3rd Generation

Central Karoo District Municipality

Integrated Waste Management Plan (IWMP)

DRAFT REPORT

2024

Sponsored By	Prepared by:
forestry, fisheries & the environment Department: Forestry, Fisheries and the Environment REPUBLIC OF SOUTH AFRICA	Mamadi & Company | SA

forestry, fisheries & the environment Department: Forestry, Fisheries and the Environment REPUBLIC OF SOUTH AFRICA	**DOCUMENT TITLE:**	**IWMP**	
	DOC NO:	**MC.DFFE.IWMPs.2024**	

PROJECT INFORMATION

Title	Development of Municipal Integrated Waste Management Plans (IWMP) for Central Karoo District Municipality
Submission Date	27 November 2024
Classification	Company Confidential
Our Reference	MC.DFFE.IWMP.2024

VERSION AND AMENDMENT SCHEDULE

Version	Version date	Author	Description of Amendments
1	22 November 2024	Given Nkosi (Environmental Consultant)	First Draft

APPROVAL AND CONTROL SCHEDULE

Approved by	Designation	Responsibility	Signature	Date Approved
Given Nkosi	Environmental Consultant	Compiler		22 November 2024
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REPORT STATUS	DRAFT	✔	FINAL	

EXECUTIVE SUMMARY

Department of Forestry, Fisheries and the Environment (DFFE) has embarked on a project to support Central Karoo District Municipality (CKDM) with its Local Municipalities namely Laingsburg Municipality (LM), Prince Albert Municipality (PAM) and Beaufort West Municipality (BWM) in developing their Integrated Waste Management Plans (IWMPs) as per the requirement of the National Environmental Management Waste Act, Act 59 of 2008 (NEMWA), as amended. Provincial government and municipalities responsible for waste management are expected to develop and review their IWMPs. Municipalities must submit their IWMPs to the Council for approval and to the Member of Executive Council (MEC) for endorsement, and the endorsed IWMPs must be incorporated into Municipal Integrated Development Plans (IDPs). The IWMP aims to provide strategic direction for waste management within the Municipality over the short, medium, and long term.

Local Municipalities are responsible for providing waste management services such as refuse removal, storage, and disposal; however, the District Municipality's primary responsibility is to offer technical support to Local Municipalities as well as assist with regional planning and coordination of waste management activities, hence the District is developing the plan. The IWMP will help the District in improving the current waste management practices which mainly focus on waste collection and disposal to a more improved waste management practice that promotes a green economy and sustainable development. The overall objective of an IWMP is to ensure that there is integration and optimisation of general waste, to maximize efficiency and minimise the associated environmental impacts while simultaneously improving the quality of life of the people within the Municipality.

The IWMP serves as a comprehensive overview of the current waste management practices implemented in the CKDM. Its primary purpose is to offer insights into the existing waste management landscape in CKDM and to delineate the planning context that informs the IWMP for CKDM. Additionally, the report addresses relevant legislative frameworks essential for the formulation of the IWMP.

The compilation of the IWMP involved the utilization of various methodologies, including interviews with key stakeholders and representatives from Local Municipalities, ground truthing/auditing of waste management practices within the District Municipality, and a thorough review of available background information, guidelines, and development frameworks related to waste management practices applicable to CKDM.

According to current data from Stats SA (2022), there has been a notable increase in population growth within CKDM, rising from 74,247 in 2011 to 102,173 in 2022. The total number of households has similarly grown from 19,100 to 27,290. This population surge places heightened demands on district-wide service delivery. Waste collection in CKDM currently encompasses all households.

The Local Municipalities of CKDM collectively operate eight licensed landfill sites, lacking weighbridges. Consequently, estimates are employed to record waste disposal volumes, reported monthly through the IPWIS. The prevalence of waste recycling is constrained, and the presence of waste reclaimers within the District is limited to Beaufort West (Vaalkoppies). Consequently, substantial volumes of recyclables accumulate at landfill sites. There are no producer responsibility organizations and extended producer responsibility initiatives are non-existent in the municipality.

Local municipalities face several challenges, including limited human resources, restricted air space, the absence of waste minimization programs, the illegal incineration of waste at landfills, inadequate access control at landfills, and a deficiency in specialized waste management equipment and vehicles required for effective site management. As such the gaps and needs identified within the district fall within the following categories:

- Integrated Waste Management planning & Implementation;
- Institutional Framework;
- Regulatory framework;
- Waste minimization, reuse and recycling;
- Capacity and Awareness;
- Municipal waste services.

In order to align the CKDM's goals with the PIWMP as well as the NWMS 2020, the following goals have been formulated:

- Goal 1: Achieve Integrated Waste Management Planning.
- Goal 2: Strengthen Institutional Capacity & Create Awareness for Waste Management.
- Goal 3: Improve Compliance with Regulatory Framework.
- Goal 4: Implementation of the waste hierarchy.

- Goal 5: Expand Waste Management Services.
- Goal 6: Improve Management of Disposal Facilities.
- Goal 7: Waste Information Reporting.
- Goal 8: Improve the handling and disposal of hazardous waste.

For these goals to be met, a series of implementation instruments (action plans) will need to be implemented. These action plans are detailed in the Implementation Plan in DESIRED END STATE of this report. It is imperative for the CKDM to action the items proposed in the Implementation Plan as this will directly result in improved waste management of the Municipality.

As part of the development of the IWMP, the consultants will engage with stakeholders and members of the community. Stakeholders and interested and affected parties (I&APs) will be notified that the Draft IWMP is out for comment. The comments on the Draft IWMP will be incorporated into the Final IWMP.

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ABBREVIATIONS

Abbreviation	Description
BWM	Beaufort West Municipality
CKDM	Central Karoo District Municipality
DFFE	Department of Forestry Fisheries and the Environment
DWCS	Domestic Waste Collections Standards
EPIP	Environmental Protection and Implementation Programme
EPR	Extended Producer Responsibility
EPWP	Expanded Public Workers Programme
HDPE	High Density Polyethylene
IDP	Integrated Development Plan
IWMP	Integrated Waste Management Plan
IPWIS	Integrated Pollutant and Waste Information System
MEC	Member of Executive Council
MIG	Municipal Infrastructure Grant
LM	Laingsburg Local Municipality
NDWCS	National Domestic Waste Collections Standards
NEM: AQA	National Environmental Management Air Quality Act (Act 39 of 2004)
NEMA	National Environmental Management Act (Act No 107 of 1998)
NEMWA	National Environmental Management Act: Waste Act (Act 59 of 2008)
NWA	National Water Act (Act No 36 of 1998)
NWMS	National Waste Management Strategy
PAM	Prince Albert Municipality

Abbreviation	Description
PET	Polyethylene terephthalate
SA SoER	South African State of Environment Report
SAWIS	South African Waste Information System
SWT	Solid Waste Technology SA
WML	Waste Management License
WMO	Waste Management Officer

DEFINITIONS

Word	Definition
Building and Demolition Waste	Means waste, excluding hazardous waste, produced during the construction, alteration, repair, or demolition of any structure, and includes rubble, earth, rock, and wood displaced during that construction, alteration, repair or demolition.
Business Waste	Means waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment, or government administration purposes.
By-laws	Regulations made by a local authority.
Circular Economy	Circular Economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible.
Desired End State	Entails identifying priorities and goals that a Municipality wishes to attain with regard to waste management.
Disposal	Means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land.
Domestic Waste	Means waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes.
Environment	The surroundings in which humans exist and includes the land, water, and atmosphere. In addition, it includes the interrelationships, combinations, properties and conditions of all organisms that exist within the surroundings.
Environment Conservation Act	Means the Environment Conservation Act, 1989 (Act No. 73 of 1989).
Environmental Authorisation	Authorisation by a competent authority of a listed activity or specified activity, in terms of this NEMA, and includes a similar authorisation contemplated in a. Specific Environmental Management Act (SEMA).
Environmental Impact Assessment	Environmental Impact Assessment in planning law, in some circumstances where a development is likely to have significant effects on the environment, a necessary examination of environmental issues before planning can be granted.

Word	Definition
Fleet	A number of vehicles or aircraft operating together or under the same ownership.
General Waste	Means waste that does not pose an immediate hazard or threat to health or to the environment, and includes— *(a)* domestic waste; *(b)* building and demolition waste; *(c)* business waste; and *(d)* inert waste.
Hazardous Waste	Means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical, or toxicological characteristics of that waste, have a detrimental impact on health and the environment.
Industrial symbiosis	Is a free facilitation service that promotes the exchange of residual resources of one company with another company that can make use of it.
Integrated Waste Management Plan	Is a statutory requirement of the NEMWA that has been promulgated and came into effect on 1 July 2009, with the goal to transform the current methodology of waste management, i.e., collection and disposal, to a sustainable practice focusing on waste avoidance and environmental sustainability. The IWMP is a critical sector plan to form part of the Integrated Development Plan.
Interested and Affected Parties	Interested and Affected Party for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, means an interested and affected party contemplated in Section 24(4)(a)(v) of the NEMA and which includes – a) any person, group of persons or organization interested in or affected by such operation or activity; and b) any organ of stale that may have jurisdiction over any aspect of the operation or activity.
Landfill site	This means any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise.
MEC	Means the Member of the Executive Council of a province who is responsible for waste management in the province.

Word	Definition
Minimisation	When used in relation to waste, means the avoidance of the amount and toxicity of waste that is generated and, in the event where waste is generated, the reduction of the amount and toxicity of waste that is disposed of.
Municipal Systems Act	Means the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000).
Municipality	Means a Municipality established in terms of the Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998).
National Environmental Management Act	Means the National Environmental Management Act, 1998 (Act No. 107 of 1998).
National Environmental Management Waste Act	Is the primary legislation that governs waste management in South Africa.
National Waste Management Strategy	The National Waste Management Strategy (NWMS) is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the “Waste Act”. The purpose of the NWMS is to achieve the objects of the Waste Act. Organs of the state and affected persons are obliged to give effect to the NWMS.
Partnerships	An association of two or more people as partners.
Projection	Is a potential future evolution of a quantity or set of quantities, often computed with the aid of a model.
Recovery	Means the controlled extraction of a material or the retrieval of energy from waste to produce a product.
Recycle	Means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.
Recycling	Means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.

Word	Definition
Re-use	Means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.
Stakeholder	A person or an organisation that has a legitimate interest in a project or entity or would be affected by a particular action or policy.
Status Quo	The existing state of affairs, especially regarding social or political issues.
Storage	Means the accumulation of waste in a manner that does not constitute treatment or disposal of that waste.
Treatment	Means any method, technique or process that is designed to— *(a)* change the physical, biological or chemical character or composition of a waste; or *(b)* remove, separate, concentrate or recover a hazardous or toxic component of a waste; or *(c)* destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use *(d)* or disposal;
Waste	Means 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.
Waste characterisation	The process by which the composition of different waste streams is analysed
Waste Pickers	Someone who collects re-usable and recyclable materials from residential and commercial waste bins, landfill sites and open spaces in order to revalue them and generate an income.
Waste picker integration	The creation of a formally planned recycling system that values and improves the present role of waste pickers, builds on the strengths of their

Word	Definition
	existing system for collecting and revaluing materials, and includes waste pickers as key partners in its design, implementation, evaluation and revision. Waste picker integration requires changes in a number of spheres and includes the integration of waste pickers' work, as well as the political, economic, social, legal and environmental integration of waste pickers.
Waste Disposal Facility	This means any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise.
Waste Management Activity	Means any activity listed in Schedule 1 or published by notice in the *Gazette* under section 19, and includes— *(a)* the importation and exportation of waste; *(b)* the generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste; *(c)* the accumulation and storage of waste; *(d)* the collection and handling of waste; *(e)* the reduction, re-use, recycling and recovery of waste; *(f)* the trading in waste; *(g)* the transportation of waste; *(h)* the transfer of waste; *(i)* the treatment of waste; and *(j)* the disposal of waste.
Waste Management License	This is a license that is issued by a competent authority which authorises an individual/organisation to commence, undertake or conduct a waste management activity under the waste listed activities.
Waste Management Officer	An individual appointed by a Local or District Municipality to coordinate waste management within that Municipality. This individual performs a regulatory function overseeing adherence to national norms and standards and achieving the objectives of the Waste Act.
Waste Management Services	Means waste collection, treatment, recycling and disposal services.
Waste Minimisation Programme	This means a programme that is intended to promote the reduced generation and disposal of waste.
Waste Transfer Facility or Station	Means a facility that is used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility.

Word	Definition
Waste Treatment Facility	Means any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste.

1 INTRODUCTION

The South African Constitution of the Republic, 1996 (Act 108 of 1996), under Chapter 2 Section 24, stipulates that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected through reasonable legislative and other measures that prevent pollution and ecological degradation. DFFE has a duty to support struggling municipalities that do not have the relevant capacity to ensure that waste service delivery is improved, as such DFFE has embarked on this project to assist CKDM with its Local municipality in developing their IWMPs.

CKDM is one of five District Municipalities in the Western Cape Province. The CKDM is the largest district in the Western Cape Province, covering a total area of 38 853 km², approximately 30% of the total area of the province. CKDM is a category C Municipality with three (3) category B Local Municipalities namely, Beaufort West Municipality (BWM), Prince Albert Municipality (PAM), and Laingsburg Municipality. According to Stats 2022, the total population size of CKDM is 102 173, which is the least populated District when compared with other Districts within Western Cape Province. Furthermore, CKDM has a total number of 27,290 households (Stats SA, 2022). CKDM drafted the first-generation IWMP in 2005, the second-generation IWMP in 2015 and this is the third generation IWMP (2024).

NEMWA is the primary legislation that governs waste management in South Africa, Section 11 (1) of NEMWA, as amended, requires of provincial government and municipalities responsible for waste to prepare and review their IWMPs. Each Municipality must prepare and submit the IWMP, which must be approved by the Municipal Council and endorsed by the Member of the Executive Council (MEC). The endorsed IWMP must then be incorporated into the Municipality's IDP.

CKDM has made improvements in waste management. However, significant challenges persist, threatening environmental sustainability and community well-being. Recognizing the intricate link between waste management, environmental pollution, and climate change, it is imperative to tackle these challenges through a holistic and integrated approach. The Municipality grapples with several pressing issues, notably the limited waste management infrastructure that hampers effective waste disposal practices. Inadequate facilities contribute to poor recycling initiatives, exacerbating environmental degradation and posing risks to public health. Compliance issues at existing waste management facilities further compound the problem, with low adherence to regulations.

The IWMP acknowledges waste management as integral to sustainable development, encompassing environmental, social, and economic dimensions. It recognizes the interconnectedness of waste management with global issues such as climate change, public health, poverty, and resource efficiency. Key cross-cutting issues identified include climate change mitigation through reducing methane emissions from landfilling, promoting sustainable consumption and production practices to minimize waste generation, harnessing the waste sector's potential for job creation and poverty reduction, addressing health and environmental impacts associated with poor waste management, and ensuring gender equality and human rights considerations in waste management policies and practices.

The IWMP is developed in line with the updated DFFE guidelines for the development of IWMP, the Department of Environmental Affairs and Development Planning (DEADP) guidelines for waste management planning and aligned with the 2020 National Waste Management Strategy (NWMS) which promotes the waste management hierarchy and circular economy. The goal of the IWMP is to transform the current methods of waste management, i.e. collection and disposal, to a sustainable practice focusing on waste circular economy and environmental sustainability. Several strategic plans have been taken into consideration during the development of this IWMP. The IWMP aligns with the global Sustainable Development Goals (SDGs), National Development Plan (NDP), and provincial plan (i.e. Western Cape IWMP). The IWMP will also be aligned with the Municipality's IDP. A summary of this linkage will be provided once the IWMP's goals and objectives are developed status quo/situation analysis covers the legislative framework, demographics, waste quantities and types, as well as the current waste management systems such as waste collection, recycling, treatment, waste disposal, key principles on NWMS 2020, waste pickers, circular economy and waste management funding. Information was gathered by reviewing existing waste management documents, questionnaire, ground truthing as well as by conducting interviews.

2 LEGISLATIVE REQUIREMENTS

This section provides a comprehensive list of applicable National and Provincial legislations, policies, and Guidelines concerning the management of solid waste within the Municipalities.

An understanding of the applicable legal framework is essential when evaluating options for the management of waste. The latest versions of legislation captured here, and their

respective amendments can be downloaded from the webpage of the South African Waste Information Centre (SAWIC: http://sawic.environment.gov.za/?menu=13)

The following legal requirements and obligations have an impact on the management of waste within municipalities.

Table 2-1: Applicable national legal requirements and obligations

The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947)
This legislation regulates the import, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies. This Act has relevance to compost where it is intended for use as a fertilizer and digestate from anaerobic plants intended as fertilizers. It also regulates the disposal of farm feeds and fertilizers.
The Hazardous Substances Act, 1973 (Act 15 of 1973) & Regulations
This legislation aims to address substances that are deemed hazardous, to regulate and prohibit the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances. In terms of waste management, Section 29 of the Hazardous Substances Act stipulates that the Minister has the designated authority to authorise, regulate or prohibit the dumping of hazardous substances. Industries that generate hazardous waste must produce an industrial waste management plan. Industries such as small-scale mines and other industries within the municipalities are expected to comply with this Act and the By-laws must incorporate this in their systems.
The Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Regulations
The Occupational Health and Safety Act, Act 85 of 1993 contains provisions that protect waste workers from harm during the waste management process. There are regulations protecting workers and the public from exposure to asbestos, hazardous chemicals and lead. The Occupational Health and Safety Act and its regulations are of importance to the management of the health and safety of workers responsible for the handling of waste. This Act could also apply to waste harvesters if they are allowed by a Municipality to reclaim waste.
Constitution of the Republic of South Africa Act, 1996 (Act No108 of 1996)
The Constitution of the Republic of South Africa (Act 108 of 1996) is the supreme law of the country and provides the legal foundation for every law developed. Section 24 of the Constitution states that

everyone has a right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislation development and implementation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development. As such, fundamental rights in the Constitution must be taken into consideration during waste management planning.

The National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA)

The National Environmental Management Act (Act No.107 of 1998) (NEMA) as amended is the framework Act dealing with environmental management in South Africa. It imposes a duty of care on every person who causes environmental degradation to put measures in place to stop, reduce or rectify the pollution as it occurs. The environmental impact assessments that are required for the establishment and management of waste facilities are conducted under this legislation. The national environmental management principles in Section 2 of the Act provide for the sound management of the environment, which includes waste aspects such as the polluter pays, duty of care, proximity, and regionalization and cradle-to-grave principles. Section 24 of the Act makes provision for the application and enforcement of waste management licenses. The duty of care and the remediation of environmental damage are addressed in Section 28 of the Act. The principles enunciated in the NEMA need to inform waste management decision-making and practices.

A key aspect of NEMA is that it provides a set of environmental management principles including Precautionary, Polluter pays and Prevention and duty of care as well as the Waste Management Hierarchy (Figure 2-1) that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. In addition, Section 28 of NEMA, affectionately known as the “duty of care” provision, requires persons who are defined in the section to take reasonable measures to combat pollution or degradation of the environment.

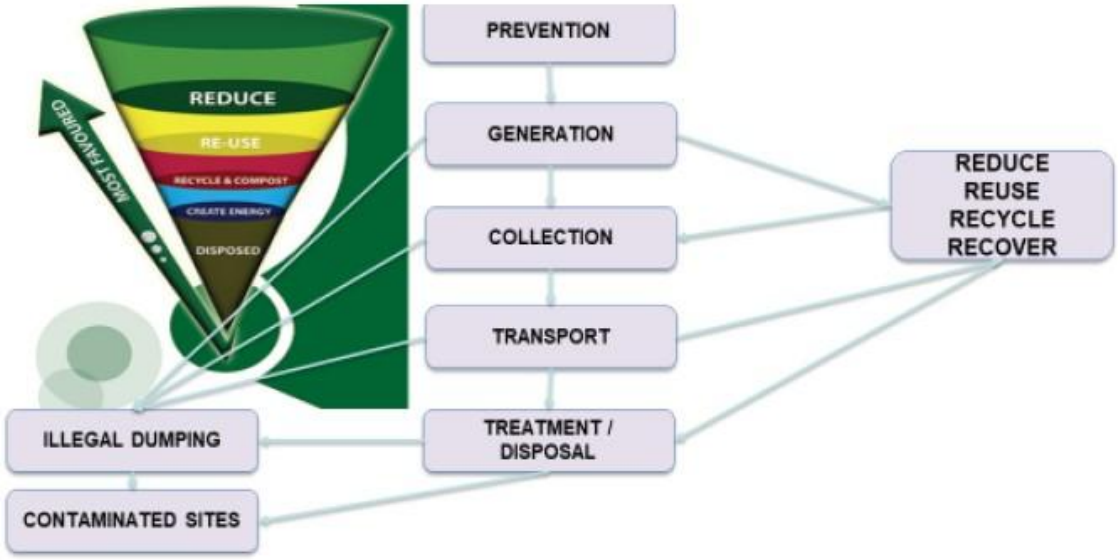

Figure 2-1:Waste Management Hierarchy

The National Water Act, 1998 (Act 36 of 1998) (NWA)

The National Water Act (Act No. 36 of 1998) (NWA) contains several provisions that impact waste management, including the disposing of waste in a manner, which detrimentally impacts on a water resource and the discharge of waste into a water resource. The Act allows the Minister to make regulations for:

Prescribing waste standards, which specify the quantity, quality and temperature of waste that may be discharged or deposited into or allowed to enter a water resource; and

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.

This Act requires that waste discharged or deposited into or allowed to enter a water resource be monitored and analysed according to prescribed mechanisms.

The Local Government Municipal Structures Act, 1998 (Act 117 of 1998)

This Act provides for the establishment of municipalities in accordance with the requirements relating to categories and types of municipalities. It establishes criteria for determining the category of municipality to be established in an area and defines the types of municipalities that may be established within each category. The Act furthermore provides for an appropriate division of functions and powers between

categories of municipalities and regulates the internal systems, structures and office-bearers of the municipalities. It also provides for appropriate electoral systems for matters in connection therewith.
White Paper on Integrated Pollution and Waste Management for South Africa (Government Gazette 20978, 17 March 2000)
The White Paper introduced an integrated approach to be adopted by the government to deal with the issues relating to waste management and pollution.
The Local Government Municipal Systems Act, 2000 (Act 32 of 2000)
Section 25 of the MSA, requires each municipal council to within a prescribed period after the start of its election term, adopt a single, inclusive and strategic IDP, for the development of the Municipality. In relation to waste management, the IDP is required to include sectorial environmental plans which would be an IWMP for waste management. In their IDP's municipalities are required to ensure proper resource allocation to achieve the targets set in the respective plans. Section 13 of the Act provides for the publication of relevant By-laws by the municipal council in the Provincial Gazette and where feasible in a local newspaper or in any other practical way to bring the contents of the By-law to the attention of the local community.
The Local Government Municipal Finance Management Act, 2003 (Act 56 of 2003)
This Act provides for the secure and sustainable management of the financial affairs of municipalities and other institutions in the local sphere of government
The National Health Act (Act 61 of 2003)
The National Health Act (Act No. 63 of 2003) provides measures for the promotion of health and Section 20 of the Act sets out the duties and powers of local authorities. It provides that every local government is obliged to take measures to maintain its district in a clean and hygienic condition and to prevent the occurrence of any nuisance, unhygienic or offensive condition, or any other condition, which could be of danger to the health of any person. A "nuisance" includes any accumulation of refuse or other matter that is offensive or is injurious or dangerous to health. The local government is obliged to abate the nuisance or remedy the condition and to prevent the pollution of any water intended for the use of the inhabitants of its district.
The National Environmental Management: Air Quality Act 39 of 2004

The National Environmental Management: Air Quality Act 39 of 2004 (NEM: AQA) as amended reforms the law regulating air quality to protect the environment by providing measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; provides for national norms and standards regulating air quality monitoring, management and control of all spheres of government; for specific air quality measures; and matters incidental thereto. This Act is furthermore relevant to the management of waste as it may impact air quality and ultimately contribute to the mitigation of climate change.
National Environmental Management: Waste Management Act, 2008 (Act No. 59 of 2008) (NEMWA)
The National Environmental Management Act: Waste Act (Act 59 of 2008) (NEMWA) as amended regulates waste management to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation, and for securing ecologically sustainable development. This is aimed at providing for institutional arrangements and planning matters; providing for national norms and standards for regulating the management of waste by all spheres of government; providing for specific waste management measures; to provide for the licensing and control of waste activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.
Waste Tyre Regulations, 2008 (Government Gazette 31901)
The Waste Tyre Regulations were published on 13 February 2009 and came into effect on 30 June 2009 in terms of section 24B of the ECA and make provision for effective and integrated management of waste tyres.
Consumer Protection Act (CPA), 2008 (Act 68 of 2008)
Section 59 of this act provides for producers, suppliers or distributors of goods (designated products or their components) that may not be disposed of into a common waste collection system to be recovered and safely disposed
Waste Tyre Regulation GNR 149 of 2009
Waste Tyre Regulation regulates the management of waste tyres by providing regulatory mechanisms.
National Environmental Management: Waste Act (59/2008): List of Waste Management Activities that

have or are likely to have a detrimental effect on the environment. GN 32368, 3 July 2009
This notice lists the activities that trigger a waste license requirement and no person may commence, undertake or conduct a waste management activity listed in this schedule unless a license is issued in respect of that activity
National Environmental Management Act, 1998 (Act No. 107 of 1998): Environmental Impact Assessment ("EIA") Regulations, 18 June 2010
These regulations standardise the procedure and criteria as contemplated in Chapter 5 of the NEMA relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities to avoid detrimental impacts on the environment, or where it cannot be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and for matters pertaining thereto.
The National Domestic Waste Collection Standards (GNR 21 of 2011)
This notice aims to standardize waste service delivery to ensure that this service is available to all while complying with current health and safety legislations as well as minimally changing those waste collection processes that function effectively and efficiently. The National Domestic Waste Collections Standards (NDWCS) also specify that recyclables that are not collected at households should be deposited at drop-off centres which must be easily accessible to households. These drop-off centres must promote recycling and ensure user-friendliness and also collection must be done at regular intervals so that it does not cause a nuisance. The NDWCS defines that there should be mechanisms in place to ensure that there be transparent communication between different stakeholders. This document stipulates that the service provider must create awareness amongst households about waste collection services offered, source separation, composting and the consequences of illegal dumping. This notice also outlines the role of the Waste Management Officer (WMO) regarding waste awareness and the handling of complaints.
National Waste Management Strategy (NWMS) (14 November 2011)
The purpose of the strategy is to give effect to the objects of the Waste Act as required in terms of section 6(1).
The National Policy for the provision of Basic Refuse Removal services to indigent households (GN 413 of 2011)

The National Policy on Free Basic Refuse Removal (FBRR) aims to address the need for free basic refuse removal among impoverished households. Many municipalities experience several challenges concerning delivering an effective and sustainable waste service to all households. Some of the problems currently experienced by municipalities in terms of waste management are insufficient income for budget allocation, lack of equipment, skilled staff and poor access to service areas.

There are three objectives of the National Policy on FBRR. The first, being to establish a framework for the development, identification and management of indigent households that can be enrolled for the FBRR service within the Municipality. The second is to set broad principles, resulting in the adoption of By-laws for the implementation and enforcement of tariff policies that will support the FBRR service within the concerned municipalities. The last of these principles is to educate and raise awareness within municipalities regarding the proper handling of domestic waste for FBRR as well as for the need to minimise waste and promote recycling.

Municipal Solid Waste Tariff Strategy (2012)

The purpose of the Municipal Solid Waste Tariff Strategy is to provide a framework and guidance for municipalities in setting solid waste tariffs that align with the intentions of the NWMS. The NWMS recognizes the importance of full cost accounting as the foundation of financial sustainability, which is critical in the delivery of effective and efficient waste services and in the promotion of waste minimization, reuse, recycling and recovery. Full cost accounting considers all operational and capital expenditure pertaining to solid waste services. The introduction of cost-recovery tariffs enables municipalities to fund the “maintenance, renewal and expansion of solid waste infrastructure” (NWMS, 2011). The under-pricing of waste services sends inappropriate signals to households and waste generators and discourages waste minimisation. Inadequacies in municipal solid waste tariff setting have been raised by National Treasury (National Treasury, 2011). The strategy aims to reflect the principles that need to be adhered to in solid waste tariff setting and provides guidance in achieving the correct balance between appropriate subsidization and full cost recovery.

The National Waste Information Regulation (GNR 625 of 2012)

This notice illustrates the regulations for the collections of data and information to fulfil the objectives of the National Waste Information System (SAWIS) set out in Section 61 of the NEMWA. The list of activities requiring registration and reporting on the SAWIS includes general waste disposal facilities that receive more than 150 tons of waste per day, recycling and treatment facilities, hazardous waste being exported or imported as well as energy recovery facilities.

List of Waste Management Activities that have or are likely to have, a Detrimental Effect on the Environment (GN 921 of 2013)

The listed waste activities under Sections 19 and 20 of Chapter 4 of NEMWA are published in Government Notice 921 of 2013 as Category A; activities requiring a Basic Assessment (BA) process (applicable to general waste), Category B; activities requiring a Scoping and Environmental Impact Assessment (EIA) process (applicable to hazardous waste) set out in Section 24(5) of NEMA (Act No. 107 of 1998), as part of the waste management license application contemplated in Section 45 read with Section 20(b) of the Act. The main activities in terms of Categories A and B for which a waste license may be required, fall within the following broad categories: Storage of waste; Recycling or recovery of waste; Treatment of waste; Disposal of waste; and Construction, expansion or decommissioning of waste facilities.

The National Norms and Standards for the Remediation of Contaminated Land and Soil Quality in the Republic of South Africa (GN 467 of 2013)

The purpose of the norms and standards is to provide for a uniform, national approach relating to the remediation of contaminated land.

The National Norms and Standards for the Storage of Waste GNR 926 of 2013

The purpose of these norms and standards is to provide a uniform national approach to the management of waste facilities and to ensure that best practice in the management of waste storage facilities is achieved. This document also outlines the minimum standards for the design and operation of new and existing waste storage facilities.

Part 1 of this document outlines the requirements for registration, what factors to consider when selecting a location and finally the requirements for the construction and design of the proposed waste storage facility.

Part 2 of these norms and standards outlines the requirements for the management of waste storage facilities. Aspects such as access control, notices/signage, waste storage containers and minimum requirements for above and underground waste storage facilities are outlined in this section. This is applicable to facilities such as the landfill sites.

The National Norms and Standards for Disposal of Waste to landfill GNR 636 of 2013

These Norms and Standards determine the requirements for the disposal of waste to landfills as

contemplated in regulation Section 8(1) (b) and (c) of the Waste Classification and Management Regulations. Chapter 2 outlines and illustrates Landfill Classification and Containment Barrier Design. Waste assessed in terms of the Norms and Standards for Assessment of Waste for Landfill Disposal in terms of Section 7(1) of the Act must be disposed to a licensed landfill.

The Waste Classification and Management Regulations (GNR 634 of 2013)

The purpose of this Regulation is to regulate the classification and management of waste in manner which supports and implements the provisions of NEMWA; to establish a mechanism and procedure for the listing of waste management activities that do not require a Waste Management License; to prescribe requirements for the disposal of waste to a landfill; to prescribe general duties of waste generators, transporters and managers.

The National Norms and Standards for the Scrapping or Recovery of Motor Vehicles GNR 925 of 2013

The National Norms and Standards for the Scrapping or Recovery of Motor Vehicles aim at controlling the scrapping or recovery of motor vehicles at a facility with an operational area in excess of 500 m^2 in order to prevent or minimize potentially negative impacts on the biophysical and socio-economic environment.

The National Norms and Standards for the Assessment of Waste for Landfill Disposal (GNR 635 of 2013)

The National Norms and Standards for the Assessment of Waste for Landfill Disposal prescribes the requirements for the assessment of waste prior to its disposal to landfill in terms of Regulation 8(1)(a) of the regulations. It is the responsibility of the Municipality to ensure compliance with the waste quality prior to its disposal at landfill.

Western Cape Health Care Waste Management Act, 2007 (Act 7 of 2007), Amendment Act, 2010 (No. 6 of 2010), Regulations, 2013

The Act, Amendment Act and Regulations provides for the effective management (handling, storage, collection, transportation, treatment and disposal) of health care waste by all persons in the Western Cape

National Environmental Management: Waste Act: National Waste Information Regulations, January 2013

These Regulations instruct waste generators and holders to register and report to the National and Provincial waste information systems. The waste generators and holders in the Western Cape Province must register on the Integrated Pollutant and Waste Information System (IPWIS).

National Organic Waste Composting Strategy: Draft Strategy Report and Guideline (February 2013)

The national organic draft strategy has been developed to promote composting as one method to beneficiate organic waste and to divert organics from landfill disposal. The Guidelines aim to provide a practical conceptual-level information tool to assist authorities and other interested parties in identifying viable and sustainable composting opportunities

The National Environmental Management: Waste Act: Waste Classification & Management Regulations (Government Gazette No. 36784, 23 August 2013)

The Regulations serve to regulate the classification and management of waste in a manner that supports and implements the provisions of the Waste Act and provide for safe and appropriate handling, storage, recovery, reuse, recycling, treatment and disposal of waste and will also enable accurate and relevant reporting on waste generation and management.

National Environmental Management: Waste Act: National Norms and Standards for Disposal of Waste to Landfill (Government Gazette No. 36784, 23 August 2013)

These Norms and Standards determine the requirements for the disposal of waste to landfill as contemplated in Regulation 8(1) (b) and (c).

National Environmental Management: Waste Act: National Norms and Standards for Assessment of Waste to Landfill (Government Gazette No. 36784, 23 August 2013)

These Norms and Standards prescribe the requirements for the assessment of waste prior to disposal to landfill in terms of Regulation 8(1) (a).

National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Bailing of General Waste (GNR 1093 of 2017)

The purpose of these Norms and Standards is to provide a uniform national approach relating to the management of waste facilities that sort, shred, grind, crush, screen, chip or bale general waste, with an operational area that is 1000m2 and more. Waste facilities with less than 1000m2 are to comply with Section 4(4) of the Norms and Standards only, which requires that the facility must be registered with

the Competent Authority and comply with the principles of the duty of care as contained in Section 28 of the NEMA.

The Norms and Standards require that the Municipality ensure-

- All new waste facilities must be registered 90 days prior to any construction taking place;
- Existing waste facilities must register within 90 days of the publishing of the Norms and Standards (i.e. on or before 09 January 2018);
- Those waste facilities that are already registered do not need to re-register but must comply with the Norms and Standards from 11 October 2017; and
- A waste facility that is less than 1000m2 must, inter alia, register in terms of the Norms and Standards.

Regulations Regarding the Exclusion of Waste or a Portion of a Waste Stream from the Definition of Waste (GN R 715 of 2018)

The purpose of these regulations are as follows:

Prescribe the manner in which a person or a category of persons may apply to the Minister for exclusion of a waste stream or a portion of waste for beneficial use from the definition of waste;

Exclude permitted uses of a waste stream or a portion of waste from the definition of waste; and

Promote diversion of waste from landfill disposal to its beneficial use.

The National Waste Management Strategy GNR 2020

The National Waste Management Strategy (NWMS,2020) is a legislative requirement of NEMWA. The purpose of the NWMS is to give effect in achieving the objectives outlined in the NEMWA. The 2020 NWMS is a revision and update of the 2020 NWMS. Organs of state and affected persons are obliged to give effect to the NWMS. The 2020 NWMS is structured around central implementation themes that are described in terms of strategic objectives and actions:

- Theme 1: Waste Minimisation
- Theme 2: Effective and Sustainable Waste Services
- Theme 3: Waste Awareness and Compliance

The NWMS's overall aim is to reduce the generation and environmental impacts associated with poor waste management. It presents a plan on how to achieve the desired goals outlined in the document which will ultimately promote a cleaner, healthier environment within South Africa.
Extended Producer Responsibility (GN 1184 of 2020)
Aims to provide the framework for the development, implementation, monitoring and evaluation of extended producer responsibility schemes by producers in terms of section 18 of the NEM: WA.
The National Norms and Standards for Organic Waste Composting GN 561 of 2021
The National Norms and Standards for Organic Waste Composting (draft) aim at controlling the composting of organic waste at a facility that falls within the threshold of these norms and standards to prevent or minimize potentially negative impacts on the biophysical and socio-economic environment
The National Health Act, Act 2003 (Act 63 of 2003)
This act provides a framework for a structured uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments concerning health services.
DFFE Integrated Waste Management Guidelines
The guidelines provide a background for the compilation of Integrated Waste Management Plans which includes a short historical overview of IWMP's to date and a basic description of the legal framework about IWMP development.
Western Cape Guidelines
The guidelines have been developed to assist Municipalities in developing their IWMPs
INTERNATIONAL AGRREMENTS
Basel Convention 22 March 1989
This convention is an international treaty that controls the transboundary movements and disposal of hazardous waste (excluding the movement of radioactive waste) between nations and to prevent the transfer of hazardous waste from developed to less developed countries

Rotterdam Convention 10 September 1998
Aims to facilitate informed decision-making by countries regarding the trade in hazardous chemicals
Stockholm Convention 22 May 2001
Aims to protect human health and the environment from persistent organic pollutants
Rotterdam Convention 10 September 1998
The Rotterdam Convention promotes shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics and by providing for a national decision-making process on their import and export. The Convention aims to facilitate informed decision-making by countries regarding the trade in hazardous chemicals
Stockholm Convention 22 May 2001
The Stockholm Convention aims to protect human health and the environment from persistent organic pollutants. The Convention listed 24 chemicals including Polychlorinated Biphenyls (PCBs) as chemicals that possess toxic properties, resist degradation, bio-accumulate and are transported through air, water and migratory species, across international boundaries and deposited far from their place of release where they accumulate in terrestrial and aquatic ecosystems, known as persistent organic pollutants (POPs).
Minamata convention 16 August 2017
The Minamata Convention on Mercury is intended to protect human health and the environment from the adverse effects of mercury. The Convention draws attention to a global and pervasive metal that, while naturally occurring, has broad uses in everyday objects and is released to the atmosphere, soil and water from a variety of sources. Controlling the anthropogenic releases of mercury throughout its lifecycle has been a key factor in shaping the obligations under the Convention.

3 INTEGRATED WASTE MANAGEMENT PLANNING PROCESS

The primary objective of IWMP is to integrate and optimise waste management planning in order to maximise efficiency and minimise the associated environmental impacts and financial costs, and to improve the quality of life for all South Africans. The diagram below (Figure 3-1) summarises the integrated waste management planning process that has been adopted for this process.

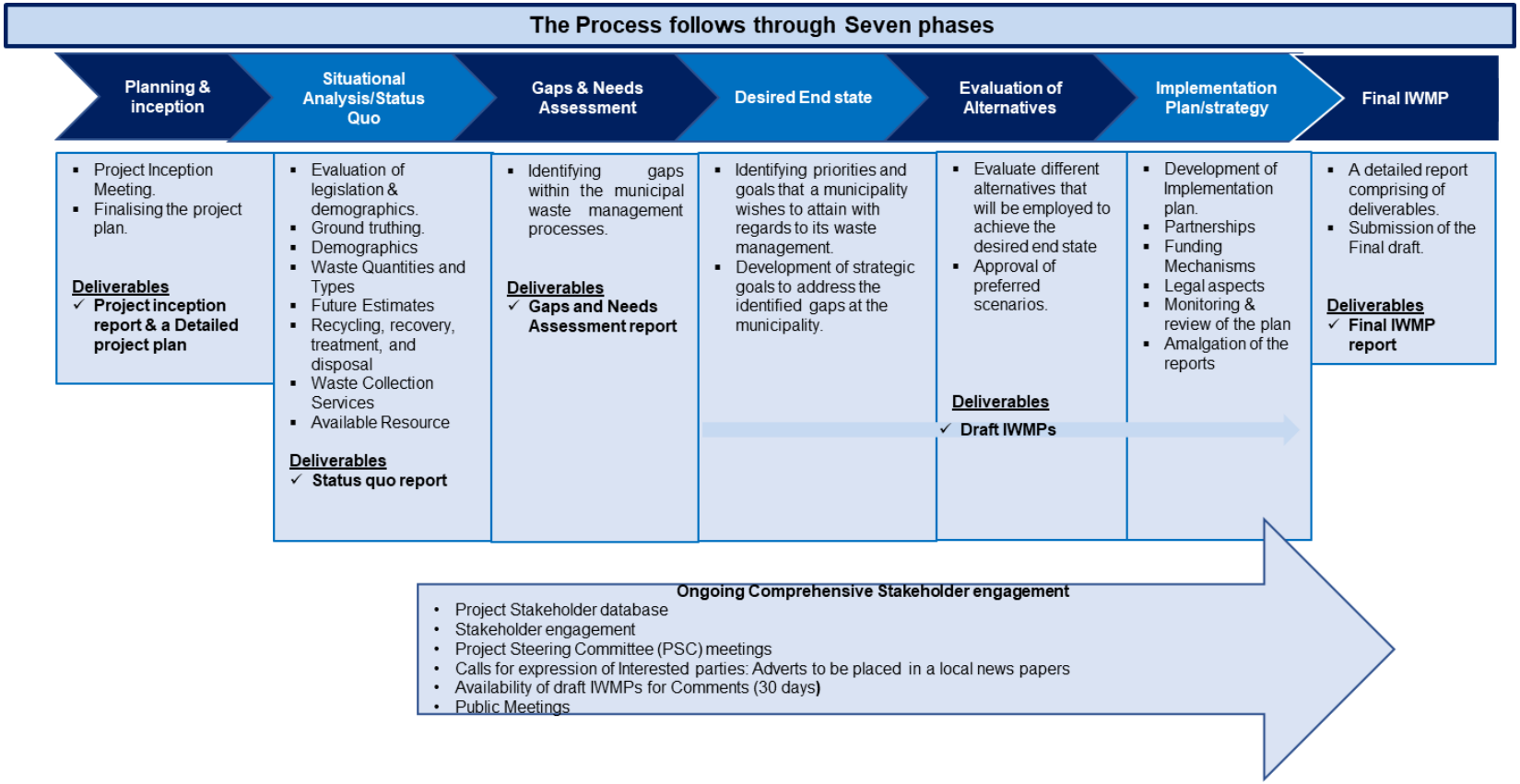

Figure 3-1: Integrated Waste Management Planning Process

4 WASTE SITUATION ASSESSMENT

The development of an IWMP includes a situation analysis which entails; a description of the population and development profiles of CKDM to which the plan relates; an assessment of waste quantities and types of waste generated within the Municipality; a description of the services that are available for the collection, minimisation, re-use, recycling, and recovery, as well as the treatment and disposal of waste. Moreover, the situation analysis is completed in terms of institutional, financial, legal and physical conditions which must also be translated into the desired end state.

4.1 Situational Analysis Methodology

The information for compiling the IWMP was collected from the following sources:

- Municipal Integrated Development Plans;
- Municipal Landfill Site Licenses;
- Municipal Waste Management By-laws;
- Department of Environmental Affairs and Development Planning compliance audit of the waste management;
- Western Cape Integrated Waste Management Plan 2023-2027;
- Interviews with key stakeholders e.g. waste recyclers and municipal officials;
- Site visits;
- Stats SA (2011 and 2022); and
- Community Service 2016.

4.2 Geographical Area

This section describes the location and demographics of CKDM to provide a comprehensive background of the municipality.

4.2.1 Locality

CKDM is situated in the North-Eastern part of the Western Cape province, bordering the Northern Cape Province on the west and the Eastern Cape Province on the east. The Municipality is mainly characterized by residential and agricultural land. There are no major industrial land uses within its boundaries. The residential areas vary from the larger towns of Beaufort West, Prince Albert, and Laingsburg to rural towns, smallholdings, and farms.

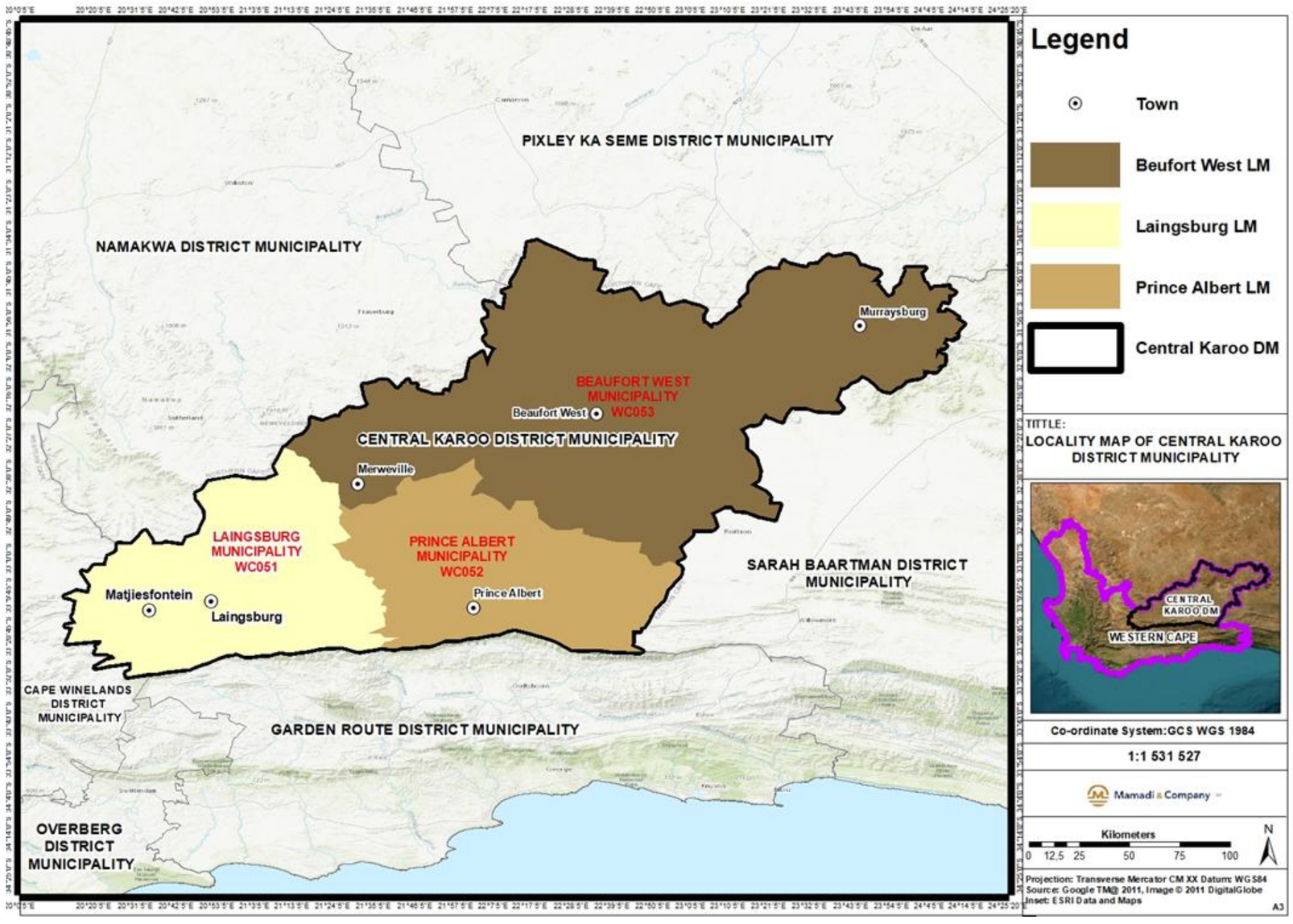

Figure 4-1: Locality Map of CKDM Municipality

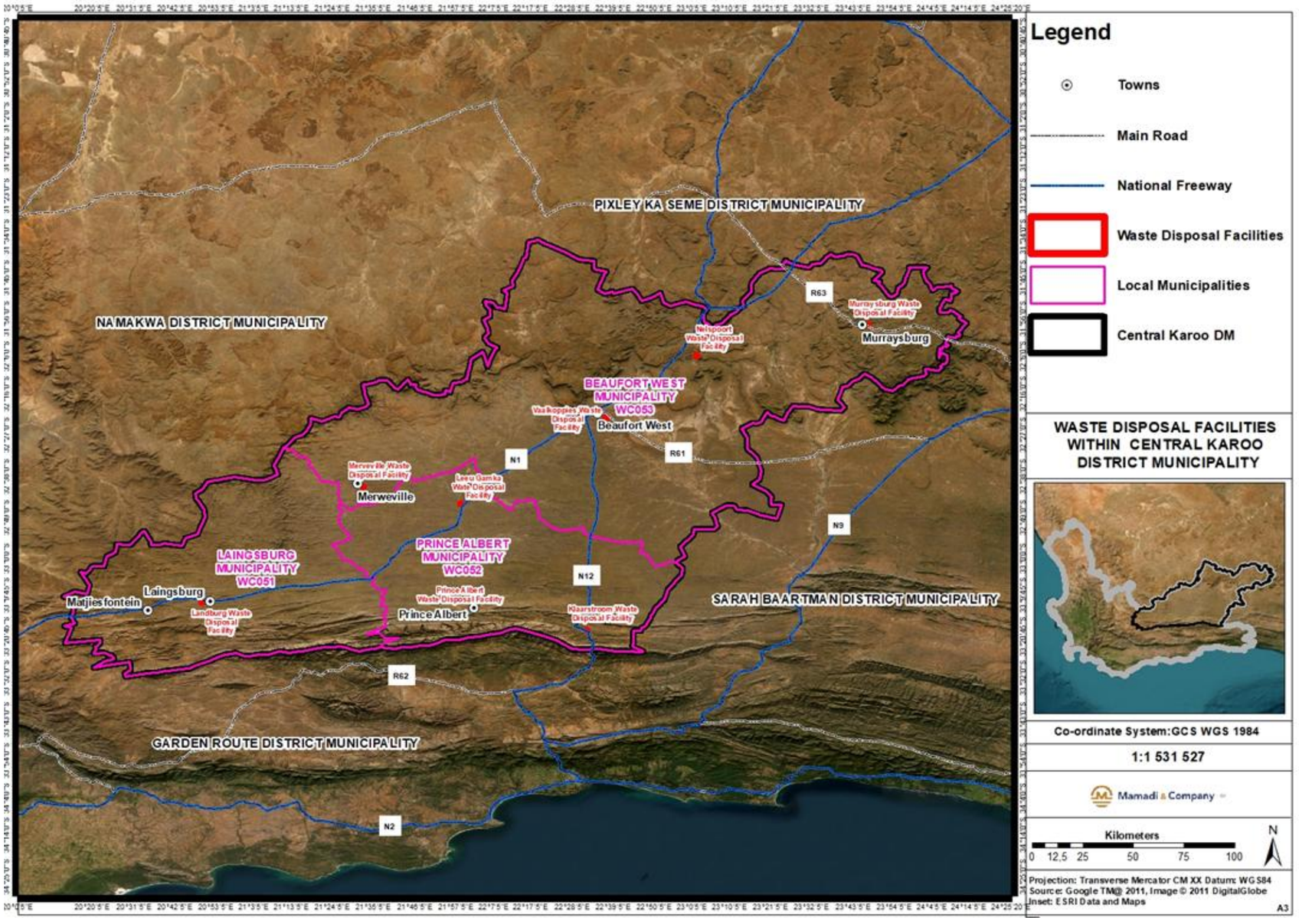

Figure 4-2: Maps showing CKDM Waste Disposal Facility

Table 4-1: Overview of Local Municipalities

Laingsburg Municipality
LM is a Category B municipality and covers an area of 8,784 km². The Municipality is divided into four (4) wards by the demarcation board. The biggest ward in terms of population numbers is Ward 4, consisting of Goldnerville. Ward One (1) is the second populated ward consisting of Bergsig and Reconstruction and Development Programme (RDP) residential areas. The third populated ward is Ward Two (2 consisting of Matjiesfontein, Vleiland, and the agricultural community. However, ward 2 is the biggest ward concerning total surface area compared to the other wards within the Municipality. The smallest ward in terms of population numbers is Ward Three (3) which mainly consists of the central business area, Acacia Park, Nuwe Dorp as well as a few farms along the urban edge of the Municipality. According to Stats 2022, LM is the least populated municipality within the CKDM with a total population size of 11 366. The Municipality's total number of households is 3 314 with an average of 3,4 household size.
Beaufort West Municipality
BWM is a Category B municipality, bordering the Northern Cape to the north and west, PAM to the south, and the Eastern Cape to the east. BWM covers an area of 21,917 km². The Municipality is predominantly rural and divided into Seven (7) wards. The main town is Beaufort West with the agricultural sector as the key contributor in the municipality's economy. According to Stats 2022, the total population size of BWM is 72,972, which is the largest populated municipality within the CKDM. BWLM's total number of households is 19 216 with an average of 3,8 household size.
Prince Albert Municipality
PAM is a Category B municipality that covers a total area of 8 153 km², incorporating the towns and surrounding farm areas of Klaarstroom, Prince Albert, and Leeu Gamka. PAM is the second least populated municipality in the Western Cape Province with agriculture and tourism as its main economic drivers. According to Stats SA 2022, the total population size of PAM is 17,836 and the total number of households in PAM is 4 760 with an average of 3,7 persons per household.

4.2.2. Climate and Rainfall

The climatic condition in the CKDM is arid to semi-arid with almost 75% of the district receiving less than 200 mm of rain per annum. The temperature patterns of the CKDM are typically continental, meaning there is a large difference between the mean temperature of the coldest and warmest month (11 – 13°C). January is usually the warmest month with mean maximum temperatures ranging from 28°C and 32°C. Heatwave conditions do occur and could give rise to temperatures exceeding 40°C. June and July are the coldest months with early morning temperatures regularly dropping to below 0°C. Frost is therefore common in the CKDM with severe frost at higher altitudes. The highest rainfall occurs in the Groot Swartberg Mountain range south of Prince Albert and in the Sneeuberge southeast of Murraysburg. Apart from the far western portion which receives mainly winter rain, the highest rainfall chances are during March and April.

4.2.3. Geology

The underlying geology in the CKDM is generally sedimentary rock, giving rise to sandy soils of low fertility. There are some alluvial soils but mainly in the valley bottoms only. The generalised geology of the CKDM comprises the Beaufort, Ecca, Dwyka, Wittenberg, Bokkeveld, and Table Mountain Groups. The dominant generalized soil pattern for the CKDM is categorized as soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils with lime generally present in part of most of the landscape. Higher slopes usually comprise rock.

4.2.4. Hydrology

The CKDM is divided into four water management areas namely the Gouritz, Fish to Tsitsikamma, Berg and Lower Orange Water Management Areas. CKDM consists of four large irrigation dams, namely Floriskraal, Gamkapoort, Oukloof and Leeu-Gamka. All irrigation water from Floriskraal is allocated to the irrigation area near Ladysmith in the Little Karoo except for an irrigated area of nearly 190 ha. Similarly, the water of Gamkapoort is entirely utilised in the Little Karoo around Calitzdorp. Several smaller farm dams supply water to irrigated fields in their immediate vicinity.

4.3 Demographics and Population Growth

This section highlights the socio-economic aspects such as population, education, employment, and income levels at CKDM. According to the DFFE IWMP Guidelines, demographic data is required to calculate projections of current and future waste quantities. Furthermore, this information is required to:

- Assess the required resources and infrastructure to provide effective waste management services;
- Ensure that previously un-serviced areas, such as informal settlements (i.e. high-density areas, usually on the periphery of urban areas that are characterised by structures such as “shacks”) and rural (low-density areas usually a greater distance from urban areas and also referred to as “villages”) or sparsely populated areas are considered;
- Evaluate the potential for financial recovery; and
- Form the basis for projected waste volumes and types.

Understanding the demographic profile of the Municipality will provide a clear indication of the socio-economic factors that influence waste generation, in particular population (which gives a direct indication of waste generation values), education (which may have a bearing on awareness and waste management education), employment and income (which indicates access to waste management services). Aspects within demographics also allow for the analysis of factors that may influence attitudes and behaviours relating to waste management. Importantly, socio-economic factors emphasise the level of user affordability, which serves as a key aspect to be considered for appropriate budgeting and costing. This also shows areas that require more attention and financial assistance. **Table 4-2** below details the demographic profiles for CKDM.

4.3.1 Baseline Population

According to Stats SA (2022), the total population of CKDM is 102 173. Most of the population resides in BWM with 72 972 people, followed by PAM with 17 836, and LM with 11 366 people as illustrated in Figure 4-3 below (Stats SA, 2022).

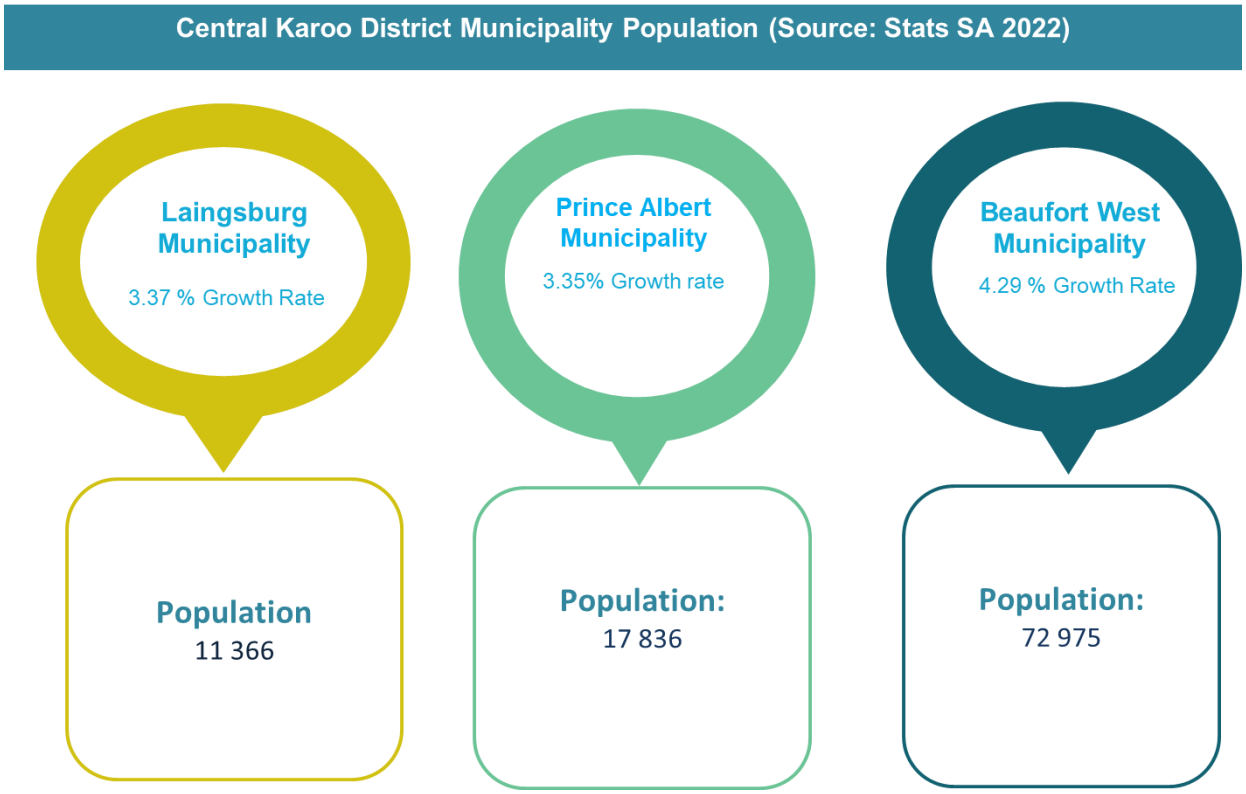

Figure 4-3: CKDM Population (Stats, 2022)

Table 4-2: Growth and Demographic Profiles for CKDM (Stats SA, Census 2011 & 2022).

Population Growth		
Municipality Total Population (Stats SA, 2022)	102 173	
Population Growth Rate (%) (Stats SA, 2022)	3.99%	
Municipality Total Population (Stats SA, 2011)	71 011	
Averaged Population Growth rate (%) (Stats SA, 2011)	1.92	
Demographic Profiles		
Age		
Young (0 – 14 years)	27.6%	28 200
Middle Age/Working Age (15 – 64 years)	65.9%	67 332
Old Age (65+ years)	6.5%	6 641
Gender		
Male	47,9%	48 955
Female	52,1%	53 218
Education		
No Schooling (20+ years)	5.2%	5 313
Tertiary (20+ years)	6.7%	6 846
Population Groups		
Black African	11.9%	12 150
Coloured	80.7%	82 329
Indian/Asian	0.3%	341
White	5.6%	5 718
Other	1.4%	1 427

4.3.1.1 Employment Status of CKDM

The unemployment rate has increased in all the Local Municipalities, the highest unemployment rate is in BWM followed by PAM and LM respectively. Table 4-3 details the employment status and the Socio-Economic status based on Stats 2011 since Stats 2022 does have the employment data.

Table 4-3 CKDM Employment Status

Municipality	Employment Status Stats 2011		Employment Status (Socio-Economic Profile 2022)	
	Employment	Unemployment	Employment	Unemployment
Laingsburg	2 935	638	2 704	2 707
Prince Albert	3 513	844	3 448	6 006
Beaufort West	11 012	3 772	11 477	19 647
Central Karoo	**17 460**	**5 254**	**17 748**	**28 887**

4.3.2 CKDM Income Status

Income statistics is not included in Stats SA 2022, as a result, Stats SA 2011 averages were used with the assumption that all income groups grew at the same rate. CKDM has 78.9% of its households falling within the low-income level and 1% in the high-income level. Table 4-4 details the development profile of the Laingsburg Municipality.

Table 4-4 Income status of CKDM (Stats SA, 2011)

Income Levels	Households	%
Low income (No income – R76 400)	21788	78.9
Middle income (R76 401 – R614 400)	5537	20
High income (R614 001 – R2 457 601 or more)	318	1

4.3.3 Dwelling Types

According to Stats SA 2022, CKDM has 27,290 households. Table 4-5 details household dwelling types based on Stats SA 2022.

Table 4-5 Household Dwelling Types (Stats SA 2022)

Dwelling Types		
Formal dwelling	26 962	98.8%
Traditional dwelling	775	0,3%
Informal dwelling	225	0,8%
Other	29	0,1%

4.3.4 Future Population

If the current population of CKMD grows at a constant rate of 3.99% per decade (Statistics SA, 2022), over five years, the population of this Municipality is estimated to be 124 249 persons as per the calculation below:

$Pop_{future} = Pop_{present} (1+i)^{n}$

$Pop_{future} = 102\ 173 ((1+(0.0399))^{5}$

$=102\ 173 (1.2160)$

$=124\ 249$

Calculation Index :

Pop_{future}- Future Population

$Pop_{present}$- Présent Population as per (Stats SA, 2022)

i - Growth rate as per Stats SA, 2022

n - No of years

The equation above was used to calculate the future population over 10 years for the years 2032, 2042 and 2052 (up to 30 years) for CKDM in Table 4-6 below.

Table 4-6: CKDM Population Growth Projections

Municipality	Census (2022)	Estimated (2032)	Estimated (2042)	Estimated (2052)
Laingsburg	11 366	15 832	22 053	30 721
Prince Albert	17 836	24 558	33 814	46 558
Beaufort West	72 972	111 066	169 047	257 297
Central Karoo	**102 173**	**151 095**	**223 443**	**330 433**

With a population estimate of **151,095** people in 2032, it is evident that an additional **48,922** people will be generating waste. This population growth will ultimately increase the number of households within CKDM requiring waste management services as projected in Table 4-7 below.

Table 4-7: CKDM's Number of Households Projections (Stats SA,2011/2022)

Municipality	Census (2011)	Census (2022)	2011-2022	Estimated (2027) (5 years)	Estimated 2032 (10 years)	Estimated 2042 (20 years)	Estimated 2052 (30 years)
Laingsburg	2 408	3 314	906	3 907	4 616	6 430	8 957
Prince Albert	3 604	4 760	1 156	5 617	6 636	9 236	12 865
Beaufort West	13 088	19 216	6 128	23 706	29 247	44 516	67 755
Central Karoo	**19 100**	**27 290**	**8 190**	**33 185**	**40 356**	**59 681**	**88 256**

Note: Baseline year used for estimates is 2022

4.4 Waste Management Systems

Existing waste management systems within the CKDM have been explored to determine the quantities and the type of waste generated in its area of jurisdiction. This involves establishing the current quantities of waste generated, recycled, treated and disposed of to highlight the gaps and challenges within the Municipality.

4.4.1 Waste Generation

Waste generated in CKDM can generally be categorised as follows:

- **General domestic and commercial waste:** This consists of paper, plastic, metal, glass, and building rubble;
- **Medical waste:** This includes infectious waste, pathological waste, sharp waste, pharmaceutical waste, genotoxic waste, chemical waste, waste with heavy metals, radioactive waste;
- **Hazardous waste**: Includes waste such as motor oils, sewage sludge, and electronic waste; and
- **Garden waste:** Includes fruits, vegetables, and any other material that decomposes naturally.

Figure 4-4 below shows the main waste subgroups generated, thus constituting waste streams within CKDM.

Figure 4-4: Sub-Categories of Waste Generated in CKDM.

4.4.2 Waste Characterisation

The waste characterisation was conducted within CKDM in the three Municipalities, namely, LM, PAM, and BWM by Mamadi, DFFE, and EPWP municipal workers from each of the three Municipalities. Waste samples were collected from each Municipality and analysed to give a presentation of the total waste streams within the district municipality. This will indicate the potential recyclable waste materials that can be diverted from being landfilled within the District.

The following method was used to analyse/characterize waste streams:

- A 100 kg sample was taken from a refuse truck from the above areas;
- The waste was then sorted into different waste streams and placed in refuse bags according to their waste stream;
- The sorted waste streams were then weighed (kilograms) using the scale;
- It must be noted that sample sizes in other Municipalities were below 100 kgs depending on samples that the Municipality reserved, and
- Results of the analysis are only based on the sample that was analysed, as such only waste streams that were part of the sample were recorded.

4.4.2.1 Laingsburg Municipality: Waste Characterisation

The waste characterisation was conducted by the service provider with assistance from the Municipality, DFFE, and EPWP workers at the LM waste disposal facility on the 01st and 02nd of November 2023. Waste samples were collected from Laingsburg Town (LT) high-income group and Goldnerville Residential (GR) (low- and middle-income group). The waste stream in LM comprised of fifteen (15) categories, namely High-Density Polyethylene (HDPE) Plastic, Polyethylene Terephthalate (PET), Mixed Plastics, Organic Waste (food waste), Cardboard, Aluminium Cans, Metal Cans, White Paper, Glass Bottles, etc. Table 4-8 and Figure 4-5 below provide details of waste stream analysis from LT and GR. White paper (13.73%) and white paper (11.83%) formed most of the waste collected while polystyrene material was the least at 0.36%.

Table 4-8 : Laingsburg Municipality Waste Characterization

Waste Stream	Mass (kg)		Percentage (%)		Overall %
Area	LT	GR	LT	GR	LT& GR
HDPE	16.109	0.0000	15.3231	0.0000	7.62
PET	11.541	8.9490	10.9779	8.4197	9.69
Mixed Paper	7.96	1.8350	7.5717	1.7265	4.63
Organic waste	7.375	4.1370	7.0152	3.8923	5.45
Card Boxes	13.816	6.3020	13.1419	5.9292	9.52
Aluminium Cans	4.174	6.9550	3.9704	6.5436	5.26
Polystyrene	0.216	0.5400	0.2055	0.5081	0.36
White Paper	5.785	19.2320	5.5028	18.0944	11.83
Glass Bottles	15.604	13.4210	14.8427	12.6271	13.73
Clear Plastic	7.23	4.5080	6.8773	4.2413	5.55
Metal cans	3.549	3.0380	3.3759	2.8583	3.12
Foil Paper	1.99	0.4960	1.8929	0.4667	1.18
Garden Waste	3.78	7.7880	3.5956	7.3273	5.47
Sanitary waste	6	7.5060	5.7073	7.0620	6.39
Textile	0.0000	21.5800	0.0000	20.3035	10.21
TOTAL	**105.1290**	**106.2870**	**100**	**100**	**100**

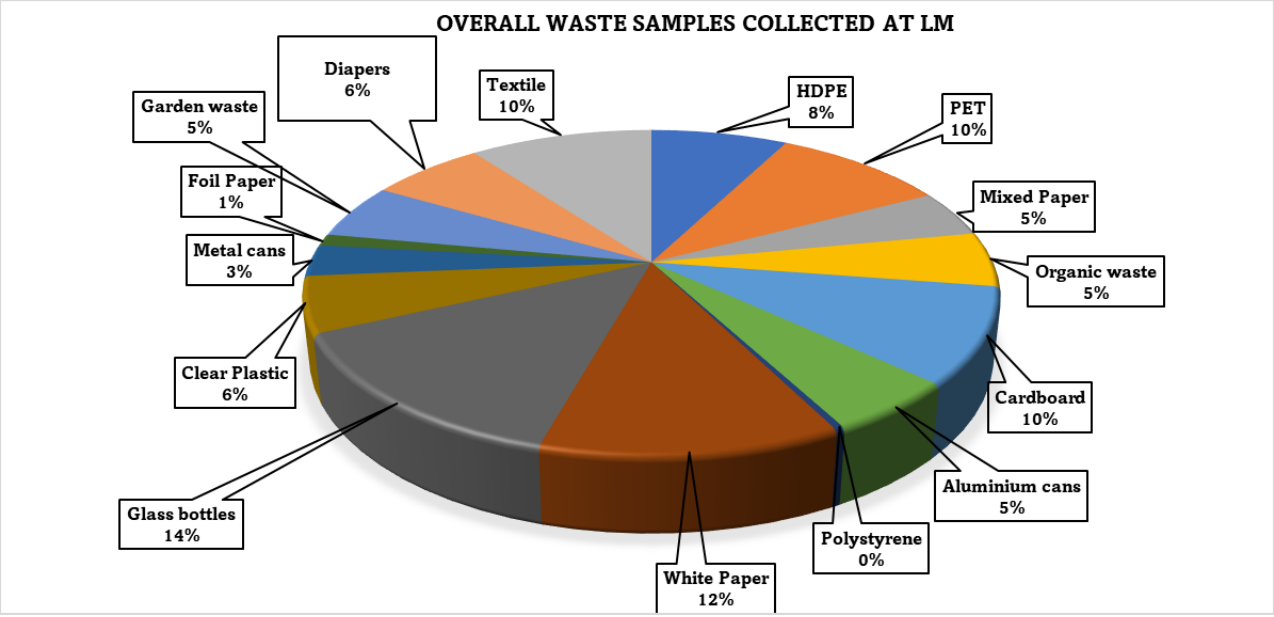

Figure 4-5: Overall Waste Characterisation Samples % for LM

In November 2012 an in-depth waste characterisation study was conducted for Laingsburg Municipality (LM) by DEADP in collaboration with master's students from Stellenbosch University, CKDM and Laingsburg officials, as well as EPWP municipal workers. A representative sample was selected from different locations i.e. Business area, Matjiesfontein, Laingsburg, Golderville and Bergzig. 43% of waste was from Laingsburg, 22% from Matjiesfontein, waste from the business area as well as Golderville constituted 12% each while the least waste (11%) was from Bergzig. The waste streams are comprised of plastic film, plastic bottles, dense plastics, paper, packaging material, medical, organics, glass and metal. Organics waste (28%) and paper (22%) formed most of the waste collected while packaging material was the least at 4%. Both studies show that most of the waste disposed at the waste disposal facility are recyclable materials.Table 4-9 and Figure 4-6 below detail the results of the waste characterisation conducted for LM.

Table 4-9: Waste Characterisation for Laingsburg Municipality (DEADP 2012)

Town/ Area	Unopened mass (kg)	Black/ Recycling bag no.	Plastic Film	Dense Plastics	Paper	Packaging Material	Medical	Organics	Glass	Metal	Other	Total Weight	% Weight
Business Area	269.46	84	20.99	26.26	69.15	12.37	12.13	70.06	29.68	14.64	10.34	**265.61**	**12**
Matjiesfontein	488.40	100	32.01	45.22	80.06	17.14	33.21	148.52	54.47	19.00	56.49	**486.09**	**22**
Lainsburg	968.56	233	65.66	115.14	282.26	32.62	56.01	247.72	24.62	86.08	58.12	**968.23**	**43**
Golderville	273.10	59	15.73	52.64	43.90	10.21	33.15	78.93	8.52	13.02	17.01	**273.11**	**12**
Bergzig	244.50	41	13.32	27.98	23.86	7.69	59.33	70.74	6.19	16.93	17.89	**243.93**	**11**
Total	**2244.02**	**517**	**147.7**	**267.2**	**499.2**	**80.0**	**193.8**	**616.0**	**123.5**	**149.7**	**159.9**	**2237.0**	**100**
% Waste types			**7**	**12**	**22**	**4**	**9**	**28**	**6**	**7**	**7**	**100**	

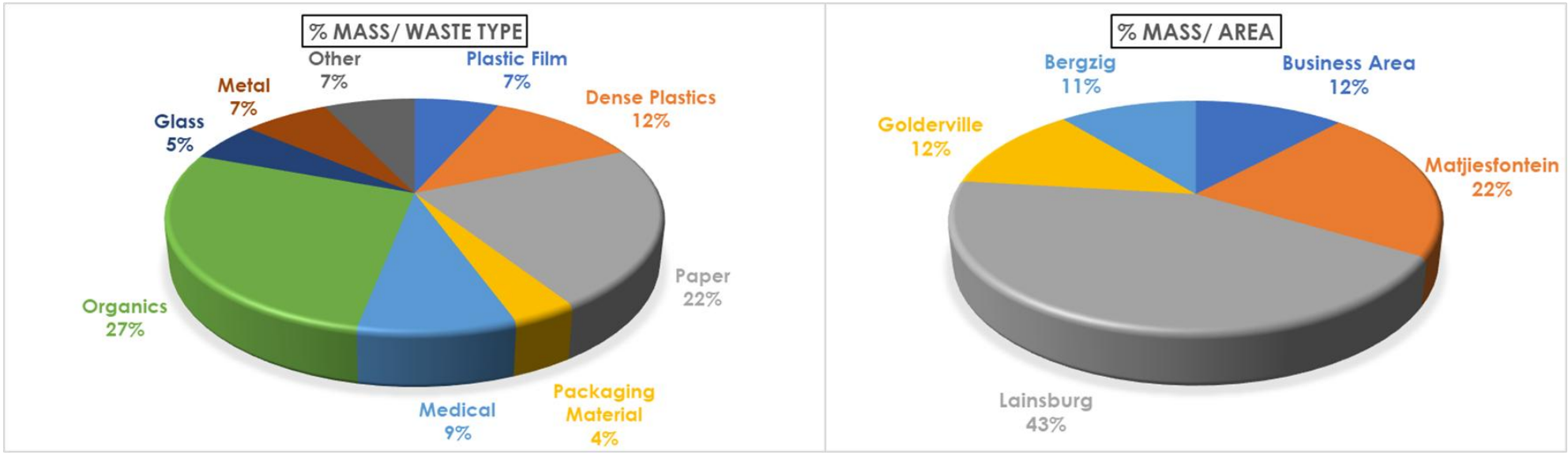

Figure 4-6: Waste Mass/Waste Type and Waste Mass/Area

4.4.2.2 Prince Albert Municipality: Waste Characterisation

Waste Characterisation was conducted by the service provider with assistance from the Municipality, DFFE, and EPWP workers on the 03rd of November 2023. Waste samples were taken from middle-low-income areas of South End (SE) as well as Businesses(B) in town. The waste stream comprised of thirteen (13) categories, White paper, polystyrene, mixed waste, PET, cardboard, mixed plastics, tin, aluminium, glass, HDPE, food waste, diapers, and garden waste. A 100 Kg per load was sampled to determine waste composition per area. Table 4-10 and Figure 4-7 highlight waste streams and their contribution to the 100kg sample collected. Food Waste (14%), Glass Bottles (13%) and Diapers (13%) contributed the highest polystyrene was the least at 0.36% of waste analysed in PAM.

Table 4-10: PAM Waste Characterisation

Waste Stream	Mass (kg)		Percentage (%)		Overall %
Area	SE	B	SE	B	SE& B
White paper	1,94	2,79	1,71	2,75	2.2
polystyrene	1,80	2,48	1,58	2,44	2.0
Mixed waste	15,83	8,50	13,94	8,38	11.6
PET	1,76	8,43	1,55	8,31	4.8
Card Boxes	1,24	10,98	1,09	10,82	5.8
Mixed plastics	3,68	8,98	3,24	8,85	6.0
Tin	1,40	4,75	1,23	4,68	2.9
Aluminium	2,00	9,93	1,76	9,79	5.7
Glass	12,40	19,45	10,92	19,17	15.1
HDPE	2,00	8,09	1,76	7,97	4.8
Food	30,36	4,61	26,74	4,54	16.6
Sanitary waste	31,07	2,98	27,37	2,94	16.2
Garden waste	8,08	9,48	7,11	9,34	8.4
TOTAL	**113,54**	**101,45**	**100**	**100**	**100**

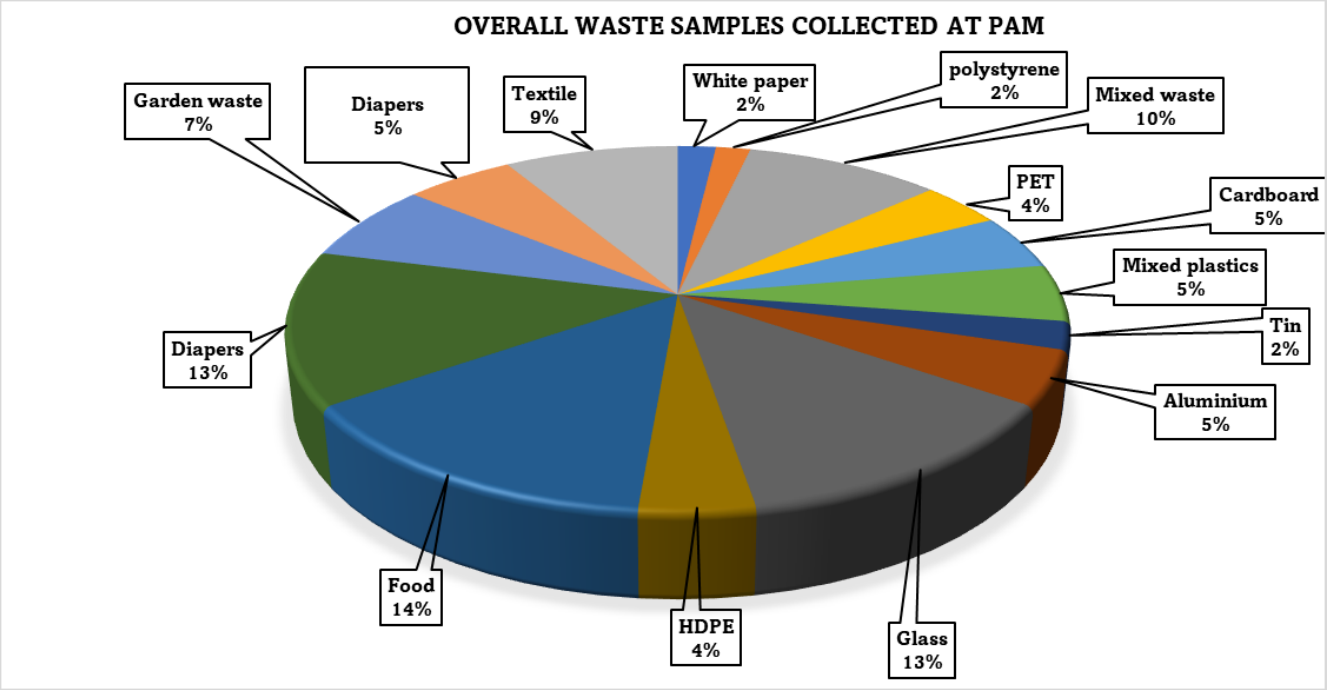

Figure 4-7: Overall Waste Characterisation Samples % for PAM

In December 2014 an in-depth waste characterisation study was conducted for PAM by DEADP A representative sample was selected from different locations i.e. Prince Albert South (recycling) Prince Albert South (households) Prince Albert North (households) and Rondomskrirk (households). The waste streams are comprised of soft plastic; plastic bottles, paper, cardboard, metal, food greens, nappies, clothing, glass and others (batteries, globes etc.) Food/greens (30%) and glass (15%) formed most of the waste collected while metal and others were the least recorded waste with 4% and 3% respectively. Both studies show that most of the waste disposed at the waste disposal facility are recyclable materials. Table 4-11 and Figure 4-8 below detail the results of the waste characterization conducted for PAM.

Table 4-11: Waste Characterisation for PAM (DEADP 2014)

Area	Unopened mass (kg)	Black/ Recycling bag no.	Plastic (soft)	Plastic bottles	Paper	Cardboard	Metal	Food/ greens	Nappies/ sanitory/ condoms	Clothing	Glass	Other (batteries, globes etc)	Total	% mass/ area
Prince Albert south (Recycling)	483.74	132	30.46	32.80	56.98	56.60	24.42	65.49	3.00	5.76	195.00	5.68	**476.19**	**23**
Prince Albert south (Households)	216.78	66	19.33	16.43	20.62	18.78	8.55	70.48	9.02	1.18	43.36	5.06	**212.81**	**10**
Prince Albert North (Households)	974.86	217	112.98	101.62	89.99	65.70	46.29	353.52	79.16	79.00	63.15	34.94	**1026.35**	**49**
Rondomskrik (Households)	399.94	92	45.42	34.82	30.39	20.28	13.46	140.06	44.33	37.48	23.54	9.13	**398.91**	**19**
Total (kg)	**2075.32**	**507**	**208.2**	**185.7**	**198.0**	**161.4**	**92.7**	**629.6**	**135.5**	**123.4**	**325.0**	**54.8**	**2114.3**	**100**
% mass/ waste type			**10**	**9**	**9**	**8**	**4**	**30**	**6**	**6**	**15**	**3**	**100**	

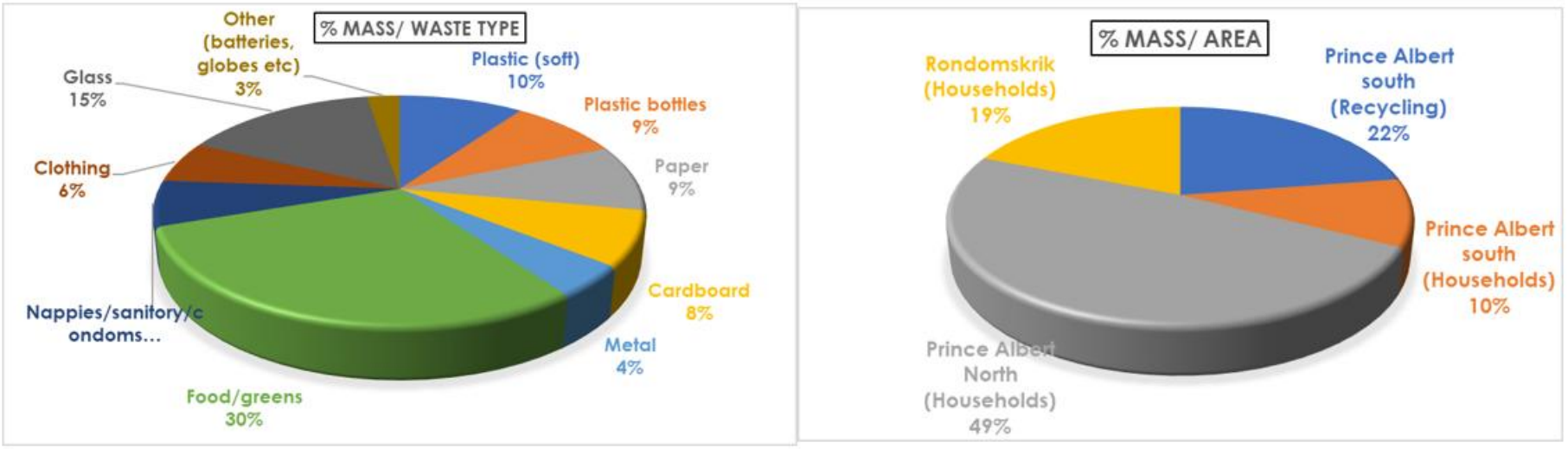

Figure 4-8: Waste Mass/Waste Type and Waste Mass/Area

4.4.2.3 BWM Waste Characterisation

The waste characterisation was conducted on the 30th and 31st of October 2023 at Murraysburg and Vaalkoppies waste disposal sites respectively. Waste samples were collected from Murraysburg Town Business (MTB), Beaufort West Town (BWT), Murraysburg Town residential (MTR) (high-income) Murraysburg Township (MT) (middle-income), Hospital Hill (HH) (high-income) and Prince Valley (PV) (low-income). Samples were analysed from these areas to give a presentation of the total waste streams within the Municipality. The waste streams comprised seventeen (17) categories. Table 4-12 and Figure 4-9 highlight waste streams and their contribution to the 100kg sample collected. Cardboard (18.39%), Food waste (15.41%) and Diapers (12.1%) contributed the highest polystyrene was the least at 0.30% of waste analysed in BWM.

Table 4-12 Waste Characterisation in BWM

Waste Stream	Mass (kg)						Overall Mass Kg	Overall %
Area	**MTB**	**MR**	**MT**	**BWB**	**HH**	**PV**	**All Areas**	**All Areas**
HDPE	2.04	1.02	0.505	6.355	2.685	0.665	13.27	5
PET	0.77	3.065	0.205	7.13	0.97	13.535	25.675	10
Mixed Plastics	8.135	2.87	2.357	6.285	0.69	2.335	22.672	9
Foil	0.13	0.03	0.2	0.99	1.42	0.425	3.195	1
Food waste	14.995	6.195	2.79	0.85	6.878	7.806	39.514	15
Cardboard	17.025	11.8375	-	10.985	2.075	5.24	47.1625	18
Aluminium cans	2.02	-	1.105	0.075	0.26	7.162	10.622	4
polystyrene	0.3	0.02	0.065	0.08	0.3	0.63	1.395	1
Clear Plastic	-	0.05	0.14	2.095	0.02	1.97	4.275	2
Electronic	0.041	-	-	-	-	-	0.041	0
Glass bottles	-	3.455	2.045	18.3	5.298	11.67	40.768	16
Meal Prep Bag	-	-	0.775	-	-	-	0.775	0
Garden waste	-	-	0.59	2.855	-	0.69	4.135	2
New papers	-	-	-	0.31	0.05	1.43	1.79	0
Textile	-	1.055	-	-	0.035	4.6	5.69	2
LDPE	-	-	-	-	0.065	0.705	0.77	0
Diapers	0.655	5.19	22.915	-	-	2.26	31.02	12
White paper	0.46	-	1.04	2.09	0.04	-	3.63	1
TOTAL	**46.571**	**34.7875**	**34.732**	**58.4**	**20.786**	**61.123**	**256.3995**	**99**

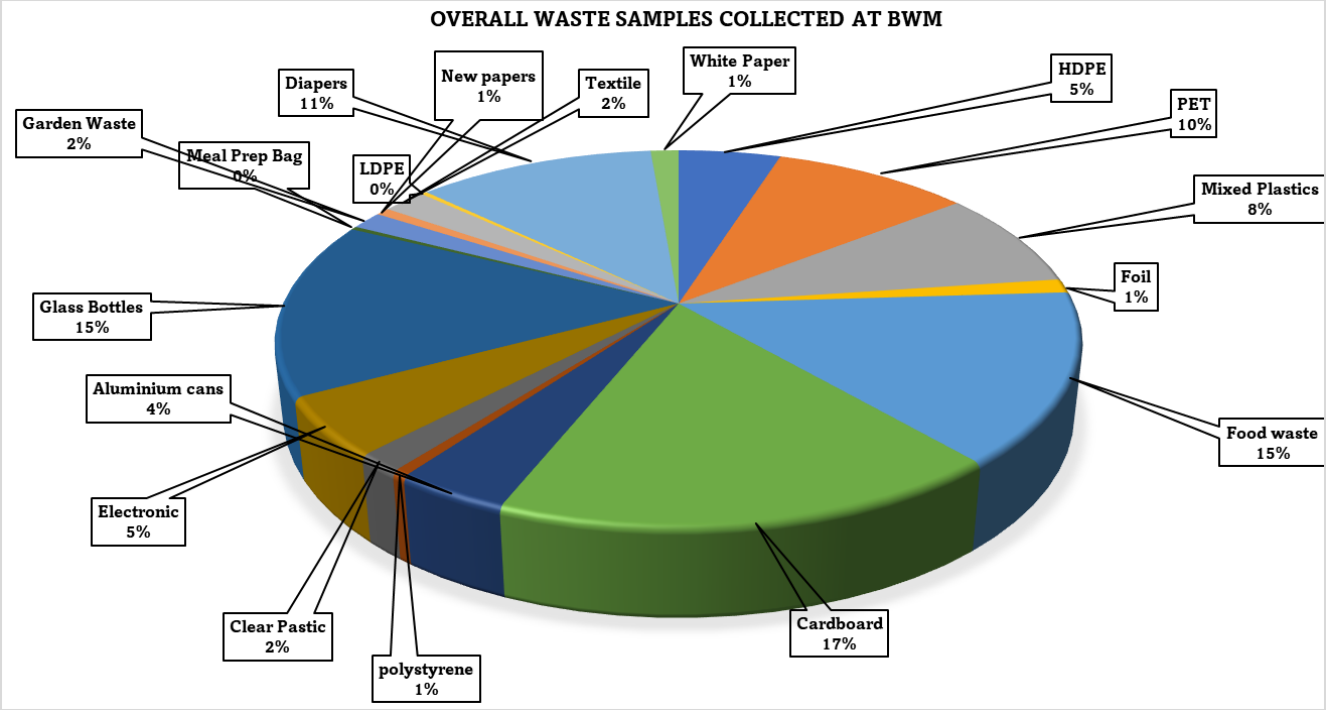

Figure 4-9: Overall Waste Characterisation Samples % for BWM

In September 2017 an in-depth waste characterisation study was conducted for BWM by DEADP. A representative sample was selected from different locations i.e. Prince Valley, Mandlenkosi, Rustdene, Toekomrus, Newlands, Barakke, Business, Lande, Falatse, Essopville, Lande and Hospital. A total number of four hundred forty-five (445) bags were analysed. The waste streams contained plastic, cardboard, metals, food waste, green waste, household hazardous waste, and human hygiene waste. Food waste (23%) and paper (15%) formed most of the waste collected while household hazardous waste and metals were the least 3%. Both studies show that most of the waste disposed at the waste disposal facility are recyclable materials. Table 4-13 and Figure 4-10 below detail the results of the waste characterisation conducted for BWM.

Table 4-13: Beaufort Local Municipality Waste Characterisation (DEADP 2017)

Address of origin	Total # of bags analysed per area	Unopened mass (kg)	Plastic (soft)	Plastic (dense)	Paper	Cardboard	Glass	Metals	Food waste	Green waste	Household Hazardous waste	Human Hygiene waste	Other	Total	% mass/ area
Rustdene	78	285.4	21.8	25.1	28.1	25.8	27.0	8.3	59.7	31.4	16.8	20.0	21.8	285.9	**19**
Toekomrus	15	56.96	5.25	7.48	6.12	4.1	4.12	1.58	16.78	1.64	2.04	5.18	1.66	55.95	**4**
Newlands	23	93.4	4.92	8.04	5.98	6.58	3.42	2.48	38.52	5.38	1.9	4.2	9.42	90.84	**6**
Barakke	8	37.18	1.28	2.46	6	1.16	2.7	0.94	10.52	0	1.94	8.7	1.06	36.76	**2**
Business	18	41.85	4.88	4.04	16.56	4.73	2.06	1.1	1.08	3.1	1.54	1.04	1.58	41.71	**3**
Essopville	19	68.53	5.56	8.06	3.14	8.46075	5.5	1.26	24.7	2.84	1.36	5.62	1.2	67.70075	**5**
Falatse	28	111.98	5.32	8.18	6.42	10.4	5.46	3.98	15.6	23.52	2.43	22.98	5.26	109.55	**7**
Lande	37	83.5	6.26	10.22	18.28	12.9	9.26	4.07	5.78	7.46	1.36	3.24	4.48	83.31	**6**
Hospital	63	199.45	7.6	10.54	81.94	14.28	12	4.32	27.52	26.28	6.7	2.34	4.42	197.94	**13**
Prince Valley	70	320	17.94	22.49	27.74	22.54	26.22	6.36	96.16	36.68	6.91	39.07	14.77	316.88	**21**
Mandlenkosi	86	208.04	8.4	16.29	31.4	16.94	14.78	4.8	50.12	44.4	2.05	7.46	13.06	209.7	**14**
Total	**445**	**1506**	**89**	**123**	**232**	**128**	**112**	**39**	**346**	**183**	**45**	**120**	**79**	**1496**	**100**
% MASS/ WASTE TYPE			**6**	**8**	**15**	**9**	**8**	**3**	**23**	**12**	**3**	**8**	**5**	**100**	

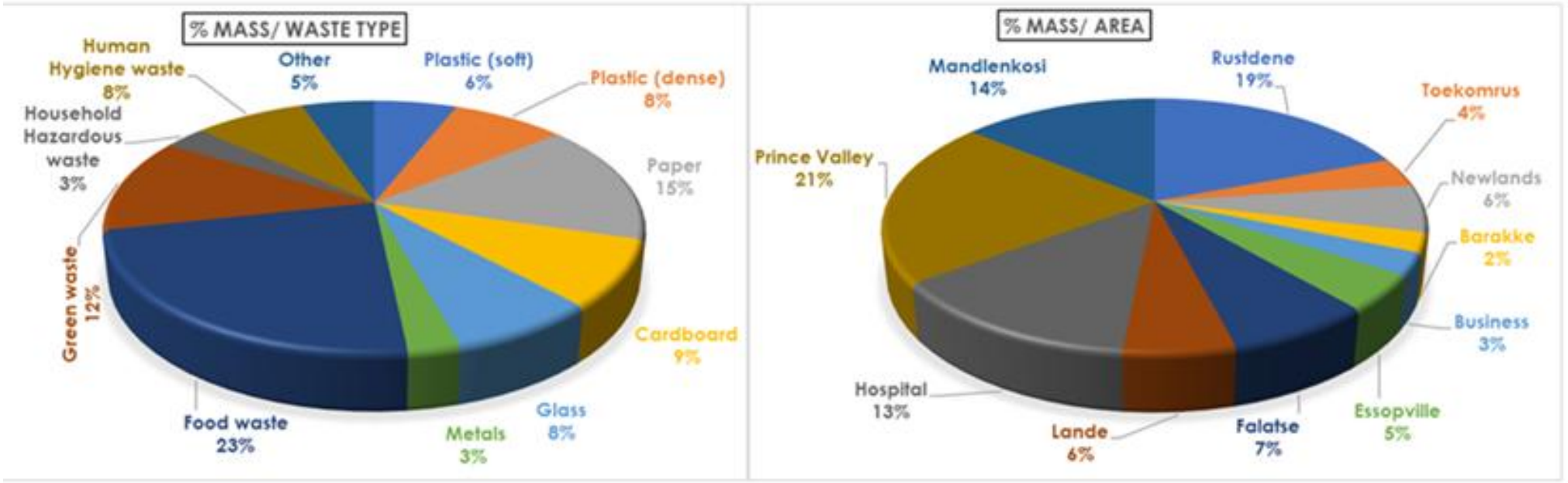

Figure 4-10: Waste Mass/Waste Type and Waste Mass/Area

4.4.3 Waste Collection

This section describes the current state of waste collection services within CKDM. Table 4-14 below details basic waste collection services, including indigent households. The household data from Stats is different from the Municipal data as such Municipal data is used to calculate serviced and un-serviced households. According to the data provided by the Municipality households receive waste collection.

Table 4-14: Status of waste collection in CKDM

Municipalities	Total Number of Households (Stats SA 2022)	Total Number of Households (Municipality)	Serviced Households	Un-serviced Households	Number of Indigent Households	Serviced Indigent Households
Laingsburg	3 314	1 751	1 751	0	358	395
Prince Albert	4 760	4 760	4 760	0	1 117	1 177
Beaufort West	19 216	12 182	12 182	0	5 689	5 689
Central Karoo	**27 290**	**18 696**	**18 696**	**0**	**7 164**	**7 201**

4.4.3.1 Waste Management Fleet

To achieve effective waste management collection, the Municipalities must be equipped with sufficient and efficient waste management fleets to carry out waste collection and waste disposal services. Table 4-15 below details the fleet that is currently available to render waste management services within CKDM.

Table 4-15: Waste Management Fleet in CKDM

Municipalities	Different vehicles available for waste management	Model	Average breakdowns per month (days per month)/Status
Beaufort West	Nissan UD Compactor truck	2010 CZ 3484	Good
	Nissan Compactor truck	2019 CZ 2962	Fair
	Nissan Compactor truck	2016 CZ 3697	Fair
	Nissan Compactor truck	2022 CZ 5094	Good
Laingsburg	Ford Tractor with trailer (CBM 2039)	Unknown	Monthly
	CASE Tractor with trailer (CBM 2118)	JX752WD	Monthly
	Tractor 30 Series with trailer (CBM 1901)	5630	Monthly
	Nissan A520 Compactor body (CBM 1122)	PKF210N	Monthly
	Nissan CW Series Compactor body (CBM 2527)	290 PHN	Monthly – currently at mechanics for repairs and not in use
Prince Albert	Refuse Compactor Truck	2021	None
	Tonner LWB with Rails	2021	None
	Front End Loader with 4m³ bucket capacity	2023	None

4.4.4 Waste Recycling, Treatment and Disposal

4.4.4.1 Status of Waste Disposal Facilities

The waste management hierarchy encourages the disposal of waste at the landfill site to be the last option. The status of waste disposal in CKDM reflects that most of the general waste is disposed of at the Municipal landfill sites. Waste disposal includes waste disposal facilities and their status. There are Eight (8) operational waste disposal facilities within CKDM. LM has one disposal facility i.e. Laingsburg waste disposal. PAM has three waste disposal facilities i.e. Leeu Gamka, Prince Albert and Klaarstroom. BWM has four waste disposal facilities i.e. Vaalkoppies, Murraysburg, Merweville and Nelspoort. Table 4-16below details the status of CKDM waste disposal sites.

Table 4-16: Status of CKDM Waste Disposal Sites

Municipalities	Waste Disposal Facilities	Licensed	Access Control	Weighbridge	Life Span estimates	Waste Compaction	Ground Water Monitoring	Transfer Station
Laingsburg	Laingsburg	Yes	Gate & Security Control	No	Unknown	None	None	None
Beaufort West	Vaalkoppies	Yes	Gate & Security Control	Yes, but not in use	Unknown	None	None	Matjiesfontein Transfer Station
	Murraysburg	No	Gate	No	Unknown	None	None	None
	Merweville	Yes	Gate	No	Unknown	None	None	None
	Nelspoort	Yes	Gate	No	Unknown	None	None	None
Prince Albert	Leeu Gamka	Yes	No	No	3 years	None	None	Prince Albert Road Transfer Station
	Prince Albert	Yes	Gate	No	2 Years	None	None	None
	Klaarstroom	Yes	No	No	17 Years	None	None	None

4.4.4.1.1 Waste Management Challenges in Disposal Facilities

Based on observations and interviews conducted during ground truthing, the following challenges were noted at the disposal facility:

- No waste compaction;
- No cover material;
- Waste blown by the winds
- No groundwater monitoring is conducted;
- There are no waste pickers at the landfill site except for Vaalkoppies which is not in use;
- Limited air space;
- No weighbridges; except for Vaalkoppies and
- There is no equipment to utilise at the landfill site except for Vaalkoppies which has a Front-End Loader, however not on-site always;
- Burning of waste;
- Refuse is dumped outside, especially at Vaalkoppies.

The DEADP conducts external audits annually. The following non-compliances were noted in the audit reports, there were no audit reports for Merveville and Nelspoort as such non-compliances were based on observations made during the ground truthing. Table 4-17 below details the non-compliances that were noted for waste disposal facilities.

Table 4-17: Waste Disposal Facilities Non- Non-Compliances

Municipalities	Waste Disposal Facilities	Audit Reports Not Compliances
Laingsburg	Laingsburg	Audit report conducted on the 7th of November 2022 by DEADP: • The actual height of the facility could not be determined during the audit but appeared to exceed one meter; • No airspace determination report; • No operational design or plan; • No set targets to recover recyclables at the facility as part of an overall strategy to divert waste from being disposed of at waste disposal facilities; • Waste burning takes place at the site from time to time, • No spill kits were kept at the facility; • No surface water and detection monitoring; • No internal audits are conducted; and • No monitoring committee has been established.

Municipalities	Waste Disposal Facilities	Audit Reports Not Compliances
Beaufort West	Vaalkoppies	Audit report conducted on the 7th of November 2022 by DEADP: • There is no control over what is disposed of and how it is disposed of; • No hazardous waste is allowed in the facility, however, waste loads were checked; • Abattoir waste was disposed of at the facility. The Norms and Standards prohibit the disposal of waste having more than 40% moisture content; • No organic waste diversion plan; • Non-compliance with permit conditions are not reported; • Unauthorised individuals were found living on and around the facility; • Significant volumes of waste were disposed of in the buffer zone, instead of at the site; • No control of runoff water from the facility; • The facility might be close to the maximum height, • A noticed board did not align with the condition of the license; • Waste was not being compacted, nor covered; • The complaints register was not evident; • Windblown litter was observed outside of the facility; • The emergency response plan was not being implemented; • The airspace determination study was not done; • The boreholes were not being monitored and could not be found; • Water quality monitoring not conducted; • Internal auditing of the facility was not being done; and • Air quality monitoring and an annual topographical survey of the facility were not conducted.

Municipalities	Waste Disposal Facilities	Audit Reports Not Compliances
	Murraysburg	The audit report was conducted on the 8th of November 2022. • Decommissioning of this facility had not commenced yet, while it is overdue. • No personnel at the facility to check the waste types prior to being disposed of at the Facility; • The facility is not externally audited; • No organic waste diversion plan; • The Municipality has not planned for the decommissioning of this facility yet; • A notice/sign board was not placed at the facility; • Illegal dumping of waste near the facility, outside of the footprint area, has become quite significant; • Informal reclamation of waste, not authorised by the Municipality, takes place at all parts the facility; • No emergency response plan; • No boreholes at the facility; • Water quality monitoring was not being done for this facility; • No topographical surveys conducted; • The facility is not externally audited; • Environmental incidents were reported to the Department; • No incident register; and • Waste was not compacted and not covered, but was burned.

Municipalities	Waste Disposal Facilities	Audit Reports Not Compliances
	Merweville	The following waste management challenges for the Merweville waste disposal site were observed by the service provider during ground truthing. • Poor maintenance of waste on site (lack of heavy equipment or machinery); • No access control on site (no personnel for access control and record keeping); • Burning of waste on site; • No ablution facilities (toilets, store/ staff room and water supply) • Vandalism on site • No waste compaction; • Waste disposed outside the facility; • Groundwater monitoring network not established; and • Internal audits are not conducted.
	Nelspoort	The following waste management challenges for the Nelspoort waste disposal site were observed by the service provider during ground truthing. • Poor maintenance of waste on site (lack of heavy equipment or machinery); • No access control on site (no personnel for access control and record keeping); • Burning of wase on site; • No ablution facilities (toilets, store/ staff room and water supply) • Vandalism on site • No waste compaction; • Waste disposed outside the facility; • Groundwater monitoring network not established; and • Internal audits are not conducted.
Prince Albert	Leeu Gamka	Audit report conducted on the 21st of October 2020 • The facility was fenced, but very few people controlled the operations at the facility; • No organic waste diversion plan; • The License is not kept at the site, there is no office at the site. • These boreholes have not been installed; and • The monitoring committee has not been established.

Municipalities	Waste Disposal Facilities	Audit Reports Not Compliances
	Prince Albert	The audit report was conducted on the 6th of 2022. • A Waste Management Control Officer (WMCO)/Environmental Control Officer (ECO) was not appointed; • The draft organic waste diversion plan was not implemented; • Groundwater and surface water quality has not been monitored; • There were no boreholes; • Internal Audits were inconsistently being done. • External Audits were not being done; and • The Monitoring Committee was not established yet.
	Klaarstroom	Audit report conducted on the 6th of 2022 by DEADP: • Some builders' rubble was seen outside of the footprint area of the facility; • An Emergency Response Plan was not developed; • There was no evidence of a groundwater monitoring borehole being installed; • Water quality monitoring was not being done • No external audits were conducted; and • The facility was not registered on IPWIS.

4.4.4.1.2 Illegal Dumping

Illegal dumping is one of the common problems in BWM, however the Municipalities manages the illegal dumps thorough the use of EPWP and Environmental management graduates who are responsible for waste management in the Municipalities. According to the Municipal officials, PAM has eradicated all illegal dumps by providing access to waste services to all households in the Municipality, same applies to LM.

4.4.4.1.3 Hazardous and Health Care Risk Care Waste Disposal

The responsibility of managing hazardous waste and HCRW waste does not lie with Municipalities, however it is important for the Local Municipality to know whether the waste within its jurisdiction is managed properly. HCRW from health care facilities is collected and disposed by a service provider, Solid Waste Technology SA (Pty) Ltd (SWT). SWT ensures that the HCRW is treated through incineration and disposed of in a safe and proper manner at the Vissershok waste disposal facility. SWT reports waste quantities on IPWIS. Hazardous waste such as used oil from mechanics is not allowed at the landfill site, waste generators are responsible for managing their own hazardous waste. Each Local Municipality should ensure proper management of Health Care Risk Waste (HCRW) within its jurisdiction. Instances occur periodically where HCRW is improperly disposed of, landing on waste sites or common areas. Consequently, each Municipality must establish a protocol and acquire appropriate equipment to effectively remove illegally dumped HCRW Waste Treatment Facilities.

In the Western Cape, the following waste treatment methods are being undertaken:

- Wet/putrescible/organic waste such as food waste, is either composted to produce fertilizer or digested anaerobically to also produce fertilizer,
- Anaerobic digestion allows for the recovery of biogas from waste. Biogas is combustible and can be used as a source of energy,
- Healthcare risk waste is either treated by incineration or autoclaved and shredded prior to disposal.

Currently there are no operational treatment facilities within CKDM, LM has a facility within the landfill site for treating garden waste into composting, however; the facility is not yet functional due to lack of equipment. As such Garden waste is currently stored separately at the landfill site.

4.4.4.2 Status of Waste Recycling

Recycling is a key component of waste minimisation. There is limited recycling taking place within CKDM, and as a result, large volumes of recyclable material are disposed of within waste disposal facilities. In PAM there are no recycling facilities, in LM there was one recycling company (Saseko) operating from the landfill site but it has been closed. BWM has one recycling company (Rallo's Recycling) and BWM has three (3) private recyclers within the Municipality, which is in Beaufort West town. The two scrap metal recyclers recycle about 64 tons of metals monthly. The main challenge is transportation of recycle material to major recycling facilities.

Table 4-18 below highlight recycling initiatives within CKDM, their registration status, and the type of recyclable materials being recycled.

Table 4-18: Waste Recycling Companies and their Status

Municipality	Recycling Companies	Registration Status	Operations Status	Recyclable Materials
Beaufort West	Rallo's recycling	Not yet registered	Operational	Glass, paper, plastic, boxes, and E-waste
	Blyth Street Scrap Metal Recycler	Registered	Operational	Ferrous and Non-ferrous metals
	Boland Scrap Metal	Registered	Operational	Plastic, PET, Ferrous and Non-ferrous metals

4.4.5 Waste Reporting

General waste disposal facilities that receive more than 150 tons of waste per day, and recycling and treatment facilities are required to register and report on the SAWIS as per NEMWA These facilities are required to report monthly, and annual tonnages of waste generated, recycled, and disposed of at the waste disposal facility. In the Western Cape province, Municipalities are required to report waste disposal and diversion data on the provincial IPWIS monthly. The data is then uploaded on SAWIS. IPWIS is the provincial waste information system for the Western Cape and waste activities based in the Western Cape have therefore been exempted from registering and reporting directly to the SAWIS.

All waste disposal sites do not have weighbridges except for Vaalkopies; however, the Municipality uses the standardised estimation tool developed by the (DEADP) known as the

waste calculator. The waste calculator is an Excel-based tool that quantifies the waste in mass estimates. All Waste disposal facilities are registered and report monthly disposal volumes on IPWIS except for Leeu Gamka and Klaarstroom in PAM. However, there is no consistency in the report. Reporting on IPWIS is a legislative requirement that should be adhered to. Table 4-19 below shows the status of waste reporting within CKDM.

Table 4-19: Waste Reporting within CKDM

Municipalities	Waste Disposal Facilities	Reporting on IPWIS	Reporting Period
Laingsburg	Laingsburg WDF WIR Number: D05760-01	Yes	12/12 (2022) and 9/9 (2023)
Beaufort West	Vaalkoppies WDF WIR Number: D04168-01	Yes	9/12 (2022) and 0/9 (2023)
	Nelspoort WDF WIR Number: D04167-01	Yes	4/12 (2022) and 0/9 (2023)
	Murraysburg WDF WIR Number: D03120-01	Yes	4/12 (2022) and 0/9 (2023)
	Merweville WDF WIR Number: D04169-01	Yes	3/12 (2022) and 0/9 (2023)
	Beaufort West Recycling Depot WIR Number: D07358-01	Yes	1/12 (2022) and 0/9 (2023)
Prince Albert	Prince Albert WDF WIR Number: D05659-01	Yes	11/12 (2022) and 0/9 (2023).
	Leeu Gamka	No	-
	Klaarstroom	No	-

4.4.6 Determining current domestic waste generation per capita

The DFFE IWMP Guidelines suggest various techniques that can be adopted for estimating waste generation rates and characteristics. These include:

- Modelling techniques – generally an inexpensive technique based on generic data but only provides a general idea of the waste volumes and types;
- Physical sampling techniques – A more accurate method but a more time-consuming and expensive exercise; and
- Direct measurement techniques – even more costly than physical sampling.

For the purposes of the CKDM's IWMP, a model approach was adopted to estimate waste generation for all income categories. The South African State of Environment Report (SA SoER, 2018) estimated that each individual person generates about 0.7 kg of waste each day. This is further broken down according to income category as follows:

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

The referenced waste generation averages for different income levels were applied to income categories sourced from Stats SA 2022 data. An average density of 330kg/m^3 of compacted wastes was used. Figure 4-11shows CKDM demographic information used to calculate future waste generation is presented in Table 4-20 for CKDM.

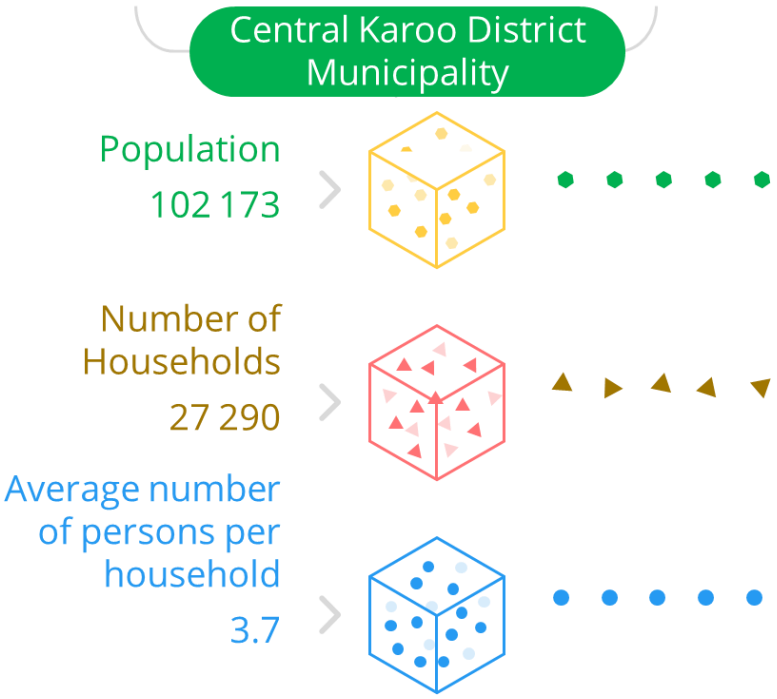

Figure 4-11: Demographics for CKDM (Stats SA, 2022)

Stats SA, 2022 doesn't have household income statistics, as a result, Stats SA 2011 averages were used with the assumption that all income groups grew at the same rate. Table 4-20 below summarises waste generation in CKDM.

Table 4-20: Yearly Estimated Waste Quantities for CKDM (Stats SA, 2011/2022)

Monthly Household income (Rands)		%	People	Households	All persons by income group	Income group	SA SoER (kg/capita/day)	Daily Mass (kg/day)	Total tons per year
No income		7.5	7663	2071	80614.50	LOW	0.41	33051.94	12063.96
1.00	4 800	3	2708	732					
4801.00	9600.00	4.4	4445	1201					
9601.00	19600.00	21	21763	5882					
19601.00	38200.00	25	25083	6779					
38201.00	76400.00	18.6	18953	5122					
76401.00	153800.00	10	10473	2830	20485.69	MIDDLE	0.74	15159.41	5533.18
153801.00	307600.00	6.8	6897	1864					
307601.00	614400.00	3.1	3116	842					
614001.00	1228800.00	0.7	715	193	1174.99	HIGHER	1.29	1515.74	553.24
1228801.00	2457600.00	0.4	358	97					
2457601.00		0.1	102	28					
						Total kg per day		49727.09	
						Total kg per year		18150387.21	**18150.39**
						Total tons per year		**18150.39**	

Based on the analysis in Table 4-20 above, it is estimated that the domestic waste per year for CKDM is about **18447,80 tons**.

4.4.7 Estimating Future Waste Generation Rates and Quantities

Estimating future waste trends using information collected on the domestic waste generation rates for each socio-economic category/type i.e. the population, population distribution, and commercial. With a growth rate of 3.68% (Stats SA, 2022) per year, the population is expected to increase over the next five (5) years. It is envisaged that the most probable driver of waste generation will be future developments, availability of houses, water and electricity and the change in the socio-economic profile of municipal population. The main change to the profile of waste collection in municipalities will be the expansion of the urban centres because of rural-to-urban migration and the development of these urban areas. This could manifest itself in the following manner:

- Business development across the municipalities.
- Urbanisation; and
- Agricultural activities.

Estimation of future waste generation in CKDM for the next 10, 20 and 30 years are presented in Table 4-21, Table 4-22 and Table 4-23

Table 4-21: Estimation of Future Waste Volumes (in 10 Years/2032) Produced In CKDM

Income categories	Base Population 2022	Future population	Current waste generation per (Tons)	Future waste estimates (Tons)
Low Income	80 614	119 213	12063.96	17840.18
Middle Income	20 486	30 294	5533.18	81824.72
High Income	1175	1 738	553.24	9613.02

Table 4-22: Estimation of future waste volumes (in 20 years/2042) produced in CKDM.

Income categories	Base Population 2032	Future population	Current waste generation per (Tons)	Future waste estimates (Tons)
Low Income	80 614	176 296	12 063.96	26 382.67
Middle Income	20 486	44 800	5 533.18	12 100.52
High Income	1 175	2 570	553.24	1 209.89

Table 4-23: Estimation of future waste volumes (in 30 years/2052) produced in CKMD.

Income categories	Base Population 2042	Future population	Current waste generation per (Tons)	Future waste estimates (Tons)
Low Income	80 614	260 707	12 063.96	39 014.84
Middle Income	20 486	66 251	5 533.18	17 894.32
High Income	1 175	3 800	553.24	1 789.19

Table 4-21, Table 4-22 and Table 4-23 above are on future waste volumes are based on the following assumptions:

- Assuming that the population growth rates will remain constant for the next 30 years.
- Assuming that the per capita waste generation rates would be according to the 2018 State of the Environment Report for all income categories:
  - ✓ Low income=0.41kg/person/day
  - ✓ Middle income=0.74kg/person/day
  - ✓ High income=1.29 kg/person/day
- Assuming that the waste generation rates would be according to the 2018 State of Environment figures in 30 years' time.

4.4.8 Financing of Waste Management

4.4.8.1 Budgeting for Waste Services

According to the Municipal Systems Act, Act No 32 of 2000, Municipalities must ensure adequate budgeting to fulfil their constitutional mandate of providing waste management services. Table 4-24, Table 4-25 and Table 4-26 details categories of waste management cost drivers within municipalities in the district. Based on interview with Municipal officials the budget is not sufficient to cover all aspects of waste management, such as filling the WMO post which remain vacant even after the province recommended that they be filled. Furthermore, no funds are allocated for education and awareness, IWMP review and bylaws as shown in the table below.

Table 4-24: Annual Waste Management Budgeting for LM

Item	Amount
Collection	
Capex-purchase (vehicles)	N/A
Maintenance	R 233 856
Transportation & Fuel	R 173 808
Skip bins	No skips
General	-
Subtotal	**R 407 664**
Governance	
Staff (remuneration)	R 450 432
Education and awareness	-
IWMP	-
By-laws	-
Subtotal	**R 450 432**
Disposal	
Transfer station	-
Disposal sites	-
Acquisition of land, equipment	-
Regulatory compliance, EIA's and license	-
Subtotal	**-**
Total	
Revenue Sources	
Municipal Infrastructure Grant (MIG) Funding	**-**
Equitable share funding	R1.2 million
Revenue from waste disposal fees (Monthly/yearly)	R1.5 million
Total	**R3.7 million**

Table 4-25: Annual Waste Management Budgeting for BWM

Item	Amount
Collection	
Transportation	-
Capex-purchase (vehicles)	-
Maintenance	-
Fuel	R 525 773,16
Receptacles	-
General	-
Subtotal	**R 525 773,16**
Governance	
Staff (remuneration)	-
Education and Awareness	-
IWMP	Sponsored by DFFE
By-laws	R 0.00
Disposal	
Transfer station	-
Disposal sites	-
Acquisition of land, equipment	-
Regulatory compliance, EIA's and license	-
Total	**R 0.00**
Revenue Sources	
Funding sources	-
Municipal Infrastructure Grant (MIG) Funding	-
Equitable share funding	-
Revenue from waste disposal fees (Monthly/yearly)	-
Total	**R 525 773,16**

Table 4-26: Annual Waste Management Budgeting for PAM

Item	Amount			
Waste Collection				
Transportation	R 107 153 -Depreciation Costs			
Capex Purchase (Vehicles)	R 2 500 000 (MIG) FY23-24			
Maintenance	R 120 000.00			
Fuel	R 200 000.00			
Skip bins	None			
General				
Governance				
Staff (remuneration)	R1 013 888.00			
Education and awareness	R5000.00 - Signage			
IWMPS (In house development)	None			
Waste Management By - Laws	None			
Disposal				
Disposal site (Landfill Site)	R270 000			
Procurement of equipment	R 385 000 – FY23-24 (MIG Co-funding)			
Regulatory compliance, EIA's, and Waste Management Licence	R0.00			
Revenue Sources				
Funding sources	Rates and taxes, service fees			
Municipal Infrastructure Grant (MIG) Funding	R 2 600 000 during FY23/24 for Specialised Waste Vehicle			
Equitable share funding	R 1 499 000.00			
Revenue from waste disposal fees (Monthly/yearly)	R0.00			
Waste Management Financing	**2020/21**	**2021/22**	**2022/23**	**2023/24**
Waste Management Capital Budget				R3 173 000
Waste Management Expenditure		R4 199 000	R4 467 000	R4 738 000
Waste Management Revenue		R3 643 000	R3 917 000	R5 004 000
Revenue Sources				
Equitable share funding – (Viewed Expenditure)				
Waste Tariffs		R3 299 000	R3 547 000	R4 579 000
Interest on outstanding debt		R344 000	R370 000	R425 000
External Grants				R2 538 000
CRR – Capital Replacement Reserve Fund				R635 000

4.4.8.2 Organisational and Institutional Matters

This section details the current organizational structure and institutional matters to determine the available human resources to deliver waste services within CKDM. Figure 4-12, Figure 4-13 and Figure 4-14 shows the current organizational structures.

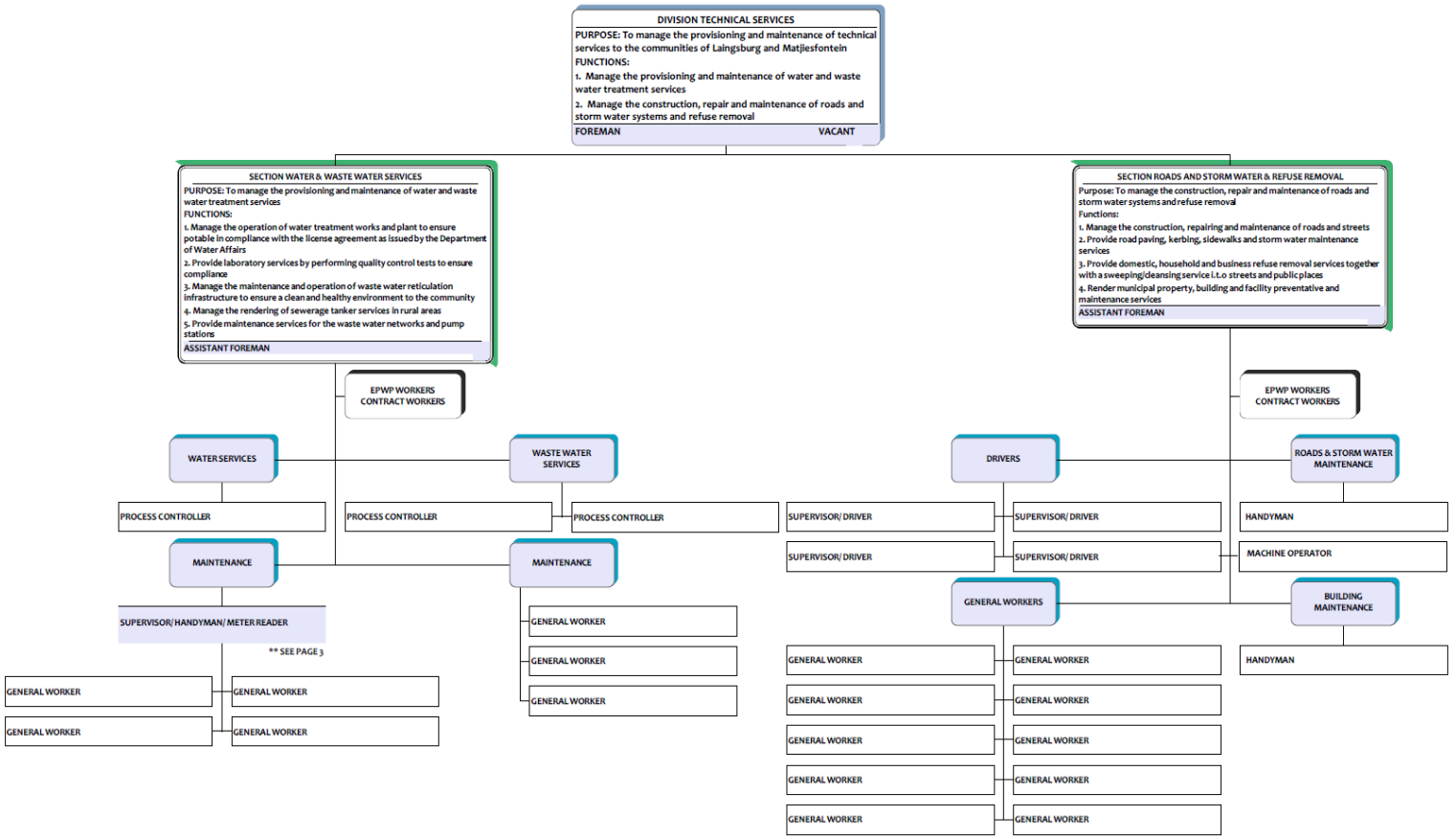

Figure 4-12: Waste Management Division Organizational Structure of LM.

Based on the current organizational structure there are Eight (8) waste management officials in LM which includes drivers and general workers. There is no dedicated staff for waste management as the same staff are responsible for other services like roads, sewerage and water. Based on the current organisational structure there are currently no vacant posts. To ensure continued service and effective skills transfer and to also ensure that the correct functions are put in place to fulfil NEMWA'As requirements, the successful implementation of IWMP is dependent on the availability of qualified personnel. Continuous training and succession planning are crucial to maintaining a competent pool of employees. Table 4-27details the current institutional matters within CKDM.

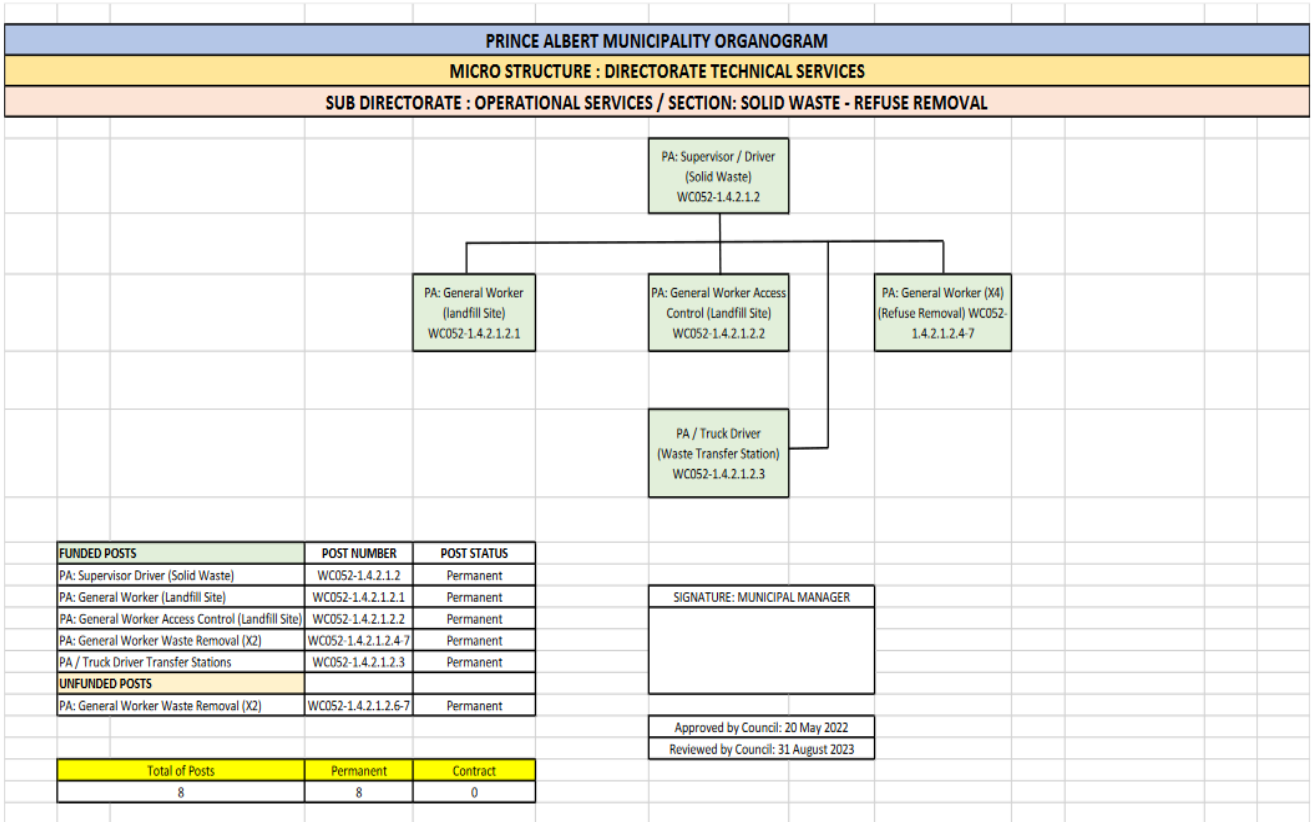

Figure 4-13: Waste Management Division Organizational Structure of PAM.

Following the findings of the 2022 Prince Albert landfill audit report conducted by the WC province, it has been highlighted that the Municipality is mandated to appoint a Waste Management Control Officer. This is in direct alignment with the stipulations outlined in the conditions of the landfill license. The appointment of a Waste Management Control Officer not

only ensures compliance with licensing conditions but also enhances the efficiency and effectiveness of waste control measures. Furthermore, the municipality indicated that currently there is a vacancy for the role of Technician Solid Waste. Currently, no individuals are serving as EMIs.

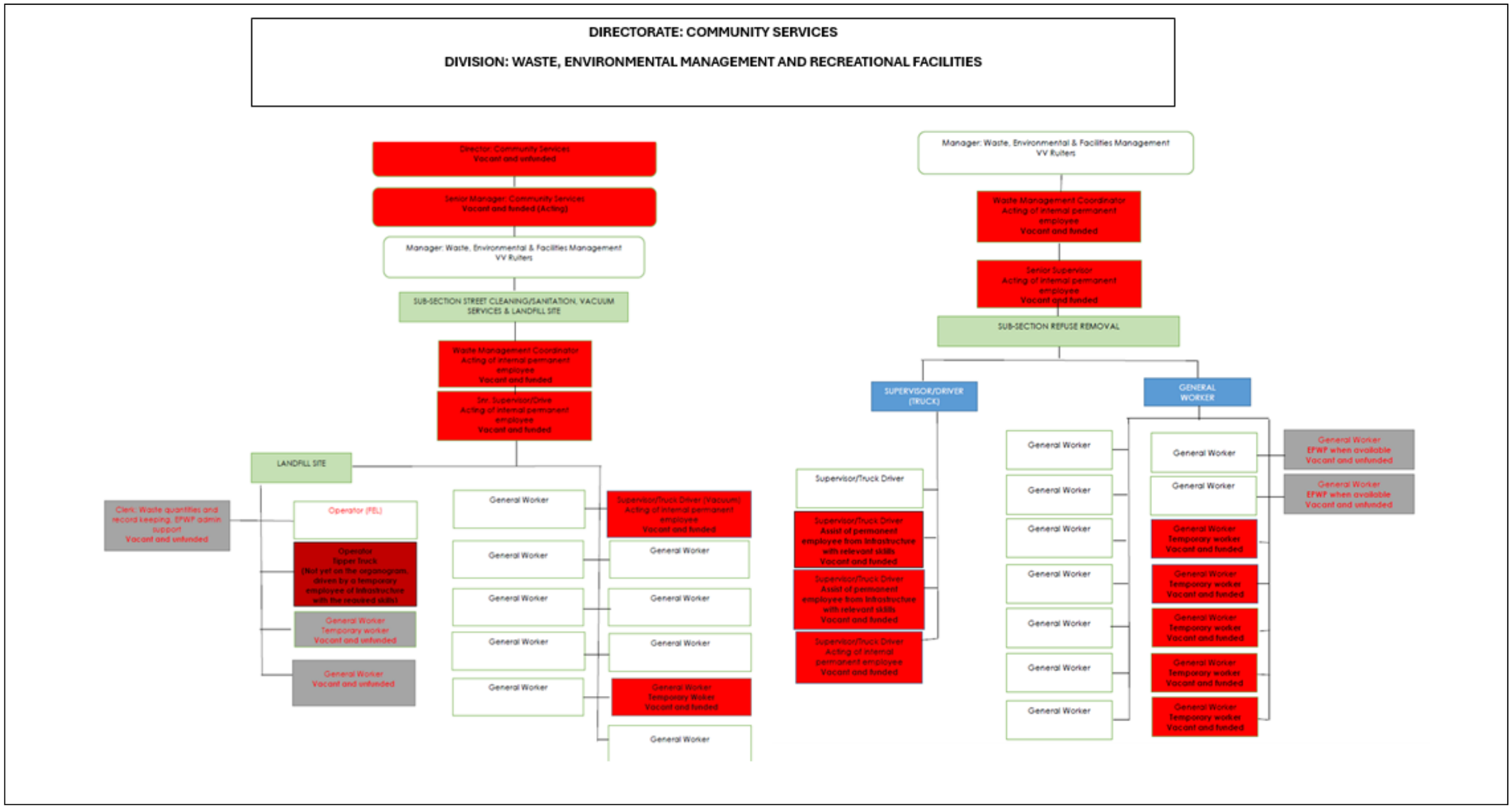

Figure 4-14: BWM Waste Management Organizational Structure

Based on the current organizational structure Figure 4-14 there are Twenty-two (22) waste management vacant positions, the vacant positions need to be occupied to ensure continued service and effective skills transfer and to also ensure that the correct functions are put in place to fulfil NEMWA's requirements, as the successful implementation of IWMP is dependent on the availability of qualified personnel. Continuous training and succession planning are crucial to maintaining a competent pool of employees to ensure that positions are not left vacant. Table 4-27 details the current institutional matters within CKDM.

Table 4-27: Organizational and Institutional matters in CKDM

Municipality	Department Responsible for Waste Management	By-laws Status/Waste Policy	Waste Tariffs	Private Sector Involvement in waste Management	Designation of (WMO)	EMIs
LM	Technical Services	Model Integrated Waste Management By-Law, 2023 (Endorsed)	Yes	Recycling	Designated Designated	None
PAM	Technical Services	Draft waste bylaws	Yes, but not implemented	None	Designated	None
BWM	Community Services	Draft waste bylaws	No	No	Designated	None
CKDM	Section Municipal Health	N/A	No	No	Designated	1

4.4.9 Mainstreaming Key Principles of the National Waste Management Strategy

4.4.9.1 Waste Minimisation and Prevention

This section focuses on the identification of existing waste minimization and prevention initiatives. The most preferred methods of waste management, as indicated by the waste hierarchy, are waste minimization and prevention. These waste management methods are important as they lower waste management expenses. The identification of current waste minimization and prevention measures will assist the Municipality to promote waste minimization and prevention activities through advocacy and education to ensure that residents participate as much as possible as well as exploring opportunities for expanding the initiatives throughout the Municipality. Currently there are no waste minimization and prevention initiatives.

4.4.9.2 Environmentally Sound Socio-Economic Growth and Development

This section focuses on identifying existing efforts to ensure environmentally sound socio-economic growth and development, this includes identifying waste management jobs in the Municipality, efforts to support locally owned small businesses and entrepreneurs such as cooperatives and waste pickers. This information will help identify gaps in areas where there are new functions that must be performed. LM has allowed a Saseko waste recycling company to work at the landfill site to recover recyclables for recycling purposes. BWM has waste pickers reclaiming the recyclable materials from the Vaalkoppies landfill site and these recyclable materials are sold to entrepreneurs involved in recycling. BWM also has two (2) scrap metal recyclers, namely Blyth Street Scrap Metal Recycler and Boland Scrap Metal.There are no recycling initiatives in PAM. As such there is a missed opportunity to harness the potential for economic prosperity while concurrently prioritizing environmental sustainability through recycling.

4.4.10 Waste Pickers Integration

This section focuses on identifying existing initiatives aimed at integrating the waste pickers in the Municipality, the number of waste pickers operating in the Municipality, the areas they operate as well as their working conditions.

There are currently no waste pickers at LM and PAM. BWM currently has 20 that are not yet registered. The waste pickers are currently an inconvenience in areas of the higher income group where they open waste bags awaiting collection, causing a lot of windblown litter in the residential area. The BWM and CKDM do not provide any support to the waste pickers. The municipality has also not partnered with PROs under the ERP scheme to assist with waste picker integration.

4.4.11 Circular Economy

Incorporating a circular waste economy in the municipal planning process is crucial for implementing NWMS 2020. This section focuses on identifying the existing circular economy activities undertaken in the Municipality. This includes activities such as promoting behavioral change through education and awareness, implementing Extended Producer Responsibility (EPR), increasing the collection of material for recycling and engaging in Industrial Symbiosis (IS) initiatives. Circular economy in LM exists in the form of recycling, while in PAM it is non-existent. In BWM there are recycling companies that have taped in the circular economy value chain.

5 GAPS AND NEEDS ASSESSMENT

The aim of the gap analysis is to identify gaps, needs and opportunities arising from the current waste management practices within the District. Identifying the waste management priorities and goals that CKDM wants to achieve includes the following:

- Identifying key waste management gaps.
- Developing strategic goals for the IWMP.
- Developing an implementation plan; and
- Identifying the different alternatives that can be employed to achieve the desired end state it should indicate the different approaches to achieving the targets.

Gaps and needs related to waste management in the CKDM have been identified in terms of each of the following waste management themes:

- Integrated Waste Management planning & Implementation
- Institutional Framework
- Regulatory framework
- Waste minimization, reuse and recycling
- Capacity and Awareness
- Municipal waste services

Table 5-1 Gaps and Needs in the CKDM

Themes	Gaps Identified	Resulting Need
1. Integrated Waste Management planning	• Some Municipalities had outdated IWMPs, NEMWA requires the IWMP to be reviewed every 5 years. • Municipalities must submit annual reports of the implementation of the IWMP in Section 46 of the Municipal MSA • Waste Pickers are not integrated in Municipal waste management services in municipalities where they exist. • Municipalities don't have waste minimisation plans.	• All IWMPs must be reviewed and endorsed after five years, the endorsed IWMPs have to be incorporated into Municipal plans. • Once the IWMP is finalised the Municipality must ensure that annual reports are prepared and submitted in line with the MSA. • EIMs should be trained and designated to ensure waste management by-laws are implemented. • The Municipality should develop a plan for waste pickers integration.
2. Institutional Framework	• Current organisational structures are not sufficient for adequate waste management. • The Local Municipalities have not appointed WMO to carry out waste management functions despite the recommendation from the audit by the province to do so. • Municipalities don't have EIMs to execute waste management by-laws.	• Organisational structures need to be reviewed and appointment of waste management officials need to be made as per waste management audit recommendation made by the province. • Appoint district WMO and EMIs to support Local Municipalities.

Themes	Gaps Identified	Resulting Need
3. Regulatory framework	• PAM and LM bylaws are not gazetted.	• Waste management By-Laws must be gazetted, and EMIs must be appointed to implement the By-Laws.
4. Waste minimization, reuse and recycling	• There is limited recycling taking place within CKDM and as a result, large volumes of recyclable material are disposed of within waste disposal facilities. • Municipalities rely only on privately owned recycling initiatives, not much effort is given to waste minimization, reuse and recycling. • Waste pickers at landfills often work without personal protective equipment (PPE). This exposes them to health and safety problems. • The existing organic waste facilities are redundant.	• The district should support waste recycling initiatives within Municipalities. • Collaborate with Municipalities to come up with recycling initiatives in the in schools and communities, this can be done through competitions, education and awareness especially in business where large quantities of packaging recyclable material are generated. • Support the formation of recycling initiatives in schools and communities at the local municipalities. • Assist in the development of plans to integrate waste pickers into Municipal waste management services. • Support the establishing and utilisation of the redundant organic waste facilities. • Capacitate Municipalities to have their own recycling initiatives and facilitate the partnership between Municipalities and PRO's regarding collection of the

Themes	Gaps Identified	Resulting Need
		recyclables within the district. • Support waste pickers at the waste disposal facilities by providing them with PPE.
5. Capacity and Awareness	• Limited waste management awareness conducted within Municipalities. • Public understanding of ethical and sustainable waste management practices is low. • Few partnerships with educational facilities such as schools.	• Support the development of waste management programs that raise awareness. The program should prioritize recycling, composting, and combating unlawful dumping through education and awareness. • Ensure the necessary human resource are available to support Municipalities. • Have education and awareness programmes that target schools.
6. Municipal waste services	• Waste collection services are not rendered in other areas falling within LMs jurisdiction particularly farms areas. • Non-compliance of waste management facilities with conditions of WML, as per waste management audit conducted by the province. • Inadequate budget allocation for waste management	• Support Municipalities in the expansion of waste management services to areas not receiving waste collection. • Collaborate with Municipalities in conducting internal audits and support with plans to close all non-compliances to ensure compliance with the conditions of the licences and the minimum requirement for waste disposal facilities. • Encourage Municipalities to also prioritise waste

Themes	Gaps Identified	Resulting Need
	services in the Municipalities. • Lack waste management infrastructure such as weighbridges, fences for disposal facilities, ground water monitoring networks. • Indeaquate fleet for waste management. • Illegal dumping occurs in some part of the District. • No budget for waste projects such as IWMP reviewal, bylaw gazetting and education and awareness • Lack/limited of knowledge on how hazardous waste are disposed	management by ensuring that financial and human resources are made available for the sustainable waste management services. • Assist Municipalities in acquiring the yellow fleet, this can be achieved through MIG. • Support with implementation of waste management By-Laws. • Support the cleanups, education and awareness campaigns aimed at addressing illegal dumping across the district. • Support the Municipalities in reviewing and allocating of budget for waste related activities. • The District to collaborate with Municipalities to ensure proper disposal of both hazardous, this can be archived through education and awareness, monitoring hazardous and medical waste generators

6 DESIRED END STATE

The desired end state entails identifying waste management priorities and goals that the Municipality wishes to attain. This will assist the Municipality in its strategic planning and prioritisation efforts to ensure that the Municipality receives the help and support it needs to achieve its intended end state. Information from the status quo report is used to develop strategic goals to address the gaps and needs of the communities within the Municipality and respond to NEM: WA's objectives. A fully costed implementation plan, that will include strategic goals will then be developed.

7 THE NATIONAL WASTE MANAGEMENT STRATEGY (NWMS)

The NWMS 2020 was revised and updated to focus on three overarching goals that are intended to articulate the core objectives of the NEM: WA The strategy provides a simpler conceptual structure based on three main implementation themes framed as overarching goals informed by global emerging trends in waste management. The associated targets have been replaced with a set of strategic objectives for each goal, which will be monitored in terms of performance indicators.

7.1.1 National Waste Management Strategy 2020

The three goals of the NWMS 2020 that will be used to align this IWMP are as follows:

- **Goal 1**: Waste Minimisation - the aim is to prevent waste and where waste cannot be prevented, 40% should be diverted from waste disposal facility within 5 years through reuse, recycling, recovery and alternative waste treatment: 25% of waste reduction in waste generation and 20% waste reused in the economic value chain.
- **Goal 2**: Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services that are well managed and financially sustainable.
- **Goal 3**: Waste Awareness and Compliance - the aim is to create a culture of compliance with zero tolerance of pollution, litter and illegal dumping.

7.2 Western Cape Provincial Integrated Waste Management Plan (PIWMP)

The Western Cape Province reviewed the PIWMP in 2023. This plan sets objectives to satisfy the need for a reasonable plan to address waste management shortcomings. The goals from the Western Cape PIWMP that will be used to align this IWMP are as follows:

- **Goal 1:** Strengthened education, capacity, and advocacy towards Integrated Waste Management.
- **Goal 2:** Improved integrated waste management planning and implementation for efficient waste services, technologies and infrastructure.
- **Goal 3:** Effective and efficient utilisation of resources
- **Goal 4:** Improved compliance with the environmental regulatory framework.

7.3 Goals identified for the CKDM IWMP

In order to align the CKDM's goals with the PIWMP as well as the NWMS 2020, the following goals have been formulated:

- **Goal 1**: Effective solid waste service delivery.
- **Goal 2**: Promote waste minimisation and recycling.
- **Goal 3**: Ensure safe and integrated management of hazardous waste.
- **Goal 4**: Improved waste management facilities.
- **Goal 5**: Ensure sound budgeting for integrated waste management.
- **Goal 6**: Improve regulatory compliance.
- **Goal 7**: Improve waste information management.

7.4 Roles and Responsibilities of local government as per the NWMS 2019

District and Local Municipalities are critical in the implementation of NWMS goals as they are responsible for the planning and delivery of waste collection, disposal services and infrastructure. District municipalities are primarily responsible for providing technical support to local municipalities and assisting with regional planning and coordination. Waste collection and disposal to landfill is typically undertaken by local municipalities. As part of the implementation of the NWMS, local government needs to shift the focus of waste collection services to incorporate separation at source to promote diversion of waste from landfills

through reuse, recycling and recovery. Addressing waste management issues that are specific to the economic, social, and environmental profile of the district is key to ensure effective waste management.

7.5 CKDM goal's alignment with the NWMS 2020 and PIWMP goals

The table below outlines how the goals of the CKDM IWMP align with the NWMS 2020 and Western Cape PIWMP goals.

Table 7-1: Alignment of CKDM goals with the PIWMP and NWMS 2020 goals.

CKDM GOALS	Local Municipalities Goals	WESTERN CAPE PIWMP GOALS	NWMS 2020 GOALS
Goal 1: Promote waste minimisation and recycling.	**Goal 1:** Effective solid waste service delivery that include promotion of reducing, reuse and recycling of waste.	**Goal 2:** Improved integrated waste management planning and implementation for efficient waste services, technologies and infrastructure.	**Goal 2**: Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services that are well managed and financially sustainable.
Goal 1: Promote waste minimisation and recycling.	**Goal 2:** Promote waste minimisation and recycling.	**Goal 1:** Strengthened education, capacity, awareness and advocacy towards Integrated Waste.	**Goal 1**: Waste Minimisation - the aim is to prevent waste and where waste cannot be prevented, 40% should be diverted from waste disposal facility within 5 years through reuse, recycling, recovery and alternative waste treatment: 25% of waste reduction in waste

CKDM GOALS	Local Municipalities Goals	WESTERN CAPE PIWMP GOALS	NWMS 2020 GOALS
			generation and 20% waste reused in the economic value chain. **Goal 2:** Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services that are well managed and financially sustainable. **Goal 3:** Waste Awareness and Compliance - the aim is to create a culture of compliance with zero tolerance of pollution, litter and illegal dumping.
Goal 2: Ensure safe and integrated management of hazardous waste.	**Goal 3:** Ensure safe and integrated management of hazardous waste.	**Goal 1:** Strengthened education, capacity, awareness and advocacy towards Integrated Waste. **Goal 2:** Improved integrated waste management planning and	**Goal 2**: Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services that are well managed and

CKDM GOALS	Local Municipalities Goals	WESTERN CAPE PIWMP GOALS	NWMS 2020 GOALS
		implementation for efficient waste services, technologies and infrastructure.	financially sustainable. **Goal 3**: Waste Awareness and Compliance - the aim is to create a culture of compliance with zero tolerance of pollution, litter and illegal dumping.
Goal 3: Improved waste management facilities.	**Goal 4:** Improved waste management facilities**.**	**Goal 3:** Effective and efficient utilisation of resources. **Goal 4:** Improved compliance with the environmental regulatory framework.	**Goal 1**: Waste Minimisation - the aim is to prevent waste and where waste cannot be prevented, 40% should be diverted from waste disposal facility within 5 years through reuse, recycling, recovery and alternative waste treatment: 25% of waste reduction in waste generation and 20% waste reused in the economic value chain.
Goal 4: Ensure sound budgeting for integrated waste management.	**Goal 5:** Ensure sound budgeting for integrated waste management.	**Goal 3:** Effective and efficient utilisation of resources. **Goal 4:** Improved compliance with the	**Goal 2**: Effective and Sustainable Waste Services - this would see all South Africans living in clean

CKDM GOALS	Local Municipalities Goals	WESTERN CAPE PIWMP GOALS	NWMS 2020 GOALS
		environmental regulatory framework.	communities with waste services that are well managed and financially sustainable.
Goal 5: Improve regulatory compliance.	**Goal 6:** Improve regulatory compliance.	**Goal 4:** Improved compliance with the environmental regulatory framework.	**Goal 2**: Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services that are well managed and financially sustainable. **Goal 3**: Waste Awareness and Compliance - the aim is to create a culture of compliance with zero tolerance of pollution, litter and illegal dumping.
Goal 6: Improve waste information management.	**Goal 7:** Improve waste information management.	**Goal 4:** Improved compliance with the environmental regulatory framework.	**Goal 2**: Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services

CKDM GOALS	Local Municipalities Goals	WESTERN CAPE PIWMP GOALS	NWMS 2020 GOALS
			that are well managed and financially sustainable.

8 SETTING STRATEGIC GOALS, TARGETS, INDICATORS AND INSTRUMENTS FOR IMPLEMENTATION

The achievement of the district's strategic goals and targets within the allotted timeframes from the date the IWMP is approved must have a quantifiable target date and precise timeframe. The targets date for each strategic goal can also be allocated to the following three broad timeframes as follows:

- Short term Targets (Attainable within 0 to 1 years).
- Medium Term Targets (Attainable within 1 to 3 years).
- Long Term Targets (longer than 4-7 years)

The strategic goals that must be accomplished are listed in below. The strategic goals are informed by waste management issues and observations identified during the status quo analysis. The waste management hierarchy serves as a guide for the established strategic goals, which are based on waste legislation and policies. To assess the achievement of accomplishing a goal, key performance indicators are also included for the relevant goals. The instruments to be utilized are given, and the sphere of government responsible for implementation are identified and listed, given the fact that responsibilities pertaining to waste management differ throughout government structures. Lastly, an estimated budget is provided to allow for appropriate financial planning.

Table 8-1: Setting Strategic Goals, Targets, Indicators, and Instruments for Implementation.

GOAL 1: EFFECTIVE SOLID WASTE SERVICE DELIVERY				
Objectives	**Target**	**Key Performance Indicator / Unit of Measurement**	**Responsible Department**	**Alternatives**
Reduce illegal dumps	Conduct illegal dump investigations.	Number of Reports regarding illegal dumps compiled & submitted to LM's	DM	There is no alternative to this objective. Illegal dumps must be reduce.
Support the capacitation on waste Management.	Develop a waste management education awareness strategy for the district.	Number of waste management education & awareness strategies developed & submitted to LM's.	DM	There is no alternative to this, there must be capacity building.
Promote awareness & education on integrated waste management.	Support LM education and awareness programmes. •	Number of LM education & awareness programmes attended.	DM	There is no alternative to this objective. Awareness raising mut be done.

GOAL 2: PROMOTE WASTE MINIMISATION AND RECYCLING.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Reduce waste disposal at landfill sites by promoting waste diversion through re-use, recycling & recovery.	Support formalisation recycling initiatives & support existing recycling initiatives.	Number of awareness raising & education actions conducted in order to promote recycling in the District.	DM	There is no alternative to this objective.
	Support organic waste composting initiatives. •	Number of awareness raising actions conducted in order to promote organic waste composting in the District	DM	There is no alternative to this objective.
	Support the efforts by LMs to divert waste disposal of tyres from landfill by partnering waste tyre recyclers.	Number of awareness raising actions conducted in order to promote the diversion of waste tyres from landfill.	DM	There is no alternative to this objective.
Initiate programmes for separation of waste at source	Provide support to LM's programmes for the	Number of awareness raising actions conducted in	DM to support programmes initiated	There is no alternative to this objective.

GOAL 2: PROMOTE WASTE MINIMISATION AND RECYCLING.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
	separation of waste at source at each local municipality • This should be only one program for the whole village for all to participate. But this is also a LM initiative.	support of the separation of waste at source	by LM.	

GOAL 3: ENSURE SAFE AND INTEGRATED MANAGEMENT OF HAZARDOUS WASTE.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Identify hazardous waste producers & collectors in the district.	Develop a data base of hazardous waste producers such as funeral parlours, mechanics, filling stations, mines etc. Develop	Hazardous waste producers & collectors data base. •	LM & DM	There is no alternative to this objective.

	partnerships with hazardous waste collectors to ensure safe disposal. • This should be done in collaboration with the LM			
Identify Health Care Risk Waste (HCRW) producers & collectors in the district.	Develop partnerships with HCRW waste collectors to ensure safe disposal.	HCRW producers & collectors data base. Waste disposal certificate. •	LM & DM	There is no alternative to this objective.

GOAL 4: IMPROVED WASTE MANAGEMENT FACILITIES.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Support sound management of landfill sites and waste management facilities to comply with licensing standards.	Conduct inspections at Waste sites and report to LM	Number of Landfill Site Evaluation Reports compiled and submitted to LM	DM	There is no alternative to this objective.

Goal 5: ENSURE SOUND BUDGETING FOR INTEGRATED WASTE MANAGEMENT.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Sound budgeting	Budget in year 4 for review of IWMP	Budget Input submitted to Council in order to obtain funding	DM (with LM's / Province support	There is no alternative to this objective.

Goal 6: **IMPROVE REGULATORY COMPLIANCE.**				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Strengthen compliance & monitoring enforcement.	Appoint EMIs and WMO.	Number of EMIs and WMOs appointed. •	LM, DM & National. DM	There is no alternative to this objective.
	Draft annual IWMP performance reports.	Annual IWMP performance reports developed & submitted.	DM.	There is no alternative to this objective.

GOAL 6: IMPROVE REGULATORY COMPLIANCE.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Ensure effective planning and implementation for integrated waste management plan.	Finalise & endorse all municipal IWMPs.	Approved IWMP by the Municipal Council. Endorsement Letter from the MEC.	LM, DM & Province.	There is no alternative to this objective.
	Implementation of IWMPs by DM all municipalities. Ito DM's responsibility	IWMP Implementation reports.	LM, DM & Province	There is no alternative to this objective.
	Review all Municipal IWMPs.	Number of Reviewed IWMPs.	LM, DM & Province	There is no alternative to this objective.

GOAL 7: IMPROVE WASTE INFORMATION MANAGEMENT.				
Objectives	**Target**	**Key Performance Indicator**	**Responsible Department**	**Alternatives**
Improve waste information reporting.	Support the registration of landfills and reporting of waste on IPWIS and Ensure that all waste information within the district is registered and reported on IPWIS.	Records of waste uploaded on IPWIS.	LM & DM	There is no alternative to this objective.

9 IMPLEMENTATION PLAN

An implementation strategy to help the CKDM achieve the goals and targets mentioned in the gap and needs analysis is provided in the following section.

The implementation plan outlines several initiatives and related tasks that, if carried out correctly, ought to help the CKDM meet its goals. The projects that have been selected have been ranked in order of timeframes and cover the years 2025–2029. The implementation plan is outlined in Table 9-10 below.

An estimated budget is provided to allow for appropriate financial planning. The achievement of the strategic goals and targets within the allotted timeframes from the date the IWMP is endorsed must have a quantifiable target date and precise timeframe. The target date for each strategic goal can also be allocated to the following three broad timeframes as follows:

- Short-term targets (Attainable within 0 to 1 year)
- Medium-term targets (Attainable within 1 to 3 years)
- Long-term targets (Attainable within 4 to 7 years)

The implementation plan's legend is shown in the Table 9-1 below.

Table 9-1: Implementation plan legend

TERM	
Short-term	
Medium-term	
Long-term/continuous	

Table 9-2: The implementation plan.

GOAL	OBJECTIVE	ACTIVITY	TIMEFRAME					ESTIMATED BUDGET REQUIRED
			2025	2026	2027	2028	2029	
Goal 1: Effective solid waste service delivery.	Reduce illegal dumps	Conduct illegal dump investigations & submit reports to LM's						Part of Operational budget
	Support the capacitation on waste Management	Develop a waste management education awareness strategy for the district & submit to LM's Implement Strategies						Part of Operational budget
	Promote awareness & education on integrated waste management	Support LM education and awareness programmes.						Part of Operational budget

GOAL	OBJECTIVE	ACTIVITY	TIMEFRAME					ESTIMATED BUDGET REQUIRED
			2025	2026	2027	2028	2029	
Goal 2: Promote waste minimisation and recycling.	Reduce waste disposal at landfill sites by promoting waste diversion through re-use, recycling & recovery.	Support the formalisation of recycling initiatives & existing recycling initiatives.						Part of Operational budget
		Support organic waste composting initiatives.						Part of Operational budget
		Support the efforts by LMs to divert waste disposal of tyres from landfill by partnering waste tyre recyclers.						Part of Operational budget
		Provide support to LM's programmes for the separation of waste at source at each local municipality						Part of Operational budget

GOAL	OBJECTIVE	ACTIVITY	TIMEFRAME					ESTIMATED BUDGET REQUIRED
			2025	2026	2027	2028	2029	
Goal 3: Ensure safe and integrated management of hazardous waste.	Identify hazardous waste producers & collectors in the district.	Develop a data base of hazardous waste producers such as funeral parlours, health establishments mechanics, filling stations, mines etc. Develop partnerships with hazardous waste collectors to ensure safe disposal.						Part of Operational budget
	Identify Health Care Risk Waste (HCRW) producers & collectors in the district.	Develop a data base of HCRW producers & collectors.						Part of Operational budget

GOAL	OBJECTIVE	ACTIVITY	TIMEFRAME					ESTIMATED BUDGET REQUIRED
			2025	2026	2027	2028	2029	
Goal 4: Improved waste management facilities.	Support sound management of landfill sites and waste management facilities to comply with licensing standards.	Conduct inspections at Waste sites and report to LM						Part of Operational budget

GOAL	OBJECTIVE	ACTIVITY	TIMEFRAME					ESTIMATED BUDGET REQUIRED
			2025	2026	2027	2028	2029	
Goal 5: Ensure sound budgeting for integrated waste management..	Sound budgeting .	Budget in year 4 for review of IWMP						Establish the cost of IWMP.

GOAL	OBJECTIVE	ACTIVITY	TIMEFRAME					ESTIMATED BUDGET REQUIRED
			2025	2026	2027	2028	2029	
Goal 6. Improve regulatory compliance.	Strengthen compliance & monitoring enforcement.	EMI and WMO appointed When necessary .						The budget for personnel is dependent on the post level and number of positions.
		Annual IWMP performance reports developed & submitted.						Part of Operational budget
	Ensure effective planning and implementation for integrated waste management	Finalise & endorse all municipal IWMPs.						None
		IWMP Implementation reports.						

10 IMPLEMENTATION INSTRUMENTS

10.1 Partnerships

The development of partnerships has been identified as an important mechanism for providing the required support for the implementation of the IWMP. The costs and needs of a sustainable waste management system are very high and therefore require contribution and participation from its various stakeholders. A wide range of partnerships can be formed including Public-Public, Public-Private and Public-Community partnerships.

10.1.1 Public-Public Partnerships

This is a partnership between two public sector institutions or organisations where neither partner seeks to profit from the partnership. Existing public-public partnerships include DFFE-EPWP, DFFE partnered with the LMs to sponsor the development of IWMP. The municipality is encouraged to explore other partnerships with the province, health facilities, schools etc.

10.1.2 Public-Private Partnerships

This is a partnership between a public-sector and a private company. The only public to private partnership exists in Laingsburg municipality which involve the municipality offering local recyclers the buyback centre to utilise it for their recycling purpose.

10.1.3 Public-Community Partnerships

There are no public to community partnership in the district. As such the district should encourage municipalities to partner with NGOs to assist in waste management.

10.2 Legislative Instruments: Development and Enforcement of By-law

It is crucial that waste management By-laws as supporting legal framework are finalised and gazetted to support the implementation IWMPs. Municipalities have the power to develop By-laws, which augment national and provincial regulatory requirements. Municipalities also need to enforce these waste management By-laws either through municipal mechanisms such EMIs or other delegated authority within Municipalities. Currently, PAM, and BWM have their bylaws as drafts, while LM has endorsed bylaws.

10.3 Funding Mechanisms

The successful implementation of the IWMP depends on the availability of sufficient funding to carry out the plan. Funding will be required for the following:

10.4 Funding Mechanisms for Waste Prevention, Minimisation and Recycling

The primary source of initial funding for the waste prevention, minimisation and recycling activities may be sourced from:

- Recycling agencies through PROs.
- Municipal budget
- Donor funding
- Public/private partnerships

10.5 Funding Mechanisms for Waste Collection and Transportation

Possible sources for waste collection and transportation include:

- Payment for services rendered
- Local government budgetary allocations (from Equitable share funding allocation)
- Municipal budget allocations
- Donor funding for specific projects
- Public-private partnerships.

10.6 Funding Mechanisms for Waste Disposal

- Waste disposal tariffs
- Public-private partnerships

11 MONITORING AND REVIEW OF THE IWMP

It is necessary to continuously and regularly monitor the Implementation Plan to make sure the IWMP's targets, goals, and objectives are met within the allotted time limits.

According to Section 13(2) of The National Environmental Management Waste Act (Act 59 of 2008), performance reports on the implementation of the integrated waste management plan must be prepared in terms of Section 46 of the Municipal Systems Act and must contain the following information:

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

CKDM’s progress toward achieving the aims, targets, and objectives specified in the Implementation Plan of the IWMP must be summarized in an annual performance report which must be compiled by the WMP. The following should be included in the report:

- Strategic Issues: The effectiveness of the CKDM’s and its advancement toward achieving its short-, medium-, and long-term goals, objectives, and targets.
- IWMP Amendments: Modifications to the IWMP required by the findings of financial restrictions, feasibility studies, etc.
- Communication: Informing people, important stakeholders, and council members about the status of the IWMP's meeting.

The next review of the IWMP should take place in 2030, as it is a component of the Integrated Development Plan mandated by Chapter 5 of the MSA.

In order to continuously improve on the current level of waste management services in the CKDM the thorough review will update the status quo, assess overall progress in relation to the goals, objectives, and targets specified in this IWMP, examine any gaps and needs, and reformulate the goals and objectives as necessary to further advance the waste management services provided by the CKDM.

12 PUBLIC PARTICIPATION PROCESS

As part of the development of the IWMP, the consultants will engage with stakeholders and members of the community. Stakeholders and interested and affected parties (I&APs) will be notified that the Draft IWMP is out for comment. The comments on the Draft IWMP will be incorporated into the final IWMP.

13 CONCLUSION

The IWMP is intended to provide an overview of the current waste management practices undertaken in CKDM. It also provides an indication of the planning context within which the IWMP for CKDM is formulated, as well as additional legislative frameworks that need to be considered when undertaking the compilation of an IWMP.

The IWMP was compiled with the information obtained from the following methods:

- Interviews with key stakeholders and representatives from the Local Municipalities.
- Ground truthing/auditing of waste management practices within the District Municipality; and
- A review of all available background information, guidelines and development frameworks pertaining to waste management practices applicable to CKDM.

Based on current information, from Stats SA, 2022, there has been an increase in population growth from 74 247 which was recorded in 2011 to 102 173 recorded in 2022. Total number of households increased from 19100 to 27 290. The increased population puts more pressure with regards to the service delivery expected from the district. Waste collection in CKDM covers all households.

The Local Municipalities collectively have eight landfill sites which are licensed except for Murraysburg. The landfill sites do not have weighbridges and estimates are used to record waste disposal volumes which are reported on IPWIS monthly, however, there is inconsistency in reporting. All waste disposal facilities are not well managed due to a lack of personnel qualified, dedicated to the waste management division. Waste disposal facilities are not complying with the licenses and disposal facilities will soon run out of air space.

Waste recycling is limited and so are waste reclaimers within the District, as a result there are huge volumes of recyclables observed at the landfill sites. Illegal dumping is a recurring problem however municipalities manage it using EPWP participants for cleaning. Challenges that the Local Municipalities encounter include amongst others limited qualified human resources, limited air space, nonexistent waste minimization programs, illegal burning of wastes at landfills, theft and vandalizing of waste site fences, a lack of equipment, poor access control at landfills, waste operation equipment and specialised waste management

vehicles needed and must be maintained for proper site management. As such the gaps and needs fall within the following categories:

- Integrated Waste Management planning & Implementation;
- Institutional Framework;
- Regulatory framework;
- Waste minimization, reuse and recycling;
- Capacity and Awareness;
- Municipal waste services.

In order to align the CKDM's goals with the PIWMP as well as the NWMS 2020, the following goals have been formulated:

- Goal 1: Achieve Integrated Waste Management Planning.
- Goal 2: Strengthen Institutional Capacity & Create Awareness for Waste Management.
- Goal 3: Improve Compliance with Regulatory Framework.
- Goal 4: Implementation of the waste hierarchy.
- Goal 5: Expand Waste Management Services.
- Goal 6: Improve Management of Disposal Facilities.
- Goal 7: Waste Information Reporting.
- Goal 8: Improve the handling and disposal of hazardous waste.

For these goals to be met, a series of implementation instruments (action plans) will need to be implemented. These action plans are detailed in the Implementation Plan in Section 7 of this report. It is imperative for the CKDM to action the items proposed in the Implementation Plan as this will directly result in improved waste management of the Municipality.

As part of the development of the IWMP, the consultants will engage with stakeholders and members of the community. Stakeholders and interested and affected parties (I&APs) will be notified that the Draft IWMP is out for comment. The comments on the Draft IWMP will be incorporated into the Final IWMP.

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