waste management policy.	Waste management policy Implemented
Waste By-law	Outdated by-laws	Update by-laws	By-laws Implemented

Goal 4: Sound budgeting and financing of waste management services

Sound budgeting and financial management for waste management services to ensure that revenue expenditure for all services (or service categories) equals the revenue generated.

Objectives:

- ✓ Tariffs should be developed for all (new) waste management activities.
- ✓ The Municipality must be able to determine its economic sustainability and therefore establish long- term priorities

Target

Cost effective tariffs to be implemented by the financial year 2024/2025

Focus Area	Current Status	Mitigation Measures	Desired State
Tariffs	LLM has an approved tariff structure for disposal at the waste disposal facility, as well as for collection and removal	Undertake detailed financial investigation to determine the non- payment for waste management services rendered as well as services with an over-recovery.	Tariffs should be developed for all waste management activities to recover costs.
Cost recovery	Disparity between income and expenditure for refuse removal and waste disposal facilities.	Enforce approved tariffs for waste management services rendered to improve collection rates.	Recovery of cost for waste management services rendered

Goal 5: Ensure the safe and proper disposal of waste

To treat and safely dispose of waste through selecting the Best Practicable Environmental Option (BPEO) interventions aimed at saving landfill airspace and reducing the potential negative impacts on the environment;

Objectives:

Develop and implement a waste treatment and disposal strategy that will include, but is not limited to, the following:

- ✓ Compliance of all waste treatment and disposal facilities with relevant legislation for their development, operation and closure
- ✓ Addressing the long term capacity of the municipality
- ✓ Exploring alternative treatment and/or disposal options

Target:

The percentage increase in volume of waste disposal to landfill should not exceed its potential airspace available.

Focus Area	Current Status	Mitigation Measures	Desired State
Health Care Risk Waste (HCRW)	HCRW waste is dumped illegally on occasions	Ensure and monitor that HCRW waste is reported to the relevant authorities if disposed of illegally.	Appropriate disposal of HCRW
Hazardous Waste	Hazardous waste is dumped illegally on occasions	Ensure that hazardous waste is reported to the relevant authorities if disposed of illegally.	Appropriate disposal of hazardous waste
Landfill Sites	Has fatal flaws in terms of locality Remaining airspace is unknown.	LLM should take steps to license non-compliant sites Closure and rehabilitation of Oppermansgronde and Luckhoff landfill sites Upgrading/rehabilitation of landfill sites in Petrusburg, Luckhoff and Koffiefontein	Full compliance with relevant legislation and permit/license conditions once licensed. Rigorous implementation of waste minimization initiatives.
Transfer station	No transfer stations	Identify possible locations for two new transfer stations in Oppermansgronde and Jacobsdal. Build new transfer stations	System of well-located transfer stations to limit travel distances to landfill (and associated transport cost).

Goal 6: Education and awareness

To raise awareness about waste management, including treatment and disposal impacts and options, and building capacity in support of waste minimization, reuse, recycling and recovery initiatives.

Objectives

- ✓ Develop and implement a communication and public awareness plan that encourages minimization, reuse, recycling, and recovery and discourages illegal dumping and littering, thereby minimizing the negative impacts of waste on the environment and improving the quality of life of people. This IWMP will include among others the following:
- ✓ Capacity building programs for the personnel within the municipality.
- ✓ Awareness and education programmes for the broader community
- ✓ Mechanisms of forming partnerships with different stakeholders in order to expand the reach and impact of the awareness campaigns undertaken

Targets

- ✓ Schools within the municipality should establish waste minimization programmes and/or other waste related projects by 2025.
- ✓ Initiate programmes that translate the objectives of provincial and national programmes to encourage cleaner environments and responsible behavior towards the environment such as the “Bontle ke Botho” and the ‘Cleanest Town’ competitions to other stakeholders and the broader community. Initiation and operation of other awareness campaigns involving the community/population by 2025.

Focus Area	Current Status	Mitigation Measures	Desired State
Education and awareness	Limited education and awareness campaigns. Inadequate resources (personnel, equipment)	Implementation of an increased clean-up campaigns, education awareness at schools and the community regarding the impact of waste. Appoint a Communications Officer to manage education and awareness campaigns. Add waste management awareness to LLM communication strategy	A well-educated and well-informed community in regards to the impacts of waste on their health and the environment.

Goal 7: Compliance and enforcement

To achieve compliance to the municipal waste management by-laws through effective enforcement including prosecution in cases of non-compliance.

Objectives:

- ✓ Enforcement of waste by-laws and relevant legislation
- ✓ Accurate recording and efficient data management of waste volumes and waste types collected, recycled and disposed

Target:

Achieve 80% of compliance by all waste management activities.

Focus Area	Current Status	Mitigation Measures	Desired State
Enforcement of relevant legislation	Inadequate provisions are made on the proposed organizational structure for waste management by-law enforcement.	Provide for law enforcement function in the organizational structure. Identify and train existing personnel in by-law enforcement.	An institution where there are adequate resources to enforce waste management by-laws.
Integrated Pollutant and Waste Information System (IPWIS)	An IPWIS has been implemented and LLM is reporting waste volume and characteristics monthly.	Expand waste information recorded to include recyclable materials (from MSW) reclaimed off landfills.	System of maintaining accurate records and efficient data management of waste volumes and waste types collected, recycled and disposed.
Audits	Auditing of LLM waste disposal facilities as per license/ permit/ operating conditions are not conducted	Conduct landfill audits Report audit findings to relevant authority	Compliant LLM waste disposal facilities and waste transfer stations.

2. Scope of plan

As required by the National Waste Management Strategy (NWMS) 2020 and the Integrated Development Plan (IDP) process all municipalities are obliged to develop an IWMP and review it every five years.

The plan covers all 7 wards of the municipality, and covers Koffiefontein, Petrusburg, Jacobsdal, Luckhoff and Oppermansgronde. It reviews services currently rendered and sets goals to be achieved in order to meet the requirements of the National Environmental Waste Management Act (NEWMA) (2008), as amended and the NWMS.

1.1 Overall aim and goals

The aim of the IWMP is to ensure that the Municipality provides waste management services that are compliant with the NEMWA and NWMS (2020) to communities. The goals set focus on minimizing waste that is disposed at the landfill site by encouraging waste minimization, re-use and recycling.

1.2 IWMP Responsibilities

The (NWMS) allocated the following responsibilities for an IWMP:

- ✓ The National (DFFE) to draft and promulgate regulations and guideline documents for integrated waste management planning for all waste types.
- ✓ The Provincial Environmental Departments to develop hazardous waste management plans and prepare provincial environmental and waste management plans. The municipal and industry IWMP's should incorporate and align their plans with provincial IWMP. These will be submitted to the Central Executive Committee for approval, which will facilitate inter-provincial coordination, particularly in relation to planning facilities for treatment and disposal of waste.
- ✓ Local Government to develop and submit plans for integrated general waste management to the respective provincial environmental departments.
- ✓ Waste management plans for industrial waste that is disposed of at private and/or dedicated disposal facilities, to be prepared by the developers/owners and submitted to the respective provincial environmental departments.

1.3 Waste Management Principles

Underlying principles or factors for this IWMP are as follows:

Principle	Description
The 'polluter pays principle'	The National Environmental Management Act, (NEMA), Act 107 of 1998, states that all costs associated with the management of waste should be borne by the persons who generated the waste. Such costs may include the following: Waste minimization;

Principle	Description
	• Containing, treating and disposing of waste; and • Rectifying environmental harm caused by waste.
Cradle to grave	This is a process where a waste generator is responsible for and develops intervention programmes throughout the lifecycle until final disposal.
Cradle to cradle	The concept of cradle-to-cradle is different from cradle to grave in that each part of a product is made with its entire life cycle in mind. Closed-loop recycling reduces the demand for raw materials and the fuel to produce a new product. Cradle-to-cradle materials are either biologically consumable, where they can be returned straight to the earth, or technically reusable, where the materials can be reused or placed directly back into the production cycle
Co-ordination	This is a process where a waste generator ensures that waste management is integrated across all sectors of the organization
Capacity building and education	To successfully implement its IWMP the LLM recognizes the need to ensure the development of skill, capacity and understanding of its employees, service providers, business, industry and other stakeholders for effective participation in achieving integrated waste management.
Accountability	The LLM is responsible for environmental policy formulation, implementation, monitoring and enforcement. This will ensure accountability for waste generated and managed.
Ensuring Sustainable Development	This IWMP needs to achieve a better balance between economic prosperity, social equity and environmental protection – i.e. making sure that sustainable development takes place in the context of 'living today with tomorrow in mind'

3. Methodology

To compile this plan a Status Quo Investigation and Gap Analysis was conducted.

The following methodology was followed for the status quo investigation:

- ✓ All available relevant documentation/records were obtained for the purposes of the study
- ✓ Relevant officials from the Municipality were interviewed
- ✓ The study area was visited to obtain first-hand information on the existing status of the waste management services rendered
- ✓ Individuals and Organizations involved in solid waste management were interviewed
- ✓ The municipal area was assessed taking into consideration waste generation, collection volumes, existing collection systems, equipment, personnel and landfill status. The status quo was completed based on the assessment findings.
- ✓ The current waste management practices were evaluated against the principles contained in the waste management hierarchy and waste management aspects were evaluated from the points of generation through to disposal/landfill.

The status quo report compiled for the IWMP provided an indication of the planning context within which the greater IWMP for the LLM was formulated, as well as additional legislative frameworks that needed to be considered when undertaking the compilation of an IWMP. It sets the platform for the completion of all subsequent stages of the integrated waste management planning for the LLM.

Waste Generation Calculations:

- ✓ Domestic Waste Generation – 7 days a week
- ✓ Business Waste Generation – 7 days a week

Where recorded generation rates were not available, the following estimate quantities were used:

- ✓ Rural settlements (poor communities) – 0.3 kg/person/day
- ✓ Urban – 0.8 kg/person/day

Commented [PM1]: How were these figures obtained?

The status quo report provides legislative frameworks that was considered as well as an indication of the context within which the IWMP was conducted.

3.1 Waste management needs

Based on the information collected, the needs of the Municipality for the immediate future were identified and measured against the existing IDP objectives and Spatial Development Framework (SDF) strategies.

3.2 Geographical area

LLM is situated in the South Western part of the Free State Province and forms part of the smallest District namely Xhariep District Municipality, a rich agricultural area with natural economic resources. The local municipality area measures 9 829 km² in extent and comprises 5 towns and forms the

western side of the Xhariep District. It borders the Northern Cape Province (through Jacobsdal) and is renowned for diamond, salt and slate mining as well as irrigation farming along the Orange Riet Canal and Van der Kloof Dam. The administrative offices of the Municipality are situated at Koffiefontein; which is 135 km south of Bloemfontein.

4. Policy and Legislation

This section addresses any policy and/or legislation that must be considered when compiling the IWMP.

South Africa has extensive legislation that has been promulgated to ensure protection of the environment and people. Relevant acts, regulations, guidelines and international conventions are discussed below.

The Constitution of the Republic of South Africa, 1996, as amended

The South African Constitution (Act 108 of 1996) is the supreme law of the land. Section 24 (a) of the Act states that: “everyone has the right to an environment that is not harmful to their health or wellbeing.” This poses a duty on all organs of state to promulgate legislation and to implement policies that ensure that this right is upheld. Chapter 7 of the Constitution states that the roles and responsibilities of local government include:

- ✓ Promotion of social and economic development; and
- ✓ Promotion of a safe and healthy environment.

The Municipality is responsible for waste removal, managing waste disposal facilities and cleansing as this is seen as part of basic services and as per Schedules 4 and 5 of the Constitution.

National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended

The National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended (NEMA) was promulgated in November 1998. It is the key legislation for environmental management in South Africa. NEMA promotes social, economic and environmental sustainability with a key focus on conservation of the environment. The Act requires environmental processes to be transparent and to provide capacity for disadvantaged stakeholders to participate. NEMA promotes the need for co-operative governance where more than one government department may be involved in decision-making for a proposed development.

NEMA was amended in 2006 and again in June 2010, providing a new list of activities that require environmental authorisation through different processes. The list describes those activities that require a basic environmental assessment (BA) and those that require a full environmental impact assessment (EIA). Both the BA and EIA involve public participation. The two processes are detailed and involved, however the EIA involves a longer timeframe, being broken down into scoping and impact assessment phases in comparison to a BA:

- ✓ Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- ✓ Development must be socially, environmentally and economically sustainable. The Act further defines in considerable detail the approach to sustainable development.
- ✓ Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated.
- ✓ Environmental justice must be pursued so that adverse environmental impacts are not in any way discriminatory to any part of the population.
- ✓ There must be equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being.
- ✓ The participation of all interested and affected parties in environmental governance must be promoted throughout the life cycle of any project or programme and any decision making

process.

- ✓ Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and the recognition of all forms of knowledge, including traditional and ordinary knowledge.
- ✓ The social, economic and environmental impacts must be considered, assessed and evaluated.
- ✓ Processes must be transparent.
- ✓ The rights of workers must be projected and the vital role of women and youth in environmental management and development must be recognized and their full participation promoted.
- ✓ There must be harmonization between policies, legislation and actions relating to the environment. Global and international responsibilities relating to the environment must be incorporated at national interest.

National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended (NEMWA)

Chapter 1, Section 2 of the National Environmental Management Waste Act provides the following objectives of the act:

- ✓ To protect health, well-being and the environment by providing reasonable measures
- ✓ Minimizing the consumption of natural resources;
- ✓ Avoiding and minimizing the generation of waste;
- ✓ Reducing, re-using, recycling and recovering waste;
- ✓ Treating and safely disposing 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;
- ✓ Remediating land where contamination presents, or may present a significant risk or harm to human health or the environment;
- ✓ Achieving integrated waste management and reporting and planning;
- ✓ To ensure that people are aware of the impact of waste on their health, well-being and the environment;
- ✓ To provide for compliance; and
- ✓ To give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.

The Act requires that a National Waste Management Strategy (NWMS) be drafted in order to achieve its objectives. The NWMS was drafted and finalized in 2020 and all spheres of government must implement this strategy. It also sets waste service standards, covering areas such as tariffs, quality of service and financial reporting. Municipalities are also required by the Act to designate a waste management officer.

According to the Act, each municipality must produce an IWMP and submit it to the Member of the Executive Council (MEC) for approval. The approved IWMP must be included in the Municipal IDP. Prior to finalizing the IWMP, the Municipality is required to follow the consultative process as defined in Section 29 of the Municipal Systems Act. This can be done either as a separate process or as part of the consultative process relating to its IDP.

Minimum contents required in an IWMP are outlined in the NEMWA. The contents of this IWMP were guided by those for a standard IWMP.

The NEMWA provides definitions of waste as well as the listed activities that require licensing. This Act also provides specific waste management measures for remediation of contaminated land as well as for compliance and enforcement. Waste and waste management activity as amended by Act 14 of 2003 is defined as follows:

“Waste” means:

a) Any substance, material, or object that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and that includes all wastes as defined in Schedule 3 of the Act; or

b) Any other substance, material, or object that is not included in Schedule 3 that may be defined as waste by the Minister by notice in the Gazette,

c) Once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered;

d) Where approval is not required, once a waste is, or has been re-used, recycled or recovered;

e) Where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or

f) Where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.”

“Waste management activity” means any activity listed in Schedule 1 or published by notice in the Gazette under section 19, and includes:

The generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste;

a) The accumulation and storage of waste;

b) The collection and handling of waste;

c) The reduction, re-use, re-cycling and recovery of waste;

d) The trading in waste;

e) The transportation of waste;

f) The transfer of waste;

g) The treatment of waste; and

h) The disposal of waste.

Guideline for the development of Integrated Waste Management Plans (IWMPs)

The IWMP guidelines provide a background for the compilation of IWMPs which includes a short historical overview of IWMPs to date and a basic description of the legal framework pertaining to IWMP development.

The integrated waste management planning process incorporates all major stages of the environmental planning process, namely:

- ✓ Analyzing the current situation and legal framework;
- ✓ Making projections of future requirements;
- ✓ Setting objectives;
- ✓ Developing projects and programmes to reach the set objectives;
- ✓ Implementation of plan (activities, projects and programmes)
- ✓ Monitoring and Evaluation (M & E) of the programmes and plans implemented and
- ✓ Periodic review of the plans to ensure continuous improvement

National Waste Management Strategy (2020)

The NWMS was promulgated on 4 May 2012 to address South Africa's waste management challenges, and gave effect to the suite of policies and relevant legislation which preceded it. The overall objective of the strategy is to reduce the generation of waste and reduce the impact of all forms of waste on economic development, health and the quality of environmental resources. The NWMS sought to achieve the following goals:

- ✓ Promote waste minimisation, re-use, recycling and recovery;
- ✓ Ensure effective and efficient waste delivery services;
- ✓ Growing the contribution of the waste sector to the green economy;
- ✓ Ensure that people are aware of the impact of waste on their health, well-being and the environment;
- ✓ Achieve integrated waste management planning;
- ✓ Ensure sound budgeting and financial management for waste services;
- ✓ Provide measures to remediate contaminated land; and
- ✓ Effective compliance with and enforcement of NEMWA.

National Norms and Standards for Assessment of Waste for Landfill Disposal, Government Notice No. 635 of 23 August 2013

The National Norms and Standards for the assessment of waste for landfill disposal prescribe the requirements for the assessment of waste prior to landfill.

National Norms and Standards for Disposal of Waste to Landfill, Government Notice No. R. 636 of 23 August 2013

The norms and standards for disposal of waste to landfill stipulate the waste acceptance criteria for disposal to landfill and the various waste disposal restrictions.

Waste Classification and Management Regulations, Government Notice No. 634 of 23 August 2013

These regulations regulate classification and management of waste to give effect to provisions of the

NEMWA.

National Norms and standards for the Storage of Waste, Government Notice No. 926 of 29 November 2013

The purpose of the norms and standards is to-

a) Provide a uniform national approach relating to the management of waste storage facilities;

b) Ensure best practice in the management of waste storage facilities; and

c) Provide minimum standards for the design and operation of new and existing waste storage facilities.

Municipal Waste Management By-Laws,

Municipalities are required to draft and maintain municipal by-laws which detail the responsibilities of the municipalities and the residents within a defined municipal boundary. In terms of Chapter 7 on Local Government, section 162 on the publication of by-laws of the Constitution of the Republic of South Africa:

- ✓ A municipal by-law may be enforced only after it has been published in the official gazette of the relevant province
- ✓ A provincial official gazette must publish a municipal by-law upon request by the Municipality
- ✓ Municipal by-law must be accessible to the public
- ✓ LLM do not have a Waste Management By-Law

Polokwane Waste Summit Declaration (September 2001)

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

Vision- To implement a waste management system, this 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. The Polokwane Declaration has significant implications for local government. In order to move towards the goal it will be necessary for government and other stakeholders to engage more closely toward the achievement of this goal in a realistic and practical manner.

The key actions in the Polokwane Declaration that impact on local government include the following:

- ✓ Implement the NWMS (2011)
- ✓ Develop and implement legislative and regulatory framework
- ✓ Implement waste reduction and recycling
- ✓ Develop waste information and monitoring systems

International Conventions

South Africa is a signatory to the Basel (1994) and Stockholm (2001) Conventions.

The key objectives of the Basel Convention are:

- ✓ To prevent waste being taken from developed countries and disposed in less developed countries where there will significant impact from incorrect handling

- ✓ To minimize the generation of hazardous waste in terms of quality the severity of the hazardous waste
- ✓ To dispose of them as close to the source of generation as possible
- ✓ To reduce the movement of hazardous waste

A central goal of the Basel Convention acceded to by South Africa in 1994, is "environmentally sound management" (ESM), the aim of which is to protect human health and the environment by minimizing hazardous waste production whenever possible. ESM means addressing the issue through an "integrated life-cycle approach", which involves strong controls from the generation of a hazardous waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal.

The Stockholm Convention on Persistent Organic Pollutants (POPs), to which South Africa became a signatory in 2001 is a global treaty to protect human health and the environment from POPs. POPs are particularly carcinogenic and are toxic to both humans and wildlife. Burning of waste in open landfill sites or by incineration has the potential to release high volumes of POPs into the atmosphere.

The National Health Act, 2003 (Act No. 61 of 2003)

The National Health Act, 2003 defines "municipal health services" to include water quality monitoring; food control; waste management; health surveillance and prevention of communicable diseases, excluding immunisations; vector control; environmental pollution control; disposal of the dead; and chemical safety, but excludes port health, malaria control and control of hazardous substances.

Section 32 of the Act requires that municipal health services (including waste management) be effectively and equitably provided. Furthermore, national and provincial government must enter into a service level agreement as contemplated in section 156(4) of the Constitution, assigning the administration of the listed matters to the municipality.

The service level agreement must according to section 32(3) provide for:

a) The services to be rendered by the municipality;

b) The resources that the relevant member of the executive council must make available;

c) Performance standards which must be used to monitor services rendered by the municipality; and

d) Conditions under which the agreement may be terminated.

This Act also pertains to health care waste management. The Act, in relation to waste activities designates the municipal services by including waste management in terms of formulating regulations regarding medical and health care waste by the Minister Responsible.

Municipal Structures Act, 1998 (Act No 117 of 1998)

The Municipal Structures Act, 1998 (Act 117 of 1998) delineates powers and functions of different categories of municipalities. In terms of the Act, municipalities have powers and functions relating to integrated, sustainable and equitable social and economic development of the district. This role should be performed by ensuring integrated development planning for the district as a whole, building the capacity of local municipalities to perform their functions, exercising local municipal powers where capacity is lacking, and promoting the equitable distribution of resources between the local municipalities in its area. The Act further reiterates the functions of local municipalities as contained in the Constitution excluding the ones referred to as district functions. This includes the provision of waste collection and disposal services and cleansing.

Municipal Systems Act, 2000 (Act No. 32 of 2000)

The Municipal Systems Act, 2000 (Act 32 of 2000) defines alternative approaches that may be employed in delivering municipal services and the processes to be followed when such alternatives

are considered. The need for integrated planning and performance monitoring of both external and internal mechanisms of service delivery are emphasised in the Systems Act. The Act further mandates communities to be encouraged to participate in strategic decisions making relating to service delivery.

Waste Tyre Regulations, Government Notice No.149, 3 February 2009

The Waste Tyre Regulations are designed based on Section 24C of Environmental Conservation Act (ECA) 1989, (Act No. 73 of 1989). This design is intended to regulate the handling, storage and disposal of used tyres.

Minimum Requirements for Waste Disposal by Landfill, 1998

The then Department of Water Affairs and Forestry (DWAF), having a concern for the protection of water resources of South Africa and at the time being responsible for permitting of waste facilities developed a part series of documents commonly referred to as the 'Minimum Requirements'. The first edition was published in 1994, followed by the 2nd edition, which superseded the 1st edition in 1998. The general objectives of the Minimum Requirements are to:

- ✓ Set out minimum requirements in terms of processes to be followed and information required for the application of a permit for a facility
- ✓ Provide a minimum set of environmentally acceptable ways of handling, transporting, treating and disposing of different types of waste that has to be achieved, and
- ✓ Set minimum standards and specification, which had to be adhered to, in order to protect water resources from potential pollution from waste facilities

5. Situation analysis

To determine the status quo of waste management services in the Letsemeng Local Municipality, a situational analysis was conducted. The situational analysis was conducted to evaluate and quantify all waste management aspects within the municipality. This includes the current status of the number of residents in the municipality; the demographic profile; socio-economic composition and delivery of waste management services in the area.

The IWMP will be developed and should be updated to ensure that measures are put in place to minimize waste generation and disposal according to the waste management hierarchy.

5.1 Geographic Profile

LLM is situated in the South Western part of the Free State Province and forms part of the smallest District namely Xhariep District Municipality, a rich agricultural area with natural economic resources. The local municipality surface area measures 10 192 km² in extend and comprises of five towns; Koffiefontein, Petrusburg, Jacobsdal, Oppermansgronde and Luckhoff as shown in Figure 1. The administrative offices of the Municipality are situated at Koffiefontein; which is 135 km south of Bloemfontein.

Commented [PM2]: Must be aligned with the IDP together with all the latest demographics pertaining to LLM

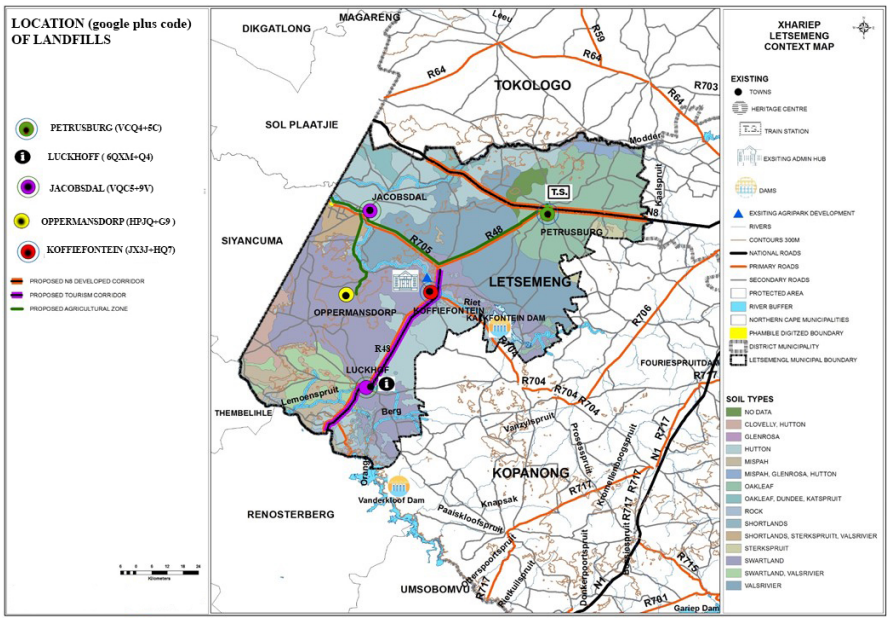


Figure 1: Letsemeng Local Municipality Spatial Development Framework

5.1.1 Environmental profile

87.5 % of the municipality has remained as natural habitat. There are two formal land-based protected areas in the municipality, namely the Kalkfontein Dam Nature Reserve and the Rolfontein Nature Reserve. These two reserves cover 11380.90ha of the municipal area. There are three biomes

In the Letsemeng Municipality covering 1022538.4ha, namely Grassland, Nama-Karoo and Savanna. Eleven vegetation types cover 1022538.4ha of the municipality. There is also one vulnerable ecosystems, covering 34348ha, of the Letsemeng Local Municipality. This is the Bloemfontein Dry Grassland. The Freshwater Ecosystems in the municipality are characterized by two water management areas, namely the Lower and Upper Orange. Eight in the Letsemeng Municipality covering 1022538.4ha, namely Grassland, Nama-Karoo and Savanna. Eleven vegetation types cover 1022538.4ha of the municipality. There is also one vulnerable ecosystems, covering 34348ha, of the Letsemeng Local Municipality. This is the Bloemfontein Dry Grassland. The Freshwater Ecosystems in the municipality are characterized by two water management areas, namely the Lower and Upper Orange. Eight rivers run through the municipality, namely:

- ✓ Berg;
- ✓ Kaalspruit;
- ✓ Knapsak;
- ✓ Kromellenboogspruit;
- ✓ Lemoenspruit;
- ✓ Modder;
- ✓ Orange; and
- ✓ Riet.

Wetlands cover 4.8 % of the Letsemeng Local Municipality. The terrain morphology indicates that most of the municipality jurisdiction consists of lowlands with hills. Slightly irregular plains and pans characterize to Jacobsdal, Petrusburg, Koffiefontein and Luckhoff areas. The geology of LLM consists mainly of Kalahari sands formations.

Letsemeng falls in the rainfall area of between 350 mm and 500 mm mean annual rainfall. Temperatures are extreme, and the area experiences hot mid-summer conditions and very cold winters.

5.2 Demographics (Population and Development Profiles)

The census 2022 data, the LLM 2025/26 IDP were used to complete demographic details. The Municipality is currently structured into the following 7 Wards:

Table 1: Municipal wards

WARD	AREAS
1	Luckhoff
2	Ratanang
3	Bolokanang
4	Khayelitsha and Diamanthoogte
5	Koffiefontein and Dithlake
6	Petrusburg and Bolokanang

7	Phambili, Oppermansgronde and Sanderhoogte

The LLM consists of large rural areas, as well as the following towns:

5.2.1 Koffiefontein

Koffiefontein / Dithlake serves as the municipal administrative seat within the Letsemeng Municipality and is situated approximately 125 km northwest of Trompsburg and an estimated 146 km east of Bloemfontein. Access to the town is gained from the R48 route between Petrusburg and Luckhoff. The main social and economic functions of the town are to serve as:

- ✓ Main local municipal administrative centre;
- ✓ Regional agricultural services centre;
- ✓ Diamond mining operations; and
- ✓ Regional social services centre.

5.2.2 Petrusburg

Petrusburg/ Bolokanang serves as a commercial and social service centre within the Letsemeng. The Municipality and is situated approximately 55 km northeast of Koffiefontein. Access to the town is gained from the N8 route between Bloemfontein and Kimberley. The main social and economic functions of the town is to serve as:

- ✓ Main regional agro-processing centre;
- ✓ Secondary agricultural service centre;
- ✓ Social functions such as residence, education and medical services; and
- ✓ Transport support services on a major route.

5.2.3 Jacobsdal

Jacobsdal/ Ratanang serves as an economic growth and tourism development node within the Letsemeng Municipality and is situated approximately 45km northwest of Koffiefontein. Access to the town is gained from the R705 route between Koffiefontein and Modder Rivier. The main social and economic functions of the town are:

- ✓ Regional agricultural services centre;
- ✓ Key regional tourist destination;
- ✓ Main regional agro-processing centre; and
- ✓ Social functions such as residence, education and medical services.

5.2.4 Oppermansgronde

Oppermansgronde serves as a general agricultural service centre within the Letsemeng Municipality and is situated approximately 32 km west of Koffiefontein. Access to the town is gained from the S647 route between Koffiefontein and Luckhoff. The main social and economic functions of the town is to serve as:

- ✓ General Agricultural service centre to surrounding farming areas, and
- ✓ Social functions such as residence, education and medical services.

5.2.5 Luckhoff

Luckhoff/Relebohile serves as a general agricultural service centre within the Letsemeng Municipality and is situated approximately 45 km south of Koffiefontein. Access to the town is gained from the R12route between Koffiefontein and De Aar. The main social and economic functions of the town is to serve as:

- ✓ General agricultural service Centre to surrounding farming areas, and
- ✓ Social functions such as residence, education and medical services.

5.2.6 Population

Table 2: Population Demographics for LLM, XDM and the Free State Province

	Letsemeng Local Municipality	**Xhariep District Municipality**	**Free State Province**
Surface area km	10 192 km²	37673.74 km²	129825.16 km²
Population size	43 101	146 259	2 745 590
Households	10 940	36 064	845 250

Table 3: Overview of neighborhoods in LLM

Overview of Neighbourhoods within Letsemeng		
Towns	**Population**	**Households**
Jacobsdal	3504	1003
Koffiefontein	10402	3203
Letsemeng NU/	6461	1717
Luckhoff	3699	1007
Oppermansgronde	871	230
Petrusburg	8435	2639
Ratanang	4231	1112
Rietrivier	1026	332

5.2.7 Age and Gender Profile

The LLM has a very young population, with 62.33% of the population under the age of 35. See Figure 2, with the largest number of people between the ages 15 - 34. The population is comprised of 51.10% females and 48.90% males

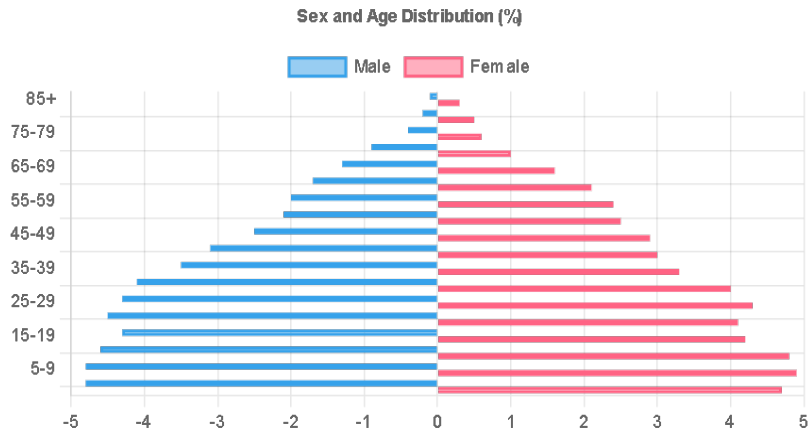


Figure 2: Age and gender profile of LLM

5.2.8 Households

According to Census 2022, the municipality consists of 10 940 households (including agricultural households). The household profile is used to measure the average household size of 3.3m. This information is important because the number and size of households will assist the municipality with proper planning for waste collection and management. Smaller household sizes are often attributed to more affluent areas. However, this statement does not take into account culture and preferences and therefore cannot be used as the only determinant of waste volumes according to area.

5.2.9 Employment

Knowing the employment rate within a municipality is vital for integrated waste management planning because the municipality can use employment figures to predict the volumes of waste produced and therefore make adequate provision of resources to render the required waste management services. StatsSA estimates that LLM had 9164 employed persons in 2011 and 2624 unemployed. 11 788 people are economically active (employed or unemployed but looking for work), and of these 22,3% are unemployed. Of the 6 058 economically active youth (15 – 34 years) in the area, 27,7% are unemployed. Figure 3 shows the employment status the LLM population. Youths and discouraged work seekers can be trained and appointed in areas where the need for human resources are critical.

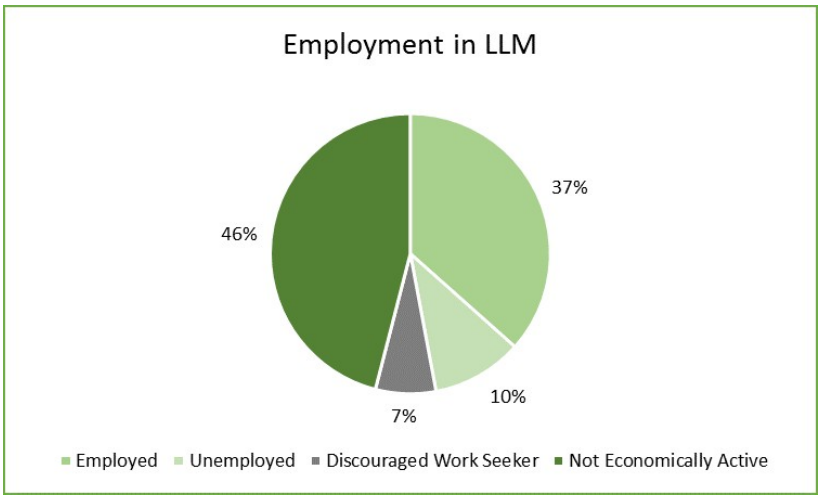


Figure 3: Employment status

A large amount of waste is also being generated by informal trading and this is not reflected in the employment figures below due to the unavailability of data.

5.2.10 Annual Household Income

Household income is a vital determinant of welfare and the standard of living. Household income is a family's ability to meet their basic needs in the acquisition of food, shelter and clothing. One of the most important poverty indicators is the Minimum Living Level (MLL). The Minimum Living Level indicates the minimum financial requirements of a family if they are to maintain their health and have acceptable standards of hygiene and adequately meet their needs.

10.2% of the population have no income; 84.4% earn an average of less than R77 000 per year and only 3.1% earn more than R307 000 on average per year (see Figure 4).

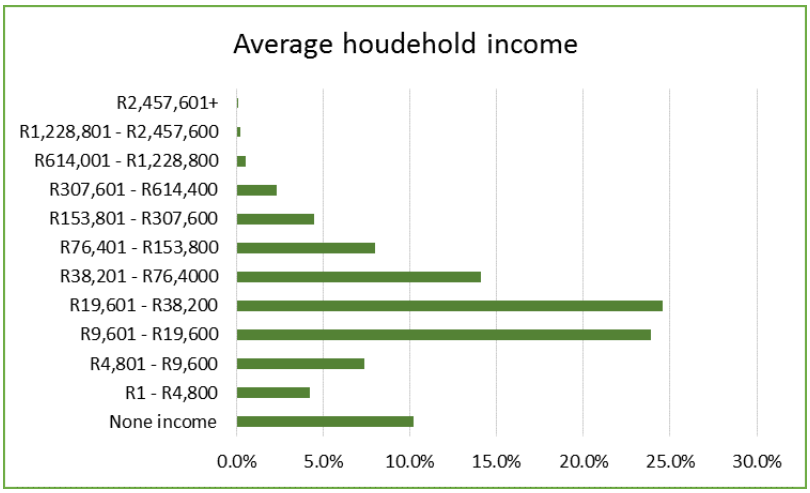


Figure 4: Average household income

Generally, waste generation tends to increase with household income; however there is no direct correlation between waste generation and household income and many variances occur. Therefore, it is difficult to predict the impact that income has on waste generation rate. However it is acceptable to assume that huge economic growth could be accompanied by growth in waste generated before possible waste minimization strategies take effect.

5.2.11 Economy

The LLM economy is based on the mining; agricultural; and tourism industries. The industrial, tourism and agricultural sectors are viewed as the primary economic drivers. However mechanization in the agricultural sector have led to farm workers losing their jobs and leaving the area to seek employment elsewhere.

The Koffiefontein mine is strategically located to contribute to the economic growth of the municipality. Its links to road, rail and air transportation modes makes it easier to transport products.

5.3 Determining current waste generation and estimating future waste generation rates and quantities

It is important to determine the current waste generation rates and type of waste generated in order to ensure that there are adequate resources for collection of waste and adequate facilities to properly handle and manage the amount of waste generated with the intention of minimising the amount of solid waste disposed at landfill sites. Estimating future generation rates and quantities will assist with planning to ensure that there will be adequate resources to meet future waste service demands.

5.3.1 Service level standards

Table 4 below indicates the level of waste services being rendered in LLM.

Table 5: LLM Schedule of waste service delivery practices

Standard	Service level
Premise based removal (Residential Frequency)	Weekly
Premise based removal (Business Frequency)	Weekly and depending on client needs
Bulk Removal (Frequency)	As and when required
Removal Bags provided(Yes/No)	No
Garden refuse removal Included (Yes/No)	No
City Cleaning Frequency in towns	Weekly
City Cleaning Frequency in areas excluding towns (Between)	Monthly
How soon are public areas cleaned after events (24hours/48hours/longer)	48 hours, 2 work days
Clearing of illegal dumping (24hours/48hours/longer)	If illegally dumped waste pose a serious health threat, it will be cleaned within 48 hours
Recycling or environmentally friendly practices(Yes/No)	Yes (informal)
Licensed landfill site(Yes/No)	Yes (only Petrusburg and Jacobsdal)

5.3.2 Households

83.3% of household in LLM are in the urban area with only 16.7% households on farms. More than 70% of households in the municipality are small in size (3.3 occupants and less). Households dispose their waste in their own bag/bin. Waste separation is not carried out at household level. 68% of households in LLM received basic waste collection services which entails kerbside collection once a week. Provision is made on the budget to cover cost for free basic services rendered for indigenous households.

5.3.3 Businesses

Business areas have a different waste generation profile. They are significant waste generators but with a higher percentage of packaging material in the waste. The composition of business waste can vary significantly between different types of businesses. Business waste in general has a higher potential for recycling due to the fact that waste materials are more homogeneous or exist in higher concentrations within the waste stream, as compared to what can be found in household. Most businesses generate what is classified as general waste originating from offices, common areas and service areas. If this waste is properly managed by being separated at source, businesses can contribute to a sustainable solution for waste management.

Waste from the informal business sector is often problematic. Particularly where trading is concentrated, littering and illegal dumping often occurs.

5.3.4 Farming

Farms including aquaculture generate a variety of waste including hazardous waste through using fertilizers and pesticides. A large portion of waste from farms is organic. Resident farm workers have a waste generation profile similar to that of rural areas, however this might not be covered by municipal administration because it exists on private land. Waste from farms in any municipality is relatively small compared to other sectors.

Waste from farms is not included in the round collection services. Farmers can take their general waste directly to the closest waste disposal facility.

5.3.5 Healthcare Facilities

Clinics and healthcare workers have the potential to generate Health Care Risk Waste (HCRW), which is hazardous and therefore must be treated appropriately. A lack of appropriate HCRW treatment facilities presents a critical pollution risk at the point of generation. All public clinics and hospitals are under the authority of the Provincial Department of Health. Environmental Health Practitioners are responsible for control of waste under the supervision of the Chief Environmental Health Practitioner.

According to the World Health Organization (WHO1) 20% of healthcare waste is hazardous; it is made up of:

- ✓ Infectious and anatomic waste (15%)
- ✓ Sharps (1%)
- ✓ Chemical or pharmaceutical waste (3%); and
- ✓ Genotoxic waste, radioactive matter and heavy metal content (1%).

Sharp waste, although produced in small quantities is highly infectious if it is poorly managed. Contaminated needles and syringes represent a particular threat and may be scavenged from waste areas and dump sites and re-used. There is no information on the percentage of these fractions in the waste stream of hospitals and clinics. General waste can be found in the HCRW stream as a result of poor segregation at source. Only general waste from the hospitals and clinics is collected by the waste management unit of LLM, HCRW collection is provided for at provincial level.

5.3.6 Waste generation rates

Statistics from the 2011 Census were used to estimate quantities of waste generated in LLM. Using typical waste generation figures, the total volume (in tonnes) of municipal waste was calculated. Allowance to include commercial waste, builder's rubble and non-hazardous was made.

[1] Waste from health-care activities, Fact sheet No. 253, November 2011. Accessed from www.who.int/mediacentre/factsheets/fs253/en/, on 23 June 2023.

General waste is defined as waste that does not pose a significant threat to public health and the environment if properly managed. It includes:

- ✓ Metals
- ✓ Paper
- ✓ Glass
- ✓ Plastic
- ✓ Organic
- ✓ Inert waste and builder's rubble.

Recyclables like plastic, paper, glass and metal make up a large percentage of waste produced in LLM (including households and businesses). The calculated waste generation rates using population and projected population growth is presented in Table 6.

Table 6: Projected waste generation rate

Area	**Growth Rate (%)[2]**	**Population**	**Waste generation**	**Projected Population Growth**		**Projected Waste Generation ton/month**	
		2011	**2011**	**2017**	**2022**	**2017**	**2022**
Urban	-1.08%	32177	25742	30148	28554	24118	22843
Farm	-1.08%	6451	1935	6044	5725	1813	1717
Total		38628	27677	36192	34279	25931	24561

5.4 Waste Characterization

A waste characterization study was performed for LLM for the winter and summer seasons. The following methodology was followed:

Different areas in each town were identified (town and townships to cover the different income groups)

Purposive, random sampling was undertaken during the 2022/2023 financial year to cover both the winter and summer season.

The waste was sorted into pre-determined waste categories:

- ✓ Organic Waste
- ✓ Paper
- ✓ Cardboards
- ✓ Textiles
- ✓ Plastics
- ✓ Glass
- ✓ Metals
- ✓ Hazardous waste
- ✓ Health care risk waste

Each category was weighted and recorded according to the waste categories identified.

Figure 5 indicates the results determining the categorization of waste disposed in LLM in the winter season and Figure 6 indicates waste disposed of in the summer. Figure 7 indicates the combined waste characterisation for LLM.

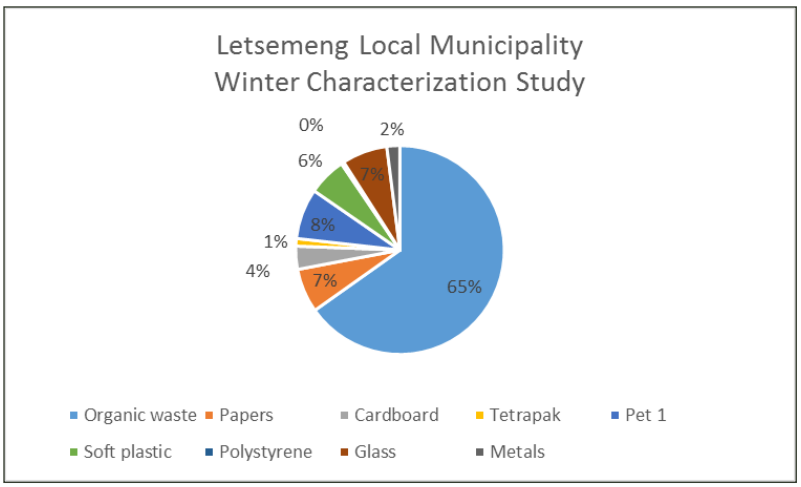


Figure 5: LLM winter waste characterization study

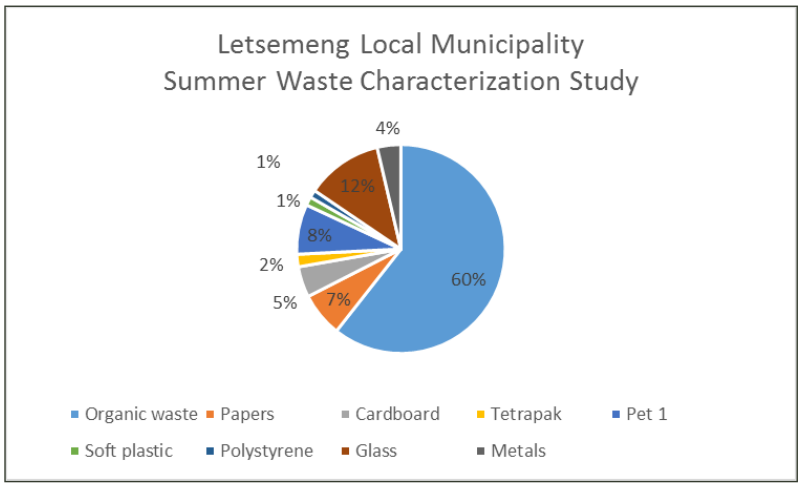


Figure 6: LLM summer waste characterization study

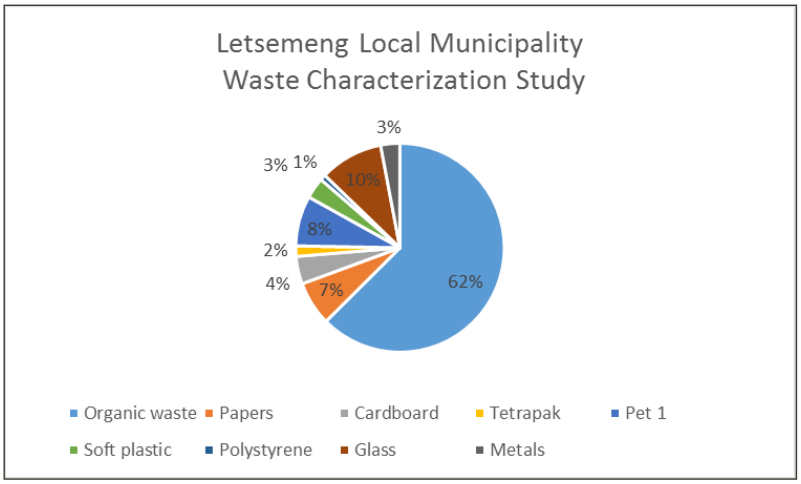


Figure 7: LLM combined waste characterization study

5.5 Specific Waste Stream

5.5.1 Health care risk waste

Waste from healthcare facilities is classified as hazardous waste. These streams are required to be packaged, labelled, handled, stored and treated according to their level of hazard in order to create a safe and environmentally sound HCRW waste management system. Health Care Risk Waste (HCRW) which can be found in every healthcare facility is the infectious waste, including sharp waste. HCRW is generated at the clinics and hospitals in the municipal area.

5.5.2 Hazardous Waste

Hazardous waste can be defined as waste that may have a detrimental effect on public health and is categorised according to the degree at which it might cause harm. According to the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (MRHW) and SANS 10234: Globally Harmonised System (GHS) of Classification and labelling of chemicals hazardous waste must be classified as follows:

Table 7: Hazardous waste classification

Waste Level		
Level 1	**Level 2**	**Level 3**
Hazardous waste	H01 Explosives	
	H02 Gasses	H02.01 Flammable gases

Waste Level		
Level 1	**Level 2**	**Level 3**
		H02.02 Non-flammable, non-toxic gases H02.03 Toxic gases
	H 03 Flammable Liquids	
	H04 Flammable solids and substances	H04.01 Flammable solids H04.02 Substances liable to spontaneous combustion H04.03 Substances that, on contact with water emit flammable gases
	H05 Oxidizing substances and organic peroxides	H05.01 Oxidizing substances H05.02Organig peroxides
	H06 toxic and infectious substances	H06.01 Toxic substances H06.02 Infectious substances
	H07 Radioactive substances	
	H08 Corrosives	
	H09 Miscellaneous dangerous substances and goods	

Hazardous waste in the municipality can be produced mainly by the mine, industries, healthcare facilities and farming activities. The LLM does not currently have record of hazardous waste generated within its boundaries.

The guideline for the development of integrated waste management plans is based on the NWMS and indicates that a local municipal IWMP must only cover hazardous domestic waste in detail. Framework planning for hazardous industrial waste, agricultural and forestry waste (pesticides), medical waste, mining waste, power station waste, radioactive medical waste and radioactive mining waste will be done at provincial level. The NWMS requires Provincial environmental departments to produce integrated hazardous waste management plans.

The closest licensed hazardous waste disposal facility is Holfontein, in the City of Johannesburg. Currently, industries in the municipal area generating hazardous waste tend to appoint a hazardous waste contractor to manage their on-site waste facilities and/or to collect and dispose of this waste at

a licensed hazardous landfill site.

5.6 Waste Recycling, Treatment and Disposal

This section describes the status quo of landfill sites; treatment facilities; recyclers; illegal dumping; garden; and builder's rubble waste.

5.6.1 Status Quo of Waste Recyclers

There are numerous individuals that are informally active in recycling activities within LLM. Unfortunately no recycling volumes are available.

There are also informal recyclers that visit the waste disposal facilities daily to reclaim recyclable material. They only recycle specific material depending on the available market.

5.6.2 Status Quo of Waste Disposal Facilities

The LLM possess the following waste disposal facilities see Figure 8:

- ✓ Petrusburg landfill site
- ✓ Jacobsdal landfill site
- ✓ Luckhoff landfill site
- ✓ Oppermansgronde landfill site
- ✓ Koffiefontein landfill site

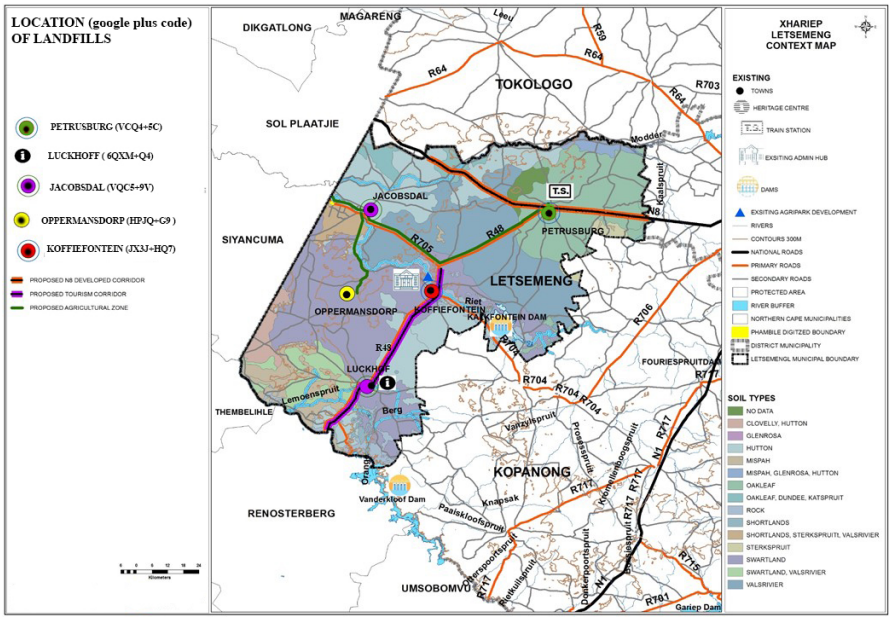


Figure 8: Letsemeng Local Municipality indicating locality of waste facilities

5.6.2.1 Petrusburg Landfill Site Facility

The Petrusburg landfill site is located approximately 1.29km from the Petrusburg town (Figure 9). The waste disposal facility is a Class G:S:B- waste disposal site in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989), permitted by the Department of Water Affairs and Forestry on 28 March 1994. Table 8 provides a summary of pertinent information related to the Petrusburg Landfill Site.



Figure 9: Petrusburg Landfill Site aerial photograph

Table 8: Petrusburg Landfill Site details

Item (from Minimum requirements (DWAF, 1998))	**Waste disposal facility Particulars**
Position of site	29° 6'31.45"S 25°24'4.91"E
License to operate	License number: B33/2/210/32/P117
Year issued	28/03/1994
Classification of site	G:S:B–
Life span	Unknown
Expected year of closure	Unknown
Type of operation	Trench method

Item (from Minimum requirements (DWAF, 1998))	Waste disposal facility Particulars
Size	Unknown
Airspace available	Unknown
Cover material available	None
Operated	LLM
Regulatory compliance	No
Daily Cover	No
Access control	No
Buffer	No
Type of equipment	No
Ablution facilities	To be determined
Guardhouse	To be determined
Storm water management	No
Leachate management	No.
Record keeping	No
Signage	No
Recycling	Yes, not formalised







Figure 10: Petrusburg Landfill Site





Figure 11: Petrusburg informal recycling

5.6.2.2 Jacobsdal Landfill Site

The Jacobsdal landfill site is located approximately 1.28km from the Jacobsdal town. The waste disposal facility is a Class G:M:B- waste disposal site in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989), permitted by the Department of Water Affairs and Forestry in 1995. Table 9 provides a summary of pertinent information related to the Jacobsdal landfill site.



Figure 12: Jacobsdal Landfill Site aerial photograph

Table 9: Jacobsdal Landfill Site details

Item (from Minimum requirements (DWAF, 1998))	**Waste disposal facility Particulars**
Position of site	29° 7'47.49"S 24°45'38.57"E
License to operate	License number: B33/2/350/8/P33
Year issued	14/09/1992
Classification of site	G:S:B–
Life span	Unknown
Expected year of closure	Unknown

Item (from Minimum requirements (DWAF, 1998))	Waste disposal facility Particulars
Type of operation	Trench method
Size	Unknown
Airspace available	Unknown
Cover material available	None
Operated	LLM
Regulatory compliance	No
Daily Cover	No
Access control	No
Buffer	No
Type of equipment	No
Ablution facilities	To be determined
Guardhouse	To be determined
Storm water management	No
Leachate management	No.
Record keeping	No
Signage	No
Recycling	Yes, not formalised







Figure 13: Jacobsdal Landfill Site

5.6.2.3 Luckhoff Landfill Site

The Luckhoff landfill site is located approximately 0.55km from the Luckhoff town. The landfill site is not licensed in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989) or NEMWA. Table 10 provides a summary of pertinent information related to the Luckhoff landfill site.



Figure 14: Luckhoff Landfill Site aerial photograph

Table 10: Luckhoff Landfill Site details

Item (from Minimum requirements (DWAF, 1998))	**Waste disposal facility Particulars**
Position of site	29°45'2.54"S 24°46'54.96"E
License to operate	Unlicensed
Year issued	-
Classification of site	-
Life span	Unknown
Expected year of closure	Unknown
Type of operation	Trenches

Item (from Minimum requirements (DWAF, 1998))	Waste disposal facility Particulars
Size	Unknown
Airspace available	Unknown
Cover material available	No
Operated	LLM
Regulatory compliance	No
Daily Cover	No
Access control	No
Buffer	No
Type of equipment	None
Ablution facilities	None
Guardhouse	None
Storm water management	No
Leachate management	No.
Record keeping	No
Signage	No
Recycling	Yes, not formalised


GEEN STORTING
BY HEK
NO DUMPING
AT GATE





Figure 15: Luckhoff landfill Site

5.6.2.4 Oppermansgronde Landfill Site

The Oppermansgronde landfill site is located approximately 0.7km from the Oppermansgronde town. The landfill site is not licensed in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989) or NEMWA. Table 11 provides a summary of pertinent information related to the Oppermansgronde landfill site.



Figure 16: Oppermansgronde Landfill Site aerial photograph

Table 11: Oppermansgronde Landfill Site details

Item (from Minimum requirements (DWAF, 1998))	**Waste disposal facility Particulars**
Position of site	29°25'9.13"S 24°44'19.53"E
License to operate	Unlicensed
Year issued	-
Classification of site	-
Life span	Unknown
Expected year of closure	Unknown
Type of operation	Trenches
Size	Unknown
Airspace available	Unknown

Item (from Minimum requirements (DWAF, 1998))	Waste disposal facility Particulars
Cover material available	No
Operated	LLM
Regulatory compliance	No
Daily Cover	No
Access control	No
Buffer	No
Type of equipment	None
Ablution facilities	None
Guardhouse	None
Storm water management	No
Leachate management	No.
Record keeping	No
Signage	No
Recycling	Yes, not formalised







Figure 17: Oppermansgronde Landfill Site

5.6.2.5 Koffiefontein Landfill Site

The Koffiefontein landfill site is located approximately 2.5km from the Koffiefontein town. The landfill site is not licensed in terms of Section 20 of the Environment Conservation Act (Act 73 of 1989) or NEMWA. Table 12 provides a summary of pertinent information related to the Koffiefontein landfill site.



Figure 18: Koffiefontein Landfill Site aerial photograph

Table 12: Koffiefontein Landfill Site details

Item (from Minimum requirements (DWAF, 1998))	**Waste disposal facility Particulars**
Position of site	29°23'44.80"S 24°58'54.49"E
License to operate	Unlicensed
Year issued	-
Classification of site	-
Life span	Unknown

Item (from Minimum requirements (DWAF, 1998))	Waste disposal facility Particulars
Expected year of closure	Unknown
Type of operation	Trenches
Size	Unknown
Airspace available	Unknown
Cover material available	No
Operated	LLM
Regulatory compliance	No
Daily Cover	No
Access control	No
Buffer	No
Type of equipment	None
Ablution facilities	None
Guardhouse	None
Storm water management	No
Leachate management	No.
Record keeping	No
Signage	No
Recycling	Yes, not formalised







Figure 19: Koffiefontein Landfill Site

5.6.3 Status Quo of illegal dumping (Bulk cleansing)

Several areas on the outskirts of settlements have been identified as illegal dumping areas in the municipality. General waste, builder's rubble and garden waste are waste types illegally dumped. LLM removes illegally dumped waste as and when required at additional expense. This is a big challenge areas where illegal dumping takes place receive waste management services and cleaning up waste is costly and requires additional manpower.

Skips are placed at predetermined problem areas. The skips are not properly used as the public dump the waste next to it. The Municipality must address illegal dumping by enforcing the By-Laws and imposing fines. Illegal dumping is prominent in the lower income areas. In order to address the problem of illegal dumping, an awareness campaign should be initiated. The objective of this campaign is to make the communities aware of social, economic, health and environmental impacts of illegal dumping.

5.6.4 Status Quo of Garden Waste and Builder's Rubble

Garden waste and building rubble are disposed of at the landfill sites or illegally in open fields.

5.7 Status of Waste Collection Services

Waste collection services are provided in all of the mentioned towns. Waste collection takes place once a week for households and businesses. LLM is ranked number 70 in South Africa for providing refuse removal services, see Table 13.

Table 13: Waste services within LLM

Refuse Disposal	Percentage
Removed by local authority/private company at least once a week	68%
Removed by local authority/private company less often	0,9%
Communal refuse dump	4,3%
Own refuse dump	24,7%
No rubbish disposal	1,4%
Other	0,7%

From the table above it can be concluded that households in indigent areas do not receive a formal waste collection service and therefore will be inclined to dispose their waste illegally.

Commented [PM3]: How were these figures calculated?

5.7.1 Waste Removal

The estimated number of households in the Municipality is 29 951, the municipality collects waste from 96% of the households. Table 13 above illustrates how waste removal is handled in the area. According to Stats SA, (2011) 97.1% of households did receive a collection service by the local authority/private company and less than 3% have no access to household waste removal services.

The Municipality offers a high level of access to waste management in the urban areas. LLM is divided into different service areas, see Table 14. Households provide their own bag/bin and are instructed to place it on the day of collection on the kerbside or demarcated area for collection as per a specific refuse collection programme. A compactor truck travelling from Koffiefontein is used to collect the waste.

MSW collected in all the towns is disposed of at the landfill site in that town. Garden waste and builder's rubble removal are also disposed of at the landfill sites.

Table 14: Collection areas within LLM

Collection areas				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Petrusburg	Jacobsdal	Luckhoff and Oppermansgronde	Ditlhake	Koffiefontein

The distances from Koffiefontein town to other LLM towns are indicated in Table 15 below.

Table 15: Distance between towns and Koffiefontein

Town	Distance from Koffiefontein
Petrusburg	60
Jacobsdal	51
Luckhoff	50
Oppermansgronde	35

5.8 Reporting on the Integrated Pollutant and Waste Information System (IPWIS)

Commented [PM4]: Is it not SAWIS?

The LLM is not reporting to the Free State Province, Integrated Pollutant and Waste Information System (IPWIS), the waste categories to be reported on are MSW, Construction and demolition waste and garden waste for all the waste disposal facilities on a monthly basis.

5.9 Waste Management Financing

5.9.1 Waste Management

The major Medium term infrastructure development (MTREF) objectives for waste management in the municipality can be summarized as follows:

Table 16: Waste Management budget

Functional Classification Description	**2017/18 Medium Term Revenue and Expenditure Framework**		
	2022/23	**2023/24**	**2024/25**

Revenue Waste management	R 15,073,000.00	R 15,737,000.00	R 16,445,000.00

Functional Classification Description	**2017/18 Medium Term Revenue and Expenditure Framework**		
	2022/23	**2023/24**	**2024/25**
Expenditure – Functional Waste Management	R 6,413,000.00	R 6,647,000.00	R 6,943,000.00
Capital Expenditure Waste Management	R 5,832,000.00	_____	_____

5.9.2 Capital programmes and projects

The following capital projects will be implemented

Table 17: Approved Capital projects

Project description	**Budget**		
	2023/24	**2024/25**	**2025/26**
Koffiefontein: Upgrading of existing Waste Disposal Site (MIS:207907)	R 5,469,700	R5,469,700	R5,469,700
Luckhoff: Closure and Construction of a new solid waste landfill site Phase 2 - Implementation	R 5,677,492.61	R 5,677,492.61	R 5,677,492.61

5.9.3 Tariff Structure

Table 18: Approved refuse removal tariffs for 2015/16

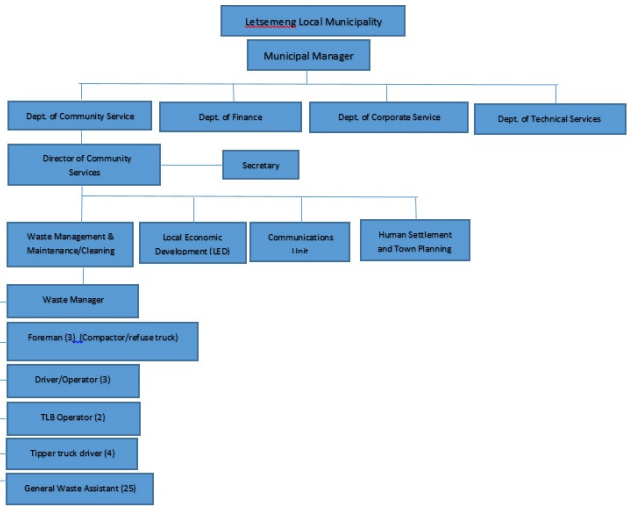
Refuse Removal	**2022/23**	**2023/24**
Households	125	135
Flats/Town Houses	260	275.6
Businesses / Offices	260	275.6

Refuse Removal	2022/23	2023/24
Abattoir	1 200	1 272
Wine Cellar	380	399
Schools and Boarding Schools	260	275.6
Crèches	130	136.11
Churches	100	103.5
Households - Combined with Business	260	275.6
Other	260	275.6
Empty Erven – Availability	80	84.8
Bulk refuse and/or building rubble will be removed per load. (Load - 4m3)	300	318
Sites smaller than 600m2	900	954
Sites larger than 600m2 but smaller than 1 500m2	1500	1 590

5.10 Organizational and Institutional Matters

The Waste Management Division falls under the Directorate Community Services. The municipality has not appointed a Waste Management Officer (WMO) as required in terms of NEWMA. The WMO designated in terms of Section 10 (3) of NEMWA, is responsible for ensuring that the dedicated waste management staff and the services provided by these staff meet the requirements of the Policy and are compliant with the legislation of South Africa. The WMO is also responsible for the coordination of waste management activities to ensure integration. It is the responsibility of all staff to adhere to all relevant legislation, including the IWM Policy, and this IWMP.

The Council of LLM has reviewed and amended its organizational structure in 2016 to effect and efficiently deliver services in line with the overarching Key Performance Areas and Strategic Objectives of the municipality. Shown in fig 20



nj

Figure 20: LLM Organizational structure

To render effective waste management services, a gap has been identified between the manager and the operational level to assist with waste operations. No provision was made for law enforcement activities in the organizational structure.

5.11 Equipment

5.11.1 Fleet used for refuse collection

LLM has only two compactor vehicles which are not working currently due to mechanical breakdown and one that the municipality bought through the Municipal Infrastructure Grant in the 2023/24 financial year. See Table 19 and 22 for the condition of the fleet. A replacement plan needs to be developed for these vehicles.

Table 19: Waste Management Fleet

Registration Number	Make	Vehicle Description	Year	Age	Condition
CTG308FS	Nissan	Compactor	1999	23 years	Stationary due to mechanical breakdown
CRW329FS	IVECO	Compactor	2003	18 years	Stationary to due to mechanical breakdown
FLH401X	UD TRUCKS	Compactor	2023	0	Operational (brand new)



Figure 22: Waste Management Fleet (old)





Figure 23: Waste Management Fleet (new)

5.12 Other Waste Management Systems and Practices

5.12.1 Existing waste avoidance in LLM

Communities are encouraged by officials to avoid generating waste.

5.12.2 Waste minimization strategies

The majority of the waste minimization strategies within the municipality are private initiatives. Recyclable waste is collected by informal recyclers/re-claimers at the landfill sites daily.

5.12.3 Waste Reduction

The municipality encourages communities to reduce their waste.

5.12.4 Composting

There are no formal composting activities currently taking place.

5.12.5 Alternative waste treatment initiatives

Letsemeng Local Municipality currently has not engaged in any alternative waste treatment initiatives.

5.12.6 Public cleaning

Public cleaning involves the cleaning of streets (gutters and kerbs) and open spaces (government and municipal property). The function is currently the responsibility of Community Services Department.

5.12.7 Awareness and education

The municipality has awareness and education programmes regarding waste management practices with the help of relevant stakeholders.

6. Gap Analysis and needs assessment

6.1 Governance

6.1.1 Waste Policy and By-Laws

Waste policy: A policy outlines what a government institution hopes to achieve and the methods and principles it will use to achieve them. A policy document is not a law but it will often identify new laws needed to achieve its goals. A draft waste policy need to be developed for LLM and need to be approved by the council and implemented.

By-Laws: A By-Law for Waste Management is available but should be reviewed and approved by the municipality. The draft waste By-Laws must be promulgated to put in place the necessary institutional and legal frameworks that will enable the municipality to achieve its goals. Compliance monitoring of the By-Laws will also need to be implemented. A “polluter pays” system must be implemented to fine transgressors disposing waste illegally and the tariff structure must reflect it.

The afore mentioned is considered a high priority project as the of Waste Policy provides the framework for Waste Management in the municipality and the By-Laws provide the legislative power to enforce the goals in the Waste Policy.

6.1.2 Institutional and planning matters

The main purpose of an institutional arrangement is to present a strategic plan on how to grow the institutional capacity of the Waste Management Division in line with its future plan. The institutional structure was approved by council to support the growth of waste management services to ensure that there is sufficient capacity to manage the work in the foreseeable future, in line with the strategy.

The designated Waste Manager should be appointed by the Municipal Manager as required in terms of NEWMA.

All the vacant posts should be funded and filled to render an efficient waste management service; to alleviate the demand for waste services; and to ensure the municipality has the required capacity. As part of the future institutional strategy the Waste Management Division needs to develop tasks that are required throughout the division to ensure sustainability and effective service provision. These tasks may include:

- ✓ Developing a training plan to address skills shortages and gaps;
- ✓ Implementing annual skills and training matrix program to monitor development plan; and
- ✓ Proactive recruitment and a needs analysis should be undertaken to ensure that the right people, with the right skills are in the right place at the right time. This should be determined by continuous evaluation and enactment of the desired future state and activities conducted to reach this and alignment of institutional practices therewith.

6.2 Sustainability Study

The overall aim of an economic waste sustainability study is to implement the waste hierarchy and reduce the amount of waste diverted to landfill, as well as to make recommendations to improve the economy and effectiveness of waste management through initiatives to move up the waste hierarchy and therefore establish long term priorities for waste management.

6.3 Waste Avoidance

Public awareness and education plays a critical part in developing a culture of waste avoidance in a municipality. A campaign will highlight ways in which the public can avoid or prevent waste generation and suggest alternatives to high waste products or activities. This is in line with the NWMS which is to ensure that communities are educated about waste that can be recycled and reused.

This Waste Avoidance Project is considered a medium priority project as it will need to build on the completion of other projects such as the implementation of the Waste Policy and enforcement of the By-Law. It will include the develop ment of Waste Prevention Guidelines for various sectors of the business community as well as the general public (e.g. waste separation at source and manufacture take back initiatives).

The project will explore setting of realistic waste avoidance targets and means to encourage households, schools and businesses to participate in the initiative.

6.4 Disposal Facilities

6.4.1 Extension/upgrading of landfill sites

A study is underway to construct a new landfill site at Luckhoff and upgrade the one located in Koffiefontein. The waste disposal facility should be properly audited to determine non-compliance and corrective measures to be implemented.

6.4.2 Closure of landfill sites

The Oppermansgronde landfill sites must be closed with immediate effect and waste diverted to the Koffiefontein landfill site. The aforementioned sites must be licensed and rehabilitated. A waste transfer station will then be built to replace the above-mentioned landfill sites. The closed waste disposal facilities should be properly audited to determine non-compliance and corrective measures to be made.

6.4.3 Waste transfer stations/ drop off facilities

Waste transfer stations and drop off facilities play an important role in a community's total waste management system, serving as the link between a community's waste collection program and a final waste disposal facility. LLM should consider to construct two waste transfer stations in Jacobsdal and Oppermansgronde. Waste transfer stations are designed with a designated receiving area where waste can be discharged and high-volume transfer vehicles used for the economical shipment to the LLM landfill sites for final disposal.

Provision should be made at the municipality's waste transfer stations for drop of facilities for recyclable material. Containers should be made available to accommodate different categories of recyclable material.

6.5 Treatment and Recycling

6.5.1 Establishing Separation at Source Initiative

There is currently none separation at source initiative that is taking place at LLM. Introduction of separation at source will require an education and training programme as well as support from the community. Separation at source must then be supported by a service delivery system capable of transporting non-organic recyclables and remaining waste. To encourage waste separation LLM can start implementing separation of waste at source into wet and dry waste components. The initiative should aim to change public attitudes and behavior towards waste. Local campaigns should be run to encourage people to Reduce, Reuse and Recycle waste.

6.5.2 HCRW Treatment Facilities

Health Care Risk Waste (HCRW) generated from public and private health care facilities could be disposed of illegally. An extension of the medical waste removal service provider is to be considered and/or the provision of HCRW treatment facilities. Although this is not a function of the municipality this should be reported to the relevant department for the safe handling of HCRW.

6.5.3 Hazardous waste

Handling of hazardous waste is not a function of the municipality, as a result, this should be reported to the relevant provincial department for the safe handling of hazardous waste. This must include hazardous waste in the agricultural and mining sector.

6.5.4 Garden waste and builders' rubble

In order to prolong the lifespan of the landfill sites waste separation can be implemented at the proposed drop-off facilities in the short term. Garden waste and builders' rubble can be separated and ultimately diverted from the waste disposal facility. Builders' rubble can be used as cover material after it is sorted and garden waste can be shredded and used for the rehabilitation of the landfill site.

6.6 Collections

6.6.1 Collection Services

One of the key features of a developmental state is to ensure that all citizens especially the poor and other vulnerable groups have access to basic services. The Constitution of the country places the responsibility on government to ensure that such services are progressively expanded to all, within the limits of available resources. Government policy on most of these issues is progressively moving towards universal access including Waste Management.

To ensure a cost effective collection service and make provision for expanding of collection services the municipality should investigate how to deal with the waste generated of households in indigent areas to prevent illegal disposal of waste.

6.7 Fleet Management and Equipment

6.7.1 Challenges faced with regards to equipment and logistics

Municipalities are faced with the following challenges with regards to fleet:

- ✓ Municipalities do not always analyze or investigate the vehicle and equipment types required for waste collection;
- ✓ The above has an impact on the selection and design of vehicles / plant / equipment in terms of "right fit for purpose" and on the operating and maintenance costs of vehicles / plant and equipment;
- ✓ The waste management fleet is one of the municipality's most valuable assets and therefore should be maintained as per manufacturer's conditions.

6.7.2 Equipment/vehicle considerations (collection/transportation)

The following should be considered when determining the equipment needed to execute the waste management services effectively.

- ✓ Waste type to be removed (recyclable or non-recyclable);
- ✓ Waste volumes;
- ✓ Frequency of collection;
- ✓ Geographical area of collection;
- ✓ Container / receptacle type(Method of collection);
- ✓ Separation at source;
- ✓ Collection of recyclable waste;
- ✓ Distance between collection points and disposal facilities;
- ✓ Communal collection points
- ✓ Transfer station / recycling / garden site/Waste disposal facility
- ✓ Drop-off centre's / shopping centre collection points
- ✓ Road conditions;
- ✓ Traffic conditions;
- ✓ Transfer Station conditions;
- ✓ Driver /Operator skills / know how;
- ✓ Maintenance infrastructure (Internal / external);
- ✓ Supplier after sales support;
- ✓ Efficiency / Fuel consumption (carbon footprint); and
- ✓ Asset optimization.

6.7.3 Equipment Required

To determine the optimal use of the fleet a fleet calculation model can be used to determine the number of vehicles needed to properly execute the waste management function.

Example:

- ✓ Calculate the number of trucks required to transport 30 tonnes of waste per day.
- ✓ Containers are picked up daily and are 6m3 each.
- ✓ Waste inside the containers weighs approximately 5 tonnes

Table 20: Fleet Calculation Model

Fleet Calculation Model	
Data	
Total collection time per day (Hours)	8 hours
Total collection time per day (Minutes)	480 min
Off route time/ delays per day	10 min
Time to drive to and from the depot min	10 min
Time to drive to disposal facility	20 min
Time to drive from disposal facility	20 min
Time to off load at the disposal facility	15 min
Time to pick up container (load onto vehicle)	5 min
Time to put container down (off load from vehicle)	5 min
Time to drive between containers	5 min
Waste Tonnages (per day)	30 Tonnes
Container volume (m3)	6 m3
Container payload (Tonnes)	5 Tonnes
Calculations	
Number of containers filled/ trips per day	6.0
Total collection time in minutes (8hrs x 60min)	480 min
Off route time	10 min

Commented [PM5]: How is this calculated?

Fleet Calculation Model	
Time to and from depot	10 min
Available collection time in minutes	460 min
Total time per container (collect, transport, disposal and return)	70 min
Possible trips/vehicle/ day (based on available time)	6.6
Required trips per day equal	6.0
Number of vehicle required equals	0.9
Therefore one (1) vehicle is required	1

It is important that the most appropriate collection vehicles are used for the specific task and geographical terrain.

Maintenance schedules must be adhered to and roadworthiness of vehicles ensured, where applicable, in order to ensure a reliable waste collection service.

It is therefore important that there is a proper assessment of the logistics and equipment requirements, to ensure that the appropriate and applicable equipment / vehicles are selected and that the overall system functions well and delivers at an acceptable level of service to all households.

6.8 Waste Information System

The Integrated Pollutant and Waste Information System (IPWIS) is intended to provide the public, business, industry and government with access to information on the management of waste, by capturing routine data on the tonnes of waste transported, treated, landfilled and recycled on a monthly and annual basis. The implementation of an IPWIS follows requirements by the NWMS (2011) in terms of monitoring and reporting and can only be done if the waste management activities are in place in terms of structure, systems, personnel, infrastructure and services.

Commented [PM6]: Is this still applicable or has it changed entirely and known as SAWIS?

It is important to collect waste data because the data can be used to:

- ✓ support local planning, in particular the development of integrated waste management plans;
- ✓ support budgeting for waste management services and facilities;
- ✓ support effective operation of waste management facilities, e.g waste disposal facility, transfer station;
- ✓ assist with the implementation of effective waste reduction and reuse initiatives;
- ✓ assist with local, provincial and national reporting obligations,
- ✓ monitor the effectiveness of local waste management and waste minimization initiatives; and
- ✓ capacitate local municipalities through providing public access to information.

It remains a municipality's responsibility to make sure that waste information submitted to the IPWIS is correct.

All data should be captured and stored electronically. This will facilitate efficient data management and will enable the municipality to easily feed information into the IPWIS and for future planning purposes. This is considered a high priority project.

The successful implementation of an IPWIS will involve the following steps by the municipality:

- ✓ Step 1: Data Collection
- ✓ Step 2: Data Capture
- ✓ Step 3: Submission of data to IPWIS
- ✓ Step 4: Verification data

These steps are discussed and depicted schematically in Figure 23 and Figure 24 below. The resources required in each step are also outlined.

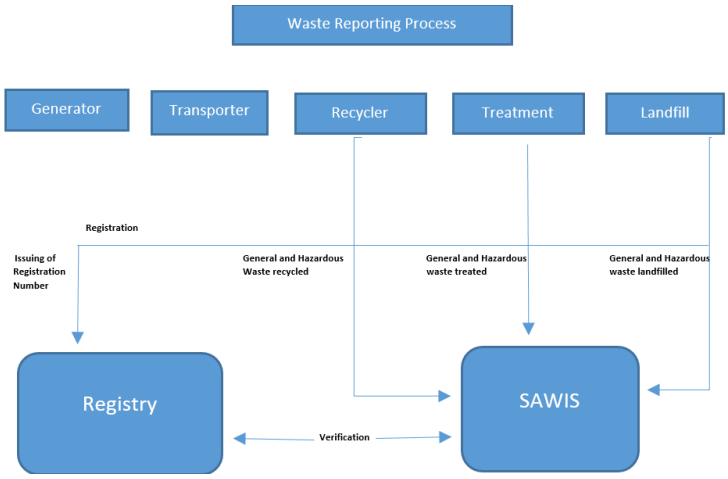


Figure 23: Waste reporting process

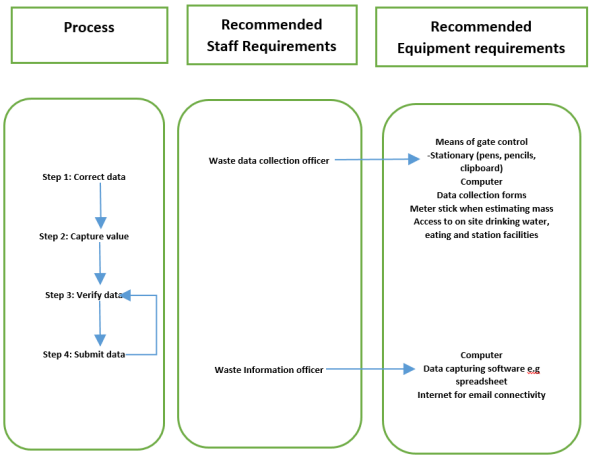


Figure 24: IPWIS Steps Implementation Process

6.9 Education and Awareness

A three year education and awareness strategy needs to be devised and implemented. Part of this would include ensuring communities are informed about the health risk of illegal dumping which is part of the implementation strategies of the NWMS (2011).

With the assistance and involvement of local media and communication organisations, waste management and the role of the community would be covered.

This is considered a high priority project as it is a critical part of improving the handling of waste management in the municipality. If waste is to be well managed in the municipality, it will require active participation of the community. LLM will also need to include information on the management of hazardous waste in their education and awareness programme.

Table 21: Waste and Education Strategy

Waste and Education Awareness Strategy	
Project Description	The LLM should develop a Public Awareness/Education Strategy aimed at promoting awareness over waste management related issues within the LLM. The strategy should, in particular, focus on bringing to the attention of residents residing in the LLM their applicable waste management By-Laws

Waste and Education Awareness Strategy	
	The strategy should be focused on identifying priority focus groups within the LLM to target during active awareness campaigns. Homeowners and lawful occupiers of homes within the LLM should be the primary focal point of the campaign. Schools and businesses within the LLM should be the secondary focus of the campaigns. Different communication mediums (Television. radio, posters, billboards, flyers) should be identified and evaluated, in terms of their anticipated effectiveness, in the development of the strategy. The required strategy should make allowance for an initial focused six months campaign roll out. Thereafter, it is recommended that bi-annual campaigns be undertaken in each respective town to ensure that there is a constant awareness amongst LLM residents over waste management issues and achievements by the LLM.

Project Objective	To improve compliance by the LLM residents to Waste Management By-Laws. In particular, the potential penalties relating to illegal dumping should be clearly communicated. The project will ultimately be aimed at addressing the following key issues: ✓ Reducing the level of illegal dumping and littering; ✓ Separation of waste in different bins at the transfer station; ✓ Waste Separation at source; ✓ Dangers of scavengers; ✓ Impact of waste in regards to the environment and human health; ✓ Importance of having a waste infrastructure; ✓ Shifting the mind-set of residents in relation to issues to waste management.
Responsibility	LLM
Project Period	Development of Waste Education and Awareness Strategy by LLM and roll out of first active campaign – six months. Bi-annual awareness campaigns to be run by LLM in respective towns on an on-going basis (Operational Budget).

6.10 General

The following general gaps amongst others were identified in the LLM:

- ✓ No community drop-off centers available for recycling items
- ✓ There are co-operatives and SMMEs to aid with recycling in all five towns
- ✓ Insufficient human resources due to vacant and unfunded critical posts (e.g driver/workers/operators)
- ✓ Limited human resources skills
- ✓ Inadequate law enforcement and services to prevent illegal dumpling, often from outskirts of informal settlements
- ✓ Limited access control at the landfill site with regards to waste dumping illegally
- ✓ Fleet vehicles are old and/or in poor
- ✓ Waste management plans are not available for businesses/ industries/ new developments
- ✓ Collection vehicles travel long distances to towns
- ✓ Remaining airspace at landfill sites is unknown
- ✓ Tires are dumped illegally on occasion
- ✓ Limited education and awareness campaigns
- ✓ Inadequate resources (personnel, equipment)
- ✓ Inadequate provisions are made on the proposed organizational structure for waste management by-law

enforcement

- ✓ Non-existent external auditing of landfill sites as per license/ permit/ operating conditions
- ✓ Unlicensed sites
- ✓ Poor siting of sites
- ✓ Funds?

7. Desired end state

7.1 Setting strategic goals, targets and indicators

The desired end state entails identifying priorities and goals that a municipality wishes to attain with regards to waste management. Using the information collected on the historical and present waste management situation, strategic goals for the IWMP were developed. These aim to address the gaps and needs of the community and more importantly should respond to the Waste Act requirements. A program on how these will be attained will be developed as an implementation plan. The strategic goals are based on relevant waste legislation, regulations and policies and are guided by the waste management hierarchy principles. Targets such as collection, recycling, recovery and disposal are set for waste management services. Setting of goals, objectives and targets takes into consideration the municipal response to the goals and targets set in the National Waste Management Strategy.

The National Waste Management Strategy provides a set of goals that municipalities must achieve in order to give effect to the Waste Act. It contains an action plan with various targets to be achieved by municipalities until 2020.

Goal 1: Promote recycling and recovery of waste

To implement sustainable waste minimization, reuse, recycling and recovery programs through strategic interventions including the promotion of composting, waste-to-energy and other reuse and recycling initiatives supported by introduction of waste separation at source programs. Programs should contribute towards uplifting the quality of life of the people within the municipality by ensuring a clean environment and by identifying, promoting and supporting potential job opportunities within the sector

Objectives:

- ✓ Establish Community drop-off centers with containers for different waste streams at municipal facilities.
- ✓ Separation or segregation of waste stream at source to reduce the waste disposed to landfill by 20%.
- ✓ Encouragement of more co-operatives responsible for recycling and implementation of appropriate economic instruments and other financial incentives.
- ✓ Reuse of garden waste and building material.
- ✓ Develop waste avoidance guidelines.

Target:

- ✓ Short term - 20% reduction of waste to landfill by 2026
- ✓ Medium term – 30 % reduction of waste to landfill by 2028
- ✓ Long term – 40% reduction of waste to landfill by 2035

The following Co-operatives and SMMEs are available in all towns in Letsemeng Local Municipality:

Name	Town	Purpose	Contact detals
1. Retrolex Recyling	Koffiefontein	Recycling	063 034 8627
2. Gylon Scrap	Koffiefontein	Scrap	083 371 2960
3. FVK Scrap	Koffiefontein	Scrap	062 577 9335
4. Petrusburg Scrap	Petrusburg	Scrap and Recycling	
5. Hernie Topkins	Oppermansgronde	Scrap and Recycling	079 393 2619
6. Gert Power	Oppermansgronde	Scrap and Recycling	071 119 9590
7. Jacobsdal Scrap	Jacobsdal	Scrap and Recycling	
8. Abraham Ruttles	Luckhoff	Scrap	076 583 7427

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	202-2035	By when does the project need to be completed	New/ Approved/proposed

1	Community drop-off centers for recyclable material	None	Identify and establish drop off points landfill sites/municipal infrastructure	5 Community drop-off centers with containers for different waste streams in each town	Provide 1000ℓ bins for recyclable material at public offices per town. Develop collection plan as a result of drop off patterns. Partner with LED to capacitate cooperatives/	Inform the community of this service	Implement	OB	OB	OB	**M**	Internal	0	50	40	30	20	10	2025	New

	Focus Area	**Current Status**	**Mitigation Measures**	**Desired State**	**Implementation Phases**			**Indicative budget (OB = Operational Budget)** **R** **Thousand**			**Priority level**	**Possible source of funding**	**Cash flow forecast** **R** **Thousand**						**Completion date**	**Status**
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/proposed
					reclaimers/ reclaiming companies with no additional cost to the municipality to assist in this initiative															
					Develop roll-out plan as a result of drop-off patterns.															

2	Separation of waste at source.	No separation of waste at source	Implement a two bag system to separate waste into wet and dry components	Separation or segregation of waste stream at source to reduce waste to landfill by 20% by 2025	Partner with LED to capacitate cooperatives/ reclaimers/ reclaiming companies with no additional cost to the municipality to assist in this initiative e.g. collection.	Inform the community of this service.	Implement	OB	OB	OB	**M**	Internal	0	10	10	10	10	10	2025	New
3	Co-operatives/SMMEs	Co- operatives and SMMEs are in place to aid recycling initiatives	Encourage establishment of more Co-operatives	Presence of Co-operatives responsible for recycling	Partner with LED to capacitate co-operatives/ reclaimers/ reclaiming companies with no additional cost to the municipality to assist in	LED should educate and Train Co-operatives/ SMMEs	Implement	-	-	-	**H**	Private	0	-	-	-	-	-	2025	New

	Focus Area	**Current Status**	**Mitigation Measures**	**Desired State**	**Implementation Phases**			**Indicative budget (OB = Operational Budget)** **R** **Thousand**			**Priority level**	**Possible source of funding**	**Cash flow forecast** **R** **Thousand**						**Completion date**	**Status**
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/proposed
					this initiative e.g. collection															

4	Reuse of garden waste and building rubble	Garden waste and building rubble is reused within communities	LLM should investigate the reuse of building rubble and undertake market survey (both internal and external). LLM should investigate composting of garden waste. Appoint EPWP workers to assist with waste recovery. Appoint a recycling contractor to oversee project	Equipment and facilities that are adequate for: **Composting:** Chipper Tractor with bucket loader or front end loader **Building rubble:** Crushed material to be used as cover material	Feasibility study to determine the economic viability for composting and the market for building rubble.	Design and construction of facilities.	Operation and management of facilities.	200	1 000	OB	**H**	Internal	0	50	200	500	500	20	2028	New
	Build capacity to improve waste recovery initiatives	Limited waste recovery initiatives implemented	Appoint EPWP workers to assist with waste recovery. Appoint a recycling contractor to oversee project Establish a waste forum for all the role players in LLM	Increased waste recovery	Determine role players	Develop institutional capacity within LLM (municipality/ private sector/ entrepreneurs)						Internal	0	10		10	10	20	2019	New

Goal 2: Ensure the effective and efficient delivery of waste services

To promote and ensure effective delivery of waste services to all waste generators within the municipalities by extending appropriate waste services to all un-serviced areas and continually improving the level of service given in a safe and clean environment.

Objectives:

- ✓ Funded and filled posts.
- ✓ Businesses/industries responsible for waste services (receptacles)
- ✓ Community based services should be rendered to areas where the municipality have no capacity
- ✓ No illegal dumping

Target:

- ✓ All households within the municipality must receive a basic level of waste service according to waste level National/Provincial standards in safe and clean environment.

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/2028	2028 - 2035	By when does the project need to be completed	New/Approved/ proposed
1	Institutional arrangement	New organizational structure is approved in 2016. Insufficient human resources due to vacant and unfunded critical posts (e.g. driver/workers).	Appoint Waste Management Officer Funding of critical posts. Filling of vacant posts. Continuous training of personnel. Review Organisational structure (and/or certain post profiles) to include law enforcement activities.	Institutional capacity and trained human resources to effect all aspects of waste management services	Source funding for critical posts	Appoint personnel for new and vacant post	Continual development and training	OB	2 000	50	**M**	Internal	0	1 000	500	50	50	50	2025	New
2	Illegal dumping	Inadequate law enforcement and services to	Provide a waste collection service for	No illegal dumping	Investigate a waste collection	Implement a waste collection	Erect signs at hot spots prohibiting	OB	OB	OB	**H**	Internal	0	1 000	1 500	1 600	1 700	5 000	2025	Ongoing

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/Approved/ proposed
		prevent illegal dumping (cleared by LLM, often from outskirts of settlements)	indigent areas in LLM Train/Appoint personnel for law enforcement. Enforce new by-laws and identify the hot spots. Educate community. Develop clean up schedule Set up sign boards prohibiting illegal dumping and where waste can be disposed of legally		model for indigent areas Train personnel in law enforcement. Enforce new by-laws. Educate community.	model for indigent areas in LLM Develop programme to address illegal dumping. Identify hot spots and develop clean-up schedule to address existing illegal dumping by waste collection drivers	Illegal dumping												
3	Route planning	Refuse collection routes per service area are planned per day	Revisit (redesign) and Implementation of a GIS route planning model	Proper GIS route planning	Develop detail route plans per service area	Communicate new route plans	Implement	OB	OB	OB	**M**	Internal	0	0	0	0	0	0	2025	New
4	Fleet	Fleet vehicles are old and/or in poor condition	Replace fleet with the appropriate vehicles and increase number of vehicles. Diversify fleet for specific use.	Sufficient and maintained fit-for-purpose vehicles available 8 hours per day	Dispose of unrepairable vehicles	Determine the right fit vehicles for LLM	Determine funding for vehicles Source vehicles				**L**	Internal	0	2 000	3 000	500	0	0	2025	

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/Approved/ proposed
5	Businesses/ industries/ New developments	Waste management plans are not available for businesses / industries / new developments	Develop waste management plan	Waste Management plans	Determine businesses/ industries/ new developments which do not comply	Educate businesses/ industries/ new developments	Issue target date for compliance				L	Private	OB	OB	OB	OB	OB	OB	2025	

Goal 3: Ensure that legislative tools are developed to deliver on the Waste Act and any other applicable legislation

To ensure that legislative tools are developed and enforced.

Objectives:

✓ Implemented waste management policy

✓ Implemented by-laws

Target:

✓ To prevent illegal dumping and increase enforcement of by-laws by 20%.

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand				Completion date			Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/proposed
1	Waste management policy	No Waste policy	Develop waste management policy.	Implemented waste management policy		Municipal approval	Implement waste management policy	OB	OB	OB	H	Internal	0	20	OB	OB	OB	OB	2025	Proposed
2	Waste By-law	A draft of by-laws available	Update by-laws	Implemented by-laws	Update by-laws and Municipal approval	Promulgation of by-laws	Enforcement of by-laws	OB	OB	OB	H	Internal	0	50	50	50	50	50	2025	Approved

Goal 4: Sound budgeting and financing of waste management services

Sound budgeting and financial management for waste management services to ensure that revenue expenditure for all services (or service categories) equals the revenue generated.

Objectives:

✓ Tariffs should be developed for all (new) waste management activities.

✓ The Municipality must be able to determine its economic sustainability and therefore establish long-term priorities

Target:

✓ Cost reflective tariffs to be implemented by 2025

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/proposed
1	Tariffs	LLM has an approved tariff structure for waste disposal at the waste disposal facility, collection and removal	Undertake detailed financial investigation to determine the non-payment for waste management services rendered as well as services with an over-recovery.	Tariffs should be developed for all waste management activities to recover costs.	Review tariff structure. Introduce new tariffs for services rendered for free or new services offered.	Approval and implementation of amended tariff structure.	N/A	OB	OB	OB	H	Internal	0	50	50	50	50	50	2025	Approved
2	Cost recovery	Disparity between income and expenditure for refuse removal and waste disposal facilities.	Enforce approved tariffs for waste management services rendered to improve collection rates.	Recovery of cost for waste management services rendered	Bill customers timeously.	Inform non-paying customers of potential cessation of service provision.	-	OB	OB	OB	H	Internal	OB	OB	OB	OB	OB	OB	2025	Approved

Goal 5: Ensure the safe and proper disposal of waste

To treat and safely dispose of waste through Best Practicable Environmental Option (BPEO) interventions aimed at saving landfill airspace and reducing the potential negative impacts on the environment;

Objectives:

- ✓ Develop and implement a waste treatment and disposal strategy that will include but not limited to the following:
  - Compliance of all waste treatment and disposal facilities with relevant legislation for their development and permitting, operation and closure.
  - Addressing long term capacity needs of the municipality.
  - Explore alternative treatment and/or disposal options.

Target:

- ✓ The percentage increase in volume of waste disposal to landfill should not exceed its potential airspace available.

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/proposed
1	HCRW	HCRW waste is dumped illegally on occasions	Ensure and monitor that HCRW waste is reported to the relevant authorities if disposed of illegally.	Appropriate disposal of HCRW	Report to and coordinate with relevant authorities	The relevant authority should facilitate the process.		-	-	-	H	External	0	0	0	0	0	0	2025	-
2	Hazardous Waste	Hazardous waste is dumped illegally on occasions	Ensure and monitor that hazardous waste is reported to the relevant authorities if disposed of illegally.	Appropriate disposal of hazardous waste	Report to and coordinate with relevant authorities Implement a hazardous waste awareness campaign	Establish an environmental awareness and education programme and hotlines	-	-	-	-	H	External	0	0	0	0	0	0	2025	-
3	Landfill Sites	Has fatal flaws Not properly maintained Remaining airspace is unknown.	LLM should take steps to license non-compliant sites Closure and rehabilitation of Oppermansgronde, and Luckhoff landfill sites	Full compliance with relevant legislation and permit conditions. Rigorous implementation of waste	Licensing of landfill sites Closure and rehabilitation of landfill sites Carry out a landfill provision for the closure of	Design and construction of landfill sites	Operation and management of disposal facilities in accordance with the permit conditions	200	8 000	OB	H	External (MIG)	0	2 000	5 000	10 000	10 000	3 000	2025	New

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/proposed
			Upgrading/rehabilitation of landfill sites in Petrusburg, Luckhoff and Koffiefontein	minimisation initiatives.	the site according to new regulation (R636).		and relevant legislation.													
4	Transfer station	No transfer stations	Identify possible locations for two new transfer stations in Oppermansgronde and Luckhoff. Build new transfer stations	System of well located transfer stations to limit travel distances to landfill (and associated transport cost).	Scoping study to determine need for new transfer station. Provision to design the required transfer stations	Application for transfer station licence(s) and construction permit(s). Construction of transfer station(s).	Operation and management of transfer stations.	300	6 000	-	**M**	External (MIG)	0	300	1 200	2 000	OB	500	2025	New

Goal 6: Education and awareness

To raise awareness about waste management, including treatment and disposal impacts and options, and building capacity in support of waste minimization, reuse, recycling and recovery initiatives;

Objectives

- ✓ Develop and implement a communication and public awareness plan that encourages minimization, reuse, recycling, and recovery and discourages illegal dumping and littering, thereby minimizing the negative impacts of waste on the environment including the quality of life of people themselves. This IWMP will include among others the following:
    - Capacity building programs for the personnel within the municipality.
    - Awareness and education programs for the broader community.
    - Mechanisms of forming partnerships with different stakeholders in order to expand the reach and impact of the awareness campaigns undertaken.

Targets

- ✓ Schools within the municipality have established waste minimization programs and/or other waste related projects by 2025.
- ✓ Initiate programs that translate the objectives of provincial and national programs geared towards encouraging cleaner environments and responsible behavior towards the environment such as the Bontle ke Botho and the 'Cleanest Town' competitions to other stakeholders and the broader community.
- ✓ Initiation and operation of other awareness campaigns involving f the population of the municipality by 2025.

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028 - 2035	By when does the project need to be completed	New/ Approved/propos ed
1	Education and awareness	Limited education and awareness campaigns. Inadequate resources (personnel, equipment)	Implementation of an increased clean-up campaigns, education awareness at schools and the community regarding the impact of waste. Appoint a Communications Officer to manage education and awareness campaigns. Add waste management awareness to LLM communication strategy	A well-educated and well-informed community in regards to the impacts of waste on their health and the environment.	Drafting and approval of education and awareness plan. Development of Communications Officer's job specification. Implementation of waste minimization banners on fleet	Appointment of Communications Officer. Implement education and awareness plan. Identification of and planning for locations to erect waste minimization signage.	Erection of waste minimization signage at entrances to towns.	OB	OB	-	H	Internal	0	100	100	100	100	100	Ongoing	New

Goal 7: Compliance and enforcement

To achieve compliance to the municipal waste management by-laws through effective enforcement including prosecution in cases of non-compliance.

Objectives:

- ✓ Enforcement of waste by-laws and relevant legislation.
- ✓ Accurate record and efficient data management of waste volumes and waste types collected, recycled and disposed.

Target:

- ✓ Achieve 80% of compliance by all waste management activities

	Focus Area	Current Status	Mitigation Measures	Desired State	Implementation Phases			Indicative budget (OB = Operational Budget) R Thousand			Priority level	Possible source of funding	Cash flow forecast R Thousand						Completion date	Status
					1	2	3	1	2	3	High / Medium / Low	Internal / External / Private	2023/24	2024/25	2025/26	2026/27	2027/28	2028-2035	By when does the project need to be completed	New/ Approved/proposed
1	Enforcement of relevant legislation	Inadequate provisions are made on the proposed organisational structure for by-law enforcement.	Provide for law enforcement function on the organisational structure. Identify and train existing personnel in by-law enforcement.	An institution where there enough resources to enforce waste management by-laws.	Revise approved organisational structure to include enforcement personnel.	Approve amended organisational structure. Appoint enforcement personnel.	Enforce relevant legislation	50	OB	300	**M**	Internal	OB	OB	OB	OB	OB	OB	Ongoing	
2	Integrated Pollutant and Waste Information System (IPWIS)	An IPWIS has been implemented and LLM is reporting waste volume and characteristics monthly.	Expand waste information recorded collection to include recyclable materials (from MSW) reclaimed off landfills.	Accurate record keeping of waste volumes and types collected/ recycled/ disposed.	Expand specificity of IPWIS.	Monitoring	Monitoring	OB	OB	OB	**L**	Internal	0	OB	OB	OB	OB	OB	Ongoing	New
3	Audits	Auditing of LLM waste disposal facilities as per license/ permit/ operating conditions are not conducted	Conduct landfill audits Report audit findings to relevant authority	Compliant LLM waste disposal facilities and waste transfer stations.	Conduct audits and appoint competent agent to undertake external audits of LLM waste disposal facilities	Implement recommendations of audits.	-	100	-	-	**H**	Internal	0	100	100	100	100	100	Ongoing	

8. Communication and Stakeholder Participation

8.1 Consultation Process Summary

The public should be notified (see Table 22 for an example of a public notice) that LLM developed an IWMP and that the document will be available for inspection during office hours at the following places:

- ✓ LLM Libraries
- ✓ LLM Offices
- ✓ Municipal website: www.letsemeng.gov.za

The review period will be 30 days

This item must also be a standing item on all ward committee meetings taken place during the 30 day review period.

All the comments must be recorded.

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PUBLIC NOTICE
Integrated Waste Management Plan

Notice is hereby given in terms of the provisions of section 13 & 21 of the local government Municipal Systems Act 32 of 2000 read with section 121 of the Constitution of the Republic of South Africa, 1996 and the National Environmental Management Waste Act 59 of 2008 as amended, that the Letsemeng Local Municipality intends to:

Implement an Integrated Waste Management Plan (IWMP).

The general purpose is to assist the municipality in the process of planning (needs determination, resource allocation), implementation and evaluation of the waste management functions over a period of 5 years in an integrated manner.

A copy of the IWMP is available for inspection during office hours at the following places:

- Libraries
- Municipal office
- Municipal website: **www.Letsemeng.gov.za**

The document will be available for inspection for a period of thirty (30) days from the date of this publication.

Any person who wishes to comment on the above-mentioned IWMP, must send them it in writing within 30 days from the date of the publication of this notice to the following people:

Mr. M.A Jafta: Acting Municipal Manager

Address: ……

Tel no: ……..

E-mail: …….

Mr. N.I Bonani: Acting Director Community Services

Address: ……..

Tel on: ……

E-mail: ……..

Table 22: Example of public notice

9. Implementation Instruments

9.1 Partnerships

The costs and needs of a sustainable waste management system are huge and hence require input and participation from its varied stakeholders. It is thus important for municipalities to form partnerships with different stakeholders to try and sustain and promote good waste management practices for all their community members. There are a wide range of partnerships that can be formed. A few examples are given below:

Public-public Partnerships: This is a partnership between two public sector institutions or organisations where neither partner seeks profit from the partnership. A typical example of such a partnership could be in cases of operating regional waste facilities. All concerned municipalities would come together in the joint development of such a facility and share the costs.

Public-private partnerships: This is normally a partnership between a public sector institution/organisation and a private company or party. The private company or party takes the financial risks for the project including capital costs, designing and building the facility as well as the operational costs. The land typically belong to the public entity with the fixed asserts sponsored by the private entity but ultimately becoming state property.

Public-community partnerships: This partnership includes members of the community receiving the service forming part of the partnership with the public entity giving the service. A typical example (see Figure 24) in waste management is when community based contractors are involved in recycling programmes by among other collecting the recyclables which have been separated at source.

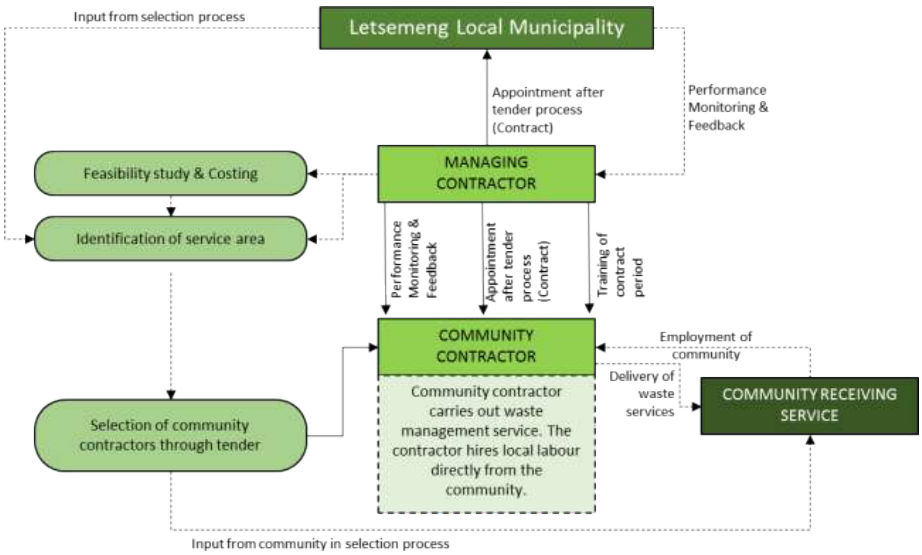


Figure 24: Institutional Strategy

The main purpose of an institutional strategy is to present a strategic plan on how to grow the institutional capacity of the Waste Management Division in line with its future plan. The institutional structure is designed to support the growth of Waste Management Services as further investment occurs, thereby ensuring that there is sufficient capacity to manage the work in the foreseeable future, in line with the strategy, the municipality should make provision for additional waste services due to population growth. The implementation of additional capacity should precede the demand for waste services to ensure the municipality has the required capacity once the additional workload realizes.

As part of the future institutional strategy the Waste Management Division needs to develop an organizational structure that would have the ability to serve the future plan as specified above. Tasks that are required throughout to ensure sustainability and effective service provision of the department:

9.2 Legislative instruments: Development and enforcement of by-laws

A critical component to the implementation of the IWMP is the supporting legal framework. The following framework needs to support and guide the implementation of the objectives of the IWMP:

Waste Policy: A waste policy must be compiled for LLM. 'A policy outlines what a government ministry hopes to achieve and the methods and principles it will use to achieve them. A policy document is not a law but it will often identify new laws needed to achieve its goals'. It is important to note that it is critical to invite public and stakeholder input during the process of developing the waste policy.

By-Laws: The LLM by-laws must be reviewed. The by-laws will put in place the necessary institutional and legal frameworks that will enable LLM to achieve their aims. This should be in line with the departmental objective stated in the IDP to ensure that waste management by-laws are in place. Compliance monitoring of the by-laws will also need to be implemented.

This project is considered a high priority project as the development of waste policy provides the framework for waste management in the municipality and the by-laws provide the legislative power to enforce the goals in the waste policy.

9.3 Funding mechanisms

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 should cover the costs of providing the services, but the charges are often set below actual costs. Currently the LLM tariffs provides opportunities for cross subsidization between different waste management functions but disregards the actual costs of providing a specific service. Below are some of the interventions that can be implemented:

- ✓ Undertake on a full cost accounting exercise for waste management services to include aspects of collection, transportation, landfill, street cleansing, fee collection, debt payment and depreciation.
- ✓ Implementing recycling programs will reduce the disposal costs and generate revenue for the municipality. The cost accounting exercise referred to above could include the costs of these recycling programs 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 implementation of this IWMP can necessitate both capital and operational costs which can be funded through potential avenues listed below.

Table 23: Funding options

Capital	Operational
Own funding	Tariffs
Municipal Infrastructure Grant (MIG)	Rates
Consolidated Municipal Infrastructure Programme (CMIP) Equitable share	Equitable share
Extended Public Works Programme (EPWP) Carbon credits	Donor funding
Donor funding	Carbon credits
Financial institution (e.g. DBSA)	Product revenue
Public-private partnerships	
Provincial and National government allocations	

9.4 LLM responsibilities

9.4.1 Municipal Manager

The Municipal Manager is ultimately responsible for ensuring that waste within his/her areas of jurisdiction is managed in accordance with legislative requirements of South Africa.

9.4.2 Waste Management Officer

The Waste Management Officer (WMO) designated in terms of Section 10 (3) of NEMWA, is responsible for ensuring that the dedicated waste management staff and the services provided by these staff meet the requirements of the Policy and are compliant with the legislation of South Africa. The WMO is also responsible for the coordination of waste management activities to ensure integration. It is the responsibility of all staff to adhere to all relevant legislation, including the IWM Policy, and this Plan.

9.4.3 Waste Management Section

The Waste Management Section is primarily responsible for strategic planning and policy formulation making it the core section to play the coordination and integration role within the LLM. Their specific roles will thus include the following:

- ✓ Integrated Pollutant and Waste Information System (IPWIS);
- ✓ Auditing to ensure that all LLM departments, Contractors and Agencies dealing with waste are in compliance with this plan;
- ✓ Compliance with applicable legislation must be monitored;

- ✓ Internal audits must become part of the LLM waste management plan to address compliance with applicable compliance;
- ✓ Accident and incident management and reporting; and
- ✓ Ensure that the LLM adheres to all national and provincial legal obligations.

9.4.4 Line Managers

Other line Departmental/Directorate Managers within the LLM where relevant will be responsible for:

- ✓ Ensuring that staff under their control is aware of the IWMP and that the mandatory training requirements of staff are fulfilled.
- ✓ Ensuring that where appropriate operational plans in relation to the implementation of the IWMP are developed and progress reporting in relation to same is undertaken.
- ✓ Assisting the Waste Management Section to make improvements to their waste management systems where accidents or incidents occur.

9.4.5 Stakeholder Responsibilities

Households and industry shall avoid negative impacts from waste on the environment and also play a role in terms of separation of waste at source, waste exchange and cleaner production. Changes in consumption patterns will reduce generation of waste and save our non-renewable natural resources. In terms of waste avoidance and minimization, the co-operation and additional effort of the manufacturers and producers in terms of “Cleaner Production and Sustainable Consumption” and “Extended Producer Responsibility” (EPR) initiatives, and participation by the consumers of goods as part of individual waste minimization effort is required. In this regard the responsibilities of residents, visitors or entities inside the LLM’s boundaries include the following:

- ✓ All stakeholders must avoid generating waste as far as possible;
- ✓ All residents, property owners, government departments, non-governmental or community service organizations, and business entities handling waste must be registered on the LLM waste information system.
- ✓ All entities and individuals engaging in commercial waste minimization and recycling activities inside LLM boundaries that will divert waste from landfill must be accredited and licensed by LLM to operate in the LLM’s boundaries;
- ✓ All events organized and hosted in the LLM must have a waste management plan that includes source separation and a provision for the cost of associated waste management services.
- ✓ Industrial and health care entities must have a contract with a registered service provider able to provide a service according to the nature of the waste that must be collected, and/or treated, and/or recycled, and/or disposed;
- ✓ Health care risk waste generators, transporters and facility operators must have a valid permit and/or license issued by the LLM or the Provincial Government;
- ✓ Property owners, traders or businesses may only use the receptacles (once implemented) for their own use at the site and for the purpose it has been provided, or can apply for additional receptacles or enhanced services at additional cost;
- ✓ The occupant of a dwelling or property, manager of a facility, amenity or a business entity, or entrepreneur that generates waste, must ensure that recyclable waste is

separated and stored in an approved container;

- ✓ The waste generator must transport recyclables or have these collected at own cost to a specially provided facility, where the recyclable materials must be placed in separate bulk containers or a separate area provided at the facility;
- ✓ Property owners of vacant land and occupants of occupied property are responsible for maintaining cleanliness and hygiene standards inside the boundaries of the property in terms of LLM's applicable by-laws. The LLM reserves the right to clean waste and overgrowth that accumulates on such land at the owner's expense at the cost of cleaning and disposing of the waste.
- ✓ Property owners and/or developers of land and buildings must provide for waste management infrastructure according to the LLM's guidelines, and must submit a waste management plan as part of the LLM's plans approval process.
- ✓ All relevant stakeholders in terms of the Action Plans set in this plan must develop operating plans and ensure regular reporting on progress of implementation of the plan to the Waste management section.

10. Implementation and Financial Plan

The projects identified are captured in 7.1 shows implementation phases and associated indicative budgets for each phase. The projects are also categorized as being of a high, medium or low priority.

11. Reporting and Monitoring

11.1 Monitoring of IWMP

An ongoing monitoring plan for the implementation of the IWMP detailed above should be developed. This monitoring constitutes an essential and integral part of the planning process

Performance and development indicators should be developed during the course of developing operating plans for the different sections responsible for waste management. The monitoring will focus on the short-term objectives of the IWMP to ensure that corrective action can be taken where necessary. Monitoring activities that should be considered include:

General issues

- ✓ Resource situation: budget allocations
- ✓ Human resources: Vacancies, skills and training;
- ✓ Payment for services: Tariff setting and collection thereof
- ✓ Rates of generation of waste, verified by the waste information system
- ✓ Registering of facilities on IPWIS and reporting.
- ✓ Reporting to provincial and national environmental departments.
- ✓ Illegal dumping and littering: amounts cleared and the costs involved.
- ✓ Legislation, regulations and by-laws are in place.
- ✓ Complaints regarding poor waste management.

Waste prevention and minimization

- ✓ Annual reports of waste minimization programmes and projects;
- ✓ Annual environmental reports on emissions to air, water and land;
- ✓ Achievement of targets for prioritized waste streams and pollutants;
- ✓ Information exchange and the establishment of waste minimization clubs.

Collection and transportation

- ✓ Annual reports on the implementation of collection and transportation services.
- ✓ Payment received for waste collection and transportation services as against the actual cost for provision of these services.

Reuse, Recycling and Recovery

- ✓ Annual reports on waste reuse, recycling and recovery programmes and projects;

- ✓ Information exchange between stakeholders;
- ✓ Stakeholder forums coordinating new reuse, recycling and recovery activities;
- ✓ Social and environmental impacts of the implementation of new reuse, recycling and recovery initiatives

Treatment

- ✓ Registration and licensing of waste treatment facilities;
- ✓ Auditing of waste treatment facilities by provincial authorities;
- ✓ Environmental performance and impact;
- ✓ Provision of adequate hazardous waste treatment facilities.

Disposal

- ✓ Registration and licensing of waste disposal facilities;
- ✓ Auditing of general waste disposal facilities by provincial departments;
- ✓ Environmental performance and impact;
- ✓ Provision of adequate hazardous waste disposal facilities;
- ✓ Management and control of salvaging at waste disposal facilities.

11.2 Communication and public participation plan

11.2.1 Public Review and Approval Process

The draft IWMP should be made available to the general public for their inputs by advertising in the local newspaper two weeks before the date of the public meeting.

Draft copies of the IWMP's should be placed for information purposes at places such as libraries and municipal offices for perusal by the public and give comments.

11.2.2 Approval Process for IWMP

The approval of the IWMP's will generally be as follows:

Local government will receive information and data directly from industry, will be responsible for monitoring the waste management activities within its area of jurisdiction, and will compile its own IWMPs (including a waste management implementation plan) to submit to provincial government MEC for consideration and approval.

Provincial government will receive all information and general waste data (including household hazardous waste) from local government. Hazardous waste information will be submitted directly to provincial government by industry. Provincial government will receive and approve the IWMPs from those industries that have their own waste treatment and disposal facilities. Provincial government is responsible for monitoring the implementation of waste management plans by local government and for undertaking those responsibilities that cannot be fulfilled by local government. Provincial government must compile and submit environmental and waste management plans to DEA, for consideration and approval by the Committee for Environmental Co-ordination (CEC). These plans will comprise an overview of the general waste IWMP submitted to them by local government, a

hazardous waste IWMP prepared by the province, as well as the waste management plans submitted by industry.

The national government, through the Department of Environmental Affairs (DEA), will receive aggregated information and data on waste generation, transportation and disposal from the provincial governments. DEA will receive the provincial environmental and waste management plans for approval by the Committee for Environmental Co-ordination (CEC). National government is responsible for monitoring the implementation of the IWMP by provincial and local governments, as well as industry, and for undertaking those responsibilities that cannot be fulfilled by provincial government.

11.3 Review of IWMP

The main objective for reviewing the IWMP is to ensure that it is implemented successfully. This IWMP is to be reviewed every five years in line with IDP requirements. Apart from reviewing the IWMP every five years the annual performance should also act as a reviewing mechanism wherein the municipality should evaluate its progress and take steps in ensuring that it does not lack behind in reaching the goals and targets set out in the implementation plan.

12. References

1. Letsemeng Local Municipality, Draft Integrated Development Plan 2023/2024.
2. Working with waste: Guideline on recycling of Solid Waste developed for DEA.
3. List of websites
   - ✓ www.environment.gov.za
   - ✓ www.statssa.gov.za
   - ✓ www.letsemeng.gov.za