DRAFT INTEGRATED WASTE MANAGEMENT PLAN (2020-2025)

ENZOKUHLE ENTERPRISE

List of Acronyms

BRR	Basic Refuse Removal
CAPEX	Capital Expenditure
CBD	Central Business District
CBO	Community Based Organisation
CHDM	Chris Hani District Municipality
CMIP	Consolidated Municipal Infrastructure Programme
CSD	Community Services Directorate
COGTA	Department of Co-operative Governance and Traditional Affairs
DBSA	Development Bank of Southern Africa
DEA	Department of Environmental Affairs
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECSECC	Eastern Cape Socio-Economic Consultative Council
ELM	Emalahleni Local Municipality
EIA	Environmental Impact Assessment
EMI	Environmental Management Inspector
FEL	Front End Loader
FY	Financial Year
GEF	Global Environment Fund
GW	General Worker (s)
HCRW	Health Care Risk Waste
HR	Human Resources
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
I&APs	Interested and Affected Parties
IFC	International Finance Corporation

IYLM	Intsika Yethu Local Municipality
INLM	Inxuba Yethemba Local Municipality
Ind WMP	Industrial Waste Management Plan
IWMP	Integrated Waste Management Plan
LM	Local Municipality
MEC	Member of Executive Council
MFMA	Municipal Finance Management Act 2003 (Act No. 56 of 2003)
MIG	Municipal Infrastructure Grant
MIIU	Municipal Infrastructure Investment Unit
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:AQA	National Environmental Management Air Quality Act (Act 39 of 2004)
NEMWA	National Environmental Management: Waste Act (Act 59 of 2008)
NWA	National Water Act (Act 36 of 2008)
NWMS	National Waste Management Strategy
PIWMP	Provincial Integrated Waste Management Plan
PPP	Public Participation Process
SAEDF	Southern Africa Enterprise Development Fund
SAWIC	South African Waste Information Centre
SDF	Spatial Development Framework
SMME	Small, Medium, Micro Enterprise
SMIF	Special MIG Innovation Fund
WIS	Waste Information System

Technical definitions

Basic Refuse Removal	A baseline service level as established under Clause 9.1 of the National Policy of Refuse Removal to indigent households.
Building and demolition waste -	Waste, excluding hazardous waste, which is produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition as outlined in Schedule 3 of the NEMWA, as amended.
Business waste -	Waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes.
Buy Back Centre	A facility where people sell recyclable material they have collected and recycling companies buy recyclable materials from the buy-back centre and pay only for the materials they can use.
By-Law	Legislation passed by the council of a municipality which is binding in the municipality on the persons to whom it applies.
Communal Landfill -	The smallest landfill classification with a capacity of less than 25 tonnes per day.
Composting -	The controlled aerobic biological decomposition of organic matter, such as food scraps and plant matter, into compost, a soil-like material. Aerobic is the decomposition process in the presence of oxygen.
Controlled Landfill -	A solid waste management facility used for the disposal of non-hazardous domestic waste and non-infectious medical waste, which employs compaction of wastes, covering of waste with soil cover material, and the management of leachate and gaseous materials produced by the organic decomposition of the landfilled waste, all in such a manner as not to harm human health and minimize negative impacts to the environment.
Daily Cover -	A daily application and compaction of approximately 15 centimetres of soil on top of the solid waste, with the intention to control blowing litter, odour, flies, rats and fires, intended for an exposure of less than one week.

Design Drawing - Drawings prepared by the landfill designer and include dimensions, specifications and other technical data regarding the construction of the landfill.

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

Domestic Waste Waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, institutional, retail, health care, sports or recreation purposes which include: garden and park wastes, office waste, municipal waste, food waste.

Environment The surroundings within which humans exist and that are made up of—

(i) the land. water and atmosphere of the earth:

(ii) micro-organisms, plant and animal life:

(iii) any part or combination of (i) and (ii) and the interrelationships among and between them: and

(iv) the physical chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being

Final Cover - An application and compaction of soil on the landfill after it has reached its designed elevation. The final cover material shall be relatively impermeable and have a thickness of approximately 50 centimetres.

Garden Waste - Any organic biodegradable waste material generated from plant material such as grass, flower, hedge cuttings or tree trimmings.

General Waste - 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;
d) Inert waste; or
e) any waste classified as non-hazardous waste in terms of the regulations made under section 69 of NEMWA, and includes non-hazardous substances, materials or objects within business,

	domestic, inert, building and demolition wastes as outlined in Schedule 3, Category B of the NEM WA.
Groundwater -	All waters flowing or existing under the ground surface.
Hazardous waste -	Any waste, which by reason of chemical reactivity or toxic, explosive, corrosive or other characteristics causes danger or is likely to cause danger to human health and/or to the environment, whether alone or in combination with other wastes. Hazardous waste is categorized in four hazard ratings with 1 being the most hazardous and 4 being the least hazardous.
Incineration -	The controlled combustion of solid waste employing closed combustion chambers, controlled combustion air, temperature monitoring and control to ensure complete combustion of organic matter with a minimum of undesirable air emissions and wastewater discharges.
Landfill Classification -	A system for classification of waste disposal site, previously under the DWAF Minimum Requirements for classifying landfill according to the type and size of the landfill, and its potential for significant leachate generation; and currently under DEA Waste Classification and Management Regulations.
Landfill Site	A site for the controlled disposal of waste materials.
Landfill gas -	The gaseous by-product of organic decomposition of landfilled waste. Landfill gas contains significant concentrations of methane gas, which is explosive at concentrations exceeding 5 percent.
Leachate -	The liquid by-product of organic decomposition of landfilled waste or any liquid that comes in contact with solid waste in a sanitary landfill.
Medical waste (Health Care Risk Waste) -	Any waste generated by hospitals, clinics, nursing homes, doctor's offices, medical laboratories, research facilities and veterinarians, which is infectious or potentially infectious.
Operating Plan -	Consists of drawings, descriptions and other documents regarding the operation of the landfill, placement of waste, building daily cells and lifts, leachate management, landfill gas management and all other functions related to the operation of the landfill.

Operator -	The person or organisation responsible for the operation of the landfill. The operator may be the owner, another public agency or private contractor.
Owner -	The person or organisation that owns the property and/or facilities that constitute the Landfill.
Perimeter drains -	Open ditches surrounding the landfill installed to prevent surface water from entering the landfill.
Pollution	any change in the environment caused by— (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat
Reclaiming -	The separation of solid waste for re-usable and recyclable materials and food for human consumption.
Recycling -	The sorting, processing, and transportation of solid waste materials, products or containers for the purpose of remanufacture or reuse.
Solid Waste Management Facility -	Any facility used for the transportation, processing or disposal of solid waste, and includes transfer stations, recycling facilities, composting facilities, waste incinerators and landfill sites.
Sorting -	The authorised separation of solid waste materials for the purpose of re-use and/or recycling or disposal, either at the source of generation or at a solid waste management facility.
Special waste -	A non-hazardous waste, which due to its nature requires special or separate handling at a sanitary landfill. Special waste includes but is not limited to tyres, asbestos, demolition waste, industrial sludge's of a non-hazardous nature, paper mill sludge, olive oil waste, abattoir wastes and petroleum waste oil.
Surface water -	All water in or coming from a water source, which is found on the surface of the ground, excluding water under the surface of the ground and seawater.
Transfer Station -	A waste management facility that provides temporary storage of waste prior to final disposal and/ or processing.
Treatment	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
Vectors –	of the waste on the environment prior to further use of disposal (NEMWA, 2008).
Waste -	Any substance, whether that substance can be reduced, re-used, recycled and recovered- Birds, insects, and rodents capable of carrying disease-causing bacteria, viruses or fungi from one host to another. (a)That is surplus, unwanted, rejected, discarded, abandoned or disposed of (b) which the generator has no further use of for the purposes of production; (c) that must be treated or disposed of
Waste Management Hierarchy	The Waste Management Hierarchy reflects the different waste management options, from reduction (more preferred) though to re-use, recycling, recovery, treatment/destruction, and lastly disposal (least preferred), that should all form part of an integrated waste management system.
Waste Information System	A computerised database containing information about waste management organisations and agencies, as directed to be established as part of the implementation of the National Waste Management Strategy of South Africa.
Waste Management License	A license for a waste management facility (transfer station, MRF, landfill site, etc.) issued in terms of section 49 of the National Environmental Management, Waste Act, 2009.
Waste Management Officer	A person designated in terms of section 10 of NEMWA, (Act 59 of 2008) who is responsible for co-ordinating matters pertaining waste management in the municipality.
Water Balance -	A method for determining the potential for significant leachate generation, which includes climatic conditions (rainfall and evaporation) and site condition. It also provides approximations relating to water use and management at an operation/ facility.

Working area - The area of the landfill where waste is unloaded, compacted and covered. It generally includes adequate space for several trucks to unload at the same time, for waste compaction and storage of cover soil.

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1. Chapter 1: Situation Analysis

1. 1.1 Introduction

Emalahleni Local Municipality (ELM) is one of six (6) local ELM in the Chris Hani ELM. As a category B municipality, ELM has many functions that it renders for the citizens of South Africa and the region. In rendering these services ELM has a greater role to play from a social, moral and a legal obligation point of view to safeguard and protect people, the environment and its assets while providing sustainable solutions to grow the economy and improve the quality of life of people in South Africa and the region. It therefore becomes imperative that it carefully and pragmatically executes its programs from planning to conclusion.

Regarding environmental management or protection (people being part of the environment, as NEMA so prescribes), it therefore has to have effective and efficient planning and monitoring measures or systems in place. In response to this need, the ELM has an Integrated Waste Management Plan which is part of its Integrated Development Plan (IDP). The plan has the overall objective of implementing a waste management system which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of ELM residence for effective reduction of waste. In the past decades, waste management planning moved from being purely based on a remove and dump system to a more sophisticated Integrated Waste Management Planning system based on the waste hierarchy adopted by the South Africa's National Waste Management Strategy (NWMS).

NWMS offers a wide range of options for waste management and also requires translation of its goals and objectives into practice. These goals and objectives have to be implemented in line with a stakeholder agreed upon action plan. The action plan has to be crafted along the following key elements of the strategy: Integrated waste strategy; waste information systems; capacity building, education, awareness and communication. The element of education, awareness and communication include the following:

- Waste prevention and minimisation
- Generation of waste (Generation Areas and waste stream analysis)
- Separation of waste at source
- Waste Collection, transfer and transport
- Reduce, reuse and recycling of waste and;
- Disposal of Waste (as the last resort)

This education element involves identification of specific waste minimization strategies, whether it is separation at source or at collection. The official hierarchy adopted in the Government Waste Management Strategy is as reflected in **figure 1** below:



Figure 1: Waste Management hierarchy as adopted in the National Waste Management Strategy

As indicated in **Figure 1** above, the primary objective of waste planning is to integrate and optimize waste management services, thereby maximizing efficiency and improving the quality of life of all citizens while the associated environmental impacts and financial costs are minimized (DEAT, 2000). The guideline document for the development of IWM Plans further emphasizes that the integration must be both horizontal and vertical within the government departments, as well as in other sectors and throughout the 'waste life-cycle' (DEAT, 2000).

Effective integration, coordination and alignment of actions of government at national, provincial and local spheres remain an important aspect in ensuring efficient and effective provision of basic services to all. As waste management issues gain public awareness, concern has risen about the appropriateness of various disposal methods. Within our modern scheme of waste management, disposal is the last phase. Most people acknowledge that disposal will always be needed (the exception being those advocating zero-waste policies). Solid waste professionals realize that the ideal way to reduce the stress on disposal systems is to reduce the amount of waste that is produced. The emphasis in modern solid waste management is on reduction, reuse, and recovery before disposal. These three words are at the centre of the discussion of integrated waste management systems as seen in **figure 1** above.

This document is part of ELM's program of review of their waste management strategy which is being done as part of planning for the next 5 years. It has been done using the tried and tested research approaches which are inclusive of qualitative and quantitative methods.

Various stakeholders were engaged inclusive of municipal personnel and other stakeholders in an effort to ensure that the scope of the project was understood by the researching team and the municipality. The gap between where the municipality is and where it aspires to be was clarified through a process of value clarification and understanding what the municipal priorities are in relation to their realities. The previous IWMP document proved invaluable in terms of understanding some of the planning gaps of the municipality. Risks and stakeholder analysis were also done as part of the situation analysis phase. The IWMP review process then moved to crafting of objectives, strategies, indicators, standards and targets. This stage was based on understanding progress to-date regarding implementation of the previous IWMP. Subsequent to that process, alternatives for the projects or activities selected were identified and the final feasible projects or strategies were drawn up and then costed. As a follow up to that, an implementation program was drawn up. The project ended by making conclusions about the process and came up with recommendations.

This report is divided into five parts:

Chapter One- Provides background information encapsulating the physical, demographic features, location of the existing dumping sites and their legal status, socio-economic structure, waste collection processes and preliminary waste stream analysis. It also includes coverage of technological/ infrastructural, environmental (also legal), and political or governance issues or aspects of the service. SWOT analysis and risk analysis were also covered in this chapter.

Chapter Two- Gap analysis was addressed in this chapter

Chapter Three: outlines the various objectives that are in response to the situation analysis findings. These objectives came up with different strategies of how to deal with the issues already identified and came up with alternatives for achieving desired ends. Indicators and standards to be met were set and so were the targets. The indicators were then costed and the most appropriate options were chosen together with their resource requirements and this process would aid performance monitoring.

Chapter Four: This chapter captures the implementation program covering the next five years of the organization and also addresses current gaps within the strategy.

Chapter Five: Focuses on conclusions of the project. Limitations and gaps of the project were discussed. Also focuses on recommendations for the institution in order for it to provide an effective and efficient service.

1.2.1 Methodology and approach

The approach to environmental planning was that of providing a holistic assessment of a problem or challenge and then solutions that are based on stakeholder contributions or interests and normative views or standards such as laws and guidelines of government were provided or proposed. The client was given an ear hence the approach to data collection during the situation analysis phase involved triangulation; meaning, interviews, observation and analysis of municipal and other government reports, plans or documents. Questionnaires were drawn up in order to survey stakeholder perceptions and views about the service.

The Project Manager, Andile Mxenge, had the overall authority and responsibility for managing and executing this project according to the Project Plan and its Subsidiary Management Plans. The project team consisted of personnel from Enzokuhle Enterprise (PTY) Ltd, technical or management group (**Working Group**) and a **quality control/assurance** group (**Steering committee**). The project manager worked with all resources to perform project planning. All project and subsidiary management plans were reviewed and approved by the project sponsor. All funding decisions were made by the project sponsor. Any delegation of approval authority to the project manager was to be done in writing and signed by both the project sponsor and project manager. The project team was a matrix in that team members from each organization continued to report to their organizational management throughout the duration of the project. The project manager was responsible for communicating with organizational managers on the progress and performance of each project resource. The project adhered to all the laws of the land inclusive of labour laws.

This report was informed by a literature review of all existing information provided by the ELM, site visits and stakeholder consultation process which included both internal (ELM personnel) and external stakeholders (other government personnel). Workshops were used to gather as much information as possible and working tools were generated for participants to populate and for skills transfer. The situation at the local municipality level was assessed in relation to the provincial government and ELM's powers and functions.

Quality management was addressed through establishment of a Project Steering Committee (PSC) and a Working Group (write up group) in order to feed other council structures such as the Climate Change and Environmental Forum. The guideline for the development of IWMP by the Department of Environmental Affairs and Fisheries was followed. Various role players ranging from the local municipality and other sister departments such as DEDEAT and the South African Local Government Association were engaged and the draft document will be published in August 2021 in the provincial newspaper, Daily Dispatch, which is widely read in the region**.**

Access to the draft and final documents would be provided to anyone that registered as an Interested and affected Party. This draft plan would be submitted to the department of Cooperative Governance and Traditional Affairs as well as to Department of Economic Development, Environmental Affairs and Tourism for evaluation and ratification. Subsequent to that it would be taken through the ELM's approval processes for council to adopt

Figure 2 below is a schematic representation of waste management model used in South Africa which is applicable in this project.

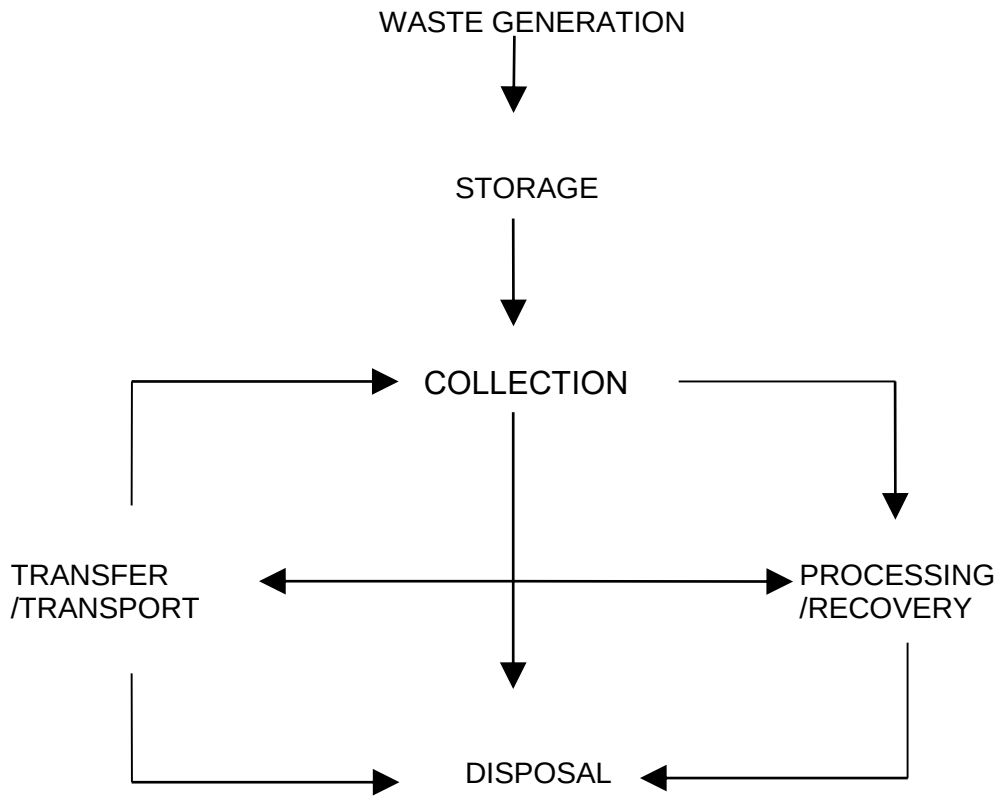


Figure 2: Tchobanoglous diagram (Waste Managemnt strategy)

The Tchobanoglous diagram (**Figure 2**) above was used as a guide to obtain as much information as possible about the municipality and in reviewing the document. This approach therefore implied that each stage of the waste management cycle was assessed against policy or legal requirements, availability or non-availability of resources (technology, finance, personnel and infrastructure). The quality and appropriateness of the municipality's IWMP was also looked at in relation to **figure 2**.

Figure 3 below was the overall approach that's used in reviewing and generating the ELM integrated waste management plan as prescribed by the Department of Environmental Affairs and Tourism.

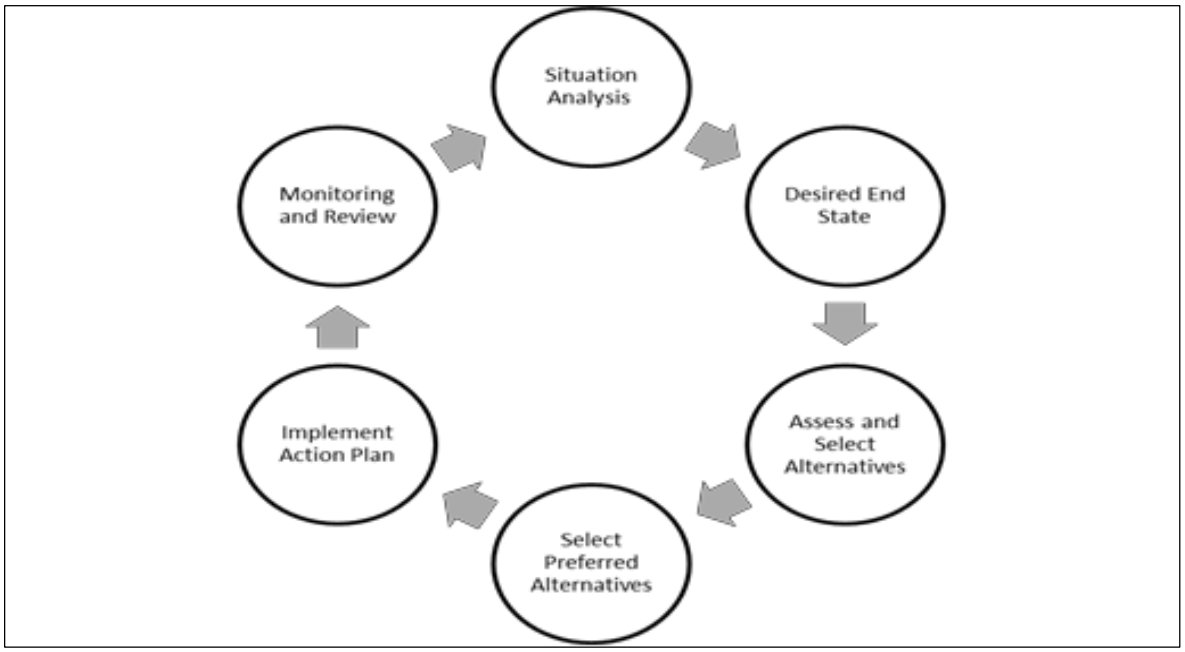


Figure 3: Integrated Waste Management planning process

1.2.2 Quality Assurance and stakeholder engagement

Quality management was addressed through the establishment of a Project Steering Committee (PSC) and a Working Group (management / write up group) in order to feed other council structures. At the end of the project, the project was reviewed regarding its conformance to set objectives.

1.2.3 Actual implementation stages

1.2.3.1 Initiation Phase

- **Project Structuring and Scheduling**

This phase provided structure and guidance on what the client envisages regarding the project. An inaugural meeting was held with ELM waste management services and procurement on 17 May 2021 to establish a Project Steering Committee (PSC). Project events were scheduled and responsibilities were assigned. Relevant stakeholders and interest groups were identified. Detailed technical aspects of the project were transferred by the client to the implementing team and some data was mailed. An outcome of that was the compilation of Project Implementation Plan (PIP).

- **Scope Management or Conceptualization**

The project began by doing root definition by making use of the (CATWOE) mnemonic which stands for Client, Actors, Transformation process, World view, Owners and Environmental Constraints and then a Gap analysis between current and an ideal future situation (**desired end state**) as part of the initial engagement with the client.

1.2.4 Planning Phase

- **Situation Analysis (Environmental Assessment)**

This phase involved getting a better understanding of the problem in order for it to be defined properly in the Gap analysis phase. The situation analysis was done according to Social, Technological/ Technical, Economic, Environmental (also legal) and Political/ governance elements or requirements of the project. Based on this information we did an analysis of internal Strengths, Weaknesses as well as external Opportunities and Threats (SWOT) of the organization. The SWOT aspects were categorised according to Social, Technological/ Technical, Economic, Environmental and Political/ Governance elements of the organization.

The role of other Interested and Affected Parties (IA&Ps) was analysed to see the impact of their role in the service, in other words stakeholders were identified, their needs, expectations, power and predictability was analysed. Stakeholder consultation process included ELM internal (personnel) and external stakeholders. Risks were analysed and quantified**.** The results of the feasibility were summarised.

The data gathering or Situation Analysis phase of the project was therefore informed by a literature review of all existing information provided by the client and other relevant stakeholders as well as by site visits and observation. Physical and on-line meetings were used as vehicles for information transfer by gathering and exchanging as much information as possible and working tools (Questionnaires) were developed for participants to populate.

1.2.5 Gap Analysis

Gap analysis was addressed in this chapter. We looked at the shortcomings of the current document and those of current operations in relation to the client's worldview and aspirations

1.2.6: Implementation Plan (Draft IWMP)

1.2.6.1 Objectives, strategies & budgets

The objectives came up with different strategies of how to deal with the issues already identified and also came up with alternatives for achieving desired ends. Indicators and standards to be met were set and so were the targets. The indicators were then costed and the most appropriate options were chosen together with their resource requirements and this process would aid performance monitoring.

1.2.6.2 Monitoring and Review management

Based on the objectives and strategies phase, performance measures and standards were set guiding the development of the implementation plan.

1.3 Final Draft of reviewed IWMP

Consolidated information from Phase **1.2.3.1 -1.2.6.2.** The plan was finalised by coming up with conclusions, recommendations. Three hard copies of council endorsed IWMP and two soft copies (USB and CD) will be the final product submitted. The above approach implies that the IWMP (product of the project) was co-authored by our project team, project beneficiaries and other stakeholders. It is a product that is an outcome of thorough stakeholder engagement and involvement. From a basket of wishes few, strategies or projects were prioritised for implementation over the next five years. Several working group sessions were arranged to produce reports that were presented at the monthly project steering committee meetings.

1.4 Limitations

- Unclear income statistics information obtained from the IDP made it difficult to give reliable waste characterization data.
- Covid has made it difficult to progress with the project because stakeholders were not easy to consult.
- Operations at the landfill sites made it difficult to do waste characterization and access to various properties will have to be done as a standalone project supplementing this document. Sources of waste will have to be clearly defined and their waste output will have to be thoroughly researched.
- The limited budget for the project impacted the level of research our team could have undertaken and the team did the best it could under the circumstances.
- Limited funding for the service,
- Incomplete costing of the service
- Burning of waste at all the sites,
- No regional planning in relation to waste minimization,
- The review is mainly, but not wholly limited to the existing plan which had many gaps,
- Lack of records or information about the service and waste quantities (service photographs, resource usage or waste volumes generated),
- No documented standards for the service.
- No waste billing records availed to us

1.4 Geographic location

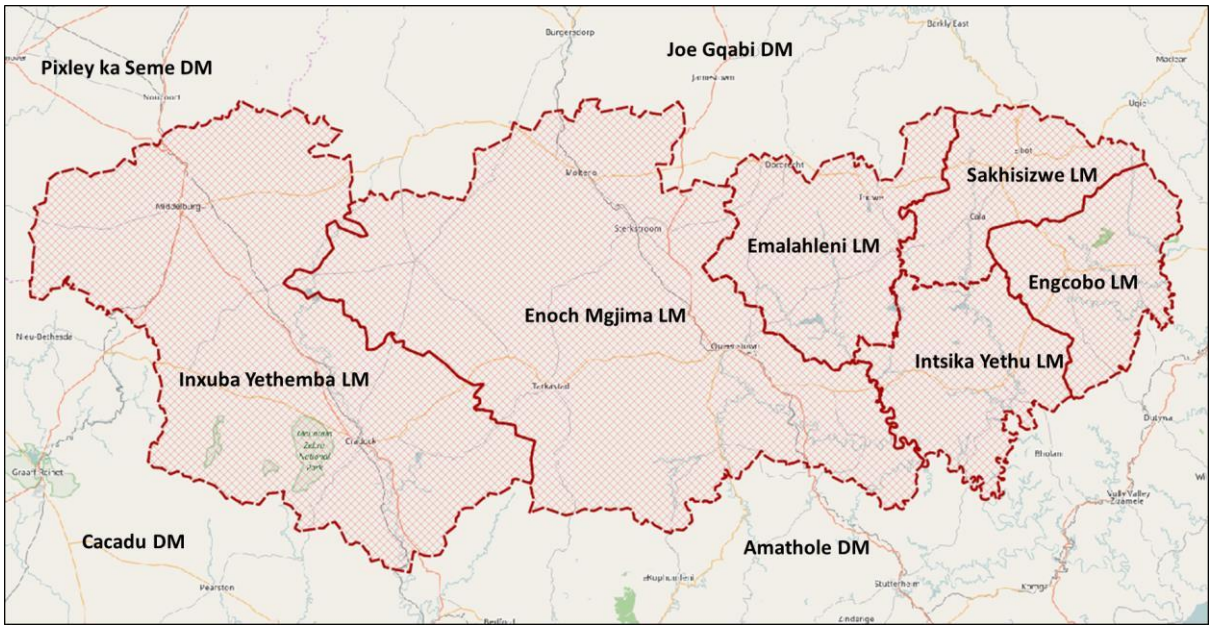


Figure 4: Map of Emalahleni

As seen in **figure 4** above, Emalahleni Local Municipality (EC136) is one of the eight local ELM within the Chris Hani ELM Municipality (ELM), Eastern Cape. The municipality covers a land area of approximately 3 840 square kilometers (km^2) and consists of 17 wards. There are three main urban centers, namely Lady Frere, Dordrecht and Indwe, and surrounding rural villages. Lady Frere is the administrative center of the municipality while Indwe and Dordrecht have satellite offices.

The Lady Frere urban unit is situated along the **R358** road which connects the town with other towns such as Queenstown and Cala on opposite sides. This positioning emphasizes the ideal and strategic location of the town. The municipality is a **Category B** municipality, with its boundaries linking it to the following local ELM;

- Sakhisizwe Local Municipality (ELM) to the East
- Intsika Yethu (ELM) to the South
- Lukhanji (ELM) to the South West
- Inkwankca (ELM) to the West
- Maletswayi (JGDM) to the North, and
- Senqu LM(JGDM) to the North East

1.5 Stakeholder Analysis

Table 1: Analysis of Interested and affected parties

Stakeholder Analysis			
Stakeholder	**Needs & Expectations**	**Power**	**Predictability (Low/moderate/high)**
Chris Hani ELM Municipality	**Need**: Regulation & determination of a waste disposal strategy for the ELM **Expectation**: To enjoy full cooperation of its ELM	Regulation of waste disposal strategy	High
Enoch Mgijima Engcobo Emalahleni Sakhisizwe Inxuba Yethemba	**Need**: Manage, facilitate and co-ordinate the disposal of waste **Expectation**: Cooperation with ELM on mutual issues	Cooperate with ELM on recycling initiatives	High
Department of Economic Development, Environmental Affairs & Tourism	**Need**: authorizing / law enforcement agents, support provision to local government **Expectation**: Full cooperation of the client	Law enforcement and capacity building	High
Department of labour	**Need**: Law enforcement agents, support provision to local	Law enforcement and capacity building	High

	government **Expectation**: Full cooperation of the client		
Stakeholder	**Needs & Expectations**	**Power**	**Predictability (Low/moderate/high)**
Department of Cooperative Governance & Traditional Affairs	**Need**: Support provision to local government **Expectation**: full cooperation of the client	Support provision	High
South African Local Government Association	**Need**: Support provision to local government **Expectation**: full cooperation of the client	Support provision	Moderate
Department of Social Development	**Need**: Ensure social security **Expectation**: Full cooperation of the client	Fund social security programmes	Moderate
Department of Trade and Industry	**Need**: Promote fair trade **Expectation**: Full cooperation of the client	Enable trade in waste	Moderate
Funders (DBSA)	**Need**: To make profit and support ELM **Expectation**: full cooperation of the client	Skills transfer, support provision	High
Private sector (collect a can, SAPPI, Mondi paper, Glass recycling company etc.)	**Need**: Participation in recycling **Expectation**: Access to the recyclable material	Promote or frustrate government initiatives	Moderate
Community members	**Need**: to have their waste collected and to participate in recycling and awareness raising. **Expectation**: to be recognised as a player in the system	Promote or frustrate government initiatives	Moderate
Business community	**Need**: to have their waste collected and to participate in recycling and awareness raising. **Expectation**: to be recognised as a player in the system	Promote or frustrate government initiatives	Moderate
The Industrial Development Corporation (IDC)	**Need**: support provision to local government **Expectation**: full cooperation of the client	Support provision	Moderate
Buyisa-e-Bag	**Need:** support provision to local government **Expectation:** full cooperation of the client	Support provision	Moderate

1. 6 Legal and Policy Prescripts

The legal framework within which this plan has been developed includes, but is not limited to:

- The Constitution of South Africa (Act 108 of 1996)
- National Environmental Management Act 107 of 1998
- National Environmental Management: Waste Act 59, 2008
- Hazardous Substance Act 15 of 1973
- Municipal Demarcation Act 27 of 1998
- Municipal Structures Act 117 of 1998
- Municipal Systems Act 32 of 2000
- The Development Facilitation Act 67 of 1995
- The Physical Planning Act 125 of 1991
- National Environment Management: Air Quality Act 39 of 2004
- Atmospheric Pollution Prevention Act 45 of 1965
- National Water Act 36 of 1998
- National Health Act 61 of 2003
- Municipal Finance Management Act 56 of 2003
- Municipal Performance Regulations of 2006

- **Policies.**
- White Paper on Environmental Management Notice 749 of 1998
- White Paper on Integrated Pollution and Waste Management for South Africa, Notice 227 of 2000
- Minimum Requirements for Waste Disposal by Landfill, 2nd edition, 1998
- National waste Management Strategy
- Eastern Cape Provincial Growth & Development Plan
- National Development Plan
- Batho Pele principles
- MDGs
- Local Agenda 21
- Polokwane Waste Summit
- National Policy for Provision of Basic Refuse Removal services to Indent Households
- National Standard for Collection of Domestic Waste.

South Africa has a host of legislated acts, policies and guidelines relating to waste, the most significant of these being the National Environmental Management: Waste Act (58 of 2008) which is now the country's central piece of legislation dealing with waste management.

1.6.1. The Constitution of South Africa (Act No. 108 of 1996)

The Constitution of South Africa (Act 108 of 1996) provides the overall parameters for developing an IWMP by specifying the powers and responsibilities of each sphere of government. **Section 24** contains the bill of rights which 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 legislative and other measures that prevent pollution and ecological degradation".

Schedule 4(b) and 5(b) specify aspects with which the local authorities have concurrent responsibilities. In terms of waste management, such responsibilities include cleansing; refuse removal, landfills & dump, and solid waste disposal.

1.6.2. The National Environmental Management Act (Act No. 107 of 1998)

The National Environmental Management Act 107 of 1998 (NEMA) provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. The main objective of the Act is to serve as an enabling tool for the promulgation of legislation to effectively address integrated environmental management.

The following principles are enshrined in the Act:

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

Chapter 3 of the Act emphasizes that national government departments that have waste management responsibilities and every province must develop environmental implementation plans (EIPs) every four years and an environmental management plan (EMP). Local government is obliged to exercise its responsibilities in accordance with these plans and to report annually within four months from the end of its financial year on implementation of the environmental management plan or environmental implementation plan.

Chapter 8 provides that the Minister and every MEC and municipality may enter into an environmental management co-operation agreement with any person or community for the purpose of promoting

compliance with the principles laid down in NEMA. Environmental Co-operation Agreements may contain an undertaking by the person or community concerned to improve the standards laid down by law for the protection of the environment and a set of measurable targets and a timeframe for the fulfilling the undertaking.

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

1.6.3. The National Environmental Management: Waste Act (Act No.59 of 2008)

The purpose of this Act is to provide for:

- National norms and standards for regulating the management of waste by all spheres of government;
- Specific waste management measures;
- Licensing and control of waste management activities;

Section 9 states that a municipality must exercise its executive authority to deliver waste management services, including waste removal, waste storage and waste disposal services by adhering to all national and provincial norms and standards; and integrating its waste management plans with its integrated development plans.

1.6.4. National Environmental Management: Air Quality Act (Act No. 39 of 2004)

This act came into effect from the 1st of April 2010, repealing the old Atmospheric Pollution Prevention Act No 45 of 1965. This Act deals with the control of noise, dust and offensive odours. The main objectives of the Act are generally to give effect to section *24(b)* of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people, and to bring about air quality that is not harmful to the citizen's health.

A list of activities requiring emission licenses in order to operate has been promulgated under this Act. Minimum emission standards are set for these listed activities. Such activities include certain types of waste disposal, amongst others.

1.6.5 National Water Act (Act No. 36 of 1998)

The National Water Act (NWA) 36 of 1998 contains a number of provisions that impact on waste management, including the disposing of waste in a manner, which is detrimental and may impact 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; 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; and a requirement that waste discharged or deposited into or allowed to enter a water resource be monitored and analyzed according to prescribed mechanisms.

1.6.6. National Health Act (Act No. 63 of 1977)

The National Health Act provides measures for the promotion of health, for the rendering of health services and defines duties of certain authorities which render health services in the Republic.

Section 20 sets out the duties and powers of local authorities. It provides that every local government is obliged to take measures to maintain its area 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 of 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 ELM. Draft regulations for the control of environmental conditions constituting a danger to health or a nuisance was published

in Government Notice Regulation 21 (GNR.21) of 14 January 2000. In terms of the proposed regulations, registration is required for carrying out a scheduled trade, including waste incineration, waste (including medical waste) disposal sites and waste collecting, sorting, treating or processing sites.

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

The Municipal Systems Act describes the core principles, mechanisms, and processes that are necessary to enable ELM to move progressively towards the social and economic upliftment of communities and ensure access to services that are affordable to all. Its focus is primarily on the internal systems and administration of the municipality. The Act enables the process of decentralization of functions through assigning powers of general competence to local Government. Municipal by-laws are regulated to achieve harmony with national and provincial legislation.

As service authorities, ELM remain responsible for the effective delivery of services and must provide an appropriate policy and regulatory framework. This can be achieved through the most appropriate service provider, ranging from internal departmental delivery to corporatization and joint ventures to private sector delivery options.

Performance management systems are to be developed to measure and evaluate performance in priority areas, which are to be reported annually to citizens and other spheres of government. The process is to be followed in planning, drafting and adopting the Integrated Development Plan is set out.

1.6.8 White Paper on Environmental Management Notice 749 of 1998

The White Paper on Environmental Management was published in 1998. This policy sets out government's objectives in relation to environmental management, how it intends to achieve its objectives, and to guide government agencies and organs of state in developing strategies to meet their objectives. The policy document is an overarching policy framework that refers to all government institutions and to all activities that impact on the environment.

The policy states that government will allocate functions to the institutions and spheres of government that can most effectively achieve the objectives of sustainable development and integrated environmental management. This would include the allocation of certain functions to the municipal sphere of government

1.6.9. White Paper on Integrated Pollution and Waste Management for South Africa, Notice 227 of 2000

The White Paper on Integrated Pollution and Waste Management was published in March 2000 and represents formal government policy regarding integrated pollution and waste management. Integrated pollution and waste management is defined as a holistic and integrated system and process of management aimed at pollution prevention and minimization at source, managing the impact of pollution and waste on the receiving environment and remediation of damaged environments. Waste management is to be implemented in a holistic and integrated manner and extend over the entire waste cycle from cradle-to-grave and will include the generation, storage, collection, transportation, treatment and disposal of waste. The overarching goal reflected in the policy is integrated pollution and waste management, with the intention being to move away from fragmented and un-coordinated pollution control and waste management towards integrated pollution and waste management as well as waste minimization.

Within this framework of the overarching goal, the following strategic goals apply:

1. Effective institutional framework and legislation.
2. Pollution and waste minimization, impact management and remediation;
3. Holistic and integrated planning – the intention is to develop mechanisms to ensure that integrated pollution and waste management considerations are integrated into the development of government policies, strategies and programmers as well as all spatial and economic development planning processes and in all economic activity.

The strategic mechanisms include the following:

- The incorporation of integrated environmental management principles and methodologies in spatial development planning as it relates to pollution and waste management;
- Making time and appropriate provision for adequate waste disposal facilities;

- Development of management instruments and mechanisms for the integration of pollution and waste management concerns in development planning and land allocation;
- Developing appropriate and agreed indicators to measure performance for inclusion in EIPs and
- EMPs as provided for in the National Environmental Management Act;
- Participation and partnerships in integrated pollution and waste management governance.
- Empowerment and education in integrated pollution and waste management;
- Information management; and
- International co-operation.

1.6.10. DWAF Minimum Requirements Waste Disposal by Landfill

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

- Prevent water pollution and to ensure sustained fitness for use of South Africa's water resources.
- Attain and maintain minimum waste management standards in order to protect human health and the environment from the possible harmful effects caused by the handling, treatment, storage and disposal of waste.

- Effectively administer and provide a systematic and nationally uniform approach to the waste disposal process.
- Endeavour to make South African waste management practices internationally acceptable.
- Before a waste disposal site permit is issued, adherence to the Minimum Requirement conditions will be required from the permit applicant.
- The Minimum Requirements promote the hierarchical approach to waste management, as well as a holistic approach to the environment.

1.6.11. National Waste Management Strategy and Action Plans

The overall objective of this strategy is to reduce the generation of waste and the environmental impact of all forms of waste and thereby ensure that the socio-economic development of South Africa, the

health of the people and the quality of its environmental resources are no longer adversely affected by uncontrolled and un-coordinated waste management. The internationally accepted waste hierarchical approach was adopted for waste prevention/minimization, recycle/reuse, treatment and finally disposal.

The strategy outlines the functions and responsibilities of the three levels of government and where possible, firm plans and targets are specified. The roles and responsibilities in terms of the National Waste Management Strategy for local government include:

- ***Integrated waste management planning***: Local government will be responsible for the compilation of general waste management plans for submission to provincial government.
- ***Waste information system***: Local government will be responsible for data collection.
- ***Waste minimization***: Local government will implement and enforce appropriate national waste minimization initiatives and promote the development of voluntary partnerships with industry.
- ***Recycling***: Local government is to establish recycling centers and/or facilitate community initiatives.
- ***Waste collection and transportation***: Local government is to improve service delivery. Private public partnerships to assist service delivery are encouraged.
- ***Waste disposal***: Local government is to take responsibility for the establishment and management of landfills sites, and to promote development of regionally based facilities. Formalizing and controlling of scavenging is the responsibilities of the permit holder.

1.6.12. Polokwane Waste Summit Declaration

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

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

Goal – To reduce waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for zero waste by 2022

The Polokwane Declaration has significant implications for local government. In order to move towards the goal, it will be necessary for local government and other stakeholders to engage more closely towards the achievement of this goal in a realistic and practicable manner. The key actions in the Polokwane Declaration that impact on local government include the following:

- Implement the National Waste Management Strategy;
- Develop and implement Legislative and Regulatory Framework;
- Waste reduction and recycling;
- Develop waste information and monitoring systems;
- Report annually on municipal performance including implementation of the IWMP;
- Set local waste service standards for waste separation, compacting of waste, management and disposal of solid waste amongst others at own discretion;
- Local standards must be aligned with any provincial and national norms and standards where these exist. Where municipal by-laws on waste disposal exist, these must be aligned with Chapter 4 Part 6 of the Waste Act as described in Section 3.9 of the NWMS;
- ELM may also require transporters of waste to register on a list of waste transporters.

1.6.13 Provision of Basic Refuse Removal Services to Indigent Households

This National Policy for the Provision of Basic Refuse Removal Services to Indigent Households paves the way for ELM in South Africa to provide basic refuse removal services within their areas of jurisdiction. It has emerged over the years that South Africa has a backlog in terms of provisioning of basic refuse removal services.

Most of the households that suffer from the prolonged lack of refuse removal are those from previously disadvantaged localities such as the high density, low-income areas. These are, in many instances the same households that are currently eligible for receiving free basic water and free basic electricity.

The purpose of the National Policy for the Provision of Basic Refuse Removal Services to Indigent Households is to ensure that poor (indigent) households have access to at least basic (essential) refuse

removal services from the relevant municipality. Meeting this purpose requires aligning the Policy with already existing key relevant legislation, indigent policies for different ELM, financial management systems, while being mindful of the need to ensure that there is uniformity when dealing with various cases of the indigent households

1.6.14. The National Domestic Waste Collection Standards

The setting of National Domestic Waste Collection Standards was informed by the Constitution of the Republic of South Africa, the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the General Waste Collection Standards of Gauteng Province, the current international waste management standards and good practices in both developed and developing countries. The provision of waste collection services improves the quality of life of the entire community and ensures a clean and more acceptable place to live and work in.

1.7. Social Analysis

The ELM Integrated Development Plan (2021) states that, Statistics SA, 2011 indicated that Emalahleni had the fourth largest population with a total of 119,460 (15% of the ELM population) in the Chris Hani ELM which extended over an area of approximately 3 840 square kilometers, including more than 200 rural villages and comprising seventeen (17) wards. In 2016, Statistics SA conducted a survey which revealed that Emalahleni population had increased to 122 700. This is an increase of 2.71% in the total population of the municipal area in a space of 5 years. Growth trend analysis shows that Emalahleni population had a marginal growth of between 2% to 5% over the last 5 years. The marginal growth could be attributed to a variety of factors such as death, poverty, HIV/AIDS and/or family planning.

Tables 2 below reflects the population of Emalahleni by various categories. The Black Africans and Black African females in particular are the largest group of the population at 51% (and 53% including all races) of the total population. The high representation of females in the population represents an opportunity for the municipality to develop and implement programs for women empowerment.

Table 2: Population by race and gender

	Black African	Coloured	Indian or Asian	White	Other	Grand Total
Male	55 614	350	135	322	199	56620
Female	62 058	341	39	340	61	62839
Grand Total	117672	691	174	663	260	119459

The municipal population has a large representation of the youth (comprising of 47%) of the total population. The retired age group of age 60 and above represents 13 percent of the population. These two above point also pose a great challenge for the Emalahleni municipality. This challenge being that the 60 percent of the population is both under 19years and above 60years and thus most likely economically in active and reliant on social grants. The resultant of this compels the municipality to increase its commitment to Special Programs. According to statistics released by ECSECC, about 47% of the population earns just under R3500.00 and 13% of the population leaves under the bread line and would therefore not be able to afford housing or other services and rely on state subsidies. Emalahleni thus can be classified as a low wage economy which is a factor of low or negative growth.

No single solution completely answers the question of what to do with our waste. Every community or region has its own unique profile of solid waste. The composition of integrated solid waste management varies, depending on such diverse variables as urbanization, commercial enterprises, manufacturing, and service sector activities. Similarly, the attitudes of people in different provinces and regions of the country vary regarding waste management practices. This is often referred to as the waste management ethic and includes the recycling ethic and litter ethic of a community as subcategories. Community diversity and waste diversity are two reasons why no single approach to waste management has been accepted as the best method.

As seen in **Table 3** below, formal waste collection service is provided to urban and township areas of Lady Frere, Indwe and Dordrecht. Households in the rural areas are encouraged to conduct on site management of their waste. As seen below in **Table 3**; there has been a gradual increase in the number of community households getting access to the service once a week.

Table 3: Refuse removal for Household

	2008	2009	2010	2011	2018
Unspecified / other	52	49	47	1303	1303
Removed by local authority at least once a week	3 026	3 085	3 144	2637	7 999
Removed by local authority less often	217	211	206	165	165
Communal refuse dump	562	587	612	528	528
Own refuse dump	13 363	13 518	13 674	20165	20165
No rubbish disposal	-	-	-	6883	6883

The towns of ELM are some of the cleanest in the ELM as seen in **figure 4 & 5** below, if not in the province or country. This is a sign of a good waste ethic that is embraced by both the citizens and the municipal personnel. Very limited illegal dumping was observed during the ground-truthing exercise and the town streets were also very clean.

This symbolizes a good link between the community and the municipality via vibrant communication channels and platforms. The municipality hosts four (4) major awareness campaigns per year. The campaigns target schools, taverns, clinics and households.





Figure 5: Very clean Cacadu taxi rank photograph

Figure 6: Very clean Dordrecht Main street

Table 4 below is a weekly refuse removal schedule for the municipality. 100% of households in the urban areas receive weekly refuse collection service and no service is provided in rural locations. Rural communities are encouraged to provide on-site waste facilities for themselves. The municipality does have an indigent policy and a database of such stakeholders.

What is not clear is how the beneficiaries of the policy benefit from the policy, apart from getting refuse removal for free or how the municipality benefits from having such policies. There is no clear collaboration with other stakeholders such as the department of Social Development in applying this policy. For an example, beneficiaries of the policy could be subsidized by the department of Social Development in providing a service to the municipality.

The municipality has a very good waste ethic which should be maintained which is depicted by the few illegal dumping sites that were observed. It does however mean that efforts must be made in order to ensure that the good standards are kept.

Table 4:

	DORDRECHT	INDWE	CACADU
Monday	Central Business ELM	Main Town Houses Central Business ELM Indwe Hospital Indwe High School Indwe Resort	Central Business ELM Glen Grey Hospital
Tuesday	Main Town Houses Central Business ELM Dordrecht Hospital Schools	Sonwabile Location Phumlani Location Central Business ELM	Town (Urban) Households Central Business ELM Lady Frere JSS
Wednesday	Tyoksville Location Central Business ELM	Mavuya Location Central Business ELM Esethu PSS Lukhanyo SSS	KwaZakhele Township Households Central Business ELM Glen Grey Hospital
Thursday	Isinakho Location Central Business ELM	Mzamomhle Location Central Business ELM Siyakhula PSS	Bongolwethu Township Households Central Business ELM
Friday	Munniksville Location Central Business ELM	Manyano Location Central Business ELM	Central Business ELM
Saturday	Central Business ELM	Central Business ELM	Central Business ELM
Sunday	Central Business ELM	Central Business ELM	Central Business ELM

Table 4: Weekly refuse collection schedule

1.8. Technological or Infrastructural analysis

The municipality utilises a refuse bag system in the residential areas and bins at the commercial areas as seen in **figures 6 – 11** below. The municipality supplies the residents with refuse bags. The Municipality accepts any number of bags or bins per household, so there is no specific limit. The bags and bins are placed on the curb outside the house and collected from there.

Street receptacles are a combination of metal drums and plastic bins. Selected business premises (such as Spar Supermarket) are provided with 1m³ skip bins. General storage containers used in the Emalahleni Local Municipality are the following:

- Metal Bins
- 120 litre Wheelie bins (at Lady Frere Municipal Building)
- Skip Bins (next to selected business premises)
- Plastic Bins



Figure 7: 120 litre Wheelie bins



Figure 8: Metal bins





Figure 9: Mobile skip

Figure 10: Skip used by the Municipality

As seen in **Table 5** below, the municipality has the basic technology to provide the service such as 1 x REL Compactor Truck, 6 x Tractor & Trailers, 3 x Bakkies and 1 x TLB. At the current operational level, the fleet is adequate for the work at hand. The current fleet is generally in good condition but breakdowns do occur.

Table 5: Waste Managememnt transport and eqiupment

Area	**Type of Transport/Equipment**	**Quantity**
Lady Frere	Rear End Loader (REL ±12 tons)	1
	Tractor (8 tons)	1
	Bakkie with Trailer (1 tons)	1
Dordrecht	Tractor (8 tons)	2
	Tractor (6 tons)	1
Indwe	Tractor (8 tons)	1
	Tractor (6 tons)	1
Total		8





Figure 11: Municipal bakkie

Figure 12: Municipal compactor truck

Table 6: Availabilty of various technology

Issue	available
Weigh Bridges	N
Bailers	N
Compactor Trucks	Y
Trailers	Y
Tractors	Y
Caged trucks	Y
Electricity	N
Wheelie bins	Y
Skips	Y
Materials Recovery Facilities	N
Drop off points for recyclables	N
Portable weather stations	N

Table 6 above reflects the availability or lack thereof of various technology and infrastructure at ELM

Table 7: Lady Frere/ Cacadu Solid waste Disposal site

Position of the site	The site is situated approximately 2km North East of the Lady Frere CBD.
License	Licensed for closure
License Number and year of license	HO/A/14/L36/14 (2014)
Classification	G:C:B-
Access Control	There is a lockable gate and a vandalised guard house for control of entry. An access control personnel is available at the gate during normal working hours.
Is site fenced?	The site is properly fenced.
Operating hours	08:00-18:00, seven days a week (no notice at entrance to indicate such)
Sufficient buffer zone	The nearest household is at 140 metres North of the perimeter fence.
Type of operation	Cell method. Waste is not compacted and covered at the end of each day.
	Waste is continuously burned inside the site.
Equipment used on site	None
Estimated size of the site	Approximately 2 hectares (±20 000 square metres)
Estimated remaining life of the ..	Only about a third of the site has been used.
Separation of fresh and contaminated water	None in place.
Groundwater monitoring	None
Volumes per month	Approximately 597,5 tonnes (using June 2016 calculations, though not entirely accurate).
Availability of cover material	Cover material is available but is not used.
End Use	The site will be closed and rehabilitated. No end use plan in place yet.

Table 7 above is data captured regarding the Cacadu landfill site. A lot of improvement is required here in order to upgrade the facility and make it operational. Land is a very scarce commodity hence it must be optimally used.

Table 8: Dordrecht Solid waste disposal site

Position of the site	The site is situated approximately 1km South East of the Dordrecht CBD.
License	Licensed for closure and conversion into a transfer station
License Number and year of	HO/A/14/L048/14(2014)
Classification	G:C:B+
Access Control	No access control on site. The disposal site is not fenced, except for a portion which is to be used as a transfer station.
Is site fenced?	The site is not fenced.
Operating hours	N/A
Sufficient buffer zone	There is abundant buffer zone around the site. There is a single household at 163 metres West of the site's edge (near the R393 road).
Type of operation	The site is a disused borrow pit. Waste is not compacted and covered at the end of each day but is continuously burned inside the site.
Equipment used on site	None
Estimated size of the site	Not Applicable.
Estimated remaining life of the	Not available.
Separation of fresh and	None in place. There is a seasonal watercourse that runs through the site.
Groundwater monitoring	None
Volumes per month	Approximately 884 tonnes (using June 2016 calculations, though not entirely
Availability of cover material	Cover material is not available on site.
End Use	The site will be converted into a transfer station to supply the planned Lady Frere Regional Landfill Site.

Table 8 above is data captured regarding the Dordrecht waste site. The site requires a lot of improvement in order for it to be legally compliant. However, before a decision can be taken about the relevance of using the site as a transfer station or not, a cost-benefit (feasibility) analysis must be done.

Table 9: Indwe Waste Disposal site

Position of the site	The site is situated approximately 1km East of the Indwe CBD, along the R56 Road towards Elliot, next to the Waste Water Treatment Works (WWTW).
License	Not licensed but registered as a Transfer Station
License Number and year of license	Registration No: CHR/C(a)/2/2014
Classification	G:C:B+
Access Control	The site has an adequate access control.
Is site fenced?	The site is properly fenced with a lockable gate.
Operating hours	08:00-17:00, seven days a week (no notice at entrance to indicate such)
Sufficient buffer zone	There is sufficient buffer zone. No households within a 400 metre radius of the site.
Type of disposal	Cell method. Waste is dumped and burned inside an excavation and not compacted and covered at the end of each day.
Equipment used on site	None
Estimated size of the site	Approximately 1 hectare (10 000 square metres)
Estimated remaining life of the	Not available.
Separation of fresh and	None in place. No berms around the site.
Groundwater monitoring	None
Volumes per month	Approximately 964 tonnes (using June 2016 calculations, though not entirely
Availability of cover material	Not available. Waste is not covered.
End Use	The site will be converted into a transfer station to supply the planned Lady Frere Regional Landfill Site.

Table 9 above is data captured regarding the Indwe waste site. The site requires a lot of improvement in order for it to be legally compliant. However, before a decision can be taken about the relevance of using the site as a transfer station or not, a cost-benefit (feasibility) analysis must be done.

1.9 Economic and financial Analysis

The general tendency of migration from rural to urban areas is also occurring in the area, as is the case in the rest of the Eastern Cape Province. It is determined that approximately 95% of the population lives in rural and peri-urban areas. The majority of the rural population is active within the subsistence agricultural sector.

1.9.1 Waste Generation Quantities

In order for ELM to be able to plan for future waste management activities the types and volumes of waste generated in the area needs to be identified. ELM is required by law to determine quantities and types of waste generated within their municipal boundary. This involves establishing the current quantities of waste generated, recycled, treated and disposed of. This information can be obtained from the following sources:

- Private waste transporters and waste managers: Waste transporters, as well as waste managers of disposal facilities keep records of waste handled for billing purposes.
- Municipal records: The municipality should keep a record of waste collected as well as waste disposed to landfill.
- Waste Information System: The Department of Environmental Affairs (DEA) and some provinces have developed waste information systems (WIS) which can provide waste data.

The ELM did not make waste collection / waste billing records available for review. Further, disposal tonnages are not being recorded at the landfills in ELM since there are no weighbridges. Thus waste generation for ELM should be estimated based on population statistics. However, such an option was not feasible because there are no waste records, waste is burned at the waste sites and the IDP information on population statistics was not clearly tabulated.

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

- Low income 0.41 kg/ person/ day = 149.65 kg/ person/ year.
- Middle income 0.74 kg/ person/ day = 270.1 kg/ person/ year.

- High income 1.29 kg/ person/ day = 470.85 kg/ person/ year.

Use of the SOER methodology was not possible at present due to time and budgetary limitations. The SOER figures for waste generation are also used in the Department of Environmental Affairs Guideline for the Development of Integrated Waste Management Plans (IWMPs). The DEA IWMP guideline also defines the following income brackets:

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

It is assumed that that the numbers of people per households in high, middle and low income households are the same. This assumption also obscures the huge volume of waste coming from business and other government entities. It therefore means that waste characterization should be a separate project that will improve the ball-park figure previously estimated for ELM.

Table 10: Waste generation by households per income group

Income group	Annual Household .	Percentage	Number of households
Low	0-2400		
	2400-6000		
	6000-12000		
	12000-18000		
	18000-30000		
	30000-42000		
Low sub-total			

Income group	Annual Household Income	Percentage	Number of households

Middle	42000-		
	54000-		
	72000-		
	96000-		
	132000		
Middle	192000		
Middle sub-total			
High	360000		
	600000		
	120000		
	240000		
High sub-total			

Below is Waste Material Observed on the waste sites

1.9.2 Waste Material Observed on the waste sites

Table 10: Waste materials observed on the waste sites

No	Type of category	Quantity (kg) composition low income	% Composition low income	Quantity (kg) composition High income	% Composition High income	Combined Quantity (kg) composition	Combined% composition
1	High quality paper e.g. office paper						
2	Paper other e.g. magazines, newspapers and plasticized paper						
3	Corrugated cardboard e.g. packing boxes						

4	Non-corrugated cardboard e.g. cereal boxes						
5	Metal e.g. cans, tins, foil						
6	E-waste e.g. cell phones, PC components, electrical equipment						
7	Organics – garden waste e.g. grass cutting, leaves						
8	Organics – food waste e.g. kitchen waste, vegetable peelings						
9	PET plastic e.g. soft drinks bottles						
10	PE-HD plastics						

11	PVC plastics						
12	PE-LD plastics						
13	PP plastics						
14	Polystyrene plastics						
15	Other plastics						
16	Glass						
17	Construction waste e.g. bricks						
18	Hazardous waste e.g. batteries. Fluorescent bulbs, paints						
19	Health care risk waste e.g. sharps, medication						
20	Nappies						
21	Other e.g. material, furniture, clothes						
22	Fines, material too small to sort						

1.9.3 FINANCING OF WASTE MANAGEMENT

A critical precondition for the successful implementation of the ELM IWMP is to ensure that there is access to sufficient funds to carry out the plan. Budgeting for waste management services is dependent on accurate costing of the required services. The full cost of waste service provision is seldom understood by both municipal officials as well as the general public. This results in waste management services often being under budgeted and/or communities being reluctant to pay the rightful cost of the service. Tariffs have the potential to fully cover the costs of providing the services, but the charges are often set below actual costs.

A full cost accounting exercise for waste management services is at present not done and should include aspects of collection, transportation, landfill, street cleansing, fee collection, debt payment and depreciation. Implementing recycling programmes will reduce the disposal costs and generate revenue for the municipality. The cost accounting exercise referred to above could include the costs of recycling programmes against their gains in terms of real monetary returns as well as cost savings relating to increased landfill life span through saved air space.

Therefore, cost - benefit analysis of aspects of the service is currently not done and as part of annual review of the plan such activities should be performed. The issue of property rights was also not well defined in the document hence indemnity forms should be signed by those accessing landfill sites for an example

Assessments of the whole value chain of waste should be done for the service. The asset register and landfill valuations in terms of GRAP 17 and 19 are important economic tools that ELM should use. However, the current asset register did not cover much of the waste function assets. Such reports should be adequately developed and populated with realistic information in order to support sustainable decisions

1.9.4 Funding instruments

Some of the funding organizations that can assist the ELM local municipalities in implementing waste management activities are listed in **Table 11** below:

Table 11: Some of the funding sources for waste management projects

LOCAL FUNDING SOURCES
CHDM, the environmental management unit provides support to environmental management related projects to local municipalities.
DEDEAT, funding of environmental management related projects, inclusive of waste management.
The Municipal Infrastructure Investment Unit (MIIU), a source for support for municipalities which are committed to investigating Municipal Service Partnerships
The DBSA, willing to finance a portion of solid waste facilities
MIG funding. This funding will be geared towards landfill construction.
Special MIG Innovation Fund (SMIF) has been established to encourage and support innovative projects in municipalities. The SMIF has been established to: • Actively support innovation in local government. • Enable municipalities to implement projects that are linked to, but not currently part of, their IDPs. • Identify cutting edge projects that carry acceptable levels of risk and which will result in sustainable benefits in the municipal area. • Encourage municipalities to work more effectively with a wide range of stakeholders, including the private sector (corporates and Small, Medium, Micro Enterprises (SMMEs)), Community Based Organizations (CBOs), labour and other spheres of government. • Facilitate lesson-learning and knowledge sharing across projects, to enable successful innovations to be replicated and policy and procedures to be informed by outcomes on the ground. • Promote a culture of pride and confidence in the ability of South Africans, and the public sector in particular, to innovate and create a better life for all South Africans
The Industrial Development Corporation (IDC) publicly committed to funding infrastructure projects
Capital Expenditure Program (CAPEX), which finances capital projects such as the development of buy-back centers.

The South Africa Infrastructure Fund, which is composed of numerous insurance and pension fund members, with an interest in funding infrastructure projects in South Africa.
Department of Trade and Industry / Department of Transport, through the Spatial Development Initiative, may provide support to initiatives which can encourage direct foreign investment.
DEA through its social responsibility funding program
GOVERNMENT FUNDING SOURCES
Equitable Share Grant: The Equitable Share Grant from National Government is provided in support of the accelerated implementation of free basic services to poor households. All municipalities are therefore being pressurized by National Government to prioritize the provision of free basic services to poor households, including better targeting and performance reporting.
The Municipal Infrastructure Grant (MIG): According to National Treasury, the MIG complements the equitable share allocations to give effect to national objectives to: Expand the delivery of basic services to all households, including the delivery of free basic services to poor households and other poverty alleviating objectives; and stimulate local economic development and job creation over the medium term. Municipalities are also required to use their capital budgets to promote labour-based infrastructure methods (Expanded Public Works Program) for projects where this is appropriate. In direct contrast with the former Consolidated Municipal Infrastructure Program (CMIP) funding, the MIG does not fund specific projects, but is designed to complement the capital budget of a Municipality. Reporting on MIG therefore focuses on the entire capital budget of a municipality. The Chris Hani District Municipality has a responsibility to ensure that low capacity local municipalities are supported in their applications for MIG funds, and that they will comply with the requirements of the Municipal Finance Management Act 2003 (Act No. 56 of 2003) (MFMA) and the 2005 Division of Revenue Bill in terms of budgeting. Section 37(2) enables municipalities to receive MIG funding provided that they prepare sector plans showing how backlogs are being addressed relating to the key sectors such as electricity, water, sanitation, waste removal, roads and transport.
Capacity Building and Restructuring Grant The capacity building grants were set up to assist municipalities in improving management, planning, technical and financial management skills and capacity for effective service delivery, with the major portions of grants flowing directly to municipalities. The following programs are being supported from this grant: • Financial Management Grant; • Municipal Systems Improvement Programs; and • Restructuring Grant.

OTHER SOURCES OF FUNDING

Table 12: Other sources of funding options

Consolidated Municipal Infrastructure programme (CMIP)	Product revenue
Own funding	Tariffs
Municipal Systems Improvement programme (MSIP)	Rates
EXTENDED Public works programme	Equitable shares
Buyisa-e-Bag funding	Donor funding
Operational Funding	Carbon credits

1.9.5 Current budget

Table 13: Budget 2020/2021

Cost category	Amount
Service Charges-Refuse Removal	
Interest earned on outstanding debtors	
Employee Related Costs	
Employee Social Contribution	
Landfill site Impairments	
Repairs & Maintenance (fleet, tools & implements	
Finance Charges- Landfill site interest	
Grants & Subsidies (Contribution to Indigent households)	
General Expenses	
TOTAL	
Capital Budget	
GRAND TOTAL BUDGET	

1.10 Environmental Analysis

The majority of general solid waste that is currently disposed, burned and buried at the three solid waste disposal sites is re-useable or can be recycled. All general waste materials such as paper, plastics and garden waste are disposed of at the municipal disposal sites and minimally recycled.





Figure 13: Incomplete toilet facility

Figure 14: Goats feeding at the Cacadu site

The municipality is one of the cleanest in the province. The community and the community have a very high waste ethic which is observed throughout the region. Lacking, however, in the region are clear operational plans for the service and the waste facilities. There is currently no waste information system in place in order to assist any recycling initiatives taking place. The cooperatives that are involved in recycling in the towns of Dordrecht and Indwe have no formal relationship with the municipality and necessarily have not signed any indemnity agreements with the municipality.

There is a view that that a new site should be established in Cacadu instead of upgrading the existing site which is poorly run. Feasibility studies for the waste facilities should be done in order to upgrade the facilities. Standards throughout the waste service value chain should be set and should be part of the operations and maintenance plans for the municipality.

As part of municipal support, the provincial department of Environmental affairs, local government and the CHDM should establish annually reviewed programs of support to the municipality. Part of the annual program should involve drafting applications for funding through MIG funding amongst other things. Proper waste characterization should be done targeting 30% of the serviced community in particular because waste is currently being banned at the waste site. The income level of the waste generators is unknown hence a direct and more precise approach of waste characterization should be prioritised. The IWMP under review gives skewed results that can be questionable. The waste characterization exercise would

Table 14: Issues identified

Issue	Not available/ not in use	Available/ in use
Landfill site		
Landfill fencing		
Landfill operations and maintenance plan		
Landfill permit		
Landfill (for closure)		
Landfill Unpermitted		
Daily cover		
Landfill monitoring team/ committee		
Landfill internal audits		
Landfill external audits		
Landfill site security office		
Landfill ablution facilities		
Leachate management system		
Borehole (water quality testing)		
Waste collection system		
Collection points (strategically positioned)		
Staff		

Cleansing standards and ops plan/ system		
Cleansing information was limited if at all covered		
Role and level of involvement of other stakeholders		
Relationship with the market		
Monitoring and evaluation mechanisms		
Clear program of cooperation with other spheres of the state		
Mechanisms, role and importance of customer care		
Composting		
Waste Collection tariff policies		
Indigent policies and database		
Use of communities in dealing with illegal dumping		
Role of youth in waste		
Asset registers (rehabilitation and or disposal)		
Landfill valuation data		
Personnel training		
Records keeping		
Role of institutional and social development in public awareness		
Capacity building for councillors		
Cost effectiveness of services		
Recycling infrastructure		
Waste information (data capture)		
Use of GIS		
Electronic waste information		
Role and place of EPWP		
PPE for informal recyclers		
Outsourcing of parts of the service		

Captured in **Tables 15 to 18** is the summary of the state of affairs observed in ELM. Animals are allowed access to waste sites due to lack of, or dilapidated fencing. Waste cover is not applied in most, and there is burning of waste. There are people reclaiming materials from the dump sites and unfortunately, they are not seen as a resource in terms of waste recovery and some waste bins have aged. The municipality does have draft by-laws that are not yet gazetted.

Municipal workers working outside of the community services directorates (CSD) do not have a clear understanding of what their role is in waste management even though provision of services is supposed to be done in an integrated fashion. There is no clear plan to treat garden refuse as a resource that needs to be properly managed. There is no recycling strategy in place and illegal dumping is adequately managed. However, there is a need to communicate with stakeholders how the recyclable waste in particular from business can be sorted on site, in this regard, Institutional and Social Development (I&SD) facilitation could assist.

There is no clear supervision, monitoring and evaluation mechanism in place. Job descriptions are not annually reviewed and Landfill auditing (internal and external) is not done. The municipality does not have established landfill monitoring committees. This poses a serious challenge with regard to continuous improvement planning and provincial reporting. How vertical integration and horizontal alignment of programs and policies are to be achieved was not adequately covered hence there is no regional program of action. Waste information is very sparse and even the estimates generated do not consider builders' rubble, hazardous waste, oils and ash as well as waste produced by state and private sector institutions.

Stakeholders were not clearly outlined, or their roles, needs and expectations were not clearly defined and yet there are stakeholders that can assist the organization. Standards of services per aspect of the service were not clearly defined or captured. Cleansing information (standards or use of photometry) was not covered at all.

Records' keeping has proved to be a challenge in some instances, e.g. waste received at the waste sites. The need for recycling infrastructure and strategic use thereof has not been captured

adequately since there has not been any assessment done about its need and desirability. No drop-off sites have been identified to cut down on transport costs and improvement on access to the service (garden refuse for example).

Table 15: Lady Frere Solid waste Disposal site

Position of the site	The site is situated approximately 2km North East of the Lady Frere CBD.
License	Licensed for closure
License Number and year of license	HO/A/14/L36/14 (2014)
Classification	G:C:B-
Access Control	There is a lockable gate and a vandalised guard house for control of entry. No access control personnel is available at the gate during normal working hours.
Is site fenced?	The site is properly fenced.
Operating hours	08:00-18:00, seven days a week (no notice at entrance to indicate such)
Sufficient buffer zone	The nearest household is at 140 metres North of the perimeter fence.
Type of operation	Cell method. Waste is not compacted and covered at the end of each day.
	Waste is continuously burned inside the site.
Equipment used on site	None
Estimated size of the site	Approximately 2 hectares (±20 000 square metres)
Estimated remaining life of the site	Only about a third of the site has been used.
Separation of fresh and contaminated water	None in place.
Groundwater monitoring	None
Volumes per month	Approximately 597,5 tons (using June 2016 calculations, though not entirely accurate).
Availability of cover material	Cover material is available but is not used.
End Use	The site will be closed and rehabilitated. No end use plan in place yet.

Table 16:Dordrecht Solid waste disposal site

Position of the site	The site is situated approximately 1km South East of the Dordrecht CBD.
License	Licensed for closure and conversion into a transfer station
License Number and year of license	HO/A/14/L048/14(2014)
Classification	G:C:B+
Access Control	No access control on site. The disposal site is not fenced, except for a portion which is to be used as a transfer station.
Is site fenced?	The site is not fenced.
Operating hours	N/A
Sufficient buffer zone	There is abundant buffer zone around the site. There is a single household at 163 metres West of the site's edge (near the R393 road).
Type of operation	The site is a disused borrow pit. Waste is not compacted and covered at the end of each day but is continuously burned inside the site.
Equipment used on site	None
Estimated size of the site	Not Applicable.
Estimated remaining life of the site	Not available.
Separation of fresh and contaminated water	None in place. There is a seasonal watercourse that runs through the site.
Groundwater monitoring	None
Volumes per month	Approximately 884 tonnes (using June 2016 calculations, though not entirely accurate).
Availability of cover material	Cover material is not available on site.
End Use	The site will be converted into a transfer station to supply the planned Lady Frere Regional Landfill Site.

Table 17: Indwe

Position of the site	The site is situated approximately 1km East of the Indwe CBD, along the R56 Road towards Elliot, next to the Waste Water Treatment Works (WWTW).
License	Not licensed but registered as a Transfer Station
License Number and year of license	Registration No: CHR/C(a)/2/2014
Classification	G:C:B+
Access Control	The site has an adequate access control.
Is site fenced?	The site is properly fenced with a lockable gate.
Operating hours	08:00-17:00, seven days a week (no notice at entrance to indicate such)
Sufficient buffer zone	There is sufficient buffer zone. No households within a 400 metre radius of the site.
Type of disposal	Cell method. Waste is dumped and burned inside an excavation and not compacted and covered at the end of each day.
Equipment used on site	None
Estimated size of the site	Approximately 1 hectare (10 000 square metres)
Estimated remaining life of the site	Not available.
Separation of fresh and contaminated water	None in place. No berms around the site.
Groundwater monitoring	None
Volumes per month	Approximately 964 tonnes (using June 2016 calculations, though not entirely accurate).
Availability of cover material	Not available. Waste is not covered.
End Use	The site will be converted into a transfer station to supply the planned Lady Frere Regional Landfill Site.



Figure 15: Illegal Dumping in Cacadu (Zakhele township)

1.11 Political or Governance / administrative Analysis and Role players

1.11.1 The role of the national government

The Department of Environmental Affairs and Tourism developed National Waste Management Strategy (NWMS) that is meant to be a framework for waste management and requires the translation of its goals and objectives into practice together with short term (five year) Action Plans for the following key elements of the strategy: Integrated waste strategy; Waste information systems; General waste collection; Waste treatment and disposal and Capacity building, education, awareness and communication.

The policy covers waste management related to domestic, commercial, agricultural, mining, industrial, metallurgical, power-generation, nuclear, medical and hazardous waste as well as litter. The policy addresses the management of the entire waste handling process, from generation to final disposal. The policy seeks to encourage among other things: Waste avoidance, minimization and prevention; Recycling and re-use; Treatment, handling, storage and final disposal of waste. DEA takes the overall responsibility for integrated environmental waste management in South Africa and has established guidelines; mechanisms

and structures that will facilitate execution of the functions devolved to the provincial and local government levels.

1.11.2 The role of provincial government

The DEDEAT is responsible for monitoring and enforcing waste management issues within the province. Specific functions to be carried out by provincial Government include:

- Develop a provincial environmental management plan;
- Reviewing the first generation integrated waste plans received from the municipality and assist in drafting where necessary;
- Monitor compliance with provincial implementation plans;
- Intervene if the implementation plans are not being compiled with;
- Develop provincial guidelines;
- Develop and enforce provincial regulations;
- Act on environmental hazards as required;
- Participate in the Committee for Environmental Co-ordination;
- Evaluate applications for disposal sites;
- Ensure that all industries have access to appropriate waste disposal facilities;
- Assist national government in drafting regulations and guidelines;
- Quality assurance of the Waste Information Systems;
- Developing and enforcing provincial regulations for general waste collection, and supporting local government in the implementation of waste collection services;
- Implementing and enforcing waste minimization and recycling initiatives, and in particular, promoting the development of voluntary partnerships with industry;

1.11.3 The role of provincial government

ELM are responsible for providing waste management services, and managing waste disposal facilities. Specific functions to be carried out by ELM include:

- Compiling and implementing general waste management plans, with assistance from provincial government;
- Implementing public awareness campaigns;
- Collecting data for Waste Information Systems;
- Providing general waste collection services and managing waste disposal facilities within areas of authority;
- Implementing and enforcing appropriate waste minimization and recycling initiatives, such as promoting the development of voluntary partnerships with industry, including the introduction of waste minimization clubs;
- Where possible, regional planning, establishment and management of landfill sites especially for regional based waste landfills

Emalahleni Local Municipality has by-laws which regulate waste management to ensure that there is general compliance with waste management aspects at municipal level. These by-laws are not enforced and are outdated and should be reviewed. The by-laws can be expanded to include aspects of waste minimization e.g. recycling and other issues as set out in the National Environmental Management: Waste Act, 2009 to promote integrated waste management.

Figure 16: Emalahleni organogram

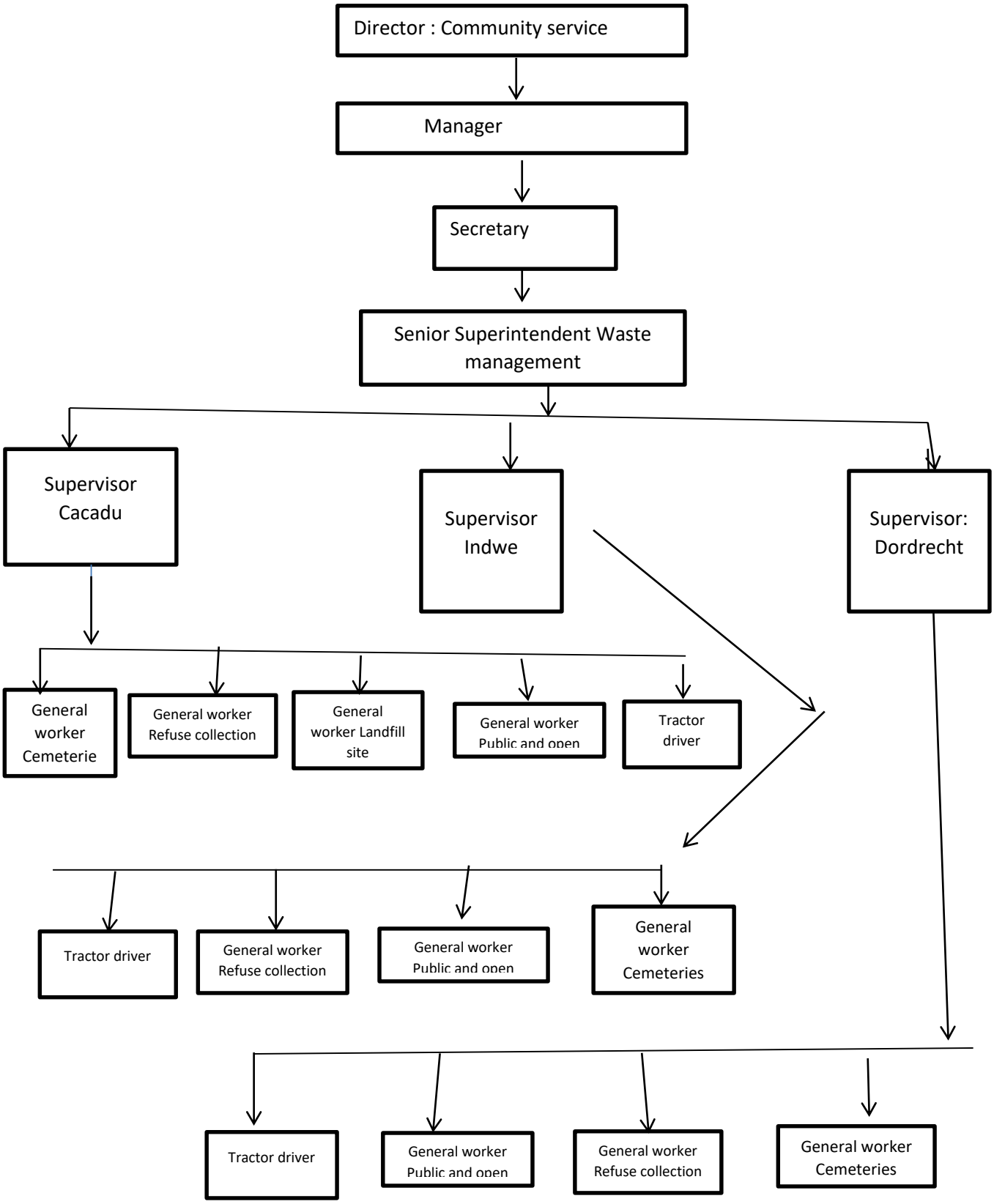


Figure 17 below depicts the role players and process involved in the planning and implementation of the ELM Integrated Waste Management Plan (IWMP)process

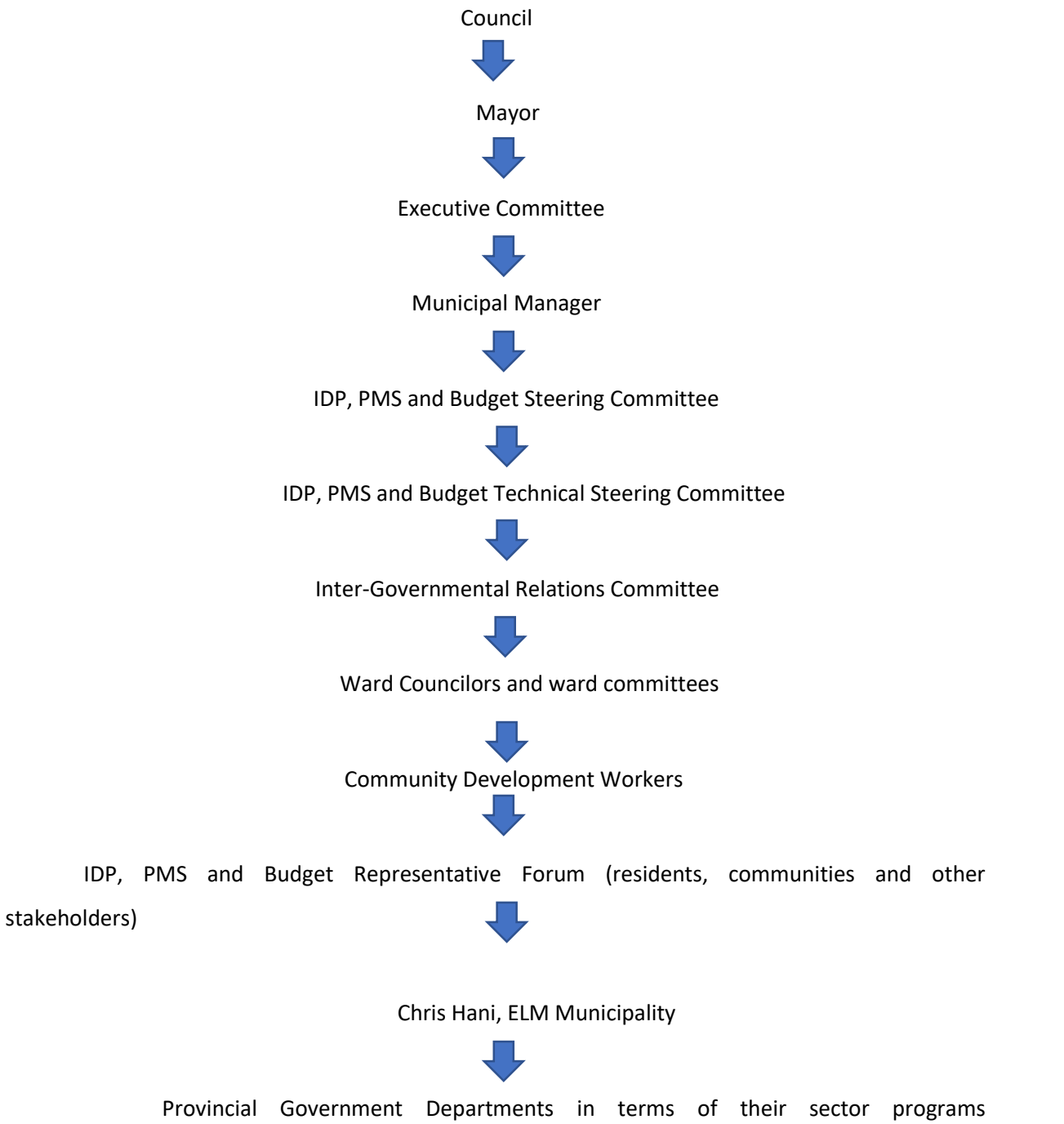


Figure 17: Role players and processes

1.12 SWOT Analysis

Strengths, Weakness, Opportunity and Threats Analysis				
Aspect	**Strengths**	**Weaknesses**	**Opportunities**	**Threats**
Social	Very qualified personnel	Migration of labour force	Staff retention plan and staff development	Pouching of staff by bigger municipalities or competition
Social	Very high waste ethic	Less job opportunities	Tourism boost for the region	More strain on the waste service
Social	There are waste awareness creation platforms	Platforms mainly focus on school kids and not the general public	Capacitate communities about government programs and laws through raising of awareness	Law breaking community members
Social	There are national and provincial standards	Staff that is not capacitated about national and provincial standards	Set up standards for service provision throughout the value chain of the service	Disgruntled communities about standard of service
Social	There are platforms for community engagement	Platforms are linked to IDP review processes	Engage community regarding their needs	Social unrest
Social	Youth is available and opportunities exist for them to participate in the value chain engaging other social partners	The issue is not assimilated into SDBIPs	Green economy opportunities should be explored	Limited role for youth in waste
Social	Customer care platforms do exist	Infrequent surveys done	Generate surveys and engage the clients on a regular basis	Limited prioritization of customer care
Social	There are informal waste reclaimers throughout the waste value chain	The reclaimers are not optimally used	Explore how best can these individuals participate in the value chain	Informal recyclers without signed indemnity agreements

Aspect	Strengths	Weaknesses	Opportunities	Threats
Technological/ infrastructural	There is awareness about available sources of funding	Such activities hardly find expression in SDBIPs	Programatize sourcing of funding for the required resources	Lack of resources
Technological/ infrastructural	Asset register is annually developed and reviewed by ELM	Waste services assets are not well captured in the asset register	Keep a GRAP 17 compliant asset register	Unclear infrastructure requirements or needs
Technological/ infrastructural	ELM does have equipment for the service	The age of some machinery could be a challenge	Regularly service equipment and keep a GRAP compliant asset register	Equipment breakdown
Technological/ infrastructural	GIS map work is used in ELM	Limited use of GIS	Include waste issues such as hot spots, infrastructure etc. in GIS map work	Lack of prioritization of waste in GIS map work
Economic	There is internal funding for the service	Resources are constrained due to various priorities	Develop business plans and source funding from respective sources	Lack of funding resources
Economic	There are recycling operators within the ELM	No formal relationship with the various recyclers	Develop a regional recycling study to foster collaboration between municipalities	No regional recycling plan
Economic	There is SAWIC as a platform	Information on business waste and rubble are not captured even though their material is a threat to landfill lifespan	Improve on sourcing and recording of data	Inaccurate data on recyclable and non-recyclable waste
Economic	The intention is there from all stakeholders to initiate recycling programs	Asset disposal policies of the various institutions could be a challenge regarding ICT equipment for an example	Collaboration between ELM and the various government institutions	No government institutions internal recycling programmes

Economic	Who some of the private sector actors in waste are known	They are not viewed as partners or a resource to government	Encourage private sector participation in our programs and assess their needs	Limited or no direct relationship with the market
Aspect	**Strengths**	**Weaknesses**	**Opportunities**	**Threats**
Economic	Equipment is available to handle garden refuse	Not enough planning around garden refuse	Means should be set up to collect and use garden waste	Unexplored use of garden waste in composting
Economic	ELM have communications unit that can partner with other stakeholders to address separation at source of waste	No clear waste communication program	An opportunity exist to start small in the urban centres with a lot of stakeholder mobilization	Separation at source not done
Environmental	There are avenues to improve the operations at the landfill site level	Poorly managed waste facilities	Set up monitoring committees and develop operations and maintenance plans	Under-prioritized waste facilities during planning
Environmental	There are platforms for planning	Planning outcomes do not lead to monitoring	Plan better with other stakeholders in mind	Uncoordinated service
Environmental	Yearly programs in place for removal of illegal dumps	The programs deal with the problem and not the cause	Engage Institutional and Social Development practitioners and/ or use the indigent database	Illegal dumps
Environmental	Al sites are permitted or licensed	Non-compliance with the permit requirements	Plan better, bringing the licensing authorities on board	Landfill sites are getting attention from authorities
Political/ governance	Weekly schedules are in place	No physical data in the form of pictures	Develop operations and maintenance plans that can be monitored making use of photographs and	No operations and maintenance plans for the service

			possibly get assistance from our business partners	
Political/ governance	Information is available	Data not used to improve cost effectiveness of the service	Keep records of the service and data acquired	Limited records keeping
Aspect	**Strengths**	**Weaknesses**	**Opportunities**	**Threats**
Political/ governance	IWMP is in place	No reporting on IWMP implementation in terms of the law	Opportunity to report on the implementation of IWMPs	No monitoring and review mechanisms
Political/ governance	There are national and provincial standard	Monitoring is limited	Set up local standards and capacitate personnel	No agreed upon local standards for the service
Political/ governance	There are platforms for stakeholder engagement	No agreed upon targets and focal points	Develop a communication plan with input from other stakeholders	No communication plan regarding waste issues
Political/ governance	Capacity to develop by-laws is there	Capacity to implement them is a challenge due to lack of resources such as personnel	Review by-laws	Review by-laws in place
Political/ governance	There planning processes in place	Lack of clarity about roles and assignments	Assign responsibilities to all stakeholders involved	Perception that waste management is wholly a community services directorate function and not a collaborative effort with housing, engineering or finance and LED

1.13 Risk Analysis

STRATEGIC OBJECTIVES	RISK TYPE	RISK CAUSES	RISKS	RISK CONSEQUENCES	MITIGATION MEASURES
Ensure improved communication between stakeholders	Social	Law-breaking community members	littering	Visual intrusion to the aesthetics of the area	Stakeholder cooperation and engagement
Ensure improved communication between stakeholders	Social	Disgruntled communities about standard of service	Social unrest	Damage to infrastructure	Continuous stakeholder engagement
Ensure improved communication between stakeholders	Social	Limited role for youth in waste	Huge wage bill	Depletion of limited resources	Engage youth in partnership other social partners in the waste collection service
Ensure improved communication between stakeholders	Social	Limited prioritization of customer care	Uninformed customers	Frustrated customers & littering	Engage in annual customer care programs
Explore green economy opportunities	Social	Informal recyclers without signed indemnity agreements	Litigation against local government	Unplanned expenditure against lawsuits	Formally engage informal reclaimers and sign indemnity agreements
Ensure there is sufficient budget to address issues	Technological	Lack of resources	Constrained service	A service with limited impact	Confirm resource requirements
Improve systems and mechanisms of LM operations	Technological	Unclear infrastructure requirements or needs	Under budgeting	Service provided with a lot of inadequacies	Develop responsive asset registers
Improve systems and mechanisms of LM operations	Technological	Equipment breakdown	Uncollected waste	Visual intrusion to the aesthetics of the area	Regularly service the equipment & develop responsive asset registers

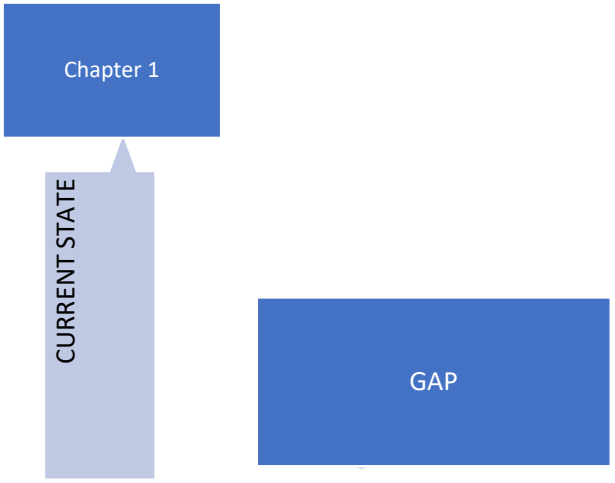
STRATEGIC OBJECTIVES	RISK TYPE	RISK CAUSES	RISKS	RISK CONSEQUENCES	MITIGATION MEASURES
Ensure improved waste information management	Technological	Lack of prioritization of waste in GIS map work	Constricted planning	Huge implementation budget	Include use of GIS in service planning
Build technical capacity and awareness	Economic	Lack of funding resources	Insufficient funding of programmes	Poor level of service	Capacitation of councillors and other members of leadership about waste and environmental issues and source other funding opportunities
Explore green economy opportunities	Economic	No regional recycling plan	Limited access to the recycling market	Recyclable materials pilling up in landfills	Develop a regional recycling plan
Ensure improved waste information management	Economic	Inaccurate data on recyclable and non-recyclable waste	Inadequate planning	Misleading reports	Adequately plan with the end in mind
Ensure improved communication between stakeholders	Economic	No government institutions internal recycling programmes	Poor cooperation with stakeholders	Sporadic cooperation	Document a clear program of action for the district and the LM
Explore green economy opportunities	Economic	Limited or no direct relationship with the market	Unclear waste reduction strategies	Eclectic and ineffective response strategies	Improve on research
Explore green economy opportunities	Economic	Unexplored use of garden waste in composting	limited consumer care and awareness and lost opportunity of composting	No customer care strategies implemented and lost opportunity of composting	Improve strategies to deal with customer awareness and care and research on the topic of composting

Explore green economy opportunities	Economic	Separation at source not done	Lost avenue for waste reduction	Recyclables get comingled with other materials that spoil its character	Set up standards at each level of the service and research how best to implement the strategy
STRATEGIC OBJECTIVES	**RISK TYPE**	**RISK CAUSES**	**RISKS**	**RISK CONSEQUENCES**	**MITIGATION MEASURES**
Improve systems and mechanisms of LM operations	Environmental	Poorly managed landfill sites	Litigation of council by members of the public or environmental scorpions	Penalties awarded against council	Develop operations and maintenance plans and fund their execution
Improve systems and mechanisms of LM operations	Environmental	Poor levels of service	Nuisance to the public	Customer complaints	Ensure there are emergency response strategies in place
Improve systems and mechanisms of LM operations	Environmental	Illegal dumps	Nuisance to the public	Customer complaints	Ensure there are proper response strategies in place
Improve systems and mechanisms of LM operations	Environmental	Landfill sites are getting attention from authorities	Nuisance to the public	Customer complaints, erosion, rodent infestation	Ensure proper landfill management
Ensure improved communication between stakeholders	Political/ governance	Non alignment of LM plans with those of the district	Intermittent programme of support	Eclectic program of support	Implement a comprehensive strategy
Improve systems and mechanisms of LM operations	Political/ governance	No operations and maintenance plans for the service	Poor levels of service	Customer complaints	Develop proper operations and maintenance plans for the service
Improve systems and mechanisms of LM operations	Political/ governance	Limited records keeping	Compromised cost containment measures	Ballooned expenditures	Operations and maintenance plans for the service

Improve systems and mechanisms of LM operations	Political/ governance	No monitoring and review mechanisms	Intermittent programme of support	Eclectic program of support	Develop monitoring and review mechanisms
STRATEGIC OBJECTIVES	**RISK TYPE**	**RISK CAUSES**	**RISKS**	**RISK CONSEQUENCES**	**MITIGATION MEASURES**
Improve systems and mechanisms of LM operations	Political/ governance	No agreed upon regional standards for the service	No monitoring	Eclectic program of support	Ensure that agreed upon regional standards for the service are in place
Ensure improved communication between stakeholders	Political/ governance	No communication plan regarding waste issues	Intermittent programme of support	Eclectic program of support	Ensure that a communication plan regarding waste issues is in place
Encourage law enforcement and compliance	Political/ governance	No by-laws in place	Law-breaking by community members	Visual intrusions to the aesthetics of the region	Encourage development of by-laws place
Improve systems and mechanisms of LM operations	Political/ governance	No audits	No monitoring	Poor levels of service	Ensure that audits are carried out
Improve systems and mechanisms of LM operations	Political/ governance	Perception that waste management is wholly a community services directorate function and not a collaborative effort with housing, engineering or finance and LED	Limited role played by other stakeholders	Limited budgets	Change the perception that waste management is wholly a community services directorate function and not a collaborative effort with housing, engineering or finance and LED
Improve systems and mechanisms of ELM operations	Political/ governance	Government planning that is not integrated	Poor cooperation between government institutions	Ineffective government intervention	Collaborative planning by government

2. Chapter 2: Gap Analysis

Based on the situation analysis above, the ELM should consider closing the gap between the current state as presented in chapter 1, and the desired state below



FUTURE

Set up standards for service provision throughout the value chain of the service

Develop operations and maintenance plans that can be monitored making use of photographs and possibly get assistance from our business partners

Keep records of the service and data acquired

Report on the implementation of IWMP

Set up waste services standards and capacitate personnel

Capacitate communities about government programs and laws through raising of awareness

Set up standards for service provision throughout the value chain of the service

Ascertain what the community issues are

Green economy opportunities should be explored

Generate surveys and engage the clients on a regular basis

Explore how best can private individuals participate in the value chain

Programatize sourcing of funding for the required resources

Keep a GRAP 17 compliant asset register

Regularly service equipment and keep a GRAP compliant asset register

Include waste issues such as hot spots, infrastructure etc. in GIS map work

Develop business plans and source funding from respective sources

Develop a regional recycling study to foster collaboration between municipalities

Improve on sourcing and recording of data

Collaboration between ELM and the various government institutions

Encourage private sector participation in our programs and assess their needs

Means should be set up to collect and use garden waste

An opportunity exist to start small garden refuse programs in the urban centers with a lot of stakeholder mobilization

To set up monitoring committees and develop operations and maintenance plans

Plan better with other stakeholders in mind

Engage Institutional and Social Development practitioners and/ or use the indigent database

Plan better, bringing the licensing authorities on board

Develop operations and maintenance plans that can be monitored making use of photographs and possibly get assistance from our business partners

Develop a communication plan with input from other stakeholders

Review by-laws

Monitor our landfill sites

Assign responsibilities to all stakeholders involved

Chapter 3: Objectives, Strategies and Targets

This chapter deals with the development of objectives, strategies and targets. It deals with the translation of the ideal state or laws and policies into practicable everyday operations of the ELM. In other words, it addresses how the ELM translates the laws of the country into its year to year programs. Goals and objectives were taken from the National Waste Management Strategy and the Provincial Waste Management Plan and those of the district in an effort to foster vertical and horizontal consideration. The local municipality's goals under review were also taken into consideration in coming up with the goals and objectives. Indicators for each strategy were drawn up as well as standards for each target

Priority area or focus	Objective	Strategy	Indicator	Standard	Target
Goal 1	**Promote waste minimization, re-use, recycling and recovery of waste**				
Implementation	**1. Explore green economy opportunities in the region**	1.1 Develop a feasibility report regarding in-house program addressing waste generated by government	1.1 Feasibility report in place	1.1 Consultative process should be undertaken. A report with strategies, resource requirements and recommendations should be developed	1.1 Feasibility report concluded by end of 2022
		1.2 Operationalise the feasibility report regarding in-house program addressing waste generated by government	1.2 Report on local municipalities coordinating the execution of the project	1.2 All government institutions participating in the program with private sector participation. CHDM to coordinate and monitor.	1.2 50 % of government stakeholders participating by 2022 and 100% by 2025
Planning	**1. Explore green economy opportunities in the region**	1.3 Undertake waste characterization project for all three towns.	1.3 Audit report with recommendations	1.3 Assess waste disposal of 30% of the residents, businesses, institutions and industries. Subsequent to that, identify waste being disposed of and then identify opportunities for outreach and education	1.3 Waste characterization audit report in place by 2021/2022

Priority area or focus	Objective	Strategy	Indicator	Standard	Target
Goal 1	**Promote waste minimization, re-use, recycling and recovery of waste**				
Planning	**1. Explore green economy opportunities in the region**	1.4 Encourage private sector participation in our forums	1.4 Sent invitations to private sector	1.4 Private sector participation in our forums or engagement of private sector for mutual beneficiation	1.4 Invitations sent per quarter from 2021/2022
Planning	**1. Explore green economy opportunities in the region**	1.5 Encourage youth and women participation in our programmes	1.5 Report on ELM utilising women and youth in improving waste collection services	1.5 Youth and women used to place waste at agreed upon sites for the municipal trucks to collect in order to improve cost effectiveness of waste collection and turnaround times. Working tools should be availed to the participants	1.5 Pilot programs to be in place by 2022 throughout the district
	1. Explore green economy opportunities in the region	1.6 Draw up a list of formal & informal recyclers	1.6 A database of stakeholders in place	1.6 Formalise the relationship with reclaimers Register of participants with their IDs. The aim is to ensure that the district and its LMs understands the role and interest of each stakeholder. We need to have a database of role players in the ELM and such information would assist in developing local strategies (e.g. used oil collectors)	1.6 List of participants completed by 2021
Implementation	**1. Explore green economy opportunities in the region**	1.7 Draw and sign recycler indemnity agreements	1.7 Drawn up and signed indemnity agreements	1.7 Indemnity agreements should be drawn up by our local municipalities to prevent litigation in case of unforeseen circumstances	1.7 Indemnity agreements to be signed by 2021
Implementation	**1. Explore green**	1.8 Purchase	1.8 Protective	1.8 As part of our social	1.8 ELM to annually

	economy opportunities in the region	protective clothing for participants in in informal recycling	clothing for participants purchased	responsibility, protective clothes should be purchased meeting health and safety requirements	purchase protective clothing by 2022
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 1	**Promote waste minimization, re-use, recycling and recovery of waste**				
Planning	**1.Explore green economy opportunities in the region**	1.9 Develop a regional recycling strategy	1.9 Regional recycling study report in place	1.9 Market requirements must be understood, stakeholder interests and resource requirements must be outlined	1.9 Regional recycling study report to be in place by 2022
Implementation	**1.Explore green economy opportunities in the region**	1.10 Pilot separation at source initiatives in the district	1.10 Separation at source strategy in place in ELM	1.10 From a small scale the ELM should implement a formal or planned pilot program and expand from lessons learnt.	1.10 Pilot projects should start by 2023
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 2	**Ensure the effective and efficient delivery of waste services.**				
Planning	**2. Ensure improved communication between stakeholders**	2.1 Develop and agree on a program of action for the next 5 years with the district	2.1 Agreed plan of action with the district	2.1 The district to agree with its stakeholders what the priorities are for the district taking into account stakeholder needs and interests	2.1 Action plan in place by 2021
Planning	**2. Ensure improved communication between stakeholders**	2.2 Develop a communication strategy/ plan or matrix relating to DM-LM cooperation	2.2 A communication plan or matrix in place	2.2 Communication plan should highlight issues that the LMs and the district want to communicate internally and externally.	2.2 Communication plan or matrix in place by 2021

Implementation	**2. Ensure improved communication between stakeholders**	2.3 Implement the communication strategy/plan or matrix	2.3 Report on communication plan	2.3 The communication plan should also assist in terms of performance monitoring	2.3 Report on communication plan annually from 2021
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 2	**Ensure the effective and efficient delivery of waste services.**				
Implementation	**2. Ensure improved communication between stakeholders**	2.4 Explore the use of various media platforms to address service delivery issues	2.4 Evaluation report of the most efficient and effective instruments of communication with clients	2.4 Complaints from the public are part and parcel of service provision hence it is important for us to know what the public says about the quality of our service	2.4 Evaluation report in place by 2021
Monitoring	**2. Ensure improved communication between stakeholders**	2.5 Annually do customer care surveys	2.5 Annual Survey report	2.5 Customer care is the bedrock of any community service. In line with council approved framework surveys should be annually done by ELM	2.5 Starting from 2021
Monitoring	**2. Ensure improved communication between stakeholders**	2.6 Annually conduct staff satisfaction surveys	2.6 Annual Survey report	2.6 In line with council approved framework, surveys should be annually done by ELM	2.6 Starting from 2021
Implementation	**2. Ensure improved communication between stakeholders**	2.7 Use Institutional and Social Development practitioners to address some of the recurring issues	2.7 Appointed ISD practitioners in handling some recurring issues	2.7 ISD should assist in issues such as customer satisfaction surveys and handling of illegal dumps. ISD would even assist in setting what's up groups for addressing service delivery issues	2.7 Appointed internal and/ or external ISD practitioners by 2021

Monitoring	**2. Ensure improved communication between stakeholders**	2.9 Annually report IWMP implementation to provincial authorities	2.9 Annual report on year's performance	2.9 Annual reporting to provincial authorities is a legal requirement and should be met.	2.9 Annually submit performance reports to the province starting from 2021
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 2	**Ensure the effective and efficient delivery of waste services.**				
Monitoring	**2. Ensure improved communication between stakeholders**	2.10 Utilise regional environmental technical forum for peer review	2.10 Local municipality quarterly reports about their IWMP implementation	2.10 The structure would assist in terms of annual review of performance and forward planning for the district	2.10 Local municipality reporting quarterly as from 2020/2021
Monitoring	**2. Ensure improved communication between stakeholders**	2.11 Establish landfill monitoring committees per town	2.11 Landfill monitoring committee in place per town	2.11 These structures should comprise of various actors within municipalities inclusive of not only community services but LED, finance and engineering too	2.11 Landfill monitoring committee in place per town by 2021
Implementation	**2. Ensure improved communication between stakeholders**	2.12 Participate in the provincial waste forum	2.12 Attendance register reflecting participation	2.12 It is a useful structure for individuals to understand and get latest government plans and priorities. It should be compulsory for all to attend	2.12 local government Officials to participate quarterly as from 2020/21
Monitoring	**3.Improve systems and mechanisms in ELM operations**	3.1 Set up monitoring and evaluation mechanisms	3.1 Monthly Monitoring report	3.1 Annual municipality IWMP review by DM should be prioritised	3.1 Monitoring and evaluation report in place by 2021

Review	**3. Improve systems and mechanisms**	3.2 Evaluate the cost effectiveness of the service	3.2 Report on monthly costs and expenditures of the various elements of the service	3.2 Transport routes mapping and records of past expenditures e.g. fuel consumption per month, on protective clothing and refuse bags) should be prioritised	3.2 Provide quarterly reports
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 2	Ensure the effective and efficient delivery of waste services.				
Planning	**3. Improve systems and mechanisms**	3.3 Set up standards for provision of the service	3.3 Operations management plans in place supported by photographic pictures of the service	3.3 Operations management plans should be developed, not just focusing on collection schedules but should include weekly and monthly generation of reports. ELM should have relations with local business people in order to understand their waste patterns (used oil, batteries, scrap metal etc.) Monthly audits should be done throughout the various stages of the service. Photographic pictures should be used and areas be categorized in terms of level of service	3.4 Operations management plans in place by 2021

Planning	**3. Improve systems and mechanisms**	3.5 Review HR plans	3.5 Reviewed situation responsive HR plans	3.5 The plans should reflect the current input requirements of ELM Health Check-up programs should conform to law requirements. This would be in compliance with OHS	3.5 Responsive HR plans in place by 2021
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 2	Ensure the effective and efficient delivery of waste services.				
Monitoring	**3. Improve systems and mechanisms**	3.7 Annually perform internal and external landfill audits	3.7 landfill auditing report	3.7 Auditing should be linked to setting of standards, operational plans and weekly reporting	3.7 landfill auditing reports by 2021
Planning	**3. Improve systems and mechanisms**	3.8 Establish landfill operations and maintenance	3.8 Established landfill operations and maintenance plans	3.8 Operations and maintenance plans assist in terms of monitoring and regulating operations	3.8 LM landfill operations and maintenance plans in place by 2021
Implementation	**4.Build technical capacity and awareness**	4.1Provide capacity building opportunities for councillors and other decision makers.	4.1 Capacity building program for decision makers	4.1 Ensure all involved in decision making are apprised of the need and requirements of the service.	4.1 Program in place by 2021
Implementation	**4. Build technical capacity and awareness**	4.2 Assess training needs	4.2 Report submitted to HR about training needs at the DM and LM level	4.2 This process should involve individuals proposing areas on which they should be capacitated as well as supervisors proposing areas on which subordinates should be capacitated	4.2 Report submitted by 2021

Priority area or focus	Objective	Strategy	Indicator	Standard	Target
Rehabilitation	**4. Build technical capacity and awareness**	4.4 Encourage participation in greenest municipality competition,	4.4 Submissions made and letter of request for municipality to participate written up	4.4 Municipality should annually participate in the competition	4.4 Annual participation
Goal 2	**Ensure the effective and efficient delivery of waste services.**				
Implementation	**4. Build technical capacity and awareness**	4.5 Conduct Enviro-awards for schools	4.5 Report on the developed program	4.5 The existing relations there are with schools should be encouraged	4.4 Annual program
Planning	**5. Ensure improved waste information management**	5.1 Record waste received or leaving the landfill	5.1 Electronic or manual recording done	5.1 Manual estimations should be done where there are no weigh bridges	5.1 Continuous recording as from 2021
Monitoring	**5. Ensure improved waste information management**	5.2 Record operations	5.2 Monthly operations report on inputs usage	5.2 Records assist in terms of planning in order for our services to be effective and efficient	5.2 Continuous reporting as of 2021
Planning	**5. Ensure improved waste information management**	5.3 Use GIS to optimise collection routes and for registering hotspots	5.3 IWMP with routes and hotspots registered on GIS maps	5.3 Use of GIS at the local level should be optimised in order to enhance planning	5.3 IWMPs to capture GIS information by 2021/22
Planning	**5. Ensure improved waste information management**	5.4 Encourage live GPS and photographic images usage in service provision	5.4 Monthly reports to capture images of work performed	5.4 Ensure an effective and efficient service. Pictures could be taken of the area being serviced, GPS coordinates gathered and information submitted to the administrators	5.4 Continuous reporting as of 2021

Planning	**5. Ensure improved waste information management**	5.5 Assess technological and infrastructure requirements	5.5 IWMP with technological and infrastructure requirements	5.5 Items such as shredders, weighbridges, access to electricity and bailers should be assessed	5.5 Feasibility report which captures technological and infrastructure requirements by 2023
Priority area or focus	**Objective**	**Strategy**	**Indicator**	**Standard**	**Target**
Goal 3	**Ensure sound budgeting and financial management for waste services**				
Planning	**6. Ensure there is sufficient budget to address issues**	6.1 Source funding from possible partners	6.1 Business plan in place per financial year	6.1 Business plans should be developed per identified issue that can be funded through municipal support providers. The community services department should be forthcoming regarding their needs in order for the ELM and the DM to support	6.1 Business plans to be developed as from 2021
Goal 4	**Provide measures to prevent pollution and rehabilitate contaminated land**				
Planning	**7. Encourage law enforcement and compliance**	7.1 Encourage By-laws review	7.1 Report on by-law formulation	7.1 Gazetted by-law	7.1 Gazetted by-law by 2025
Planning	**7. Encourage law enforcement and compliance**	7.2 Implement illegal dumping sites removal program	7.2 Report on illegal dumping sites removal program	7.2 The ISDs, EPWP personnel and indigent database would come in handy in addressing the problem. This implies that there should be involvement of other stakeholders such as ward committees and Dept of Social Development.	7.2 One report per year from 2021

4. Chapter 4: Monitoring Program

Section 13(3) of the Waste Act requires that annual performance reports prepared in terms of Section 46 of the Municipal Systems Act must contain information on the implementation of the municipal IWMP, including but not limited to:

- The extent to which the IWMP 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 undertaken to secure the efficient delivery of waste management services.
- 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.
- The measures taken to make necessary amendments to the plan.

ELM should determine whether it has complied with the above requirements when reporting on the implementation of the IWMP.

4**. Chapter 4: Implementation Plan**

No.	Action	Priority ranking	2021/22	2022/23	2023/24	2024/25	2025/26	Funding cost PA	Funding source
Objective 1:	**Explore green economy opportunities in the ELM**								
1.1	Develop a feasibility report regarding in-house program addressing waste generated by government	High	x					50 000	internal
1.2	Operationalise the feasibility report regarding in-house program addressing waste generated by government	Medium		x	x	x	x	50 000	internal
1.3	Do thorough waste characterization focus on 30% of recipients of service as per stats SA requirements	High	x					45 000	internal
1.4	Encourage private sector participation in ELM forums	Medium	x					Nil	N/A
1.5	Encourage youth and women participation in our programmes	Medium		x	x	x	x	100 000	N/A
1.6	Register informal and formal recyclers and waste transporters	Medium	x					Nil	N/A
1.7	Draw up and sign informal recycler indemnity agreements	Medium	x					Nil	N/A
1.8	Purchase protective clothing for Participants in Informal recycling	Low		x					internal
1.9	Develop a recycling study	High		x				200 000	internal
1.10	Pilot separation at source initiatives and drop off sites	Medium			x	x	x	100 000	internal

No.	Action	Priority ranking	2021/22	2022/23	2023/24	2024/25	2025/26	Funding cost	Funding source
Objective 2 :	**Ensure improved communication between stakeholders**								
2.1	Develop with ELM a program of action for the next 5 years	High	x					Nil	N/A
2.2	Develop a communication strategy/ plan or matrix relating to DM-LM cooperation	High	x					60 000 if done externally	internal
2.3	Implement the communication strategy/plan or matrix	High	x	x	x	x	x	Nil	N/A
2.4	Explore the use of various media platforms to address service delivery issues	Medium	x					Nil	N/A
2.5	Annually do Customer care surveys	Medium	x	x	x	x	x	Nil	N/A
2.6	Annually conduct Staff satisfaction surveys	Medium	x	x	x	x	x	Nil	N/A
2.7	Use Institutional and Social Development practitioners to address some of the recurring issues	Medium		x	x	x	x	100 000	Internally
2.8	Annually report IWMP implementation to provincial authorities	High	x	x	x	x	x	Nil	N/A
2.9	Utilise the climate change forum for peer review	Low	x	x	x	x	x	Nil	N/A
2.10	Establish landfill monitoring committee	High	x					Nil	N/A
2.11	Participate in the provincial waste forum	High	x	x	x	x	x	Nil	N/A

No.	Action	Priority ranking	2021/22	2022/23	2023/24	2024/25	2025/26	Funding cost	Funding source
Objective 3:	**Improve systems and mechanisms of operations**								
3.1	Set up implement monitoring and evaluation mechanisms	High	x	x	**x**	**x**	**x**	Nil	N/A
3.2	Do a full cost accounting for the service	High	x	x	x	x	x	Nil	N/A
3.3	Set up standards for provision of the service per local municipality	High	x					Nil	N/A
3.4	Review HR plans	High	x					Nil	N/A
3.5	Include asset register information in reviewed IWMP	Medium			x			Nil	N/A
3.6	Annually perform internal and external landfill audits	High	x	x	x	x	x	Nil	N/A
3.7	Establish landfill operations and maintenance plans for all facilities			x				100 000	internal
Objective 4:	**Build technical capacity and awareness.**								
4.1	Provide capacity building opportunities for councillors and other decision makers.	Medium	x	x	x	x	x	200 000	internal
4.2	Assess training needs	Low	x	x	x	x	x	Nil	N/A
4.3	Engage schools and communities regarding waste management	Low	x	x	x	x	x	100 000	internal
4.4	Encourage participation in greenest municipality competition,	Medium	x	x	x	x	x	Nil	N/A
4.5	Conduct Enviro-awards for schools	Medium	x	x	x	x	x	100 000	internal

No.	Action	Priority ranking	2021/22	2022/23	2023/24	2024/25	2025/26	Funding cost	Funding source
Objective 5:	**Ensure improved waste information management**								
5.1	Record waste received or leaving the landfill	Medium	x	x	x	x	x	Nil	N/A
5.2	Formally record operations	Medium	x	x	x	x	x	Nil	N/A
5.3	Use GIS to optimise collection routes and for registering hotspots	Medium	x					100 000 if done externally	internal
5.4	Encourage use of photography in service provision	Medium	x	x	x	x	x	Nil	N/A
5.5	Establish a weighbridge in Cacadu	Medium	x	x	x			Nil	N/A
Objective 6:	**Ensure there is sufficient budget to address issues**								
6.1	Source funding from possible partners	Medium	x	x	x	x	x	Nil	N/A
6.2	Formalise and improve existing waste sites	High		x				15 mil	MIG
6.3	Purchase Personal Protective Paraphernalia	High	x	x	x	x	x		internal
Objective 7:	**Encourage law enforcement and compliance**								
7.1	Develop by-laws	Low					x	200 000	internal
7.2	Implement illegal dumping sites removal program	High	x	x	x	x	x	50 000	Internal

5. Chapter 5: Conclusions and Recommendations

In reviewing the ELM IWMP and Developing a new one, the objectives of the ELM had to be aligned with those of the province and the district. Due to time and budgetary constraints there was no full cost accounting review of the waste service and ball-park estimates were made. This should be urgently addressed to ensure that the tariffs charged are sufficient for the waste services being provided and the budget accordingly allocated. Waste disposal at the landfill must be included into the tariff structure if not currently done. A reconciliation of the billing system and collection services should be done. The frequency of collection services given to individual businesses needs to be compared to the current billing system to ensure that all households and businesses are being billed appropriately. It is possible that some businesses are being undercharged due to the non-alignment of collection frequency and costs. Greater communication between the finance department, responsible for tariffs and billing, and the waste department will facilitate the above processes. The required budget for IWMP implementation must be determined and compared with the approved waste management budget and projected budgets annually so that funding can be sought for projects that will not be covered by the department's annual budget.

Waste characterization is quite an onerous exercise and should be prioritized as a project in the current financial year in order to see if there is any value in investing in the recycling program. Such an exercise should be linked to identifying the various sources of waste to their source in order to improve waste reduction and minimization projects. Since most of the waste is burned at the landfills it would be advantageous to separate recyclable waste at source. This would therefore include assessing waste disposal of 30% of the residents, businesses, institutions and industries. Subsequent to that, identify waste being disposed of and then identify opportunities for outreach and education. The municipality should have a database of waste actors in its area of jurisdiction.

Photometry and fuel consumption should be some of the methods used for monitoring and evaluation of the waste function. The level of communication with stakeholders should be monitored in relation to complaints received and the results of the monitoring program. A waste and environmental forum comprising of the administration and political arms of the organization should be used as a means of monitoring the service and should seat at a minimum of once a month. This should be apart from the weekly management meetings that should strictly monitor budget and

staff efficiency. By-laws should be enacted for the service regardless of the high levels of compliance by all stakeholders.

The urban areas of Emalahleni local municipality are some of the cleanest in the country and such a standard should steadfastly be maintained. Communication tools such as walky-talkies should be utilised and the traffic enforcement arms of the organization should assist the department in indicating where challenges are or hotspots in order to reduce the turn-around times for addressing pollution incidences. The environment and waste services management should form part of other directorate's meetings in order to foster integration. For an example, when new houses are to be built, the directorate's requirements should be clearly outlined. The municipality should consider up-grading its current waste facilities and budget for such projects in advance. At this present moment there is no need to establish new facilities, since land availability is a challenge.

The asset register of the organization must be updated annually in order for the directorate to plan ahead properly regarding its assets. The remaining life of its assets should be clearly stated. Provision amounts of waste service assets such as closure and/ or rehabilitation of waste sites should be clearly stated in municipal annual financial statements. Upgrading of all waste sites should be prioritized including but not limited to setting up of a weighbridge and installation of electricity (Renewable) at the Cacadu landfill site.

This IWMP will require council approval prior to it being adopted and implemented by the Cleansing Services Sub-directorate. The plan will also, as prescribed by Chapter 3 of the National Environmental Management: Waste Act (59 of 2008), require endorsement by the provincial environmental Member of Executive Council. The submission of the final IWMP to the MEC for DEDEAT to endorse and the MEC for Local Government to endorse this document is dependent on, primarily, the necessary municipal channels having been followed, in terms of Section 29 of the Municipal Systems Act (32 of 2000).

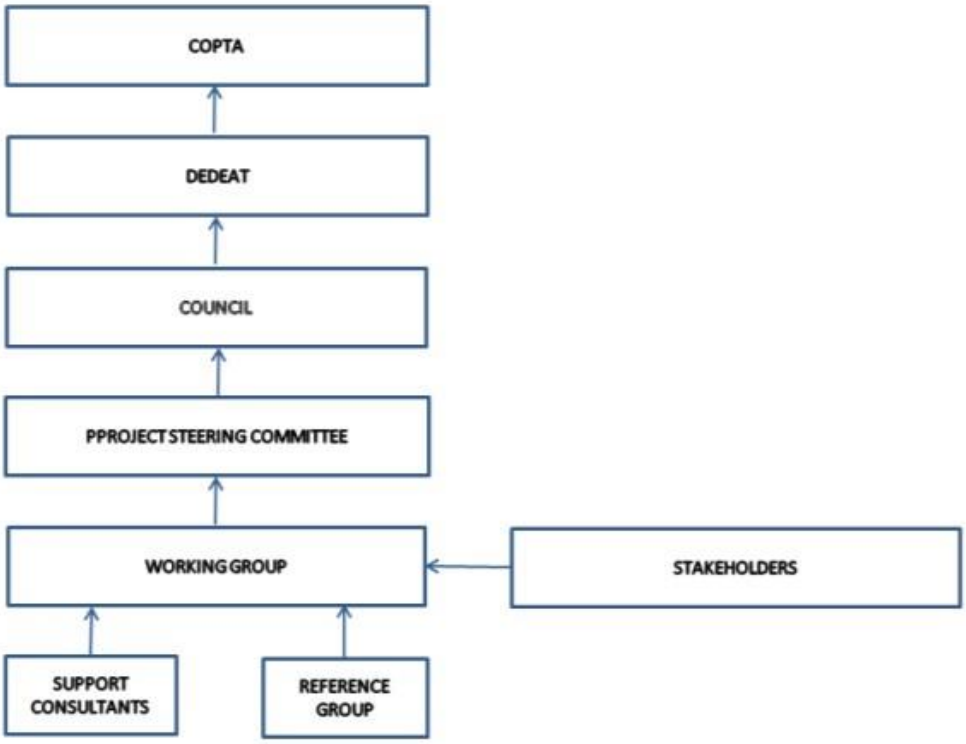


Figure 18: The process of IWMP endorsement

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CACADU






LADY FRERE LANDFILL S
(LICENSED FOR CLOSURE
AND REHABILITATION)
CLASS: G.C.B+
LICENCE NO: HO / A / 14 / L48 / 14
TYPE OF WASTE ACCEPTED: GENERAL WASTE C
HOURS OF OPERATION: MONDAY - FRIDAY
TIME: 6AM - 6PM
TELEPHONE NUMBER: 047 878 2000
ADDRESS: 37 INDWE RD, LADY FRERE, 5410
CONTACT PERSON: MS N. TSHABENI
DESIGNATION: WASTE MANAGEMENT PRACTITI
CONTACT NUMBER: 083 724 4305
NO UNAUTHORISED ENT







DORDRECHT









INDWE









