


SENQU LOCAL MUNICIPALITY

INTEGRATED WASTE MANAGEMENT PLAN 2025 – 2029

DRAFT 2
Rev0.0

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24 Mar 2025

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NOTE

- ***This report has been issued as a draft for comment***
- ***Red text shows changes since draft 1***

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Abbreviations / Acronyms / Definitions

CCA	Chromated copper arsenate
CDW	Construction and demolition waste
DEA	Department of Environmental Affairs (since replaced by DFFE)
DEAT	Department of Environmental Affairs and Tourism (since replaced by DFFE)
DEFF	Department of Forestry, Fisheries and the Environment (since replaced by DFFE)
DFFE	Department of Forestry, Fisheries and the Environment
DM	District Municipality
DOH	Department of Health
DoE	Department of Education
DWS	Department of Water and Sanitation (formerly Department of Water Affairs (DWA))
ECA	Environment Conservation Act (73 of 1989)
EFEC	Earth Free Environmental Consultancy
EPWP	Expanded Public Works Programme
eWASA	e-Waste Association of South Africa
FBRR	Free Basic Refuse Removal
GDPR	Gross Domestic Product per Region
HCRW	Health Care Risk Waste
HWMP	Hazardous Waste Management Plan
IDP	Integrated Development Plan
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan
IWMSA	Institute of Waste Management South Africa
LAs	Local Authorities (Local and District level authorities)
LM	Local Municipality
MEC	Member of Executive Council
MRF	Material Recovery Facility
NEMA	National Environmental Management Act (107 of 1998)
NEMWA	National Environmental Management: Waste Act (59 of 2008)
NWMS	National Waste Management Strategy
OHSA	Occupational Health and Safety Act (85 of 1993)
PCBs	Polychlorinated Biphenyls
PE-HD	Polyethylene high density
PE-LD	Polyethylene low density
PET	Polyethylene Terephthalate
POP(s)	Persistent Organic Pollutant(s)
PP	Polypropylene
PS	Polystyrene
PSC	Project Steering Committee
PVC	Polyvinyl Chloride
RDP	Reconstruction and Development Programme
RSA	Republic of South Africa
SLM	Senqu Local Municipality
SABS	South African Bureau of Standards
SANBI	South African National Biodiversity Institute
SAWIC	South African Waste Information Centre
SAWIS	South African Waste Information System
UN	United Nations
WHO	World Health Organisation
WIS	Waste Information System
WMO(s)	Waste Management Officer(s)
WWTW	Wastewater Treatment Works

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1 INTRODUCTION

1.1 Background

The Senqu Local Municipality (SLM) is required to develop an Integrated Waste Management Plan (IWMP) as per the requirements of the National Environmental Management Waste Act (59 of 2008) as amended (hereafter referred to as the Waste Act). The IWMP must be endorsed by the Eastern Cape Provincial Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) and then incorporated into the municipal IDP.

In terms of the Municipal Systems Act, a municipality must give effect to the provisions of section 152(1) and 153 of the Constitution and must:

- Give priority to the basic needs of the local community.
- Promote the development of the local community.
- Ensure that all members of the local community have access to at least the minimum level of available resources and the improvement of standards of quality over time.

1.2 Scope of Appointment

Earth Free Environmental Consultancy (hereafter referred to as EFEC) has been appointed by the SLM for the review of the Senqu Local Municipality Integrated Waste Management Plan. The IWMP has been revised to ensure legal compliance and to define the vision, objectives, and targets for the provision of waste management services.

1.3 Specific Objectives of the Study

The project scope includes the following specialist services:

- Manage, facilitate and co-ordinate the review of an implementable 'Integrated Waste Management Plan' in accordance with the National Guidelines (DEA, undated).
- Ensure that consultation with all relevant stakeholders is undertaken and that they are informed about the process and progress.
- Establish a Waste Management Project Steering Committee for the duration of the project.
- Ensure co-ordination and integration with other relevant plans or documents within the municipality. These may include Integrated Development Plan, Spatial Development Framework, Environmental and Climate Change Strategy, Air Quality Management Plan, etc.).
- Consider integration with district plans (as applicable).
- Provide technical expertise for research, data collection, verification analysis, set short- and long-term goals and objectives.
- Generate and evaluate waste management alternatives.

- Adhere to project schedule.

1.4 Contractual Administration

An inception meeting between the SLM and EFEC project team was held at which point information was gathered and the scope of work was clarified.

1.5 Definition of Waste

The Waste Act (59 of 2008) (DEA, 2009), as amended by the Waste Amendment Act (26 of 2014) (DEA, 2014) defines waste as follows:

- *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*
- *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—*
    1. *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;*
    2. *where approval is not required, once a waste is, or has been re-used, recycled, or recovered;*
    3. *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*
    4. *where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.*

1.6 Contents of an IWMP

The Waste Act (59 of 2008) (South African Government, 2009) outlines the requirements for an IWMP. These requirements have been included in the table below along with a description of how this requirement has been met and details of where in this report that relevant information is located.

Table 1: The Waste Act Requirements for an Integrated Waste Management Plan

Waste Act section no.	Requirement	Section in the IWMP
12(1)(a)	Contain a situation analysis that includes:	
12(1)(a)(i)	A description of the population and development profiles of the area to which the plan related	Section 5.3 Demographics
12(1)(a)(ii)	An assessment of the quantities and types of waste that are generated in the area	Section 5.4 Waste Profile and Quantities
12(1)(a)(iii)	A description of the services that are provided, or that are available for the collection, minimisation, re-use, recycling and recovery, treatment and disposal of waste	Section 5.7 Waste Recycling Section 5.8 Organic Waste Management Section 5.9 Waste Management Facilities
12(1)(a)(iv)	The number of persons in the area who are not receiving waste collection services	Section 5.6 Waste Services
12(1)(b)	Within the domain of the municipality, set out how that municipality intends:	
12(1)(b)(i)	To give effect, in respect of waste management, to chapter 3 of the National Environmental Management Act	This refers to institutional issues. See Section 5.3 and 8 (Implementation Plan)
12(1)(b)(ii)	To give effect to the objectives of this Act	Section 0 (Goals and Objectives)
12(1)(b)(iii)	To identify and address the negative impacts of poor waste management practise on health and the environment	Section 8 (Implementation Plan)
12(1)(b)(iv)	To provide for the implementation of waste minimisation, re-use, recycling and recovery targets and initiatives	Section 8 (Implementation Plan)
12(1)(b)(v)	In the case of a municipal IWMP, to address the delivery of waste management services to residential premises	Section 8 (Implementation Plan)
12(1)(b)(vi)	To implement the Republic's obligations in respect of relevant international agreements	Appendix B. Waste Legislation
12(1)(b)(vii)	To give effect to best environmental practice in respect of waste management	Section 8 (Implementation Plan)
12(1)(e)	Establish targets for the collection, minimisation, re-use and recycling of waste	Section 7.3 (Objectives and Assessment of Alternatives)
12(1)(f)	Set out the approach of the municipality for the planning of any new facilities for disposal and decommissioning of existing waste disposal facilities	Section 8 (Implementation Plan)
12(1)(g)	Indicate the financial resources required to give effect to the plan	Section 8 (Implementation Plan)
12(1)(h)	Describe how the municipality intends to give effect to its IWMP	Section 8 (Implementation Plan)
12(1)(i)	Comply with requirements prescribed by the Minister	Various sections throughout this report.

1.7 History of Integrated Waste Management Plans in the Municipality

This review constitutes a 3rd generation IWMP for the SLM; the last review (2nd generation IWMP) was finalised in July 2013 by Aurecon SA Pty (LTD). The updating of the IWMP has been overdue by approximately 6 years. This 3rd generation IWMP will cover the period 2025 – 2029.

An IWMP is typically revised every 5 years to parallel the municipal IDP planning process, and to take into cognisance changes in the status quo of waste management and changes in legislation and guidelines related to waste management. The development of the IWMP is currently not synchronised with the SLM IDP cycles. The current SLM IDP (Senqu LM, 2024a) covers the period 2022 – 2027, and was to be adopted in May 2024.

The IDP is however reviewed on an annual basis, and all the projects listed in the implementation plan of this IWMP should be included in the next review of the IDP to ensure budget is allocated for the implementation of the projects. This IWMP would need to be reviewed again in 2029 for implementation in 2030.

1.8 Objectives of an Integrated Waste Management Plan

The aim of an IWMP is to determine the status quo of waste management and identify measures to improve waste management in the municipality. The objective of this IWMP is to present a vision of waste management in the SLM. The majority of the projects identified in this IWMP will be conducted over a five-year timeframe, however some longer-term projects have also been identified.

The National Waste Management Strategy of 2020 (NWMS) (DFFE, 2021) identifies the following expected outcomes:

- Prevent waste, and where waste cannot be prevented ensure – 40% of waste from diverted from landfill within 5 years; 55% within 10 years; and at least 70% within 15 years leading to Zero-Waste going to landfill;
- All South Africans live in clean communities with waste services that are well managed and financially sustainable; and
- Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping.

The 2020 strategy also sees a greater focus on circular economy than its predecessor. The strategy presents the waste management hierarchy (presented in Figure 1 below) which outlines the preferred methods for management of waste.

Figure 1: The waste hierarchy as per the 2020 National Waste Management Strategy (DFFE, 2021).

The goals and targets as well as the implementation plan for the SLM IWMP have been aligned to meet the goals and targets proposed in the 2020 NWMS for local municipalities.

1.9 Integrated Waste Management Plan Development Process

In addition to the Waste Act, the Department of Environmental Affairs (now Department Forestry, Fisheries and Environment, DFFE) Guideline for the Development of Integrated Waste Management Plans (IWMPs) (DEA, undated) was considered when developing this IWMP. This guideline outlines the planning process shown in Figure 2.

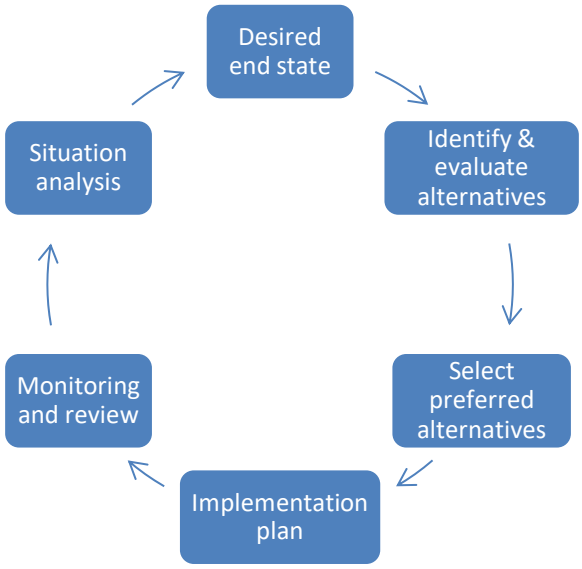


Figure 2: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA, undated)

1.10 Scope of the Integrated Waste Management Plan

This IWMP is limited to the jurisdictional area of the SLM which covers an extent of 7,329 km^2 and is composed of 17 wards. The SLM seat is in Lady Grey and is classified as a B Municipality. It includes three urban centres namely the towns of Lady Grey, Sterkspruit, and Barkly East, as well the three smaller hamlets of Herschel, Rossouw and Rhodes. The majority of the SLM is rural and includes 178 villages.

The SLM is one of four local municipalities within the Joe Gqabi District Municipality. The municipality lies on the northern border of the Eastern Cape province and borders the Free State to the north-west and Lesotho to the north-east. It is bordered by the Walter Sisulu Local Municipality to the west and the Elundini Local Municipality to the east, and the Chris Hani District Municipality to the south.

The SLM has a population of 147,073 persons, 88.5% of which are accommodated in formal dwellings (Statistics South Africa, 2023).

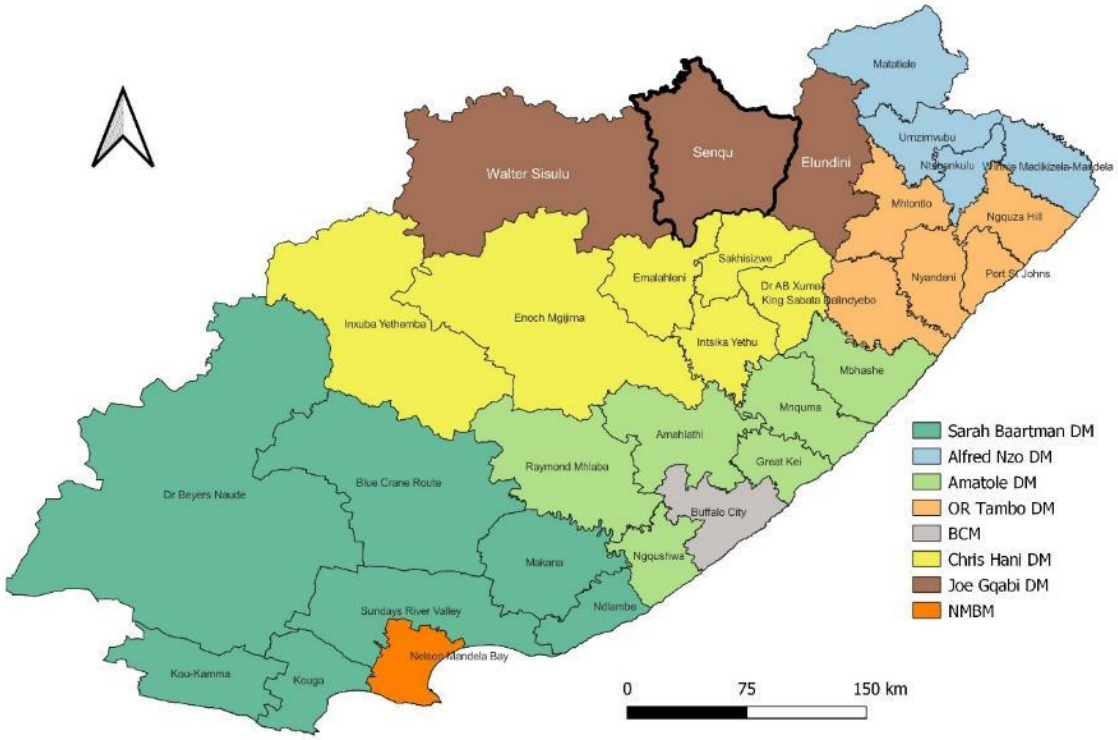


Figure 3: The Eastern Cape Province, showing the Senqu Municipality (black outline) located in the Joe Gqabi District Municipality, in the northern extreme of the province.

1.11 Context of Roles and Responsibilities

1.11.1 National Government

National government is tasked with establishing a national waste management strategy, including norms, standards, and targets. National norms and standards may cover all aspects of the waste value chain, from planning to service delivery.

1.11.2 Provincial Government

Provincial governments are tasked with the implementation of the National Waste Management Strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services. The Constitution requires Provincial Government to monitor and provide support to municipalities in the province and to promote the development of local government capacity.

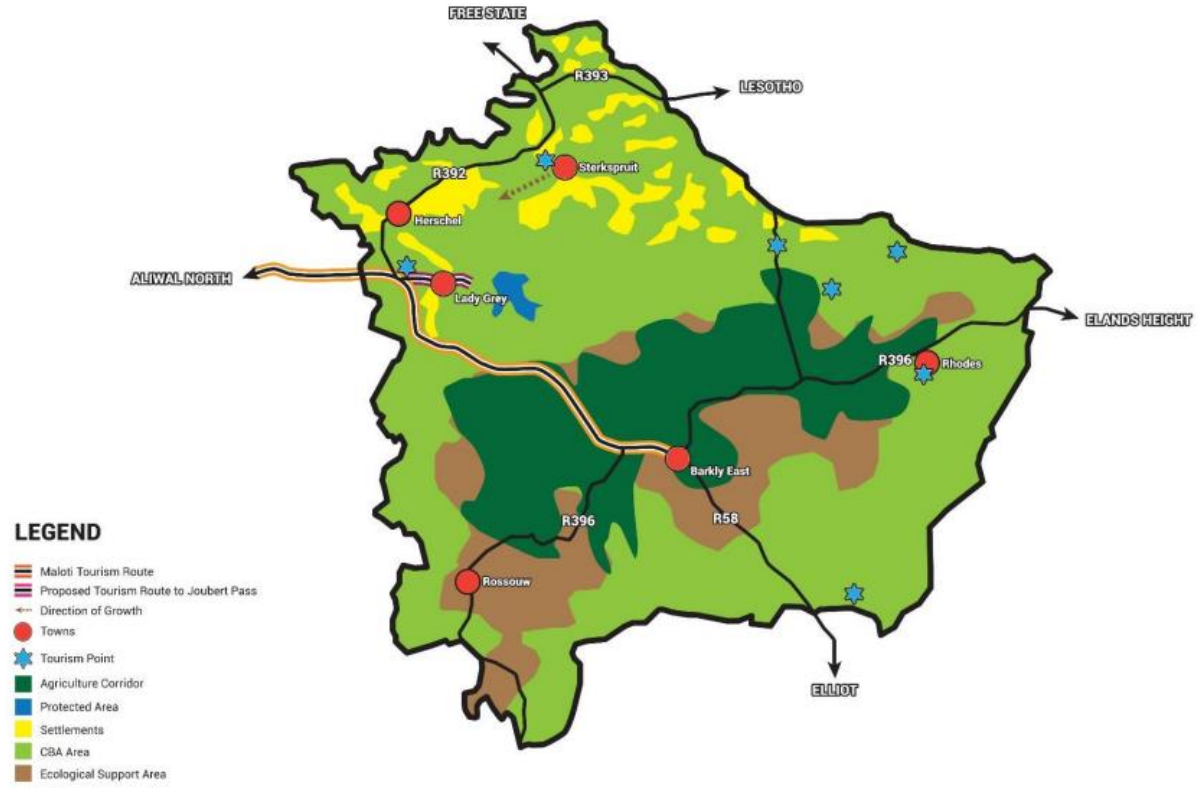


Figure 4:The Senqu Local Municipality, showing main urban centres and concept development model as presented in the IDP (Senqu LM, 2024a).

1.11.3 Local Government

The Waste Act requires local authorities to implement mechanisms for the provision of waste collection services including collection, storage, and disposal. Local authorities are also required to facilitate recycling and waste diversion from landfill and manage waste information appropriately. Local municipalities are also required to maintain separate financial statements, including a balance sheet of the services provided.

1.11.4 Waste Management Officer

The Waste Act requires that all local municipalities designate a waste management officer (WMO) from its administration who is responsible for co-ordinating waste management in the municipality.

The 2020 National Waste Management Strategy sates the municipalities must designate a WMO "who should work closely with one or more EMI's to ensure compliance with the Waste Act."

The DEA's Guideline for designation of WMOs (South Africa, Department of Environmental Affairs, not dated)) further expands on the role of the WMO for local municipalities. The SLM designated a WMO on 16th January 2019 and that individual still holds that designation.

1.12 Alignment with other Strategic Plans

There are several strategic plans on a national, provincial, and local level which have been taken into consideration during the development of this IWMP. A summary of these is provided in the section below.

1.12.1 Alignment with National Strategic Plans

a) National Environmental Management: Waste Act 59 of 2008 (hereafter referred to as the Waste Act), as amended

The Waste Act is South Africa's core waste legislation and was promulgated 01 July 2009. The Act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land. Several regulations have been promulgated under the Waste Act. The waste act was amended in 2014. The implications of applicable waste management legislation have been considered in the 'Needs Analysis' section of this report.

b) National Waste Management Strategy

The first National Waste Management Strategy (NWMS) was published in 1999. It was the first strategy to address South Africa's waste management challenges. The strategy effectively defines South Africa's vision for waste management highlighting themes such as "cradle to grave" management of waste products and the waste management hierarchy which encourages waste disposal only as a last resort. The NWMS was revised in 2011 and again in 2020 (DFFE, 2021). The goals of the 2020 NWMS are considered in the 'Waste Objectives and Targets' section of this report.

The 2020 NWMS is structured around a framework of three pillars each with their respective goals. The goals along with their respective targets are to be achieved by dates (year) indicated in the NWMS. These are indicated in the table below and will guide the implementation of target projects as detailed in the implementation plan for the IWMP. The 2020 NWMS has three strategic pillars to improve the waste management in South Africa:

- Waste minimisation
- Effective and sustainable waste services
- Compliance, enforcement, and awareness.

These are unpacked further in the table below.

Table 2: Summary of 2020 NWMS Goals

Goal	Implementation Mechanism
1. Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years leading to Zero-Waste going to landfill through reuse, recycling, and recovery and alternative waste treatment.	**Waste Prevention:** Prevent waste through cleaner production, industrial symbiosis, and extended producer responsibility Prevent food waste by: • Working with agricultural producers, food producers and transporters, retailers, the hospitality sector, and consumers, • Improving consumer awareness • Developing guidelines, norms, and standards for redistributing surplus foods and composting of spoilt foods. **Waste as a Resource:** • Divert organic waste from landfill through composting and the recovery of energy • Divert construction and demolition waste from landfill through beneficiation • Increase re-use, recycling, and recovery rates • Increase technical capacity and innovation for the beneficiation of waste.
2. All South Africans live in clean communities with waste services that are well managed and financially sustainable.	**Waste Collection:** • Separation of waste at source by integrating waste pickers into municipal collection services, develop an online training tool for municipal managers and develop a national awareness campaign on recycling and waste management • Safe and environmentally sustainable disposable of hazardous household wastes. **Effective Integrated Waste Management Plan:** • Development and implementation of 5-year provincial and municipal IWMPs • Improve collection, reporting and dissemination of information on SAWIS • Build capacity in IWMP planning and provide guidelines for revision of IWMP • All local authorities (municipalities) to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2023.
3. Mainstreaming of waste and awareness and a culture of compliance resulting in zero tolerance of pollution, litter, and illegal dumping.	• Reduction of pollution, littering and illegal dumping through a national awareness campaign and greater public awareness • Enhanced capacity to monitor compliance and enforce the Waste Act and International Agreements • Municipal landfill sites and waste management facilities comply with licensing standards.

c) Operation Phakisa: Chemicals and Waste Phakisa

Operation Phakisa, an initiative which looks to unlock South Africa's economic potential, sets several waste-related national targets. These targets include:

- Reduce industrial waste to landfill by 75%
- Reduce municipal waste to landfill site 50%
- Move towards zero sewage sludge to landfill by 2023
- Move toward zero meat production waste to landfill by 2023
- Increase e-waste recycling from 7% to 30%
- Create 1,000 jobs through recycling and re-use of government computers
- 50% of households in metropolitan municipalities separating at source by 2023
- 8,000 direct and indirect jobs through plastic recycling
- Produce building aggregates and construction inputs from rubble and glass

1.12.2 National Development Plan

South Africa National Development Plan (NDP) (National Planning Commission, 2012) was published in 2012 and outlined the required steps to eliminate poverty and reduce inequality by 2030.

The NDP sets the following objectives related to waste management:

- An absolute reduction in the total volume of waste disposed to landfill site each year through a national recycling strategy;
- Carbon price, building standards, vehicle emission standards and municipal regulations to achieve scale in stimulating renewable energy, waste recycling and retrofitting buildings;
- Consumer awareness initiatives and sufficient recycling infrastructure should result in South Africa becoming a zero-waste society; and
- Implement a waste management system through rapid expansion of recycling infrastructure and encouraging composting of organic domestic waste to bolster economic activity in poor urban communities

The NDP also recognises the opportunity for the manufacturing sector to reuse waste.

1.12.3 Back to Basics

The National Department of Cooperative Governance and Traditional Affairs (COGTA) showcased a new strategy at the Presidential Local Government Summit in 2014. The strategy was titled Back to Basics: Serving our Communities Better (DCGTA, 2014).

The strategy identified that although progress has been made with regard to service delivery since 1994 more actions are needed to support, education and where required enforce the government mandate for service delivery.

The Back-to-Basics programme was centred around five pillars:

a) Put people and their concerns first and ensure constant contact with communities through effective public participation platforms

b) Create conditions for decent living by consistently delivering municipal services to the right quality and standard. This includes planning for and delivery of infrastructure and amenities, maintenance, and upkeep, including the budgeting to do this. Ensure no failures in services and where there are, restore services with urgency

c) Be well governed and demonstrate good governance and administration – cut wastage, spend public funds prudently, hire competent staff, ensure transparency and accountability

d) Ensure sound financial management and accounting, and prudently manage resources so as to sustainably deliver services and bring development to communities

e) Build and maintain sound institutional and administrative capabilities, administered, and managed by dedicated skilled personnel at all levels

The Back-to-Basics pillars are all applicable to waste management within the municipality.

1.12.4 Alignment with Provincial Strategic Plans

a) Eastern Cape Integrated Waste Management Plan (2018 – 2023)

The first-generation Eastern Cape Provincial IWMP (ECIWMP) (DEDEAT, 2023) was revised in 2019. The ECIWMP is centred on 8 objectives and 40 actions and targets.

Table 3: Eastern Cape 2020 IWMP Objectives and Targets

Objectives	Actions and Targets
1. Ensure sufficient institutional capacity to implement integrated waste management	1.1 All municipalities to have a WMO designated by 2020.
	1.2 DEDEAT to develop WMO performance and development plan template based on the requirements of the DEFF Guideline for the designation of WMOs.
	1.3 All LMs to review performance of WMOs against the DEFF Guidelines on WMO designations, using the above DEDEAT template.
	1.4 DEDEAT to develop a training guideline for municipalities.
	1.5 DEDEAT and municipalities to identify extra positions and resources required to implement this provincial IWMP.
2. Improved integrated waste management future planning	2.1 Development of a provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, public drop-off facilities, composting facilities and construction and demolition waste crushing facilities.
	2.2 Both metros to develop a waste infrastructure masterplan by 2020.
	2.3 Development of guidelines for challenging problematic waste streams as needed,

Objectives	Actions and Targets
	for example: • E-waste • Organic waste • Domestic hazardous waste • Abattoir waste
	2.4 All municipalities to have current IWMPs which are endorsed by DEDEAT by 2023
	2.5 All municipalities to have integrated IWMP projects into IDPs
	2.6 All municipalities to report on IWMP implementation on an annual basis to DEDEAT.
3. Increased waste minimisation, re-use, recycling, and recovery	3.1 DEDEAT quarterly Waste Management Forum: - All municipal waste managers to attend - Greater involvement of private recycling industry (e.g. PETCO, eWASA) at meetings.
	3.2 50% of urban households in the two metros to have separation at source programmes in place by 2023. Local municipalities to create an enabling environment for recycling in the main town in the municipality by 2023.
	3.3 Development of MRFs - Both metropolitan municipalities to have at least one MRF operational by 2023 - 12 local municipalities to have MRFs in operation by 2023
	3.4 Municipalities to create an enabling environment for composting by 2022
	3.5 Both metros to investigate the feasibility of facilitating a programme for the crushing of construction and demolition waste (CDW) by 2019 and, if feasible implement a programme by 2020.
	3.6 All municipalities to facilitate the development of at least one recycling public drop-off centre in the main town by 2022.
	3.7 All municipalities to implement an in-house waste recycling programme by 2019.
4. Effective waste information management	4.1 DEDEAT to develop a written template or database to standardise information received from municipalities by 2019
	4.2 At all waste facilities without weighbridges, the SAWIS manual system for estimating incoming waste is to be implemented, so as to allow waste disposal tonnages to be estimated.
	4.3 DEDEAT to develop a standard in-house e-filing system to ensure correct management of waste information and records. To be developed by 2019.
	4.4 All municipalities to be reporting on SAWIC/s by 2019
	4.5 Ensure accurate data is reported on SAWIC through training and verification audits
	4.6 DEDEAT to develop standard editable waste awareness materials for use by municipalities
5. Improved waste facility management	5.1 DEDEAT to develop basic guideline documents for the operation of small waste management facilities which do not trigger the requirement for a waste management license or registration in terms of the National Norms and Standards.
	5.2 100% of landfill sites to be permitted by 2022
	5.3 All waste facilities to have operational plans in place by 2021. Where operational plans are in place these should be reviewed by 2021.

Objectives	Actions and Targets
6. Provide effective and financially viable services	6.1 Development of service delivery guidelines for rural areas by 2019
	6.2 Achieve at least a 10% increase in refuse collection rates or services in all municipalities by 2021
	6.3 Full cost accounting exercises to be undertaken by both metropolitan municipalities by 2020, and all LMs by 2022.
7. Improved education, awareness, and waste information sharing	7.1 DEDEAT to hold annual technical workshops / engagements with all WMOs or waste managers
	7.2 DEDEAT to host annual workshops / knowledge updates for small companies involved in the waste industry
	7.3 DEDEAT to publish an annual waste newsletter
	7.4 DEDEAT and municipalities to develop and implement awareness programmes.
8. Effective compliance monitoring and enforcement	8.1 DEDEAT to update their waste facility audit report template by 2019 to ensure all conditions of waste permits are audited and to include a scoring system.
	8.2 DEDEAT waste officers and municipalities to receive training on performance auditing
	8.3 DEDEAT regional offices to develop and implement auditing schedules for government and private waste facilities where DEDEAT is the competent authority (industry landfill sites, waste storage facilities and recycling facilities) and undertake audits as per the schedule.
	8.4 All waste facilities to be audited at least annually by DEDEAT
	8.5 All municipal landfill facilities are to be audited internally by municipalities at least once per annum (or more frequently if required by license conditions).
	8.6 DEDEAT to determine the baseline of enforcement actions taken against non-compliant waste facilities and increase the number of enforcement actions by 5% a year. Fines to be issued for all repeat non-compliances by 2023.

As a municipality within the Eastern Cape, the responsibility for the implementation of a number of projects in the ECIWMP falls to the SLM. The SLM IWMP will be aligned with the ECIWMP, and such projects will be incorporated into the implementation plan for the SLM.

b) Eastern Cape Recycling Strategy (2019)

The Eastern Cape Provincial Recycling Strategy (2019) (DEDEAT, 2019) is the first strategic plan of the province focusing mainly on recycling. The focus of the recycling strategy is on increasing recycling of post-consumer or domestic waste as it poses a greater challenge.

The following four major objectives were developed for the recycling strategy:

- Develop an enabling environment for recycling in the Province
- Improved engagement with the recycling industry
- Improved recycling data collection and management

- Mainstream recycling public awareness and provision of recycling information

The objectives have been aligned to the applicable objectives and targets from the Eastern Cape PIWMP. The strategy further entails short, medium, and long-term actions and targets for achieving the identified objectives. Short-term targets are those which should be implemented over a five-year period from the date of approval of the strategy whilst medium to long-term targets should be executed over a period of 10-15 years.

A total of 28 targets were set towards the implementation of the strategy. The targets are divided amongst the major objectives:

- Ten targets were identified for objective 1,
- Four targets for objective 2
- Three targets under objective 3 and,
- Eight targets for objective 4

Three medium-long term targets for the plan were also in place to contribute towards the overall pursuit of implementing the recycling strategy of the province.

1.12.5 Alignment with Regional Strategic Plans

a) Joe Gqabi District Municipality IDP (2023/2024)

The current IDP of the Joe Gqabi District Municipality (JGDM) (Joe Gqabi District Municipality, 2024) was last reviewed in the 2023/2024 financial year. The IDP notes that the district is largely rural and has limited waste services in the rural areas. The air quality in the municipality is relatively good as there is little heavy industry in the region (Bokomo and PG Bison are the only main industries found within the District) and the district has been classified as a less polluting district. In terms of waste management, the waste management function at the District is performed by a designated Waste Officer who is also the Municipal Health Services unit manager.

The IDP lists the following waste challenges in the district, all of which may apply to the SLM:

- No recordkeeping of waste which contributes to lack of reporting to SAWIS system;
- There is burning of waste at landfill sites which contribute to air pollution;
- Ineffective access control to landfill sites allowing unauthorized entry of stray animals and people;
- Non-compliance with regards to waste landfill sites operations; and
- Illegal operation of landfill sites licensed for closure.

Below is a list of programs coordinated by the JGDM to meet the requirements of the Waste Act:

- Greenest Municipality Competition: This program aims to raise awareness, educate communities and schools, as well give support to local municipalities in addressing waste management issues. The IDP notes that the DM coordinates these awards at the district level as a means to encourage municipalities to put more effort into waste management.
- Assisting with by-laws: The JGDM has assisted local municipalities with reviews of municipal waste management by-laws to ensure they are in line with the District Waste Management By-law which was gazetted and promulgated in March 2019;
- Monitoring: The JGDM has allocated a budget of R250 000 for the 2023/24 financial year for monitoring function, clean-up campaigns and promotion of waste management in schools.
- District Waste Forum: A district waste forum has been established to assist in the coordination of waste management across the district. The forum meets quarterly.
- Environmental awareness and education: This program aims to raise awareness on environmental issues. Waste awareness and recycling are some of the key topics covered.

The IDP is silent on the development of any future regional waste management infrastructure in the area.

b) Joe Gqabi District Municipality Integrated Waste Management Plan

At the time of this report, the JGDM did not have an approved IWMP, however was in the process of securing a service provider to develop one.

1.12.6 Alignment with Senqu Municipality Strategic Plans

a) Senqu Local Municipality Integrated Development Plan, 2022 – 2027

The latest review of the Senqu IDP (Senqu LM, 2024a) notes that the municipality has a number of challenges regarding waste management including limited waste collection services, a lack of recycling operations, contravention of legislative requirements at landfill sites, and a lack of up-to-date management plans, and illegal dumping. A key issue is non-compliance at the landfill sites and the lack of appropriate machinery is a key contributor. The IDP however also highlights interventions that have been undertaken to date including the procurement of new vehicles, running of awareness campaigns, and the completion of the new landfill site at Herschel. Future targets set in the IDP include the upgrading of the Sterkspruit Landfill site, and the construction of a transfer station at Rhodes.

2 APPROACH AND METHODOLOGY

2.1 Legislated Requirements for Integrated Waste Management Plans

The requirements of the National Environmental Management Waste Act (Act 59 of 2008, as amended) (refer to Table 1) and the DEA Guideline for the Development of Integrated Waste Management Plans (DEA, undated) were used to guide the development of this IWMP.

2.2 Methodology

A phased approach was used to develop the IWMP, as detailed below.

2.2.1 Project Inception

A project inception meeting was held between the service provider and SLM. At the project inception meeting project details including the scope, programme, roles and responsibilities, progress reporting, project risks, information transferal, key municipal staff, and stakeholders to engage with, were discussed.

2.2.2 Project Inception Report

An Inception Report was issued to the SLM at the start of the project.

2.2.3 Literature Review

An extensive literature review pertaining to waste management in the area was undertaken as part of the situation analysis. This included the following key documents.

- Stats SA Census Results (2022)
- Eastern Cape Provincial Integrated Waste Management Plan (2019)
- Joe Gqabi DM IDP (Joe Gqabi District Municipality, 2024)
- Senqu Local Municipality Integrated Development Plan (Senqu LM, 2024a)
- Senqu Local Municipality Integrated Waste Management Plan (Senqu LM, 2013)
- Eastern Cape Recycling Strategy (DEDEAT, 2019)
- South African Waste Information Centre (SAWIC) data. This holds the South African Waste Information System, a national waste information system managed by DEFF. Information reported on the SAWIS is publicly accessible through the SAWIC website.
- Waste facility licenses
- Various internal documents provided by the SLM.

A full list of documentation reviewed is available as the reference list at the end of this report.

2.2.4 Site Visits and Ground-Truthing

A site visit was undertaken in the SLM from 11 - 13 Sep 2024. Details of facilities visited are listed below.

Table 4: Facility inspections undertaken as part of this IWMP review

Facility	Date of visit
Barkly east landfill site and illegal dump sites	12 Sep 2024
Sterkspruit landfill site	13 Sep 2024
Hershel landfill site	13 Sep 2024
Lady Grey landfill site	13 Sep 2024

2.2.5 Engagements with Stakeholders and Local Municipality Key Role Players

Government staff were interviewed as part of the information gathering exercise. Staff with varying levels of responsibility were engaged. Details are presented in the table below

Table 5: Municipal staff and stakeholders engaged during the review of this IWMP

Name		Position/Designation
Mr Mxolisi Salmani	Senqu Local Municipality, Waste Management	Waste Management Officer
Mr Ronald Ramukumba	Senqu Local Municipality, Waste Management	Supervisor, Barkly East
Mr Mlindeli Sunduza	Senqu Local Municipality, Waste Management	Supervisor, Sterkspruit
Mr Lonwabo Nyakaza	Senqu Local Municipality, Waste Management	Supervisor, Lady Grey
Mr Tsepo Tedile	Senqu Local Municipality, Waste Management	Team Leader & Driver, Barkly East
Ms Simnikiwe Mbekushe	Senqu Local Municipality, Housing and Land Management	Manager
Mr Andile Gushmani	Senqu Local Municipality, Revenue Department	Manager: Revenue
Mr Siyanda Matiso	Stomaza & Family Enterprises	Local recycling company that collects recyclables from Barkly East landfill site
Mrs Malefu Saule	Joe Gqabi District Municipality	Manager, Municipal Health Services
Mr Zingisile Malindi	Eastern Cape Dept of Health, Elliot	Environmental officer, responsible for HCRW
Mrs Mati	Eastern Cape Dept of Health, Elliot	CEO of the Cloete-Joubert Hospital, Barkly East
Ms Phindile Dlamini	Eastern Cape Dept of Economic Development, Environmental Affairs and Tourism (DEDEAT)	Environmental Officer: Environmental Quality Management

2.2.6 Engagement with Business

A questionnaire was developed for use when engaging with private companies and industries in the SLM area. The aim of the questionnaire was to capture information on the generation of business, commercial, agricultural, and industrial waste and to get business' perspective on waste management in the area. Suitable businesses to interview were determined through discussions with SLM and through inspections of the CBD area of Sterkspruit, the business centre of the municipality.

Table 6: Summary of business and industries engaged with in Sterkspruit on 11 Sep 2024.

Industry type	Business name	Date of visit
Retail	KFC Sterkspruit	11 Sep 2024
Retail	OK Grocer, Sterkspruit	11 Sep 2024
Retail	Boxer Super Store, Sterkspruit	11 Sep 2024
Retail	Shoprite Sterkspruit	11 Sep 2024
Retail	Cashbuild, Sterkspruit	11 Sep 2024
Retail	Spar, Sterkspruit	11 Sep 2024
Fuel supply	Engen, Main Street, Sterkspruit	11 Sep 2024

2.2.7 Presentations and Workshops

The table below presents details of those workshops held during the process of reviewing this IWMP. All comments raised have been listed in a Comments & Response Report (Senqu Local Municipality, 2025).

Table 7: Presentations and Workshops undertaken during this IWMP review process

Date	Purpose of workshop	Attendees
2025.02.21	PSC workshop of Draft 1 of IWMP (virtual)	SLM, DFFE, DEDEAT
TBC	Stakeholder workshop on Draft 2 of IWMP	TBC

2.3 Assumptions and Limitations

This situation analysis has drawn information from a number of sources including interviews with municipalities and stakeholders, SLM records and various literature sources. It is assumed that the information given verbally in interviews and documented information is accurate. It must be noted that the SLM was not able to provide all of the information requested of it including detailed landfill tonnage reports, some landfill licenses, audit reports, and landfill monitoring reports.

3 LEGAL REQUIREMENTS OVERVIEW

3.1 South African Legislation

A summary of key South Africa legislation governing waste management is presented in the table below. A more comprehensive summary of South Africa and international waste legislation is presented as **Appendix B.**

Table 8: Key South African waste legislation

Legislation/ guidelines	Summary
Constitution of South Africa (Act 108 of 1996)	Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or wellbeing; and to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures
White Paper on Integrated Pollution and Waste Management for South Africa (1999)	The White Paper on Integrated Pollution and Waste Management is a subsidiary policy of the overarching environmental management and constitutes South Africa's first policy document focused on integrated waste management. This national policy set out Government's vision for integrated pollution and waste management in the country and applies to all government institutions and to society at large and to all activities that impact on pollution and waste management. The overarching goal of the policy is integrated pollution and waste management. The intention is to move away from fragmented and uncoordinated pollution control and waste management, towards an approach that incorporates pollution and waste management as well as waste minimisation.
National Environmental Management Act (Act 107 of 1998, as amended)	The objective of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management.
National Environmental Management Waste Act (Act 59 of 2008, as amended)	The act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land.
National Pricing Strategy (GN 904 of 2016)	The strategy aims to fund re-use, recovery, and recycling of waste through the extended producer responsibility principal.
National Waste Information Regulations (GN 625 of 2013)	These regulations give effect to the South African Waste Information System and specify registration and reporting requirements.
National Domestic Waste Collection Standards (GN 21 of 2011)	These specify methods for how domestic waste should be collected. Consideration is given to an appropriate level of service based on the nature (e.g. rural vs urban) of municipalities

3.2 International Legislation

Table 9: Key international legislation

Legislation/ guidelines	Summary
Basal Convention of the Control of Trans-Boundary Movement of Hazardous Wastes and Their Disposal (1989)	The Basel Convention (1989) is a global agreement which seeks to address the trans-boundary movement of hazardous waste. The convention is centred on the reduction of the production of hazardous waste and the restriction of trans-boundary movement and disposal of such waste. It also aims to ensure that strict controls are in place when any trans-boundary movement and disposal of hazardous waste does occur and ensures that it is undertaken in an environmentally sound and responsible manner. The key objectives of the Basel Convention are: • To minimise the generation of hazardous wastes in terms of quantity and hazardousness. • To dispose of hazardous waste as close to the source of generation as possible. • To reduce the movement of hazardous wastes. • Locally, draft regulations are being prepared in an effort to control the movement of such waste. In response to the ever-growing impact of plastic waste on the environment the Basal Convention was amended in May 2019 to regulate global trade in plastic waste.
Rotterdam Convention (1998)	The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Parties can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply.
Stockholm Convention	The Stockholm Convention was signed in 2001, South Africa became a party of the convention in 2002, and the convention came into effect in 2004. The Stockholm Convention addresses the management of persistent organic pollutants (POPs), which pose a threat to both health and the environment. Member countries of the convention have agreed to phase out POPs and prevent their import or export. It imposes restrictions on the handling of all intentionally produced POPs, i.e. identified highly toxic, persistent chemicals. The 12 POPs that have been identified under the convention are aldrin, chlordane, dieldrin, dichloride-diphenyl-trichloroethane (DDT), endrin, Hexachlorobenzene (HCB), heptachlor, mirex, polychlorinated biphenyls (PCBs), toxaphene, dioxins, and furans. DEFF published the National Implementation Plan for the Stockholm Convention of POPs in 2011
London Convention on Prevention of Marine Pollution by Dumping of Waste and Other Matters (1972)	The London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, 1972, aims to prevent marine pollution by preventing the dumping of wastes such as industrial waste, sewage sludge, dredged material, and radioactive waste at sea, as well as incineration at sea. South Africa is a signatory to the convention and the associated 1996 Protocol.

	This convention and its various protocols were incorporated into the following South African legislation: • Marine Pollution, Prevention of Pollution from Ships Act (Act 2 of 1986), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992). • The Dumping at Sea Control Act (Act 73 of 1980).
Montreal Protocol on Substances that Deplete the Ozone Layer (1989)	South Africa is a party to the Montreal Protocol, an international agreement which addresses the phase out of ozone-depleting substances. Regulations to

4 WASTE MANAGEMENT PERFORMANCE REVIEW

4.1 Implementation of Previous IWMP

A total of 14 target projects were identified in the SLM 2013 IWMP (Senqu Local Municipality, 2013). A review of the implementation status of each of these target projects was undertaken as part of this 2024 review, to determine progress made with regards to waste management since the 2013 IWMP. The review was undertaken with the SLM WMO. No formal performance reviews have been undertaken since the development of the IWMP in 2013.

Projects have been classified as complete, in progress or incomplete. The timeframes for projects have not been considered; for example, if the deadline for a project was 2017, but it was only completed in 2018, it is still listed as complete.

Table 10: The Implementing status of projects presented in the 2013 IWMP

Status	Description	No. projects	Percentage of projects
Complete	The target has been achieved	2	14.29%
In progress	The implementation of a target is initiated/currently underway but not complete	4	28.57%
Not undertaken	No action has been taken to implement the target	7	50.00%
Not applicable	Where a goal and or management action is unmeasurable or no longer deemed applicable or the timeframe for the project has not yet passed.	1	7.14%
TOTAL		**14**	**100%**

It is noted that half of the projects have not been commenced and that 14% have been completed.

Table 11: Implementation status of the 2013 IWMP targets

Intervention	Action	Status	Comment
GOVERNANCE			
Waste Policy and By-Laws	A waste policy should be implemented, and by-laws should be reviewed for the SM to ensure compliance with the National Environmental Management Waste Act, Act 59 of 2008.	Complete	By-laws were gazetted in 2019 (Senqu Municipality, 2019)
Institutional Arrangements	Funding of new posts. Filling of vacant posts.	In progress	Certain posts have since been filled namely: • Waste supervisors: Two posts were filled, and there is now a waste supervisor in each town. • Team leader/driver: Four posts were filled • General staff were appointed. There remains nonetheless a number of unfilled posts in the waste management section.
Sustainability study	A study on the economical sustainable waste management services in SLM should be conducted.	Not undertaken	Not commenced.
WASTE AVOIDANCE			
Waste Avoidance	Development of a waste avoidance guidelines for the SM.	Not undertaken	Not commenced.
TREATMENT & RECYCLING			
Community drop-off centres	Design and development of community drop-off centres for all recyclable materials such as plastic, paper, glasses, builders' rubble, etc.	Not undertaken	Not commenced. Budget has been requested (for many years) in order to undertake a feasibility study to inform this project but has not been made available.
Co-operatives	Establish Co-operatives for recycling initiatives.	Complete	The SLM has not established co-operatives and does not intend to. The SLM's position is to rather encourage SLM to form, allow enthusiastic leaders to emerge, and then support them as they establish the co-ops. Since the last IWMP was drafted at least four co-ops have established; 1 in Sterkspruit, 1 in Lady Grey and 2 in Barkly East. The sustainability of the co-ops is however problematic.

Intervention	Action	Status	Comment
Establish separation at source initiative	Implementation of pilot projects for recycling at source initiatives.	Not undertaken	The SLM tested a S@S programme in Sterkspruit in 2016, which involved issuing two coloured bins to households. The trial failed due to poor planning; no means for collecting the recyclable material was planned and hence recyclables ended up being collected with the general waste. No other initiatives have been undertaken.
HCRW treatment facilities	Ensure that there are enough Health Care Risk Waste treatment facilities in SM and all of them are serviced.	Not applicable	The management of HCRW is not a local municipality competency; it is a provincial competency.
COLLECTION			
Waste collection services	SM should implement a waste collection service to all areas within Senqu.	Not undertaken	The SLM noted the need to extend its waste collection service as far as possible, however no formal plans for this have been developed. The WMO noted that a "1-man community collection system" had been discussed however it had not found support from the municipal leadership.
DISPOSAL			
Waste Disposal Facilities	SM waste disposal sites should be licenced with accordance to the National Environmental Management Waste Act, Act 59 of 2008. Alternatives in regard to disposal waste facility should be implemented.	In progress	The following licensing activities have been undertaken since the 2013 IWMP: • Sterkspruit: Was licensed for closure, but has since expired • Lady Grey: Licensed in 2004 by DWA but no copy of the permit has ever been found. • Barkly East: Licensed • Herschel: Licensed • Rossouw: Licensed • Rhodes: No license
Closure and rehabilitation of Sterkspruit waste disposal site.	SM should identify an alternative waste disposal sites or disposal options (e.g. Transfer Stations) to the community.	In progress	Alternatives have been explored, culminating in the development of new facilities such as that at Herschel. There are plans to outsource the running of Sterkspruit landfill so as to achieve better performance.
WIS			

Intervention	Action	Status	Comment
Waste Information System	Implement an electronic WIS and increase the gathering of information to include waste types and amount of waste recycled.	Not undertaken	No formal WIS has been planned or implemented. Some information-related activities were commenced, such as the installation of weighbridges at Barkly East and Lady Grey, and the use of weigh pads at Sterkspruit, however these initiatives have all since collapsed.
EDUCATION AND AWARENESS			
Education and awareness	Implementation of Clean-up campaigns, education and awareness at schools and the community regarding the impact of waste.	In progress	Certain awareness activities have been undertaken including quarterly initiatives in each town, including engagement with schools and communities.
FINANCIAL			
Tariffs	Tariff structure should be reviewed to include waste disposal at landfill and charged once implemented.	Not undertaken	The tariff structure has not been formally reviewed. Tariffs are simply increased yearly by a set inflation-related percentage.

4.2 Progress towards Compliance with National Waste Management Strategy Goals

A review of the progress in the SLM with regards to the implementation of the 2020 NWMS goals and targets was undertaken. Where information was available, an assessment of the compliance with each of the targets was undertaken and documented.

Table 12: National Waste Management Strategy Objectives

Goal	Targets	Progress to compliance with targets
Goal 1: Waste Minimisation	Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years going to Zero-Waste to landfill through reuse, recycling, and recovery and alternative waste treatment.	The performance of the SLM in terms of waste minimisation cannot be quantified or adjudicated due to the lack of waste records. The SLM holds no historical database of waste disposal records, nor is it capturing current waste records in a manner that would allow future analysis. The SLM has assisted some co-ops in establishing themselves at the landfill sites and removing recyclables from the landfill sites, however no recyclable waste tonnage records are being retrieved from the co-ops nor being stored in a database. The operations of a number of the co-ops have stalled.
Goal 2: Effective and sustainable waste services	All South Africans live in clean communities with waste services that are well managed and financially sustainable.	**Waste Collection** • The SLM renders waste collection services within the towns. None of the areas outside of the towns receive a waste service. There are no collection services in rural areas as there is limited access to these remote villages and they are spaced far apart, and hence transport costs are prohibitive. The lack of a waste collection service does lead to burning and burying of waste. • The collection service in towns is split between kerbside collection as well as skips in informal areas.
		Safe and environmentally sustainable disposal of hazardous household waste There are no facilities for the management of household hazardous waste, and the diversion thereof from landfill. It is presumed that domestic hazardous waste is disposed of with general waste at the landfill sites.
		Effective integrated waste management planning

Goal	Targets	Progress to compliance with targets
		• The 2nd generation IWMP which was drafted in 2013 had been outdated for 11 years. This 3rd generation IWMP should have been drafted in 2018 to meet the requirements of the Waste Act. • It is unknown how much waste is being disposed of at the landfills. There is no baseline data in place, and current records are attained through visual estimates of incoming waste based on vehicle size, and these records are not being captured digitally. No electronic records exist in a format that allows for meaning analysis of trends. • There is no plan in place to guide development of waste management infrastructure such as drop-off centres.
Goal 3: Compliance, enforcement, and awareness	Mainstream of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter, and illegal dumping.	Reduce pollution, littering and illegal dumping • The municipality has undertaken awareness campaigns at schools and in communities, however comprehensive records of these campaigns are not maintained and hence the degree to which these campaigns have been undertaken could not be confirmed.
		Enhance capacity to monitor compliance and enforce the Waste Act and International Agreements • Capacity to enforce waste by-laws is minimal and planning towards the enforcement of by-laws has not been progressed. The municipal staff expressed that further planning would likely not be helpful unless effort was put into training and designating at least one staff member as a peace officer/waste ranger who could focus their efforts on enforcing new by-laws once available.
		Ensure municipal landfill sites and waste management facilities comply with licensing standards • The licenses of some of the landfill sites have expired and operations at a number of sites do not meet the license conditions.

5 SITUATION ANALYSIS

5.1 Scope and Purpose of the Situation Analysis

The situation analysis is the first step of any IWMP. It is important to note that the situation analysis is a snapshot of the current status of waste management. Due to changes in legislation and on-going operational changes, the situation analysis is constantly evolving. A detailed review of the situation analysis is therefore required at least in line with the five-year review of the IWMP.

The situation analysis addresses all aspects of waste management from waste infrastructure to institutional capacity and funding of waste management services.

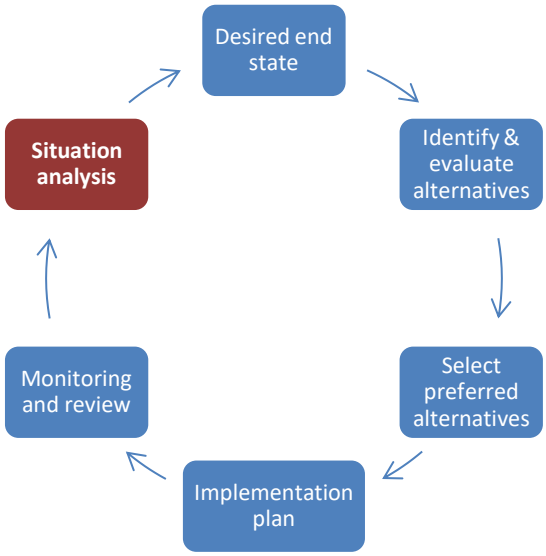


Figure 5: IWMP planning phases – Situation analysis

5.2 Overview of Senqu Local Municipality Area

The SLM is one of the three municipalities that constitutes the JGDM, covers an area of 7,329 km^2 and is split into 17 wards supported by 179 villages and the three urban centres of Lady Grey, Barkly East and Sterkspruit (Senqu LM, 2024a). The 2022-2027 IDP (Senqu LM, 2024a) lists different developed areas within the municipal area. These are listed below and presented in Figure 4:

- District Centre / Primary node: The town of Sterkspruit
- Local Centre / Primary node: The town of Barkly East
- Primary node: Lady Grey
- Secondary nodes: Herschel, Rossouw, Rhodes

The municipality's Spatial Development Framework (SDF) was adopted in 2022 and gazetted in November 2023 under notice 92/2023. The SDF presents a concept model for the future development of the SLM that looks to strengthen the existing residential nodes, to protect the areas of agricultural potential as well as the areas of environmental sensitivity. The concept (Figure 4) looks at the nodes being developed to accommodate residential and alternative economic opportunities to create employment, looks at alternative economic sectors like red meat abattoirs and tourism which could support and ensure the sustainability of these nodes.

5.3 Demographics

Data presented in the following section has been sourced from the Stats SA based on the results of the 2022 Census. All data presented below is from the 2022 census, unless specified otherwise.

Ethnic Profile

The population of the SLM increased from 2011 (134,150) to 2022 (140,720) (Statistics South Africa, no date)) by 9.63%, which is less than that for JGDM (12.73%) and the Eastern Cape province (10.18%). The majority (96.2%) of the population in the SLM is Black. The Coloured, Indian, White and Other ethnic groups constitute 3.7% of the population.

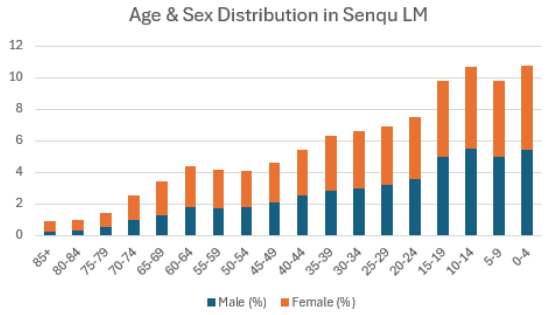
Ethnicity	% of population
Black African	96.2
Coloured	1.4
Indian/Asian	0.4
White	1.5
Other	0.4
Total	100

Age & Sex Structure

The population of the SLM is aging; the 15-64 years old category increased from 58.3% to 59.7% of the population between 2011 and 2022. More pronounced was the 65+ category that increased from 7.7% to 9.2% of the population over the same time period. The median age in the SLM increased from 22 to 26 over this period.

Sex Structure

The ratio of sexes for the SLM was 46.5% male and 53.5% female in 2022.



Households

Between 2011 and 2022, the number of people per household in SLM decrease from 3.5 to 3, which was mirrored by the JGDM figures which dropped from 3.6 to 3.2 over the same period. The number of female-headed households also dropped in SLM from 50.5% to 48.50% over this period.

Dwelling Type	% of population
Formal dwelling	88.5
Traditional dwelling	8.1
Informal dwelling	2.9
Other	0.5
Total	100

Education

Levels of education in the SLM are generally poor with less than 30% of adults having completed grade 12, and on 6% of adults having a tertiary education. These results are mirrored by the JGDM and are generally below those of the Eastern Cape Province. Approximately 78% of school-age children in the SLM attend school.

Education	% of population
No Schooling	10.7
Some Primary	18
Completed Primary	6.4
Some Secondary	35.9
Grade 12/Std10	22.4
Higher Education	6.2
Other	0.5
Total	100

Energy Usage

The majority of households use electricity for cooking purposes, although there remains a portion of the population that still rely on wood, paraffin and even animal dung.

Energy for Cooking	% of population
Electricity from mains	66.8
Gas	28.6
Paraffin	2.7
Wood	1.5
Coal	0
Animal dung	0.1
Solar	0.1
Other	0
None	0.2
Total	100

There is a higher prevalence of the use of mains electricity for lighting than for cooking, but paraffin and candles are still used.

Energy for Lighting	% of population
Electricity from mains	96.1
Gas	0.2
Paraffin	1.4
Candles	1.8
Solar	0.3
Other	0.1
None	0.1
Total	100

Piped Water

The majority (65.5%) of households in the SLM has a piped water supply in this house. This is an improvement from 2011 when 41.1% had such.

Sanitation

The fact that the SLM is a rural municipality is reflected by the fact that the majority of households (50.2%) still use pit latrines, and only 40.4% have access to flush toilets. The situation has however improved significantly from 2011 when only 11.9% of households used flush toilets.

Toilet Facilities	% of population
Flush toilet	40.4
Chemical toilet	2.2
Pit toilet	50.2
Bucket toilet	1.3
Other	2.4
None	3.5
Total	100

Refuse Disposal

The majority (50.6%) of households in the SLM do not receive a waste collection service and hence dispose of waste in dump, which would typically be a hole in the ground. Approximately 37% of households receive a kerb-side collection service, and while this is low, it has significantly improved from 2011 when only 11.9% of households had access to a collection service. The SLM does however trail well behind the JGDM and the EC province on this metric, where 53% of households had access to a collection service in 2022.

Refuse Disposal	Population	% of population
Removed by local authority at least once a week	52,629	37.4
Removed by local authority less often	422	0.3
Communal refuse dump	844	0.6
Communal container/central collection point	3095	2.2
Own refuse dump	71204	50.6
No Rubbish Disposal	10,835	7.7
Other	1688	1.2
Total	140,720	100

Economic Data

Note that 2022 economic metrics such as "employment status" and "household income" has not been released due to reporting-related biases. The 2011 census recorded that the unemployment rate (official) in the SLM was 35.5% and the youth unemployment rate was 43.6%.

5.4 Waste Profile and Quantities

No records of previous waste characterisations were available however a waste characterisation exercise was undertaken as part of this 2024 IWMP review. The aim of the exercise was to determine the typical profile of domestic waste being disposed to landfill. The following sections detail the methodology used for the characterization and the outcomes achieved.

5.4.1 Methodology

Waste was surveyed from the Barkly East urban area through kerbside collection on the morning of 12 Sep 20224. A total of 41 black refuse bags were collected randomly and transported to the Barkly East stadium, where the waste was separated. Bags were collected from the residential part of the town which is a middle to upper income area. The sorting team, who consisted of SLM street sweepers, refuse collectors and general workers (a total of 10 individuals) were briefed and trained by the facilitator on identifying the different categories of waste as well as important sorting procedures to minimize the risk of weighing or sorting errors. A photographs detailing the different waste types were provided and further explanations were provided during the training session. Waste was sorted by hand into 24 different categories of recyclable and non-recyclable waste, including seven categories of plastic. Different types of waste were placed into 24 wheelie bins and the different categories of waste were weighed individually on an electronic scale.

5.4.2 Limitations

The characterisation exercise was a once-off, snap-shot exercise meaning that the results do not highlight any possible seasonal variation in waste.

Table 13: Waste characterisation categories used in the waste characterisation exercise.

Category	Examples
1. Paper (general)	High quality paper, 'office paper'
2. Paper (other)	Magazines 'plasticized paper', soiled paper
3. Cardboard (non-corrugated)	Cereal boxes
4. Cardboard (corrugated)	Corrugated boxes
5. Tetra pack	Juice packs, milk boxes
6. Metal	Drinks cans, foil, metal cans
7. e-waste	Electrical components – computers, calculators, cell phones, kettles
8. Organics (garden waste)	Grass cuttings, leaves
9. Organics (food waste)	Vegetable peelings, fruit, bones, bread etc
10. Organics (wood waste)	Tree stumps and branches
11. Glass (all colours)	Glass bottles, glass jars
12. Plastics 1. PET	Soft drink bottles, carbonated drink bottles
13. Plastics 2. PE-HD	Milk bottles, shampoo bottles
14. Plastics 3. PVC	Water piping
15. Plastics 4. PE-LD	Bread bags and carrier bags
16. Plastics 5. PP	Microwaveable containers
17. Plastics 6. PS Polystyrene	Take away cartons, hot drink cups

18. Plastics 7. Other	CD's
19. Construction waste	Builders' rubble, bricks
20. Hazardous waste	Batteries, fluorescent bulbs, paints
21. Health care risk waste	Sharps, medication, bloodied swabs
22. Absorbent waste	Nappies, feminine hygiene products
23. Other	Fabrics – old clothes, furniture
24. Fines	Mixed material too small to be sorted

5.4.3 Domestic Waste Profile - Characterisation Results

The results for the domestic waste stream characterisation are presented in the tables and figures below. A total of 187kg of waste was sorted.

Table 14: Waste stream composition (results as % of waste stream by weight)

Waste Type	Description and examples	Quantity (kg) composition	% Composition
Paper (sub-total):		**10.90**	**5.83**
Paper (office)	High quality printing paper (all colours)	6.10	3.26
Paper (other)	Soiled paper, magazines	4.80	2.57
Cardboard (sub-total):		**14.50**	**7.75**
Non-corrugated cardboard	Cereal boxes	1.05	0.56
Corrugated cardboard	Brown corrugated boxes	10.15	5.43
Tetra pak	Juice pack, long-life milk cartons	3.30	1.76
Metal	**Cans, metal etc**	**7.65**	**4.09**
E-Waste	**Electronic waste, cd's, etc**	**1.40**	**0.75**
Organic waste (sub-total):		**77.35**	**41.36**
Garden waste	Grass, dry leaves, etc	16.80	8.98
Food Waste	Food	60.40	32.30
Wood Waste	Wood	0.15	0.08
Glass	**Glass**	**13.80**	**7.38**
Plastics (sub-total):		**23.25**	**12.43**
Plastic 1 - Polyethylene Terephthalate (PET)	Bottles (fizzy drinks, water), food jars, and still water bottles.	5.20	2.78
Plastic 2 - High density Polyethylene (PE-HD)	Bottles (milk, shampoo, some detergent bottles)	2.05	1.10
Plastic 3 - Polyvinyl Chloride (PVC)	Water piping	0.20	0.11
Plastic 4 - Low density Polyethylene (PE-LD)	Bread bags, soft plastic bags, cling wrap, carrier bags	8.0	4.28
Plastic 5 - Polypropylene (PP)	Butter and yoghurt containers, crinkly food wrappers, microwave containers	2.95	1.58

Plastic 6 – Polystyrene (PS)	Take away cartons and utensils	1.80	0.96
Plastic 7 - Other plastics (P7)	All other plastics that don't fit into 1 - 6 categories	3.05	1.63
Construction waste	**Rubble, concrete, etc**	**9.60**	**5.13**
Hazardous waste	**Batteries, Fluorescent lamps, paints**	**0.20**	**0.11**
Health care risk waste	**Plasters, tissues with blood**	**0.85**	**0.45**
Absorbent waste	**Nappies, feminine hygiene**	**19.80**	**10.59**
Fines	**Unseparated mixed material**	**2.55**	**1.36**
Other	**Furniture, clothing etc**	**5.15**	**2.75**
Total	-	**187.00**	**100.00**

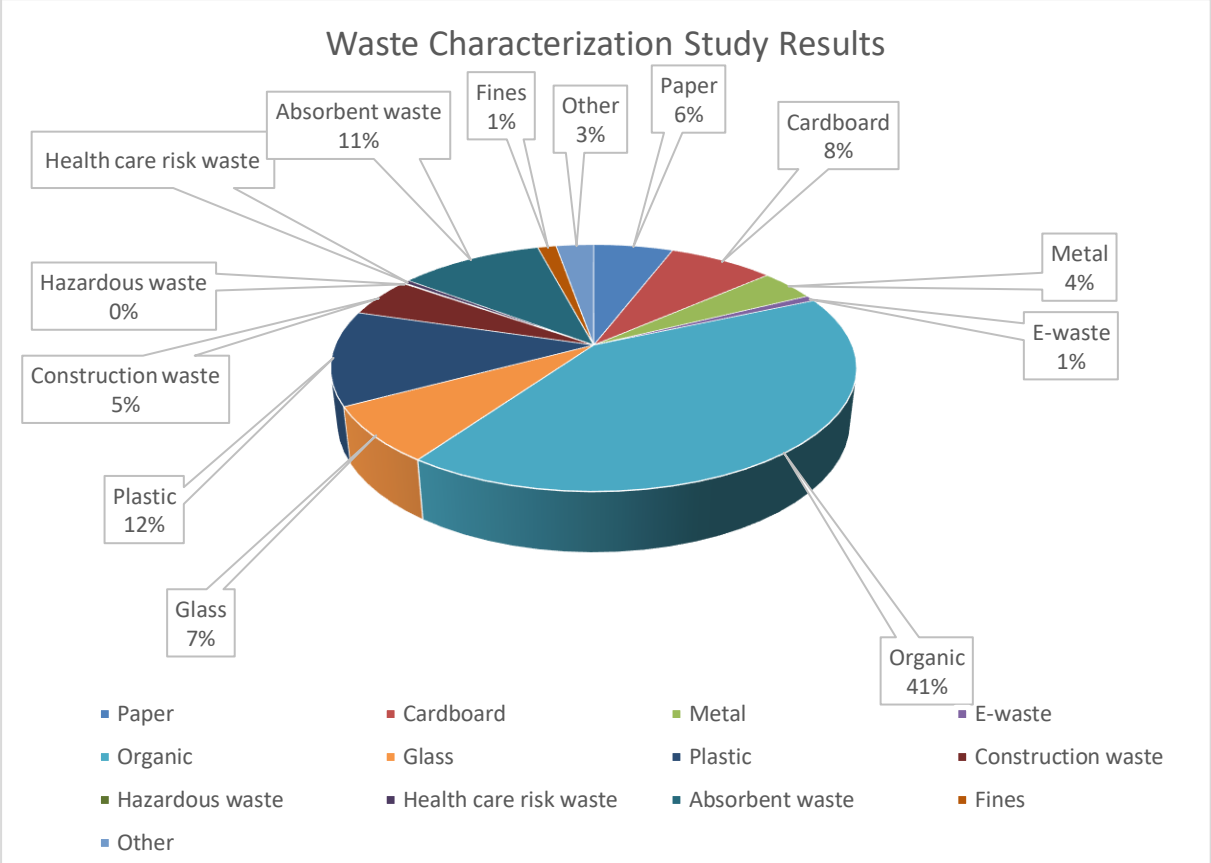


Figure 6: Waste characterisation results for Barkly East (% of waste stream by mass)

A total of 35% of the domestic waste stream sampled was composed of recyclable materials (plastics, cardboard, glass, paper, and metal). This highlights the potential that exists to increase the separation of recyclables at source and thereby reduce the quantity of waste currently going to landfill. The following observations are made for the different waste types:

a) Organic waste

Organic waste was the largest category, accounting for 41% of the total waste stream. Organic waste was composed of three sub-categories: food, garden, and wood waste. The vast majority of the organic waste fraction was waste food accounting for 32.30% while garden waste and wood waste accounted for 8.97% and 0.08% respectively.

b) Plastics

Plastic constituted 12.43% of the total waste stream and included 7 different kinds of plastics. During the waste characterisation, as far as possible, organic waste was removed from plastic packaging and placed into the organics bin. Table 15 below shows the breakdown of the plastic fraction. The most common types of plastic were PE-LD (34% of the plastic fraction) and PET (22% of the plastic fraction).

Figure 7: (A): A waste characterisation exercise was undertaken in Barkly East on 12 Sep 2024. Separation was done at the Sports Stadium. Bins were set up prior to commencing separation. (B): Bags were stockpiled adjacent to the sorting area prior to sorting. (C): Waste separation was carried out on tables. (D): Each type of separated waste was placed into its own wheelie bin prior to being weighed on the electronic scale.

Table 15: Plastic characterisation results

Plastic category	Quantity (kg) composition	% Composition
Plastic 1 - PET	5.20	22.37
Plastic 2 - PE-HD	2.05	8.82
Plastic 3 - PVC	0.20	0.86
Plastic 4 - PE-LD	8.00	34.41
Plastic 5 - PP	2.95	12.69
Plastic 6 - Polystyrene	1.80	7.74
Other plastics	3.05	13.12
Sub-total	**23.25**	**100**

Note: Plastic containers are often labelled with a Society of Plastic Industry code (SPI). These codes were devised in 1988 to aid identification of plastics for recycling purposes. Use of the codes on plastic packaging is voluntary.

c) Absorbent waste

Absorbent waste was the 3rd largest category. This is a mix of feminine hygiene products and nappies and accounted for 110.59% of the total the total waste stream. Used disposable nappies made up the bulk of this category.

d) Cardboard

Cardboard was the 4th largest category and accounted for 7.75% the total waste stream. The vast majority (70&) of this category was composed of corrugated cardboard, consisting mainly of cardboard boxes.

e) Glass

Glass was the 5th largest category by weight, accounting for 7.38% of the total waste stream. Glass beverage bottles accounted for most of the glass.

f) Paper

Paper was the 6th largest category accounted for 5.83% of the domestic waste stream and consists of two sub-categories: office paper and “other” paper (e.g. magazines and soiled paper) making up 3.26% and 2.57% respectively.

g) Construction waste

Construction waste constituted 5.13% of the total waste sample and was composed of mainly small pieces of concrete, tiles and crushed stone.

h) Metal

A total of 4.09% of the waste sample was composed of metal. Most of the metal found in the domestic waste stream was empty food tins and drink cans.

i) Other

This category included old clothing, hair extensions and textiles. Overall, the 'other' category made up 2.75% of the total waste stream. It should be noted that an old tent was found in a black bag and was placed in "other" contributing to the higher-than-expected result for "other".

j) Fines/unseparated mixed material

This waste constituted all the fines that could not be sorted. This category accounted for 1.36% of the total waste stream and gives an indication of the proportion of the domestic waste stream that cannot be composted or recycled because it consists of small pieces of mixed organic and non-organic waste. If waste was separated at source, this proportion of fines that are 'lost' out of the compostable / recyclable material could be reduced. It should be noted that a "one bag at a time" system was used when separating waste for this exercise. This means that one bag is separated to completion, and all fines removed, before opening the next bag. This ensures that fines do not accumulate on the separating table and do not contaminate subsequent bags.

k) E-waste

Electronic waste included old radios, wired circuits, and light bulbs and constituted 0,75% of the total waste sample.

l) Health care risk waste

Health care risk waste accounted for 0,45% of the total waste sample. This category was largely composed of medicines and empty medicine packaging.

m) Hazardous waste

Household hazardous waste was the smallest fraction of waste and only accounted for 0,11% of the total waste sample. This was mainly limited to compact fluorescent lamp bulbs and solvents.

5.4.4 Domestic Waste Profile – Comparison with other Municipalities

The table below (Table 16) compares the characterisation results from this latest SLM characterisation exercise with those of other category B municipalities in the Eastern Cape for which a similar level of data was available. While similar trends are seen across all four sets of data, the waste profiles for the SLM did show significantly higher amounts of organic waste, particularly food waste, and also higher amounts of construction waste. Glass, plastic and fines were generally lower than in other municipalities. However, when comparing such characterisation results one must note that all these characterisation exercises where once off, snapshot exercises based on relatively small sample sizes, and hence variations in the results are expected. In the case of this latest characterisation for SLM, the following could have contributed to variations in results:

- Organic waste: a large amount of spoiled food waste was found in one bag which increased the weight of the food waste fraction significantly.
- Other waste: the canvas of an old tent was discarded in one bag and was added to the "other" fraction.
- Construction waste: a full bag of grit/stone was found in two black bags.

Cross-municipal comparisons would be better suited to larger data sets based on numerous characterisations across different towns, income groups and months. Such data sets unfortunately do not exist for local municipalities in the province because regular characterisation exercises are not being undertaken.

Table 16: Comparison of domestic waste characterisation results for the SLM (2024) with Mhlontlo Local Municipality (2023), Port St Johns Municipality (2022) and Inguza Hill Local Municipality (2020).

Waste Type	% Composition (PSJLM 2022)	% Composition (IHLM 2020)	% Composition (MLM 2023)	% Composition (SLM 2024)
Paper (subtotal):	**4,14**	**2,20**	**3.58**	**5.83**
Paper	2,45	0,50	1,00	3.26
Paper Other	1,70	1,70	2,58	2.57
Cardboard (subtotal):	**12,51**	**5,80**	**11,65**	**7.75**
Non-corrugated cardboard (incl. Tetrapak)	6,69	2,80	4,71	2.33
Corrugated cardboard	5,82	3,00	6,94	5.43
Metal	**3,28**	**1,60**	**1,49**	**4.09**
E-Waste	**0,31**	**0**	**0,18**	**0.75**
Organic (subtotal):	**15.07**	**13.2**	**19.31**	**41.36**
Garden waste	0,12	0	5,07	8.98
Food Waste	13.27	13,10	14,13	32.30
Wood Waste	1,68	0,10	0,11	0.08
Glass	**18,83**	**15,50**	**12,98**	**7.38**
Plastics subtotal	**19,70**	**19,70**	**24,10**	**12.43**
Plastic 1 - PET	4,78	3,30	5,88	2.78
Plastic 2 - PE-HD	0,52	1,00	1,92	1.10
Plastic 3 - PVC	0,09	0	0,34	0.11
Plastic 4 -PE-LD	8,09	11,40	11,25	4.28
Plastic 5 - PP	3,93	3,10	2,69	1.58
Plastic 6 – PS	1,61	0,90	1,95	0.96

Waste Type	% Composition (PSJLM 2022)	% Composition (IHLM 2020)	% Composition (MLM 2023)	% Composition (SLM 2024)
Plastic 7 - Other (P7)	0,68	0	0,06	1.63
Construction waste	**0,22**	**1,70**	**0,11**	**5.13**
Hazardous waste	**0,09**	**0,10**	**0,18**	**0.11**
Health care risk waste	**1,41**	**0,40**	**0,47**	**0.45**
Absorbent waste (Nappies)	**9,41**	**36,60**	**11,48**	**10.59**
Fines	**9,07**	**0**	**11,33**	**1.36**
Other	**5,94**	**3,10**	**3,25**	**2.75**
Total	**100,00**	**100,00**	**100,00**	**100,00**

5.4.5 Domestic Waste Generation – Population Projection Rates

No records exist regarding the total amount of waste generated in the SLM, and landfill records are unhelpful because the majority of households in the SLM dispose of their own waste. In the absence of recorded data, the only means of estimating the quantity of waste generated in the SLM is by calculating a figure using census population data and published "per capita" waste generation rates.

The South Africa State of Environmental Report, 2006 (SOER) presents waste generation volumes per income level as follows:

- Low income 0,41 kg/ person/ day = 149,65 kg/ person/ year.
- Middle income 0,74 kg/ person/ day = 270,1 kg/ person/ year.
- High income 1,29 kg/ person/ day = 470,85 kg/ person/ year.

It is noted that the most recent revision of the State of the Environment Report (DFFE, 2023) does not present any updated data regarding these generation rates and hence the 2006 rates have been used in this report.

The SOER figures for waste generation are also used in the Department of Environmental Affairs Guideline for the Development of Integrated Waste Management Plans (IWMPs) (DEA, undated). The DEA IWMP guideline also presents the following income brackets:

- Low-income R 0 – R 74,999 per year.
- Middle income R 75,000 – R 999,000 per year.
- High income R 1 million + per year.

The SLM income profile was determined based on the StatsSA 2011 census records. It is noted that the income profile from the 2022 census had not been released at the time of this report due to due reporting bias errors, and hence the 2011 census has been used. The 2022 census population figure

(147,073 persons) for the SLM was however used to calculate the waste tonnages presented in Table 17 below.

Table 17: Theoretical calculation of domestic waste produced in the SLM based on 2022 census population data and 2011 income data.

Waste generation/ income group	Income group	% of population	No. of person	Waste generation tonnes/day	Waste generation tonnes/ annum
Low income (kg/person/day)	No income	16	23 532	9.65	3 522
0.41	R1 - R,4800	7.2	10 589	4.34	1 585
	R 4,801 - R 9,600	12.1	17 796	7.30	2 663
	R9,601 - R19,600	28.1	41 328	16.94	6 185
	R19,601 - R38,200	21.1	31 032	12.72	4 644
	R38,201 - R76,400	7.2	10 589	4.34	1 585
Sub-total		**91.7**	**134 866**	**55**	**20 183**
Medium income (kg/person/day)	R76,401 - R153,800	4.2	6 177	4.57	1 668
0.74	R153,801 - R307,600	2.7	3 971	2.94	1 073
	R307,601 - R614,400	1	1 471	1.09	397
	R614,001 - R1,228,800	0.2	294	0.22	79
Sub-total		**8.1**	**11 913**	**8.82**	**3 218**
High income (kg/person/day)	R1,228,801 - R2,457,600	0.1	147	0.19	69
1.29	R2,457,601+	0.1	147	0.19	69
Sub-total		**0.2**	**294**	**0.38**	**138**
Total		**100**	**147 073**	**64.49**	**23 539**

Based on the above estimation, a total of 64 tonnes of waste per day or 23,539 tonnes per year were generated within the SLM in 2022. The municipality's population has increased from 134,150 in 2011 to 140,720 in 2016, to 147,073 in 2022. At this rate of change it is estimated that approximately 23,878 tonnes of general domestic waste would been generated in the SLM in 2024.

An understanding of future waste generation is valuable for waste planning and therefore should be considered in an IWMP. The population growth is a good indicator of how domestic waste generation increases or decreases, but it is noted that changes in consumer patterns and the economic landscape may also influence waste generation quantities. The table below estimates future waste generation quantities based on the historic annual population growth rate of -0.74% per year (measured between 2011 and 2022)

Table 18: Theoretical projection of hypothetical waste generation across the entire SLM area, assuming a sustained population growth rate of -0,74% per year.

Year	Population	Waste generation (t/day)	Waste generation (t/yr)
2024	147 073	64.49	23 539
2025	148 161	64.97	23 713
2026	149 258	65.45	23 889
2027	150 362	65.93	24 065
2028	151 475	66.42	24 244
2029	152 596	66.91	24 423
2030	153 725	67.41	24 604
2031	154 863	67.91	24 786
2032	156 009	68.41	24 969
2033	157 163	68.91	25 154
2034	158 326	69.42	25 340

5.4.6 Domestic Waste Generation - Landfill Records

The SLM has very limited data regarding the quantity of solid waste that it disposes of to landfill. Barkly East and Lady Grey landfill sites both have weighbridges installed but are non-functional. Sterkspruit landfill does not have a weighbridge, and weigh pads were used at one stage, but this was discontinued. Hershel landfill has a weighbridge, but the site has not yet been commissioned. Hence there are currently no electronic landfill waste tonnage records being generated in the SLM.

Records of vehicles entering the site are being visually estimated based on vehicle size, a role mostly undertaken by the appointed security company at the landfill. The records however not been collected, captured and stored electronically by the SLM and hence records are not readily available, and the data are not in any accessible format that allows aggregating or analysis of the information. The SLM was only able to provide those records presented in Table 19 below.

Table 19: Waste disposal records for various waste facilities in the SLM.*

Month	Rural areas (Mokhesi & Tien Bank)	Sterkspruit (Ward 10)	Lady Grey (Ward 14)	Barkly East (Ward 16)	Herschel (Ward 13)	Rhodes (Ward 15)	Rossouw (Ward 5)
Jul-19	141.10	240.00	164.00	210.00	134.00	19.00	2
Aug-19	113.00	165.00	143.00	126.00	110.00	23.00	2
Sep-19	111.00	197.20	122.00	154.00	74.00	21.00	1
Jul-22		314.04	391.00	198.57	198.52	38.20	1
Aug-22		316.23	259.00	183.11	183.11	23.44	1
Sep-22		299.59	116.54	161.32	161.32	21.31	1
Apr-23		199.18	156.27	103.12	98.23	34.70	1
May-23		200.12	130.22	132.43	99.30	53.10	1
Jun-23		208.90	104.18	141.96	88.46	49.50	1
Average	**121.70**	**237.81**	**176.25**	**156.72**	**127.44**	**31.47**	**1.22**
Per year	**1,460.40**	**2,853.68**	**2,114.95**	**1,880.68**	**1,529.25**	**377.67**	**14.67**
SLM total							**10,231.29**

** Note these records were recorded from visual estimations of waste entering the facilities, and not from weighbridge data. Average tonnages for the different facilities have been extrapolated to generate an annual tonnage figure.*

The accuracy of this data could not be verified, and it is noted that there are significant variations between month-to-month tonnages e.g. tonnages for Lady Grey Landfill show 391 tonnes in Jul 22 and only 116.54 tonnes two months later in Sep 22.

The figures in the table above represent 43% of the waste theoretically generated (based on population data) in the SLM (see Table 17).

5.4.7 Domestic Waste Generation – SAWIC Records

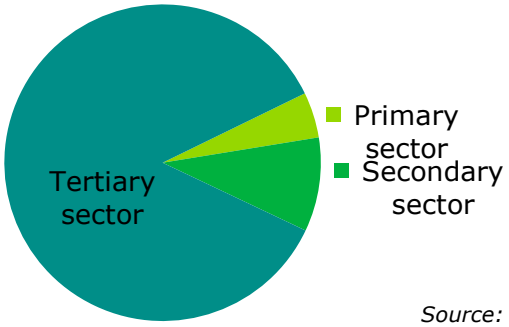
Currently the SLM does not report its waste information to the SAWIS (South African Waste Information system). A review of the SAWIS records showed no records for the SLM.

5.4.8 Business and Industry Waste Profile

The SLM is a rural municipality, with localised economic centres, the largest of which is Sterkspruit. Economic activity consists largely of trade, retail and community services sector, as shown in Figure 8. There is an absence of heavy industry while manufacturing and agriculture combined make up approximately 15% of the economy. Business and retail wastes are collected in the towns by the SLM and are disposed of at the local landfill sites with the domestic sate stream. With retail and commerce making up the majority of the business activity in the municipal area, it is anticipated that the business waste stream would not include significant volumes of hazardous waste.

The IDP (Senqu LM, 2024a) states that the:

"outlook for the Senqu economy is dire as it is heavily dependent on government services as the main economic sector and the government is under pressure to decrease its wage bill. Therefore, focus will have to be paid to diversifying the economy and attracting manufacturing investors."



Source: IHS Markit Regional eXplorer version 2142

Figure 8: (A): Economic activity in the SLM with the tertiary sector (trade, transport, finance, and the community services) making up the majority of the economy, followed by the secondary sector (manufacturing) and the primary sector (agriculture) ((Senqu LM, 2024a)

Tourism, although being hit hard by the Covid-19 pandemic, has been identified as one of the growth sectors for the local economy, as is agriculture which is considered one of the New Growth path's job drivers. The area has a long and proud history of producing some of the best wool in South Africa.

There is no indication that this economic profile for the SLM will change significantly within the 5-year planning horizon of this IWMP review.

The retail activities within the larger centres such as Sterkspruit are dominated by national chain stores such as Boxer Super Store and Shoprite. Eight such businesses were interviewed as part of the field work for this IWMP review and the results thereof are presented in Table 20 below.

The results showed that for the majority of businesses, the SLM collects their general waste and there are varying opinions as to the level of service received; some businesses expressed that they are satisfied with the service while others are not. The main complaint was the lack of consistency in collection frequency. It was noted that some businesses undertake recycling through their company structures (such as returning boxes to the company distribution centre), but the majority do not recycle. None of the businesses were aware of any kind of awareness campaigns by the SLM.

Table 20: Outcomes of business interviews undertaken with businesses in Sterkspruit.

Question	KFC	OK Grocer	Boxer Super Store	Boxer	Engen Garage	Shoprite	Cashbuild	Spar
Main types of wastes	Boxes and food waste	Boxes, plastics, food waste	Boxes, plastics, food waste	Boxes, plastics, food waste	Plastics, boxes, used oil	Wet waste, boxes, plastics, used oil	Printing paper, boxes, broken bricks, glass offcuts, rubble	Boxes, plastics, used oil, waste from deli
Are waste tonnages recorded?	-	-	-	-	-	-	-	-
How is waste stored?	Bin bags	Refuse bins	Refuse bins	Waste cage	Refuse bins	Waste cages	-	Trailor
Who removes your waste?	SLM	Contractor	SLM	SLM	SLM (general waste). Private contractor (used oil)	SLM	SLM	Private contractor
Is any recycling undertaken	No	No	Yes. Recyclables retuned to company DC	Yes. Boxes returned to company	No	Yes. Boxes and used oil	No	-
If waste is collected by the SLM, how would you rate their service	5/10	n/a	Good	Poor	Good	3/5	Good to excellent	n/a
What challenges do you experience with SLM waste management?	SLM does not collect daily	n/a	None	SLM does not collect regularly	None	No consistency in collection	No daily collections	n/a
What can the SLM do to improve waste management?	Collect more regularly	n/a	-	Collect the waste regularly	Install more street bins along the road	Regular collection as agreed	Collect waste of daily basis	n/a
Are you aware of any municipal waste education and awareness programmes aimed at business	No	No	No	No	No	No	No	No

5.4.9 Hazardous Waste Profile

Hazardous waste is defined by the National Environmental Management Waste Act (NEMWA) as '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'. Hazardous waste commonly found in the domestic waste stream includes fluorescent light bulbs, batteries, chemicals, and paints.

There are currently no data available regarding hazardous waste generation from the SLM, however due to the lack of industry in the area, it is likely to be minimal, and largely limited to household hazardous waste, and minor streams from businesses such used motor oil generated from workshops. Industries that would likely contribute to hazardous waste in the area could include, for example, garages undertaking vehicle repairs (used motor oil and oiled components), and commercial buildings that generate fluorescent bulbs. The waste characterisation found that household hazardous waste made up 0.2% of the domestic waste stream and e-waste made up 0.75%. Based on the estimated amount of 10,231 tonnes waste going to landfill annually (see Table 19) it is estimated that approximately 20 tonnes of domestic hazardous waste and 76 tonnes of e-waste are going to landfill annually.

5.4.10 Health Care Risk Waste

Health care risk waste (HCRW) is waste that contains infectious agents, sharps, hazardous chemicals, or pharmaceuticals, or is genotoxic or radioactive. Used needles, discarded medication or any infectious wastes are all classified as HCRW but are often found in small quantities in the domestic waste stream. The SLM has 4 hospitals and a number of clinics (see details in the Table 21).

Table 21: Department of Health facilities in the Senqu Health-sub-district

Type	No.	Facilities
Hospitals	4	Cloete Joubert (Barkly East), Lady Grey Hospital, Mlamli (Sterkspruit), Empilisweni (Sterkspruit).
Clinics (fixed)		Masibulele Clinic, Pelandaba Clinic, Musong Clinic, Ndofela Clinic, Macacuma Clinic, Palmietfontein Clinic, St. Michaels Clinic, Sinethemba Clinic, Sterkspruit Town Clinic, Hillside Clinic, Umlamli Gateway Clinic, Esilindini, Bluegums Clinic, Herschel Clinic, Wittebergen Clinic, Robert Mjobo Clinic, Sonwabo Zandile Clinic, Hlomendlini Clinic, Sunduza Clinic and Bensonvale Clinic
Satellite clinics	1	-
Mobile clinics	8	-
Health posts	5	-
Community-based services	2	One in Sterkspruit and one in Barkly East

The general waste generated by hospitals, and general waste from clinics close to the urban centres, is collected by the SLM and transported to landfill. General waste generated at the rural clinics is burnt or buried at site.

The management of HCRW does not fall within the ambit of the local municipality's responsibility but is the responsibility of Provincial Government. The Provincial Dept of Health confirmed (pers coms Mr Zingisile Malindi, DOH) that the Eastern Cape DOH appoints private contractors to manage the HCRW as follows:

- A contractor collects and transports all HCRW from rural health-care facilities to Central Collection points at the hospitals.
- A second contractor collects the HCRW from the hospitals and is responsible for the transport, treatment and ultimate disposal of this waste.

The DOH was not able to provide info as to how or where their service provider treats the different types of HCRW. At the time of this report, it was noted that the DOH does not hold HCRW tonnage reports for the SLM region and thus was unable to provide such (pers coms Mr Zingisile Malindi, DOH). Records are reportedly held by the contractors.

There are no significant private health care facilities in the SLM area, and therefore the HCRW tonnages for the government facilities are assumed to be indicative of the total HCRW generated in the municipal area.

SLM reported that during the Covid pandemic, the management of HCRW was problematic and it would regularly appear in the municipal landfill sites. This is since been resolved although HCRW has been found on occasion in the Sterkspruit landfill, likely due to poor access control.

5.5 Waste Information Systems

The SLM does not have any structured system for generating, collating, or storing waste information and record keeping regarding waste information is poor. There is no centralised repository for waste information. Th SLM has installed weighbridges at four sites (Barkly East, Lady Grey, Herschel and Rossouw) but the weighbridges were not functioning at the time of this report due to calibration issues. The SLM is apparently busy sourcing a service provider to undertake the calibrations. Due to the non-functioning weighbridges, records of waste entering the landfill sites are being estimated visually, recorded on hard copy sheets but are not captured or held electronically by the SLM in any usable form. Supervisors sum the figures for the month and report a monthly total tonnage for the month to the WMO. The municipality cannot access detailed historical records for disposal tonnages and cannot evaluate long term trends. The SLM reported that it did previously report tonnages to the SAWIS however stopped doing so due to difficulties with the software.

5.6 Waste Services

5.6.1 Kerb-side collection service

The SLM provides at least a weekly waste collection service in the urban nodes (Barkly East, Sterkspruit, Lady Grey and Rhodes) within the municipal area; rural areas are not serviced. According to the census 2022 data the majority (50.6%) of households in the SLM do not receive a waste collection service of any kind and hence dispose of waste in local a dumpsite, which would typically be a hole in the ground. Approximately 37% of households receive a kerb-side collection service (see Table 22), and while this is low, it has significantly improved from 2011 census data when only 129% of households had access to a collection service. The SLM does however trail well behind the JGDM and the EC province on this metric, where 53% of households had access to a collection service in 2022. The SLM's collection service is provided by in-house staff and vehicles.

Table 22: An increasing number of households in the SLM have received a waste collection service

Area	2011 Census	2016 Community Survey	2022 Census
Weekly Refuse Removal	12.5%	13.0%	37.4%

Source: https://municipalities.co.za/demographic/1031/senqu-local-municipality

The Municipality has experienced difficulty in expanding its service due to limited fleet and associated costs of servicing rural areas. The schedule is detailed in the 2022/2023 refuse collection schedule (Senqu LM, not dated) (see Table 24). The SLM reported that some areas, particularly the centre of towns, receive more than a weekly service, as this is a legacy issue and residents have objected against having to store their waste for a week.

Comment on Stats SA data sets
The table above presents two different Stats SA data sets.

1. The 2011 Census data. The 2011 Census surveyed all South African households. This data is 10 years old, but until the 2022. it remained the most up to date complete census data set for the country.

2. The 2016 Community Survey data is more recent (2016), however only a sample (8,1%) of South African households were surveyed during this census. The Community Survey was designed to be a representative sample of South African households.

3. The 2022 Census data represents the latest comprehensive dataset for the country. The results have faced criticism particularly datasets for mortality, fertility, employment and household income; these have yet to be published. Data regarding waste services have however been published.

The number of households services part urban area is presented in Table 23 below.

Table 23: The number of people receiving a waste collection service per town, including surrounding urban settlements (Census 2022)

Area	Urban (serviced)	Rural (not serviced)	Percentage
Sterkspruit	11,399		8.50
Lady Grey	7,023		5.24
Barkly East	9,986		7.44
Rhodes	696		0.52
Rossouw	284		0.21
Herschel	2,189		1.63
Rural Villages		96,370	71.84
Private commercial farms (1429)		6,203	4.62
TOTAL			**100.00**

Table 24: Refuse Collection Schedule for the SLM.

AREA	Mon	Tue	Wed	Thu	Fri	Sat	Sun
BARKLY EAST	• Barkly East Town Business • Joe Gqabi District Municipality • Barkly East High School	• Nkululeko township • Zola area (Informal Settlements)	• Boyce Nondala • Part of Zinyoka Hospital	• Barkly East town Businesses • Joe Gqabi District Municipality • Barkly East High School • Lulama Hlanjwa • Sizamulwazi Primary School • DRC Primary School • Waste bins • Zinyoka	None	None	None
LADY GREY	• Lady Grey Town households • Lady Grey Town business	• Transwilger households • Transwilger Primary School • Hospital	• Steve Tshwete	• Khwezi-Naledi • Rex Mdebuka Senior Secondary School • Pallo Jordan	• Businesses • Arts Academy • Cages	None	None
RHODES	08:00 to 13:00: • Zakhele • RDP houses • Primary School • Clinic 14:00 to 16:30: • Household collection in Rhodes town	08:00 to 13:00: • Rhodes Town collection	08:00 to 16:30: • Digging trenches for waste • Covering and compaction of Dumping site	08:00 to 13:00: • Business collection 14:00 to 16:30: • Covering and compaction of waste	08:00 to 13:00: • Garden waste collection from Zakhele 14:00 to 16:30: • Town garden waste removal and public open spaces (illegal dumps)	None	None
STERKSPRUIT	• Main Street • Broadway business up to Zastron Road	• Pharmacy • Discount Supermarket • Engen Garage	• Extension 1 households • Nomzamo Primary School	• Zwelitsha households • Sterkspruit Senior Secondary School	• Illegal dumps (towards Makhetheng, Extension 1	08:00 to 13:00: • Broadway to New Taxi Rank	08:00 to 13:00: • Broadway to New Taxi Rank

AREA	Mon	Tue	Wed	Thu	Fri	Sat	Sun
	towards New Taxi Rank • Metro to Van Tonder Street • Cash Build, • Build IT to SASSA	• Auto Zone • KFC • Dance • Ackermans • Pep Store • Boxer 1 • HOHO Supermarket • FNB • Buya Futhi Complex • River side Mall • Caltex Garage • Hardware • Snap	including Main Street	• Lamp lighters Primary School • Hi Q	• OK • Church • Flats • Business • Hospital / Phomollong • Skips bins on main street • Government departments		

Officially, the SLM kerb-side collection system operates with black bags. The SLM does not supply bags to households; they are required to buy their own. This has however proved problematic in lower income areas where people cannot afford to buy bags. The WMO has requested funding to buy wheelie bins for low-income areas. In practice, while the majority of households use black bags, different bin types such as Eurobins and wheelie bins are also used, especially by businesses (see Figure 9). The SLM indicated that extending of the collection service to rural areas using a "one-man" community-based contractor had been considered but had not been progressed.

5.6.2 Communal Skip Bins

The municipality has purchased four large skips (see Figure 10) and placed them in the low-income areas of Barkly East to address the problem of dumping in the area. The SLM however does not own a skip-bin truck or a "load lugger" for moving such skip bins, and hence these skips cannot be moved. The current procedure for emptying the skips requires a front-end-loader to turn the skip over, empty it onto the ground and then load the contents onto a tipper truck. These skips are currently being emptied approximately once every two months.

Figure 9: A): The SLM uses black bags for domestic waste kerb-side collection. B): Various other receptacles, such as these Eurobins, are used. C): Some households or facilities use wheelie bins. D): The SLM provides a garden refuse collection service; green waste is piled up outside of properties and is removed by the SLM.

Figure 10: A and B): The SLM has placed four skip bins in low-income areas in Barkly East to prevent illegal dumping by residents.

5.7 Waste Recycling

5.7.1 Separation at source

The SLM does not provide a separation at source service such as a two-bag system, in any of its towns. A pilot project was however undertaken in Sterkspruit in 2016, whereby houses were issued with a two-bin system. The programme collapsed however as a service provider could not be secured to collect the bins.

5.7.2 Local Recyclers

The SLM does not operate any formal recycling programmes itself. It has however undertaken various projects with cooperatives to assist them with recycling in the area. A number of cooperatives have been established in the SLM area, mostly focusing on retrieving recyclables from the landfill sites. To date at least four cooperatives have established themselves, one in Sterkspruit, one in Lady Grey and two in Barkly East. Most have had challenges remaining sustainable. The following recycling projects have been undertaken:

a) Barkly-East Landfill Recycling

The SLM established a caged area (Figure 11) at the Barkly East Landfill for the sorting, bailing and storage of recyclables won from the landfill. A local company (Stomza & Family Enterprises) has been operating at the site since 2021. The group has four workers who collect recyclables from the waste body and store the low value material in the cage. High-value material e.g. metal, is stored off-site due to security concerns. There is a bailer in the cage but at the time of this report it was out of order.

Figure 11: A & B: Recycling "cage" constructed at the Barkly East Landfill.

b) Sterkspruit Landfill Recycling

A caged recycling area was established at the Sterkspruit Landfill site and was operated by a local co-operative that was retrieving recyclables from the waste body. The landfill site however caught fire in 2024 and the recycling facility burned down. The landfill, together with the recycling facility have been temporarily closed, and all waste is currently being diverted to the Lady Grey landfill.

Figure 12: The recycling area at the Sterkspruit Landfill has burned down.

c) Lady Grey Landfill Recycling

The Lady Grey Landfill site holds a caged recycling area (see Figure 13) similar to that at the Barkly East Landfill. The site is currently being used by a local cooperative.

Figure 13: The recycling area at the Lady Grey Landfill site is being operated by a local cooperative.

d) Lady Grey Cooperative

The local cooperative in lady Grey has been making use of a property (see Figure 14) located approximately 150m east of the Lady Grey landfill. This facility is in extremely poor condition and waste lies strewn throughout the property and beyond. The SLM reportedly has served the cooperative representative with an instruction to rectify the site but to no avail.

Figure 14: The cooperative site located adjacent to the Lady Grey Landfill is in poor condition.

e) Herschel Recycling Centre

The newly constructed Herschel Landfill site has yet to be commissioned. The facility includes a Material Recovery Facility (see Figure 15) including a large warehouse structure, with sorting table and external cute. Once commissioned this will be the largest formal recycling facility in the SLM. The SLM is planning to establish a Buy-Back Centre system at the site.

It is noted that contracts with cooperatives and service providers such as that operating at the Barkly East area managed through the SLM Local Economic development Department (LED) because recycling involves small business economic development (SMME). This reportedly introduces some complexity for the management of the cooperative's performance. The SLM has not required the cooperatives and private recycling companies that operate at its landfill sites to report on their recycled tonnages, and hence the SLM has no current or historical data regarding recycling tonnages.

5.7.3 Recycling Drop-Off Facilities

There are no recycling drop-off facilities operated by the SLM, nor are there any privately operated, public-facing drop-off facilities in the SLM area.

Figure 15: The Material Recovery Facility located at the Herschel Landfill Site.

5.7.4 In-House Municipal Recycling

The SLM does not operate any in-house recycling programmes; there are no programmes for recycling the wastes (such as office paper) that they generate.

5.7.5 Circular Economy and Waste Picker Integration

The report Circular Economy Guideline for the Waste Sector (South African Government, Department of Environment, Forestry and Fisheries (DEFF), 2020) defines Circular Economy as:

"An economy that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles. This new economic model seeks to ultimately decouple global economic development from finite resource consumption. It enables key policy objectives such as generating economic growth, creating jobs, and reducing environmental impacts, including carbon emissions."

In simple terms, a circular economy keeps materials circulating within the economy rather than existing the economy as waste that is disposed of in landfills.

There are numerous barriers to the implementing a circular economy, such as lack of waste data, lack of technical skills, lack of awareness and funding challenges. All of these are applicable to SLM's situation. This Circular Economy Guideline notes that much domestic waste "leaks" from municipal collection system through residences disposing or burning their waste informally and not using municipal collection systems, which is especially relevant in a rural municipality such as SLM. There are however many activities that that the SLM already undertakes which do contribute to achieving circularity, and there are further actions which would increase circularity, such as expanding waste collection to include rural areas, and particularly regarding recycling operations and the informal recycling industry. This IWMP presents a number of interventions for the SLM that would result in improved recycling rates, all of which would contribute to improved circularity.

The role of informal waste pickers also needs to be considered as they play an important role in recycling. The DFFE and DSI have published the "Waste Picker Integration Guidelines for South Africa" (DEFF & DSI, South African Government, 2020) which unpacks this topic in detail. Waste pickers are people who collect re-usable and recyclable materials from residential and commercial waste bins, landfill sites and open spaces in order to revalue them and generate an income and it is estimated that the number of waste picker in the country range from 60,000 to 215,000. They are responsible for the recovery of 80 – 90% of paper and packaging material in waste streams.

The Waste Picker Guidelines do acknowledge the challenges that small rural municipalities face when it comes to the economics of recycling and the large distances to markets which make the economic viability of recycling difficult. The guidelines state that "*there is little point in collecting recyclables if there is no market to sell them to*" but that "*special initiatives will have to be created to ensure that smaller towns and rural areas are not left behind and that recyclables are purchased from these areas*". Waste pickers in the SLM function mostly through recycling cooperatives. The coops in SLM have faced challenges but the SLM could do more to support better management of the coops such as having MOUs in place to provide limited services e.g. collection of recyclables from future drop-off sites, insisting on good data management, registration of facilities in terms of relevant norms and standards, and insisting that coops commit to the waste picker integration principles, pay waste pickers fair prices, and are transparent.

5.8 Organic Waste Management

5.8.1 Legal Drivers for the Diversion of Organic Waste from Landfill

Ther are a number of policy level and legislative drivers requiring that municipalities reduce the amount of organic waste entering their landfill sites. Most significantly, the National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) (DEA, 2013) require a 25% reduction of garden waste to landfill by 2018 and a 50% diversion by 2023.

5.8.2 Organic Waste management

There are currently no municipal programmes for organic waste diversion or any composting facilities or garden refuse drop-off sites in the SLM. There are no commercial composting facilities operating in the municipal area. Of concern is that the SLM does not hold sufficient waste characterisation and disposal tonnage data that will allow an accurate historical baseline to be determined for organic waste.

5.9 Waste Management Facilities

The SLM has a number of formal waste management facilities within its jurisdiction (see Table 25). The SLM has made progress in the last few years with developing formal waste management infrastructure however further interventions are required. All landfill sites are currently operated in-house by the SLM, but options for outsourcing the management thereof are under consideration and the outsourcing of management roles at Sterkspruit and Herschel landfill sites is included in the SLM's Service Delivery and Budget Implementation Plan (SDBIP), 2024/2025 (Senqu LM, 2024b).

Table 25: Waste management facilities in the Senqu Municipal area

Facility Type	Number	Sites	Operational Status	License Status
Landfill (engineered)	4	Barkly East	Operational	Licensed
		Lady Grey	Operational	Licensed (document missing)
		Herschel	Completed but not yet commissioned	Licensed
		Rossouw	Completed but not yet commissioned	Licensed
Landfill (not engineered)	1	Sterkspruit	Temporarily closed	Not licensed. Was licensed for closure up to 2021. Since expired.
Transfer Stations	0	-	-	-
Drop-off Centres	0	-	-	-
MRF	1	Herschel landfill	Completed but not yet commissioned	Licensed
Informal dumping area	1	Rhodes	Operational. Trench	Not licensed

5.9.1 Sterkspruit Landfill Site

The Sterkspruit Landfill Site is currently not operational due to poor operational management; waste placement was not controlled meaning the working face was not maintained and waste was spread of the whole site. A fire subsequently burnt much of the waste body and adjacent recycling facility. The table below presents key details of the site.

Table 26: Summary of the Sterkspruit Landfill Site

Landfill Name	Sterkspruit Landfill
Location	Sterkspruit
Co-ordinates	30°31'25.72"S 27°21'43.33"E
Site classification	G:S:B-
License status	Not licensed. Site had been licensed for closure with an expiry date of 2018. The SLM obtained a three-year extension but this ultimately expired in 2021.
Status	Temporarily closed in July 2024 due to poor management and recent fire. Houses have since been built immediately adjacent to the site boundary.
Airspace	SLM indicated that the site has sufficient space for another 20 years' of operation however the site is to be closed. A new landfill is to be built in Sterkspruit however this has been delayed.
Buffer zone	The buffer zone of the site has been invaded and formal houses have been built immediately on the boundary of the site. The closest formal house is within 20m of the boundary. It was reported that the SLM has provided electrical connections to these houses. The Nomzamo Primary School is located 55m south of the site boundary.
Access	The surfaced road is a residential road that is in fair condition. The site is closed but no closure signage was present at the entrance. The site is fenced however there are holes in the fence and sections missing. An entrance gate is present preventing people from driving onto the site and a security guard is located at the entrance.
Waste Type, Cell use, and cover	The site has historically accepted general waste, and garden waste. The site is not lined, and formal cells have not been used. Waste was historically dumped in uncontrolled areas across the site. Cover material was applied approximately once per year. No Operational Management Plan or Emergency Plan was available.
Facilities	- General waste disposal landfill - Guard house - Recycling area (burned down)
Machinery	There was no dedicated machinery/plant operating on the site. A front-end loader is brought on to the site as needed.
Staff	The site is currently closed and hence the only staff on site is one security guard manning the security guard house.
Waste Information Management	Site is currently closed and therefore no tonnages data is being recorded. It was reported that weigh pads were used at the site at one stage but has since been discontinued. The security staff were responsible for recording the number of vehicles entering and estimating (visually) the load type and size. The SLM did not keep the vehicle records; these have been left with the security company. These could not be retrieved to inform this IWMP review.
Stormwater management	No formal drainage and containment system is in place. Stormwater flows to a central low point before flowing off the site to a small adjacent wetland area, where livestock were seen grazing.
Leachate Management	No leachate containment or storage system is present.

Recycling	Recyclables were previously being retrieved from the waste body by a local cooperative and sorted at an onsite facility. This facility has since burned down.
Monitoring	Two monitoring boreholes exist on site. It was reported that once off water sampling had been done but had not been continued due to lack of funds. The SLM was able to provide the monitoring reports or analysis results.
Challenges	- No historical tonnage records - Houses and school immediately adjacent - No stormwater management system - Lack of records. Licenses were not made available, and the SLM does not have historical tonnages. - No surface or groundwater monitoring is taking place - No formal auditing of the site is being undertaken

Figure 16: The Sterkspruit Landfill Site. A) Entrance with gate house on the right, B) Part of the recycling facility that was burned down. C) Waste body which has been partially covered with cover material. Note the close proximity to houses along the site boundary. D) Run-off from the site drains off-site to a small wetland area. E) One of the two monitoring boreholes on the site. F) The potable water line to the gate house was leaking, resulting in a flow across the site.

Figure 17: The Sterkspruit Landfill Site showing the fence line (yellow), gatehouse (red) and burned-out recycling area. Note the close proximity to houses and a school south of the site. Insert shows the location of the landfill (red) in the northern part of Sterkspruit, south of the Sterkspruit River.

5.9.2 Lady Grey Landfill Site

The Lady Grey Landfill Site was operational and at the time of this report and was receiving waste from the Lady Grey area as well as the Sterkspruit area (due to closure of the Sterkspruit Landfill). The table below presents key details of the site.

Table 27: Summary of the Lady Grey Landfill Site

Landfill Name	Lady Grey Landfill
Location	Lady Grey
Co-ordinates	30°42'37.43"S 27°12'17.99"E
Site classification	G:S:B- (unconfirmed)
License status	Unconfirmed. It was reported by SLM that the Dept of Water Affairs licensed the site in 2004 however the license cannot be found. Neither SLM nor DWS have been able to source a copy.
Status	Operational
Airspace	The recent cell upgrades were planned for 15 years. An airspace determination exercise was recently commissioned for all landfills however the report has yet to be finalised.
Buffer zone	The buffer zone around the site has been generally well maintained however there are approximately 5 houses 40m south-west of the site boundary. The municipal cattle pound is located approximately 50m north of the site, and the Lady Grey cooperative facility is 150m east of the landfill. The Lady Grey bowling club lies 250m north-east of the landfill.
Access	The access road to the landfill is unsurfaced and is in poor conditions. Sections have been rutted by stormwater to the extent that they are not easily passable for normal low clearance vehicles.
Waste Type, Cell use, and cover	The site accepts general domestic waste, which is placed in one of two cells, which were upgraded and lined in early 2024. At the time of this report waste from the Sterkspruit landfill was being diverted to Lady Grey and hence the Lady Grey cells had filled rapidly and the placement of waste in designated sections of the cells had been abandoned and waste was had been dumped in and across the cells. No cover material was being applied. No Operational Management Plan or Emergency Plan was available.
Facilities	- General waste disposal landfill. Two engineered, lined cells. - Guard house and weighbridge (not operational) - Recycling area - Leachate pond
Machinery	There was no dedicated machinery/plant operating on the site. A front-end loader is brought on to the site as needed.
Staff	The site is staffed by one security guard, but a number of waste pickers associated with the local cooperative are present on the site.
Waste Information Management	The weighbridge at the site is not operational. The security staff is responsible for recording the number of vehicles entering and estimating (visually) the load type and size. The SLM does not keep the vehicle entry records; these have been left with the security

	company and hence could not be retrieved to inform this IWMP review. Hence no long-term historic tonnage data was available.
Stormwater management	The site does have some stormwater management which diverts run-off away from the cells, however this needs to be improved in areas such as the offloading area, where stormwater is able to enter the cells.
Leachate Management	The site has a leachate holding pond which collects leachate from the two cells. It was reported that the pond has on occasion overflowed off the site onto the adjacent road.
Recycling	Recyclable waste is being retrieved from the waste body by a local cooperative and sorted at the onsite facility as well as at the cooperative's facility approximately 150 east of the site.
Monitoring and compliance	The presence of monitoring boreholes on the site could not be confirmed. No surface or groundwater monitoring is currently being undertaken. No formal internal or external audits have been undertaken.
Challenges	- No historical tonnage records. - Houses in close proximity to the site. - The placement of waste is not well coordinated, and waste is not being covered. - Lack of records. The licence is missing. - Access road is in very poor condition - No surface or groundwater monitoring is taking place.

Figure 18: The Lady Grey Landfill Site. A) The site is fenced and gated. B) Gate house and weighbridge. C) Recycling area. D) The cells are full, and waste has not been covered. E) Waste has a high recyclable content. F) Leachate pond.

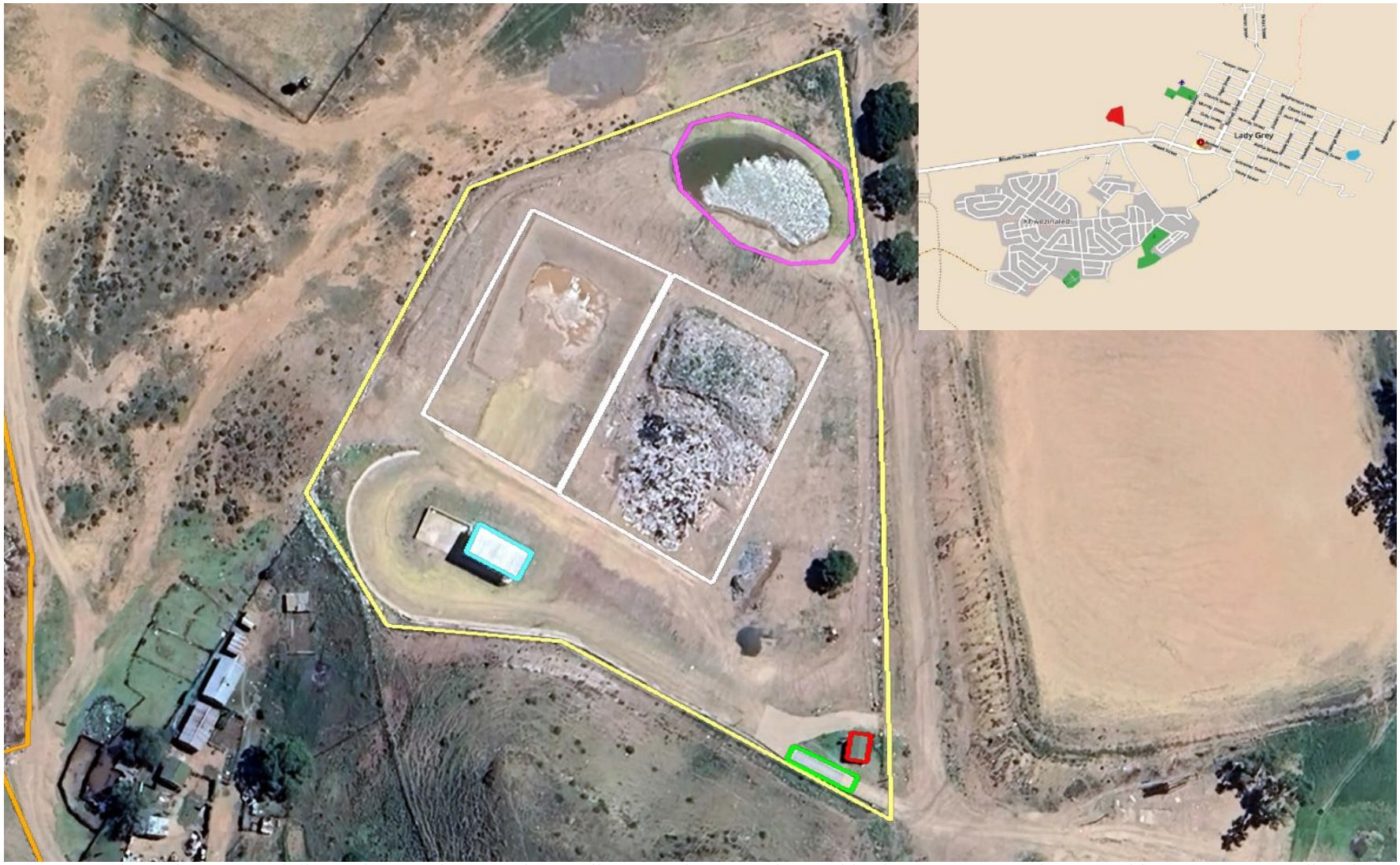


Figure 19: The Lady Grey Landfill Site showing the fence line (yellow), gatehouse (red), weighbridge (green), recycling area (blue), two waste cells (white) and leachate pond (pink). Note the close proximity to houses south-west of the site. Insert shows the location of the landfill (red) in the northern part of Lady Grey.

5.9.3 Barkly East Landfill Site

The Barkly East Landfill is currently operational and at the time of this report was receiving waste from the town of Barkly East. The table below present key details of the site.

Table 28: Summary of the Barkly East Landfill Site

Landfill Name	Barkly East Landfill
Location	Barkly East
Co-ordinates	30°58'48.65"S 27°35'54.90"E
Site classification	G:S:B-
License status	Licensed. Number JG/B/2/10/001/15. A copy of the license was available on site as well as on SAWIC.
Operational Status	Operational
Airspace	Undetermined. An airspace determination exercise was recently commissioned for all landfills however the report has yet to be finalised.
Buffer zone	The site has a well-established buzzer zone. The closest residences are 500+m north of the site. A cemetery is located immediately west of the site.
Access	The access road to the landfill is unsurfaced, in a fair condition, but is still passable by low clearance vehicles. No signage is present at the entrance to the site.
Waste Type, Cell use, and cover	The site accepts general domestic waste, which is placed in a lined cell. The waste has however not been placed in distinct sections of the cells or working areas but rather has been strewn across the cells. Sufficient cover material was not being applied. It appeared that ponding had occurred in the south-eastern corner of the cell and in order to drain it, a trench had been dug through the cell wall into the leachate pond. The cells have therefore likely been compromised. No Operational Management Plan or Emergency Plan was available.
Facilities	- General waste disposal landfill. Engineered, lined cells. - Guard house and weighbridge (not operational) - Recycling area - Leachate pond
Machinery	A Bomag landfill compactor was procured on 15 Jan 2024, and was stationed at the site but was not operational at the time of this report.
Staff	The site is staffed by one security guard, but waste recyclers associated with the local recycling company (Stomaza & Family Enterprises) are occasionally present on the site.
Waste Information Management	Tonnages: The weighbridge at the site is not operational. The security staff is responsible for recording the number of vehicles entering and estimating (visually) the load type and size. The SLM does not keep the vehicle entry records; these have been left with the security company and could not be retrieved to inform this IWMP review. Hence no long-term historic tonnage data was available.
Stormwater management	The site does have some stormwater berms in place, but these have been compromised in some areas.

Leachate Management	The site has a leachate holding pond which collects leachate from the cells. The leachate pond was however in a poor condition, chocked with waste and showed signs of overflowing and discharging off site.
Recycling	Recyclable waste is being retrieved from the waste body by a local contractor Stomaza & Family Enterprises) and sorted at the onsite facility.
Monitoring and compliance	The presence of monitoring boreholes on the site could not be confirmed. No surface or groundwater monitoring is currently being undertaken. No external audits of the landfill site have been undertaken. The site is currently not complying with a number of its license conditions.
Challenges	- No historical tonnage records - Not machinery available to move waste - Stormwater management is poor - The placement of waste is not well coordinated, and waste is not being covered. - No surface or groundwater monitoring is taking place. - The site is currently not complying with a number of its license conditions.

Figure 20: The Barkly East Landfill Site. A) The site is fenced and gated. B) The entrance sign has been removed. C) Gate house and weighbridge. D) The landfill compactor was currently not functioning.

Figure 21: The Barkly East Landfill Site. A) Stormwater diversion berms have been compromised in certain areas. B) The placement of waste within the cells has not been coordinated. C) A trench has been dug through the cell wall to drain the cell to the leachate pond. D) The leachate pond has been chocked with waste.

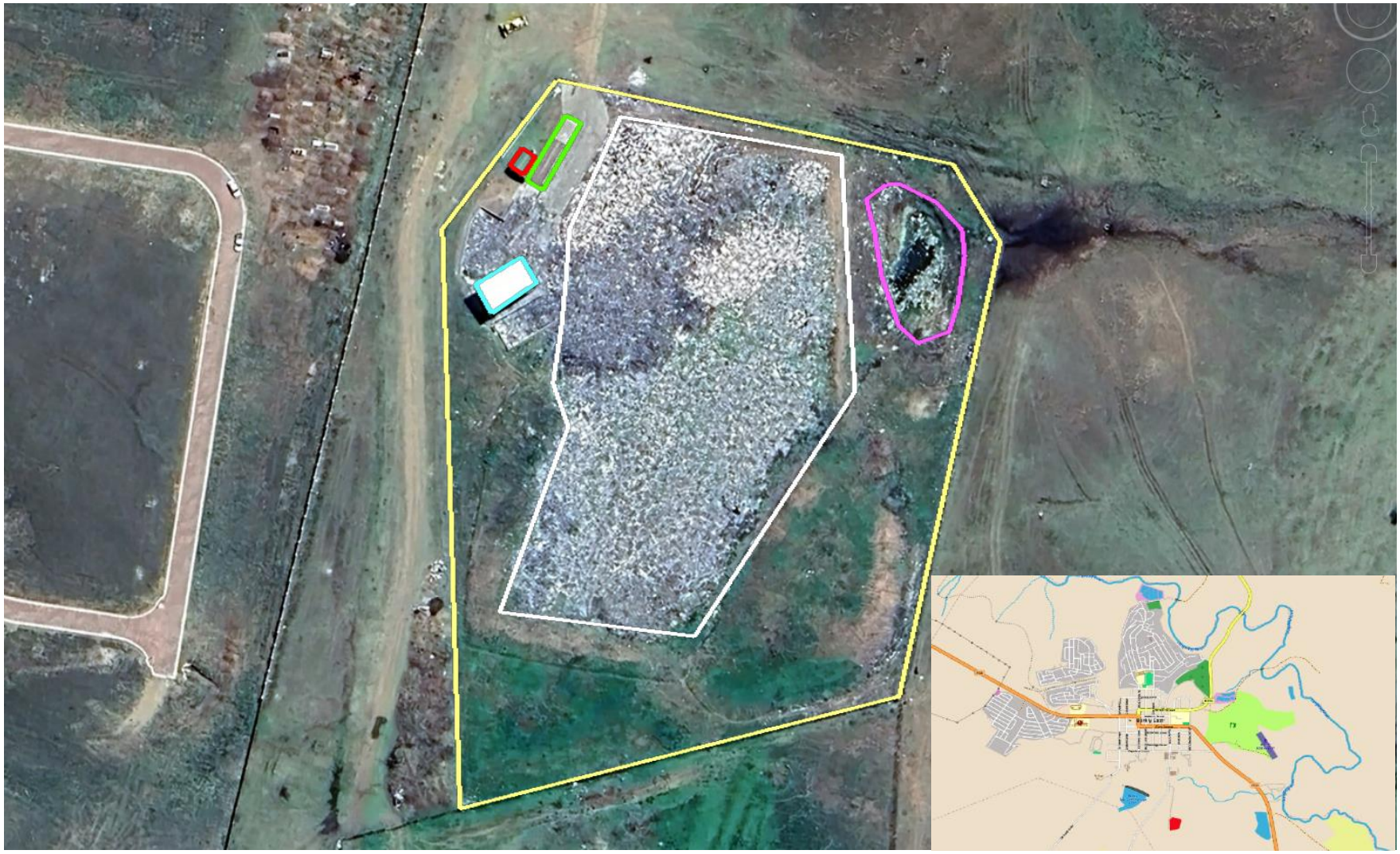


Figure 22: The Barkly East Landfill Site showing the fence line (yellow), gatehouse (red), weighbridge (green), recycling area (blue), waste cell (white) and leachate pond (pink). A cemetery is located immediately west of the site. Note evidence of overflow of the leachate pond into the watercourse off site. Insert shows the location of the landfill (red) located south of Barkly East.

5.9.4 Herschel Landfill Site

The Hershel Landfill is a newly (2023) constructed landfill and MRF facility. Herschel has not had a waste collection service and hence people have buried or burnt their waste. The site had at the time of this report the site, not yet been commissioned. The table below presents key details of the site.

Table 29: Summary of the Herschel Landfill Site

Landfill Name:	Herschel Landfill
Location	Hershel
Co-ordinates	30°36'37.51"S 27°10'37.36"E
Site classification	Class B
License status	Licensed. Number JG/B/M/003/17. A copy of the license was available on SAWIC.
Operational Status	Construction complete but not yet commissioned.
Airspace	Undetermined. An airspace determination exercise was recently commissioned for all landfills however the report has yet to be finalised.
Buffer zone	The site has an extensive buffer zone and is 650m from the closest residence.
Access	The access road to the landfill is unsurfaced but has recently been completed and is in good condition.
Waste Type, Cell use, and cover	The site will accept general domestic waste, which will be placed a lined cell. Leachate generated will drain to a constructed leachate pond. The site has sufficient space to accommodate another two future cells. No Operational Management Plan or Emergency Plan was available. The intension is to outsource the management of the landfill.
Facilities	- General waste disposal landfill. Engineered, lined cells. - Guard house and weighbridge - Large indoor MRF with waste sorting conveyor - Leachate pond
Machinery	None
Staff	The site is staffed by one security guard. Once commissioned recycling staff will be added to the site.
Waste Information Management	n/a. The site is not yet operational. Waste tonnages will be recorded through the weighbridge system.
Stormwater management	The site does have a stormwater management system consisting of diversion berms in place. The cutoff drains south for the cell should be reassessed, and a diversion berm should be installed upslope of the leachate pond to protect it from surface runoff.
Leachate Management	The site has a leachate holding pond which collects leachate from the cells.
Recycling	Recyclable waste will be separated from the general waste stream in the MRF.
Monitoring and compliance	The presence of monitoring boreholes on the site could not be confirmed. No surface or groundwater monitoring is currently being undertaken.
Challenges	- Additional stormwater cut-off berms required - No surface or groundwater monitoring is taking place.

Figure 23: The Herschel Landfill Site. A) The site is fenced and gated. B) Gate house and weighbridge. C) The lined cell has yet to receive any waste. D) Leachate pond. E) The waste receiving cute will feed waste into the MRF. F) Sorting conveyor belt inside the MRF.

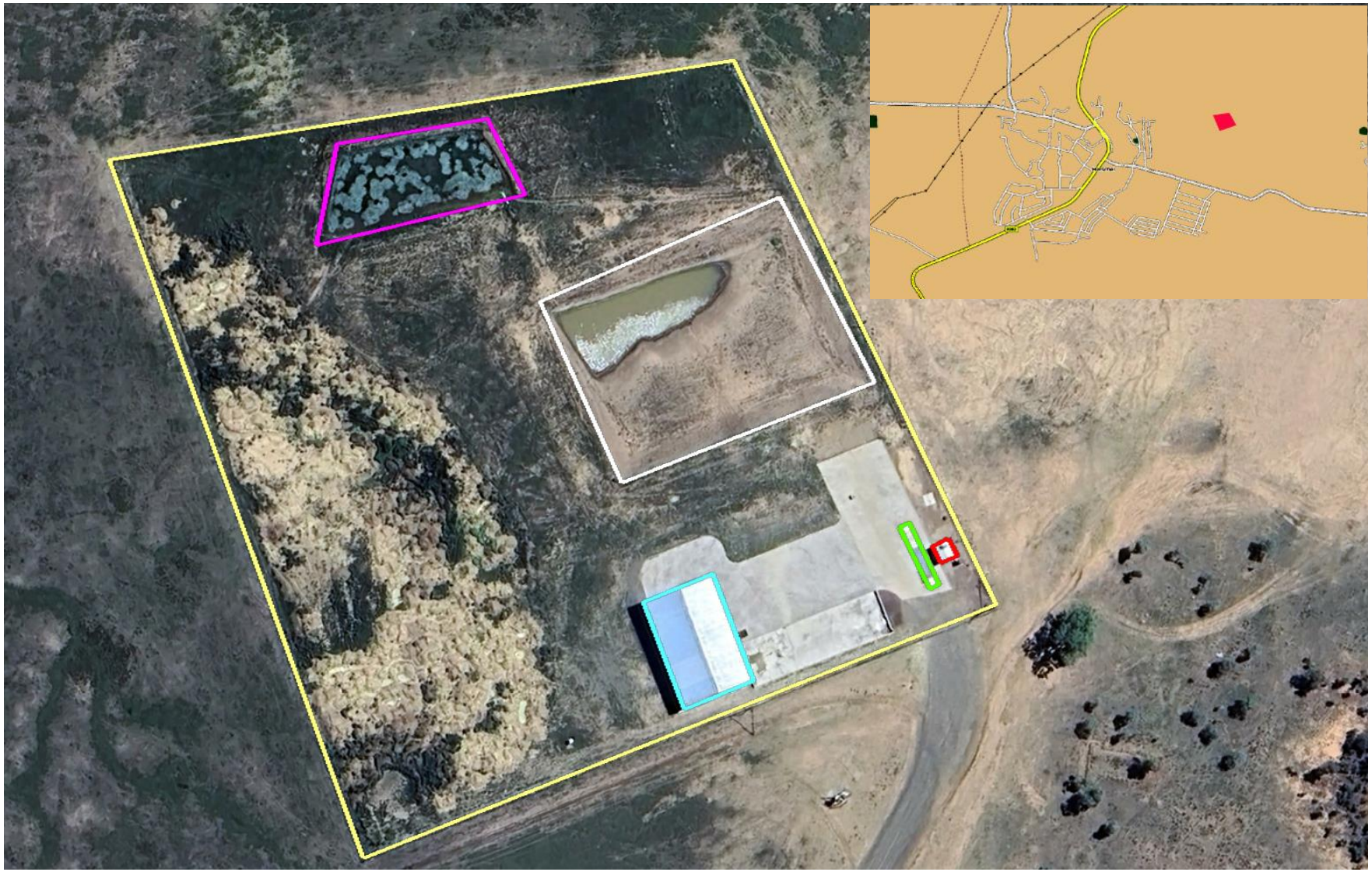


Figure 24: The Herschel Landfill Site showing the fence line (yellow), gatehouse (red), weighbridge (green), MRF (blue), waste cell (white) and leachate pond (pink). The site has yet to be commissioned. Insert shows the location of the landfill (red) located east of Herschel.

5.9.5 Rossouw Landfill Site

The Hershel Landfill is a newly constructed landfill and MRF facility. The site had at the time of this report, not yet been commissioned. The table below presents key details of the site.

Table 30: Summary of the Rossouw Landfill Site

Landfill name:	Rossouw Landfill
Location	Rossouw
Co-ordinates	31° 9'49.15"S 27°17'8.13"E
Site classification	B
License status	Licensed. Number JG/B/M/002/17. A copy of the license was available on SAWIC.
Operational Status	Construction complete but not yet commissioned.
Airspace	Undetermined. An airspace determination exercise was recently commissioned for all landfills however the report has yet to be finalised.
Buffer zone	The site has a buffer zone and is 400m from the closest residence.
Access	The access road to the landfill is unsurfaced but has recently been completed and is in good condition.
Waste Type, Cell use, and cover	The site will accept general domestic waste, which will be placed a lined cell. Leachate generated will drain to a constructed leachate pond. No Operational Management Plan or Emergency Plan was available.
Facilities	- General waste disposal landfill. Engineered, lined cell. - Guard house and weighbridge - Recycling area - Leachate pond
Machinery	None
Staff	The site is staffed by one security guard. Once commissioned recycling staff will be added to the site.
Waste Information Management	n/a. The site is not yet operational. Waste tonnages will be recorded through the weighbridge.
Stormwater management	The site does have a stormwater management system consisting of diversion berms in place.
Leachate Management	The site has a leachate holding pond which collect leachate from the cell.
Recycling	Recyclable will be undertaken at the small, covered recycling facility on site.
Monitoring and compliance	The presence of monitoring boreholes on the site could not be confirmed. No surface or groundwater monitoring is currently being undertaken.
Challenges	The SLM indicated that they currently do not have machinery in Rossouw to apply daily cover material and to compact. They are therefore considering not using the site as a landfill, but rather a transfer station. This points to a planning failure if the newly constructed landfill site is not used as such.

Figure 25: The Rossouw Landfill Site. A) Waste receiving area. B) Storage area for recyclables. C) Site entrance.

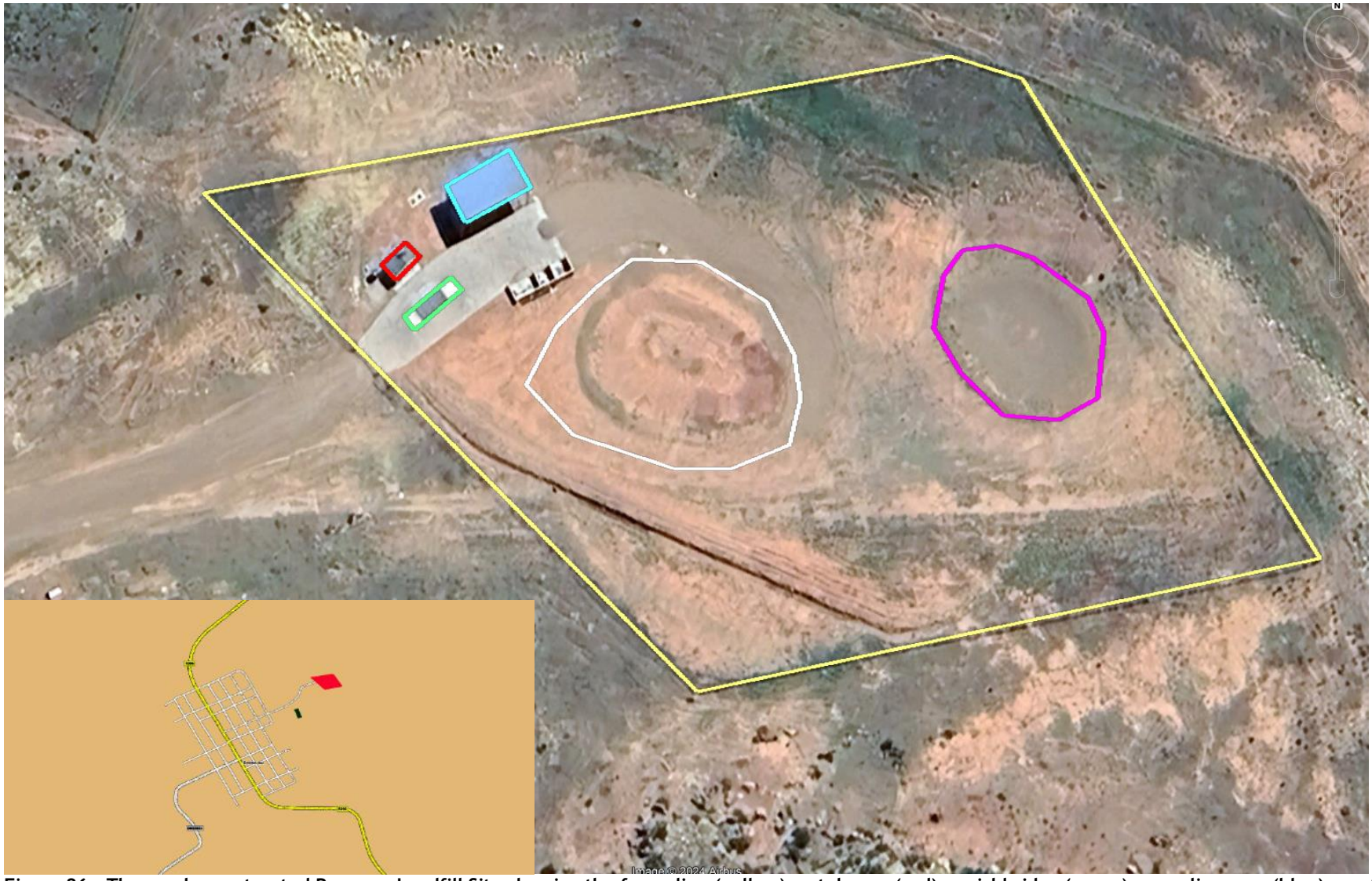


Figure 26: The newly constructed Rossouw Landfill Site showing the fence line (yellow), gatehouse (red), weighbridge (green), recycling area (blue), waste cell (white) and leachate pond (pink). The insert shows the location of the landfill site east of the hamlet of Rossouw.

5.9.6 Rhodes Landfill Site

The town of Rhodes does not have a formal waste facility; waste has historically been dumped in a trench approximately 100m south-east of the town. The SLM has plans to establish a waste transfer station in Rhodes from where waste will be transported to Barkly East. The table below presents key details of the site.

Table 31: Summary of the Herschel Landfill Site

Landfill Name:	Rhodes Landfill
Location	Rhodes
Co-ordinates	30°47'48.66"S 27°58'5.14"E
Site classification	Informal dump site
License status	Not licensed
Operational Status	Operational
Airspace	Undetermined
Buffer zone	The site is located approximately 100m south-east of the closest town residence
Access	The access road to the site is via the town roads, with the last ~200m consisting of an informal track.
Waste Type, Cell use, and cover	The intended use for the site is that it should only accept general, domestic waste, however access to the site is uncontrolled.
Facilities	Nil
Machinery	None
Staff	None
Waste Information Management	None
Stormwater management	None
Leachate Management	None
Recycling	None
Monitoring and compliance	No monitoring boreholes are present, and no surface or groundwater monitoring is currently being undertaken. No formal internal or external audits of the site have been undertaken.
Challenges	- Uncontrolled access - Uncontained dumping area

Figure 27: A) The boundaries of the Rhodes dump site are not defined.

Figure 28: The Rhodes Landfill site is an informal dumping area. The wider dumping area (white outline) and the trenching area (solid waste) are shown. There is no formal infrastructure at the site and waste has historically been burned. The insert shows the location of the landfill site (red) east of the town of Rhodes.

5.9.7 Transfer Stations and Drop-off centres

The SLM does not operate any transfer stations. The SLM does not operate any facilities for the location drop-off of waste of recyclable material, other than the recycling areas at the landfill sites. Residents can drop off recyclables here for the cooperatives. The WMO has requested funding to undertake a feasibility study to inform the development of such drop-off centres.

5.9.8 Composting Facilities

The SLM does not operate any composting facilities or any facilities for the diversion of organic waste from landfill. No private compost operators are known in the area either.

5.9.9 Household Hazardous Waste Facilities

The SLM does not provide any facilities for receiving household hazardous waste at landfill sites. All household hazardous waste is disposed of in the general domestic waste stream or collected by private contractors.

5.9.10 Planned Waste Management Facilities and Interventions

The SLM has plans for the following developments and interventions:

a) Sterkspruit Landfill Site

The existing Sterkspruit Landfill site has been licensed for closure, but the license has since expired in 2021. A new landfill site has been planned for Sterkspruit however the planning process has stalled due to problems with ground water and the local community. The EA has since lapsed, and the site's buffer zone has since been invaded by informal houses.

b) Rhodes Transfer Station

The SLM plans to develop a transfer station in Rhodes, and the project is reflected in the SDBIP 2024/205 (Senqu LM, 2024b) with a target completion date of 30 June 2025. The sub-division of the site is currently underway.

c) Outsourcing Landfill Management

The SLM plans to outsource the management of the Sterkspruit and Herschel Landfill sites by June 2025, and the intervention is reflected in the SDBIP 2024/205 (Senqu LM, 2024b). The SLM indicated that their inability to repair and maintain vehicles timeously means that a private contractor would be better suited to managing the sites.

5.10 Historical Dump Sites and Illegal Dumping

The SLM does not hold a list of where waste historically has been dumped, prior to the construction of formal landfills. Illegal dumping remains a significant challenge for the SLM in all urban areas, however quantification thereof is difficult because the SLM has not undertaken audits of dumping hot-spots or kept records thereof. It was reported that the SLM had been planning to do such. The JGDM IDP (Joe Gqabi District Municipality, 2024) does however presents some number illegal dump sites in the SLM (see Table 32 below) however it is not clear as to how or when these were determined or if these figures still apply.

The SLM reported that businesses often dump waste because they do not want to incur the cost of building waste storage cages on their premises. Similarly, residences, particularly lower income households, do not have the space or facilities to store was for a week until collection day, and hence dump it. The SLM regularly cleans up hotspots during the awareness campaigns, or as required. The SLM does not hold data as to how much the management of illegal dumping costs annually.

Table 32: Illegal Dump Sites in the SLM, as recorded in the JGDM IDP (Joe Gqabi District Municipality, 2024).

Industry Type	Number of Illegal Dump Sites
Sterkspruit	13
Lady Grey	36
Barkly East	20
Rhodes	0
Rossouw	0

Figure 29 shows some examples of small, localised dumping.

Figure 29: A: Accumulated litter in a watercourse on the outskirts of Barkly East. B) Waste dumped on the roadside (R392) approaching Sterkspruit.

Some dumping areas are larger, have been well established over years, and represent a greater

environmental risk for the SLM. Two significant sites at Barkly East and Lady Grey are described below.

a) Barkly East "Fairview" Dumping Hotspot

The "Fairview" dumping area is located on the north edge of Barkly East. The site appears to have been a historic borrow pit site, and excavation of material continues in the northern end. The boundaries of the site are ill defined, but the southern section, where dumping is most prevalent, is approximately 1.3ha in size (see Figure 30). Access to the site is uncontrolled and primarily construction and demolition waste (CDW) is dumped on the site. This is likely because CDW is not currently accepted at the formal Barkly East Landfill.

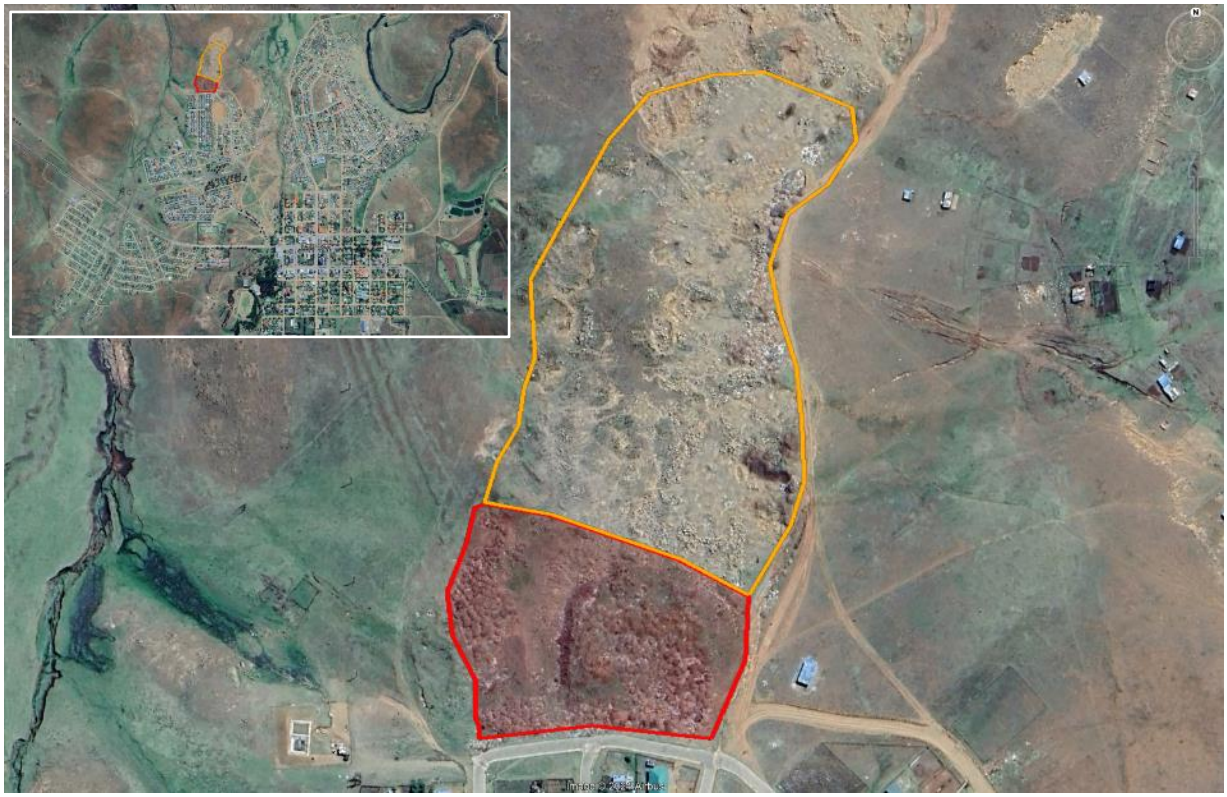


Figure 30: The Fairview dumping hotspot (orange) lies on the northern edge of Barkly East (see insert) with dumping more prevalent in the southern part (red).

Figure 31: The Fairview dumping hotspot at Barkly East.

The depth of the waste (see Figure 31) suggests the site has been in use for many years.

b) Lady Grey Dumping Hotspot

The dumping hotspot at Lady Grey is a historical dumping area stablished in an old quarrying area adjacent to the new Lady Grey Landfill. The boundaries are diffuse with most of the current dumping occurring in the south. Mainly CDW is dumped here but signs of domestic waste were also visible. This appears to be the "de facto" site for CDW because CDW is not currently accepted at the formal Lady Grey Landfill.

Figure 32: The Lady Grey dumping hotspot (orange) is adjacent to the new landfill site (yellow). Active dumping appears to be occurring most in the southern edge (red). Insert shows the hotspot north of Lady Grey.

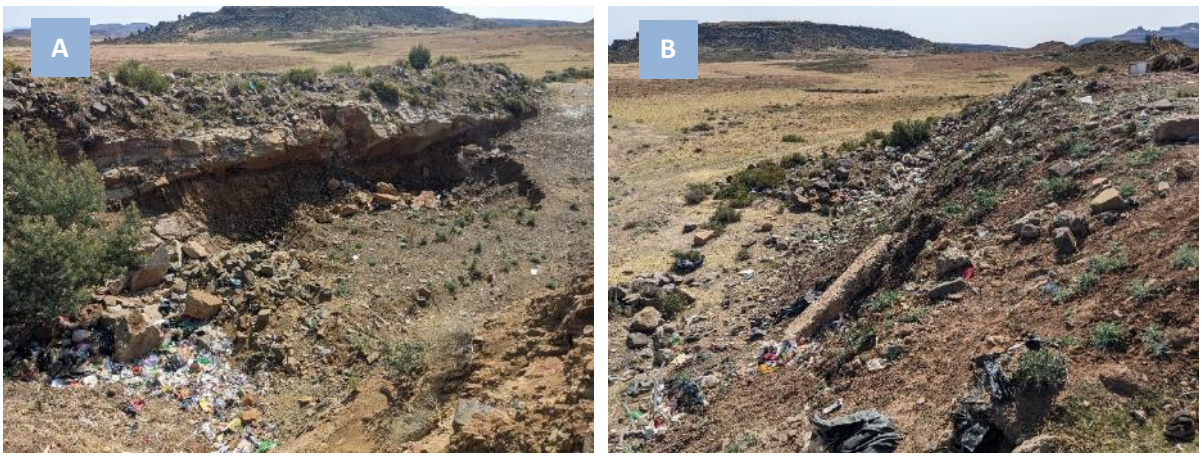


Figure 33: The dumping hotspot at Lady Grey.

It was reported that the SLM has attempted to block access to the site by placing earth berms and rubble at the entrance, but these have been breached.

c) Rossouw Dump Site

A new landfill site has been built in Rossouw however the historical dumping area has yet to be formally closed and rehabilitated.

5.11 Street Sweeping and Street Bins

The SLM provides street bins in the urban centres. The following is noted:

- Street bins are restricted to the main streets in the towns and the bins are serviced regularly. The streets are generally clean and free from significant amounts of litter.
- There is no set standard specification for the street bins deployed. A variety of different types of bins have been used, including metal drum bins, and pole-mounted plastic bins (see Figure 34).
- No formal register of bins, or their condition exists and hence the SLM does not have a record how many street bins exist.
- No replacement schedule exists.

The SLM indicated that steel bins had been stolen in various areas.

The waste department deploys street sweepers in Sterkspruit, Lady Grey, Barkly-East and Rhodes on a daily basis.

Figure 34: A variety of different street bins are in use, such these shown in Barkly East: A) a swivel drum bin and B) a pole-mounted plastic bin.

5.12 Waste Management Fleet

The SLM has a varied waste collection varied design around the different areas where it collects waste. The main fleet bay for the Community Services department is located at Lady Grey. The SLM has recently been successful in purchasing new fleet including:

- Two new front-end loaders in Sep 2023
- One new Fuso cage truck in November 2023
- Two new tip trucks in December 2023
- One new landfill compactor in Jan 2024

Despite the new purchases, the fleet still suffers from breakdowns and resulting vehicle shortages. The SLM reported that the main reason for not being able to provide a constant, regular collection service was due to old vehicles breaking down. Table 33 and the figures that follow list the fleet items according to the towns where they have been allocated.

Table 33: Details of waste collection fleet. Vehicles in red text were not operational at the time of the report.

Location	Type	Registration	Make / Model	Age	Condition
Lady Grey	Tipper truck	ECF 882 EC	TBC	2023	Operational
Lady Grey	Front end Loader	-	-	2023	Operational
Lady Grey	LDV (Bakkie)	HNZ 722 EC	Nissan NP300	2018	Operational
Lady Grey	Cage truck	FKR 791 EC	Isuzu Capstar	2008	Not operational since Jun 24
Lady Grey	Tipper truck	FHM 952 EC	Hino	2008	Not operational since May 24

Lady Grey	Tractor	TBC	TBC	TBC	Not operational
Lady Grey	Trailor	TBC	TBC	TBC	Not operational. Not licensed
Sterkspruit	RE Compactor	HGD 559 EC	Isuzu	2015	Not operational
Sterkspruit	Cage truck Tipper	HRG 915 EC	Nissan UD80	2015	Not operational since Apr 2024
Sterkspruit	Cage Truck	KHD 517 EC	Fuso	2023	Operational
Sterkspruit	LDV (Bakkie)	HJK 709 EC	TBC	TBC	Operational
Barkly East	Front end Loader	-	-	2023	Operational
Barkly East	Tipper Truck	TBC	TBC	2023	Operational
Barkly East	LDV (Bakkie)	KKS 819 EC	Isuzu	2024	Operational
Barkly East	Tactor	FJT 447 EC	TBC	2010	Operational
Barkly East	Trailor	DRD 568 EC	TBC	2014	Operational but not licensed
Barkly East	RE Compactor	FZV 476 EC	Isuzu 16V	2012	Not operational since 2022
Barkly East	LDV (Bakkie)	JTB 202 EC	Toyota Hilux	2020	Not operational since Apr 24
Barkly East	Landfill Compactor	-	-	TBC	Not operational
Rhodes	Tactor	FJT 486 EC	Landini Solis 90	2009	Operational
Rhodes	Trailor	TBC	-	TBC	Operational
Rhodes	LDV (Bakkie)	TBC	Isuzu	2024	Operational
Rhodes	LDV (Bakkie)	HJK 706 EC	Nissan NP300	TBC	Not operational since Sep 23

LDV, KKS819EC, Barkely East

Tractor, FJT 447 EC, Barkely East

	
Front end loader	Landfill compactor, Barkly East Landfill

Figure 35: Waste management fleet allocated to Barkly East

	
Tipper truck, ECF 882 EC, Lady Grey	LDV Bakkie, HNZ 722 EC, Lady Grey

Figure 36: Waste management fleet allocated to Lady Grey

	
RE Compactor, HGD 559 EC, Sterkspruit	Cage truck, KHD 517 EC, Barkly East

Figure 37: Waste management fleet allocated to Sterkspruit

	
RE Compactor, HGD 559 EC, Rhodes	RE Compactor, HGD 559 EC, Rhodes

Figure 38: Waste management fleet allocated to Rhodes

There are currently no fleet for servicing the new landfills at Herschel and Rossouw. The SLM requires vehicles to service these sites.

The SLM does not operate a functional workshop for servicing and maintaining its fleet or vehicles; all maintenance and repairs are outsourced. This introduces delays into the system as the procurement process is slow.

5.1 Awareness and Community Engagements

5.1.1 Waste Awareness Campaigns

The SLM runs a waste management awareness programme focusing on schools and communities, the purpose of which is to make people aware of the need to manage waste appropriately. The campaigns are educational but also include community clean-ups. Campaigns are run in each town once per quarter and each campaign engages with two schools. Hence each town has 8 school engagements annually. A key issue regarding awareness raising is the lack of records. Records of the campaigns are kept however most records lack information such as date of the campaign, which schools were engaged, the number of pupils engaged, and the material covered. No summary list or database of the campaigns exist. The development of a three-year education and awareness plan, which was required under the previous IWMP (Senqu LM, 2013) has not yet been developed. See Figure 39 for examples of awareness campaigns.

5.1.1 Complaints Management System

Waste-related complaints are managed on a case-by-case basis, and the central switchboard emails the WMO if a complaint is raised. The SLM does however not keep a formal register for waste-related complaints, and hence no documentation of complaints raised in the last five years was available.

Figure 39: A) Town cleaning campaign in Zwelitsha & Sterkspruit, ward 10 (Dec 2019). B) School awareness at David Ross Arts Academy, ward 14 (not dated). C) Community education in Rhodes, Zakhele Township, ward 15 (not dated). D) School awareness at Transwilger, ward 14 (not dated).

5.2 Waste Management By-Laws

The SLM has waste management by-laws (Senqu Municipality, 2019) that were gazetted in 2019. The by-laws define numerous aspects of waste management including:

- Requirements to pay tariffs for municipal waste services
- Appropriate receptacles for the storage of waste
- Requirements for waste transporters to register with the SLM
- Duties to prevent litter and illegal dumping
- Prohibiting the burning of waste on private or public land

- Powers held by the SLM for compliance monitoring and law enforcement regarding waste
- A list of waste-related offences, and appeals mechanisms.

5.2.1 Enforcement of By-Law

The enforcement of waste management by-laws is poor. The SLM has 6 peace officers that sit within the Community Services Department and who are tasked with policing the SLM's by-laws. None of them have been specifically allocated to waste management issues. The SLM indicated that while warnings have been issued for waste management infringements, the municipality has never issued a fine for such. There are no designated EMIs in the municipality.

5.3 Institutional Management

5.3.1 Waste Management Officer

The SLM has designated a WMO, on 16th January 2019. The waste management role is contained within the Community Services department.

5.3.2 Organogram

There municipality's waste organogram is presented in Figure 40. It was noted that despite recently filling some posts, there is a shortage of general waste workers to undertake street sweeping, particularly in Lady Grey.

5.3.3 Training of Staff

A lack of training was highlighted as a key issue for staff in the SLM waste department. The majority of the staff interviewed indicated that they had not received any training relating to waste management and had learned about waste management on the job.

5.3.4 Inter-departmental Operations

It was noted that there are challenges regarding inter-departmental communication within the SLM which hampers the development of cross-cutting infrastructure such as waste management facilities.

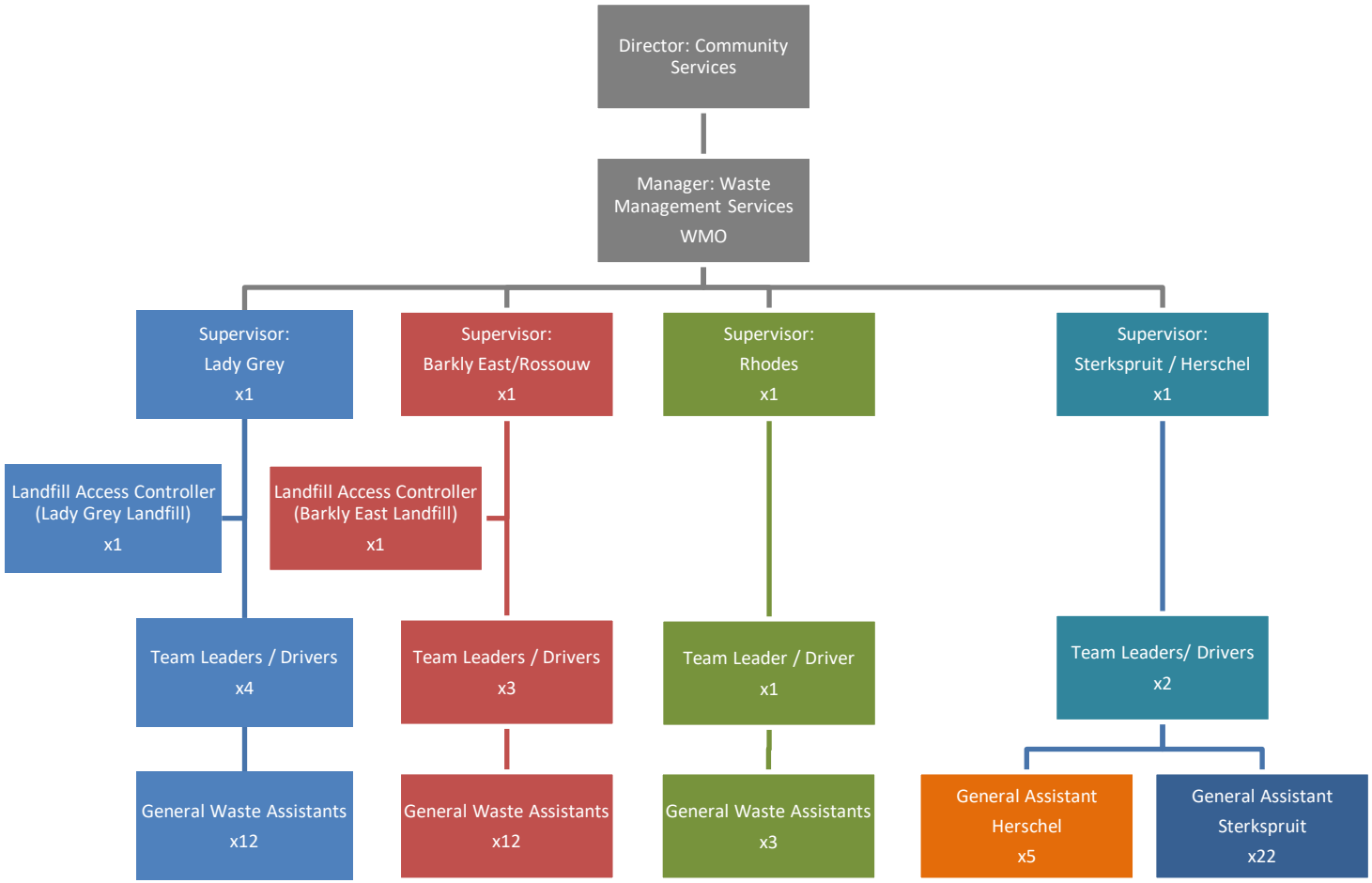


Figure 40: The SLM Waste Department Staff Organogram applicable at the time of the report.

5.3.1 Engagement with Provincial and District authorities

The SLM engages with the provincial and district waste authority through the following mechanisms:

a) Provincial Authorities

The DEDEAT confirmed that it actively engages with the SLM regarding waste management including:

- Undertaking audit inspections of landfills to confirm compliance. The DEDEAT noted that the lack of operational fleet was a significant hinderance to the correct operation of landfill sites;
- Assisting with the revision of bioregional plans;
- Non-compliance issues: The DEDEAT indicated that it had issued the SLM with letters requesting urgent remediation of certain sites, but no formal compliance notices have been issued to the SLM to date; and
- Provincial and district waste management officer's forum meetings are held on a quarterly basis. The SLM does attend the forums, and these are important for knowledge sharing.

b) District Authorities

The JGDM confirmed that it engages with the SLM regarding waste management thought following:

- The JGDM audits landfill sites and monitors illegal dump sites in and around urban areas; and
- The JGDM engages with the SLM around certain awareness campaigns.

5.4 Financial Management

An understanding of the operational and capital costs of waste management is key for ensuring correct financing of waste management. When considering the financing of waste management operational costs, capital costs, recapitalisation costs and rehabilitation costs all need to be considered.

5.4.1 Costs and Revenue

The SLM has a high rate a high poverty, estimated by the SLM to be approximately 85%, hence the base of rate payers is small (no. 5894).

Table 34: The number of registered waste services customers in the SLM.

Tariff	Tariff Description	Number of customers
R001	Waste Disposal – Residential	5616
R002	Waste Disposal – Commercial	199
R003	Waste Disposal - Government	80
TOTAL		**5894**

The SLM has 2,642 households registered as indigents for waste removal represents a monthly cost of R576,140 to the SLM.

The waste management revenue stream is further compromised by low levels of revenue recovery, approximately only 29% of billed amounts are paid, largely due to the high poverty levels and the fact that most customers reside in townships.

The SLMs refuse removal tariffs (see Table 35) include rates for different services such as weekly kerb-side collection, collection of garden refuse, collection of CDW and cleaning of erven. Tariffs have not been informed by a full cost accounting exercise, but rather have historically simply been increased by approximately 6% annually.

Table 35: Waste-related tariffs for the Senqu Local Municipality for the last four years.

REFUSE REMOVAL TARIFFS & CHARGES 2023/2024				
Increase approximately 5.8%				
All tariffs exclude VAT				
Standard interest rate prime + 1% would be charged on all late payments				
Tariffs are applicable throughout SENQU municipality unless indicated otherwise				
	Tariff 2020/2021 " R"	Tariff 2021/2022 " R"	Tariff 2022/2023 " R"	**Tariff 2023/2024 " R"**
	EXCL VAT	EXCL VAT	EXCL VAT	EXCL VAT
Domestic Consumers (per month for one removal per week)	151.20	160.27	169.89	**179.74**
Additional removal (per load or part thereof)	151.20	160.27	169.89	**179.74**
Commercial Consumers (per month for two removals per week)	323.60	343.01	363.59	**384.68**
Additional removal (per load or part thereof)	323.60	343.01	363.59	**384.68**
Public Service Purpose Departments (Schools, hotels, SAPS, prison, hospitals, etc) (per month for two removals per week)	1 918.70	2 033.82	2 155.85	**2 280.89**
Additional removal (per load or part thereof)	323.60	343.01	363.59	**384.68**
Garden Refuse (per load) (to be paid in advance)	323.60	343.01	363.59	**384.68**
Building Rubble (per load) (to be paid in advance)	561.00	594.66	630.34	**666.90**
Cleaning of erven	323.60	343.01	363.59	**384.68**

The SLM currently does not charge for the disposal of waste at its landfill sites, although it is planning to introduce this in the future. The waste management function operates at a significant loss, will revenue generated from the waste management service only covering approximately 35 – 37% of the operational cost of the service (see Table 36).

Table 36: Operational costs vs revenue generated from waste-related services for the SLM. Revenue covered only 35% of the OPEX costs in the last two years.

Type	2020 Per AFS	2021 Per AFS	2022 Per AFS	2023 Per AFS	2024 Per AFS
OPEX	33 901 287.64	32 003 326.24	33 246 978.00	36 990 229.81	40 676 894.83
REV	-14 239 177.63	-11 256 411.86	-12 600 388.02	-13 277 273.80	-14 383 010.15
Grand Total	**19 662 110.01**	**20 746 914.38**	**20 646 589.98**	**23 712 956.01**	**26 293 884.68**

Commercial businesses in town centres generally receive more than one collection per week, sometime more, but the nature and number of bins used varies significantly between businesses. The municipality has not undertaken a comparison of the billing schedule (for businesses) and the actual collection service rendered to confirm if businesses are paying the correct tariffs.

5.4.2 Budgets

Table 37 below presents a summary of the approved budget for waste management for the next three years. The following is noted:

- The SLM typically spends approximately R1 million on waste-related CAPEX annually and R22 million on OPEX costs.
- The funding of the Sterkspruit landfill site is a significant cost (R18 million) and has been budgeted for in the 2026/27 financial year.
- The SLM has usually held a CAPEX budget that is approximately 5% of the OPEX budget. The proposed budget for 2026/27 deviates from this with the funding of the Sterkspruit landfill.
- Waste collection is the largest cost to the municipality (more than half of the operating budget).

Table 37: Budget for the SLM Waste Department for the next three years

	SPEND	2024/25	2025/26	2026/27
CAPEX	Office equipment	52 500	47 523	-
	Receptacles	200 000	181 042	177 792
	Solid Waste Site Sterkspruit	-	310 415	18 400 096
	Construction Rhodes TS	-	715 623	-
	Chainsaws	350 000	-	-
	Weed eaters	350 000	-	-
		952 500	1 254 602	18 577 888
OPEX	Recycling	17 484	18 358	19 276
	Solid Waste Disposal (Landfill Sites)	1 007 135	933 429	1 065 575
	Solid Waste Removal	13 326 456	11 572 847	11 993 110
	Street cleaning	8 474 392	8 526 220	8 939 641
		22 825 467	21 050 854	22 017 602
TOTAL		**23 777 967**	**22 305 456**	**40 595 489**

5.4.3 Provision for Closures and Rehabilitation

The SLM has made provision for the future closure of its landfill sites. The expected costs are shown in Table 38.

Table 38: Landfill closure provisions

Landfill Site	Provision balance (Jun 2024)	Expected Rehab Date (as of 2024)	Expected Rehab Cost
Barkly East	R 7,174,725	2035	R 13,317,498
Lady Grey	R 3,764,092	2032	R 5,902,260
Sterkspruit	R 5,176,213	2029	R 6,050,925
Rhodes	R 7,969,203	2029	R 9,315,894
Rossouw	R 3,029,680	2029	R 3,541,657
Sterkspruit post-closure	R 72,565.91	-	-

Through engagements with SLM, the following was noted with regard to income from waste collection services:

- The SLM has not undertaken a full cost accounting exercise to determine the full cost of their waste services and if their tariffs are appropriate. The WMO did however indicate that the SLM intends doing this.
- The SLM is currently not fulfilling all license requirements for its landfill sites and has not budgeted for the extra costs required to reach compliance.
- The SLM increases its tariff structure based on a set annual increase of 6% and hence do not reflect the true cost of the waste service.
- The SLM revenue base is extremely small and the waste service is only self-funded (through waste services) to approximately 35%. The small revenue base is due to a high level of indigent customers, and a low recovery rate from paying customers. The SLM likely has little recourse to enforce payment of rates because the cost of basic legal services (e.g. a legal letter) per defaulter usually exceeds the amount owed.
- As is the case for most rural municipalities, the SLM is falling short of being able to fund its waste management services through the generation of waste revenues and is heavily reliant on cross subsidisation and grant funding. In recent years, changes in legislation have increased waste-related performance requirements for municipalities such as the provision of recycling facilities, weekly refuse collection services, landfill operating requirements as well as higher costs of provision of plant and equipment. These increases often outstrip the rate at which tariffs, or rates can be increased. A further factor which negatively impacts on funding of waste management services is that much of the funding available (equitable share) is prioritised for other social areas (e.g. housing). It is thus challenging for smaller municipalities to fund the provision of waste services and equally challenging to introduce or increase tariffs to the necessary levels.

5.5 Conclusion of Situation Analysis

This situation analysis has described the waste management practices as they are currently found in the SLM. While the SLM has made progress in certain aspects, many aspects fall short when compared to regulatory and license requirements. The section that follows outlines these gaps in more detail.

6 GAP AND NEEDS ASSESSMENT

During the development of this IWMP a number of gaps and needs in the SLM's waste management system were identified. Gaps and needs were identified based on interviews with SLM employees (a total of 6 SML staff within the Community Services department were interviewed), interviews with other stakeholders, inspections of fleet and facilities, and a review of legislation and best practice guidelines as well as a review of the SLM's IDP which mentions waste-related needs.

All the gaps and needs have been listed in Table 39 under the following common themes:

1. Refuse collection, transportation and disposal needs
2. Waste minimization, re-use, recycling and recovery
3. Organic waste management
4. Hazardous waste management
5. Illegal dumping
6. Waste management fleet and equipment
7. Waste management facilities
8. Waste information management
9. By-Laws and enforcement by-laws
10. Institutional functioning and financial management
11. Future planning
12. Education and awareness

Table 39 also presents the legislative requirements as they pertain to the different topics, as well as the noted gaps and the needs.

Table 39: Waste management gaps and needs

Legislated Requirements/ Best Practice	Gaps	Needs
1. Refuse collection, transportation and disposal needs		
• The NWMS requires 95% of households to have access to adequate levels of waste collection services in compliance with the DWCS. Non-recyclable waste must be collected weekly from households as a minimum. • The National Policy for Provision of Basic Refuse Removal Services to Indigent Households (GN 413 of 2011) requires municipalities to provide free receptacles for waste storage to indigent houses.	• Only 49.4% of the SLM residents receive a kerbside collection service and there is no collection service in rural areas, which leads to burning and burying of waste in such areas. There is an intention to extend the collection service (e.g. in the Sterkspruit area specifically) however nothing regarding this is documented.	• A documented response plan, that details how the SLM proposes to respond to the issue of collection services in rural areas, is needed. This should include defining the extra staff and vehicle needs.
	• Some CBD areas are receiving two collections per week. It was indicated that this is due to historical patterns of collection.	• The SLM needs to review collection frequency and consider whether two collections per week is needed. This could present a cost saving opportunity if not needed.
	• The SLM does not distribute black bags to residents due to the SLM's financial constraints. Low-income communities are not able to store waste appropriately for collection because they cannot afford black bags.	• The SLM needs to consider the provision of black bags or wheelie bins to low-income communities.
2. Waste Minimisation, Re-use, Recycling and Recovery		
• The NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% diversion by 2035. Note that previous targets such as Operation Phakisa (which set a target of 50% diversion of municipal waste by 2023) have already been in existence. • The 2020 NWMS indicates that recycling streams should be prioritised as follows: organics waste, traditional recyclables (paper, plastic, glass etc) and CDW. • The NWMS requires all municipalities	• Waste minimisation and recycling is underdeveloped in the SLM area. The SLM does not directly operate or fund any waste minimisation or recycling programmes, however they do make some recycling facilities (sorting area and caged storage areas) available at landfill sites for cooperatives to utilise. The SLM has worked with the cooperatives to encourage recycling but most of the cooperatives have collapsed. The coops operating at the landfill site do so without control or any written contract, requirements or performance standards.	• The SLM to formalise relationship with cooperatives with contracts or MOUs. The operation of cooperatives at the landfills should be in terms of an agreed list of requirements (ideally contract).
	• The SLM has developed a MRF at the Hershel landfill site, however no other "public-facing" recycling facilities (e.g. drop-off facilities) exist in the SLM. The recycling "lean-to" facilities at Barkly-East and Lady Grey are not accessible to the public for drop-off (usually remained closed and locked).	• The SLM needs to establish infrastructure (e.g. Community recycling drop-off centres) that facilitates the collection or drop-off of recyclables by the public. One per town should be a minimum. This initiative should be commenced with a feasibility and site selection study.

Legislated Requirements/ Best Practice	Gaps	Needs
to include provisions for drop-off/ buy-back centres in their IWMPs. • The Waste Act requires municipalities to put in place measures that seek to reduce the amount of waste generated, and where generated, measures to ensure that it is re-used, recycled and recovered, treated and disposed of. • The 2020 NWMS specifically notes the need to beneficiate CDW through its use as landfill cover, crushing or creating bricks, and use as aggregate in road construction		• The recycling "lean-to" areas at the landfill site should include public-facing drop-off bins for recyclables.
	• There is a lack of monitoring and control over the operations of the cooperatives. Some of the coop operations, such as that near the Lady Grey landfill, have become problematic and have strewn waste over a large area. There appears to be no monitoring of the cooperative's operations.	• The operation and performance of the coops needs to be better monitored. A system of monitoring and control of cooperative activities should be implemented. • Data regarding waste tonnages recycled must be gathered from the cooperatives and stored in a database.
	• The SLM does not operate any in-house municipal recycling programme for the recyclables (e.g. office paper) that they generate. This is an important step towards developing a culture of waste minimisation with the SLM itself.	• An in-house recycling programme should be implemented. This is an important step towards developing a culture of waste minimisation with the SLM itself.
	• There is currently no beneficiation of CDW in the SLM. The use of CDW as landfill cover is one of the simplest forms of beneficiation, however this is not being practiced.	• The SLM needs to change its approach to CDW management. At present it is viewed as an inert material that consumes landfill space unnecessarily and therefore can be dumped illegally. The SLM needs a licensed facility, at each town, for the receiving of CDW.
3. Organic waste management Diversion of organic waste from landfill sites is required in order to reduce negative impacts and meet legislated targets.		
• The NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% diversion by 2035 (this includes organic waste) • The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) – 25% diversion rate of garden waste from landfill by 2018 and 50% by 2023.	• At present all the organic waste collected in the SLM is disposed of at landfill. The SLM does not have any composting facilities for the diversion of organic waste from landfill.	• At a minimum, a small composting facility should be considered at each of the larger towns (Sterkspruit, Lady Grey, and Barkly East) for receiving green waste generated in the towns. An associated mobile chipper should be secured.
	• The SLM does not run any community-focused composting initiatives.	• The distribution of home composting containers could be considered as a pilot project. • School composting competitions should be considered.
4. Hazardous Waste Management Although local municipalities are not responsible for the management of hazardous waste generated by business and industry, they do need to manage hazardous waste generated by households.		
• The National Domestic Waste	• There are no municipal facilities for household hazardous	• The development of drop-off facilities for domestic

Legislated Requirements/ Best Practice	Gaps	Needs
Collection Standards require municipalities to provide communal collection points for non-mainstream recyclables such as batteries and fluorescent tubes for collection by a private service provider. • The 2020 NWMS sets a target of 10% reduction in hazardous waste in general landfills.	waste.	household hazardous waste (spend oil, fluorescents tubes, e-waste etc) is preferable, and the SLM could consider these in the future. In the interim waste awareness campaigns should include household hazardous waste and advise residents how best to manage it.
5. Littering and Illegal Dumping		
• The 2020 NWMS notes that access to municipal infrastructure should be increased e.g. skips to discourage illegal dumping; public bins should be supplied, and municipalities should be cleaning streets, particularly in commercial districts. • The 2020 NMWS states that "Measures to reduce illegal littering and dumping are to be included in all integrated waste management plans and should include targeted awareness and community participation in waste management and prevention of littering	• The SLM has not quantified the number and size of illegal dumping hotspots in its area nor quantified the clean-up costs. The following hotspots are however known: • a) Rossouw illegal dump • b) Barkly East CDW dumping area • c) Lady Grey CDW dumping area	• An exercise of identifying, mapping, and quantifying the size of dumping hotspots, needs to be undertaken.
	• The persistent use of the two large CDW dumping hotspots continues to attract dumping of other wastes such as domestic waste.	• These hotspots are to be closed and rehabilitated.
	• The money spent on cleaning up illegal dumps is not quantified and hence the SLM does not know how much is spent on cleaning up illegal dumping.	• Cost associated with cleaning up illegal dumping should be quantified to understand the true cost of the issue.
	• High rates of illegal dumping of waste occur in certain areas such as adjacent to the Lady Grey landfill.	• Access to these area needs to be formally closed to prevent such dumping.
	• There is a shortage of street bins in the towns • There is no register of street bins in the towns (to record the number, type or condition of bins) and no replacement register exists. • Bins are not standardised in design. There is no set standard specification for the street bins deployed.	• The SLM needs to compile a register of current street bins and track replacement needs. • The design of waste bins deployed should be standardised. As bins are damaged or stolen, they should be replaced waste bins which are durable and easy to empty.

Legislated Requirements/ Best Practice	Gaps	Needs
6. Waste Management Fleet and Equipment A well-managed and properly equipped waste management fleet is key to provision of waste management services. In addition to a well-maintained operational fleet a municipality should also have a backup fleet for use in the event of breakdowns.		
The National Domestic Waste Collection Standards (GN 21 of 2011) requires that all vehicles in the waste management fleet are roadworthy, and that waste is transported in closed vehicles.	General: • There is a shortage of functional waste collection fleet in the SLM, and vehicle shortage is deemed the main reason for not being able to provide a constant, regular collection service. • The SLM has very limited workshop capacity meaning that repairs need to be outsourced. It was indicated that this has introduced significant delays into the repair process and that repairing a tractor tyre can take up to 3 weeks.	• Further rear-end compactor trucks are required. The towns of Sterkspruit, Lady Grey and Barkly East should be provided with at least one functional rear-end compactor at all times, together with one required backup. • A portion of the waste tariff should contribute to a ring-fenced recapitalisation fund for waste collection fleet and equipment. • The SLM needs to consider the introduction of an appropriate level of in-house workshop capacity to streamline the repair process.
	Barkly East: • There is no skip truck for the lifting of the communal skips in Barkly East. • The landfill compactor at the Barkly East Landfill site was not operational at the time of this report, and hence waste and cover material was not being correctly managed at the site.	Fleet needs for Barkly East: • Skip truck • Repair of the existing landfill compactor • New rear-end compactor truck
	Lady Grey: • There was no functional rear-end compactor based at Lady Grey at the time of this report, and collections were done via cage truck. • No machinery for the management of waste on the Lady Grey landfill was present.	Fleet needs for Lady Grey: • New rear-end compactor truck • Landfill compactor
	Sterkspruit: • There was no functional rear-end compactor based at Sterkspruit at the time of this report, and collections were done via cage truck. Fleet capacity for Sterkspruit is especially important considering that Sterkspruit has no functional landfill at the moment and all waste is being	Fleet needs for Sterkspruit: • New rear-end compactor truck • There are intentions to extend the collection area in Sterkspruit to the more rural parts of the town. Two collection trucks (rear-end compactor) are needed to accommodate the expansion.

Legislated Requirements/ Best Practice	Gaps	Needs
	transported to Lady Grey	
	Rhodes • Collections are currently undertaken with an aging tractor which will need to be replaced. • The intention is for a transfer station to be developed at Rhodes. A skip truck will be required in order to service the TS.	Fleet needs for Rhodes: • One new cage truck for Rhodes • One skip struck to service proposed transfer station.
	Herschel: • No collection vehicles assigned • The newly developed landfill site at Hershel will require machinery for the placement of waste and cover material.	Fleet needs for Hershel • At least one collection vehicles needed (compactor or cage truck) • Landfill compactor/front-end loader for Herschel landfill site.
	Rossouw: • No collection vehicles assigned • The newly developed landfill site at Rossouw will require machinery for the placement of waste and cover material.	Fleet needs for Rossouw • One skip struck to service proposed skip to be placed at Rossouw • Landfill compactor/front-end loader for Rossouw Landfill site.
7. Waste Management Facilities		

Legislated Requirements/ Best Practice	Gaps	Needs
The NWMS requires that all municipalities' landfill sites and transfer stations are compliant with their licence conditions.	The existing landfill sites have a number of operational challenges and are not compliant with license conditions. For example: • Sterkspruit landfill: use of the site has been suspended but the site has yet to be formally closed. It has no valid license for closure exists (expired). No stormwater control and no water monitoring is being undertaken. • Lady Grey landfill: the license status is unconfirmed (license cannot be found), access road is in poor condition, weighbridge is not functioning, waste is not being covered and no water monitoring is being done. • Barkly East Landfill: weighbridge is not functioning, and no water monitoring is being done. Insufficient cover material is being applied and the leachate pond is in poor condition. • Rhodes Landfill: The site is not a formal, licensed facility and access is not controlled. • Herschel landfill: a diversion berm should be installed upslope of the leachate pond to protect it from surface runoff.	• A review of all infrastructure and operational needs should be undertaken and corrections made. • An intentional drive should be spearheaded by the SLM to ensure that all existing landfill facilities are compliant with their licence conditions
	• The operation of the Sterkspruit landfill site has been suspended and waste is being transported to Lady Grey. A new landfill site has been purpose for Sterkspruit, but the planning thereof has been delayed due to site selection, geotechnical and land issues. • No feasibility assessment of landfilling versus establishment of a transfer stations in Sterkspruit has been undertaken.	• The development of a landfill site at Sterkspruit is to be reconsidered through a cost comparison of landfill development versus development of a transfer stations. The 2013 IWMP noted that a transfer station may be better suited for Sterkspruit. A transfer station may be a better option for Sterkspruit especially considering that commissioning of the Herschel landfill is imminent, and it is located with approx. 25km of Sterkspruit.
	• No internal audits are being undertaken at any of the existing landfill sites.	• A programme of regular internal audits needs to be implemented across all landfill sites. These should be undertaken by the WMO or relevant departmental official.
	• No external audits are being undertaken at any of the existing landfill sites.	• External compliance audits must be undertaken, as per the requirements of the relevant licenses.

Legislated Requirements/ Best Practice	Gaps	Needs
	• The SLM does not have facilities for the formal disposal of CDW and the LM is not accepting CDW at its licensed landfill. This is resulting in illegal dumping of CDW. Informal, illegal dumpsite are being used for CDW disposal at Fairview, Barkly East and at Lady Grey. • A culture of illegal dumping of CDW outside of formal landfill facilities is prevalent. There is a lack of planning regarding appropriate management of CDW in the SLM.	• These illegal CDW dumping areas are to be closed and rehabilitated and CDW diverted to licensed facilities. • The SLM is to begin accepting CDW at their landfill sites and source the correct machinery at landfill sites to management this waste stream. • Existing landfill sites should be extended (subject to a licensing process) to include: a) a facility for receiving and basic segregation of CDW. Sufficient space should be provided to accommodate the possible future use of CDW mobile crushers as and when these may be needed. b) a Class D waste cell for receiving CDW. CDW that is suitable for use as cover material should be used as such and CDW that is not suitable, should be disposed of in a Class D cell. This will ensure appropriate disposal of CDW, and the preservation of existing Class B airspace for domestic waste.
	• The SLM is not undertaking landfill airspace determinations, hence the rate of airspace use is not known.	• The SLM needs to develop a routine of undertaking airspace determinations.
	• HCRW has intermittently been detected at the SLM landfills, although this has in recent times improved.	• The Department of Health manages its HCRW via a private service provider. The SLM should however continue to engage with DOH to ensure systems are in place to prevent HCRW disposal at the SLM's landfills.
8. Waste Information Management In order to effectively plan for waste management services a knowledge of waste generation quantities and types is required.		
• The 2020 NWMS specifies that all LMs improve collection, reporting and dissemination of information on SAWIS. • The National Waste Information Regulations (GN 625 of 2012) require actual data, not estimates to be	• The SLM is no longer reporting waste tonnages to the SAWIS. It stopped reporting in 2019 because the interface was found to not be user friendly.	• The SLM needs to continue to report on SAWIS.
	• The SLM does not have a "fit for purpose" method for sourcing, digitising, and storing waste-related data and records. Information is not being stored electronically in a manner that allows for easy retrieval. Some key records e.g. WMO designation letter, were not available at the time of the site	• The SLM needs to develop a register of all waste-related data that is to be generated, sourced and saved. A system for sourcing, collating and storing this data should be documented and implemented. • Information for key metrics must be collected and

Legislated Requirements/ Best Practice	Gaps	Needs
submitted on SAWIS.	visit.	stored in a database. This includes waste disposal tonnages, recycling rates, organic waste diversion rates, and awareness information such as the number of awareness interventions undertaken.
	• The installed weighbridges at the Lady Grey landfill site and Barkly East landfill site were not operational at the time of this report, as they required calibration. Hence current waste records are based on visual estimates. As such there are no accurate records to accurately quantify disposal or diversion rates.	• The SLM needs all weighbridges to be calibrated, repaired and in working condition.
	• Record keeping regarding landfill disposal records is poor. The waste records are kept on hardcopies at the landfill sites, and not captured digitally. This prevents the data from being analysed. Only summary waste tonnage figures are provided to the WMO, meaning the WMO hold no detailed information. In some cases, this information is held by security companies guarding the landfill and was not retrievable.	• The waste records kept need to be captured digitally (to allow for ease of use) and the data analysed. All detailed waste tonnage information must be retained by the SLM and readily accessible.
	• The waste records presented in the quarterly tonnage reports do not differentiate between domestic, garden or C&D waste. Simply one value (domestic) is presented for the month. It is therefore not possible to determine, from these records, how much domestic and how much commercial, CDW, industrial waste or green waste is generated.	• The SLM needs to differentiate between the type of waste entering its landfill sites in its record keeping. • Training on the identification of waste types should be provided to access controllers.
	• No recycling tonnages data is being collected from the cooperatives and private recycling companies in the municipal area.	• The quantity of waste being recycled through cooperatives must be recorded by the coops and provided to the SLM, and stored digitally so the SLM can determine the success of the cooperative programmes. • The SLM needs to collect recycling data to allow it to calculate percentage diversion from landfill.
	• No recent waste characterisations have been undertaken other than the one for this IWMP. A waste characterisation waste last undertaken as part of the 2013 IWMP exercise.	• Domestic waste characterizations need to be undertaken at least once a year.
	• The SLM holds no information regarding the tonnages of HCRW	• The SLM should liaise with the DOH and private clinics

Legislated Requirements/ Best Practice	Gaps	Needs
	generated in its jurisdictional area, and the means of treatment or disposal thereof.	to determine the quantities of HCRW generated.
9. Enforcement In order to effectively regulate waste management a municipality needs to have comprehensive waste management by-laws which are actively enforced.		
• The 2020 NWMS states that "Local government authorities to regularly report their compliance and enforcement activities as a condition to their designation as EMIs"	• The enforcement of waste by-laws has been poor. The SLM peace officers have never issued a fine (only warnings) for waste infringements. • There are no dedicated peace officers that focus on waste management (aka waste rangers).	• At least one waste peace office aka waste ranger, or compliance officer (as defined in section 27 of the waste management by-laws) should be appointed and trained on the waste management by-laws to enforce the by-laws, particularly for littering and illegal dumping.
	• The waste management by-laws are in place (revised 2019) however the SLM indicated that there had been challenges against the fine schedule (by "local magistrate") who had requested the fine tariffs be revised. No fines are being issued until the fine schedule is finalised.	• The fine schedule issue needs to be resolved.
	• There are no designated EMIs in the SLM, meaning they cannot implement enforcement ito NEMA. There was a previous initiative to train and designate EMIs in the SLM, but it collapsed.	• The SLM to reestablish initiative to obtain designated EMIs in the SLM.
10. Institutional Functioning and Financial Management A waste management department needs to have sufficient staff who are appropriately trained, experienced and capacitated to manage the department effectively.		
10.1 Financial Control and Tariffs		
• The Waste Act requires municipalities to keep separate financial statements including a balance sheet of services provided. • The EC IWMP requires all municipalities to complete full cost accounting exercises	• The tariff structure is not reflective of the actual cost of waste management services as a full cost accounting has not been undertaken. Tariffs are therefore simply increased annually by a set percentage. It is however understood that the waste service is currently making a significant financial loss.	• The SLM should conduct a full cost accounting exercise for the waste service provided to the public to determine the true cost of services provided. This will allow cost reflective tariffs to be determined.
	• The municipality has not undertaken a comparison of the billing schedule (for businesses) and the actual collection service rendered to confirm if businesses are paying the correct tariffs.	• Undertake an audit to identify gaps in the provision of services to business and determine if businesses are paying for the full service received.
	• The SLM has waste tariffs in place for collection service but not for disposal at the landfill sites.	• The SLM should consider a system for charging for the disposal of waste at landfills.

Legislated Requirements/ Best Practice	Gaps	Needs
10.2 Staff Management		
• The Waste Act requires that a waste management officer is designated for each municipality.	• There is a shortage of technical skills in the waste management department of the SLM. Skills in short supply include planning skills, general waste management principles, landfill management, computer skills and basic data management skills. • There has been no technical training of staff in recent years and there is no staff training plan in place.	• A training plan needs to be developed and implemented for the Waste Department. The training needs will differ between different positions and areas of responsibility. • Training needs to be undertaken as per the training plan and progress monitored. • Training on waste data management is needed.
	• A number of the positions in the lower levels of the organogram are vacant. There is a shortage of general workers and street sweepers in the department. There are vacancies that do not get filled, especially general workers. People that are retired or passed away are not always replaced.	• Vacant positions need to be filled • The need for new positions to be created, especially at the level of general workers and street sweepers, should be assessed.
11. Future Planning Future planning is essential in ensuring that a waste management service can meet the changing requirements of a municipality and comply with changing legislation and best practice guidelines.		
11.1 Integrated Waste Management Planning		
• The Waste Act requires that the IWMP is submitted to DEDEAT for endorsement, is incorporated into the IDP and that annual reports of the IWMP implementation are undertaken. • The 2020 NWMS sets a target that all LMs develop and implement of 5-year IWMPs and report on SAWIS. • The 2020 NWMS requires annual reporting on the Implementation of IWMPs • The 2020 NWMS also requires the regional planning of waste management infrastructure such as	• Regular revisions of the IWMP have not been undertaken. The review of the 2013 IWMP has been 6 years overdue. The reason for this was reported as being due to financial constraints. This is now being rectified through this latest review.	• Budgets need to be made available for reviews on a 5-year cycle going forward.
	• No annual performance reviews were undertaken on the 2013 IWMP. The NWMS requires annual reporting on the Implementation of IWMPs.	• Once the 2024/2025 IWMP is finalised the SLM needs to ensure that annual performance reports are prepared and submitted in line with the Municipal Systems Act (Act 32 of 2000).
	• The goals and targets in the 2013 IWMP have not all been incorporated into the IDP planning process.	• All the key goals and targets set in this latest IWMP should be incorporated into the IDP and according to their time frames. Where annual budgets are limited, the SLM should implement high priority projects first.
	• There appears to be a lack of a cohesive strategic planning for waste facilities across the SLM. The Rossouw facility has been constructed as a landfill site, but the SLM has indicated that	• The SLM would benefit from a waste infrastructure plan which considers existing and future waste needs, transfer stations and distances to existing landfill sites

Legislated Requirements/ Best Practice	Gaps	Needs
landfills, MRFs and drop-off centres.	it may use the site as a transfer station only. A new landfill site is proposed for Sterkspruit however the possibility of replacing this with a transfer stations has not been considered via a feasibility report.	and landfill capacities, including the development of CDW cells.
12. Education and Awareness		
Educating the population regarding good waste practice is a vital function to be performed by the municipality	• The SLM does undertake awareness activities however there is no formal waste management awareness training plan/ calendar.	• The municipality should develop an annual waste awareness campaign schedule and implement this. The schedule can be developed in partnership with the district municipality, DEDEAT and the DFFE where applicable. • The municipality should consider undertaking school competitions on recycling and composting as method to promote waste awareness and waste minimisation.
	• The SLM does not use digital communication methods to support awareness efforts. There is no waste education and awareness information posted on the SLM website.	• The municipality should consider promoting waste management awareness through the use of digital means and social media.
	• Awareness raising regarding organic waste diversion is lacking.	• The SLM should consider composting facilities at schools and a competition for the best performing school. • The SLM should consider piloting a home composting project in one of the urban residential areas.
	• Record keeping regarding awareness campaigns is poor.	• Clear records of awareness activities are to be maintained.

Numerous gaps exist in the waste management operations of the SLM, as indicated in the table above. The five most significant of these are likely to be:

1. Lack of technical skills in the waste department;
2. A waste infrastructure master plan that informs the use of Rossouw Landfill and the development of an appropriate waste facility for Sterkspruit;
3. Landfill management, particularly legal non-compliance with landfill licensing conditions;
4. Lack of appropriate information management; and
5. The management of CDW in the SLM and illegal dumping thereof.

7 GOALS, OBJECTIVES AND ASSESSMENT OF ALTERNATIVES

For the purposes of this report the terms "goals", "objectives" and "targets" have been defined as follows:

- Goals: These are high order expressions of the key general outcomes that an organisation wishes to achieve. With regards to waste management, these could include, for example, improved legal compliance, improved institutional functioning, reduced visual impact of waste management, or an increase in waste minimisation. Because these are high order aspirations, goals at a municipal level may often mirror those of provincial or national government.
- Objectives: These are lower order statements than goals and should talk to more specific outcomes. They should however support at least one of the presented goals and contribute to the realisation thereof.
- Targets: Targets are very specific outcomes which, if achieved, would signal achievement of the objective. They indicate a desired level of performance.

The table below presents hypothetical examples of that discussed above.

Table 40: Examples of Goals, Objectives and Target terminology.

Goal	Objective	Target	Activities
Improve legal compliance	Improve the level of compliance in landfill audits	Minimum of 60% compliance	• All landfills to be audited internally annually • All landfills to be audited externally as per license requirements
Increase waste minimisation	Increase recycling	5% annual increase in recycling in the LM	• Develop a system for recording recycling figures • Collate annual figures of waste recycled in the municipal area • Implement a schools recycling programme

7.1 Goals for the Municipality

A total of seven goals were identified for the SLM. The development of these goals has been informed by the situation analysis and gap and needs assessment.

1. Effective waste information management and reporting
2. Improved waste education and awareness
3. Improved institutional functioning and capacity
4. Provision of appropriate and financially viable waste management services
5. Increased waste minimisation and recycling
6. Improved compliance and enforcement
7. Improved future planning.

Setting goals for the local municipality needs to take cognisance of the municipality's current standing and the tension between what the municipality should be doing (as directed by legal requirements, which are non-negotiable, policy guidelines, and best practices) and where the institution currently is in terms of functioning and capacity and what practically can be achieved in the next 5-year period. Hence the goals set in this exercise have prioritised those that are non-negotiable (e.g. legal requirements) and those that are deemed "the basics" of waste management, over those that are more aspirational in nature. The SLM has indicated that, for example, waste avoidance is one such aspirational aspect of waste management that they are not able to currently address until such a time as they are able to address all "the basics". The SLM is unlikely to have capacity to address such aspirational aspects during the 5-year cycle of this IWMP.

7.2 Alignment with National and Provincial Waste Management Goals

The 2020 NWMS and the ECIWMP, along with the status quo of waste management within the municipality were used to inform this IWMP's goals. The goals are listed below.

Table 41: Alignment of Municipality's Waste Management Goals with National and Provincial Goals

SLM Goals	ECIWMP Goals	2020 NWMS
Goal 1: Effective waste information management and reporting	Goal 4. Effective waste information management	Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 2. Improved waste education and awareness	Goal 7. Improved education, awareness, and waste information sharing	Goal 3. South Africans are aware of waste and a culture of compliance with waste management norms and standards exists, resulting in zero tolerance of pollution, litter and illegal dumping
Goal 3. Improved institutional functioning, financial management and capacity	Goal 1. Ensure sufficient institutional capacity to implement integrated waste management Goal 7. Improved education, awareness, and waste information sharing	Goal 1. Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment: Increase technical capacity and innovation for beneficiation of waste
Goal 4. Provision of efficient and financially viable waste management services	Goal 6. Provide effective and financially viable services	Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 5. Increased waste minimisation, re-use and recycling	Goal 3. Increased waste minimisation, re-use, recycling, and recovery	Goal 1. Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable: Separate Waste at Source
Goal 6. Improved compliance and enforcement	Goal 5. Improved waste facility management Goal 8. Effective compliance monitoring and enforcement	Goal 3. South Africans are aware of waste and a culture of compliance with waste management norms and standards exists, resulting in zero tolerance of pollution, litter and illegal dumping: Enhance capacity to monitor compliance and enforce the Waste Act and International Agreements
Goal 7. Improved future planning	Goal 2. Improved integrated waste management future planning	Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable: Effective Integrated Waste Management Planning

7.3 Objectives and Assessment of Alternatives

The following objectives and alternatives have been identified for the municipality. The preferred alternatives identified in this section will be taken forward into the implementation plan.

The no-go option (no change to status quo) can be applied to all the actions and targets listed below, but this would mean that no change is made, and the current situation is not improved. Considering that significant improvements to the current waste management system are required, the no-go option is not considered a viable option.

Table 42: Municipal waste management objectives and assessment of alternatives

Objective	Actions and Targets	Comments on Alternatives
Goal 1: Effective waste information management and reporting		
1.1 Accurate waste information is reported on the SAWIC on a regular basis. The municipality is aware of the type and quantity of waste generated in the municipality.	1.1.1 SLM to report waste information on the SAWIS.	There are no feasible alternatives to this project. The SLM has a legal requirement in terms of the National Waste Information Regulations to report on the SAWIS.
	1.1.2 Repair and calibrate weighbridges at the Lady Grey and Barkly East landfill sites.	There is no alternative to this project. In terms of the National Waste Information Regulations the SLM is legally required to submit actual waste tonnages (i.e. from a weighbridge) as of August 2017.
	1.1.3 Ensure those responsible for recording waste tonnages entering landfill sites (e.g. gate controllers) undergo training on how to accurately record the type and quantity of waste entering the site. Security company staff are not to be made responsible for the recording of waste data.	There is no feasible alternative to this project. Gate controllers require training to ensure that no prohibited waste types enter the facilities and that correct estimations are made of waste types and volumes entering the site.
	1.1.4 Domestic waste characterisations are to be undertaken annually. A representative sample is to be used from different suburbs across the municipality.	There is no feasible alternative to this project. Waste characterisations are required to determine changes in the domestic waste stream composition due to seasonal changes or influences from recycling and organic waste diversion initiatives.
	1.1.5 Municipality is to obtain and maintain recycling records. Currently the SLM receives no recycling data from coops and private recyclers in the SLM area.	There is no alternative to this project. The SLM needs to be aware of the recycling occurring in the municipal area. Currently the SLM does not hold recycling data from any of the recyclers (including coops) that are extracting recyclables from the municipal landfill sites.
1.2 Effective internal management of	1.2.1 Develop electronic systems for effectively	An alternative to this project could be to develop a manual filing system.

Objective	Actions and Targets	Comments on Alternatives
waste related data.	capturing and storing waste data sets and records e.g., waste tonnages to landfill, info regarding recycling and waste awareness campaigns, previous IWMPs, feasibility reports etc. Ensure such info is readily available and accessible.	This is not recommended as information needs to be readily available in a central location and there is a risk that hardcopy records can be lost. More importantly, data stored in hardcopy format cannot easily be interrogated. Information stored on electronic systems are also easily transferable when required.
	1.2.2 Develop an inventory of all internal waste related data sets.	There is no feasible alternative to this project. In order to manage information correctly the SLM needs to determine what information is generated related to waste management and to collate this information into a useable system.
Goal 2: Improved waste education and awareness		
2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns and strong focus to be given to schools.	2.1.1 Develop an annual waste awareness calendar.	There is no feasible alternative to this project. Waste awareness campaigns need to be planned to ensure all sectors of society are reached.
	2.1.2 Waste awareness campaigns are to be undertaken by trained and experienced personnel.	There is no feasible alternative to this project. In order for waste awareness campaigns to be undertaken successfully they need to be undertaken by personnel with experience in waste management.
	2.1.3 A standard reporting procedure for all waste awareness campaigns undertaken is put in place to record topics covered, audience engaged, number of persons engaged etc., including lessons learnt and follow up tasks to be undertaken.	There is no feasible alternative to this project.
	2.1.4 Incorporate the use of digital communication methods into awareness efforts.	The alternative is to not make use of digital methods however this would be a lost opportunity.
	2.1.5 Raise awareness regarding organic waste diversion. Organic waste diversion is not well facilitated in the SLM.	There is no feasible alternative to this intervention.
	2.1.6 Waste awareness campaigns to be undertaken at all schools in SLM.	There is no viable alternative to this project. Alternatives could however be considered in how the awareness campaigns are undertaken e.g. school recycling competitions vs lectures.
	2.1.7 A schedule of all schools and when they will be engaged through awareness campaigns, must be developed to ensure all schools are engaged.	There is no viable alternative to this project.
Goal 3: Improved institutional functioning and capacity		
3.1 The Waste Management Department has sufficient well	3.1.1 The Waste Department's organogram is to be reviewed to determine if sufficient positions are listed	The alternative to this project would be to outsource functions covered by vacant positions. This is not deemed as a suitable alternative as the

Objective	Actions and Targets	Comments on Alternatives
capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented.	to allow implementation of this IWMP. All vacant positions to be filled by qualified and experienced personnel.	SLM should focus on building expertise internally and the cost to outsource will likely be higher than to appoint employees.
	3.1.2 Waste education and awareness key performance indicators (KPIs) to be included into job descriptions of those responsible for such.	If not undertaken, employees may not have time available to adequately perform the additional role.
	3.1.3 Implementation of the IWMP to be added as KPIs to the Director of Community Service's / WMO's performance evaluation criteria.	An alternative could be to not have any KPIs relating to IWMP implementation, but this risks failure to implement the IWMP.
	3.1.4 Training schedule developed with training needs for employees at different levels identified.	There is no feasible alternative to this project. All employees require job specific waste management training.
Goal 4: Provision of appropriate and financially viable waste management services		
4.1 The SLM knows the true costs of waste management in the municipality allowing the LM to improve annual budgets and waste management. The municipality to keep separate financial statements including a balance sheet of services provided.	4.1.1 The SLM to undertake a full cost accounting exercise for waste services to determine the true cost of waste management services.	There are no feasible alternatives to this project. In order to ensure that the appropriate tariffs are being charged to residents, a full review of the finances of the waste management system are required. This review needs to consider all costs related to the provision of waste management services including operational costs such as salaries, fuel, consumables, capital costs such as upgrades to waste facilities and construction of new waste cells and rehabilitation costs for landfill sites.
4.2 Cost reflective tariffs are charged to residents and business.	4.2.1 The waste service tariff reviews are to be informed by a full cost accounting exercise.	There is no feasible alternative to this project. A review of the waste tariffs based on the outcome of the full cost accounting exercise is needed.
	4.2.2 The SLM should review the services provided to businesses and the tariffs charged to these businesses.	There is no feasible alternative to this project. The SLM needs to know if businesses are being billed for the actual services provided.
4.3 The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required.	4.3.1 Document and implement a fleet maintenance replacement policy.	The purpose of this action is to ensure the waste management fleet remains operational and in a good condition. An alternative would be to hire in fleet or outsource refuse collection, but this approach does not align with the LM's current programme of in-house waste collection.
	4.3.2 Secure a load-lugger / skip bin to service communal skip bins.	
4.4 Develop a plan to extend waste services to currently un-serviced areas	4.4.1 Develop a plan to extend waste services to currently un-serviced areas. He SLM has indicated that it is considering expanding collections around Sterkspruit, but this has not yet been documented.	There is no feasible alternative to this project. The SLM needs give thought to the need for the extension of waste collection services. Due to the largely rural nature of the municipality a kerbside collection service will not be viable in all areas, however developments on the

Objective	Actions and Targets	Comments on Alternatives
		edges of towns may be serviceable. The plan should assess different alternatives.
4.5 Budget is determined and allocated for the closure and rehabilitation of waste management facilities.	4.5.1 GRAP assessments of the landfill sites are undertaken on an annual basis and an annual contribution is made for the closure and rehabilitation of the landfill sites.	There is no feasible alternative to this project as annual GRAP assessment is a legal requirement.
4.6 Landfill sites to be appropriately developed and operated	4.6.1 All landfill operational issues as indicated in section 5.9 of this report are to be addressed including signage, access roads, access control, and application of cover material.	There is no feasible alternative to this activity. Operational issues must be addressed to ensure the impacts of landfill sites are managed.
	4.6.2 Sterkspruit: A feasibility study should be undertaken to inform the development of a new landfill site versus a transfer station in Sterkspruit.	There is no feasible alternative to this activity if the SLM is to achieve the most economical solution to the waste challenges in Sterkspruit.
	4.6.3 Barkly East: The functioning of the leachate dam and the drains leading into the leachate dam are to be reviewed. The dam is in poor condition and drains have been excavated post commissioning of the site which may have compromised the liners of the main cell.	There is no feasible alternative to this activity if the SLM is to ensure the correct functioning of the leachate management system.
	4.6.4 Lady Grey: The SLM is to engage DEDEAT and agree on a mechanism to obtain a license for the site (current license has been misplaced).	The alternative is to continue as current, however the site has no license criteria against which to measure performance. The status quo is not desirable.
	4.6.5 Herschell: The landfill site is the be commissioned as soon as possible so as to allow for the diversion of waste from Sterkspruit. Stormwater flows on site should be checked to ensure the cell is defended from stormwater ingress.	There is no feasible alternative to this activity; the operation of this landfill site will be beneficial.
	4.6.6 CDW is currently not being accepted at the formal landfill sites resulting in illegal dumping. CDW should be accepted at the landfill and could be used for cover.	There is no feasible, legal alternative to this activity. The landfill sites in the SLM need to be extended to cater for CDW, including the addition of a CDW receiving/separation area, and a Class D cell for the disposal of CDW.
4.7 Address the issue of illegal dumping in the SLM.	4.7.1 The illegal CDW dumpsites (sites at Lady Grey, Rossouw, and the Fairview site at Barkly East), are to be formally closed and rehabilitated. CDW is to be diverted to licensed landfill sites.	There is no feasible, legal alternative to this activity. These dump sites are illegal and represent an environmental threat.
	4.7.2 The SLM should consider developing cells for	The SLM could, in the short term, dispose of CDW into the existing class

Objective	Actions and Targets	Comments on Alternatives
	receiving CDW (Class D liners) at all landfill sites.	B cells for domestic waste, or using the CDW as cover material.
Goal 5: Increased waste minimisation and diversion from landfill		
5.1 The diversion of recyclables from waste generated is increased.	5.1.1 Provide at least one recycling drop-off facility in each town. These can vary in size and in the nature of recyclables received. They should be placed at easily accessible locations.	An alternative to this would be to launch a two-bag system. The SLM does not however have capacity or funding to sustain such a programme.
	5.1.2 Roll out recycling programmes at schools. This would require partnering with a coop or company that has the means to accept and recycle material collected.	Various means of encouraging recycling at schools exist but competitions may prove most effective in getting buy-in from the learners. An alternative to this would be to launch a two-bag system at the school however have capacity or funding to sustain such a programme.
	5.1.3 Ensure the Herschel MRF is fully commissioned, and operations are sustained and optimised. .	The Herschel MRF was, at the time of the report, not yet commissioned, however commissioning was imminent. This facility has good potential to facilitate recycling in the SLM, and its use should be maximised. There is no desirable alternative.
5.2 The diversion of organic waste from landfill is increased.	5.2.1 Develop a municipal chipping or small-scale composting facility	Large scale interventions are required to divert green waste from landfill. The SLM should scale the response to the challenge of organic waste diversion. One approach would be to start by chipping green waste and advertising the availability of the chipped green waste for the public, business or farmers to collect. If there is low demand for the material, then composting may be required. The compost generated can be used in municipal parks or gardens or given away. Technology alternatives such as anaerobic digestion and in vessel composting are not deemed viable alternatives for the SLM.
	5.2.2 Public awareness campaigns around minimising food waste and home composting.	The aim of this project is to reduce the amount of food waste and green waste which ends up at landfill or being dumped. An alternative could be to provide households with a food waste bin and then collect and transport the food waste to a central composting facility. The SLM does however not have the human resources, vehicles or budget available to undertake such a programme at present. Raising awareness regarding home composting of food waste would be a more cost-effective intervention.

Objective	Actions and Targets	Comments on Alternatives
5.3 The diversion of hazardous waste from the landfill	5.3.1 Investigate feasibility (liaise with DEDEAT) of providing drop-off facilities for domestic hazardous waste (paints, chemicals, batteries, oil, CFLs etc) at the landfill site	It is noted that the National Domestic Waste Collection Standards require municipalities to provide communal collection points for non-mainstream recyclables such as batteries and fluorescent tubes for collection by a private service provider. The SLM does not currently provide such facilities, however this should be investigated carefully before implementing. Alternately this could be outsourced but is not recommended.
Goal 6: Improved compliance and enforcement		
6.1 Littering and illegal dumping is reduced and the by-laws related to waste management issues are enforced.	6.1.1 Finalise the fining schedule	There is no viable alternative to this task. The SLM needs to ensure that objections to the fining schedule are resolved so that the by-laws can be enforced.
	6.1.2 Appoint or designate at least one Peace Officer to focus on waste management and enforce the waste by-laws.	An alternative to this project would be to add the function to existing employees' functions. There is a risk that existing employees may not have capacity to undertake this role in addition to their existing roles.
	6.1.3 Undertake clean-up campaigns in areas where littering and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations or communities and used as waste awareness campaign.	An alternative to this project would be for the SLM to undertake all clean-up campaigns in-house without engaging the communities, but clean-up campaigns can be used to raise waste awareness, and hence community involvement is preferable.
6.2 All waste facilities are operated in accordance with their licenses and licenses are obtained for unlicensed facilities.	6.2.1 Ensure the landfill sites are managed according to the waste management license.	There is no viable alternative to this project. The municipality must comply with the conditions of the waste management licenses.
	6.2.2 Waste facilities site must be audited internally and externally at the frequency specified in their waste management license or registration.	There is no viable alternative to this project. Internal and external audits are required by the waste management licenses. These must be performed correctly, which each license condition being audited individually.
Goal 7. Improved future planning		
7.1 Plans are put in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets.	7.1.1 Develop a waste infrastructure masterplan to determine the future waste infrastructure needs of the municipality.	The alternative is to continue with the status quo. The risk is that without a documented plan in place, strategic errors could be made (e.g. building landfills instead of transfer stations or placing regional recycling facilities in the wrong location) resulting in higher transport and operational costs for the SLM. Also, without a clear plan, required future facilities may not be built. The infrastructure masterplan should consider waste management at a higher municipal level (as opposed to a

Objective	Actions and Targets	Comments on Alternatives
		town level), consider capital cost but also operational costs (e.g. transport costs from a transfer station versus landfill operation costs), identify what types of waste facilities are needed, identify sites for the facilities and determine high level budgets for the facilities. This will assist in budgeting or applying for funding for new facilities.
	7.1.2 Priority needs to be given to funding for compliance of landfill facilities with license conditions such as waste handling, auditing, and environmental monitoring. There should be a ring-fenced budget for future waste infrastructure needs such as construction of new facilities and rehabilitation of landfill sites.	There is no viable alternative to this project. Compliance with license conditions is a legal requirement. New waste management facilities are required, especially in the case of Sterkspruit and Rhodes.
7.2 The IWMP is regularly reviewed, and the implementation status of project is monitored.	7.2.1 Undertake annual performance reviews of this IWMP and send reports to the district municipality DEDEAT.	There is no feasible alternative. The SLM is required to undertake annual performance reviews of the IWMP in terms of the Waste Act and submit these reviews to DEDEAT. These reports should also be submitted to the DM to allow them to track progress on implementation. Without annual implementation reviews, IWMP implementation will likely stall.
7.3 A collection service is provided to all future residential developments.	7.3.1 The SLM waste department is to be informed of all future residential, business and industrial developments to ensure provision is made for a kerbside collection service or allowance is made in layouts for suitable waste drop-off facilities, transfer stations or formal communal collection points.	The SLM has a legal mandate to provide a waste collection service. The nature of the service will depend on the type and location of any future residential developments.

8 IMPLEMENTATION PLAN

The following section contains a detailed implementation plan for this IWMP. The implementation plan outlines the following per project:

- Project priority
  - High priority projects are indicated as red
  - Medium priority as orange
  - Low priority as green.
- Timeframes
- Anticipated budget (note, these are high level budgets and have not been subject to a detailed costing exercise)
- Potential funding sources
- Responsibility for implementation of the project

Projects have been assigned a priority from low to high. While all projects in the implementation plan should be implemented, in the event that budget or resources for waste projects are limited, the high priority projects should be implemented before medium and low priority projects. The rates (budget) provided in the table are 2025 estimates and annual increases were based on a 7% increase where applicable. Note that funding sources suggested in the implementation plan are not definite. The SLM would need to engage with various agencies and apply for funding for the various projects proposed in the implementation plan where applicable.

Table 43: Implementation Plan

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
Goal 1: Effective waste information management and reporting						
Objective 1.1 Accurate waste information collected and reported to SAWIS						
1.1.1	SLM to report waste information on the SAWIS.	High	2025 – on-going	Nil. To be undertaken in-house	N/A	SLM
1.1.2	Repair and calibrate weighbridges at the Lady Grey and Barkly East landfill sites. Detailed waste tonnages to be saved into a database.	High	2025 – on-going	TBC. Weighbridge manufacturer to advise. Estimated R50k	Ops budget	SLM
1.1.3	Train gate controllers and those recording waste tonnages entering landfills.	High	2025 – annually	R8k per staff	Ops budget	SLM
1.1.4	Domestic waste characterisations are to be undertaken annually. A representative sample is to be used from different towns, suburbs across the municipality and at different times of the year.	Low	2025 - 2030	To be undertaken in-house: - Purchase scale (once off): R10k - Fuel: R500 - Printing: R200	N/A	SLM
1.1.5	Obtain and maintain recycling records. Engage with cooperatives and recyclers to obtain figures for waste collected for recycling in the municipality.	Medium	2025 – on-going	Nil. To be undertaken in-house	N/A	SLM
Objective 1.2 Effective internal management of waste related data						
1.2.1	Ensure appropriate systems are in place to capture all waste information and data (e.g. disposal tonnages, number of waste awareness campaigns, recycling and waste records, staff training requirements and training received, waste collection expansion plans, future infrastructure development, etc.) and ensure this information is stored electronically and uploaded to the central data system.	High	Develop in 2025/26	Nil. To be undertaken internally. This could simply be an electronic filing system with well-ordered sub-folders and data captured into spreadsheets (not text in Word documents).	N/A	SLM
1.2.2	Develop and maintain an inventory of all internal waste related data sets.	Medium	2025/2026	Nil. To be undertaken in-house.	N/A	SLM
Goal 2: Improved waste education and awareness						
Objective 2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns						
2.1.1	Develop a three-year waste education awareness programme/calendar (to be revised at the beginning of each	High	Developed and implemented	Nil. To be undertaken in-house. A travel budget for waste	Operational budget	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	financial year). Schools in the SLM to be included. The SLM awareness schedule can include and be aligned with the DM, DEDEAT and DFFE awareness campaigns and SLM to participate in these campaigns. Topics to include food wastage and home composting.		annually from 2025 onwards	awareness staff. R1,000 per visit for travel costs and awareness materials. Total approx. R24,000pa		
2.1.2	Employees for waste education and awareness to be designated, and key performance indicators (KPIs) to be included in their formal job description. Appropriate material to be developed.	Medium	2025 – ongoing	Nil if this role is added to existing employees (e.g. environmental officers). Nil (if design done internally) R10,000 if outsourced	Operational budget	SLM
2.1.3	Develop standard reporting procedure for all waste awareness campaigns	High	2025 – ongoing	Nil. In-house	n/a	SLM
2.1.4	Incorporate the use of digital communication methods into awareness efforts.	Low	2025 – ongoing	Nil. In-house	n/a	SLM
2.1.5	Raise awareness regarding organic waste diversion. Include organic waste diversion as a topic in awareness material and activities.	Medium	2025 – ongoing	Nil. In-house, as part of the routine awareness activities	n/a	SLM
2.1.6	A schedule of all schools and when they will be engaged through awareness campaigns, must be developed to ensure all schools are engaged.	Medium	2025 – ongoing	Nil. In-house	n/a	SLM
Goal 3: Improved institutional functioning and capacity						
Objective 3.1 The Waste Management Department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented						
3.1.1	Posts remain vacant, and there is a shortage of posts especially at the critical levels of waste collectors and street sweepers. The SLM management should fill such posts to address the capacity shortage. Going forward, the annual review of the organogram should allow for sufficient positions for the implementation of this IWMP.	High	2025 - annual	The review of the organogram is undertaken annually but needs to consider waste staff at the level of sweepers. Budget will be required to fill and vacancies and new positions.	TBC	SLM
3.1.2	A training schedule is to be developed with training needs for employees at all levels within the Waste Department. Appropriate training then to be planned and sourced.	Medium	2025 - annual	The training costs will depend on identified course. An average budget of ~R8,000/ course/person should be allocated.	TBC	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
3.1.3	Implementation of the IWMP to be added as KPIs to the Director of Community Services and the WMO's performance evaluation criteria.	Medium	2025 - 2030	Nil. Internal	n/a	SLM
Goal 4: Provision of appropriate and financially viable waste management services						
Objective 4.1 True cost of waste management in the municipality						
4.1.1	The municipality is to undertake a full cost accounting exercise for services provided to determine the true cost of waste management service.	Medium	2026/27	To be undertaken in-house. If external then R150,000.	n/a	SLM
4.1.2	The evaluation of landfill operating costs must be based on a fully compliant sites, with all audits and monitoring included. The SLM is currently underfunding the operations of the landfills but not complying with the license's conditions e.g. regarding water monitoring.	High	2025 - ongoing	Nil. In-house. A compliance budget needs to be developed per landfill, which compliance with each permit conditions itemised. This should be done by the Community Services dept together with the Project Management office (which has engineering skills)	n/a	SLM
Objective 4.2 Cost reflective tariffs are charged to local residents and businesses						
4.2.1	The waste service tariff reviews are to be undertaken, and informed by a full cost accounting exercise, rather than simply increasing by a set percentage each year. Objections to the tariffs are to be resolved.	Medium	2025 - annually	Nil. In-house. This should be led by the SLM's finance department but with input from the Waste Department	N/A	SLM
4.2.2	The SLM should review the waste collection services provided to businesses and the tariffs charged to these businesses, to ensure that all businesses are being charged for the actual collection service they receive.	Medium	2025 - annually	Nil. In-house	N/A	SLM
4.2.3	The SLM should keep records of when and where garden refuse collection services are being provided, and the cost of this serve determined.	Medium	2025 - ongoing	Nil. In-house	N/A	SLM
Objective 4.3 There is sufficient fleet available to provide a reliable collection service and undertake all waste management functions						
4.3.1	Confirm existence of fleet servicing and replacement policy in the SLM and apply it.	Low	2025	Nil. In-house	N/A	SLM
4.3.2	SLM to procure additional fleet and existing fleet to be used as back up or to be replaced. Fleet needs include:	High	2025 – annual review	- Tipping cage truck: R1.0M - Landfill compactor: R4M x 2	Grant	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	- Rhodes: 1x Tipping cage truck - Barkly East: o 1x skip truck o 1x repair landfill compactor - Lady Grey: o 1x landfill compactor / dozer, o 1x REL compactor truck - Herschel: o 1x landfill compactor / dozer - Rossouw: o 1x Tipping cage truck o Landfill compactor / dozer - Sterkspruit: o 2x REL compactor trucks			- Skip truck: R2M x 2 - REL compactor truck: R2M x 3 = R19M		
4.3.3	The SLM should review its vehicle workshop operations (currently minimal) to determine if repairs could be completed faster if done in house.	Low	2025	Nil. To be undertaken in-house.	N/A	SLM
Objective 4.4. Develop a plan to extend waste services to currently un-serviced areas						
4.4.1	Develop a plan to extend waste services to currently un-serviced areas. Identify un-serviced areas and determine the preferred mechanism to service them e.g. kerbside collection, communal collection points or transfer stations.	Medium	2025 - 2030	Development of plan to be undertaken in-house (no costs). Costs for implementation of the plan will be dependent on the scale and mechanism used to increase service delivery.	Operational budget	SLM
Objective 4.5. Budget is determined and allocated for the closure and rehabilitation of waste management facilities.						
4.5.1	GRAP assessments of the landfill sites are undertaken on an annual basis and an annual contribution is made for the closure and rehabilitation of the landfill sites. Will require surveying of the landfills.	High	2025 - ongoing	Survey: R25k per landfill GRAP report: R25 per landfill	Operational budget	SLM
Objective 4.6. Landfill sites to be appropriately developed and operated						
4.6.1	All landfill operational issues as indicated in section 5.9 of this report are to be addressed including signage, access roads, access control, application of cover material, and water monitoring	High	2025 - ongoing	Achieving compliance at the landfills will require an increase in operational spending per	TBC	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	(surface, groundwater and leachate ponds). Landfill sites must comply with license conditions.			landfill. These costs will need to be determined as per 4.1.2. Estimated ~R100k+ per year per site.		
4.6.2	Sterkspruit: A feasibility study should be undertaken to inform the development of a new landfill site versus a transfer station in Sterkspruit.	High	2025/26	~R300k	TBC	SLM
4.6.3	Barkly East: The functioning of the leachate dam and the drains leading into the leachate dam are to be reviewed. The dam is in poor condition and drains have been excavated post commissioning of the site which may have compromised the liners of the main cell.	Medium	2025/26	TBC – dependant on findings. Estimate ~R100k+	TBC	SLM
4.6.4	Lady Grey: The SLM is to engage DEDEAT and agree on a mechanism to obtain a license for the site (current license has been misplaced).	Low	2025/26	Nil. In-house	n/a	SLM
4.6.5	Herschell: The landfill site is the be commissioned as soon as possible to allow for the diversion of waste from Sterkspruit. Stormwater flows on site should be checked to ensure the cell is defended from stormwater ingress.	Medium	2025/26	Nil. In-house	n/a	SLM
4.6.6	The existing landfill sites in SLM have not been designed to accommodate CDW. The design of all existing and future landfill sites in SLM to be reviewed to include a) a facility for receiving and basic segregation of CDW. Sufficient space should be provided to accommodate the possible future use of CDW mobile crushers as and when these may be needed. b) a Class D waste cell for receiving CDW. CDW that is suitable for use as cover material should be used as such and CDW that is not suitable, should be disposed of in a Class D cell. This will ensure appropriate disposal of CDW, and the preservation of existing Class B airspace for domestic waste.	High	2026 - 2029	Estimate R6M+ per site Note: will vary significantly depending on design of CDW separating area and extent of Class D cells.	Grant	SLM
Objective 4.7. Address the issue of illegal dumping of CDW						
4.7.1	The illegal CDW dumpsites (sites at Lady Grey, Rossouw, and the Fairview site at Barkly East), are to be formally closed and	High	2025/26	R1M+ per site, depending on licensing costs and required	Grant	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	rehabilitated. CDW is to be diverted to licensed landfill sites. The SLM should engage DEDEAT as to how best to commence this process.			designs.		
Goal 5. Increased waste minimisation and waste diversion from landfill						
Objective 5.1 The diversion of recyclables from waste destined for landfill is increased						
5.1.1	Provide at least one recycling drop-off facility in each town. These can vary in size and in the nature of recyclables received. They should be placed at easily accessible locations.	Low	2026/27	R50k for bins per facility.	Capital budget	SLM
5.1.2	Roll out recycling programmes at schools. This would require partnering with a coop or company that has the means to accept and recycle material collected.	Low	2025/26	R50k	Seek commercial sponsors	SLM
5.1.3	Ensure the Herschel MRF is fully commissioned, and operations are sustained and optimised.	High	2025/26	nil	n/a	SLM
5.1.4	SLM to formalise its relationships with all cooperatives with contracts or MOUs. A key requirement must be the registration of coop facilities ito the relevant norms and standards under NEMWA. This is to be accompanied with a system of monitoring and control of cooperative activities.	High	2025 - ongoing	Nil. In-house	n/a	SLM
5.1.5	SLM to implement an in-house recycling programme which is championed by the Community Services waste management department. This should be implemented in all municipal offices. It is recommended that the SLM partner with a coop to collect or receive recyclables.		2025 - ongoing	Nil. In-house	n/a	SLM
Objective 5.2 The diversion of organic waste from landfill is increased						
5.2.1	Develop a municipal chipping facility/area	Medium	2024 - 2028	Service provider to chip on a monthly basis, or LM to source and operate own chipper. Chipper: 2x R350k = R700k	Grant	SLM
5.2.2	Public awareness campaigns around minimising food waste and home composting. Could involve donating home composting bins.	Medium	2024 - 2028	TBC. Pilot home bins: R50,000.	Operational budget	SLM
Objective 5.3 Domestic hazardous waste is diverted from landfill						
5.3.1	Investigate feasibility (liaise with DEDEAT) of providing drop-off facilities for domestic hazardous waste (paints, chemicals,	Low	2025/26	Nil. To be investigated internally by SLM with DEDEAT.	Operational budget	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	batteries, oil, Compact Fluorescent Lamps (CFLs) etc) at the landfill sites.					
Goal 6. Improved compliance and enforcement						
Objective 6.1 Littering and illegal dumping is reduced and the by-laws related to waste management issues are enforced.						
6.1.1	Finalise the fining schedule and deal with objections.	High	2025	Nil, in-house	n/a	SLM
6.1.2	Appoint or designate at least one Peace Officer to focus on waste management and enforce the waste by-laws.	High	2025	Appoint one individual: R350,000pa (dependant on SLM renumeration policy)	TBC	SLM
6.1.3	Revitalise the programme to register at least one staff member as an EMI.	Medium	2025	Training costs to be confirmed (estimated R15k)	TBC	SLM
6.1.4	Undertake clean-up campaigns in areas where littering and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations interfaith organisations, or communities and used as waste awareness campaign.	Medium	2025 - ongoing	R10,000 per campaign	Operational budget	SLM
Objective 6.2 All waste facilities are operated in accordance with their licenses and licenses are obtained for unlicensed facilities.						
6.2.1	An operational and management plan is to be developed for each formal landfill site to address all aspects of site management, including weighbridge management, access, cell development, record keeping etc. None where available at the time of this review.	High	2025/26	R60,000. Outsourced	TBC	SLM
6.2.2	All landfill sites must be audited internally and externally at the frequency specified in their waste management license or registration. Audits must consider all license conditions.	High	2025/26	Internal audits: no cost External audits: R40,000 per site	Operational budget	SLM
Goal 7. Improved planning of future waste infrastructure						
Objective 7.1 Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets						
7.1.1	SLM to develop a waste infrastructure master plan. This should include waste disposal, recycling and composting facilities. The masterplan will identify sites for new facilities, develop concept designs and high-level costings and ensure here is cohesive planning going forward.	Medium	2025/26	R500k	Grant	SLM
7.1.2	SLM to prioritise funding for compliance of landfills with license conditions. A compliance budget to be compiled for each landfill.	High	2025/26	Cost plan to be compiled inhouse.	Operational budget	SLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
Objective 7.2 The IWMP is regularly reviewed, and the implementation status of project is monitored.						
7.2.1	Undertake annual performance reviews of this IWMP, and submit reports to the DM and DEDEAT	High	Annually from 2025	Nil. To be undertaken internally	N/A	SLM
7.2.2	Revisions of the IWMP are to be undertaken every 5 years.	High	Every 5 years from 2025	R400k	Grant	SLM
Objective 7.3 A collection service is provided to all future residential developments.						
7.3.1	The SLM waste department to be informed of all future residential, business and industrial developments to ensure provision is made for a kerbside collection service or allowance is made in layouts for suitable waste drop-off facilities, transfer stations or formal communal collection points.	Low	2025 - ongoing	Nil. To be undertaken internally	N/A	SLM

9 MONITORING

The IWMP planning cycle developed by DEA (now DFFE) includes monitoring and review as one of the six planning stages.

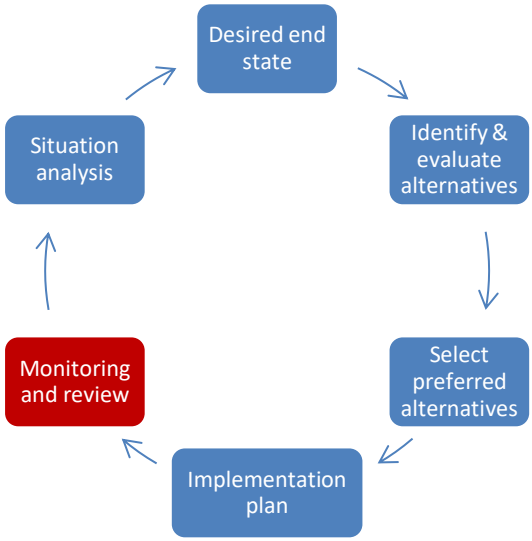


Figure 41: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (South African Government, Department of Environmental Affairs, No date)

Section 13 (3) of Waste Act notes the requirement in Section 46 of the Municipal Systems Act (32 of 2000) (Republic of South Africa, 2000) for municipalities to compile annual performance reports. Section 13 also specifically requires that progress reports must consider implementation of the IWMP including the following:

1. the extent to which the plan has been implemented during the period;
2. the waste management initiatives that have been undertaken during the reporting period;
3. the delivery of waste management services and measures taken to secure the efficient
4. delivery of waste management services, if applicable;
5. the level of compliance with the plan and any applicable waste management standards;
6. the measures taken to secure compliance with waste management standards;
7. the waste management monitoring activities;
8. the actual budget expended on implementing the plan;
9. the measures that have been taken to make any necessary amendments to the plan;

These annual reviews should culminate in a formal review report which should be made available to DEDEAT.

A full review of the IWMP should be undertaken in 2030/31, however intermediate reviews may also be required if the status quo of waste management changes significantly before then.

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[1] Note that the current national Department of Forestry, Fisheries and the Environment (DFFE) has held various names including the Department of Environmental Affairs and Tourism (DEAT), the Department of Environmental Affairs (DEA), Department of Environment, Forestry, Fisheries (DEFF), and currently the DFFE. References indicate the name of the institution at the time of publishing.

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Appendix A: Project Attendance Registers

SENQU LOCAL MUNICIPALITY IWMP MEETINGS

PROJECT: Senqu Local Municipality IWMP
PROJECT No:
PURPOSE:
VENUE:
DATE & TIME:

REPRESENTATIVE NAME AND SURNAME	REPRESENTATIVE SIGNATURE	MEETING	DATE	COMPANY / ORGANISATION NAME	OFFICE NR. ☎	CELL PHONE NR.	E-MAIL ADDRESS 👁
WALTER FYVIE		KICK OFF	11/09/2024	EARTH FREE		0728439630	WALTERFYVIE@GMAIL.COM
Sibabalwe Ntyhwa		Kick-off	11	Earth-Free Enviro		0630804569	Sntyhwa@efec.co.za
Chulumanco Nonkonyana		Kick-off	11/09/2024	Earth Free Environtal Consu		068 0622983	cnonkonyana@efec.co.za
Mxolisi Salmani		Kick-off	11/09/2024	Senqu Local Muni	051 6031100	082 761 1924	Salmanim@senqu.gov.za
Lorwebo Nyakaza		Interview	11/09/2024	Senqu LM	051 603 1338		nyakaza1@senqu.gov.za

Appendix B: Waste Legislation

Introduction

South Africa has a host of legislated acts, policies and guidelines relating to waste management, the most significant of these being the newly promulgated National Environmental Management: Waste Act (58 of 2008) which is now the countries central piece of legislation dealing with waste management. There are also certain relevant international conventions to which South Africa subscribes. This section discusses these acts, policies, guidelines, and conventions thereby providing a context to waste policy and legislation. Where applicable it highlights aspects of these acts and policies which apply specifically to the local government authorities.

This section is not exhaustive but presents the broader legislative framework and highlights the more important aspects thereof.

International conventions

Basel Convention on the control of trans-boundary movement of hazardous wastes and their disposal

The Basel Convention (1989) is a global agreement which seeks to address the trans-boundary movement of hazardous waste. The convention is centred on the reduction of the production of hazardous waste and the restriction of trans-boundary movement and disposal of such waste. It also aims to ensure that strict controls are in place when any trans-boundary movement and disposal of hazardous waste does occur and ensures that it is undertaken in an environmentally sound and responsible manner.

The Basel Convention, held on 22 March 1989, came into effect during May 1992 after ratification by the prerequisite number of countries. South Africa ratified the Convention in 1994, with DEA being the focal point for the convention.

Whilst South Africa subsequently acceded to this Convention, no legislation was passed at the time to give effect to it. The second Basel convention, held on 8 October 2005, set standards for the control of trans-boundary movements of hazardous wastes and their disposal, setting out the categorization of hazardous wastes and the policies for their disposal between member countries. South Africa accedes to this convention and implements its provisions.

The key objectives of the Basel Convention are:

- To minimise the generation of hazardous wastes in terms of quantity and hazardousness.
- To dispose of hazardous waste as close to the source of generation as possible.
- To reduce the movement of hazardous wastes.
- Locally, draft regulations are being prepared in an effort to control the movement of such waste.

The most significant provisions of the Convention relate to the ban on certain importations and exportations; illegal traffic, bilateral, multilateral, and regional agreements, and the control system of the Convention.

The Basel Convention contains specific provisions for the monitoring of implementation and compliance. A number of articles in the Convention oblige parties (national governments which have acceded to the Convention) to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the Convention.

Rotterdam Convention

The Rotterdam Convention was held in September 1998 to promote shared responsibilities in relation to importation of hazardous chemicals. One of the key provisions is the Prior Informed Consent procedure, which lists information on hazardous chemicals in Annex III. It became legally binding for its parties in 2004. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Parties can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply. From this convention a PIC circular is distributed every six months giving updated information on the listed chemicals, member compliance and sources of supporting information.

Stockholm Convention

In 1995 the United Nations Environment Programme called for global action to be taken on persistent organic pollutants (POPs), which pose a threat to both health and the environment. As a result, the negotiations for the Stockholm Convention on POPs were initiated and culminated in May 2001, with the convention enforced in May 2004. South Africa accedes to this convention, whereby member countries have agreed to phase out POPs, and prevent their import or export. It imposes restrictions on the handling of all intentionally produced POPs, i.e. identified highly toxic, persistent chemicals.

The 12 POPs that have been identified under the convention are aldrin, chlordane, dieldrin, dichloride-diphenyl-trichloroethane (DDT), endrin, Hexachlorobenzene (HCB), heptachlor, mirex, polychlorinated biphenyls (PCBs), toxaphene, dioxins, and furans. Of the aforementioned substances, two are still used in South Africa today (DDT and PCBs), although their use is restricted under the 'Fertiliser Act' as administered by the Department of Agriculture. The above list of chemicals is relevant, especially where there is any management of obsolete and banned pesticides.

South Africa negotiated the continued use of DDT, as it has proved critical in the fight against malaria, and PCBs will be phased out as the electrical appliances that contain them become obsolete.

In 2005 South Africa, at the Reduce, Reuse and Recycle Ministerial Conference, became one of 7 countries to sign an agreement for the African Stockpile Programme, a project aimed at recovering

and the appropriate disposal of obsolete pesticides. With funding ($1,7million) from the World Bank, government began implementing the programme.

The country is also developing guidelines for the implementation of the Globally Harmonised System of Classification and Labelling of Chemicals. The funding was for the disposal of obsolete pesticides as part of the African Stockpile Programme. The department has begun implementing this programme throughout the country. Further work on training workers to handle chemicals was rolled out.

By mid-2007, a pilot project for the collection of all obsolete pesticides possessed by farmers in the Limpopo Province had begun, and this involved, amongst others, identification of collection points and collection of obsolete pesticides within the province. These stocks were further consolidated from various collection points to a central collection point and ultimately safeguarded and shipped to Holfontein Waste Disposal Site for temporary storage. The inventory of pilot project stocks has been undertaken. About 100 tons of labelled and unlabelled stocks of obsolete pesticides have been collected through this pilot project. The pilot project is expected to serve as a benchmark for the roll-out of projects in other provinces.

However, as the amount of obsolete pesticide stocks collected from the Limpopo pilot project is significantly higher than what was anticipated, it has become apparent that the remaining funds in the World Bank African Stockpile Programme budget will not be sufficient for national rollout of the programme. The African Stockpile Programme Project Management Unit has had numerous deliberations in an effort to come up with a sustainable solution for management of pesticides in the country.

London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matters

The London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, 1972, aims to prevent marine pollution by preventing the dumping of wastes such as industrial waste, sewage sludge, dredged material, and radioactive waste at sea, as well as incineration at sea. South Africa is a signatory to the convention and the associated 1996 Protocol.

This convention and its various protocols were incorporated into the following South African legislation:

- Prevention of Pollution from Ships Act (Act 2 of 1986), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992).
- The Dumping at Sea Control Act (Act 73 of 1980).

The primary responsible agency is the DEAT Sub Directorate of Marine and Coastal Pollution Management who issue permits for dredge spoils and sinking of old vessels. It occasionally issues permits for ships in trouble, typically grounded, to release their cargo into the sea.

Local Agenda 21

Agenda 21 is a comprehensive document for global action on the environment and sustainable development, to take the world into a more sustainable 21st century. It is probably the most important document to be adopted by the UN Conference on the Environment and Development (UNCED) at the Rio de Janeiro Summit in June 1992. The 40 chapters covered a wide range of issues including the atmosphere, oceans, land resources, poverty, etc.

It was important for each nation to develop its own local Agenda 21, in order to translate and interpret the principles of sustainable development to local areas. Local Agenda 21 focuses on developing partnerships involving the public, private and community sectors that together can resolve urban environmental management problems and strategically plan for long term sustainable environmental management.

One of the key features of sustainable development is the requirement to integrate economic and environmental factors into all decision-making processes. Applications of these criteria to waste management require a new emphasis on resource and energy conservation, ensuring that supplies of raw materials, sources of energy and the quality of the physical environment can be maintained. Agenda 21 initiatives are considered to be an essential vehicle for the implementation of various aspects of the IWMP.

The key goals of Agenda 21 are:

- Sustainable development.
- Eradication of poverty.
- Elimination of threats to the environment.
- To ensure a sustainable environment.
- Creation of sustainable job opportunities.

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

(a) Activities within the Local Authority

1. Garnering local political support

    - Information sessions and workshops.
    - Reports and presentation to committees.
    - Physical involvements in projects.

2. Managing and improving local authorities own environmental performance.

    - Corporate commitment.
    - Staff training and creating awareness.
    - Environmental management systems.
    - Budgeting for environmental processes.

- Policy integration across all sectors.

3. Integrating sustainable development aims within local authorities' policies and activities

- Economic development.
- Tendering and purchasing.
- Tourism and visitor strategies.
- Health strategies.
- Welfare, equal opportunities, and poverty strategy.
- Focused environmental services.
-

(b) Activities within the wider community

1. Awareness raising and education

- Support for environmental education.
- Awareness-raising events.
- Visits and talks.
- Support for voluntary groups.
- Publication of local information.
- Press releases.
- Initiatives to encourage behavioural change and practical actions.

2. Consulting and involving general public

- Public consultation processes.
- Interaction with NGO's/forums.
- Focus groups.
- Feedback mechanisms

3. Forging partnerships with other interest groups and activities, such as:

- Meetings, workshops, and conferences.
- Working groups/advisory groups.
- Round table discussions.
- Comprehensive Urban Plan.
- International and regional partnerships.

4. Measuring, monitoring, and reporting on progress toward sustainability

- Environmental monitoring.
- Sustainability indicators.
- Targets.
- Environmental Impact Assessments.
- Strategic Environmental Assessment.

South African Legislation

Constitution of the Republic of South Africa

The South African Constitution (Act 108 of 1996) is the supreme law of South Africa. Any law or conduct that is inconsistent with it, is invalid, and the obligations imposed by it must be fulfilled. Therefore, as such, all law, including environmental and waste management planning must consider compliance with the Constitution of South Africa.

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

Section 24 of the Constitution guarantees everyone the right to:

An environment that is not harmful to their health or wellbeing; and to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:

- Prevent pollution and ecological degradation.
- Promote conservation. and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic or social development.

The environmental rights (section 24), is strengthened by other relevant fundamental rights, such as the rights of access to information and administrative justice.

(a) National and Provincial authority competence

General obligations imposed by the constitution on national and provincial government institutions are adjudicated, as the Constitution establishes an administrative framework for all organs of state. The national and provincial governments are concurrently entitled to legislate on matters stipulated in Schedule 4 of the Constitution. Both spheres of government have legislative competence over areas that will impact on management in the natural/urban interface, like environment, disaster management, nature conservation and pollution control, and would therefore also frame related matters such as waste management. It should also be noted that the Constitution contemplates the assignment, from national Government to the provinces, of functions that would normally be the exclusive preserve of the former.

Subsection 24(b) of the Constitution relates to the constitutional imperative requiring government to enact appropriate environmental law reform legislation. This led to the promulgation of the National Environmental Management Act (Act 107 of 1998, NEMA) and the National Water Act (Act 36 of 1998)

amongst others. More specifically to the objective of this framework is the National Environmental Management: Waste Act, which was recently enacted.

Important to the development of a local integrated waste management strategy and plan is that in accordance with Section 155(6) of the Constitution each provincial government must establish municipalities in its province and, by legislative or other measures, must –

(1) provide for the monitoring and support of local government in the province; and

(2) promote the development of local government capacity to enable municipalities to perform their functions and manage their own affairs.

Furthermore in according to Section 155(7) the national government and the provincial governments have the legislative and executive authority to see to the effective performance by municipalities of their functions in respect of matters listed in Schedules 4 and 5, by regulating the exercise by municipalities of their executive authority referred to in section 156 (1).

(b) Local authority competence

National and provincial government are both obliged, by legislative and other measures, to support and strengthen the capacity of municipalities to manage their affairs, to exercise their powers and perform their functions within the individual municipal jurisdiction. This responsibility is covered in Chapter 7:

In terms of section 152 of the Constitution the objects of local government are to:

- Provide democratic and accountable government for the local community.
- Ensure the provision of services to communities in a sustainable manner.
- Promote social and economic development.
- Promote a safe and healthy environment. and
- Encourage the involvement of communities and community organisations in the matters of local government.

A municipality must in terms of section 153 structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community and participate in national provincial development programmes.

National and provincial government are also obliged to assign to a municipality, by agreement and subject to any conditions, the administration of matters listed in the relevant parts of Schedules 4 and 5 and any other matter which would be most effectively administered locally, provided that the

municipality has the capacity to administer it. A municipality has the right to exercise any power concerning a matter reasonably necessary for, or incidental to, the effective performance of its functions.

Those areas of the urban/natural interface zone that fall within the legislative and jurisdictional competence of provincial or local authorities (for example a road reserve or urban areas that border a park) fall to be regulated by those authorities. The Constitution aims to co-ordinate the different levels of government and the management of the issues which the public institutions constituted or confirmed by them are charged with governing. This requires co-operation on the part of different organs of state. The above statements become pertinent to waste management as it sets the context of the administrative activities convened at the Local government level. In addition, related to local government in terms of section 152(1)(d) of the constitution, one of the objectives of local government is "to promote a safe and healthy environment".

Municipalities are further charged with making, administering, and enforcing by-laws for the effective administration of the matters of which they have the right to administer. Any bylaw that conflicts with national or provincial legislation is deemed invalid. In accordance with Section 160(4) no bylaw may be passed by a Municipal Council unless all the members of the Council have been given reasonable notice; and the proposed by-law has been published for public comment. Furthermore, in accordance with Section 162 no bylaw may be enforced unless it has been published in the relevant official provincial gazette and the bylaw must be accessible to the public.

National Environmental Management Act

The National Environmental Management Act (Act 107 of 1998) commonly known as "NEMA" gives effect to the "Environmental Right" of the Constitution and is South Africa's overarching framework for environmental legislation. The objective of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management.

NEMA sets out a number of principles that aim to implement the environmental policy of South Africa. These principles are designed to serve as a framework for environmental planning, as guidelines by which organs of state must exercise their functions and to guide other laws concerned with the protection or management of the environment.

The principles include a number of internationally recognized environmental law norms and some principles specific to South Africa. These core principles include:

- Accountability.
- Affordability.
- Cradle to Grave Management.
- Equity.
- Integration.
- Open Information.
- Polluter Pays.
- Subsidiary.
- Waste Avoidance and Minimisation.
- Co-operative Governance.
- Sustainable Development.
- Environmental Protection and Justice.

Chapter 2: Sections 3 to 6 of NEMA, make provision for the establishment of the Committee for Environmental Co-ordination. The objective of the committee is to promote the integration and co-ordination of environmental functions by the relevant organs of state and in particular to promote the achievement of the purpose and objectives of environmental implementation plans and environmental management plans.

Chapter 5: Sections 23 to 24 of NEMA is designed to promote integrated environmental management and provide tools for integrating environmental activities. Environmental management must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural, and social interests equitably. This chapter of NEMA requires any activity that can potentially impact on the environment, socio-economic conditions and cultural heritage require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated, and assessed prior to their implementation and reported to the organ of state charged by the law with authorising, permitting or otherwise allowing the implementation of an activity. Development must be socially, environmentally, and economically sustainable. Sustainable development therefore requires the consideration of all relevant factors, some of which include the following:

- The disturbance of ecosystems and loss of biological diversity is to be avoided, or minimised and remedied.
- The pollution and degradation of the environment are to be avoided, or, minimised and remedied.

- Waste is to be avoided, or, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
- A risk-averse and cautious approach is to be applied.
- Negative impacts on the environment and on the people's environmental rights must be anticipated and prevented, and where they cannot be altogether prevented, must be minimised and remedied.

Section 24(5) of NEMA was enacted through the promulgation of the Environmental Impact Assessment (EIA) Regulations published in 2006 and revised in 2010. The construction of facilities or infrastructure including associated structures or infrastructure for the recycling, re-use, handling, temporary storage or treatment of general waste and hazardous waste, were originally listed in these regulations, and therefore required either a Basic Assessment or a Scoping and EIA Process to be followed depending on specific listed criteria. However, the above-mentioned waste activities have now been repealed and instead require a license application under the Waste Act.

Chapter 7: Sections 28 to 30, imposes a duty of care in respect of pollution and environmental degradation. Any person who has caused significant pollution or degradation of the environment must take steps to stop or minimise the pollution. Where an incident occurs that is potentially detrimental to the environment, the person who is responsible for the incident or the employer must, within 14 days of the incident, report to the Director-General, provincial head of department and municipality. The relevant authority may specify measures to address the problem and remediate the area within 7 days. The Acts also attach consequences for breaching the duty of care, namely that government authorities are empowered to issue directions and to remediate the situation and recover costs where the directions are not complied with.

Chapter 8: Sections 35, provides that the Minister and every MEC and municipality may enter into an environmental management co-operation agreement with any person or community for the purpose of promoting compliance with the principals laid down in NEMA. Environmental Co-operation Agreements may contain an undertaking by the person or community concerned to improve the standards laid down by law for the protection of the environment and a set of measurable targets and a timeframe for fulfilling the undertaking.

Chapter 9 allows the Minister to make model By-Laws aimed at establishing measures for the management of environmental impacts of any development within the jurisdiction of the municipality, which may be adopted by the municipality as By-Laws. Any municipality may request the Director-General to assist it with its preparation of By-Laws on matters affecting the environment and the Director-General may not unreasonably refuse such a request. The Director-General may institute programmes to assist municipalities with the preparation of By-Laws for the purposes of implementing this Act.

Environment Conservation Act

The Environment Conservation Act (Act 73 of 1989) (ECA) predates the Constitution and, although many sections have already been repealed, certain sections are still in place.

The objectives of the ECA are to provide for the effective protection and controlled utilisation of the environment. Several sections of the ECA were repealed through the enactment of NEMA and certain responsibilities were assigned to the provinces.

The Waste Act has repealed sections of the ECA dealing with waste management. More specifically these repealed sections are:

- 19: Prohibition of littering. This is now dealt with under Section 27 of the Waste Act.
- 19A: Removal of litter.
- 20: Waste Management. This section dealt with permitting of waste facilities but is now replaced by Chapter 5 (Sections 43 – 59) of the Waste Act.

Waste management, more specifically with regard to landfill disposal site permitting and related matters, was until its recent repeal through the Waste Act, coordinated and controlled under Section 20 of the ECA, as follows.

In order to implement section 20 of the ECA, DWAF previously issued the above-mentioned permits subject to specified conditions stipulated in the DWAF Minimum Requirements: Waste Management Series.

- 24: This section provided the framework for waste regulations to be formulated. This issue is now covered by Chapter 8, Part 1 (Regulations) (Sections 69 – 71) of the Waste Act.
- 24A, 24B and 24C: Similarly, these sections which dealt with regulations regarding littering, products, and procedures for making regulations respectively are now addressed by Chapter 8, Part 1 of the Waste Act.
- 29: Sections (3) and (4), which deal with Offences and Penalties have been substituted by the Waste Act.

Despite the fact that the Waste Act repeals section 19,19A, 20, 24, 24A 24B, and 24C of the ECA, it should be noted that in accordance with Section 80(2) of the Waste Act, any regulations or directions made in terms of these appealed sections of the ECA, remain in force and are considered to have been made under the Waste Act.

National Environmental Management: Waste Act

(a) Overview

The National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA) was promulgated on 01 July 2009, marking a new era in waste management in South Africa (with the exception of a number of sections which will be brought into effect at dates still to be gazetted). The act covers a wide

spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land.

However, South African waste management legislation is still fragmented. Mining; radio-active waste; disposal of explosives; and disposal of animal carcasses, which are covered by specific other regulations is not addressed by the act. The Waste Act does however constitute South Africa's overarching primary waste legislation.

(b) Objectives of the Waste Act

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

To protect health, well-being, and the environment by providing reasonable measures to -

- Minimising the consumption of natural resources.
- Avoiding and minimising the generation of waste.
- Reducing, re-using, recycling, and recovering waste.
- Treating and safely disposing of waste as a last resort.
- Preventing pollution and ecological degradation.
- Securing ecologically sustainable development while promoting justifiable economic and social development.
- Promoting and ensuring the effective delivery of waste services.
- Remediating land where contamination presents or may present a significant risk of harm to health or the environment. and
- Achieving integrated waste management reporting and planning.
- To ensure that people are aware of the impact of waste on their health well-being and the environment.
- To provide for compliance with the measures set out in paragraph (a) and
- Generally, 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 Chapters and topics of the Waste Act are as follows:

Chapter 1 - Interpretation and Principles

Chapter 2 - National Waste Management Strategy, Norms and Standards

Chapter 3 - Institutional and Planning Matters

Chapter 4 - Waste Management Measures

Chapter 5 - Licensing of Waste Management Activities

Chapter 6 - Waste Information

Chapter 7 - Compliance and Enforcement

Chapter 8 - General Matters.

(c) Roles and Responsibility

The Act establishes a national framework for waste planning, regulation, and management with roles for all spheres of government, specifically:

- National government is tasked with establishing a national waste management strategy, including norms, standards, and targets. National norms and standards may cover all aspects of the waste value chain, from planning to service delivery. Of particular importance from an intergovernmental perspective are the powers of national government with respect to norms and standards for:
- The regionalization of waste management services.
- Tariffs for waste services provided by municipalities, including providing for tariffs to be imposed to provide for waste management infrastructure or facilities and ensuring that funds obtained from the provision of waste services are used for the delivery of these services.
- Provincial governments are tasked with the implementation of the national waste management strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services.
- Local governments are required to ensure the universal and sustainable delivery of services, subject to national and provincial regulation. In particular, they are required to maintain separate financial statements, including a balance sheet of the services provided.

The table below lists sections of the act which make specific demands on Local (municipal) government: Tasks falling under sections of the act which have yet to be enacted have not been listed. While certain sections of the text are taken verbatim from the Act, interpretation has been added.

Tasks required by governmental entities in terms of NEM:WA.

TOPIC	SECTION	REQUIREMENT
General duty	3	The state **must** put in place measures that seek to reduce the amount of waste generated, and where waste is generated, ensure that it is re-used, recycled, and recovered in an environmentally sound manner.
Waste service standards	9 (1) & (2)	A municipality must deliver waste management services, including waste removal, storage, and disposal services in adherence to the national and provincial norms and standards (section 7 and 8 of the Act); whilst: • Integrating the IWMP and IDP • Ensuring access to services • Ensuring affordable service delivery • Ensure effective and efficient Sustainable and Financial management
	9 (3)	The Municipal may furthermore set local standards: • For separating, compacting, and storing waste • Management of solid waste, i.e.: Avoidance, Minimisation, Recycling • Coordination of waste to relevant treatment or disposal facilities • Litter control
Designation of Waste Management Officers	10(3)	The Municipality must designate in writing a waste management officer from its administration to be responsible for coordinating matters pertaining to waste management in that municipality
Integrated Waste Management Plans	11 (4) & (7)	• The Municipality must submit an IWMP to the MEC for approval (response from the MEC must be given within 30 days) • Include the approved IWMP into its IDP • Follow the consultative process in section 29 of the Municipal Systems Act (separately or as part of IDP)
	12	Contents for IWMP's, includes: • A situational analysis • a plan of how to give effect to the Waste Act • municipal waste management and services obligations • prioritisation of objectives • setting of targets • planning approach to any new disposal facilities; and • Financial resourcing.
	13	An annual performance report prepared in terms of section 46 of the Municipal Systems Act must contain information on the implementation of the municipal IWMP.

(d) Industry Waste Management Plans

For industries, the Waste Act states that either the Minister or the relevant provincial MEC may under certain conditions and by written notice or by notice in the Gazette require a person or industry to prepare and submit an Industry Waste Management Plan.

(e) Waste Licensing for listed Activities

The Minister has subsequently gazetted (on 03 July 2009) GN No. 718 (Gazette No. 32368) and 719 (Gazette No. 32369) which present a Waste Management Activity Lists describing those waste

activities, and thresholds, which require authorisation before they are undertaken. This list was amended in 2013 (Gazette No 921 of 2013) and again in 2017 (Gazette No, 1094 of 2017). The Waste Act Schedule 1 (Section 19) identifies activities which require a waste management licence. Activities include:

- Recycling and recovery.
- Treatment of waste.
- Disposal of waste on land.
- Construction, expansion or decommissioning of facilities and associated structures and infrastructure.

Either a Basic Assessment or Scoping and Environmental Impact Assessment (EIA) process is to be carried out with regards to acquiring a licence as stipulated in the environmental impact assessment regulations made under section 24 (5) of the Waste Act).

(f) Integrated Waste Management Planning

The Waste Act also places considerable emphasis on the development of an integrated waste planning system, through the development of interlocking Integrated

Waste Management Plans (IWMPs) by all spheres of government and specified waste generators. This planning system is the primary tool for cooperative governance within the sector. While the requirement for these plans is new for national and provincial governments, and for waste generators, this is not the case for local governments who had been able to voluntary prepare such plans within their Integrated Development Plans (IDPs). IWMPs are mandatory for national and provincial government and specified waste generators, but the situation for local government is made a little more ambiguous by the Constitutional assignment of concurrent powers to provincial and local governments in this respect, with only limited authority assigned to national government.

(g) Norms, standards, tariffs, and financial Management Systems

Other focal areas of the Waste Act include provisions for the development of norms and standards, tariffs, and financial management systems. These powers all largely repeat existing national or provincial powers that are provided for in other legislation. The key change is that the Minister of Environmental Affairs now assumes these powers in terms of the Act, although concurrently with other authorised Ministers notably in Local Government and Finance portfolios.

Certain sections of the act have yet to be enacted, including the following:

- Section 28 (7), which makes allowance for of a person, category of person or industry to compile and submit an industry waste management plan for approval to the MEC, without being required to do so by the MEC.

- Section 46, which allows the licensing authority to require an applicant seeking a waste management licence to appoint an independent and qualified person to manage the application.

National Environmental Management: Air Quality Act

The National Environmental Management: Air Quality Act (39 of 2004) requires that appropriate consideration must be given to the emissions arising from waste management practices, processes, and procedures. Many facets of waste management are associated with atmospheric emissions, for example, waste transportation is associated with carbon dioxide released from vehicles, and methane and carbon dioxide which are released from landfill sites.

The Air Quality Act was published in the Government Gazette on 24 February 2005 and came into effect in September 2005. This Act, amongst others, provides for the implementation of a National Framework, of national, provincial, and local ambient air quality and emission standards and air quality management plans. These implementations are currently in progress.

Atmospheric Pollution Prevention Act

Prior to the Air Quality Act coming into full effect, the control of atmospheric emissions of noxious, hazardous and nuisance causing materials was controlled by the Atmospheric Pollution Prevention Act (APPA) (Act 45 of 1965) and its amendments. The administration of the APPA has been assigned to the Air Pollution Control Department under the Department of Environmental Affairs & Tourism.

Those sections addressing the management of dust are of importance for landfill site management. Sections 27 – 35 state that industries should adopt the "best practicable means" for preventing dust from becoming dispersed or causing a nuisance. The act also empowers owners or occupiers present in the vicinity of the source of dust/nuisance to take or adopt necessary steps or precautions against the nuisance. Where steps have not been prescribed, owners must adopt the "best practicable means" for the abatement of the nuisance. Should any person/s such as for example, waste management service providers, not comply with the necessary steps to prevent owners/occupiers from the effects of dust, the person/s may be liable to pay a dust control levy to the minister.

National Water Act

The National Water Act (Act 36 of 1998) is South Africa's overarching piece of legislation dealing with water resource management. It contains a number of provisions that impact on waste management, including:

- Ensuring the disposal of waste in a manner, which does not detrimentally impact on water resources.

- Managing the discharge of waste into water resources.

The Act allows the Minister to make regulations for:

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

Occupational Health and Safety Act

The purpose of the Occupational Health and Safety Act (OHSA) (Act 85 of 1993)and associated regulations is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

A sound waste management strategy and planning must take into account the safety of persons involved in the practical implementation thereof, with reference in particular to any waste services carried out by municipal officials, and waste service providers and their employees.

Core to OHSA are the principles and core duties of employers and employees as legislated in Sections 8, 9 and 14 thereof.

Section 8(1) stipulates that “Every employer shall provide and maintain, as far as is reasonable, practicable, a working environment that is safe and without risk to the health of his employees”.

Section 9(1) stipulates that “Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.” Subsection (2) imposes a similar duty on every self-employed person.

Section 14(a) imposes a duty on every employee at work to take reasonable care for the health and safety of himself and of other person who may be affected by his acts or omissions. An employee is also required to co-operate with his employer concerning his duties in terms of the Act and to obey health and safety rules and procedures laid down by his employer.

In addition, the OHSA further protects workers with regard to Hazardous Chemical Substances through specific regulations. Asbestos regulations deal with specific asbestos containing waste management.

It is likely that the OSHA also places an obligation on the Municipality, to ensure that service providers maintain compliant Health and Safety procedures. This would be relevant in the case of outsourced, waste management functions.

Health Act

The Health Act (Act 63 of 1977) focuses on the promotion of the health of the people and the provision of processes to enable this objective to be achieved. Sections 20, 34 and 38 of the Act are relevant to waste management.

Section 20 requires authorities to take lawful and reasonable practical measures to maintain their areas in a hygienic and clean condition to prevent an unhealthy environment for people.

Sections 34 and 38 of the act authorise the National Minister of Health to make regulations, which may directly impact on waste management.

Hazardous Substances Act

The Hazardous Substances Act (Act 15 of 1973) governs the control of substances that may cause ill health or death in humans by reason of their toxic, corrosive, irritant, flammability or pressure effects. The Act provides for the regulation of the storage, handling, labelling and sale of Group I, II, and III hazardous substances. A license is required for an operation that stores, handles and sells Group I substances. Section 29(1) of the Act regulates the disposal of the empty containers, which previously held Group I substances.

No national, local provincial or local municipal regulations have been promulgated under the Act for the on-site management of Group II hazardous substances.

The relevance of the Act with regard to waste management is captured as certain waste types may be categorised into the various groupings under the Act as noted above.

National Road Traffic Act

The United Nations (UN) recommendations on the transport of dangerous goods have been used to produce sections of the National Road Traffic Act (Act 93 of 1996). In addition, and in terms of other regulations published under the Act, certain South African Bureau of Standards (SABS) Codes of Practice have been incorporated as standard specifications into the National Road Traffic Regulations (GNR 1249 of 13 November 2001). These codes have been based on the UN recommendations, also known as "The Orange Book" and the associated European Agreement concerning the International Carriage of Dangerous Goods by Road Regulations.

The codes of practice so incorporated include e.g. the following:

- SANS 10228:2006 Edition 4.00: The identification and classification of dangerous goods for transport.

- SANS 10229-1:2005 Edition 1.00: Transport of dangerous goods - Packaging and large packaging for road and rail transport Part 1: Packaging.
- SANS 10229-2:2007 Edition 1.00: Transport of dangerous goods - Packaging and large packaging for road and rail transport Part 2: Large packaging.
- SANS 10232-1:2007 Edition 3.00: Transport of dangerous goods - Emergency information systems Part 1: Emergency information system for road transport.
- SANS 10232-2:1997 Edition 1.00: Transportation of dangerous goods - Emergency information systems Part 2: Emergency information system for rail transportation.
- SANS 10232-3:2007 Edition 3.00: Transport of dangerous goods - Emergency information systems Part 3: Emergency response guides.
- SANS 10232-4:2007 Edition 1.01: Transport of dangerous goods - Emergency information systems Part 4: Transport emergency card.
- SANS 10233:2001 Edition 2.00: Transportation of dangerous goods - Intermediate bulk containers.

The transportation of all waste products should adhere to the above where applicable, noting that certain waste/ refuse may be categorised as dangerous goods.

Advertising on Roads and Ribbon Development Act

The Advertising on Roads and Ribbon Development Act (Act 21 of 1940) regulates, amongst other things, the depositing or discarding of waste near certain public roads, and the access to certain land from such roads. To the extent as outlined in Proclamation 23 in Government Gazette 16340 of 31 March 1995, the administration of this Act has been assigned to the provinces. In terms of section 8 of the Act, no person shall within a distance of 200 metres of the centre line of a public road deposit or leave outside an urban area, so as to be visible from that road, a disused vehicle or machine or a disused part of a vehicle or machine or any rubbish or any other refuse, except in accordance with the permission in writing granted by the controlling authority concerned. The controlling authority may remove any object or substance referred to found on a public road and may recover the cost of the removal from the person who deposited or left such object or substance there.

When any person has deposited or has left any object or substance in contravention of the above, but not on a public road, the controlling authority concerned may direct the person in writing to remove or destroy that object or substance within such period as may be specified in the direction. If the person fails to comply with that direction, the controlling authority may cause the object or substance to be removed or destroyed any may recover from the said person the cost of the removal or destruction. The preceding provision do not apply to any object or material which has been or is being used for or in connection with farming, or to soil excavated in the course of alluvial digging: provided that this sub-section shall not permit the deposit or leaving of any article or material on a road.

Waste Tyre Regulations

The Waste Tyre Regulations were first published as Government Notice R.149 on 13 February 2009 and came into effect on 30 June 2009. These regulations were amended in 2016 in General Notice R. 1493 of 2016. The latest Waste Tyre Regulations (R1064 of 2017) were published on 29 September 2017 and came into effect immediately. The purpose of the legislation is to regulate the management of waste tyres by providing for the regulatory mechanisms. The regulations apply uniformly in all provinces in South Africa and affect waste tyre producers, waste tyre dealers, waste tyre stockpile owners, landfill site owners and tyre recyclers.

In summary, the regulation:

- Defines a waste tyre as a new, used, re-treaded, or un-roadworthy tyre, not suitable to be re-treaded, repaired or sold as a part worn tyre and not fit for the original intended use.
- Prohibits management, recycling, recovery or disposal of a waste tyre at any facility or on any site, unless such an activity is authorised by law.
- Prohibits recovery or disposal of a waste tyre in a manner that may or may potentially cause pollution or harm to health.
- Prohibits purchase, sale or export of waste tyres unless authorised.
- Prohibits disposal of a waste tyre at a waste disposal facility, two years from the gazetted date, unless such a waste tyre has been cut into quarters; and prohibits disposal of tyres in five years; unless these are shredded.
- Provides regulations in terms of tyre producers, tyre dealers and tyre stockpile owners, particularly regarding waste stockpile abatement and waste tyre storage.

Asbestos Regulations

On 28 March 2008, the Minister of Environmental Affairs and Tourism published as Government Notice R.341 of 2008 entitled "Regulations for the prohibition of the use, manufacturing, import and export of asbestos and asbestos containing materials" under Section 24B of ECA (thus now the Waste Act). This would have implication for phasing out of asbestos containing material, which may therefore result in higher quantities of asbestos waste.

Mineral and Petroleum resources Development Act

The objective of the Mineral and Petroleum resources Development Act (No. 28 of 2002), amongst others, is to give effect to section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

Municipal Structures Act

The main objective of Local Government: Municipal structures Act (Act 117 of 1998) is to provide for the establishment of municipalities in accordance with the requirements relating to categories and types of municipalities, to provide for an appropriate division of functions and powers between categories of municipality, to provide appropriate electoral systems and to provide for matters connected therewith.

The functions and powers of municipalities are set out in Chapter 5 of the Act, with a municipality having the functions and power assigned to it in terms of sections 156 and 229 (dealing with fiscal powers and functions) of the constitution.

Municipal Systems Act

As intended by the Constitution, Waste management services such as refuse collection, removal, transportation and disposal is generally the responsibility of local municipalities.

Municipal Systems Act (Act 32 of 2000) with respect to the Local Government Municipal Systems Act (MSA) defines a municipal service as follows:

"A serviced that a municipality in terms of its powers and functions provides or may provide for the benefit of the local community irrespective of whether

(a) Such a service is provided, or to be provided, by the municipality through an internal mechanism contemplated in section 76 or by engaging an external mechanism contemplate in section 76; and

(b) fees, charges or tariffs are levied in respect of such a service or not."

Chapter 8 Section 73 - 82 outlines certain general duties on municipalities in relation to the municipal service as highlighted below.

In terms of section 75(1), a municipality must give effect to the provisions of the Constitution and must:

- Give priority to the basic needs of the local community.
- Promote the development of the local community.

Ensure that all members of the local community have access to at least the minimum level of available resources and the improvement of standards of quality over time.

In terms of section 75(2), municipal services must – be equitable and accessible; be provided in a way, which promotes the prudent, efficient and effective use of available resources and the improvement of standards of quality over time; be financially sustainable; be environmentally sustainable, and be regularly reviewed with a view to upgrading, extension and improvement.

Section 74 regulates tariff policy in respect of municipal services. A municipality is obliged to adopt and implement a tariff policy on levying fees for municipal services. A municipality's tariff policy must reflect at least the following principles:

- People who use municipal services must be treated equitably in the application of tariffs.
- In general terms, what individual users pay for services should be in proportion to their use of the services.
- Poor households must have access to at least basic services. Different ways of providing for this are suggested, for example lifeline tariffs and subsidisation.
- Tariffs must reflect the costs reasonable associated with providing the service for example capital, operating, maintenance, administration and replacement costs and interest charges.
- Tariffs must be set at levels which allow the service to be financially sustainable.
- In appropriate circumstances, surcharges on tariffs may be allowed.
- Special tariffs may be set for categories of commercial and industrial users in order to promote local economic development.
- The economical, efficient and effective use of resources must be promoted, as well as the recycling of waste and other appropriate environmental objectives
- Any subsidisation of tariffs should be fully disclosed.

Section 78 prescribes the process which municipalities must follow when they decide through which mechanism to provide a municipal service in their areas. There are particular provisions, which a municipality must comply with when it provides a municipal service through a service delivery agreement with what the MSA terms "external mechanisms".

The MSA contains extensive provisions pertaining to public participation. In particular, the community has the right to contribute to decision-making processes by its municipality. A municipal council must establish appropriate mechanisms, processes and procedures to enable residents, communities and stakeholders in the municipality to participate in the local affairs. It is pertinent to reiterate that waste management services as provide by the municipality is an integral part of local affairs.

As such municipalities' mechanisms must provide for:

- The receipt, processing and consideration of petitions and complaints lodged by residents, communities and stakeholders in the municipality.
- The receipt, processing and consideration of written objections and representations with regard to any matter to which it is required to invite public comment.
- Public meetings of residents, on a ward or any other basis.
- Public hearings by the council and its committees when appropriate.
- Surveys among residents when appropriate and the processing and publication of the results.

Development Facilitation Act

The Development Facilitation Act (Act 67 pf 1995) provides specific principles for:

- Land development and conflict resolution.
- Controls on land occupation.
- Recognition of informal land-development practices.

These principles are set out in sections 3 and 4 of the Development Facilitation Act and form the basis for most of the integrated development plan. Chapter one of the Development Facilitation Act sets out principles which affect all decisions relating to the development of land.

This means that whenever a municipality, a development tribunal, a Member of the Executive Council (MEC) or any other authority is considering an application for the development of land, they must make sure that their decision is consistent with these principles. Any integrated development plan must, in terms of the Local Government Transition Act, be based on these principles too.

The Development Facilitation Act's principles form the basis of integrated development planning - in particular the land-development objectives. In terms of section 2 of the Act, the general principles which are set out in section 3 of the Act include:

- Policy, administrative practice and the law should promote efficient and integrated land development in that they:
- Promote the integration of the social, economic, institutional and physical aspects of land development.
- Promote integrated land development in rural and urban areas in support of each other.
- Encourage environmentally sustainable land development practices and processes.
- Members of communities affected by land development should actively participate in the process of land development.
- Policy, administrative practice and laws should encourage and optimize the contributions of all sectors of the economy (government and non-government) to land development so as to maximize the Republic's capacity to undertake land development.
- Laws, procedures and administrative practice relating to land development should:
- Be clear and generally available to those likely to be affected thereby.
- In addition to serving as regulatory measures, also provide guidance and information to those affected thereby.
- Be calculated to promote trust and acceptance on the part of those likely to be affected thereby.
- Give further content to the fundamental right set out in the constitution.
- Policy, administrative practice and laws should promote sustainable land development at the required scale, in that they should, inter alia, promote sustained protection of the environment.
- Policy, administrative practice and law should promote speedy land development.
- Each proposed land development area should be judged on its own merits and no particular use of land, such as residential, commercial, conservation, industrial, community facility,

mining, agricultural or public use, should in advance or in general, be regarded as being less important or desirable than any other use of land.

- A competent authority at national, provincial and local government level should co-ordinate the interests of the various sectors involved in or affected by land development so as to minimize conflicting demands on scarce resources.

The Physical Planning Act

The objective of the Physical Planning Act 125 of 1991 is to provide for the division of the country into regions and to promote regional development. Policy plans consist of broad guidelines for the future physical development of the area and restrictions are placed on the use of land in the area to which the plan relates. Local authorities are required to develop urban structure plans for their areas of jurisdiction.

Promotion of Administrative Justice

The purpose of the Promotion of Administrative Justice Act ("PAJA") (Act 3 of 2000) is principally to give effect to the right to administrative action that is lawful, reasonable and procedurally fair; and to the right to written reasons for administrative action as contemplated in section 33 of the Constitution; and to provide for matters incidental thereto.

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

Promotion of Access to Information

Promotion of Access to Information, (Act 2 of 2000) is closely linked to the notion of administrative justice is the right of access to information. Without access to information, a person may be unable to determine whether or not his or her right to just administrative action (or to an environment not harmful to human health or well-being or, for that matter, any other Constitutional right) has been infringed. The purpose of the Promotion of Access to Information Act ("PAIA") is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith.

National Policies and Guidelines

White Paper on Environmental Waste Management

The White Paper on Environmental Management was published in 1998. This policy sets out government's objectives in relation to environmental management, how it intends to achieve its objectives, and to guide government agencies and organs of state in developing strategies to meet their objectives.

The policy document is an overarching policy framework that refers to all government institutions and to all activities that impact on the environment. The policy states that government will allocate functions to the institutions and spheres of government that can most effectively achieve the objectives of sustainable development and integrated environmental management. This would include the allocation of certain functions to the municipal sphere of government. Where appropriate, provincial and local governments are to develop their own legislation and implementation strategies in order to address their specific needs and conditions within the framework of the policy.

White Paper on Integrated Pollution and Waste Management

The White Paper on Integrated Pollution and Waste Management (1999) is a subsidiary policy of the overarching environmental management and constitutes South Africa's first policy document focused on integrated waste management. This national policy set out Government's vision for integrated pollution and waste management in the country and applies to all government institutions and to society at large and to all activities that impact on pollution and waste management.

Integrated pollution and waste management is defined as a holistic and integrated system and process of management aimed at pollution prevention and minimisation at source, managing the impact of pollution and waste on the receiving environment and remediating damaged environments. Waste management is to be implemented in a holistic and integrated manner and extend over the entire waste cycle from cradle-to-grave and will include the generation, storage, collection, transportation, treatment and the final disposal of waste.

The overarching goal reflected in the policy, is integrated pollution and waste management. The intention is to move away from fragmented and uncoordinated pollution control and waste management, towards an approach that incorporates pollution and waste management as well as waste minimisation.

Within this framework, the following strategic goals apply:

- Effective institutional framework and legislation.
- Pollution and waste minimisation, impact management and remediation.
- Holistic and integrated planning – the intention is to develop mechanisms to ensure that integrated pollution and waste management considerations are integrated into the

development of government policies, strategies and programmes as well as all spatial and economic development planning processes and in all economic activity.

The strategic mechanisms include the following:

- The incorporation of integrated environmental management principles and methodologies in spatial development planning as it relates to pollution and waste management.
- Making timeous and appropriate provision for adequate waste disposal facilities.
- Developing management instruments and mechanisms for the integration of pollution and waste management concerns in development planning and land allocation.
- Developing appropriate and agreed indicators to measure performance for inclusion in Environmental Implementation Plans and Environmental Management Plans as provided for in the National Environmental Management Act.
- Participation and partnerships in integrated pollution and waste management governance.
- Empowerment and education in integrated pollution and waste management.
- Information management.
- International co-operation.

National Waste Management Strategy

The first NWMS was published in 1999 by the then DEAT and the then DWAF. It was the first strategy for addressing South Africa's waste management challenges. The strategy effectively defines South Africa's vision for waste management highlighting themes such as "cradle to grave" management of waste products and the waste management hierarchy which encourages waste disposal only as a last resort.

The NWMS has been revised in 2011 in line with Chapter 2, Part 1, of the Act which requires the establishment of a NWMS within two years of the Act coming into effect. Significant changes include the addition of "remediation" to the waste management hierarchy, and the consolidation of what was previously many different action plans into a single action plan.

The 2011 strategy defines eight strategic goals with a number of targets, as presented in the table below. The NWMS strategy is currently under review and is anticipated to be gazetted in 2019.

Goals and targets of the NWMS (2011)

Goal	Description	Targets 2016
Goal 1	Promote waste minimisation, re-use, recycling and recovery of waste.	• 25% of recyclables diverted from landfill sites for re-use, recycling or recovery. • All metropolitan municipalities, secondary cities and large towns have initiated separation at source programmes.

Goal	Description	Targets 2016
		• Achievement of waste reduction and recycling targets set in Industry IWMPs for paper and packaging, pesticides, lighting (CFLs) and tyre industries
Goal 2	Ensure the effective and efficient delivery of waste services.	• 95% of urban households and 75% of rural households have access to adequate levels of waste collection services. • 80% of waste disposal sites have permits.
Goal 3	Grow the contribution of the waste sector to the green economy.	• 69 000 new jobs created in the waste sector • 2 600 additional SMEs and cooperatives participating in waste service delivery and recycling
Goal 4	Ensure that people are aware of the impact of waste on their health, well-being and the environment.	• 80% of municipalities running local awareness campaigns. • 80% of schools implementing waste awareness programmes.
Goal 5	Achieve integrated waste management planning.	• All municipalities have integrated their IWMPs with their IDPs and have met the targets set in IWMPs. • All waste management facilities required to report to SAWIC have waste quantification systems that report information to WIS.
Goal 6	Ensure sound budgeting and financial management for waste services.	• All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs.
Goal 7	Provide measures to remediate contaminated land.	• Assessment complete for 80% of sites reported to the contaminated land register. • Remediation plans approved for 50% of confirmed contaminated sites.
Goal 8	Establish effective compliance with and enforcement of the Waste Act.	• 50% increase in the number of successful enforcement actions against non-compliant activities. • 800 EMIs appointed in the three spheres of government to enforce the Waste Act.

The overall objective of this strategy is to reduce the generation of waste and the environmental impact of all forms of waste and thereby ensure that the socioeconomic development of South Africa, the health of the people and the quality of its environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management.

The internationally accepted waste hierarchical approach was adopted of waste prevention/minimization, recycle/reuse, treatment and finally disposal. The strategy outlines the functions and responsibilities of the three levels of government and where possible, firm plans and targets are specified.

Action plans have been developed for reaching all of the eight goals.

Polokwane Waste Summit Declaration

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

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

Goals - To reduce waste generation and disposal by 50% and 25% respectively by 92012 and develop a plan for zero waste by 2022

Key actions in the Polokwane Declaration include the following:

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

Local Government Turnaround Strategy

Cabinet approved the Local Government Turnaround Strategy (LGTAS) on the 3 December 2009 in Pretoria. The LGTAS recognised that each municipality faces different social and economic conditions and has different performance levels and support needs. Thus, a more segmented and differentiated approach was required to address the various challenges of municipalities. In addition, cabinet recognised that the problems in Local Government are both a result of internal factors within the direct control of municipalities as well as external factors over which municipalities do not have much control. (Department of Cooperative Governance and Traditional Affairs, Dec 2009.)

The LGTAS identifies the internal factors related to for example the following:

- Quality of decision-making by Councillors.
- Quality of appointments.
- Transparency of tender and procurement systems and levels of financial management and accountability.
- Levels of financial management and accountability.

The external factors relate to:

- Revenue base and income generation potential.
- Inappropriate legislation and regulation.
- Demographic patterns and trends.

- Macro and micro-economic conditions.
- Undue interference by political parties and weaknesses in national policy.
- Oversight and Inter-Governmental Relations.

Ultimately the aim of the LGTAS is to:

- Restore the confidence of the majority of our people in our municipalities, as the primary delivery machine of the developmental state at a local level.
- Re-build and improve the basic requirements for a functional, responsive, accountable, effective, and efficient developmental local government.

The LGTAS sets out five strategic objectives with associated key interventions. Probably most relevant in the context of waste management is the first objective, i.e. to *"Ensure that municipalities meet basic needs of communities. This implies that an environment is created, support provided, and systems built to accelerate quality service delivery within the context of each municipality's conditions and needs"*.

Interventions to achieve the various objectives include better organisation by National Government and improved support and oversight from provinces in relation to Local Government. Furthermore, municipalities are to reflect on their own performance and tailor-made turnaround strategies, while all three spheres of governments should improve inter-governmental relations. Also, political parties are to promote and enhance institutional integrity of municipalities and a social compact on Local Government where all citizens are guided in their actions and involvement by a common set of governance values.

In terms of the LGTAS an immediate task is for agreements to be reached with each province on the roll-out programme to establish different provincial needs and capacities, which will guide how municipalities are to be supported to prepare and implement their own tailor-made turnaround strategies that must be incorporated into their IDPs and budgets (by March 2010). Key stakeholders and ward committees were to be mobilised early in 2010. By July 2010, all municipalities were to be in full implementation mode of the national and their own Turn-around Strategies. (Department of Cooperative Governance and Traditional Affairs, Dec 2009.)

Minimum Requirements Documents; Department of Water Affairs and Forestry

The DWAF Minimum Requirements: Waste Management Series were formulated in the form of guideline documents as a joint venture between DWAF and the Department of Environmental Affairs and Tourism (DEAT).

The objective of the Minimum Requirements is to establish a framework for standards for waste management in South Africa. The former DWAF published the second edition of the Minimum Requirements series in 1998, consisting of the following three documents:

- Document 1: Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste.

- Document 2: Minimum Requirements for Waste Disposal by Landfill.
- Document 3: Minimum Requirements for Monitoring at Waste Management Facilities.

The third edition was released in draft form in 2005, but only Document 1 (DEAT, 2005) has been finalised.

The Minimum Requirements provide applicable waste management standards or specifications that should be met, as well as providing a point of departure against which environmentally acceptable waste disposal practices can be assessed. The objectives of setting Minimum Requirements are to:

- Prevent water pollution and to ensure sustained fitness for use of South Africa's water resources.
- Attain and maintain minimum waste management standards in order to protect human health and the environment form the possible harmful effects caused by the handling, treatment, storage and disposal of waste.
- Effectively administer and provide a systematic and nationally uniform approach to the waste disposal process.
- Endeavour to make South African waste management practices internationally acceptable.
- Ensure adherence to the Minimum Requirement conditions from the permit applicant before a waste disposal site permit is issued.
- Promote the hierarchical approach to waste management, as well as a holistic approach to the environment.

The series formed the basis for the permitting process that had been required in terms of Section 20 of the ECA. The requirements, standards and procedures covered in the series had generally been included as permit conditions, thereby becoming legally binding on the permit holder. In addition to requirements for the establishment and operation of a landfill site, the permit holder was generally required to operate, maintain and attend to the closure of a waste disposal site in compliance with the permit conditions, as well as in accordance with the guidelines set out in the Minimum Requirements documents. Note that an EIA must be conducted prior to the establishment of waste disposal facilities. However, the above-mentioned waste activity has now been repealed and instead requires a license application under the Waste Act.

The third edition was released in draft form in 2005, but only Document 1 (DEAT, 2005) has been finalised.

National Policy for Basic Refuse Removal Services to Indigent Households

The National Policy for the Provision of Basic Refuse Removal Services to Indigent Households (GN No. 34385) was published in the Government Gazette in June 2011.

The purpose of this policy is to ensure that indigent households have access to at least a basic refuse removal (BRR) service.

This Policy aligns to existing relevant legislation, as in accordance to 74 (2)(c) of the Municipal Systems Act, 2000 (Act No. 32 of 2000) poor households must have access to at least basic services and section 9 (2) of NEMWA (Act 59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services, including waste collection, waste storage and waste disposal, by (c) ensuring access for all to such services.

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

Implementation plans include each municipality:

- declaring specific localities as the recipients of basic refuse removal services;
- maintaining "accurate and updated" registers of indigent people;
- taking action in the event of malpractice;
- integrating basic refuse removal into "basic indigent policies";
- designating the administration of the policy to the "most appropriate department"; and
- raising awareness.

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

National Policy in Thermal Treatment of General and Hazardous Waste

The Thermal Waste Treatment of General and Hazardous Waste Policy was gazetted (GN No. 32439) for public comment on 30 January 2009 and published under the Waste Act on 24 July 2009. The policy presents the Government's position on thermal waste treatment as an acceptable waste management option in South Africa. It also provides the framework within which incineration and co-processing treatment technologies of general and hazardous waste should be implemented in the country.

All Government Departments across the different spheres of government must consider this policy in their decision making on matters pertaining to thermal treatment of waste.

The policy presents objectives which vary thematically. These consider the integration of thermal waste treatment into the integrated waste management system. Schedules one to four provide guidelines on the following:

(a) Air Emission Standards – Waste Incineration

Listed air emission standards for general and hazardous waste incinerators, brought into operation subsequent to the final gazetting of this policy, to be complied with until the formalisation of The

Minimum Emission Standards in terms of Section 21 of the National Environmental Management: Air Quality Act of 2004.

(b) Air Emission Standards – AFR Co-Processing

The Minimum Emission Standards for Alternative Fuels and Raw Materials (AFR) co-processing is currently in the process of being formalised in terms of Section 21 of the National Environmental Management: Air Quality Act of 2004. In the interim this policy constitutes the air emission standards for all cement kilns co-processing AFR.

(c) Waste Excluded from Co-Processing

Listed types of waste that are not allowed to be received, stored, handled or co-processed in cement kilns.

(d) Conditions of Environmental Authorisation

Any cement plant co-processing general or hazardous waste as alternative fuels and/or raw materials, and any dedicated general and/or hazardous waste incinerator must have the relevant approvals from the competent authority. This schedule includes notes on operational management, air quality management, waste management and monitoring and reporting.

National Waste Information Regulations

The National Waste Information Regulations came into effect on 01 January 2013.

These cover registration of persons who conduct certain waste management activities and their duty to keep records. Annexure 1 of the regulations lists activities including recovery and recycling, treatment and disposal of waste for which the person conducting the activity must register in terms of GR 625 of 2012. The municipality has a duty in terms of waste disposal to land (as well as operating waste recycling or treatment facilities) to report waste types and quantities in accordance with these regulations to SAWIC on a quarterly basis. Amendments to the National Waste Information Regulations were released for public comment in July 2018 (GN 701 of 2018), the major change in the regulations was the requirement for waste transporters to register. Other proposed changes to the regulations were a decrease in the allowable reporting timeframes from the closure of a reporting period from 60 days to 30 days and registration and reporting thresholds recovery of hazardous waste being decreased from 500kg to 100kg a day.

National Policy for the provision of basic refuse removal services to indigent households

The National Policy for the provision of basic refuse removal services to indigent households as published for general information in notice 413 of Government Gazette No. 34385 on 22 June 2011 was developed in response to the constitutional requirement that all households should have access to basic services regardless of their income level, as well as the adoption of a free basic services in 2001.

This Policy aligns to existing relevant legislation, as in accordance to 74 (2)(c) of the Municipal Systems Act, 2000 (Act No. 32 of 2000) poor households must have access to at least basic services and section 9 (2) of NEMWA (Act 59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services, including waste collection, waste storage and waste disposal, by (c) ensuring access for all to such services.

Implementation plans include each municipality:

- Declaring specific localities as the recipients of basic refuse removal services.
- Maintaining "accurate and updated" registers of indigent people taking action in the event of malpractice.
- Integrating basic refuse removal into "basic indigent policies."
- Designating the administration of the policy to the "most appropriate department."
- Raising awareness.

The policy includes:

- A "grid of responsibilities" for each sphere of government.
- A policy monitoring and evaluation plan.

According to the grid of responsibilities, national government will take responsibility for building capacity at provincial and municipal level, with provincial government determining municipal capacity and assisting district municipalities in "drawing up guidelines".

National Domestic Waste Collection Standards

The National Domestic Waste Collection Standards (notice 21 of Government Gazette 33935, 21 January 2011) published under the National Environmental Management: Waste Act (Act No. 59 of 2008) came into effect on Tuesday, 1 February 2011.

This standard aims to provide a uniform framework within which domestic waste should be collected in South Africa. This comes after a consultative process with provinces, municipalities and the general public in order to redresses the past imbalances in the provision of waste collection services. The standards aim to guide municipalities on how to provide acceptable, affordable and sustainable waste collection service to the human health and the environment.

The standards cover the levels of service, separation at source (between recyclable and non-recyclable materials), collection vehicles, receptacles, collection of waste in communal collection points, and most importantly the frequency of collection. Non-recyclable material such as perishable food waste must be collected at least once a week and recyclable material such as paper, plastic, glass etc. must be collected once every two weeks. Municipalities have a choice to provide different types of bins taking into consideration the type of vehicles they use; however, they must be rigid and durable to prevent spillage and leakage.

The development of the standards took into consideration the existing innovative practices at local government level across the country and seeks to build on what has already been achieved whilst emphasizing a need to separate recyclable and non-recyclable domestic waste and the protection of human health and the environment.

National Norms and Standards for Assessment of Waste for Landfill Disposal

The National Norms and Standards for Assessment of Waste for Landfill Disposal (GR635, 23 Aug 2013) require the assessment of waste prior to disposal at landfill. The assessment of waste before disposal must include identification of the total and leachable concentrations of different chemicals. The concentration of chemicals determines the classification of the waste which in turn dictates the type of disposal site where the waste can be disposed of.

Waste Classification and Management Regulations

The Waste Classification and Management Regulation (GR635, 23 Aug 2013) aims to address the management of different waste categories. The regulations stipulate the requirements for the transport storage and treatment of different waste types. A list of requirements for record keeping by waste generators is also included in the regulations with the aim of improving and standardising record keeping. The regulations also detail the process to be followed when motivating why a listed waste management activity does not require a waste management license.

National Norms and Standards for Disposal of Waste to Landfill

The National Norms and Standards for Disposal of Waste to Landfill (GR636, 23 Aug 2013) specify minimum engineering design requirements for landfill sites. The design requirements vary depending on the type of waste to be disposed of at the site.

Landfill sites are designed to comply with one of four designs (Class A – Class D). The landfill design classes vary in the types of liner used. Class A landfill sites require multiple linings and leachate collection systems whereas a Class D landfill site is much simpler in design requiring only a 150 mm base preparation layer. Different classes of landfill are required for different types of waste.

National Norms and Standards for the Storage of Waste

The National Norms and Standards for the Storage of Waste (GN 926, Nov 2013) specify the minimum requirements for waste storage facilities in the interest of protection of public health and the environment. The standards aim to ensure that waste storage facilities are managed according to best practise and to provide a minimum standard for the design and operation of new and existing waste storage facilities.

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

The standards also specify design requirements for waste storage facilities, these include:

- Access roads
- Signage at the entrance of the facility in at least three official languages applicable to the areas the facility is located in. The sign must indicate:
    - The risk associated with entering the site.
    - Hour of operation.
    - Name, address and telephone number of the person responsible for the operation of the facility.

The standards also require that waste is separated at source into recyclables and non-recyclables.

A new condition for the management of waste storage facilities is the requirement for bi-annual internal audits and biennial external audits

National standards for the extraction, flaring or recovery of landfill gas

The National standards for the extraction, flaring or recovery of landfill gas (GN 924 of 2013) aims to control the extraction, flaring and recovery of gas at landfills or recovery facilities to minimise harmful impacts to people and the surrounding environment. The standards require, in planning phase, that an assessment of environmental risks and impacts that are associated with the proposed activities is complied, and that Environmental Management Plan is compiled to mitigate these risks. The standard contains a set of standard procedures for handling and maintaining of equipment for construction, operational and decommissioning phase. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National standards for scrapping or recovery of motor vehicles

The National standards for scrapping or recovery of motor vehicles (GN 925 of 2013) puts forth minimum requirements for the design, construction and upgrading of a motor scrapping facility. The design must consider sensitive environments; drainage systems; storage and operational areas for off-loading, dismantling, liquid waste, shredding, dispatching parts and recyclables. Specific design requirements are set out for different operational areas. Minimum requirements are given for the operational phase including vehicle dismantling, solid waste management, and liquid waste management. Minimum requirements in the decommissioning phase focus on the compilation of a rehabilitation plan for the facility and disposal of contaminated wastes. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National norms and standards for sorting, shredding, grinding, crushing, screening of waste

The National norms and standards for sorting, shredding, grinding, crushing, screening of waste (GN 1093 of 2017) require all waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) less than 100m^2 in size to register with the competent authority and provide details including

the location, types of waste processed, and civil design drawings of the facility as set out in Section 4 of the standard.

The standards require all waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) more than 100m^2 in size register with the competent authority as set out in Section 4 of the standard, as well as comply with requirements for the location, design, construction, access control and signage. Operational requirements in Section 8 of the standard address management of operational impacts such as control of hazardous substances, air emissions, discharging of wastewater, noise and odour emissions. The standard also covers training, emergency response, monitoring and reporting, general requirements, requirements during the decommissioning phase and transitional provisions.

Local Strategy and Policies

Municipal By-laws

Chapter 7 of the South African constitution: Section 156 provides that a municipality may make and administer by-laws for the effective administration of matters which it has the right to administer and that (section 151) it shall not be in conflict with national or provincial legislation.

This is further supported in the municipal systems act (Act 32 of 2000), Chapter 3: section 11 for a municipality to exercise executive authority within its boundaries to implement applicable by-laws. Section 75 of the MSA provides for the municipal council to adopt by-laws to give affect and enforce its tariff policy.

The Draft Municipal Sector Plan (Notice 182 of Government Gazette 34167) was published by the Minister for public comment on the 30 March 2011. Section 3.3.9.5 motivates that the enforcement of municipal waste by-laws is required to address ineffective collection systems through the enforcement of available resource-based controls which will improve the situation at community level. Enforcement should further be placed with a dedicated section with trained Environmental Management Inspectors in line with Chapter 7 of the National Environmental Management Act, 1998 (Act107 of 1998

Appendix C: Participation and Comments and Response Report

To be completed post the public participation process.