Kannaland Local Municipality

Kannaland Local Municipality
Integrated Waste Management Plan
3rd Generation
2020 – 2024
DRAFT

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Kannaland Local Municipality Integrated Waste Management Plan
DRAFT
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Abbreviations / Acronyms / Definitions

C&DW	Construction and demolition waste
DEA&DP	Department of Environmental Affairs and Development Planning
DEFF	Department of Environment, Foresty and Fisheries [formerly Department of Environmental Affairs (DEA)
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)
EPWP	Expanded Public Works Programme
eWASA	e-Waste Association of South Africa
FBRR	Free Basic Refuse Removal
GDPR	Gross Domestic Product per Region
GRDM	Garden Route Disitrct Municipality
GRWMIS	Garden Route Waste Information System
HCRW	Health Care Risk Waste
HWMP	Hazardous Waste Management Plan
IDP	Integrated Development Plan

IPWIS	Integrated Pollution and Waste Information System
IT	Information Technology
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan.
IWMSA	Institute of Waste Management South Africa
KLLM	Kannaland Local Municipality
LAs	Local Authorities (Local and District level authorities)
LM	Local Municipality
MEC	Member of Executive Council
MIIU	Municipal Infrastructure Investment Unit
MRF	Material Recovery Faciliity
NEMA	National Environmental Management Act
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
PUDSS	Permissible Utilisation and Disposal of Sewage Sludge
PVC	Polyvinyl Chloride
RDP	Reconstruction and Development Programme
ROSE	Recycling Oil Saves the Environment
RSA	Republic of South Africa
SABS	South African Bureu of Standards
SANBI	South African National Biodiversity Institute
SAWIS	South African Waste Information Centre
UN	United Nations
WCIWMP	Western Cape Integrated Waste Management Plan
WHO	World Health Organisation
WIS	Waste Information System
WMO(s)	Waste Management Officer(s)
WWTW	Waste Water Treatment Works

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1 Introduction

The Kannaland Local Municipality (KLLM) 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 Department of Environmental Affairs and Development Planning (DEA&DP) and then incorporated into the municipal IDP.

In terms the Municipal Systems Act, a municipality must give effect to the provisions section 152 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.

GIBB Pty Ltd (hereafter referred to as GIBB) has been appointed for the revision of the Garden Route District Municipality (GRDM) IWMP and the IWMPs for the seven local municipalities in the GRDM, namely:

- Kannaland Local Municipality (KLLM)
- Mossel Bay Local Municipality (MBLM)
- Bitou Local Municipality (BLM)
- George Local Municipality (GLM)
- Hessequa Local Municipality (HLM)
- Knysna Local Municipality (KLM)
- Oudtshoorn Local Municipality (OLM)

1.1 Definition of Waste

The Waste Act defines waste as follows:

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

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

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

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

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

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

1.2 Contents of an IWMP

The Waste Act 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 6.3 Demographics
12(1)(a)(ii)	An assessment of the quantities and types of waste that are generated in the area	Section 6.6 Waste Profile and section 6.7 Waste Generation
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 6.12 Waste Services Section 6.13 Waste Recycling Section 6.14 Management of Hazardous Waste Section 6.15 Organic Waste Management Section 6.16 Waste Management Facilities 6.17 Other Waste Management Services
12(1)(a)(iv)	The number of persons in the area who are not receiving waste collection services	Section 6.4 Type of Housing and Access to Services Section 6.12 Waste Services
12(1)(b)	Within the domain of the municipality, set out how the municipality intends to:	
12(1)(b)(i)	To give effect, in respect of waste management, to chapter 3 of the National Environmental Management Act	Section 1.1 Definition of Waste Section 1.2 Contents of an IWMP Section 1.4 Objectives of an Integrated Waste Management Plan Section 1.5 Integrated Waste Management Plan Development Process
12(1)(b)(ii)	To give effect to the objectives of this Act	Section 3 Legal Requirements Overview Section 4 Waste management Performance Review
12(1)(b)(iii)	To identify and address the negative impacts of poor waste management practise on health and the environment	Section 6.17 Other Waste Management Services Section 6.18 Complaints
12(1)(b)(iv)	To provide for the implementation of waste minimisation, re-use, recycling and recovery targets and initiatives	Section 6.13 Waste Recycling 6.14 Management of Hazardous Waste Section 6.17 Other Waste Management Services
12(1)(b)(v)	In the case of a municipal IWMP, to address the delivery of waste management services to residential premises	Section 6.4 Type of Housing and Access to Services
12(1)(b)(vi)	To implement the Republic's	Section 1.7 Context of Roles and Responsibilities Section

Waste Act section no.	Requirement	Section in the IWMP
	obligations in respect of relevant international agreements	1.8 Alignment with other Strategic Plans Section 3 Legal Requirements Overview
12(1)(b)(vii)	To give effect to best environmental practice in respect of waste management	Section 6.13 Waste Recycling 6.14 Management of Hazardous Waste Section 6.15 Organic Waste Management 6.16 Waste Management Facilities Section 6.17 Other Waste Management Services
12(1)(e)	Establish targets for the collection, minimisation, re-use and recycling of waste	Section 6.12 Waste Services Section 6.13 Waste Recycling 6.14 Management of Hazardous Waste Section 6.15 Organic Waste Management Section 6.16 Waste Management Facilities Section 6.17 Other Waste Management Services
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	6.16 Waste Management Facilities Section 7.1 Landfill Sites Section 7.2 Other Waste Management Facilities
12(1)(g)	Indicate the financial resources required to give effect to the plan	Section 6.22 Financial Management Section 7.1 Landfill Sites Section 7.2 Other Waste Management Facilities
12(1)(h)	Describe how the municipality intends to give effect to its IWMP	Section 8.1 Gaps and Needs Identified in 2014 IWMP Section 8.2 Gaps and Needs Identified in 2019
12(1)(i)	Comply with requirements prescribed by the Minister	Section 1.1 Definition of Waste Section 1.2 Contents of an IWMP Section 1.4 Objectives of an Integrated Waste Management Plan Section 1.5 Integrated Waste Management Plan Development Process

1.3 History of Integrated Waste Management Plans in the Kannaland Local Municipality

This is the third generation IWMP for the KLLM and this plan will cover the period 2020 – 2024. The first generation IWMP for KLLM was developed in 2006, and was then subsequently revised in 2014. An IWMP is typically revised every 5 years to parallel the municipal IDP planning process, and to take into consideration 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 out of sync with the KLLM IDP cycles. The current KLLM IDP (4th generation) covers the period 2017 -2022. The IDP is however reviewed on an annual basis, all the projects listed in the implementation plan of this IWMP should be included in the next annual review of the IDP to ensure budget is allocated for the implementation of the projects.

1.4 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 KLLM over the next 5 years.

The National Waste Management Strategy of 2011 (NWMS) identifies the primary objective of integrated waste management planning as being to: "integrate and optimize waste management so that the efficiency of the waste management system is maximised and the impacts and financial costs associated with waste management are minimised, thereby improving the quality of life of all South Africans."

The NWMS also presents the waste management hierarchy which outlines the preferred methods for management of waste.

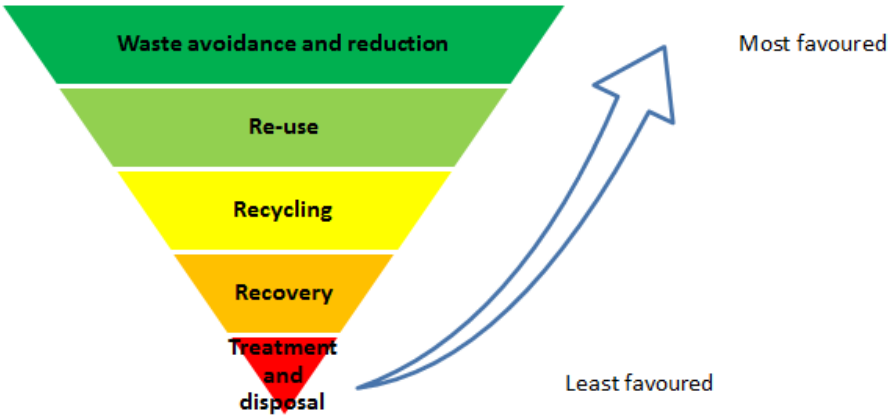


Figure 1: The waste hierarchy as per the National Waste Management Strategy (DEA, 2011)

The 2011 NWMS is currently under review. The goals of both the 2011 and draft 2018 NWMS will be reviewed and incorporated into this IWMP.

1.5 Integrated Waste Management Plan Development Process

In addition to the Waste Act, two documents were considered when developing this IWMP. The first is the Department of Environmental Affairs (DEA) [now known as the Department of Environment, Forestry and Fisheries (DEFF)] Guideline for the Development of Integrated Waste Management Plans (IWMPs). This guideline outlines the following planning process.

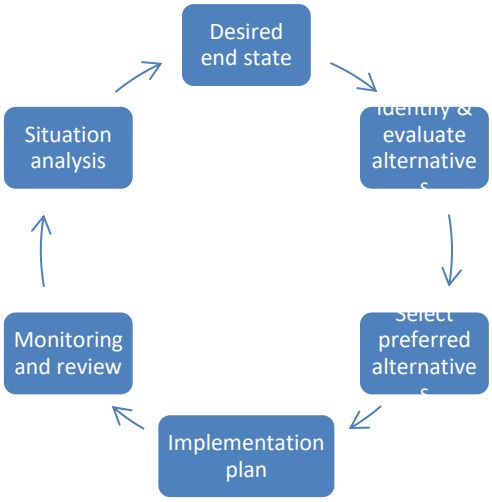


Figure 2: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

The second is a guideline titled "Integrated Waste Management Planning (IWMP), A Guide for Waste Management Planning", developed by DEA&DP, which consists of two volumes:

- Volume 1: Conducting a Status Quo Analysis; and
- Volume 2: Section A: Identification of Waste Management Needs and Objectives, and Section B: Development, Implementation and Evaluation of IWMPs.

Volume 1 presents the detailed planning cycle presented in Figure 3 below which is centred around public participation, education and outreach. This diagram clearly identifies the importance of IWMPs being developed in consultation with key stakeholders (authorities, waste management companies, industries etc.) and the public.

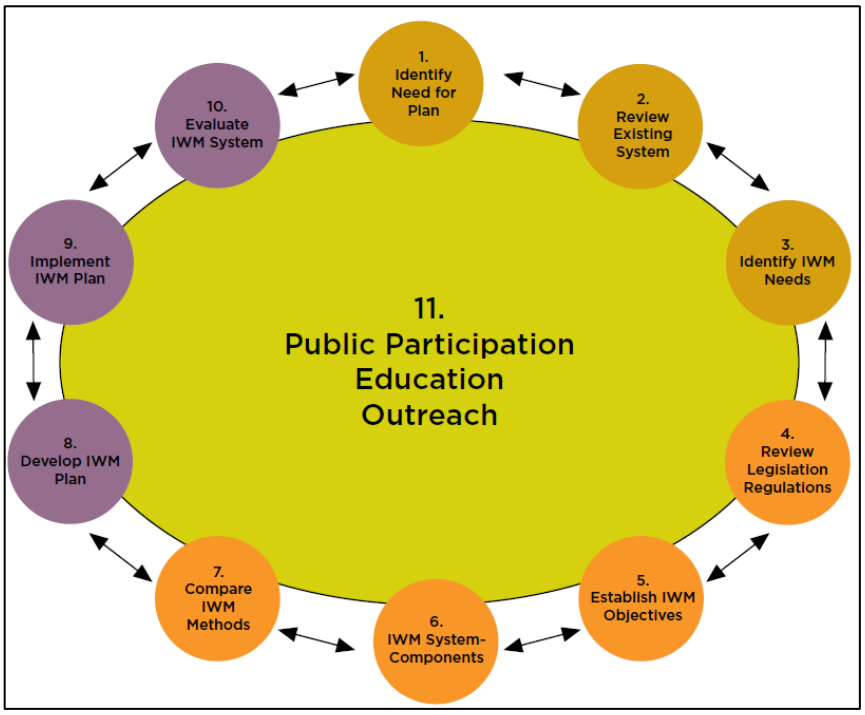


Figure 3: Integrated Waste Management Planning Cycle (source: DEA&DP, undated)

1.6 Scope of the Integrated Waste Management Plan

This IWMP is limited to the jurisdictional area of the KLLM which covers an area of 4,758km^2 and is composed of 4 wards. The KLLM is responsible for basic service provision in the towns of Calizdorp, Ladismith, Van Wyksdorp, Zoar, as well as the surrounding farming communities. The KLLM is one of seven local municipalities which fall under the Garden Route District Municipality (GRDM), formerly the Eden District Municipality, in the Western Cape Province.

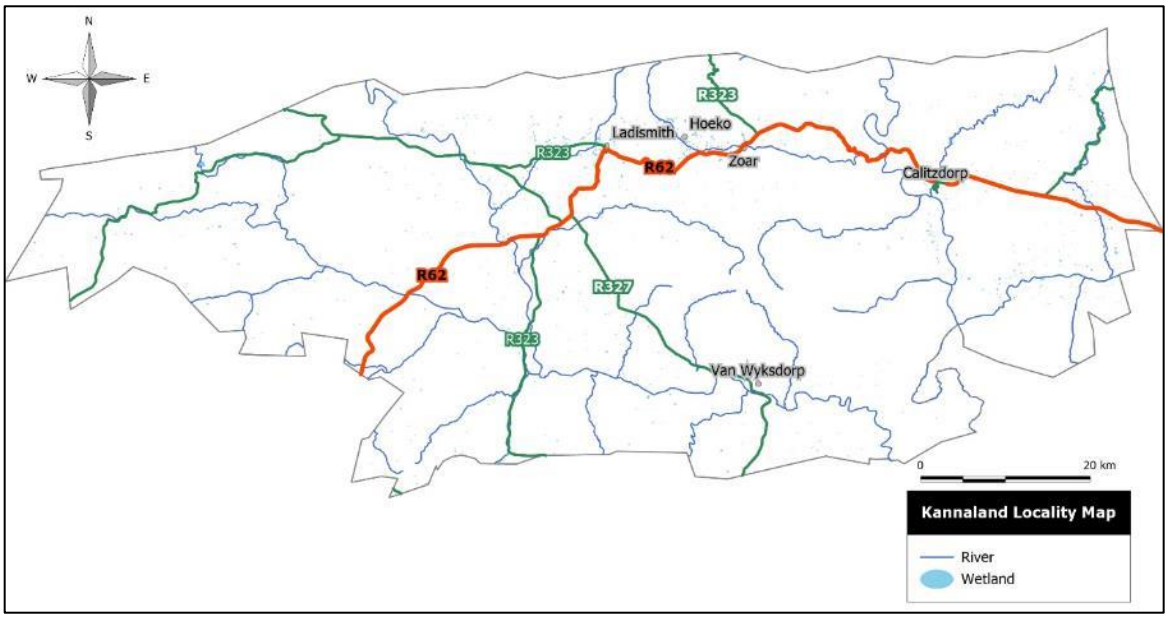


Figure 4: Kannaland Jurisdictional Area

Table 2: Kannaland Municipality largest towns/ settlements (Stats SA, 2011)

Suburb	Total population	% of population
Kannaland NU	7,864	31.7
Zoar	4,659	18.8
Calitzdorp	4,284	17.2
Ladismith	3,742	15.1
Nissenville	3,385	13.6
Van Wyksdorp	833	3.3

1.7 Context of Roles and Responsibilities

1.7.1 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.

1.7.2 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.

1.7.3 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.

(a) Responsibilities in Terms of Garden Route District Municipality By-Laws

The GRDM defines a municipal waste collection service as a service which collects domestic waste and general business waste. This suggests that local municipalities are responsible for the collection of all domestic waste (which would include household hazardous waste) but only general waste generated by business or industry.

1.7.4 Waste Management Officer

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

The responsibilities of the WMO of a local municipality are defined in the National Waste Management Strategy (2011) as:

- Manage stakeholders in the implementation of the Waste Act.
- Liaise with EMI compliance monitoring activities in the municipality.
- Plan and implement the municipal IWMP and subsequent reporting cycles.
- Build capacity in relation to Waste Act implementation.
- Monitor adherence to norms and standards in the delivery of waste services.

The DEA's Guideline for designation of WMOs (DEA, 2008) further expands on the role of the WMO for local municipalities.

1.8 Alignment with other Strategic Plans

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

1.8.1 Alignment with National Strategic Plans

(a) National Waste Management Strategy (2011)

The National Waste Management Strategy (NWMS) is structured around a framework of eight goals. The goals along with their respective targets were supposed to have been met by 2016.

The second generation NWMS is currently under review, however it is anticipated that this IWMP will be finalised before the third generation NWMS is finalised.

Table 3: National Waste Management Strategy Objectives

Goal	Targets for 2016
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 municipalities, and large towns have initiated separation at source programmes. • Achievement of waste reduction and recycling targets as set in industry waste management plans for paper and packaging, pesticides, lighting (CFLs) and tyre industries
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.
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
4. Ensure 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 campaigns
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 SAWIS have waste quantification systems that report information to WIS
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
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.
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 environmental management inspectors (EMIs) appointed in the three spheres of government to enforce the Waste Act

(b) Draft National Waste Management Strategy (2018)

As previously mentioned, the DEFF is currently revising the 2011 NWMS. The 2018 NWMS has three strategic goals to drive an improvement in waste management in South Africa:

1. Waste minimisation
2. Effective and sustainable waste services
3. Awareness and compliance

These are unpacked further in the table below.

Table 4: Summary of 2018 NWMS Goals

Goal	Implementation mechanism
1. Prevent waste, and where waste cannot be prevented, divert 50% of waste from landfill within 5 years; 80% within 10 years; and at least 95% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment.	**Waste Prevention:** • Reduce the generation of waste in the manufacturing sector through cleaner production and industrial symbiosis • Prevent food waste by working with agricultural producers, retailers, the hospitality sector and consumers. **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 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:** • Implementation of the DEA separation at source policy to promote reuse, recycling and recovery of waste • Safe and environmentally sustainable disposable of hazardous household wastes. **Integrated Waste Management Planning:** • Provinces provide effective regional guidance and oversight in the development and implementation of metro, district and local municipality IWMPs within the context of overarching Western Cape Integrated Waste Management Plans • All local authorities to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2020
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.	• Reduction of littering and illegal dumping due to attitudinal shifts and greater public awareness of the environmental damage caused by waste • Enhanced capacity to enforce the Waste Act and International Agreements on waste and pollution • Municipal landfill sites and waste management facilities comply with licensing standards • All local authorities to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2020

(c) Operation Phakisa: Chemicals and Waste Phakisa

Operation Phakisa, an initiative which looks to unlock South Africa's economic potential, sets a number of 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

1.8.2 National Development Plan

South Africa National Development Plan (NDP) 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
- 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.

1.8.3 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.

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 is centred around five pillars:

1. **Put people and their concerns first** and ensure constant contact with communities through effective public participation platforms
2. **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
3. **Be well governed** and demonstrate good governance and administration – cut wastage, spend public funds prudently, hire competent staff, ensure transparency and accountability
4. **Ensure sound financial management and accounting,** and prudently manage resources so as to sustainably deliver services and bring development to communities
5. **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.

1.8.4 Alignment with Provincial Strategic Plans

(a) Western Cape Integrated Waste Management Plan

The first generation Western Cape Integrated Waste Management Plan (WCIWMP) was revised in 2017. The WCIWMP is centred around 4 goals and 14 strategic objectives.

Table 5: Western Cape 2017 IWMP Goals and Objectives

Goal	Strategic Objectives
Goal 1. Strengthen education, capacity and advocacy towards integrated waste management	1. Facilitate consumer and industry responsibility in integrated waste management 2. Promote and ensure awareness and education of integrated waste management 3. Build and strengthen waste management capacity
Goal 2. Improved integrated waste management planning and implementation for efficient waste services and infrastructure	1. Facilitate municipal waste management planning 2. Promote industry waste management planning 3. Promote the establishment of integrated waste management infrastructure and services; and 4. Ensure effective and efficient waste information management
Goal 3. Effective and efficient utilisation of resources	1. Minimise the consumption of natural resources 2. Stimulate job creation within the waste economy 3. Increase waste diversion through re-use, recovery and recycling
Goal 4. Improved compliance with environmental regulatory framework	1. Strengthen compliance monitoring and enforcement 2. Remediate and rehabilitate contaminated land 3. Facilitate the development of waste policy instruments 4. Promote self/co-regulatory measures

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

(b) Provincial Strategic Plan 2014 - 2019

The Western Cape Provincial Strategic Plan 2014 – 2019 is built on the vision of "an open-opportunity society for all". The plan identifies five Provincial Strategic Goals which can assist the province to overcome challenges and move towards realising the aforementioned provincial vision.

The five strategic goals are:

1. Create opportunities for growth and jobs
2. Improve education outcomes and opportunities for youth development
3. Increase wellness, safety and tackle social ills
4. Enable a resilient, sustainable, quality and inclusive living environment
5. Embed good governance and integrated service delivery through partnerships and spatial alignment

(c) Western Cape Provincial Spatial Development Framework

The aim of the 2014 Provincial Spatial Development Framework (PSDF) is the bridge the gap between the National Development Plan and provincial strategies with the aim of improving service delivery. The 2014 Western Cape PSDF identifies that as the population of the Western Cape continues to increase additional waste disposal facilities will be required, unless the waste management hierarchy is implemented. The PSDF further recognises the need for innovation in the waste sector to increase waste recycling and reuse. The need for waste-to-energy in the long term is also referred to in the plan.

Two provincial spatial policies related to waste management were identified:

1. Mainstream waste recycling and reuse in area of high waste generation to unlock economic opportunities and save landfill site airspace
2. Close down illegal waste sites and establish new regional facilities near rail facilities to decrease transportation costs

(d) Western Cape Green Economy Strategy Framework, 2013

The 2013 Western Cape Green Economy Strategy Framework presents the Western Cape's vision of becoming the leading green economic hub in Africa.

The strategy identifies three high level priorities for green growth:

1. Natural gas and renewables
2. Financial infrastructure
3. Green jobs – including the waste sector

(e) Western Cape Waste Awareness Strategy

The Western Cape Waste Awareness Strategy was released by DEA&DP in March 2018. The strategy is designed as a guideline to assist with the successful development and implementation of waste awareness initiatives. The plan identifies several mechanisms to increase waste management awareness and outlines the advantages and disadvantages of each initiative.

1.8.5 Alignment with Regional Strategic Plans

(a) Garden Route District Municipality Integrated Waste Management Plan

The Garden Route District Municipality (GRDM) is in the process of reviewing their district IWMP. The review of the GRDM IWMP will be aligned with the development of IWMPs for the seven local municipalities that fall under the GRDM. The objectives of the KLLM IWMP will be aligned with the GRDM IWMP.

1.8.6 Eden District Municipality Waste Management Policy

The Eden District Municipal Waste Management Policy was approved by council in 2017. The policy outlines the mechanisms through which the GRDM will exercise its responsibilities in terms of waste management. The policy covers the following key items:

1. **Waste information management** – the implementation of the Garden Route Waste Management Information System (GRWMIS)
2. **Waste management plans** – requirements for industry waste management plans and municipal IWMPs
3. **Waste minimisation and recycling** – encourage waste minimisation and recycling, introduce a system of accreditation for waste collectors, transporters and recyclers
4. **Municipal service** – adoption of waste management tariffs for the regional landfill site, establishment of a district inter-municipal waste management forum
5. **Service provider-** makes provision for a service provider to be used to provide waste management services
6. **Categorisation of waste and the management of certain types of waste** – implementation of the National Norms and Standards for Assessment of Waste for Landfill
7. **Commercial services and the accreditation of service providers** – allows for the development of a permit system for hazardous waste management companies.
8. **Administrative enforcement** – enforcement of waste management by-laws, training of municipal officials.

1.8.7 Alignment with Local Strategic Plans

(a) Kannaland Local Municipality Fourth Generation Integrated Development Plan

The fourth generation Kannaland Integrated Development Plan (IDP) covers the period 2017 – 2022. The IDP is centred around seven strategic objectives:

1. **Reliable Infrastructure** - To provide access to reliable infrastructure that will contribute to a higher quality of life for Kannaland citizens
2. **Service Delivery** - To provide adequate services and improve our public relations
3. **Safe Communities** - To strive towards a safe community in Kannaland through the proactive management of traffic, environmental health, fire and disaster risks
4. **Socio-Economic Development** - To facilitate economic growth and social and community development
5. **Effective and Efficient Governance** - To promote efficient and effective governance with high levels of stakeholder participation
6. **Efficient Workforce** - To provide an efficient workforce by aligning our institutional arrangements to our overall strategy
7. **Financial Sustainability** - To strive towards a financially sustainable municipality

The following waste-related projects as per the IDP are planned for the KLLM before 2022:

- Erection of signage for the three landfill sites
- Addressing the issue of stormwater diversion at the landfill sites
- Looking into possibilities of recycling/waste diversion

- Recycling projects
- Further cleaning of illegal dumping sites in Kannaland Municipal Area
- Environmental awareness and clean-up campaigns
- Awareness campaigns on illegal dumping and waste minimisation
- Purchasing of new collection equipment and proper maintenance of vehicles
- Waste removal services to informal settlements as well as farm areas
- Calitzdorp: Solid Waste Transfer Station Project.

Once this IWMP is finalised it will be incorporated into the IDP. The incorporation of the IWMP into the IDP is essential in order for budget to be allocated to the projects which will be identified in the implementation plan.

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 DEFF Guideline for the Development of Integrated Waste Management Plans 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 Integrated Waste Management Plan Review

The 2014 KLLM IWMP was reviewed for content and a performance review of the projects listed in the implementation plan was also undertaken.

2.2.2 Literature Review

A review of legislation was undertaken. This included the following key documents.

- Western Cape Provincial IWMP
- Western Cape Position Papers:
  - Position Paper on the Provision of Municipal Waste Management Services within the Context of Rapid Urbanisation (2017)
  - Position Paper on the Regionalisation of Waste Management Services (2017)
  - Position Paper on Organic Waste Management (2017)
  - Position Paper on Construction and Demolition Waste Management (2017)
- Kannaland second generation IWMP (2014)
- Kannaland fourth generation IDP (2017 – 2022)
- Garden Route Waste Management Information System (GRWMIS), Integrated Population and Waste Information System (IPWIS) and South African Waste Information System (SAWIS) statistics;
- Waste facility licenses
- Statistics SA Census 2011 and Community Survey 2016 data

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

Waste information systems:
This report refers to a number of different waste information systems, a brief description of the different systems is provided below.

1. **South African Waste Information System** (SAWIS) – A national waste information system managed by DEFF. Information reported on the SAWIS is publically accessible through the South African Waste Information Centre (SAWIC)
2. **Integrated Pollutant and Waste Information System** (IPWIS) – A provincial waste information system managed by DEA&DP. Data reported on the IPWIS is uploaded to the SAWIS on a quarterly basis by DEA&DP. The local municipalities in GRDM report data to IPWIS.
3. **Garden Route Waste Management Information System** (GRWMIS)– a district waste information system managed by GRDM

2.2.3 Questionnaires

A questionnaire was developed for use when engaging with private companies and industries. The aim of the questionnaire was to capture information on the generation of business, commercial, agricultural and industrial waste with a focus on hazardous waste. A database of industry in KLLM was developed based on:

- Companies identified in the project initiation meeting
- Recommendations from the KLLM

Details of the industries to which the questionnaires were issued to are shown below.

Table 6: Summary of industries within KLLM to which the commerical waste surveys where issued

Industry type	No. survey issued	No. responses
Dairy	2	1
Winery	2	2
Recycling company	3	3
Vehicle repair workshop	1	0
Total	**8**	**6**

2.2.4 Site Visits and Ground-Truthing

A site visit was undertaken in KLLM on 15 – 18 April 2019. Details of facilities visited and interviews undertake are listed below.

Table 7: Facility inspections undertaken within KLLM as part of this IWMP

Facility	Date of visit
Ladismith landfill site (operational)	16 April 2019
Van Wyksdorp landfill site (operational)	17 April 2019
Zoar landfill site (operational)	17 April 2019
Calitzdorp landfill site (operational)	18 April 2019

2.2.5 Engagements with Kannaland Local Municipality Employees

The following personnel at KLLM were engaged.

Table 8: Stakeholders within KLLM engaged during the review of this IWMP

Designation	No. interviews	Date	Engagement
Waste Manager	1	15 April 2019	Meeting
Supervisor: landfill sites	1	15 April 2019	Meeting
Executive Manager: Financial Services	1	16 April 2019	Meeting
Manager: Administrative Support	1	16 April 2019	Meeting
General workers (refuse collectors)	3	16 April 2019	Interview
Refuse truck driver	2	16 April 2019	Interview
General worker (Ladismith landfill site)	2	16 April 2019	Interview
General worker (Zoar landfill site)	1	17 April 2019	Interview

2.2.6 Project Steering Committee

The review of the KLLM IWMP was undertaken as part of the IWMP review for the entire GRDM. A project inception meeting was held on 26 February 2019 to establish the project steering committee (PSC) which included municipal waste managers from throughout the district. The details of the PSC are presented in the table below.

Table 9: Project Steering Committee Members

Name	Designation	Organisation
Morton Hubbe	Waste Manager	Garden Route District Municipality
Johan Gie	District Waste Management Officer	Garden Route District Municipality
Douglas Baartman	Waste Manager	Bitou Local Municipality
Janine Fernold	Waste Manager	George Local Municipality
Abraham Delport	Supervisor: Landfill Sites	Kannaland Local Municipality
Shirelene Adams	Waste Manager	Kannaland Local Municipality
Randall Bower	Waste Manager	Knysna Local Municipality
Sivuyile Mtila	Senior Manager: Waste Management	Mossel Bay Local Municipality
Rodwell Witbooi	Waste Manager	Oudtshoorn Local Municipality
August Hoon	Deputy Director: Waste Management	DEA&DP
Dean Gilbert	Assistant Director: Waste Management	DEA&DP
Kate Flood	Environmental Scientist	GIBB

2.2.7 Presentations and Workshops

Two workshops of the IWMP were undertaken on 25 June 2019 and 21 August 2019 respectively. The aforementioned were technical workshops which focused on the following:

- Workshop 1: Situation analysis, gap and needs assessment and goals and targets
- Workshop 2: Implementation Plan

Further to this, an overview of the draft IWMP was also presented to the KLLM Council on 21 August 2019. The details of all workshops undertaken are summarised in the table below.

Table 10: Workshops undertaken during the review of this IWMP

Date	Location	No. attendees	Stakeholders in attendance
25 June 2019	Kannaland municipal offices, Ladismith	5	KLLM, GRDM and GIBB
21 August 2019	Kannaland municipal offices, Ladismith	4	KLLM and GIBB
21 August 2019	Kannaland Municipality Council Chambers	-	KLLM and GIBB

2.2.8 Public Participation Process

The KLLM IWMP will be made available for a 21 day period for the public to comment on the document. The availability of the report will be communicated to the public through a newspaper advertisement in the South Cape Forum.
Stakeholders who have been involved in the development of the report will also be notified of the public review period by email.

The report will be made available at the following locations for review:

- Libraries:
  - Ladismith Library, 21 Queen Street, Ladismith
  - Calitzdorp Library, Municipal Complex, Voortrekker Street, Calitzdorp
- GIBB's website: http://projects.gibb.co.za
- KLLM website: https://www.kannaland.gov.za/resource-category/notices?page=5

2.3 Assumptions and Limitations

This situation analysis has drawn information from a number of sources including interviews with municipalities and stakeholders, IWMPs, GRWMIS, IPWIS and SAWIS records, KLLM records and various literature sources. It is assumed that the information given verbally in interviews and documented information is accurate.

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 will be added to the report as **Appendix A.**

Table 11: 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 12: 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).

Legislation/ guidelines	Summary
Montreal Protocol on Substances that Deplete the Ozone Layer (1989)	South Africa is a party to the Montrel Protocol, an international agreement which addresses the phase out of ozone-depleting substances. Regulations to

3.3 Key Changes to Legislation Since 2014

The following table presents key changes and updates to waste legislation since the 2014 IWMP.

Table 13: Key Changes to Legislation since 2014

Legislation	Key changes
National Environmental Management: Waste Amendment Act (Act 26 of 2014)	• Substitution and deletion of some definitions • Establish a waste pricing strategy • Establish a waste management bureau • Transitional arrangement for existing industry waste management plans
National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste (GN 1093 of 2017).	These norms and standards were developed to reduce the licensing requirements for low impact waste management activities. The norms and standards are applicable to all facilities where general waste is sorted, crushed, ground, crushed, screened or baled. All facilities where such activities are undertaken need to be registered with the provincial authority. Facilities with an operational area in excess of 1,000m^2 need to be registered and comply with all the requirements of the norms and standards.
National Environmental Management Waste Act (GN 1094 of 2017) Amendment to the list of waste management activities that have, or are likely to have, a detrimental effect on the environment.	The list of waste management activities that have, or are likely to have, a detrimental effect on the environment were updated in 2015 to remove low impact activities related to waste management including the sorting, shredding, grinding, crushing, screening and bailing of general waste.
National Pricing Strategy for Waste Management	The key aims of the strategy is to increase the diversion of waste from landfill, reduce the generation of waste and encourage reduction, reuse and recycling of waste. The strategy provides a methodology for setting waste management charges. The strategy identifies three economic instruments for waste management: 1. **Downstream instruments** – volumetric tariffs (pay-as-you-throw) and waste disposal taxes which would be applied to landfilling or incineration of waste. 2. **Upstream instruments** – material and input taxes which would apply to virgin materials and hazardous materials, product taxes, advance recycling fees or advance disposal fees, deposit-refund scheme and extended producer responsibility fees. 3. **Subsidy-based instruments** – recycling subsidies, tax rebates and benefits, capital financing.
3rd National Waste Management Strategy	As previously discussed, the 2nd generation NWMS is currently under review. The 3rd generation presents three strategic goals for improving waste management in South Africa.

4 Waste Management Performance Review

4.1 Implementation of 2014 Integrated Waste Management Plan

Projects in the KLLM 2014 IWMP were grouped under the following seven priority areas or goals:

- Promote, educate and raise awareness with regard to integrated waste management
- Improve waste information management
- Ensure the effective and efficient delivery of integrated waste management services
- Promote waste minimisation through the re-use, recycling and recovery of waste
- Improve regulatory compliance
- Ensure the safe and integrated management of hazardous waste
- Ensure the sound budgeting and financial management for integrated waste management service

A total of 54 objectives were identified under the seven priority areas. A review of the implementation status of each of the 54 objectives was undertaken to determine progress made with regard to waste management since the 2014 IWMP.

Projects have been classified as complete, in progress and incomplete. The timeframes for projects have not been considered, for example, if the deadline for a project was 2016 but it was only completed in 2017, it is still listed a complete.

Table 14: Project Status

Status	Description	No. Projects	Percentage of Projects
Complete	The target has been achieved	9	16.7%
In Progress	The implementation of a target is initiated / currently underway but not yet complete	18	33.3%
Not Commenced	No action has been taken to implement the target	21	38.9%
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	6	11.1%
To be confirmed	Additional evidence is required to determine if the status of the project	0	0.0

Table 15: Implementation status of the 2014 IWMP targets

Targets	Implementation	Status	Comments
GOAL 1: PROMOTE, EDUCATE, AND RAISE AWARENESS WRT INTEGRATED WASTE MANAGEMENT			
1.1 OBJECTIVE: Promote integrated waste management within communities, schools and businesses within the municipality			
1.1.1 Achieve education and awareness w.r.t Integrated Waste Management within Schools	1.1.1.1 Implement waste education and awareness through the WAME programme (Waste Management in Education and Schools) (Timeframe – 2014 – 2019)	**In progress**	EPWP employees were used for waste awareness programmes at schools between 2014 –2016. When the EPWP contracts ended in 2016 the awareness programmes also stopped. Waste awareness campaigns recommenced in May 2019 at schools within the KLLM. The KLLM does currently not have designated employees to undertake waste awareness campaigns. The target was not completed due to budgetary and human resource constraints. This project will be included in the implementation plan for the 2020 IWMP.
	1.1.1.2 Establish and support waste recycling within schools through the provision of receptacles and collection services through the youth jobs in waste	**Not commenced**	No waste recycling programmes at schools have been initiated. The target was not completed due to budgetary and human resource constraints. Waste recycling projects for schools will be identified in the implementation plan of this IWMP.
	1.1.1.3 Conduct awareness sessions in collaboration with different stakeholders through public private partnerships (e.g. Nestle, Tiger brands, Woolworths) for the establishment of swap shops for primary school children	**Not commenced**	KLLM has previously undertaken awareness campaigns with business and industry. These campaigns were limited to recycling awareness and no engagement with industry or business has been undertaken to facilitate the establishment of swop shops. The development of swop shops of buy-back centres will be considered in the implementation plan.
1.1.2 Achieve education and awareness w.r.t Integrated Waste Management within Communities	1.1.2.1 Use EPWP workers to capacitate community's w.r.t waste separation at source.	**Not commenced**	There are no separation at source programmes underway in KLLM. EPWP workers were used for general waste awareness campaigns with communities from 2014 to 2016. This target was not achieved as there was no separation at source programmes in place to educate the community on. Waste awareness projects will be included in the implementation plan.
	1.1.2.2 Develop awareness raising materials e.g. pamphlets, rates accounts, newsletters, local radio stations)	**In progress**	KLLM have developed a flyer which provides information on illegal dumping, however no budget was available to print and distribute the flyers. The KLLM has also published articles in the municipal newsletter related to illegal dumping. The target was not fully completed due to budgetary and human resource constraints. The KLLM should make sure of awareness materials which have been prepared by the GRDM. These materials may need to be translated into Afrikaans for use in the KLLM.

Targets	Implementation	Status	Comments
1.1.3 Achieve education and awareness w.r.t Integrated Waste Management within Businesses	1.1.3.1 Liaise with businesses w.r.t the implementation of Extended Producer Responsibility programmes e.g. retailers can establish receptacles for the return of empty containers	**Not applicable**	This target needs to be implemented on national or district level through the development and implementation of industry waste management plans (indWMPs).
1.1.4 Achieve education and awareness w.r.t Integrated Waste Management within health care facilities	1.1.4.1 Develop a communication strategy to target all sectors of society to ensure the safe collection and disposal of pharmaceuticals	**Not applicable**	This target needs to be implemented on a national or provincial level.
	1.1.4.2 Develop standard operating procedures for the safe and responsible management of health care risk waste at health care facilities	**Not commenced**	This target needs to be implemented on a national or provincial level.
1.2 OBJECTIVE: Build internal capacity with regard to Basic Waste Management (BWM) & Integrated Waste Management (IWM)			
1.2.1 Attend and participate in waste management forums	1.2.1.1 Attend and participate in the Eden district waste management meetings	**In progress**	KLLM attended two of the last four district waste management forum meetings. Attendance of meetings is limited by time and budgetary constraints. The KLLM does not have a travel allowance for such meeting. The requirement for KLLM to attend GRDM district waste forums is still deemed necessary and this target will be included in the implementation.
	1.2.1.2 Attend and participate in the Provincial Waste Management Officers Forum	**In progress**	KLLM does not attend all of the Provincial Waste Management Officers forums. Lack of attendance is due to time and budgetary constraints. The KLLM does not have a travel allowance for such meeting. The requirement for KLLM to attend provincial waste forums is still deemed necessary and this target will be included in the implementation.
1.2.2 Ensure the Waste Management Department has suitably qualified staff in integrated waste management	1.2.1.3 Develop individual development programmes for existing staff focussing on integrated waste management principles and ensure the appointment of suitably qualified staff	**In progress**	The training needs of the employees were identified in February 2019. The need for the following training was identified: 1. Waste management regulations 2. Waste classification Training is also needed for employees on the principals of correct landfill site operation and how to undertake internal compliance audits. The training needs for waste employees have been identified but no approved training plans have been developed or implemented. This project will be included in the implementation plan for the 2020 IWMP. There are lack of qualified and experience employees at the HLM to undertake the waste management function. A review of the organogram is needed to identify additional positions.

Targets	Implementation	Status	Comments
GOAL 2: IMPROVE WASTE INFORMATION MANAGEMENT			
2.1 OBJECTIVE: Establish and Implement an accurate waste quantification system			
2.1.1 All waste management facilities to have a waste quantification system in place	2.1.1.1 Train officials on the waste quantification system.	**Complete**	Employees have received training on the DEA&DP Waste Calculator system.
	2.1.1.2 Implement the waste calculator at their integrated waste management facilities	**In progress**	The KLLM are only using the waste calculator system to manually record waste entering the Ladismith and Zoar landfill sites. No records of waste entering the Calitzdorp and Van Wyksdorp landfill sites is occuring. A lack of recording at the Calitzdopr and Van Wyksdorp landfill site is due to a lack of permanent employees. This project will be included in the implementation plan of the 2020 IWMP.
	2.1.1.3 Obtain funding to install weighbridges at all waste management	**Not commenced**	No funding was obtained to install weighbridges at any of the landfill sites. DEFF provided weighpads to the KLLM. The weighpads have been out of operation since 2016 due to damage. The procurement of additional weighpad is no recommended as weighpads frequently break and are therefore not a longer term solution. The KLLM should install weighbridges at landfill sites which will continue to operate for next 5 to 10 years. This project will be included in the implementation plan of the 2020 IWMP.
	2.1.1.4 Maintain and ensure regular reporting of waste information	**In progress**	The KLLM is reporting waste types and quantities received at the Ladismith and Zoar landfills on the IPWIS system. Data is however not reported on a regular basis due to a lack of resources to upload the data. No recording of waste types and quantities received at the Calitzdorp and Van Wyksdorp landfills occurs. This is due to a lack of employees. This project will be included in the implementation plan of the 2020 IWMP.
GOAL 3: ENSURE THE EFFECTIVE AND EFFICIENT DELIVERY OF INTEGRATED WASTE MANAGEMENT SERVICES			
3.1 OBJECTIVE: Ensure that BWM functions are executed in an environmentally and socially acceptable manner			
3.2.1 Ensure all households, informal settlements and farmers receive collection services of general and source separated waste	3.2.1.1 Conduct an analysis of current waste management services and compare with best practices	**Not commenced**	The KLLM does not have a list of serviced and unserviced areas. Based on discussions with the Waste Manager it appears that most formal households in the main towns are serviced, farms do not receive a service and some households in informal settlements receive a collection service but not all. This project has not been undertake due to a lack of human resources. This project will be worked into the implementation plan.
	3.3.1.1 Implement integrated waste management services aligned to best practices e.g. source separation systems.	**Not commenced**	A separation at source programme has not yet commenced in the KLLM. The KLLM plans to initiate a pilot programme in Ladismith. Some clear bags for the pilot project was received by the KLLM. The pilot is dependent on setting up an agreement with a

Targets	Implementation	Status	Comments
			local recycling company to manage the source separated recyclables. The project did not commence as KLLM was unable to finalise a partnership with a recycling company to purchase the collected recyclables. A pilot separation at source programme will be included as a project in the implementation plan.
	3.2.1.2 Ensure personnel and resource capacity to adequately manage basic waste management functions	**Not commenced**	There are insufficient staff available to fulfil basic waste management functions such as data management, awareness campaigns and landfill site management. A review of the organogram is required to identify additional posts related to waste management. At present there are only 30 posts under waste management and only 21 of these are filled.
3.2.2 Ensure the provision of adequate and reliable vehicles, equipment and machinery	3.2.2.1 Source, upgrade and maintain all necessary vehicles, equipment and machinery	**In progress**	There are not enough vehicles in the KLLM waste collection fleet. There are no backup vehicles and the vehicles in use are old and subject to frequent breakdowns. Maintenance and repairs of vehicles is outsourced and repair timeframes can be long. The KLLM purchased a second hand bulldozer to manage waste on the landfill sites that was delivered to the KLLM in April 2019. It was however indicated that the bulldozer is subject to frequent breakdowns. KLLM previously hired a bulldozer to manage the landfill sites. Additional vehicles have not been obtained due to budgetary constraints. The purchasing of new vehicles will be identified as project in the implementation plan for the 2020 IWMP.
GOAL 4: PROMOTE WASTE MINIMISATION THROUGH THE RE-USE, RECYCLING AND RECOVERY OF WASTE			
4.1 OBJECTIVE: Promote alternative waste treatment and recovery technologies			
4.1.1 Promote alternative technologies and practices for dealing with diverted waste	4..1.1.1 Investigate the implementation of alternative technologies for the recycling of organic waste and builders rubble	**Complete**	No progress has been made by KLLM on this target. DEA&DP, however undertook an assessment of municipal integrated waste management infrastructure for all municipalities in the GRDM in 2016. The study concluded that there is insufficient garden waste available in KLLM to for composting to be financially viable and that a chipping facility should be established in KLLM. Separation of garden waste at the Ladismith landfill site has commenced, however some contamination of the garden waste with plastic and other waste streams was noted. The KLLM does not currently have a chipper to chip this waste. The 2016 DEA&DP report also recommended that all builder's rubble is used for cover material. Based on discussions with KLLM and a site inspection of Ladismith landfill site, this is currently happening and the builder's rubble received is not sufficient to meet the demand for cover material. Cover material is excavated on site. The KLLM should review the 2016 plan to ensure it is still relevant and then commence

Targets	Implementation	Status	Comments
			with implementation of the plan. A project related to infrastructure planning will be included in the implementation plan.
	4.1.1.2 Implement appropriate technologies for the recycling and/or reuse of organics and builders rubble.	**In progress**	Builder's rubble is being used for cover material at the landfill sites. The use of builder's rubble could be optimised through crushing of the material. No programmes are in place for the diversion of green waste from landfill. The development of technologies for the management organic waste did not occur due to a lack of documented plan, in addition the 2016 DEA&DP report indicated that there are insufficient volumes of garden waste available for composting. Given the national and provincial targets for green waste diversion from landfill, composting will need to be reconsidered. A green waste diversion project will be included in the implementation plan of the 2020 IWMP.
4.2 OBJECTIVE: Maximise the diversion of waste			
4.2.1 Increase the waste diversion from landfills to 15% by 2020 from landfills	4.2.1.1 Prohibit or restrict certain waste streams from landfills (e.g. priority hazardous waste, organic, non-organic, builders rubble)	**Not commenced**	No hazardous waste is permitted at the landfill sites, waste on vehicles is visually inspected but gate controllers do not open black bags, so some hazardous waste will enter the landfill sites. Small volumes of hazardous waste (paint tins, used oil containers, used oil filters, asbestos roof sheets and asbestos pipes) were noted during inspections of the Ladismith, Van Wyksdorp, Zoar and Calitzdorp landfill sites. Project to continue in the implementation plan for the 2020 IWMP.
	4.2.1.2 Promote the creation of job opportunities in recovery and recycling for salvagers, away from the landfill, e.g. Expanded Public Works Programme (EPWP)	**Not commenced**	No jobs have been created through recovery of waste. Contract workers are employed at Ladismith landfill site to collect windblown waste from areas surrounding the landfill site. Project to continue in the implementation plan for the 2020 IWMP.
	4.2.1.3 Develop drop-off facilities and infrastructure for recyclable collection and recovery	**Not commenced**	No drop off facilities for recyclables have been developed. KLLM is planning on establishing a MRF adjacent to the Ladismith landfill site. No formal planning for the facility has been undertaken, a public recycling drop-off facility could be incorporated into the MRF. A lack of drop-off facilities is due to a lack of budget and also lack of planning capacity in the KLLM to implement the process of identifying sites, appointing service providers etc. The development of drop-off facilities will be included in the implementation plan of the 2020 IWMP.
	4.2.1.4 Establish community buy-back centres	**Not commenced**	No buy-back centres have been established. The development of buy-back centres/ swop shops will be included in the implementation plan of the 2020 IWMP.

Targets	Implementation	Status	Comments
	4.2.1.5 Progressively establish and implement the 2 or 3 bag system within all communities	**Not commenced**	No separation at source programmes are in place. The project did not commence as KLLM was unable to finalise a partnership with a recycling company to purchase the collected recyclables. A pilot separation at source programme will be included as a project in the implementation plan.
GOAL 5: IMPROVE REGULATORY COMPLIANCE			
5.1 OBJECTIVE: License all unlicensed operational or closed waste disposal facilities			
5.1.1 All unlicensed Waste Disposal Facilities to be licensed	5.1.1.1 Appoint of the EAP to assist with the authorisation process to license unlicensed waste disposal facilities	**Complete**	All municipal landfill sites have been licensed. Ladismith and Zoar have operational licenses, Van Wyksdorp and Calitzdorp have closure licenses.
	5.1.1.2 Conducting BAR process for unlicensed Waste Disposal Facilities	**Complete**	Refer to the comment above.
	5.1.1.3 Issuing of the license (DEA&DP)	**Complete**	Refer to the comment above.
5.1.2 License and rehabilitate all closed waste disposal facilities	5.1.2.1 Appoint an EAP for the rehabilitation and closure of a waste disposal facility	**In progress**	An EAP was appointed to assist the KLLM to obtain closure licenses for Van Wyksdorp and Calitzdorp landfill sites. Closure and rehabilitation has not yet commenced. Project to continue in the implementation plan for the 2020 IWMP.
	5.1.2.2 Issuing of the license	**Complete**	All sites have valid licenses.
	5.1.2.3 Monitoring of rehabilitated waste disposal facility	**Not applicable**	No rehabilitation of waste disposal facilities has yet been undertaken. Project to continue in the implementation plan for the 2020 IWMP.
5.2 OBJECTIVE: Ensure compliance of all waste disposal facilities with license conditions			
5.2.1 improve compliance to license conditions, monitoring, auditing and enforcement of waste disposal facilities	5.2.1.1 Construction of fences, security gates, vehicle control booms and notices boards, site offices, ablution facilities(Ladismith, Zoar, Calitzdorp, Van Wyksdorp)	**In progress**	**Ladismith:** Is fenced, there is a control boom, site offices and signage at the entrance of the site. There are no ablution facilities, staff make use of ablution facilities at the WWTW. **Zoar:** The site was fenced, but a majority of the fence has been stolen. A security gate was installed but is not operational due to the theft of the fencing. No control booms are in place. The site has a notice board, site office and a portable toilet. From an interview with the gate controller it was noted that the portable toilet is not being frequently serviced. **Calitzdorp**: The site is not fenced. A security gate is installed at the main access to the site from the R62. No control booms are at the entrance to the site. The site do have a notice board but there is no site offices and ablution facilities. **Van Wyksdorp:** No fence, security gates, vehicle control booms, site offices and ablution facilities at the facility. The notice board that is at the site only indicate the waste that is permissible at the facility.

Targets	Implementation	Status	Comments
			Lack of full compliance is due to budgetary constraints. The individual needs of the landfill sites will be addressed through projects in the implementation plan.
	5.2.1.2 Conduct internal and external audits as determined by licence conditions	**In progress**	No external audits of the site have been undertaken for the last 5 years. Internal audits have been undertaken for Ladismith and Zoar landfill sites in 2018 and 2019. Quarterly internal audits are not undertaken for Ladismith as required by Condition 7.1 of the operational license. No records of internal audits for Van Wyksdorp and Calitzdorp landfill sites were available. External audits have not been undertaken due to a lack of budget, internal audits of all sites have not been undertaken due to a lack of human resources. This project will be included in the 2020 IWMP implementation plan.
	5.2.1.3 Investigate the cost effectiveness of purchasing, hiring or appointing a service provider for appropriate machinery, vehicles and equipment	**In progress**	A bulldozer was purchased in April 2019. It was determined that costs could be saved through purchasing of a bulldozer instead of hiring a bulldozer. It was however indicated by the KLLM that the bulldozer is subject to frequent breakdowns and thus its purchase could not be considered a cost saving. A project to address the lack of plant for managemen of landfill sites will be included in the implementation plan. Project to continue in the implementation plan for the 2020 IWMP.
	5.2.1.4 Monitor progress of audit actions implemented	**Complete**	Action plans are drafted following internal audits. It must be noted that internal audits are only undertaken for two of the four landfill sites.
	5.2.1.5 Monitor contraventions of the Waste Act and Municipal By-Laws	**In progress**	There is a complaints register in the office at Ladismith landfill site but no complaints have been logged in the register since 2017. No external audits are undertaken for the KLLM landfill sites. Internal audits have only been undertaken for the Ladismith and Zoar landfill sites. The KLLM has a law enforcement department that enforces all municipal by-laws. Specific to waste management, the KLLM do however not have any dedicated waste management peace officers or designated waste rangers to enforce the KLLM waste by-law. This project has not been fully implemented due to a lack of budget for external audits and a lack of human resources to enforce the waste management by-laws. These gaps will be addressed through projects in the implementation plan of the 2020 IWMP.
	5.2.1.6 Develop Environmental Management Inspection (EMI) capacity in the municipalities	**Not commenced**	No EMIs have been appointed at KLLM. A lack of EMIs is due to a lack of budget to appoint additional resources.

Targets	Implementation	Status	Comments
5.3 OBJECTIVE: Establish integrated waste management facilities (drop off sites, MRFs, Transfer stations, composting, buyback centres, swop shops etc.)			
5.3.1 Develop integrated waste management facilities	5.3.1.1 Identify the integrated waste management facilities that will be established in the municipality	**Complete**	The 2016 DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure: Eden District report identified infrastructure needs for the KLLM. The review of the 2016 study will be listed as a project in the 2020 implementation plan.
	5.3.1.2 Determine licensing requirements for facilities	**Complete**	The 2016 DEA&DP report identifies that the three proposed drop-off facilities (Zoar, Van Wyksdorp and Calitzdorp) would not need to be registered in terms of the National Norms and Standards for the Storage of Waste (GN 926 of 2013) as they would be designed with a storage capacity of less than 100m^3 of general waste. The report does not specify the registration requirements for the MRF, this is due to the National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste (GN 1093 of 2017) being promulgated after the report was finalised. The MRF would need to be registered in terms of GN 1093 of 2017. The licensing requirements of facilities will be determined as part of the review of the 2016 DEA&DP study. This will be included as a project in the 2020 IWMP implementation plan.
	5.3.1.3 Appoint EAP for the design and construction and closure/rehabilitation of waste management facilities	**Not applicable**	An EAP was appointed to assist KLLM with the closure license application processes. No closure and rehabilitation of waste management facilities were yet required. An EAP will only be appointed prior to the commencement of closure and rehabilitation activities.
	5.3.1.4 Initiate and conduct licensing and authorisation process for the following: (rehabilitation and closure of existing WDF's i.e. Calitzdorp, Zoar and Van Wyksdorp); Transfer stations at Calitzdorp, Zoar and Van Wyksdorp. Establish new regional facility at Ladismith or preferably another suitable location	**In progress**	Calitzdorp and Van Wyksdorp landfill sites received waste management licenses for closure and rehabilitation. Zoar and Ladismith have operational licenses. No licensing and authorisation process was yet undertaken for the closure and rehabilitation of the Zoar and Calitzdorp landfill sites. No licensing and authorisation process was initiated for transfer stations at Calitzdorp, Zoar and Van Wyksdorp. At present the KLLM is not in a position to close the Zoar and Ladismith landfill sites as there is no alternative site in the KLLM. Both Zoar and Ladismith landfill sites have operational licneses which allow them to operate until their airspace is reached. A priority project in this IWMP will be to secure disposal airspace going forwards, it is likely that either a new landfill site or an existing site will be extended.

Targets	Implementation	Status	Comments
GOAL 6: ENSURE THE SAFE AND INTEGRATED MANAGEMENT OF HAZARDOUS WASTE			
6.1 OBJECTIVE: Promote safe handling, storage, transportation and disposal of hazardous waste			
6.1.1 Facilitate awareness and training on the safe management of chemical and hazardous waste	6.1.1 Facilitate awareness and training on the safe management of chemical and hazardous waste	**Not commenced**	Employees at the landfill sites have received some informal training regarding the types of waste which are prohibited at the landfill site. No hazardous waste training has been provided to other KLLM employees. Poor management of hazardous waste was noted at the KLLM depot in Ladismith. A project to address hazardous waste identification training will be included in the 2020 implementation plan.
	6.1.1.2 Facilitate training on emergency spill response to municipalities	**Not commenced**	No training on emergency spill response procedures has been undertaken with employees. Emergency spill response training will be combined with the hazardous waste training project.
	6.1.1.3 Ensure municipal officials are trained on the Waste Classification and Management Regulations, the Standard for assessment of waste for landfill disposal, the Standard for disposal of waste to landfill and other relevant legislation	**In progress**	Employees at the landfill sites have received some informal training regarding the types of waste which are prohibited at the landfill site. No waste legislation training has been undertaken. This project will be included in the implementation plan for the 2020 IWMP.
6.1.2 Remove household hazardous waste from the general waste stream	6.1.2.1 Promote source separation and diversion of household hazardous waste from the general waste stream	**Not commenced**	No awareness programmes related to household hazardous waste or separation at source programmes for household hazardous waste have been implemented. This project was not implemented as the KLLM does not have a separation at source programme in place. A pilot separation at source programme will be included in the 2020 IWMP implementation plan. Awareness will be undertaken as part of this project.
6.1.3 Manage Health Care Risk Waste in accordance with provincial legislation	6.1.3.1 Implement Health Care Risk Waste management legislation	**In progress**	The KLLM are not directly involved with the management of HCRW. No HCRW is accepted at the landfill sites. The KLLM does not have a register of approved HCRW transporters. This project will not be included in the 2020 implementation plan, however to need to train employees on waste identification will be included to reduce the risk of hazardous and HCRW from being accepted at the landfill sites.
	6.1.3.2 Facilitate health care risk waste awareness amongst home-based care givers (safe disposal of HCRW generated at home) as well as other health-care facilities	**Not commenced**	No awareness programmes related to HCRW management have been undertaken. Awareness of HCRW management will be incorporated into waste awareness campaign projects in the 2020 IWMP implementation plan.

Targets	Implementation	Status	Comments
6.1.4 Improve hazardous waste management	6.1.4.1 Engage the Departments of Agriculture and Education regarding the management of hazardous waste at their respective experimental farms and schools, respectively	**Not commenced**	No engagement on waste management at experimental farms or schools has been undertaken. This project will not be included in the 2020 implementation plan. The KLLM should focus on improving core municipal functions before engaging with organisations regarding hazardous waste management.
GOAL 7: ENSURE THE SOUND BUDGETING AND FINANCIAL MANAGEMENT FOR IWM SERVICE			
7.1 OBJECTIVE: Address funding constraints of waste management authorities			
7.1.1 Identify different sources of funding	7.1.1.1 Explore and facilitate access to alternative funding sources	**In progress**	The Waste Manager has submitted funding applications to the Green Fund. The applications have, however not been successful. This project will continue, the KLLM will need to continue to apply for funding in order to implement projects identified in the 2020 IWMP implementation plan.
7.2 OBJECTIVE: Capacitate waste authorities on financial aspects with regard to improving waste management service			
7.2.1 Train officials within the waste management department within the municipality on financial management	7.2.1.1 Identify financial management courses or other training opportunities for inclusion in the performance agreements of municipal official	**Not commenced**	The KLLM has identified training needs for staff but financial courses were not identified as a need. This project will be included in the 2020 implementation plan.
7.3 OBJECTIVE: Improve funding for waste management services			
7.3.1 Secure a sustainable funding stream for IWM	7.3.1.1 Municipalities to implement a revised tariff system based on full-cost accounting	**Not commenced**	No full cost accounting exercise has been undertaken for waste management tariffs. A full costing account exercise will be included in the implementation plan as a project.
	7.3.1.2 Engage financial institutions to finance waste infrastructure and technologies	**Not commenced**	No loans for waste management projects have been secured. The KLLM will need to obtain funding to implement projects identified in the 2020 IWMP.
	7.3.1.3 Engage the departments of Cooperative Governance and Traditional Affairs (COGTA) and Local Government on reviewing and increasing the allocation of Municipal Infrastructure Grant (MIG) for waste management infrastructure	**Not applicable**	This target has been completed on a national level.

4.2 Progress towards Compliance with National Waste Management Strategy Goals

A review of the progress in the KLLM with regards to the implementation of the 2011 NWMS goals and targets was undertaken as part of the IWMP. Where information was available, an assessment of the compliance with each of the targets was undertaken and documented.

Table 16: National Waste Management Strategy Objectives

Goal	Targets for 2016	Progress to compliance with targets
1. Promote waste minimisation, re-use, recycling and recovery of waste.	25% of recyclables diverted from landfill sites for re-use, recycling or recovery.	Based on recycling records and hypothetical domestic waste generation rates, on average 1.5% of waste generated by households and business and industry is diverted from landfill for recycling. A lack of accurate records of domestic waste generation means the current diversion target cannot be determined accurately.
	All metropolitan municipalities, secondary municipalities, and large towns have initiated separation at source programmes	A separation at source programme has not been initiated by the KLLM.
	Achievement of waste reduction and recycling targets as set in industry waste management plans (indWMPs) for paper and packaging, pesticides, lighting (CFLs) and tyre industries	The indWMPs for the paper and packaging industry, e-waste, lighting and tyre industries have been submitted to DEFF for adjudication. All of the tyre indWMP have been rejected by DEFF.
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.	• 79.2% of households have access to a basic refuse removal service (kerbside collection or a communal collection point). • All of the operational waste disposal sites in the KLLM have valid permits.
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	This is a national target. Nationally 29,833 people employed in the formal waste sector in 2012 (CSIR, 2012). On a local level, the KLLM have 30 positions within their waste management department, at present only 21 are filled.
4. Ensure 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 campaigns	• A limited number of waste awareness campaigns were undertaken by the KLLM since 2014 primarily due to a lack of resources (staff and budget). • The latest awareness campaign undertaken at schools were between 2014 – 2016 of which were facilitated by EPWP employees. No waste recycling programmes at schools have been initiated.
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 SAWIS have	• The previous IWMP projects were incorporated into the KLLM IDP • The KLLM met 19.2% of the targets in the 2014 IWMP, a further 32.7% of targets are underway.

Goal	Targets for 2016	Progress to compliance with targets
	waste quantification systems that report information to WIS	• Only two of the four operational municipal waste management facilities in the KLLM are reporting to SAWIS.
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	The KLLM has not yet undertaken a full cost accounting exercise to determine the true cost of waste management services.
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.	The KLLM has obtained closure licenses for two of their four landfill facilities.
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 environmental management inspectors (EMIs) appointed in the three spheres of government to enforce the Waste Act	• There were 2,294 EMIs appointed nationally in 2017 (DEA, 2018) • No EMIs have been appointed at the KLLM

The table above assess KLLM's compliance with the overarching goals of the NWMS. The 2011 NWMS also has an action plan. Projects which are applicable to the KLLM are shown below:

Table 17: Progress towards compliance with NWMS action plan

Goal	Targets for 2016	Progress to compliance with targets
1. Promote waste minimisation, re-use, recycling and recovery of waste.	Roll out buy-back centres in identified municipalities including identification of partnership and funding opportunities.	The KLLM has no operational buy-back centres.
2. Ensure the effective and efficient delivery of waste services.	Develop a household strategy to address the contamination of general and household waste (responsibility DEFF and municipalities)	The KLLM has not developed a strategy to manage household hazardous waste (HHW). DEA&DP is, however in the process of developing a strategy.
	Gazette, implement and monitor the National Policy for the Provision of Basic Refuse Removal Services to indigent households (responsibility DEFF, municipalities, DCOG, SALGA)	KLLM do not monitor and track the provision of services to indigent households.
	Implement and monitor the National Domestic Waste Collection Standards (responsibility DEFF, municipalities, DCOG, SALGA)	KLLM do not monitor and track the provision of waste management services to households
	Adopt/ adapt generic by-laws for the separation, compacting and storage of solid waste, the management of solid waste and the control of litter.	KLLM has an Integrated Waste Management by-law (2013). The by-law covers the separation of waste, storage of waste, management of waste and littering. The by-law does not cover compacting of waste.

Goal	Targets for 2016	Progress to compliance with targets
3. Grow the contribution of the waste sector to the green economy	As part of Green Economy Strategy, implement measures to support job creation within waste services collection	All waste collection services are undertaken in-house by the KLLM.
4. Ensure people are aware of the impact of waste on their health, well-being and the environment.	80% of municipalities running local waste awareness campaigns	A limited number of waste awareness campaigns were undertaken by the KLLM since 2014 primarily due to a lack of resources (staff and budget).
5. Achieve integrated waste management planning.	Prepare municipal IWMPs, including indicators and targets, and integrate with municipal IDPs.	This is the third generation IWMP for KLLM. It is the intention that this report will be integrated with the IDP.
	Municipal capacity available to sustainably provide waste management service and to proactively plan and manage landfill disposal	There are insufficient staff available to fulfil basic waste management functions such as data management and landfill site management.
6. Ensure sound budgeting and financial management for waste services	Full cost accounting of waste management services is conducted by all municipalities	The KLLM has not yet undertaken a full cost accounting exercise for waste management.
	Phase in tariffs to reflect full cost of waste services	The KLLM reviews tariffs annually but no full cost accounting exercise has been undertaken to confirm if the tariffs charged as cost reflective.
7. Establish effective compliance with and enforcement of the Waste Act	Train and designate additional EMIs (DEFF, Provinces, Municipalities)	DEA&DP to provide details.

5 Receiving Environment

The following section provides an overview of the receiving environment in the KLLM.

5.1 Biodiversity

The 2017 Western Cape Biodiversity Spatial Plan (WCBSP) for Kannaland identifies sixteen formally protected areas in the KLLM. Furthermore, Critical Biodiversity Areas and Ecological Support Areas, as shown in Figure 5, have been identified in the municipal area.

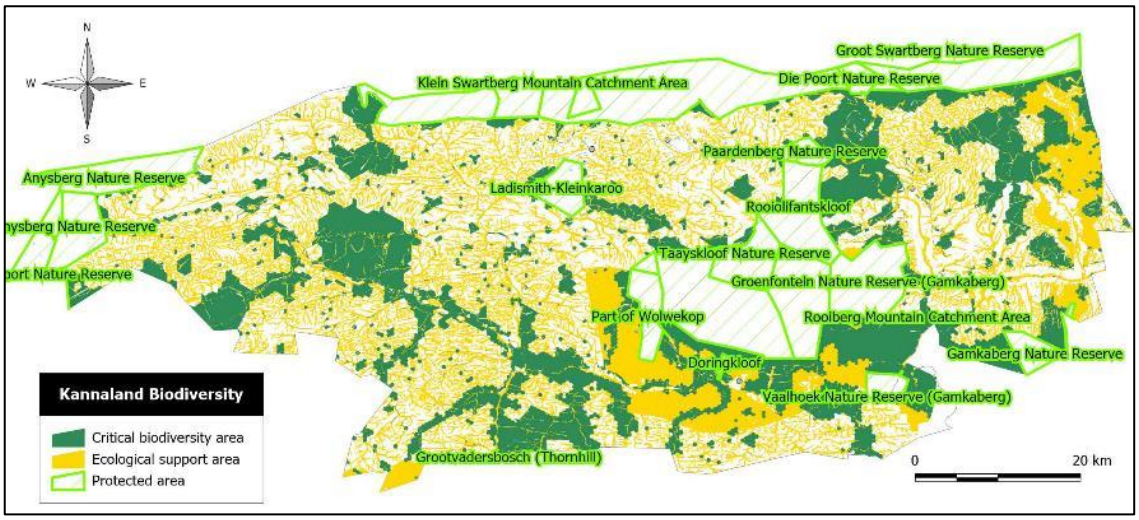


Figure 5: Kannaland Local Municipality Biodiversity (data source, Cape Nature, 2017)

5.2 Geology

Nine different geological formations occur in the KLLM. The Bidouw Group is the dominant formation in the western and southern region, while the Kirkwood, Nardouw and Cango Caves Groups are the dominant formations in the eastern and north-eastern region of the KLLM.

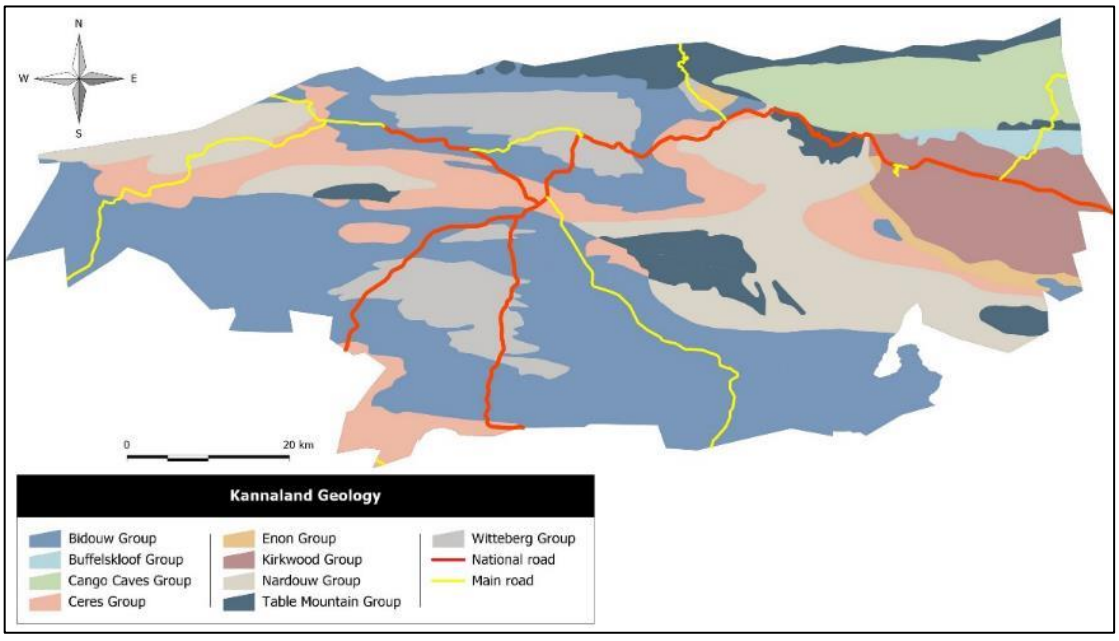


Figure 6: Kannaland Local Municipality Geology

5.3 Water Resources

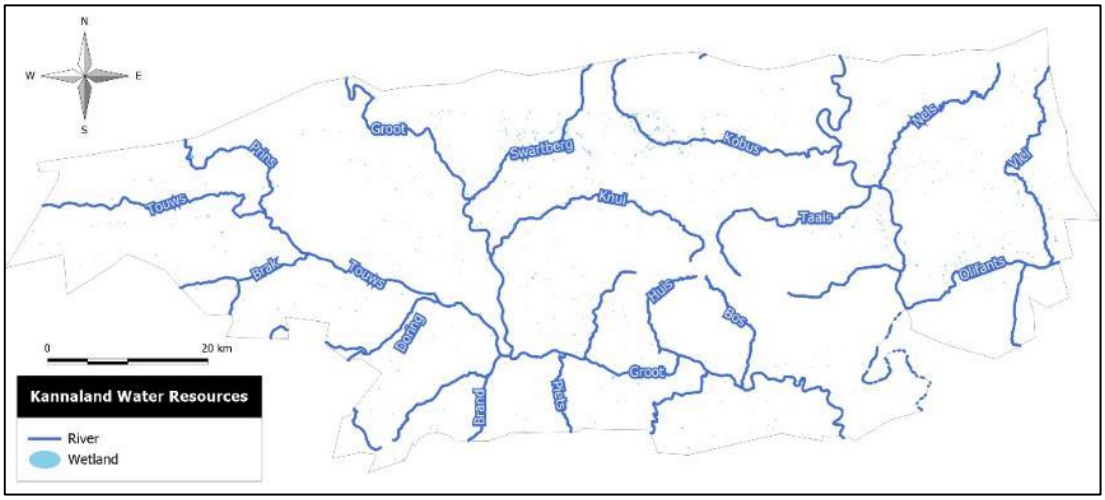


Figure 7: Kannaland Local Municipality water resources (data source, Water Research Commission, 2011)

The major rivers in the KLLM are the Touws, Groot, Gamka and Olifants rivers.

6 Situation Analysis

6.1 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 snap shot 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.

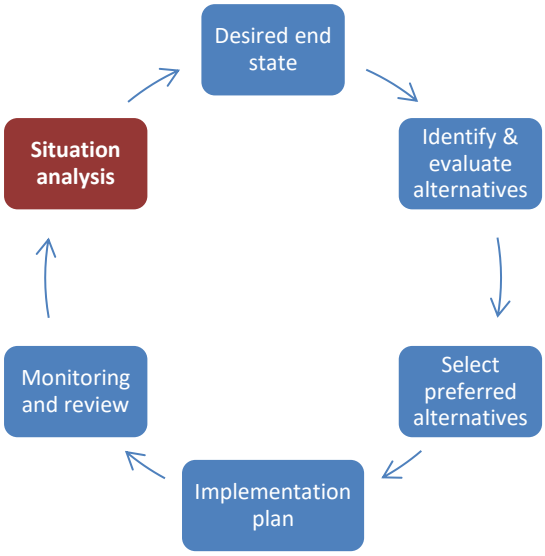
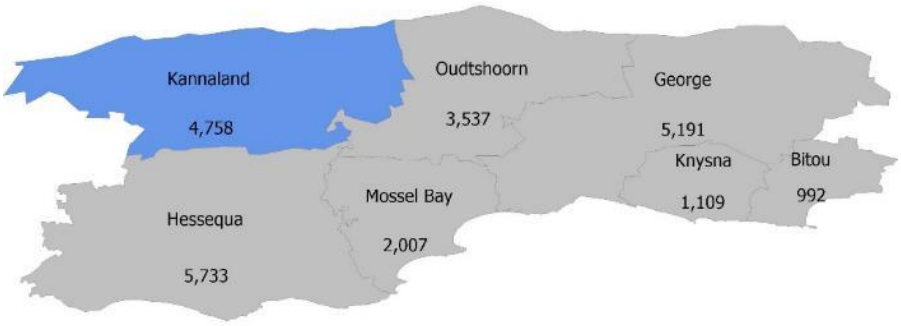
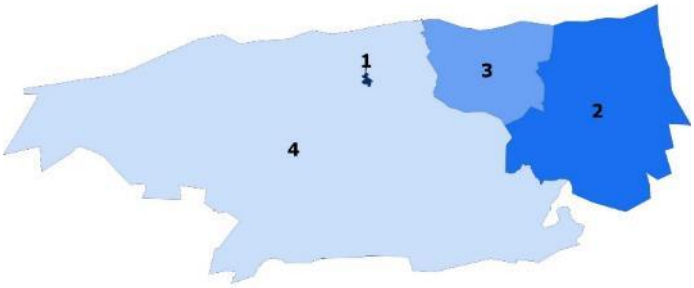


Figure 8: IWMP planning phases – situation analysis

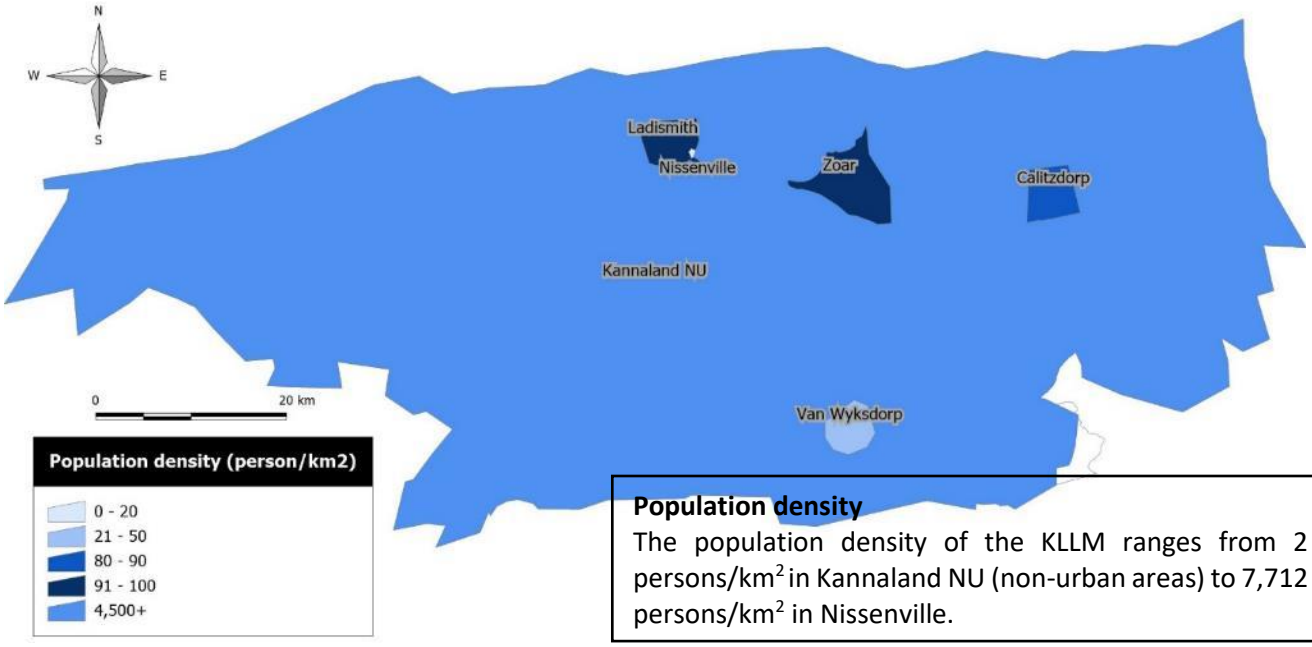
6.2 Overview of the Kannaland Municipal Area



Geographical Area
The KLLM is the third largest local municipality in the GRDM covering an area of 4,758km$^{2.}$



Wards
The KLLM is split into 4 wards of varying size.
The smallest ward is ward no. 1 (3.25km^2). The largest ward is ward no. 4 (3,414km^2) which covers an area of more than half the size of the municipality



Population density
The population density of the KLLM ranges from 2 persons/km^2 in Kannaland NU (non-urban areas) to 7,712 persons/km^2 in Nissenville.

Figure 9: Main places and population density of the Kannaland jurisdictional area

6.3 Demographics

Data presented in the following section has been sourced from the Provincial Profile of the Western Cape which was prepared by Stats SA based on the results of the 2016 Community Survey and the KLLM 2017/22 IDP. All data presented below is from the Community Survey 2016, unless specified otherwise.

Population

The population of the KLLM declined with 2.4% between 2011 and 2016.

Table 18: Population profile

	Population			
Municipality	**Census 2011**	**CS, 2016**	**% changes 2011 to 2016**	**IDP,2019**
George	193,672	208,237	7.5	214,024*
Oudtshoorn	95,933	97,509	1.6	105,991
Mossel Bay	89,430	94,135	5.3	96,120
Knysna	68,659	73,835	7.5	73,835
Bitou	49,162	59,157	20.3	66,105
Hessequa	52,642	54,237	3.0	60,636
Kannaland	**24,767**	**24,168**	**-2.4**	**24,207**
Garden Route DM	574,265	611,278	6.4	640,918

Ethnic Profile (Community Survey 2016)

The majority of the population in the KLLM is Coloured (89.9%). Indian/ Asian is the smallest ethnic group, constituting only 0.1% of the population of KLLM.

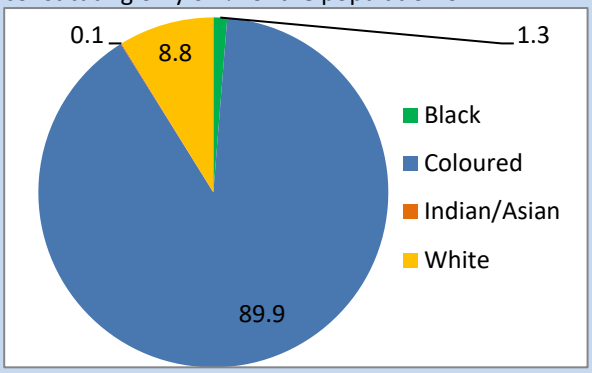


Figure 10: Ethic profile

Language (Census 2011)

All of South Africa's national languages are represented in the KLLM except for Xitsonga. Afrikaans is the most common home language (93.1%) in KLLM followed by English (2.5%).

Table 19: Language profile

Language	% of population
Afrikaans	93.1
English	2.5
IsiNdebele	0.1
IsiXhosa	0.5
IsiZulu	0.1
Sepedi	0.1
Sesotho	0.2
Setswana	0.4
Sign Language	0.3
SiSwati	0.1
Tshivenda	0.1
Xitsonga	0
Other	0.2
Not Applicable	2.4

Households

On average, the number of people per household in KLLM is 3.8. The number of households in KLLM increased from 6,210 in 2011 to 6,333 in 2016.

Table 20: Household profile

	Census 2011		CS, 2016	
Municipality	**No. households**	**Ave. Size**	**No. house holds**	**Ave. Size**
OLM	21,910	4.4	23,362	4.2
GLM	53,549	3.6	62,722	3.3
BLM	16,645	3.0	21,914	2.7
MBLM	28,023	3.2	31,766	3.0
HLM	15,873	3.3	17,371	3.1
KLLM	**6,210**	**4.0**	**6,333**	**3.8**
KLM	21,893	3.1	25,877	2.9
GRDM	164,103	3.5	189,345	3.3

Education

Table 21: Education profile

Schooling level	% of population
No schooling	5.1
Incomplete primary school	22.8
Primary school	11.2
Incomplete secondary school	38.16
Secondary school	19.7
Higher	3

Only 3% of the population of KLLM has a higher education and 22.8% of the population have not completed primary level education.

6.4 Type of Housing and Access to Services

Data presented in the following section has been sourced from the Provincial Profile of the Western Cape which was prepared by Stats SA based on the results of the 2016 Community Survey.

Type of Dwelling

The majority of residences in KLLM are formal dwellings (97.4%) with only 1.8% of dwellings being informal dwellings. No data is available on traditional dwellings within the KLLM.

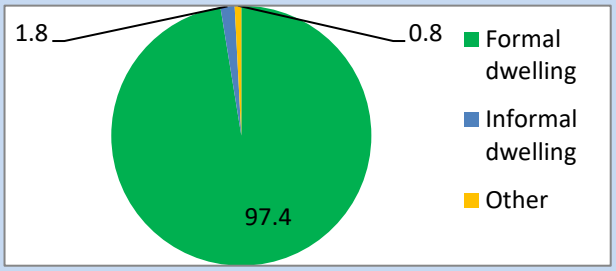


Figure 11: Houses by type of dwelling

RDP/ Government Subsidised Dwelling

A significant portion of households in KLLM are not RDP or government subsidised (73.5%).

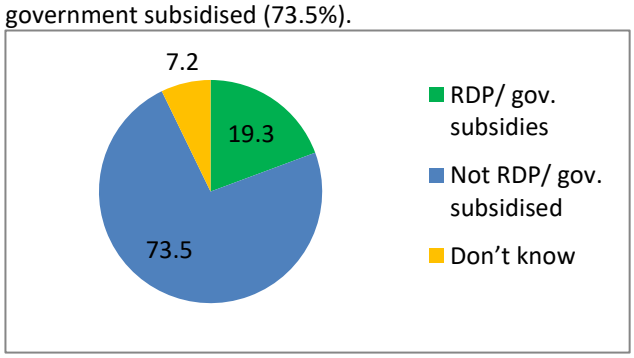


Figure 12: RDP/ government subsidy status of households

Toilet Facilities

The majority of households in KLLM have flush toilets which are connected to a municipal sewer system or conservancy/ septic tank.

Table 22: Access to toilet facilities

	No. households	% of households
Flush toilet	5 425	85.6
Chemical toilet	---	---
Pit latrine/ toilet	603	9.5
Bucket toilet	184	2.9
Other	96	1.5
No toilet facilities	27	0.4
Total	6 335	100.0

Access to Safe Drinking Water

The majority of households in KLLM (89.3%) have access to safe drinking water. 668 households (10.7%) do not have access to safe drinking water.

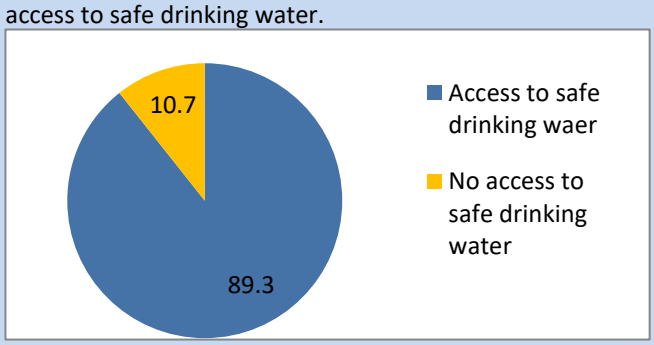


Figure 13: Access to safe drinking water

Access to Electricity

The majority of households in KLLM have access to electricity which is used for cooking, light, water heating and space heating.

Table 23: Type of energy used for different household activities

	Energy source used			
Activity	**Electricity**	**Other**	**None**	**Total**
Cooking	90	10.0	0	100
Lighting	92.2	7.5	0.3	100
Water heating	91.1	8.9	0	100
Space heating	87	7.8	5.2	100

Access to Internet

Only 9.5% of household have access to the internet.

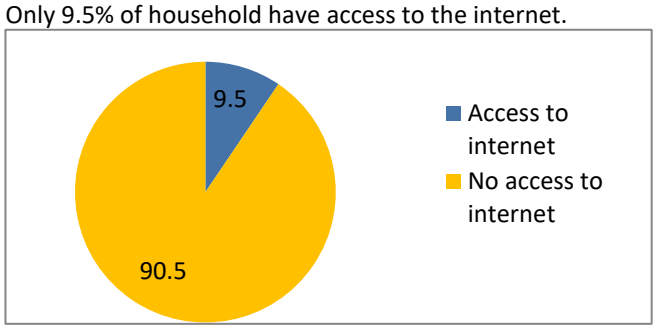


Figure 14: Access of households to the internet

Access to Refuse Removal Services

Table 24: Households access to refuse services

Service	No. of households	% of households
Removed weekly	5018	79.2
Removed less often	168	2.7
Communal refuse dump	231	3.6
Communal container	---	---
Own refuse dump	792	12.5
No refuse disposal	81	1.3
Other	42	0.7

The majority of households in KLLM have access to kerbside collection service for refuse.

6.5 Local Economy

Employment (in those aged 15 – 64)
39.9% of the population in the age bracket 15 – 64 are employed, 8.4% are unemployed and 2.4% are discouraged work seekers. The remaining 49.4% are not economically active.

Table 25: Employment status is those aged 15 – 64 (Census 2011)

Employment Status	No.	%
Employed	6,271	39.9
Unemployed	1,316	8.4
Discouraged work seeker	372	2.4
Not economically active	7,768	49.4
Total	**15,727**	**100.0**

Household Income

Table 26: Average household income (Census 2011)

Average Household Income	% of households
No income	8.0
R1 - R,4800	2.4
R 4,801 - R 9,600	4.7
R9,601 - R19,600	20.1
R19,601 - R38,200	28.1
R38,201 - R76,400	18.6
R76,401 - R153,800	9.3
R153,801 - R307,600	5.8
R307,601 - R614,400	2.1
R614,001 - R1,228,800	0.5
R1,228,801 - R2,457,600	0.2
R2,457,601+	0.2
Total	**100**

6.5.1 Gross Domestic Product

The KLLM has the smallest economic contribution within the GRDM, contributing only 2.9% (R 1.16 billion) to the local Gross Domestic Product per region (GDPR) in 2016. The KLLM however recorded the highest estimated economic growth within the GRDM in 2017 (2.3%).

Contributors to the local GDPR are as follows:

- 58.8%: Tertiary sector - wholesale and retail trade, catering, accommodation, transport storage, communication, finance, insurance, real estate, business services, general government, community, social and personal services
- 23.6%: Secondary sector - manufacturing, electricity, gas, water and construction
- 17.7%: Primary Sector -agriculture, forestry and fishing.

Table 27: GDPR growth per municipality in the Garden Route Municipalities 2007 - 2017 (data source, Western Cape Provincial Treasury, 2018a)

Municipality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017e
Kannaland	**5.9%**	**9.2%**	**-1.4%**	**1.1%**	**2.8%**	**2.5%**	**2.9%**	**3.6%**	**1.1%**	**0.2%**	**2.3%**
Hessequa	6.4%	6.8%	-0.6%	1.3%	3.3%	2.8%	3.1%	3.1%	1.2%	0.3%	1.8%
George	7.2%	5.1%	-0.3%	2.6%	4.3%	3.4%	3.1%	2.9%	2.1%	1.7%	1.4%
Oudtshoorn	6.4%	5.4%	-0.4%	2.3%	3.5%	2.9%	3.3%	2.8%	1.3%	0.9%	1.3%
Mossel Bay	6.0%	3.4%	-0.6%	2.0%	4.1%	3.1%	2.4%	2.1%	1.1%	1.1%	0.9%
Bitou	6.5%	4.5%	0.1%	2.2%	3.4%	2.9%	2.9%	2.5%	1.4%	1.3%	0.9%
Knysna	5.7%	3.4%	-0.4%	1.1%	2.2%	1.9%	2.0%	1.9%	0.9%	0.8%	-0.2%
Garden Route DM	6.4%	4.1%	-1.3%	2.3%	3.8%	2.9%	2.6%	2.4%	1.5%	1.2%	1.0%

Note: 2017 figures are based on estimates

6.6 Waste Profile

6.6.1 Domestic Waste Profile

A waste characterisation exercise was undertaken by the GRDM for the KLLM in March 2019. The aim of the study was to determine the profile of domestic waste which was being disposed of to landfill.

During the waste characterisation exercise 368 black bags (1.3 tonnes) of waste were collected from 12 different suburbs. Waste was sorted into 15 categories. The results of the waste characterisation are presented below.

Table 28: Waste profile for KLLM (source: Garden Route District Municipality, 2019)

Waste type	Mass (kg)	Percentage of total	Calculated volume (m3)	Percentage of total volume
Soft plastics	143.8	10.7	0.9	14.3
Hard plastics	145.5	10.8	2.0	31.3
Paper	94.9	7.1	0.4	6.4
Cardboard	117.5	8.7	0.9	14.0
Glass	131.6	9.8	0.3	5.0
Metal	41.4	3.1	0.1	2.0
Food waste	202.5	15.1	0.2	3.1
Garden waste	40.6	3.0	0.1	1.4
Textiles	101.9	7.6	0.3	5.4
Wood	2.4	0.2	0.0	0.2
Inert	15.3	1.1	0.0	0.2
Nappies	116.9	8.7	0.5	8.0
E-waste	1.6	0.1	0.0	0.2
Hazardous	10.6	0.8	0.0	0.5
Rest	178.8	13.3	0.5	8.0
Total	**1345.3**	**100.0**	**6.5**	**100.0**

Note: The data presented in table 28 shows the mass of waste and calculated volume (un-compacted). The actual volume of space taken up by the waste in a landfill site will vary depending on how the landfill site is managed. Waste in landfill sites with formal compaction will take up less airspace than those with no plant in operation. Considerations also needs to be given to whether garden waste is chipped (airspace saving) and whether cover material is applied, which will consume space.

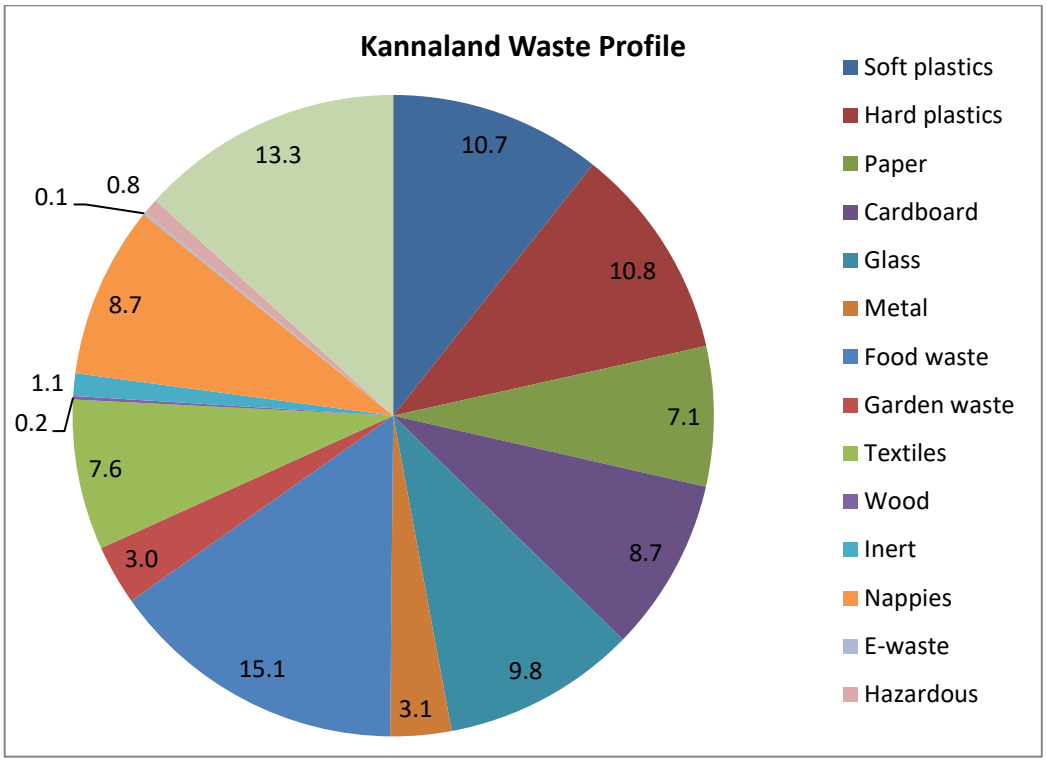


Figure 15: Kannaland Local Municipality Waste Profile (source: Garden Route District Municipality, 2019)

The following were noted from the results of the 2015 waste characterisation:

- 50.2% of the waste stream by mass (kg) was composed of mainstream recyclables (paper, plastic, cardboard, glass and metal)
- 18.1% of the waste stream by mass (kg) was organics, the majority (83%) of which was kitchen waste
- Nappies composed 8.7% of the waste stream by mass (kg).

6.6.2 Hazardous, Business and Industry Waste Profile

It has been identified that there is a lack of information available on hazardous waste generation in the KLLM. A survey of business and industry was undertaken to determine the types and composition of waste generated by industries within the KLLM. Where information was lacking, a literature review, feedback from business and industry in other local municipalities within the GRDM, and experience of the project team were used to determine the waste profile of different industries.

(a) Preparation and Processing of Dairy Products

There are at least two dairy product manufacturing companies operating in KLLM. Based on feedback from the survey, general and hazardous waste is generated by these industries. The general waste mostly comprises of recyclables such as cardboard, plastic, paper and scrap metal.

Hazardous waste generated by dairy companies includes glass and fluorescent tubes, waste from workshops (used oil and oily rags) and laboratory wastes (decontaminated micro plates and sulphuric acid waste). This waste is collected by a service provider and taken to Cape Town.

(b) Wineries

A number of wineries which produce wine and other spirits are operating within the KLLM. Based on the survey undertaken and visits to two wineries, it was noted that the majority of waste generated by these industries is organic waste (stalks and skins), effluent and sludge - from the wine production process. Most of the organic waste generated by these facilities is reused on farms as cover material in the vineyards to aid soil moisture retention and to enhance the organic content of the soils. The effluent generated is either directly discharged into the local municipal sewer or collected by the municipality. The sludge generated by the fermentation process is collected by a private company which specializes in converting winery waste into natural products. These products are used in the wine industry, pharmaceutical industry and other markets.

The general waste generated by these facilities is collected by the local municipality for disposal. Some waste, such as glass, are collected by small-scale informal recyclers. Furthermore, empty agrochemical and other chemical containers, which may contain some residues and therefore by classified as hazardous, were noted to be generated by wineries. These containers are usually collected by the supplier for re-use.

(c) Automotive Industry

There are numerous mechanics, panel beaters and vehicle repair shops in KLLM. Hazardous waste typically generated by these industries includes used oil filters, used oil and oil contaminated rags. Panel beaters generate thinners, used paint cans and soiled rags. Oil and oil contaminated waste is typically collected by a private service provider as and when required.

6.7 Waste Generation and Disposal

The KLLM does not collect data on waste generation, records are only kept for waste disposal at two landfill sites. The following records were used to determine waste generation rates:

- Landfill site disposal records (Zoar and Ladismith)
- Recycling records (private recycling company)
- Hypothetical domestic waste generation rates
- SAWIS records
- Hazardous waste survey results

These records can assist in determining waste generation however there are still gaps in the data:

- Not all of the households in the KLLM receive a collection service. According to the 2016 Community Survey 82% of households receive a collection service. 12.5% of households

use their own refuse dumps and 0.7% of households use other services. The waste from unserviced households would therefore not reach landfill sites (Note: the aforementioned statistics are derived from the 2016 Community Survey. No information is provided in the survey report as to what the waste management option of 'other' entails)

- As will most, if not all municipalities in South Africa, illegal dumping of waste occurs in the KLLM. While clean-up campaigns are undertaken not all illegally dumped waste will enter a landfill site where it is recorded. In addition, burning of illegally dumped waste from CWP beneficiaries was also noted
- There are no weighbridges at landfill sites and estimates of waste entering the site is only being recorded at Ladismith and Zoar
- Some waste is collected for recycling, GIBB was only able to source waste data from one waste recycling company. There are other small companies operating in the KLLM
- Waste being diverted for home composting or composting on farms is not recorded. In light of the above mentioned, data recorded on the IPWIS regarding tonnages for domestic, commercial and industrial and green waste are not an accurate reflection of the actual tonnages of waste generated and disposed of within the KLLM.

The below data is sourced from landfill site disposal records, records from waste management companies, industry interviews and the IPWIS. The KLLM currently records waste tonnages on IPWIS through an estimation based on visual inspections of vehicles entering the landfill site using the DEA&DP waste calculator sheets.

It is likely that the recorded tonnages of recyclable waste generated within the KLLM is an underestimation of the average monthly tonnages generated as a portion of domestic waste and, commercial and industrial waste are also recyclable. However this waste is not currently being recovered and it is therefore not recorded as recyclable waste.

Table 29: KLLM waste profile

Waste Type	Data source	Average per month (tonnes)	% of waste generated	Management method
Domestic Waste	DEA&DP, IPWIS	35.3	28.7%	Disposal at landfill
Commercial & industrial waste	DEA&DP, IPWIS	30.6	24.8%	Disposal at landfill
Recyclables	Private recycling company	5.1	4.1%	Recycling
Green waste	DEA&DP, IPWIS	35.0	28.5%	Disposal at landfill
C&D	DEA&DP, IPWIS	15.8	12.8%	Used for cover at landfill sites/ disposed of at landfill
HCRW	WCDoH	0.4	0.3%	Treatment
Industrial hazardous waste*	Hazardous waste survey	0.8	0.6%	Various
Total		**122.6**	**100**	

Notes:
*Based on hazardous waste survey

6.7.1 Waste Records

The KLLM disposes of domestic waste, green waste and construction and demolition waste at the Ladismith and Zoar landfill sites. Calitzdrop and Van Wyksdorp only accept green waste and construction and demolition waste. The waste records for the KLLM are outlined in Table 29 below. The data in the table is from the following sources:

- Domestic and green waste – IPWIS data
- Recyclables – data provided by recycling companies

Table 30: Waste disposal and recycling records (tonnes) for the KLLM (January 2018 – December 2018)

Moth	Domestic waste and Industrial	Recyclables	Green waste
January	18.3	2.6	61.2
February	21.9	---	30.8
March	21.9	---	30.5
April	30.9	---	21.1
May	37.7	---	39.2
June	30.1	8.6	39.1
July	30.1	3	39.1
August	50.3	9.6	39.1
September	39.5	16.2	30.6
October	53.6	7.4	27.7
November	54.2	13.5	26.3
December	---	---	---
Total	**388.6**	**61.2**	**385**
Ave. per month	**35.3**	**5.1**	**35**

Notes:--- No data

6.7.2 Hypothetical Domestic Waste Generation Rates

This section presents a theoretical calculation of the likely total quantity of waste generated in the KLLM using population data and published "per capita" waste generation rates.

The South Africa State of Environmental Report, 2006 (SOER) calculates 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.

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). 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 KLLM income profile was determined based on STATs SA records (Census 2011). The 2019 population of the KLLM is 24,207 (KLLM, 2017) persons was used to calculated the waste tonnages presented in Table 31 below.

Table 31: Theoretical calculation of domestic waste produced in the KLLM

Waste generation/ income group	Income group	% of population	No. person	Waste generation kg/day	Waste generation kg/annum	Waste generation tonnes/ annum
Low income 0.41kg/person/ day	No income	8%	1,937	794	289,806	290
	R1 - R,4800	2.4%	581	238	86,942	87
	R 4,801 - R 9,600	4.7%	1,138	466	170,261	170
	R9,601 - R19,600	20.1%	4,866	1,995	728,138	728
	R19,601 - R38,200	28.1%	6,802	2,789	1 017,944	1,018
	R38,201 - R76,400	18.6%	4,503	1,846	673,799	674
Sub-total			**19,826**	**8,128**	**2 966,891**	**2,967**
Medium income 0.74kg/person/ day	R76,401 - R153,800	9.3%	2,251	1,441	525,892	526
	R153,801 - R307,600	5.8%	1,404	899	327,976	328
	R307,601 - R614,400	2.1%	508	325	118,750	119
	R614,001 - R1,228,800	0.5%	121	77	28,274	28
Sub-total			**4,285**	**2,742**	**1 000,892**	**1,001**
High income 1.29kg/person/ day	R1,228,801 - R2,457,600	0.2%	48	62	22796	23
	R2,457,601+	0.2%	48	62	22796	23
Sub-total			**97**	**125**	**45591**	**46**
	Total	**100%**	**24,207**	**10,996**	**4 013,374**	**4,013**

Based on the above estimation, a total of 11.0 tonnes of domestic waste per day or 4,013.5 tonnes per year are generated within the KLLM.

There is a significant discrepancy between the reported waste quantities (Table 27) and the theoretical ones (Table 28). The reported waste quantities from IPWIS (388.6 tonnes/annum) are significantly lower than the hypothetical calculations of domestic waste generation (4,013.5 tonnes/annum). Possible explanations of this variation are:

- Waste generation tonnages recorded to the IPWIS are estimations based on visual inspections of vehicles entering the landfill site and not based on the weighing of the waste by means of a weighbridge
- Waste received by two of KLLM's four landfill sites is not reported to the IPWIS
- Only 81.9% of households in the KLLM receive a waste collection service (weekly and removed less often) where the domestic waste is landfilled. The remaining domestic waste may therefore be unaccounted for and as such, not recorded on the IPWIS

- The income levels of the population were calculated based on Census 2011 data. This data set is 8 years old. There may since have been some change in the representation of the different household income in the KLLM
- The waste generation categories per income level are not in-line with actual waste generation rates for residents of KLLM.

6.7.3 Business and Industrial Waste Generation

The IPWIS and SAWIS do no present a detailed breakdown of business and industrial waste. Business and industrial waste is reported under the category "commercial and industrial waste". The IPWIS records a total of 336.5 tonnes of commercial and industrial waste being disposed of in the KLLM in 2018, while the SAWIS records 220.1 tonnes.

6.8 Hazardous Waste Generation

A profile of hazardous waste generation in the KLLM was developed based on data reported on waste information system and data collected from industry.

6.8.1 SAWIS Hazardous Waste Records

No information on hazardous waste recycling, treatment or disposal for KLLM was available on the SAWIS for 2018. There are however records for 2016 (3.1 tonnes) and 2015 (0.5 tonnes).

6.8.2 IPWIS Hazardous Waste Records

No information on hazardous waste generation, treatment or disposal for KLLM was received from DEA&DP.

6.8.3 Hazardous Waste Survey Results

The following information has been captured through the hazardous waste survey undertaken during the situational analysis review. There are still some questionnaires outstanding and it is anticipated that the data will be updated several times before the IWMP is finalised.

Table 32: Hazardous waste survey results

Industry	Waste type	Quantity tonnes/ month	Management method	Comments
Dairy	Laboratory waste	0.73	Sent to Cape Town for treatment and disposal	
Dairy	Hazardous solid (Fluorescent tubes)	0.015	Sent to Cape Town for treatment and disposal	
Dairy	Hazardous solid (oil rags)	0.001	Sent to local workshop. Unknown who collects from the workshop.	

Industry	Waste type	Quantity tonnes/ month	Management method	Comments
Dairy	Hazardous liquids (used oil)	0.085	Sent to local workshop. Unknown who collects from the workshop.	Converted from litres to tonnes (conversion factor - 0.85kg/litre
Waste management company	Sanity waste	1.4	Sent to Cape Town for treatment	Treated as hazardous waste by waste management company. *Note: this is data for entire GRDM.*
Used oil recycler	Used cooking oil	25	Recycled into biodiesel	Tonnage fluctuated between 10 – 40 tonnes/ month depending on how busy restaurants are. *Note: this is data from the entire GRDM.*
HCRW generators	TBC			Data pending

6.9 Future Waste Generation

6.9.1 Future Domestic Waste Generation

An understanding of future waste generation is valuable for waste planning and therefore should be considered in an IWMP. The table below estimates waste generation over a five and ten year period. Waste generation rates have been estimated based on historic and anticipated population growth. The population of KLLM increased by 1% between 2001 and 2016 (approximately 0.054% per annum).

Table 33: Future domestic waste generation rates within the KLLM based on projected population growth rate of 0.054% per annum

Year	Population	Projection of generation quantities based on population	Projection based on visual estimation data (tonnes/annum)
2019	24,207	4,013	388.8
2024	24,273	4,024	389.8
2029	24,340	4.035	390.9

6.9.2 Future Business and Industrial Waste Generation

Future business and industrial waste generation is difficult to quantify as it depends on local economic conditions. Waste from businesses such as the health care industry and the food industry should increase with an increasing population.

6.10 Waste Information Systems

Waste data for the KLLM is reported onto three different waste information systems:

1. South African Waste Information System (SAWIS) – A national waste information system managed by DEFF. Information from the IPWIS is automatically uploaded to the SAWIS on a quarterly basis
2. Integrated Pollution and Waste Information System (IPWIS) – A provincial waste information system managed by DEA&DP
3. Garden Route Waste Management Information System (GRWMIS)– a district waste information system managed by GRDM

The following sections present data sourced from each of these systems.

6.10.1 South Africa Waste Information System

The waste disposal records for the KLLM (where KLLM is the source of the waste) as per the SAWIS for the time period from 2015 to 2018 are outlined in Table 31 and visually represented in Figure 15 below. According to these waste disposal records, waste generation within the municipality was highest during 2016. Waste disposal declined significantly in 2017, with a further reduction recorded in 2018.

SAWIS records indicate that small volumes of hazardous waste which originate from the KLLM where disposed of during 2015 and 2016. According to the SAWIS records the hazardous waste comprised of asbestos containing waste that was not disposed of within the KLLM. It is likely that the tonnages recorded for 2015 and 2016 related to the once-off removal of asbestos containing waste from a facility within the KLLM for disposed at a permitted landfill facility located within another municipality.

Table 34: SAWIS waste disposal records for KLLM (data source, SAWIS, accessed on 12/05/2019)

Year	No. facilities	General waste (tonnes)	Hazardous waste (tonnes)	Total (tonnes)
2015	3	982	0.4	982.4
2016	3	1,509.7	3.1	1,512.8
2017	2	996.2	0	996.2
2018	2	852.3	0	852.3

6.10.2 Integrated Pollution and Waste Information System

The Integrated Pollution and Waste Information System (IPWIS) is the Western Cape's waste information system. The IPWIS was launched in 2006 and at present 23 of the 24 local municipalities in the province are reporting waste information on the system.

The waste disposal records for the KLLM as reported during 2018 to the IPWIS are outlined in Table 34.

Table 35: 2018 IPWIS waste disposal records for the KLLM (data source, IPWIS, provided by DEA&DP on 27/03/2019)

Month	Municipal Waste (tonnes)	Commercial and industrial waste (tonnes)	Construction and demolition waste (tonnes)	Organic waste (tonnes)	Total (tonnes)
January	18.3	51.1	0	61.2	130.7
February	21.9	48.5	22.6	30.8	123.9
March	21.9	48.5	22.6	30.5	123.6
April	30.9	46.7	31.1	21.1	130.0
May	37.7	23.1	29.2	39.2	129.3
June	30.1	19.2	9	39.1	97.5
July	30.1	19.2	9	39.1	97.5
August	50.3	19.2	9	39.1	117.7
September	39.5	12.1	30.5	30.6	112.7
October	53.6	19.2	7.7	27.7	108.4
November	54.2	29.5	2.6	26.3	112.7
December	---	---	---	---	---
Total	**388.7**	**336.5**	**173.6**	**385.0**	**1,283.7**
Average/ month	35.3	30.5	15.7	34.9	116.7

Notes:
--- No data

6.10.3 Garden Route District Municipality Waste Management Information System

The GRDM also has a waste information system called the Garden Route Waste Management Information System (GRWMIS). Waste generators and recyclers are require to report on the GRWMIS in terms of the GRDM waste management by-laws (2016). The GRWMIS is in the process of being updated; once the system is updated GRDM will be able to monitor which companies are not reporting and commence with a registration drive for currently unregistered companies.

At present all of the known private health care risk waste (HCRW) generators are registered and reporting on the system. All known general recycling companies are also registered and GRDM is in the process of registering hazardous waste generators and transporters.

Table 36: Industries within the KLLM registered on the GRWMIS

Industry/ facility category	No. companies registered
Hazardous waste generator	0
HCRW generator	12
Industrial waste generator	0
Landfill site	4
Recycling (general)	0
Recycling (scrap metal)	0
Waste transporters	0

6.11 Health Care Risk Waste

The Western Cape Department of Health (WCDoH) is responsible for the management of health care risk waste (HCRW) generated in government hospital and clinics. The WCDoH does not currently report data onto the GRWMIS.

Table 37: Monthly healthcare waste records for the KLLM between January 2018 and December 2018 (data source: Western Cape Department of Health)

Month	Sharps	Pharmaceutical	Cyto toxic	RUC Gross	Anatomical	Trochar	Speci bin
January	29.9	9.3	0.0	515.6	0.0	0.0	0.0
February	29.9	9.3	0.0	515.6	0.0	0.0	0.0
March	36.1	14.4	0.0	477.1	5.2	0.0	6.7
April	57.3	10.9	0.0	813.6	0.0	0.0	10.5
May	51.0	38.1	0.0	141.0	4.0	0.0	0.0
June	34.0	13.4	0.0	127.0	4.0	0.0	0.0
July	38.0	13.0	0.0	128.0	5.0	0.0	0.0
August	38.0	31.5	0.0	144.0	4.0	0.0	0.0
September	39.0	4.5	0.0	125.0	3.0	0.0	0.0
October	47.0	15.9	0.0	162.0	5.0	0.0	0.0
November	142.6	13.0	0.0	142.6	3.0	0.0	0.0
December	37.0	9.4	0.0	158.0	2.0	1.0	0.0
Total	**579.7**	**182.4**	**0.0**	**3449.3**	**35.2**	**1.0**	**17.1**
Average/ month	48.3	15.2	0.0	287.4	2.9	0.1	1.4

6.12 Waste Services

KLLM does not currently have data regarding the percentage of households which receive a waste collection service. Data regarding the extent of waste services provision were therefore sourced from census data (Community Survey 2016). According to the 2016 Community Survey 79.2% of households in the KLLM receive a weekly kerbside collection service.

When comparing the 2016 community survey data regarding waste collection services with data obtained from census 2011 and census 2001, the percentage of households which receive a waste collection service increased between 2001 and 2016. Further to this, the number of households which either made use of their own refuse dump or received no waste service decreased significantly between 2001 and 2016.

Table 38: Waste collection services for households in the KLLM (data source Stats SA Census 2011 and Community Survey 2016)

Waste service	Community Survey 2016		Census 2011	
	No.	%	No.	%
Removed weekly	5,018	79.2	4,112	66.2
Removed less often	168	2.7	87	1.4

Waste service	Community Survey 2016		Census 2011	
	No.	%	No.	%
Communal refuse dump	231	3.6	106	1.7
Communal container	---	---	---	---
Own refuse dump	792	12.5	1,435	23.1
No refuse disposal	81	1.3	298	4.8
Other	42	0.7	180	2.9
Total	**6,332**	**100.0**	**6,218**	**100.0**

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

1. The 2011 Census data
2. The 2016 Community Survey data

The 2011 Census surveyed all South African households. This data is 7 years old but it remains the most up to date complete census data set for the country.

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.

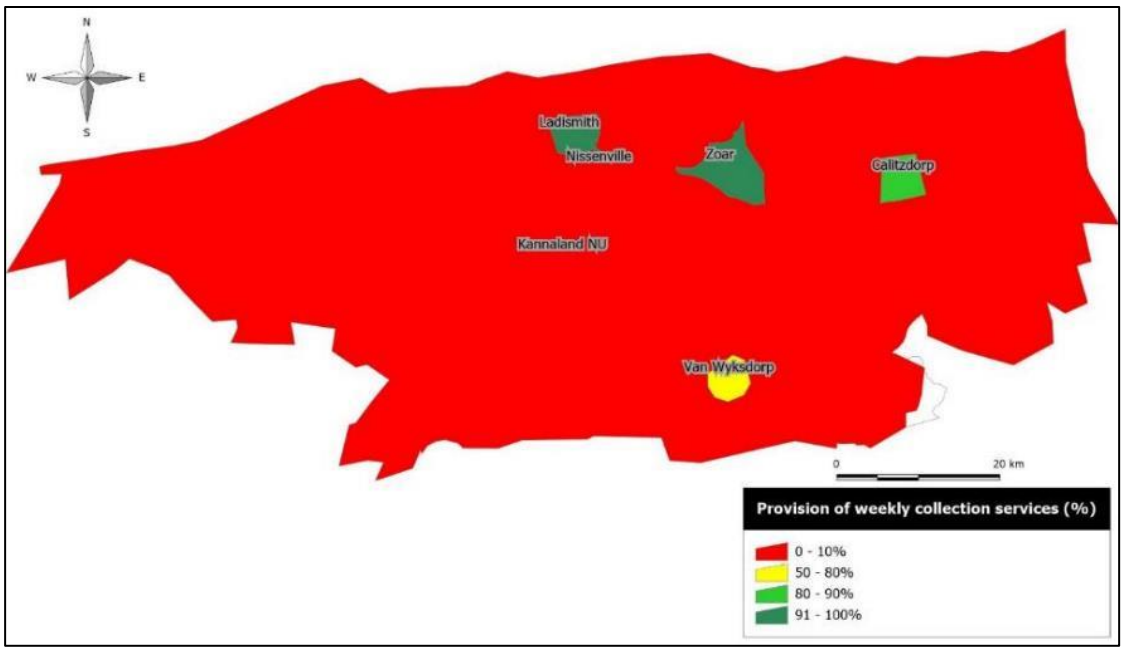


Figure 16: Percentage of households receiving a weekly waste collection service in different suburbs of KLLM (STATs SA Community Survey 2016 data)

The waste service provision per area within the KLLM is outlined in Table 39. The majority of households in the main towns or densely populated areas receive a weekly collection service. Households however in rural areas such as Kannaland NU typically do not receive a weekly collection service.

Table 39: Waste service provision per area within the KLLM (source: Community Survey 2016). Areas with a weekly collection service of less than 70% are shown in red

Area	Removed weekly (%)	Removed less often (%)	Communal refuse dump (%)	Own refuse dump (%)	No refuse disposal (%)	Other (%)	Total
Calitzdorp	82.3	0.6	0.6	13.1	2.7	0.7	**100**
Kannaland NU	**7.0**	2.0	4.8	65.3	12.6	8.4	**100.1**
Ladismith	90.5	0.6	0.6	5.4	1.8	1.1	**100**
Nissenville	99.5	0	0.0	0.2	0.2	0.0	**99.9**
Van Wyksdorp	76.4	17.8	0.5	3.4	1.4	0.5	**100**
Zoar	98	0.2	0.2	0.6	0.7	0.3	**100**

6.12.1 Waste Collection Rounds

Black bags (mixed waste) are collected weekly from most formal households and businesses in the main towns. Informal settlements also receive a weekly collection service, however this service does not cover all households. No waste collection service is currently provided to the rural areas surrounding the main towns in KLLM. Residents of rural areas (mostly farmers) currently either drop off their waste at the waste landfill sites or burn the waste on their properties.

Table 40: Waste collection schedule

Day	Area serviced
Monday	Ladismith
Tuesday	Calitzdorp
Wednesday	Zoar and Van Wyksdorp
Thursday	Businesses
Friday	Open spaces, streets

6.13 Waste Recycling

Recycling of waste is located above recovery, treatment and disposal in the waste management hierarchy. The 2017 WCIWMP sets a target of 20% diversion rate of recyclables by 2019.

6.13.1 Separation at Source

No separation at source programme are in operation. The KLLM is planning to initiate a pilot programme in Ladismith. The pilot project is dependent on receiving coloured bags and setting up an agreement with a local recycling company to manage the source separated recyclables.

6.13.2 Swop Shops

There are currently no swop shops in operation in the KLLM.

6.13.3 Recycling Companies

Henque Waste is a large recycling company operating in the KLLM. Henque Waste does not currently have a depot in the KLLM and all recyclables collected within the KLLM are transported to Riversdale for sorting and baling. Apart from Henque, there are four smaller recycling companies within the KLLM which sell their recyclables to Henque.

6.13.4 Recycling Drop-Off Facilities

There are no dedicated municipal recycling drop-off facilities in KLLM.

6.13.5 In-House Municipal Recycling

No in-house recycling is currently undertaken by the KLLM.

6.13.6 Waste Recycling Records

Henque Waste keeps records of recyclables collected by private recyclers within the KLLM. An average of 8.7 tonnes of material is separated for recycling per month in KLLM. Paper and cardboard make up the majority (69.1%) of material recovered for recycling in KLLM.

Table 41: Summary of recycling data for KLLM (data source, Henque Waste)

Month	Paper and cardboard	Plastic	Glass
January 2018	2.2	0.4	---
February 2018	---	---	---
March 2018	---	---	---
April 2018	---	---	---
May 2018	---	---	---
June 2018	5.2	2.7	0.7
July 2018	1.7	1.1	0.2
August 2018	6.5	2.4	0.6
September 2018	11.7	4.2	0.2
October 2018	4.7	2.5	0.2
November 2018	10.2	3.0	0.3
December 2018	---	---	---
Total	**42.3**	**16.5**	**2.4**
Average/ month	6.0	2.3	0.3
Percentage of total material recovered for recycling	69.1	26.9	3.9

Notes:
--- No data

Based on the combined recycling records and waste disposal records on average 1.5% of domestic and business and industrial waste generated in the KLLM is recycled per month.

6.13.7 Future Waste Recycling Facilities

(a) Calitzdorp Transfer Station

As per the 2017/22 IDP, the KLLM is planning to develop a waste transfer station in Calitzdorp. The development of the transfer station could include the provision of facilities of recycling (i.e. public drop-off facility, sorting and storage facilities for recyclable material).

6.14 Management of Hazardous Waste

There are currently no hazardous waste treatment and disposal facilities in the KLLM. Information gathered during interviews with waste generators suggests that hazardous waste generated in the KLLM is disposed of in the Visserhok landfill site (H:h) in the City of Cape Town.

Based on the literature review and industry interviews the destination of hazardous waste is detailed below.

Table 42: Destination of hazardous waste

Waste type	Destination	Comments
Fluorescent tubes	Cape Town	Collected by a private company for treatment and disposal in Cape Town
Laboratory waste	Cape Town	Collected by a private company for treatment and disposal in Cape Town
Used hydrocarbon oils	Cape Town	Cape Town
Used cooking oil	Mossel Bay	Recycled into biodiesel
Sanitary waste	Cape Town	Although not classified as hazardous waste, sanitary waste is treated as hazardous waste by the company managing it.

6.15 Organic Waste Management

At present the KLLM disposes of the majority of green waste at their four landfill sites. There is a large composting company operating in the KLLM but they mainly accept waste from timber mills, abattoirs and WWTW in neighbouring municipalities and not garden waste.

6.15.1 Legal Drivers for the Diversion of Organic Waste from Landfill

The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) require a 25% reduction of garden waste to landfill by 2018 and a 50% diversion by 2023.

There are more ambitious targets in the Western Cape. The WCIWMP sets a target of a 50% diversion rate of organic waste by 2022 and a 100% diversion rate by 2027.

At present the KLLM does not have facilities in place to meet either the national or provincial target.

The development of composting facilities, anaerobic digesters or expanding the home composting programmes are methods which can be used to divert organic waste from landfill sites.

6.15.2 Home Composting Pilot Programme

The GRDM launched a pilot home composting project in the district. The KLLM however did not take part in the project. The organic waste component of the domestic waste stream of the KLLM is significantly (18.1%) lower than other municipalities. On average 34.0% of the domestic waste stream in the GRDM is organic waste.

6.16 Waste Management Facilities

Details of waste disposal facilities in the KLLM are presented in this section.

Table 43: Summary of waste management facilities in the KLLM area

Status of site	No. sites
Operational landfill site	4
Mini-drop off facility	1
Historic landfill site	1

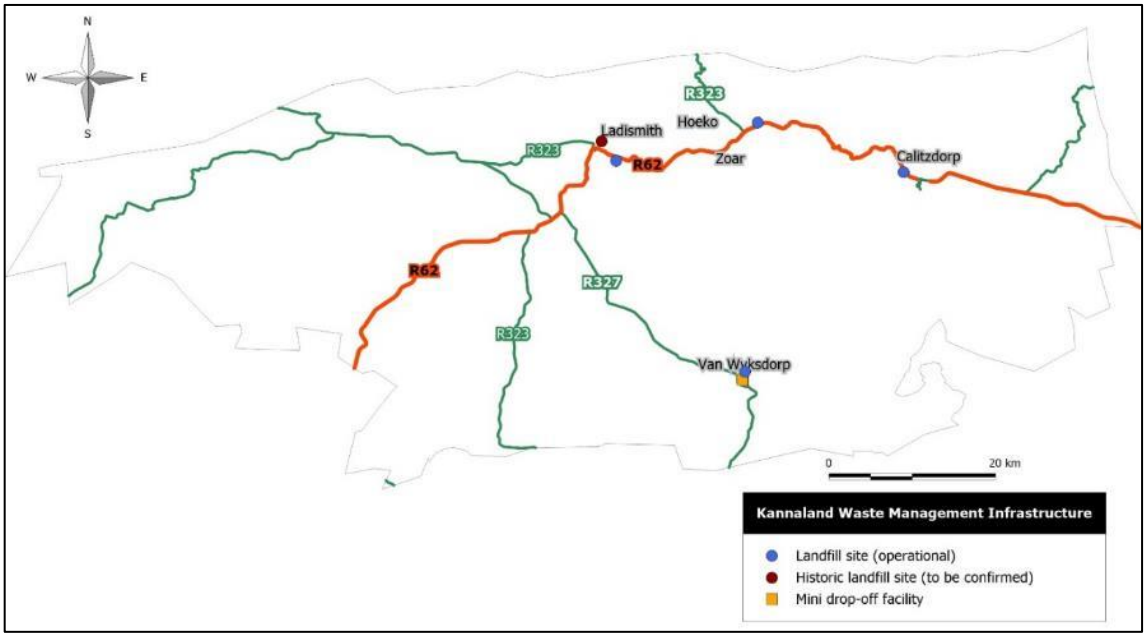


Figure 17: Waste management facilities in the KLLM area

(a) Ladismith landfill site

The Ladismith landfill site is a licensed facility owned and operated by the KLLM which only accepts general domestic, garden and construction and demolition (C&DW) waste. In September 2018 the KLLM received a Waste Management Permit for the operation and further development of the Ladismith landfill site in terms of the Waste Act, 2008.

Figure 18: Satellite image of Ladismith landfill site showing permitted boundary of the site in red (source, google earth satellite imagery, accessed on 15 May 2019 image date 10 April 2019)

Table 44: Ladismith landfill site profile

Location	Located off the R62 east of Ladismith
Co-ordinates (entrance of site)	Latitude: 33°30'40.55"S Longitude: 21°17'46.11"E
Site classification	Class B (G:S:B-)
Estimated size of site	Licensed area is approximately 55,000m^2
License status / type	Licensed, Operational
License number	19/2/5/4/D3/7/WL0121/18
Anticipated closure date	Unknown – the site has an operational license, no airspace surveys were available for review to determine the remaining lifespan
Site Status	Operational
Operating hours	Monday – Friday: 07:30 – 17:00 Saturday: 07:30 – 13:00 Sunday and Public holidays: Closed
Buffer	Closest buildings/ houses / structures are 32m north of the edge of the site
Access	Access off the R62
Surrounding land use	Agriculture, open space, municipal waste water treatment works
Facilities	2 x Container guard house / site office
Access control and signage	Signage at the entrance of the site Steel swing gate from main access off 62 Access control boom at site office Security diamond mesh fence
Personnel on site	Two people per shift, gate controller (x1), general worker (x1)
Plant used on site	No plant permanently on site. Plant to manage the landfill is obtained from a contractor periodically through KLLM tenders. The KLLM has however recently obtain a bulldozer which could be used on this site in the future.
Description of waste management	General workers direct vehicles to the working face. General and green waste is disposed of in separate areas at the landfill. Animal carcases from the Karoo Animal Protection Society (KAPS) and farmers are disposed of in trenches in an area located outside of the permitted landfill area. A bulldozer is obtained from contractors periodically through KLLM tenders to move waste around and to

	provide for the covering thereof. Waste is not covered with cover material daily.			
Waste accepted on site	The site only accepts general domestic, garden, construction and demolition waste and animal carcasses from KAPS and local farmers			
Use of cover material	Cover material is periodically applied			
Stormwater management	No stormwater management system in place			
Recycling	Informal recyclers/ scavengers gain unauthorised access to the site to salvage recyclables			
Monitoring results	No monitoring of surface and groundwater is undertaken. The DEA&DP undertook a gas detection exercise at the landfill in May 2018. No Methane gas was detected during the exercise undertaken by DEA&DP.			
Estimated remaining life of site	Unknown			
Compliance status (audit findings, percentage score)		**2017**	**2018**	**2019**
	Internal	**67%**	**62%**	**41%**
	External			
	DEA&DP	**54%**	**66%**	
Challenges	• The waste body is located outside licensed area of the site • Carcasses are disposed of into unlined trenches outside licensed area of the site • The KLLM do not have any permanent plant at the landfill site to adequately manage the site • The waste is not compacted and covered daily which result in the generation of odour and wind-blown litter in the area surrounding the landfill • Farm animals gain access to the site from the neighbouring property due to holes in the fence • The fence at the landfill site is frequently damaged as a result of unauthorised access gained by informal recyclers / scavengers • There is no ablution and toilet facilities located at the site office			

Figure 19 Photographs of the Ladismith landfill site. Photo A: signage. Photo B: main access to the site from the R62. Photo C: access road from the provincial road (R62) to the site. Photo D: illegal dumping noted along the access road to the site. Photo E: fence on the northern boundary of the landfill site. Photo F: a general view of the landfill site. Photo G: farm animals which gained access to the site. Photo H: green waste disposed of.

(b) Calitzdorp Landfill Site

The Calitzdorp landfill site is a licensed facility owned and operated by the KLLM which accepts garden and construction and demolition waste (C&DW). The site has been issued with a variation license for the operation and closure of the landfill for the period September 2018 to July 2020. Closure activities must commence by 20 July 2020.

Figure 20: Satellite image of Calitzdorp landfill site showing permitted boundary of the site in red (source, google earth satellite imagery, accessed on 15 May 2019 image date 28 April 2018)

Table 45: Calitzdorp landfill site profile

Location	Located off the R62 north-west of Calitzdorp
Co-ordinates (entrance of site)	Latitude: 33° 31'15.59"S Longitude: 21°40'0.70"E
Site classification	Class B (G:C:B-)
Estimated size of site	Licensed area is approximately 145,000m^2
License status / type	Licensed, operational and closure
License number	19/2/4/1/D3/4/KL0063/18
Anticipated closure date	Closure of the site must commence by July 2020
Site Status	Operational
Operating hours	Mondays – Fridays: 07:30 – 17:00 Saturdays: 07:30 – 13:00 Sundays and Public holidays: Closed
Buffer	Closest buildings/ houses are located within the permitted site boundary
Access	Access off the R62
Surrounding land use	Residential, agricultural, open space, municipal waste water treatment works
Facilities	No facilities
Access control and signage	Signage the entrance of the site Steel swing gate at main access off the R62
Personnel on site	One EPWP employee
Plant used on site	No plant is used on site
Description of waste management	Access to the site was not controlled until the appointment of the EPWP employee in early April 2019. Due to uncontrolled access, waste disposal occurred randomly and scattered across the site which no separation of garden waste and demolition and construction waste. No recoding of the types and volumes of waste that enter the site is undertaken.
Waste accepted on site	The site only accepts garden waste and construction and demolition waste
Use of cover material	No cover material is applied
Stormwater management	No stormwater management system in place

<table>
<tr><td>Recycling</td><td colspan="4">Informal recyclers/ scavengers gain unauthorised access to the site to salvage recyclables</td></tr>
<tr><td>Monitoring results</td><td colspan="4">No monitoring of surface and groundwater is undertaken. The DEA&DP undertook a gas detection exercise at the landfill in April 2017. No Methane gas was detected during the exercise undertaken by DEA&DP.</td></tr>
<tr><td>Estimated remaining life of site</td><td colspan="4">Closure is due to commence by July 2020.</td></tr>
<tr><td rowspan="4">Compliance status (audit findings, percentage score)</td><td></td><td>2016</td><td>2017</td><td>2018</td></tr>
<tr><td>Internal</td><td></td><td></td><td></td></tr>
<tr><td>External</td><td></td><td></td><td></td></tr>
<tr><td>DEA&DP</td><td></td><td>8%</td><td>22%</td></tr>
<tr><td>Challenges</td><td colspan="4">• The waste body appears to extend beyond the licensed footprint of the site
• Access to the site is currently not well controlled which result in non-permissible waste (domestic general and hazardous waste) being disposed off
• The landfill site is not fenced off
• The site was not manned in the past, as a result waste has bene disposed of indiscriminately across the site over a large area. This will result in increased closure and rehabilitation costs for the KLLM
• The KLLM do not have any permanent plant at the landfill site to adequately manage the waste site
• Two residential houses/buildings and pens for farm animals are located within the permitted site boundary</td></tr>
</table>

Figure 21: Photographs of the Calitzdorp Landfill Site. Photo A: Signage. Photos B and C: main access to the site from the R62. Photo D: residential houses/structures located within the permitted site boundary. Photo E: pens with farm animals located within the permitted site boundary. Photo F: wind-blown litter and waste disposal outside of the permitted site boundary. Photo G: domestic general waste disposed of at the site. Photo H: waste disposal spread-out across the site.

(c) Zoar Landfill Site

The Zoar landfill site is a licensed facility owned and operated by the KLLM which accepts general domestic, garden and construction and demolition (C&DW) waste. In September 2018 the KLLM received a Waste Management Permit for the operation and further development of the Zoar landfill site in terms of the Waste Act, 2008. The KLLM can continue to use the Zoar landfill site until the airspace capacity is reached.

Figure 22: Satellite image of Zoar landfill site showing permitted boundary of the site in red (source, google earth satellite imagery, accessed on 15 May 2019 image date 10 April 2019)

Table 46: Zoar landfill site profile

Location	Located off the R62 north-east of Zoar
Co-ordinates (entrance of site)	Latitude: 33°28'8.72"S Longitude: 21°28'36.85"E
Site classification	Class B (G:S:B-)
Estimated size of site	Licensed area is approximately 9,500m^2
License status / type	Licensed, Operational
License number	19/2/5/4/D3/8/WL0122/18
Anticipated closure date	Unknown. The WML is valid until airspace has been reached. The lifespan of the site is dependent on the outcome of remaining airspace which has yet to be determined.
Site Status	Operational
Operating hours	Monday – Friday: 07:30 – 17:00 Saturday: 07:30 – 13:00 Sunday and Public holidays: Closed
Buffer	Closest buildings/ structures are approximately 340m north-west of the edge of the site
Access	Access off the R62
Surrounding land use	Agriculture, open space
Facilities	1 x Container guard house / site office 1 x portable toilet
Access control and signage	Signage at the entrance of the site Steel swing gate at the entrance to the site (not operational due to theft of the fencing) The site was fenced, but a majority of the fence has been stolen
Personnel on site	Gate controller (x1 – permanent employee) General worker (x1 – Temporary employee on a 9 month contract which will end in September 2019)
Plant used on site	No plant permanently on site. Plant to manage the landfill is obtained from a contractor periodically through KLLM tenders

Description of waste management	General workers direct vehicles to the working face. Waste type and quantity is recorded by the gate controller. A bulldozer is obtained from contractors periodically through KLLM tenders to move waste around and to provide for the covering thereof. Waste is not covered and compacted daily.			
Waste accepted on site	The site only accepts general domestic, garden and construction and demolition waste. As the site is not fenced vehicles can access the site after hours and dispose of prohibited waste types. Used oil containers and asbestos were observed on site and illegally dumped in erosion gullies around the site.			
Use of cover material	Cover material is periodically applied			
Stormwater management	No stormwater management system in place			
Recycling	Informal recyclers/ scavengers gain unauthorised access to the site to salvage recyclables			
Monitoring results	No monitoring of surface and groundwater is undertaken. The DEA&DP undertook a gas detection exercise at the landfill in May 2018. No Methane gas was detected during the exercise undertaken by DEA&DP.			
Estimated remaining life of site	Unknown – the lifespan of the site will depend on the outcome of the remaining airspace which has yet to be determined.			
Compliance status (audit findings, percentage score)		**2017**	**2018**	**2019**
	Internal		**64%**	**36%**
	External			
	DEA&DP	**29%**	**43%**	
Challenges	• Cover material is stockpiled along the access road to the site outside the licensed boundary • The KLLM do not have any permanent plant at the landfill site to adequately manage the waste site • The waste is not compacted and covered daily which result in the generation of odour and wind-blown litter in the area surrounding the landfill • There is a lack of suitable cover material • The significant dumping of waste, including asbestos has occurred in the areas surrounding the landfill site as access from the R62 to the site is not controlled • The fence at the landfill site is comprised due to theft • There is no piped portable water at the site office • The portable toilet at the site office is not frequently maintained			

A


B

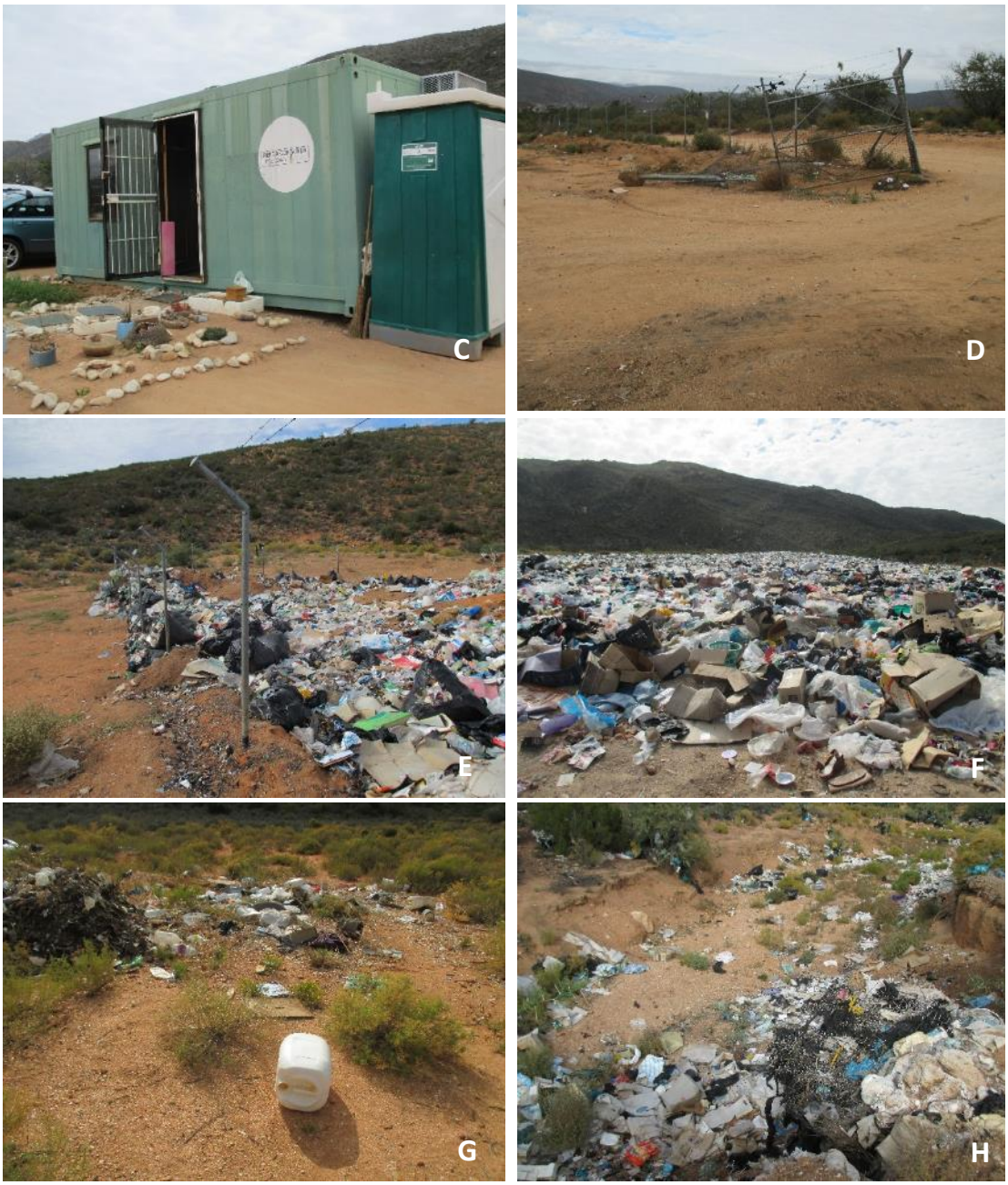


Figure 23: Photographs of the Zoar landfill site. Photo A: Signage. Photo B: the access road from the R62 to the landfill site. Photo C: facilities at the landfill site. Photo D: non-operational swing gate at the entrance to the landfill site. Photo E: a view of the damaged fence on the northern site boundary. Photo F: a view of waste disposal concentrated on the eastern portion of the site. Photo G: the dumping of waste in the areas north of the landfill site. Photo H: wind-blown litter in a watercourse directly east of the landfill site.

(d) Van Wyksdorp Landfill Site

The Van Wyksdorp landfill site is a licensed facility owned and operated by the KLLM. The site has been issued with a variation license for decommissioning and closure for the period July 2018 to December 2019. Closure activities must commence by 10 December 2019.

Figure 24: Satellite image of Van Wyksdorp landfill site showing permitted boundary of the site in red (source, google earth satellite imagery, accessed on 15 May 2019 image date 10 April 2019)

Table 47: Van Wyksdorp landfill site profile

Location	Located on unnamed road off the R327
Co-ordinates (entrance of site)	Latitude: 33°44'25.62"S Longitude: 21°27'45.08"E Latitude: 33°44'22.55"S Longitude: 21°27'41.54"E
Site classification	Class B (G:C:B-)
Estimated size of site	Licensed area is approximately 29,720m^2
License status / type	Licensed, Decommissioning and closure
License number	19/2/5/4/D3/11/WL0067/18
Anticipated closure date	Closure to commence by 10 December 2019
Site Status	Operational
Operating hours	No specific operating hours has been designated
Buffer	Closest buildings/ houses / structures are 16m south of the edge of the site
Access	Access directly off an unnamed road north of Van Wyksdorp
Surrounding land use	Agriculture, open space, residential, grave yard, sports field
Facilities	No facilities
Access control and signage	Access is not controlled to a portion of the site which accepts garden and construction and demolition waste (i.e. no access gate and fencing) Signage is visible at the area where garden and construction and demolition waste is disposed of
Personnel on site	No personnel on site
Plant used on site	No permanent plant on site. A TLB is used to create trenches within which waste is disposed of
Description of waste management	Garden and construction and demolition waste is disposed of in trenches on a portion of the site. Once a trench is full it is closed and new trenches are made for waste disposal.
Waste accepted on site	The site only accepts garden and construction and demolition waste

Use of cover material	Waste disposal occurs in trenches which are closed once full			
Stormwater management	No stormwater management system in place			
Recycling	No recycling was occurring during the site inspection.			
Monitoring results	No monitoring of surface and groundwater is undertaken. The DEA&DP undertook a gas detection exercise at the landfill in April 2017. No Methane gas was detected during the exercise undertaken by DEA&DP.			
Estimated remaining life of site	Closure is due to commence by December 2019			
Compliance status (audit findings, percentage score)		**2016**	**2017**	**2018**
	Internal			
	External			
	DEA&DP		**16%**	**25%**
Challenges	• Access to the site is not controlled which result in general domestic and hazardous waste items being disposed of • The previous waste body has been closed but not fully rehabilitated • No records are kept of waste entering the site			


A


B


C


D

Figure 25: Photographs of the Van Wyksdorp landfill site. Photo A: signage at the portion of the site where garden and construction and demolition waste is disposed of. Photo B: trench within which waste is disposed of. Photo C: general domestic waste disposed of. Photo D: asbestos containing pipes disposed of. Photo E: a view of the access gate and fence which traverse a portion of the site. Photo F: a view of a portion of the site to where access is controlled. Photo G: a trench on the north-western portion of the site which contains waste items. Photo H: erosion gullies noted on site.

(e) Historic Landfill Sites

There is potentially a historic landfill site located on the northern edge of Ladismith, approximate co-ordinates (latitude: 33°29'26.16"S, longitude: 21°16'32.18"E).

The following need to be determine for this potential historic landfill site:

- Period it was operational for
- Waste types accepted
- Extent of the waste body
- Closure methods
- License/ permit status
- Way forward in consultation with DEA&DP

Figure 26: Approximate location of a historic landfill site in Ladismith (image source, Google Earth, image date 10/04/2019)

(f) Waste Drop-Off Facilities

There is a small domestic waste drop off facility located in Van Wyksdorp adjacent to the KLLM satellite office. Waste is collected from the drop off facility on Wednesdays by the KLLM and disposed of at the Ladismith landfill.

Accepted waste:

- Domestic waste

Waste not accepted:

- Garden waste
- Hazardous waste

Figure 27: Photographs of the mini drop-off facility in Van Wyksdorp. Photo A: signage at the mini drop-off facility. Photo B: a general view of the mini drop-off facility.

6.17 Other Waste Management Services

In addition to the provision of a waste collection service and management of waste facilities, the KLLM also provides the following services.

6.17.1 Street Bins

The KLLM provides street bins in the municipal area, on main streets and in business areas. Streets bins are emptied on a daily basis by the KLLM waste removal services.

Figure 28: Examples of street bins in KLLM.

6.17.2 Street Sweeping

Street sweeping is undertaken by the cleansing services department who makes use of their own staff as well as staff appointed through the CWP and EPWP programmes. Street sweeping is undertaken daily on main streets within towns. Verge cutting is also undertaken by the cleansing services department. Grass from verge cutting is taken to landfill for disposal.

6.17.3 Management of Ablution Facilities

The cleansing services department is currently responsible for the management of public ablution facilities.

6.17.4 Removal of Illegal Dumping

Illegal dumping of waste occurs in open spaces across the KLLM. The KLLM has mapped the location of illegal dumping sites. The usual triggers for illegal dumping include a lack of awareness, lack of services and lack of enforcement of by-laws. The cleaning of illegal dumping is undertaken as and when needed by an appointed contractor for large areas. Small areas of illegal dumping are cleaned by staff appointed through CWP and EPWP programmes. During the site inspection CWP workers were observed collecting litter and illegally dumped waste into piles and burning the waste. The burning of waste highlights a gap in the knowledge of the CWP workers in terms of correct waste management.

Figure 29: The cleaning of illegal dumping undertaken in Calitzdorp by CWP staff

Figure 30: Illegal dumping locations in Ladismith (image source, Google Earth)

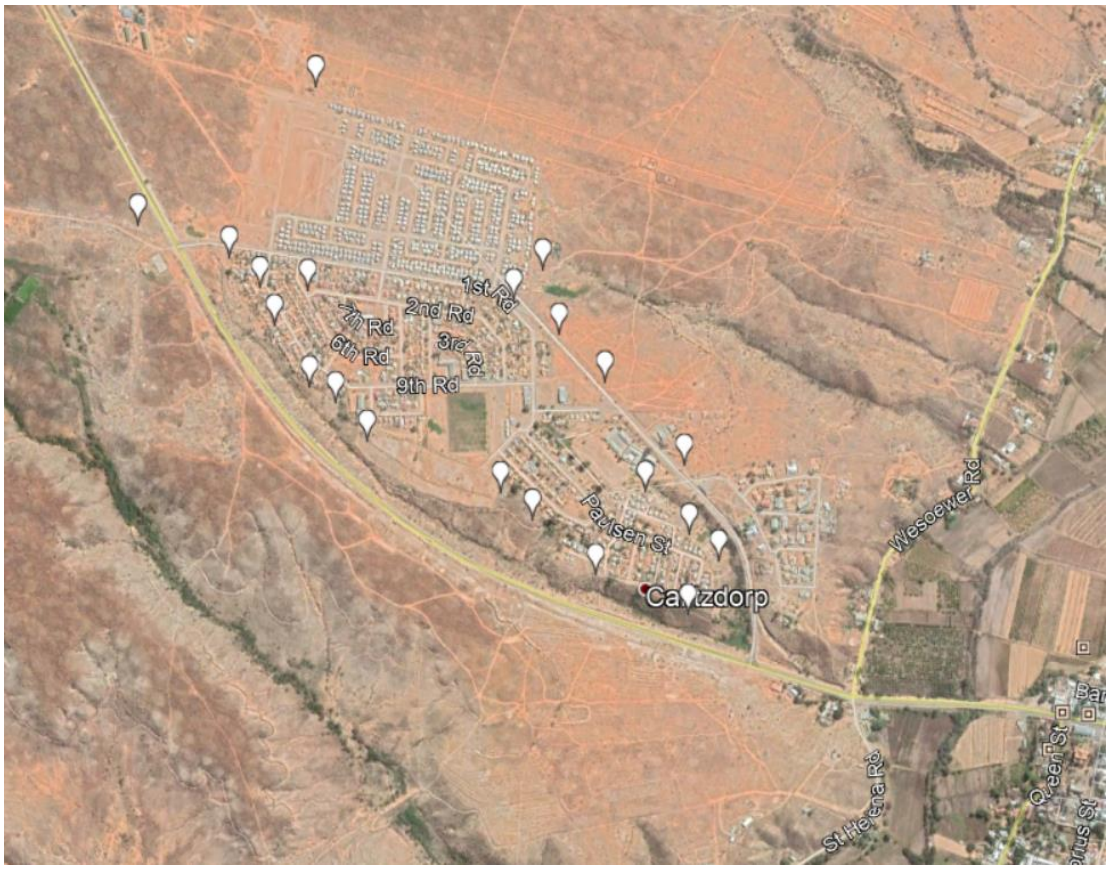


Figure 31: Illegal dumping locations in Calitzdorp

6.17.5 Waste Awareness Campaigns

Only a limited number of waste awareness campaigns have been undertaken by the KLLM since 2014, primarily due to a lack of resources (staff and budget). Waste awareness campaigns at schools were undertaken in 2014 – 2016 by staff appointed through EPWP programmes. The KLLM currently do not have designated employees to undertake waste awareness campaigns.

In terms of awareness raising materials, the KLLM have developed a flyer which provides information on illegal dumping, however no budget was available to print and distribute the flyers. The KLLM has also published articles in the municipal newsletter related to illegal dumping.

The KLLM in consultation with DEFF commenced with waste awareness campaign in May 2019. Waste awareness campaigns were undertaken at Hoerskool and Towerkop schools. A total of 221 learners were engaged during these two campaigns. The key challenge noted by the co-ordinator was a language gap between the learners and the co-ordinators. This highlights the need for awareness campaigns to be undertaken in the home language of the target audience and awareness materials should also be translated into the predominant local languages.

6.17.6 Western Cape Awareness Strategy

The Waste Awareness Strategy was published by DEA&DP in March 2018. The strategy aims to increase public awareness around waste management to reduce littering and illegal dumping, increase waste minimisation and maximise opportunities in waste management. The strategy reviews various mechanisms for increased waste awareness, such as signage, events, and media campaigns and assess the positives and negatives of these mechanisms.

The strategy assesses gaps in terms of waste awareness campaigns per district municipality. The following gaps were identified for the GRDM:

- Most of the public awareness is driven by the GRDM, very little is undertaken by the local municipalities.
- There is a gap in terms of promotion items, events greening, youth jobs and informal settlements
- Strategies need to be developed which are aimed at specific industries and low income and informal residential areas
- Major events need to be used to increase awareness

6.18 Complaints

No records or data on complaints have been received from the KLLM to date.

6.19 Waste Management Fleet

6.19.1 Fleet

The waste management fleet is managed by the municipal fleet management department. At present the waste management fleet consist of four operational trucks of which three are used for refuse collection. The KLLM do not have any standby trucks.

One of the cage trucks inspected is in a poor condition and is missing the side panels. A second truck inspected did not have side panels which were high enough to sufficiently contain the waste transported. As such, during the transport of waste blacks bags often fall off the back of the truck onto the road. This is a health and safety concern as it could result in vehicle accidents and damage to vehicles. The youngest vehicle in the fleet is 10 years old. The ageing fleet is subject to frequent breakdowns. Common issues include worn-out tires as well as the breakdown of mechanical components such as the drive shaft and gearbox.

Table 48: Waste management fleet

Vehicle make	Model	Reg no.	Type of vehicle	Area based	Comment
Operational trucks					
GWM	2007	CBL 3254	Pick-up	Ladismith	Used for street cleansing
Hino	2009	CBL 1737	Heavy Load	Ladismith	Used for refuse collection

Vehicle make	Model	Reg no.	Type of vehicle	Area based	Comment
Isuzu	2008	CBL 4033	Cage truck	Zoar	Used for refuse collection
Isuzu	2008	CBL 3662	Cage truck	Calitzdorp	Used for refuse collection
Other vehicles					
Landini	1994	CBL 2815	Tractor	Not in use anymore	Not in use anymore

Figure 32: Photo A: Cage truck at the Ladismith depot used for refuse collection. Photo B: A flat-bed truck used during the collection of refuse in Ladismith.

6.19.2 Waste management fleet depot

The depot where the waste management fleet is kept was briefly inspected. During the inspection it was noted that the depot area was generally poorly managed by the KLLM with housekeeping and sound environmental and waste management practices lacking at the depot. Key issues noted include:

- Waste not stored correctly in waste bins or skips and stockpiled in various areas at the depot
- A number of uncontained hazardous waste items (i.e. empty oil and paint containers) were noted
- Bitumen product drums and containers (including empty drums) were not stored in a bunded area

Figure 33: Photographs of the Ladismith depot. Photo A: waste items and construction materials stockpiled next to a building. Photo B: waste items and a used engine stored together. Photo C: uncontained general and hazardous waste items. Photo D: Bitumen product drums and containers not stored in a bunded area.

6.20 Waste Management By-Laws

6.20.1 Kannaland Local Municipality

The KLLM have Integrated Waste Management by-laws (2013) which aim to regulate the avoidance, minimisation, generation, collection, cleaning and disposal of waste within the KLLM.

A brief review of the KLLM by-laws related to waste management was undertaken as part of the IWMP. This review does not constitute a full legal review and was only undertaken to identify key gaps in the by-laws.

The Integrated Waste Management by-laws (2013) cover the following:

- Categorisation of waste
- Obligations of waste generators
- Hazardous waste
- Event waste
- Priority waste
- Integrated waste management plan
- Exemptions from submitting an integrated waste management plan
- Event waste
- Emergencies requiring waste management
- Recycling, re-use, sorting and recovery of waste
- Prohibition of unauthorised disposal of waste
- Litter and dumping
- Licences
- Waste management services, applications and registration for waste collection and removal services
- Access to private property
- Premises inaccessible for refuse collection
- Compliance notices
- Service of documents and process
- Failure to comply with the by-law and enforcement
- Offences and penalties
- Delegations by the waste management officer
- Functions and powers of waste management officer
- Amendments to waste removal services

The following gaps in terms of these by-laws were noted:

- The procedure to be followed in the event that residents or businesses do not place refuse out for collection on the correct day or time. In this case the resident or business should be responsible for safe storage of the waste until the next collection day or for the transport of waste to the closest mini drop-off or transfer station
- The by-laws state that the KLLM requires generators to separate waste and to store recyclable waste separately from non-recyclable waste. The by-law is however not clear as to what the generator should do with the recyclable waste and how it should be managed
- The by-laws refers the disposal of recyclable waste and the delivering of the waste to a licensed waste disposal site. The aforementioned is in contradiction with the waste hierarchy which requires that recyclable waste should be diverted from landfill
- The by-laws allow for fines to be issued for any offences and stipulate the minimum and maximum fine amount that may be imposed. The by-laws do however, not contain a schedule for fines. It is important to develop a schedule of fines which vary depending on the type of offence and magnitude of the offence
- The prevention of private open spaces and private buildings, structures, premises and vacant land from being used for the dumping of waste or storage of waste which causes nuisance
- Although the functions and powers of the waste management officer has been set out in the by-laws, consideration should also need to be given to powers of KLLM employees such as peace officers or waste rangers to enforce the by-laws.

6.20.2 Garden Route District Municipality

The GRDM's current waste management by-laws were promulgated in 2017. The by-laws applicable to all areas of jurisdiction in the GRDM which includes the KLLM.

The by-laws define a municipal waste collection services to cover domestic waste and general business waste only.

The by-laws also identify the municipalities which are obliged to make use of municipal waste disposal services provided by GRDM, these municipalities are the Mossel Bay Local Municipality (MBLM), George local municipality (GLM), Knysna local municipality (KLM) and Bitou local municipality (BLM). The KLLM is not currently participating in the regional landfill site project.

The by-laws allow GRDM to establish a waste information management system. All persons who are conducting an activity listed in terms of Annexure 1 of the National Waste Information Regulations (GN 625 of 2012). Registrations should have been submitted within 90 days of the by-laws coming into effect.

6.20.3 Enforcement of By-Laws

The KLLM has a law enforcement department that enforces all municipal by-laws. However, the KLLM do not have any dedicated waste management peace officers or designated waste rangers to enforce the waste by-laws. In terms of non-compliance with the waste by-laws, warning letters/compliance notices have been issued to persons responsible for contraventions, but no fines.

6.21 Institutional Management

6.21.1 Waste Management Officer

Mrs Sherilene Adams is the Manager for Waste Management at the KLLM. Mrs Adams is however not designated as the Waste Management Officer in terms of the Waste Act.

6.21.2 Organogram

The KLLM organogram for cleansing services (which include solid waste management) was last reviewed in 2019 (dated February 2019). There are a total of 30 positions in the organogram of which 9 are vacant.

Table 49: Cleansing services organogram*

Position	No. positions	No. positions filled
Superintendent: Cleansing services	1	0
Team leader	1	0
Foreman	2	2
Supervisor: Landfill management	1	0
Landfill operator	2	0
Truck driver	4	0
General worker	19	19
Total	**30**	**21**

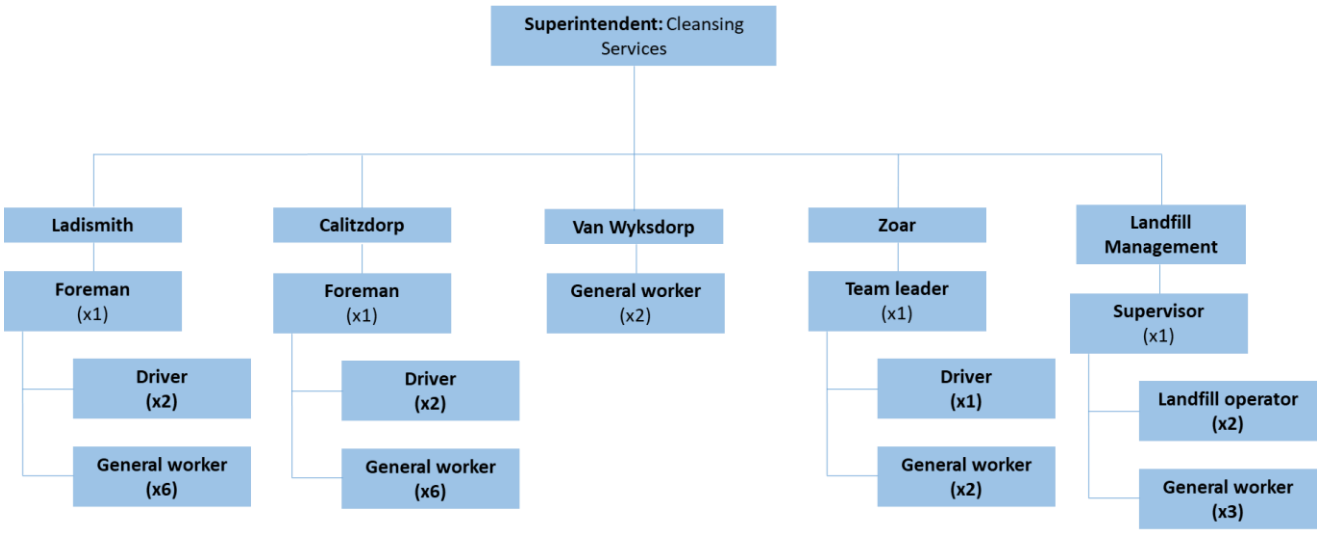


Figure 34: KLLM cleansing services organigram

6.21.3 Training

The KLLMs Human Resources department is responsible for the co-ordination of training. Employees in the waste department receive training based on their existing skills and the needs of the employees. Recent training received includes:

- Training on capturing of waste information on the DEA&DP waste calculator for landfill site
- Training in the management and operation of landfills
- Training in waste characterisation

6.22 Financial Management

A detailed understanding of the operational and capital costs of waste management is key for ensuing 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.

6.22.1 Waste Management Tariffs

The KLLM has not undertaken a full cost accounting exercise to determine the true cost of waste management services. The waste management tariffs are however increased annually.

The standard domestic tariff for a single weekly waste collection service for the past five years is outlined in Table 47 below.

Table 50: KLLM domestic waste tariff history (per unit)

Financial Year	Waste management tariff (incl. VAT)	Percentage increase
2014/15	R 145.52	10.7%
2015/16	R 154.25	10.6%
2016/17	R 166.59	10.8%
2017/18	R 179.90	10.7%
2018/19	R 190.71	10.6%

6.22.2 Equitable Share

Equitable share is a grant from national treasury provided to municipalities to provide basic services to poor households and to assist municipalities with limited resources to perform basic core municipal functions.

For the 2018/19 financial year the equitable share is on average R383.12 per household per month. Of the total allocated equitable share value R80.28 is allocated to waste services. This is split between operations (R72.25) and maintenance (R8.30) (National Treasury, undated).

In practice this funding is not always diverted to waste projects or waste service delivery but is instead sometimes diverted to fund other basic services such as water, sewage and electricity.

The Equitable share is calculated based on the number of indigent households per municipality. When indigent registers are out of date municipalities may underestimate the number of indigent households and therefore not receive the full equitable share due to them.

Table 51: Equitable share per Province (source, web reference 2)

Province	2018/19 Allocation	Forward Estimates	
		2019/20	2020/21
	R'000	R'000	R'000
Eastern Cape	65 499 660	69 807 213	74 411 439
Free State	26 178 043	28 071 076	30 108 091
Gauteng	93 384 285	100 923 135	109 092 089
KwaZulu-Natal	99 263 681	106 363 502	113 997 676
Limpopo	55 178 775	59 187 820	63 503 149
Mpumalanga	38 467 686	41 394 597	44 554 600
Northern Cape	12 475 021	13 403 527	14 404 557
North West	32 391 895	34 788 928	37 372 220
Western Cape	**47 447 464**	**51 079 855**	**55 003 034**
TOTAL	**470 286 510**	**505 019 653**	**542 446 855**

In 2016 there were 1,823 indigent households in the KLLM, this is a decrease from 1,866 households in 2015 and 1,640 households in 2014 (Western Cape Government, undated)

6.22.3 Waste Management Budget

A summary of the waste management budget and income and expenditure is shown below.

Table 52: KLLM revenue from refuse removal services (KLLM MTREF 2019/20 – 2020/21)

2018/19						
Original budget	Adjusted budget	Full year forecast	Pre audit outcome	Budget year 2019/20	Budget year 2020/21	Budget year 2021/22
6,190	6,190	6,190	3,959	6,680	7.057	7,455

R391,000 was budgeted for capital expenditure for waste management in the 2018/19 adjustment budget. Of concern is that no allowance has been made for capital expenditure for waste management in the 2020/21 or 2021/22 financial years.

Table 53: KLLM budgeted capital expenditure for waste management (KLLM MTREF, date)

2018/19						
Original budget	Adjusted budget	Full year forecast	Pre audit outcome	Budget year 2019/20	Budget year 2020/21	Budget year 2021/22
0	391	391	0	0	0	0

6.23 Institutional Framework

6.23.1 Provincial Waste Management Forum

The municipal WMOs are invited to attend provincial waste management officer's forums which are held on a quarterly basis. The quarterly meetings cover waste management issues, legislation updates and waste policies. These meetings are led by the GRDM and the venue is rotated between different municipalities in the district.

The forums typically cover the

- Updates on policy and legislation
- Reports from local municipalities
- Waste management licensing and waste management facility registrations

6.24 Waste Employee Interviews

Interviews were undertaken with a range of KLLM employees, from general workers to the waste manager and financial officer. Comments and concerns raised during the interviews are listed below. The comments/ concerns have been grouped according to common themes.

Table 54: Comments/ concerns raised through KLLM employees interviews

Category	Comments
Waste management fleet	• The trucks used are not suitable for waste collection. It is difficult for staff to get onto the truck which is a health and safety risk. Staff also need to compact on the back of the cage trucks waste by hand which creates a safety risk
Waste collection	• There are insufficient trucks and staff to undertake the waste collection service • Due to the insufficient trucks and staff, existing waste collection staff need to revert to unsafe operational practices to ensure that they do not fall behind in terms of the weekly collection schedule
Health and hygiene	• There is a lack of vaccinations of staff (i.e. Hepatitis) • The portable toilet at the Zoar landfill is not frequently serviced • There is no ablution facilities available at the landfill site (Ladismith)
PPE	• Overalls does not have safety reflectors • The overalls given to general workers are thin and of poor quality • The safety gloves provided are not thick enough • The clothing and PPE provided to staff are not branded to indicate that staff work for KLLM
Training	• No health and safety awareness training is provide for staff • Employees do not receive sufficient training
Illegal dumping	• Vehicles are hired to clean up illegal dumping. This is big expense for the municipality • There is no fine schedule in the waste by-laws
Landfill sites	• It is difficult to control waste scavengers due to poor access control at the landfill sites (i.e. no or lack of fencing, no operational gates) • Waste scavengers frequently damage the fence of the landfill site (Ladismith) to gain unauthorised access • Hazardous waste enters the landfill site due to poor access control at landfill sites

Category	Comments
	(i.e. no or lack of fencing, no operational gates) • The KLLM do not have plant and machinery of their own to undertake work at the landfill sites • There is not sufficient funds to appropriately manage the landfill sites • Farm animals gain frequent access to the landfill site (Ladismith) from the neighbouring property • There is no stand-by personnel at landfill sites to take over staff duties during a lunch break • There is not enough staff at landfill sites

6.25 Future Residential Developments

As per the KLLM Human Settlements Plan (HSP) (2016) a number of housing projects are planned for Ladismith, Zoar, Calitzdorp and Van Wyksdorp. A summary of the projects are outlined in Table 53 below.

Table 55: Human settlement pipeline projects planned for KLLM

Project name	Description	Programme	Total No of Housing Opportunities
Ladismith Parmalaat	280 services and 280 units	IRDP	422
Ladismith Schoongezicht GAP	170 services and 170 units	IRDP	40
Ladismith Showgrounds GAP	350 services and 350 units	IRDP	350
Ladismith Middleton Street Site GAP	78 services and 78 units	IRDP	78
Zoar Protea Park Infill	44 services and 44 units	IRDP	44
Zoar Protea Park Rectification	100 units	RP	44
Zoar Protea Park Infill	100 units	IRDP	100
Calitzdorp Bergsig	671 services and 671 units	IRDP	692
Calitzdorp Old Hospital Site	150 units	Social Housing	150
Van Wyksdorp Remainder Erf 110	100 services and 100 units	IRDP	100

6.26 Way Forward for Waste Management Facilities

6.26.1 Landfill Sites

The following table presents that way forward for the landfill sites in the KLLM.

Table 56: Way forward for landfill sites

Waste management facility	Proposed future use	Engineering works required	Estimated cost (excl. VAT)	Reference
Calitzdorp landfill site	The site is licensed for closure, closure must commence by July 2020 ***Note:*** The KLLM should apply for the extension of the license six months prior the commencement date should closure not commence by July 2020	• Site Preparation • Capping • Stormwater control measures • Installation of boreholes • Fencing	R 15,427,853.36	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Ladismith landfill site	Licensed facility owned by the KLLM which accepts general waste, garden refuse and building rubble. The remaining airspace of the site needs to be determined as this will influence the future use.	• Site preparation • Stormwater control measures • Leachate management • Installation of boreholes • Fencing	R 3,185,251.82	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Van Wyksdorp landfill site	Decommissioning and closure to commence by 10 December 2019 ***Note:*** The KLLM should apply for the extension of the license six months prior the commencement date should closure not commence by 10 December 2019	• Site preparation • Capping • Stormwater control measures • Installation of boreholes • Fencing	R 3,846,756.01	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Zoar landfill site	Operational, valid until airspace is reached. The remaining airspace of the site needs to be determined as this will influence the future use.	• Site preparation • Stormwater control measures • Leachate management • Installation of boreholes • Fencing	R 1,536,828.20	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)

6.26.2 Future Waste Management Facilities

In addition to the landfill sites, the following waste management facilities are planned for the KLLM. At present no progress has been made on the development of the below facilities.

Table 57: Way forward for future waste management facilities

Waste management facility	Proposed future use	Engineering works required	Estimated cost (excl. VAT)	Reference
Ladismith chipping facility	Construction and operation of a chipping facility.	• Site preparation • Road works	R 825,142.03 (excl. equipment)	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Ladismith MRF	Construction and operation of a MRF	• Earth works • Road works • Building works • Fencing • Electrical works	R 6,238,364.00 (excl. equipment)	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Zoar public drop-off facility	Construction and operation of a public drop-off facility	• Road works • Miscellaneous works • Retaining wall and concrete • Stormwater • Water reticulation	R 2,680,253.06	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Calitzdorp public drop-off facility	Operational public drop-off facility	• Road works • Miscellaneous works • Retaining wall and concrete • Stormwater • Water reticulation	R 2,680,253.06	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)
Van Wyksdorp public drop-off facility	Construction and operation of a public drop-off facility	• Road works • Miscellaneous works • Retaining wall and concrete • Stormwater • Water reticulation	R 2,680,253.06	DEA&DP Assessment of the Municipal Integrated Waste Management Infrastructure Report (2016)

7 Gap and Needs Assessment

This section presents the gaps and needs identified through the situational analysis review.

7.1 Gaps and Needs Identified in 2014 IWMP

The 2014 KLLM IWMP identified the following gaps in terms of waste management within the municipality.

Table 58: Gaps identified in the 2014 KLLM IWMP (KLLM, 2014)

Identified gaps	Progress made to address the gaps
1. Waste disposal site are non-compliant with permit conditions	
• Waste disposal sites are non-complaint • KLLM to ensure all sites are complaint with license conditions including compaction and covering of waste	• There are still challenges at landfill sites: ○ Lack of staff ○ Access control ○ Lack of compaction and covering ○ Windblown litter ○ Lack of external audits ○ Hazardous waste entering landfill sites
2. Unlicensed waste disposal facilities at Van Wyksdorp and Calitzdorp	
• Unlicensed waste disposal facilities at Van Wyksdorp and Calitzdorp • Closure licenses need to be obtained for these facilities after which they need to be rehabilitated and closed.	• Both landfill sites are now licensed: ○ Van Wyksdorp received a closure license ○ Calitzdorp received a closure license • A section of Van Wyksdorp is closed, but not fully rehabilitated. • Closure has not commenced on Calitzdorp
3. Expansion of the Ladismith Landfill site	
• The expansion of the Ladismith landfill site and the closure of certain cells which reached capacity • As the site is however located in close proximity to a watercourse a geo-hydrological study should be undertaken to identify a suitable location of the landfill site. The Department of Water Affairs should also be consulted as to the suitability of the site	• No expansion of the Ladismith landfill site has commenced
4. Poor state of collection equipment	
• The poor state of collection equipment is also a concern as it causes unreliable service in some parts of the municipal area. The replacement or maintenance of the equipment is crucial for a reliable waste service.	• The current fleet is in a poor condition and poses a health and safety risk to employees and the public.
5. **Staffing requirements and funding to fill vacant posts**	
• There are certain staffing requirements within the municipality that need to be addressed as well as the funding to fill vacant posts with skilled and semi-skilled staff.	• There is a lack of employees in the waste management department • The Waste Manager has too many responsibilities e.g. air quality, disaster management • Lack of administration staff • Lack of training at all levels
6. Waste minimisation	
• Little or no waste minimisation takes place	• No separation at source programmes, municipal

Identified gaps	Progress made to address the gaps
within the municipality.	recycling programme or recycling drop-off facilities
7. By-laws	
• No Integrated Waste Management By-law exists within the municipality.	• By-laws are in place but have gaps.
8. Waste awareness	
• The municipality has no formal awareness and education initiative/ programme specifically for integrated waste management	• There was a gap in awareness programmes between 2016 and July 2019 as there were no EPWP workers appointed
9. Waste data regarding different waste streams	
• There is no data regarding the different waste streams within the municipality, which includes medical waste, industrial waste, agricultural waste, household hazardous waste, etc.	• Household hazardous waste – a waste characterisation exercise was undertaken for the municipality in March 2019 • Health Care Risk Waste – data is available from the Western Cape Department of Health (WCDoH) • Industrial waste – data is obtained from the hazardous waste survey which is currently in progress • Agricultural – waste data is available from the GRDM organic waste characterisation
10. Waste services to farms	
• The municipality does not provide waste services to farms but also has no mechanisms in place to ensure that farm waste is adequately managed	• The KLLM does not have a list of services vs un-serviced areas

As can be seen from the above table, a number of gaps identified in the 2014 IWMP were not addressed over the last five year period.

7.2 Gaps and Needs Identified in 2020

During the development of the 2020 KLLM IWMP a number of gaps and needs were identified. Gaps and needs were identified based on interviews with stakeholders, inspection of fleet and facilities, and a review of the legislative and best practice guidelines.

Gaps and needs have been listed under the following headings:

1. Waste collection service provision
2. Waste minimisation and recycling
3. Organic waste management
4. Hazardous waste management
5. Waste management facilities
6. Waste management fleet and equipment
7. Waste information management
8. Waste education and awareness
9. By-laws and enforcement of by-laws
10. Institutional functioning;
11. Future planning.

Table 59: Waste management gap and needs

Legislated Requirements / Best Practice	Gaps	Needs
1. Waste Service Provision		
• The NWMS 2011 requires 95% of urban and 75% of rural households to have access to adequate levels of waste collection services. 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.	• 12.5% of households within the KLLM use their own refuse dump while 1.3% of households have no refuse service. • 2.7% of households receive a collection service less frequently than weekly.	• The KLLM requires additional trucks to provide a reliable waste collection service. • The KLLM needs to identify un-services areas and investigate how to provide a service to these areas.
2. Waste Minimisation and Recycling		
• The NWMS, 2011 sets a target of 25% diversion rate of recyclables by 2016. • The draft 2018 NMWS sets a target of 50% diversion of waste by 2023 and 80% diversion by 2028. • Operation Phakisa sets a target of 50% diversion of municipal waste by 2023. • The Western Cape Provincial IWMP sets a target of 20% diversion rate of recyclables by 2019. Note: this diversion target, although included in the Western Cape Provincial IWMP, is a national target as indicated in the National MTSF Outcome 10 target • The draft 2018 NWMS requires all municipalities 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 NDWCS require municipalities to provide an enabling environment for recycling.	• There is a lack of reliable data available to determine the diversion rate of recyclables. Based on data available only 1.5% of waste is diverted • No separation at source programme is current implemented within the KLLM. • There is currently no recycling drop-off facilities within the KLLM. • No in-house municipal recycling us currently undertaken.	• The pilot separation at source programme that is planned for Ladismith needs to be implemented. • Provision needs to be madefor easily accessible recycling drop-off facilities in Zoar and Calitzdorp. • Increased awareness around the importance of recycling is needed. This can be achieved through school competitions and awareness campaigns. • In-house recycling programme for paper, needs to be launched in all municipal offices. • Swop shops/buy-back centres need to be considered in low income areas. The swop shops/ buy-back centres should be developed in partnership with a school or non-profit organisation.

Legislated Requirements / Best Practice	Gaps	Needs
3. Organic Waste Management		
• 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. • Western Cape Provincial IWMP – 50% diversion of organic waste by 2022 and 100% diversion rate by 2027.	• The majority of organic waste generated in the KLLM is disposed of at landfill. • KLLM does not have any facilities for composting of organic waste.	• The KLLM needs to develop and submit an organic waste diversion plan to DEA&DP for each landfill site • Small composting facilities (less than 10 tonnes/day) per town need to be developed to reduce transportation costs. • The KLLM needs to engage with the GRDM regarding participating in the home composting project.
4. Hazardous Waste Management		
• 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.	• Lack of drop-off facilities for HHW. • Poor management of hazardous waste at the municipal depot in Ladismith. • Lack of awareness of what HHW waste is. • Lack of information available on hazardous waste generated by business and industry.	• The KLLM needs to provide drop-off facilities for HHW at future transfer stations/MRFs • E-waste awareness days and HHW awareness campaigns are needed. • The registering of hazardous waste generators on the GRWMIS needs to be encouraged. • Internal training and awareness on correct hazardous material and waste management is needed, this should be undertaken with waste management employees and other department who make use of the depot. • Training of gate controller on identification of hazardous waste is needed • Clean-up and internal monthly audits of depot is needed.
5. Waste Management Facilities		
a. Ladismith landfill		
Note: The last internal audit score of the site was 41%. Major improvements are required.	• Waste body beyond licensed boundary. • The remaining lifespan of the site is currently unknown • Lack of compaction and covering of waste. • Livestock and baboons on site as a result of the damaged fencing. • There is a clack of control over the types of waste that enter the site. Hazardous waste items (oil containers, paint cans, asbestos) were noted to be disposed of which is not permitted at the facility.	• KLLM to survey the Ladismith landfill site to determine the actual boundary and remaining airspace • KLLM needs to replace the existing bulldozer with a newer more reliable bulldozer. • There should be engagement with the owners of the livestock to inform them of risks to livestock accessing landfill sites e.g. plastic ingestion. • Training of gate controllers on the identification of hazardous waste needs to be undertaken. • Carcasses need to be disposed of within the licensed

Legislated Requirements / Best Practice	Gaps	Needs
	• Carcasses are disposed of in an unlined trench outside licensed area	boundary. Lime should be applied when carcasses are disposed of and trenches covered daily.
b. Calitzdorp landfill site		
Note: Note: The last DEA&DP audit score of the site was 22%. Major improvements are required.	• The waste body is beyond licensed boundary. • There is no staff at the facility to direct vehicles to working phase. • Pens for livestock and basic shelters are within the permitted site boundary. • There is a clack of control over the types of waste that enter the site. Hazardous waste items (oil containers, paint cans, asbestos) were noted to be disposed of which is not permitted at the facility. • Waste disposal is spread over a large area. • There is no fence at the facility.	• Staff need to be made available for the facility. The facility requires at least one gate controller and one general worker to direct vehicles. • The waste needs to be consolidated into one location. • A working site area need to be established and fenced off (smaller than the licensed boundary) to control disposal.
c. Zoar landfill site		
Note: The last internal audit score of the site was 36%. Major improvements are required.	• Lack of permanent plant to manage the site. • Illegal dumping of waste occurs behind the site which include hazardous items such as asbestos. • No daily compaction or cover of waste. • There is large volumes of waste in the adjacent watercourse. • The fence surrounding the site is damaged. • There is a lack of sufficient cover material. • The site appears to have reached its capacity.	• A reliable bulldozer needs to be operational and rotated between Ladismith, Zoar and Van Wyksdorp. • The site should be fenced with fencing which is not likely to be stolen. • Clean-up of illegal dumping and litter need to be undertaken. • Improved access control needs to be implemented, an access gate should be installed at the entrance to the access road off the R62 • The KLLM needs to identify a sustainable source for cover material. • Waste needs to be compacted and covered daily. • The KLLM needs to determine the remaining airspace of the site which would in turn inform the future plans of the site.
d. Van Wyksdorp landfill site		
Note: Note: The last DEA&DP audit score of the site was 25%. Major improvements are required.	• There is a lack of access control to the site: o No fence is in existence and the signage is not	In the short term: • The site needs to be fenced

Legislated Requirements / Best Practice	Gaps	Needs
	adequate enough to stipulate the waste types that are permissible at the facility. ○ There is no staff to control access to the facility and to provide instructions and directions for vehicles with waste. • Lack of permanent plant to manage the site. • The old waste body is not fully rehabilitated.	• The KLLM needs to make provision for at least one employee to be stationed at the site. In the medium/long term • A small drop-off facility/ transfer station need to be constructed • The landfill site needs tobe closed and rehabilitated
6. Waste Management Fleet and Equipment		
• 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.	• The vehicles used for waste collection are not enclosed and the operation of the vehicles are a Health and Safety risk to employees and the public. • The existing vehicles are subject to frequent breakdowns. • The KLLM do not have sufficient vehicles to perform a reliable waste collection service.	• The entire waste collection fleet needs to be replaced with compactor or cage trucks. Compactors are more expensive but can transport large volumes of waste. • A new bulldozer need to be purchased to replace the current one which is unreliable
7. Waste Management Information Management		
a. IWMP development, implementation and monitoring		
• The Waste Act requires that the IWMP is submitted to DEA&DP for endorsement, it is incorporated into the IDP that annual reports of the IWMP implementation are undertaken.	• One annual review of the progress of implementation of the previous IWMP has been undertaken.	• Once the 2019 IWMP is finalised the KLLM needs to ensure that annual reports are prepared and submitted in line with the Municipal Systems Act (Act 32 of 2000).
b. Waste Generation Records		
• The National Waste Information Regulations require information to be uploaded to the SAWIS on a quarterly basis. • The KLLM is required to register landfill sites with the GRWMIS in terms of the GRDM by-laws.	• There are gaps in waste disposal information recorded for KLLM. • Only waste that enter the Ladismith and Zoar landfill sites are recorded. • There are gaps in the data regarding commercial and industrial waste generated within the KLLM. • At present, there are no accurate records for hazardous waste generated within the KLLM.	• Provision needs to be made for gate controllers at each operational landfill site. • Waste need to be accurately recorded by gate controllers at each operational landfill site. • The KLLM need to support to implementation of the GRWMIS.
c. Waste Reporting		
• Municipalities are required to report on the SAWIS, IPWIS in terms of the National Waste Information Regulations (GN 625 of 2012) and the GRWMIS in terms	• Only records of waste that are disposed of at Zoar and Ladismith are reported on the IPWIS.	• All waste that enters the operational waste disposal facilities needs to be reported to the IPWIS.

Legislated Requirements / Best Practice	Gaps	Needs
of the GRDM by-laws.	• The KLLM is reporting waste that enters two landfill sites to the IPWIS, however IPWIS and SAWIS records are different so it appears that the two systems are not linked.	• The KLLM needs to engage with DEADP to determine if there is a need to report on both systems.
d. Internal Waste Information Management		
• Municipalities are required to keep detailed records and evidence of compliance with legislation and best practice guidelines. • Waste records should be readily available to all waste management personnel on a central server	• Information is often saved onto computers hard drives instead of onto a central server • Records are incomplete • Data is difficult to locate due to a lack of a filing structure	• The waste management department needs to develop a filing structure for waste records and information • Saving of all information onto a central server needs to be mandatory
8. Waste Education and Awareness		
• The NWMS, 2011, sets a target that 80% of schools must undertake waste awareness campaigns. • The service provider / municipality must provide guidelines on how to separate waste. • Municipalities must implement education and awareness training regarding the BRR relevant areas (NDWCS, 2011)	• The KLLM do not keep record of the number of waste awareness campaigns that are undertaken. • The KLLM have a lack awareness materials. • A limited number of waste awareness campaigns were undertaken between 2016 and 2019. • The KLLM have a lack of employees to undertake awareness campaigns. • Language barriers in programmes undertaken by DEFF pose a challenge to the effectiveness of waste awareness campaigns at schools	• The KLLM needs to increase the number of awareness campaigns undertaken. All schools should be visited at least annually. • The KLLM needs to develop a waste awareness calendar. • The KLLM needs to engage with the GRDM regarding available waste awareness materials. • KLLM needs to translate awareness materials into Afrikaans • The KLLM needs at least one dedicated waste awareness officer. This waste awareness officer should have a background in waste management and be fluent in Afrikaans
9. By-laws and Enforcement of By-laws		
	• By-laws are no aligned with GRDMs by-laws. • Lack of fine schedule. • No dedicated waste rangers to enforce waste management by-laws. • Littering and illegal dumping occurs across the KLLM.	• The KLLM needs to develop a comprehensive set of by-laws. The by-laws should be aligned with the GRDM's waste management by-laws and include a schedule of fines. • At least one waste rangers needs to be appointed to enforce the by-laws, particularly around litter and illegal dumping.
10. Institutional Functioning and Financial Management		
• The Waste Act requires that a WMO is designated for each municipality.	• Lack of employees to fulfil waste management function. • Lack of employees on landfill sites.	• The KLLM needs to review the organogram and prioritise positions which need to be filled.

Legislated Requirements / Best Practice	Gaps	Needs
• The Waste Act requires municipalities to keep separate financial statements including a balance sheet of services provided. • Full-cost accounting for waste services are to be undertaken and cost reflective tariffs implemented (NWMS, 2011).	• Waste manager's portfolio is too broad. • Lack of experienced admin and support staff. • No full cost accounting exercise undertaken.	• The responsibilities of the waste manager need to be reviewed. • A full cost accounting exercise is needed to determine the true cost of waste management.
11. Future Planning		
	• The KLLM has not commenced with the development of any facilities for organic waste management. • There is a lack of report detailing closure costs of landfill sites. • There is a lack of report on way forward for landfill sites. • Airspace analysis has not been undertaken for any of the municipal landfill sites, however based on site inspection and review of satellite imagery the Zoar and Ladismith landfill sites appear to be close to reaching capacity. • There is no documented plan in place to address waste disposal needs for Kannaland in the long term • There is a lack of documented plan to guide the development of waste management infrastructure over the next 10 – 15 years	• KLLM needs to commence with planning for small composting facilities per town. • GRAP assessments and airspace analysis need to be undertaken for landfill sites. • KLLM needs to identify a new site or assess the feasibility of expanding Zoar or Ladismith landfill sites to ensure there is sufficient airspace available for the next 15 – 20 years • Plans documenting the development of MRFs and transfer stations are needed.

8 Goals, Objectives and Assessment of Alternatives

For the purposes of this report we have defined the terms “goals”, “objectives” and “targets” 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 increase 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 60: Examples of Goals, Objectives and Target terminology.

Goal	Objective	Target	Indicator	Activities
Improve legal compliance	Improve the level of compliance in landfill audits	Minimum of 60% compliance	% 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	% waste recycled (expressed as a % of that going to landfill)	• Collate annual figures of waste recycled in the municipal area • Implement a 2 bag recycling pilot project • Implement a schools recycling programme

8.1 Goals for Kannaland Local Municipality

A total of seven goals were identified for the KLLM. The development of these goals have 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 efficient and financially viable waste management services
5. Increased waste minimisation and recycling
6. Improved compliance and enforcement
7. Improved future planning

8.2 Alignment with National and Provincial Waste Management Goals

The 2011 NWMS, 2018 draft NWMS and the WCIWMP (2017), along with the status quo of waste management within the KLLM were used to inform the KLLM third generation IWMP. The objectives of these three strategies are listed below.

Table 61: Alignment of KLLM goals with national and provincial goals

KLLM Goals	WCIWMP Goals	2011 NWMS	2018 NWMS
Goal 1. Effective waste information management and reporting	Goal 2. Improved integrated waste management planning and implementation for efficient waste services and infrastructure	Goal 5. Achieve integrated waste management planning	
Goal 2. Improved waste education and awareness	Goal 1: Strengthen education, capacity and advocacy towards integrated waste management	Goal 4. Ensure people are aware of the impact of waste on their health, well-being and the environment	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 and capacity	Goal 1: Strengthen education, capacity and advocacy towards integrated waste management	-	
Goal 4. Provision of efficient and financially viable waste management services	Goal 2. Improved integrated waste management planning and implementation for efficient waste services and infrastructure	Goal 2. Ensure the effective and efficient delivery of waste services Goal 6. Ensure sound budgeting and financial management for waste 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 and recycling	Goal 3. Effective and efficient use of resources	Goal 1: Promote waste minimisation, re-use, recycling and recovery of waste	Goal 1. Prevent waste, and where waste cannot be prevented, divert 50% of waste from landfill within 5 years; 80% within 10 years; and at least 95% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment
Goal 6. Improved compliance and enforcement	Goal 4. Improved compliance with environmental regulatory framework	Goal 7. Provide measures to remediate contaminated land Goal 8. Establish effective compliance with and enforcement of the Waste Act	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 7. Improved future planning	Goal 2. Improved integrated waste management planning and implementation for efficient waste services and infrastructure	Goal 5. Achieve integrated waste management planning.	

8.3 Objectives and Assessment of Alternatives

The following objectives and alternatives, in context of the aforementioned goals, have been identified for the KLLM. 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. The no-go alternative would mean that no change is made and the situation is not improved. The no-go option is not considered as the preferred option as the actions and targets have been identified to improve waste management in the KLLM.

Table 62: KLLM waste management objectives, actions and targets 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 IPWIS and GRWMIS on a regular basis. The KLLM is aware of the type and quantity of waste generated in the municipality.	1.1.1 KLLM to continue to report on the IPWIS system for Ladismith and Zoar landfill sites. Waste data to also be reported for Calitzdorp and Van Wyksdorp. Waste disposal data for all landfill sites to be reported.	There are no feasible alternative to this project. The KLLM has a legal requirement in terms of the National Waste Information Regulations to report on the IPWIS.
	1.1.2 Gate controllers to be stationed at all municipal facilities to record incoming waste. Incoming waste to be recorded using the waste calculator system.	The alternative to this project would be to install weighbridges at all municipal facilities. This is not deemed viable for the Van Wyksdorp or Calitzdorp landfill sites as closure of the landfill site will commence in December 2019 and July 2020 respectively. The remaining airspace at the Ladismith and Zoar landfill sites is currently unknown. Airspace determination is needed to determine the remaining lifespan of these sites. A weighbridge can be installed at all the other landfill sites and at the future waste management facilities.
	1.1.3 All new gate controllers to undergo DEA&DP waste calculator training prior to commencing work, and all existing gate controllers to undergo refresher training.	There is no feasible alternative to this project. Gate controllers require training to ensure that no prohibited waste types enter the facilities.
	1.1.4 All municipal waste facilities are registered and reporting on the GRWMIS.	There are no feasible alternative to this project. The KLLM is required to report on the GRWMIS in terms of the GRDM waste management by-laws.
	1.1.5 Domestic waste characterisations are undertaken once every 3 years. A representative sample is used from different	There is no feasible alternative to this project. Waste characterisations are required to determine changes in the domestic waste stream composition

Objective	Actions and Targets	Comments on Alternatives
	suburbs across the municipality.	due to seasonal changes or influences from recycling and organic waste diversion initiatives.
	1.1.6 KLLM to support the ongoing implementation of the GRWMIS.	There are no feasible alternative to this project. The KLLM is required to report on the GRWMIS in terms of the GRDM waste management by-laws.
1.2 The 2019 IWMP is regularly reviewed and the implementation status of project is monitored.	1.2.1 Undertake annual performance reviews of this IWMP, and send reports to GRDM and DEADP. Action plans to be developed to address projects which have not commenced as per timeframes given in the implementation plan	There is no feasible alternative. The KLLM is required to undertaken annual performance reviews of the IWMP in terms of the Waste Act.
1.3 Effective internal management of waste related data.	1.3.1 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 KLLM needs to determine what information is generated related to waste management.
	1.3.2 Develop systems for effectively capturing and storing waste data sets identified in the above inventory, such that they are readily available. All waste related information must be stored on a central server.	An alternative to this project could be to develop a manual filing system. 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.
Goal 2: Improved education and awareness		
2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns.	2.1.1 Develop an annual waste awareness calendar.	There is no feasible alternative to this project. A waste awareness calendar is needed to plan for waste awareness campaigns.
	2.1.2 Dedicated employees for waste education and awareness to be appointed, key performance indicators (KPIs) to be included in their formal job descriptions. These employees should have a background in waste management and by fluent in Afrikaans.	There is no feasible alternative to this project. In order for waste awareness campaigns to be undertaken successfully they need to be undertaken by dedicated personnel with experience in waste management. Use of temporary workers or EPWP workers in not recommended that these employees are typically only appointed for a short period of time and lack waste management experience.
	2.1.3 Waste awareness campaigns undertaken should be well documented and records regarding it should be stored on a central database.	There is no feasible alternative for this project.
	2.1.4 KLLM to make use of existing GRDM waste awareness materials, these may need to be translated and made available in Afrikaans	The alternative for this project would be for the KLLM to develop their own waste awareness materials. This is not recommended as awareness materials should be standardised across the district.

Objective	Actions and Targets	Comments on Alternatives
	2.1.5 The GRDM waste mascot should to be incorporated into future waste awareness materials.	The alternative to this project would be for the KLLM to develop their own mascot. This is not recommended as awareness materials should be standardised across the district through use of common elements such as the mascot.
2.2 The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed.	2.2.1 KLLM to support the GRDM with hazardous waste awareness programmes with business and industry. These programmes should focus on what constitute hazardous waste and how it should be managed.	The alternative to this project would be for KLLM to undertake their own hazardous waste awareness programme. As GRDM will be managing the hazardous waste cell at the regional landfill site it is recommended that GRDM leads the awareness campaigns with support from KLLM.
	2.2.2 KLLM to undertake hazardous waste awareness programmes with the public with a focus on HHW.	There is no viable alternative to this project. Alternatives could however be considered in how the awareness campaigns are undertaken e.g. open days vs community meetings.
	2.2.3 KLLM to undertake in-house hazardous waste training and a clean-up of the depot.	The alternative to this project would be to outsource the training. However, in the interests of cost saving it is recommended that it is undertaken internally.
	2.2.4 KLLM should encourage registration of hazardous waste generators on the GRWMIS.	An alternative to this project would be for the KLLM to develop its own registration process for hazardous waste generators. This is not recommended due to the additional administrative requirements of such as system and due to the fact that GRDM has a system in place already.
2.3 Waste awareness campaigns are mainstreamed at schools and all learners educated on good waste management practices.	2.3.1 Waste awareness campaigns to be undertaken at all schools in the KLLM. School recycling competitions to be implemented.	There is no viable alternative to this project. Alternatives could however be considered in how the awareness campaigns are undertaken e.g. school competitions vs puppets shows.
Goal 3: Improved institutional functioning and capacity		
3.1 The cleansing services 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 The cleansing services department's organogram to be reviewed to determine if sufficient positions are listed to allow implementation of this IWMP. All key positions should be filled.	The alternative to this project would be to outsource functions covered by vacant positions. This is not deemed as a suitable alternative as the KLLM should focus on building expertise internally and the cost to outsource may be higher than to appoint an employee.
	3.1.2 Implementation of the IWMP to be added as KPIs to the Waste Manager or supervisors performance evaluation criteria.	An alternative could be to not have any KPIs relating to IWMP implementation but this risks failure to implement the IWMP.

Objective	Actions and Targets	Comments on Alternatives
	3.1.3 Training schedule to be developed with training needs for employees at different levels identified.	There is no feasible alternative to this project.
Goal 4: Provision of efficient and financially viable waste management services		
4.1 The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required	4.1.1 KLLM to develop and implement a vehicle maintenance and replacement plan.	There is no feasible alternative to this project. The KLLM's existing waste management fleet is old and subject to frequent breakdowns. The implementation of a vehicle maintenance and replacement plan is crucial to ensure a functional and reliable waste collection service.
	4.1.2 The existing waste management fleet should be replaced with newer year models.	An alternative to this project would be to hire fleet. This is not recommended as hiring of vehicles may be more expensive than managing the fleet in-house.
	4.1.3 KLLM to ensure there is at least one backup truck for refuse collection.	There is no feasible alternative to this project.
4.2 A kerbside collection service is provided to all future residential developments.	4.2.1 Waste specifications to be developed for all future municipal and private developments (e.g. road widths and provision for drop-of centres).	The alternative to this project would be for all applications to be submitted to the Cleansing Services Department for Comment. The risk in this alternative is that money may be spent on development layouts which would need to reworked and amended based on comments from the Cleansing Services Department. This is not deemed as a suitable alternative.
4.3 Cost reflective tariffs are charged to residents and business	4.3.1 The waste service tariff reviews are to be informed by a full cost accounting exercise.	There is no feasible alternative to this project. A full cost accounting exercise is needed to determine the actual cost of the waste management function.
	4.3.2 KLLM should develop a list of serviced and un-serviced areas and ensure that all areas serviced by the municipality are billed for the waste collection service they receive.	There is no feasible alternative to this project.
	4.3.3 KLLM to ensure the indigent register is reviewed annually.	There is no feasible alternative to this project.
4.4 Budget is determined and allocated for the closure and rehabilitation of waste management facilities	4.4.1 GRAP assessments of the landfill sites are undertaken on an annual basis and an annual contribution is made into a budget allocated for the closure and rehabilitation of the landfill sites. Funds set aside for the rehabilitation and closure of landfill sites should be ring-fenced.	There is no feasible alternative to this project as annual GRAP assessments are a legal requirement.
4.5 The KLLM has sufficient landfill site disposal airspace for next 30 – 40 years	4.5.1 The KLLM to undertake surveys of remaining airspace at the Zoar and Ladismith landfill sites.	There is no feasible alternative for this project. An understanding of the remaining capacity of existing landfill sites are essential to aid and inform planning regarding waste service provision and waste management facilities.

Objective	Actions and Targets	Comments on Alternatives
	4.5.2 The KLLM to undertake a site selection study for a new regional site, extension of the Zoar and Ladismith sites should be considered.	There is no feasible alternative to this project.
	4.5.3 The KLLM to secure funding for the appointment of consultants to assist with the site selection process (short term) and funds to construct the regional site (medium – long term).	There is no feasible alternative to this project. An alternative to this project could be for the KLLM to make use of the GRDM regional landfill site in Mossel Bay, however previously studies have found that this is not a viable option due to transportation distances.
Goal 5: Increased waste minimisation and waste diversion from landfill		
5.1 The diversion of recyclables from waste generated is increased.	5.1.1 The KLLM should implement a pilot separation at source programme (2 bag system) in Ladismith.	An alternative to this project could be to install a dirty MRF to sort mixed domestic waste. This is not deemed as a suitable alternative as the cost of recyclables decreases with contamination and separation at source programmes can assist in raising the public's awareness of recycling.
	5.1.2 The KLLM should implement pilot swop shops and buy back centre programmes.	There is no feasible alternative to this project. The KLLM currently do not have any swop shops or buy back centres and a pilot project would assist the KLLM to gain an understanding of whether these facilities would be feasible. Swop shop and buy back centre programmes would furthermore enhance awareness among communities regarding the benefits of recycling.
	5.1.3 KLLM to provide public drop-off facilities for recyclables in Zoar, Calitzdorp, Ladismith and Van Wyksdorp	The KLLM is required to provide an enabling environment for recycling. An alternative to this project could be to provide a door-to-door collection service for source separated recyclable to all households. This is not deemed feasible (with the exception of the pilot programme in Ladismith) due to a lack of human resources and fleet in the KLLM.
	5.1.4 The KLLM should implement an in-house recycling programme. Records of waste collected through this system to be reported separately by the service provider who collects the recyclables.	There is no viable alternative to this project. In-house recycling is needed to raise awareness around recycling with KLLM employees.
5.2 The diversion of organic waste from landfill is increased	5.2.1 The KLLM should develop and submit an organic waste diversion plan to DEA&DP	There is no viable alternative to this project. Organic waste diversion plans are required by the waste management licenses for the landfill sites.

Objective	Actions and Targets	Comments on Alternatives
	5.2.2 The KLLM should roll out a pilot home composting programme.	Drop-off facilities for food waste could be added to transfer stations and drop-off centres, however as food waste decomposes quickly these bins would need to be emptied regularly and at present there are no municipal composting facilities for food waste. This is therefore not deemed as a viable alternative.
	5.2.2 The KLLM should develop small composting facilities (less than 10 tonnes/day) in Ladismith, Van Wyksdorp, Calitzdorp and Zoar.	An alternative to this project would be to develop a regional composting facility. This is not recommended for KLLM as the population is not located in a single area but spread mainly between four main towns in the municipality. This would result in organic waste being transported large distances to a regional facility The alternative is furthermore not recommended as a regional composting site would require a Waste Management License with stringent conditions.
	5.2.3 The KLLM to provide drop-off facilities for garden waste at all existing and proposed waste management facilities.	An alternative to this project would be for the KLLM to provide a door-to-door collection service for garden waste.
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 Review the Integrated Waste Management By-laws (2013) and make provision for a fines schedule.	There is no viable alternative to this project.
	6.1.2 Appoint a waste ranger and peace officers to enforce the by-laws.	An alternative to this project would be to add the waste ranger 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 litter 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 KLLM to undertake all clean-up campaigns in-house without engaging the communities. Clean-up campaigns can be used to raise waste awareness so this is not deemed as a suitable alternative.
	6.1.4 KLLM to continue to undertake illegal dumping surveys to determine the location of illegal dump sites and composition of waste being dumped.	There is no viable alternative to this project.
6.2 All waste facilities are operated in accordance with their licenses	6.2.1 Ensure that the Ladismith, Zoar, Calitzdorp and Van Wyksdorp landfill sites are managed and operated according to their license conditions.	There is no viable alternative to this project. The KLLM is legally required to comply with the license conditions. .
	6.2.2 Investigate potential historic landfill sites and determine the way forward for the sites in consultation with DEA&DP	There is no viable alternative to this project.

Objective	Actions and Targets	Comments on Alternatives
	6.2.3 All waste facilities to 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 in terms of the conditions of licenses issued for waste management facilities.
6.3 Closure of waste facilities is undertaken in accordance with their licenses	6.3.1 Decommissioning of van Wkysdorp landfill site to commence by 10 December 2019 and to be completed by 24 July 2028.	There is no alternative to this project as the Van Wyksdorp landfill site has been issued with a closure license. If there are no funds available to commence closure of the landfill site in 2019 the KLLM will need to apply for an amendment to the license.
	6.3.2 Decommissioning of Calitzdorp landfill site to commence by 20 July 2020.	There is no alternative to this project as the Calitzdorp landfill site has been issued with a closure license. If there are no funds available to commence closure of the landfill site in July 2020 the KLLM will need to apply for an amendment to the license.
Goal 7: Improved future waste infrastructure planning		
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 The KLLM should commence with the planning for small composting facilities per town.	There is no viable alternative to this project. The commencement of planning for the proposed composting facilities is essential as the KLLM are required to comply with stringent organic waste diversion targets set in terms of the National Norms and Standards for Disposal of Waste to Landfill and the WCIWMP.
	7.1.2 The KLLM to develop a waste infrastructure masterplan to guide the development of waste facilities over the next 5 – 15 years.	There is no viable alternative to this project. The KLLM need to develop a waste infrastructure master plan to ensure that the waste infrastructure needs of the municipality are met over the next 5 – 15 years.

9 Implementation Plan

The following section contains an implementation plan. The implementation plan outlines the following per project:

- Project priority
- Timeframes
- Anticipated budget
- Potential funding sources
- Responsibility for implementation of the project

Projects will be assigned a priority from low to high. While all projects in the implementation plan should be implemented, in the event that budget for waste project is cut the high priority projects should be implemented before low priority projects.

Table 63: Implementation Plan

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
Goal 1: Effective waste information management and reporting						
Objective 1.1 Accurate waste information is reported on the IPWIS and GRWMIS						
1.1.1	KLLM to continue to report on the IPWIS system for Ladismith and Zoar landfill sites. Waste data to also be reported for Calitzdorp and Van Wyksdorp.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
1.1.2	Gate controllers to be stationed at all municipal facilities to record incoming waste.	High	2020 – 2024	TBC	TBC	KLLM
1.1.3	All new gate controllers to undergo DEA&DP waste calculator training prior to commencing work, and all existing gate controllers to undergo refresher training.	High	2020 – 2024	Nil, DEA&DP offer training free of charge	N/A	KLLM & DEA&DP
1.1.4	All municipal waste facilities are registered and reporting on the GRWMIS.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
1.1.5	Domestic waste characterisations are undertaken once every 3 years. A representative sample is used from different suburbs across the municipality	Low	2022, 2025	Nil if undertaken internally	N/A	KLLM
1.1.6	KLLM to support the ongoing implementation of the GRWMIS.	Medium	2020 – 2024	Nil. To be undertaken	N/A	KLLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
				internally		
Objective 1.2 The 2020 IWMP is regularly reviewed and the implementation status of project is monitored.						
1.2.1	Undertake annual performance reviews of this IWMP, and send reports to GRDM and DEA&DP.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
Objective 1.3 Effective internal management of waste related data						
1.3.1	Develop an inventory of all internal waste related data sets.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
1.3.2	Develop systems for effectively capturing and storing waste data sets identified in the above inventory, such that they are readily available.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
Goal 2: Improved 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 an annual waste awareness calendar *(to be developed at the beginning of each financial year).*	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
2.1.2	Dedicated employees for waste education and awareness to be appointed, key performance indicators (KPIs) to be included in their formal job descriptions.	High	2020 – 2024	~R200,000 per annum (salary to be according to KLLM grading policy)	TBC	KLLM
2.1.3	Waste awareness campaigns undertaken should be well documented and records regarding awareness campaigns should be stored in a central database.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
2.1.4	KLLM to make use of existing GRDM waste awareness materials, these may need to be translated and made available in Afrikaans.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM & GRDM
2.1.5	The GRDM waste mascot is to be incorporated into future waste awareness materials.	High	2020 – 2024	Nil. If design of awareness materials can be undertaken internally	N/A	KLLM & GRDM
Objective 2.2 The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed						
2.2.1	KLLM to support the GRDM with hazardous waste awareness programmes with business and industry. These programmes should focus on what constitute hazardous waste and how it should be managed.	Medium	2021/22	Nil. GRDM to fund the cost for advertising, venues and catering for meetings/ workshops	GRDM budget	KLLM & GRDM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
2.2.2	KLLM to undertake hazardous waste awareness programmes with the public with a focus on HHW.	Medium	2020 – 2024	TBC	TBC	KLLM
2.2.3	KLLM to undertake in-house hazardous waste training and a clean-up of the depot.	High	2020 – 2024	Nil to be undertaken internally.	N/A	KLLM
2.2.4	KLLM should encourage registration of hazardous waste generators on the GRWMIS.	Medium	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
2.2.5	Use social media as a platform to spread waste awareness messages.	Medium	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
Objective 2.3 Waste awareness campaigns are mainstreamed at schools and all learners and educated on good waste management practices						
2.3.1	Waste awareness campaigns to be undertaken at all schools in the KLLM. School recycling competitions to be implemented once a year.	High	2020 – 2024	No additional labour cost if the same resource listed under 2.1.2 fulfils this role. A travel budget for waste awareness staff	TBC	KLLM
Goal 3: Improved institutional functioning and capacity						
Objective 3.1 The cleansing services 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	The cleansing services department's organogram is to be reviewed to determine if sufficient positions are listed to allow implementation of this IWMP. All key positions should be filled.	High	2020/21	Nil. The review of the organogram can be undertaken internally. Budget will be required to fill vacancies	N/A	KLLM
3.1.2	Implementation of the IWMP to be added as KPIs to the Waste Manager or supervisors performance evaluation criteria.	High	2020 – 2024	Nil.	N/A	KLLM
3.1.3	Training schedule to be developed with training needs for employees at different levels identified. The KLLM Human Resource (HR) Department to approve all training.	High	2020 – 2024 (annually)	Nil. No budget will be required to identify training needs	N/A	KLLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
3.1.4	KLLM to implement the training needs of employees identified in 3.1.3.	High	2020 – 2024	The training costs will be depend on identified course. An average budget of ~R10,000/ course/person should be allocated. Some courses e.g. DEA&DP courses will be free of charge	TBC	KLLM
3.1.5	KLLM WMO to attend quarterly GRDM WMO forum meetings and provincial forum meetings.	Medium	2020 – 2024	TBC – travel costs	TBC	KLLM
Goal 4: Provision of efficient and financially viable waste management services						
Objective 4.1 The waste management fleet is sufficient to continue to provide a good waste collection service						
4.1.1	KLLM to develop and implement a vehicle maintenance and replacement plan.	High	2020 – 2024 (reviewed annually)	Nil. To be undertaken internally	N/A	KLLM
4.1.2	KLLM to purchase 1 new waste compactor truck every 2 years	High	2020 – 2024	R1,500,000 per truck (second hand truck)	TBC	KLLM
4.1.3	KLLM to ensure there is at least one backup truck for refuse collection.	High	2020	Nil. Old trucks to be kept as backups	N/A	KLLM
4.1.4	Bulldozer to be replaced with a model which parts are readily available.	High	2020	TBC	TBC	KLLM
Objective 4.2 A kerbside collection service is provided to all future residential developments						
4.2.1	Waste specifications to be developed for all future municipal and private developments (e.g. road widths and provision for drop-of centres).	Medium	2020/21 (reviewed annually)	Nil. To be undertaken internally	N/A	KLLM
Objective 4.3 Cost reflective tariffs are charged to residents and business						
4.3.1	Waste disposal tariffs are informed by a full cost accounting exercise, tariffs are reviewed annually to determine if they are still accurate.	High	2020/21 (reviewed annually)	Nil. To be undertaken internally	N/A	KLLM
4.3.2	KLLM should develop a list of serviced and un-serviced areas and ensure that all areas serviced by the municipality are billed for the waste collection service they receive.	High	2020/21 (reviewed annually)	Nil. To be undertaken internally	N/A	KLLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
4.3.3	KLLM to ensure the indigent register is reviewed annually.	Medium	2020/21 (reviewed annually)	Nil. To be undertaken internally	N/A	KLLM
Objective 4.4 Budget is determined and allocated for the closure and rehabilitation of waste management facilities						
4.4.1	GRAP assessments of the landfill sites are undertaken on an annual basis and an annual contribution is made into a budget allocated for the closure and rehabilitation of the landfill sites. Funds set aside for the rehabilitation and closure of landfill sites should be ring-fenced.	High	2020 – 2024 (annually)	R 60,000 per annum. The cost will include a tachometric survey to determine remaining airspace	TBC	KLLM
Objective 4.5 The KLLM has sufficient landfill site disposal airspace for next 30 – 40 years						
4.5.1	KLLM to undertake surveys of remaining airspace at the Zoar and Ladismith landfill sites.	High	2020 – 2024 (annually)	Budget contained under 4.4.1	TBC	KLLM
4.5.2	The KLLM to undertake a phase 1 site selection study for a new regional site, extension of the Zoar and Ladismith sites should be considered.	Medium	2021/22	R 300,000	TBC	KLLM
4.5.3	The KLLM to secure funding for the appointment of consultants to assist with the site selection process (short term) and funds to construct the regional site (medium – long term).	Medium	2020/21	Nil. To be undertaken internally	N/A	KLLM
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	The KLLM should implement a pilot separation at source programme (2 bag system) in Ladismith.	High	2020	TBC	TBC	KLLM
5.1.2	The KLLM should implement pilot swop shops and buy back centre programmes.	Medium	2022	R 60,000 per annum to provide limited stock to the facilities	TBC	KLLM
5.1.3	Drop-off facilities for recyclables to be constructed in Calitzdorp (2021), Van Wyskdorp (2023), Zoar (2025)	Low	2021 - 2027	R 2,500,000 per facility	TBC	KLLM
5.1.4	The KLLM should implement an in-house recycling programme. Records of waste collected through this system to be reported separately by the service provider who collects the recyclables.	Medium	2020	Nil if a recycling company can provide bins and collect free of charge	N/A	KLLM
Objective 5.2 The diversion of organic waste from landfill is increased						
5.2.1	Develop an organic waste diversion plan and submit to DEA&DP	Medium	2021/22	Nil. To be undertaken internally	N/A	KLLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
5.2.2	The KLLM should roll out a pilot home composting programme.	Medium	2021/22	R 40,000	TBC	KLLM
5.2.3	The KLLM should implement the organic waste diversion plan.	Medium	2020 – 2024	TBC by the diversion plan	TBC	KLLM
5.2.4	The KLLM should develop small composting facilities (less than 10 tonnes/day) in Ladismith, Van Wyksdorp, Calitzdorp and Zoar.	Medium	2020 – 2024	R 1,000,000	TBC	KLLM
5.2.5	The KLLM to provide drop-off facilities for garden waste at all existing and proposed waste management facilities.	Medium	2022/23	R50,000 per facility to add garden waste drop-off facilities. The cost of establishing drop-off facilities is covered under 5.1.3.	TBC	KLLM
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	Review the Integrated Waste Management By-laws (2013) and make provision for a fines schedule.	Medium	2021	R 50,000	TBC	KLLM
6.1.2	The KLLM cleansing services department to engage with the law enforcement department to mandate KLLM law enforcement to issue fines for non-compliance with the waste management by-laws.	Medium	2022	Nil. Use existing law enforcement	N/A	KLLM
6.1.3	Undertake quarterly clean-up campaigns in areas where litter and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations or communities and used as waste awareness campaign.	Medium	2020 – 2024	Nil.	N/A	KLLM
6.1.4	KLLM to undertake illegal dumping surveys to determine the location of illegal dump sites and composition of waste being dumped.	Medium	2020 – 2024 (biannually)	Nil. To be undertaken internally	N/A	KLLM
6.1.5	Additional street bins to be provided in town centre at strategic locations.	Medium	2021	R20,000	TBC	KLLM
Objective 6.2 All waste facilities are operated in accordance with their licenses						
6.2.1	Ensure that the Ladismith and Zoar landfill sites are managed and operated according to their license conditions.	High	2020 – 2024	TBC	TBC	KLLM
6.2.2	Apply for an extension of the validity of the licenses for the Van Wyskdorp and Calitzdorp landfill sites.	High	2019	Nil. To be undertaken internally	N/A	KLLM & GRDM
6.2.3	Comply with closure license for the Van Wyksdorp and Calitzdorp	High	2019/2024*	TBC	TBC	KLLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	landfill sites.		(The timeframe may change depending on whether an extension by DEA&DP is granted)			
6.2.4	Investigate potential historic landfill sites and determine the way forward for the sites in consultation with DEA&DP.	Low	2021/22	Nil. To be undertaken internally	N/A	KLLM
6.2.5	The KLLM should undertake internal audits of all waste facilities at the frequency specified in their waste management license or registration.	High	2020 – 2024	Nil. To be undertaken internally	N/A	KLLM
6.2.6	All relevant KLLM employees to be trained on auditing principals to allow them to undertake internal audits.	Medium	2021/22	R6,000/person/ course	TBC	KLLM
6.2.7	Annual external audits of all landfill sites.	High	2020 – 2024	R30,000/annum/landfill site excluding tachomateric surveys, airspace determination and monitoring	TBC	KLLM
Objective 6.3 Closure of all waste facilities is undertaken in accordance with their licenses						
6.3.1	Closure of Van Wyksdorp landfill site to be undertaken in accordance with the license.	High	2019/2024* (The timeframe may change depending on whether an extension by DEA&DP is granted)	R4,300,000	TBC	KLLM
6.3.2	Closure of Calitzdorp landfill site to be undertaken in accordance with the license.	High	2020/2025* (The timeframe may change	R17,000,000	TBC	KLLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
			depending on whether an extension by DEA&DP is granted)			
Goal 7: Improved future waste infrastructure planning						
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	The KLLM to develop a waste infrastructure masterplan to guide the development of waste facilities over the next 5 – 15 years. The infrastructure masterplan must consider small composting facilities for each town.	Medium	2023	R 250,000	TBC	KLLM

10 Monitoring

The IWMP planning cycle developed by DEFF includes monitoring and review as one of the six planning stages.

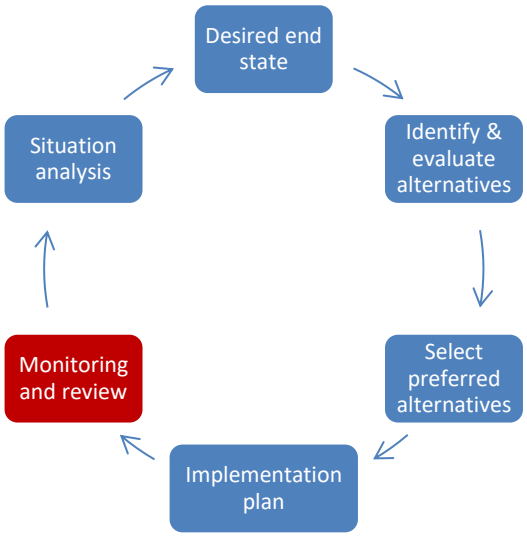


Figure 35: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

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

(a) the extent to which the plan has been implemented during the period;
(b) the waste management initiatives that have been undertaken during the reporting period;
(c) the delivery of waste management services and measures taken to secure the efficient delivery of waste management services, if applicable;
(d) the level of compliance with the plan and any applicable waste management standards;
(e) the measures taken to secure compliance with waste management standards;
(f) the waste management monitoring activities;
(g) the actual budget expended on implementing the plan;
(h) 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 the provincial authorities.

A full review of the IWMP should be undertaken in 2024, however intermediate reviews may also be required if the status quo of waste management changes significantly before 2024.

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accessed on 05 November 2018

Appendix A: 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 unlabeled 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

(i) Garnering local political support

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

(ii) 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.

(iii) 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

(iv) 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.

(v) Consulting and involving general public

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

(vi) 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.

(vii) 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.

(c) 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).

(d) 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 mention 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

TOPIC	SECTION	REQUIREMENT
		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 municipality, 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 environmental 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 was 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. • 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	Description	Targets 2016
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 covers 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 (Actb107 of 1998).

Appendix B: Refuse Collection Schedule

Monday
Ladismith
Tuesday
Calitzdorp
Wednesday
Zoar and Van Wyksdorp
Thursday
Businesses
Friday
Open spaces, streets

Document Control and Disclaimer

FORM IP180_B

CLIENT	:	Garden Route District Municipality			
PROJECT NAME	:	Kannaland Local Municipality Integrated Waste Management Plan	**PROJECT No.**	:	GE38216
TITLE OF DOCUMENT	:	Kannaland Local Municipality Draft 3rd Generation Integrated Waste Management Plan			
ELECTRONIC LOCATION	:	\\plz-cluster\projects\J38216 EN1 KF Garden Route DM IWMP\03_Project Management Plan Design\G_Document Management - Reports\Kannaland IWMP\Final draft IWMP\Kannaland Final Draft IWMP.docx			

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