



Amahlathi LM Integrated Waste Management Plan Review 2022-2027



ENZOKUHLE ENTERPRISE

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Executive Summary

The Amahlathi Local Municipality (ALM) is a Category B municipality situated in the Amathole District of the Eastern Cape Province. It is bordered by the Chris Hani District to the north, Buffalo City Metro to the south, Mquma and Great Kei to the east, and Raymond Mhlaba to the west. It is an administrative area, and one of six municipalities in the district. Amahlathi is an isiXhosa name that means 'a place where many trees are grouped together, a forest'. Forests are a key feature of the area. The main Towns in ALM are Cathcart, Kei Road, Keiskammahoek, and Stutterheim. The main economic sectors are Community services, Finance, Manufacturing, Trade, Agriculture, Construction, and Transport. The ALM has developed this integrated waste management plan (IWMP) as per the requirements of the National Environmental Management Waste Act (59 of 2008) to guide waste planning for the period 2022-2027. A situation analysis was undertaken to understand current waste generation and management practices in ALM. With a population of 99, 500 in 2016, current waste generation is estimated to be 66 tons.

Approximately 25% of the population is receiving a weekly refuse removal service (Stats SA community survey, 2016). A waste characterisation was undertaken to investigate the percentage composition of different waste components as well as to get an overall understanding the waste ethic of the region. The characterisation found the largest component of the domestic waste stream was organic waste (35% of the waste stream), which comprises food and garden waste. A total of 40% of the domestic waste stream sample was composed of recyclable materials indicating potential for increasing resource recovery for the Municipality. Stakeholders were identified as well as limitations of the organization. Key amongst the limitations was the limited resources the organization has and the overreliance on external sources of data. The exact information per town was not available in relation to the socio-economic assessment of the region and the overall municipal data from Statistics South Africa was used in this project. C

Chapter 2 focused on the Gap analysis as informed by documentary review, site visits and inputs from municipal workers. The gap analysis identified many goals or targets to which the municipality must endeavour to reach.

Chapter 3 focused on Objectives and Strategies which were developed in an effort to come up with the most cost –effective approaches to the service. These were developed in response to the SWOT and Risk Analysis done in chapter 1 or situation analysis chapter. The Gap phase of Chapter 2 also guided the focus of this chapter. There were four (4) goals identified and seven (7) strategies linked to the goals and the NWMS and other environmental instruments of government.

Chapter 4 provided us with an implementation plan for the next 5 years. Of priority over the next 5 years

- Avail resources (Technological and human)
- Improve operations of landfills and assign committees to oversee operations
- Communication has been identified as one of the priorities for the region
- Outsourcing fundraising is one of the priorities highlighted in the project
- Landfilling less strategies have been highlighted in order to reduce landfill costs.

The current budget of R 15 546 671 is focusing on personnel and a concerted effort should be made to prioritise reduce, re-use and recycling activities as highlighted in the situation analysis. More robust stakeholder engagement has been the core of the implementation plan.

Chapter 5 made conclusions and made several recommendations to the organization. The location of the municipality has been highlighted as a strength in terms of its comparative advantage. The Covid pandemic stifled the development of this plan since access to the stakeholders was limited. The following were identified as important stakeholders to consult:

- Traditional and Government authorities;
- Recyclers;
- Community based organizations such as churches, youth environmental groups, formalized Non-governmental organizations;
- Political leaders e.g. ward councillors; MEC
- General members of the public
- Businesses; and
Industry associations

The draft document was published in the 23/02/22 Daily dispatch issue and the response was very poor to say the least. Inputs on the final document were received from ALM partners and were considered in drafting this document. The municipality is obligated to report on the progress of implementing this plan on a yearly basis in accordance with Section 13 of NEMWA. Before this IWMP can be implemented it must be subjected to a public participation process undertaken by the municipality and endorsement by the Municipal Executive Council.

List of Acronyms

ADM	Amathole District Municipality
ALM	Amahlathi Local Municipality
BRR	Basic Refuse Removal
BCMM	Buffalo City Metropolitan Municipality
CAPEX	Capital Expenditure
CBD	Central Business District
CBO	Community Based Organisation
CMIP	Consolidated Municipal Infrastructure Programme
CSD	Community Services Directorate
COGTA	Department of Co-operative Governance and Traditional Affairs
DBSA	Development Bank of Southern Africa
DEAF	Department of Environmental Affairs & Fisheries
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DM	District Municipality
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECSECC	Eastern Cape Socio-Economic Consultative Council
EAP	Economically Active Population
EMLM	Enoch Mgijima 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)
GKLM	Great Kei Local Municipality
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
Ind WMP	Industrial Waste Management Plan
IWMP	Integrated Waste Management Plan
KM²	Square Kilometre (s)
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
MRF	Materials Recovery Facility
MLM	Mnquma Local Municipality
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
REL	Rear End Loader
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
SWOT	Strength, Weakness, Opportunity, Threat
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.
Cell -	A project defined series of blocks within a waste management area generally filled with a volume of waste and covered on all horizontal surface with soil (per day).
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 Environment	<p>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.</p> <p>The surroundings within which humans exist and that are made up of—</p> <ul style="list-style-type: none"> (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
Economically Active Population	The economically active population (EAP) is defined as the number of people (between the age of 15 and 65) who are able and willing to work, and who are actively looking for work. It includes both employed and unemployed people. People, who recently have not taken any active steps to find employment, are not included in the measure. These people may (or may not) consider themselves unemployed. Regardless, they are counted as discouraged work seekers, and thus form part of the non-economically active population.
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.
Inert Waste	Waste that does not (a) undergo any significant physical, chemical or biological transformation after disposed; (b) burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which they may come into contact and (c) impact negatively on the environment, because of its pollutant content and because of the toxicity of its leachate is insignificant.

Intermediate cover -	An application and compaction of cover having the same functions as daily cover but applied at a thickness of 30 centimetres, intended to be exposed for a period of one week to one year.
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.
Location Quotient	A specific regional economy has a comparative advantage over other regional economies if it can more efficiently produce the same good. The location quotient is one way of measuring this comparative advantage.
Material Recovery Facility	A specialised facility that receives, separates and prepares recyclable materials for marketing to end-user manufacturers and /or recycling companies.
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 of the waste on the environment prior to further use of disposal (NEMWA, 2008).

Vectors -	Any substance, whether that substance can be reduced, re-used, recycled and recovered-
Waste -	<p>Birds, insects, and rodents capable of carrying disease-causing bacteria, viruses or fungi from one host to another.</p> <p>(a) That is surplus, unwanted, rejected, discarded, abandoned or disposed of</p> <p>(b) which the generator has no further use of for the purposes of production;</p> <p>(c) that must be treated or disposed of</p>
Waste Management Hierarchy	The Waste Management Hierarchy reflects the different waste management options, from reduction (more preferred) through 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.

1. Chapter 1: Situation Analysis

1.1 Introduction

Amahlathi Local Municipality (ALM) is one of six (6) local municipalities in the Amathole District Municipality (ADM). As a category B municipality, ALM has many functions that it renders for the citizens of South Africa and the region. In rendering these services ALM 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 ALM 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 ALM 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 analysis (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 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 ALM '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. The chapter 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. Normative views or standards such as laws and guidelines of government were used to guide planning. 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 ALM, site visits and stakeholder consultation process which included both internal (ALM 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 ALM '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 Environmental Forum. The guideline for the development of IWMP by the Department of Environmental Affairs and Fisheries (DEAF) 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 was published in the 22 February 2022 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 ALM '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.

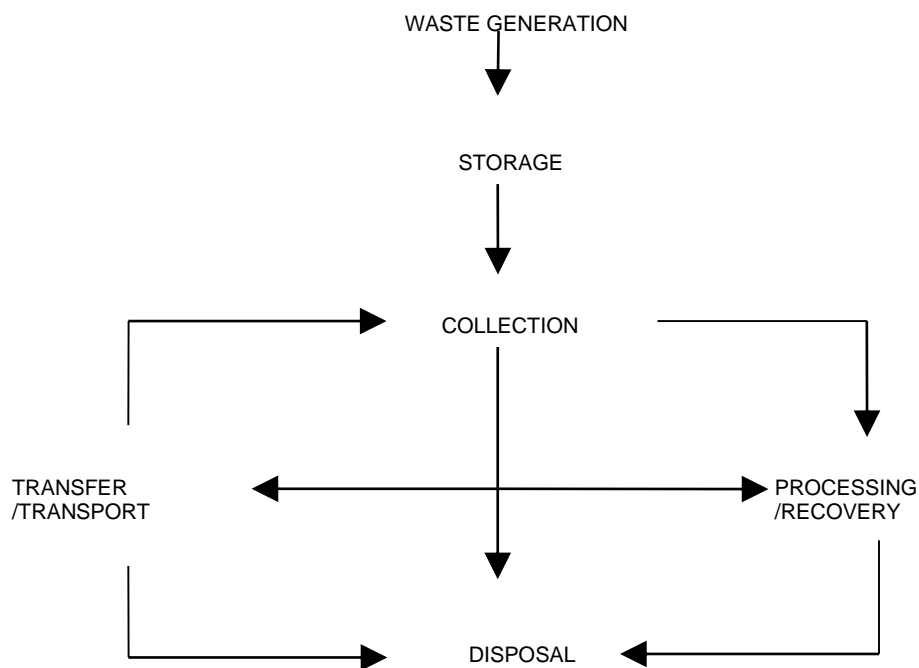


Figure 2: Tchobanoglous diagram

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 ALM integrated waste management plan as prescribed by the Department of Environmental Affairs and Tourism.

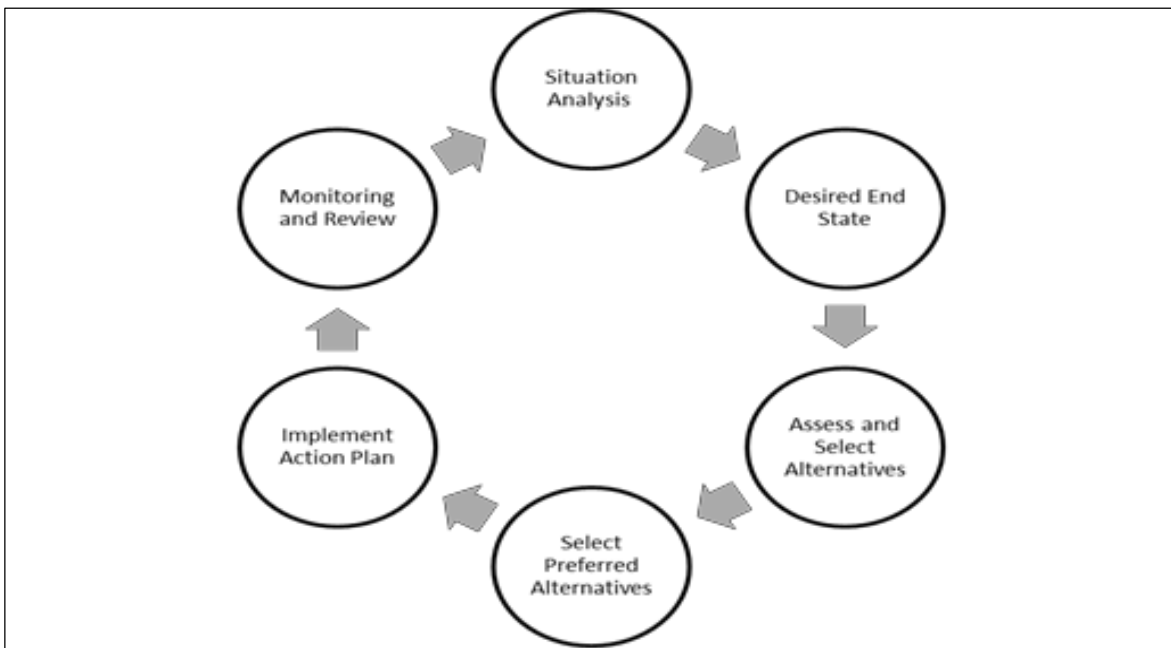


Figure 3: Integrated Waste Management planning process

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 ALM waste management services (Ms. A. Mcasa) on 2 July 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 ALM 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) are 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.

1.4 Limitations

- Waste characterization and quantification needs to be a standalone project and is quite costly and more in-depth than assumed by most practitioners. Scrap metal waste, Electronic waste, Garden waste, builders' rubble are some of the waste types for which strategies are required and the one-day exercise did not do much justice to the ideals of the region. The DEA IWMP guideline focuses on domestic waste and not waste in general produced by the regions. A significant generator of waste in ADM local municipalities include businesses and government entities. These two categories are not included in the DEDEA guidelines for waste quantification.
- Households as a variable in the equation, are the only factor used in the quantification formula. There needs to be an assessment of at least 30% of the population or waste generators as per Stats SA requirements for population sampling. The current method of using population numbers to quantify waste generation is rather misleading since it hides critical information from business and government entities.
- Predictions of future waste generation quantities are dependent on population growth and changes in economic landscape of the ALM. The population growth is a good indicator of how household domestic waste generation increases but it is noted that changes in consumer patterns may also influence waste generation quantities.
- Scrap metals, electronic waste and builder's rubble are currently not catered for in the quantification exercise.
- Liquid waste is also left out in the exercise and yet there are oil industries that would like to have an understanding of volumes generated by the region.
- Over reliance on Eastern Cape Socio-Economic Consultative Council (ECSECC) for statistical data

- Covid has made it difficult to progress with the project because stakeholders were not easy to consult.
- The one-day characterisation means that samples could not account for possible seasonal variation in waste.
- Limited funding for the service,
- Limited waste prevention and minimisation strategies such as separation at source strategies
- Frequent industrial action by staff which leaves the areas un-serviced
- Limited sourcing of grants by the entity
- Stats SA information is not broken down into regions (towns) of the municipality.
- No buy-back or proper materials recovery facilities
- Limited recycling infrastructure
- Mechanical breakdown of vehicles
- Unused Cathcart transfer station
- Badly managed landfill sites
- Limited communication strategies and stakeholder involvement or social facilitation
- Incomplete costing of the service
- Burning of waste at Keiskammahoek and Cathcart posed a challenge regarding waste profiling,
- No regional planning in relation to waste minimization,
- No records in place and the Stutterheim weighbridge is not fully functional.
- 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

1.5 Geographic location

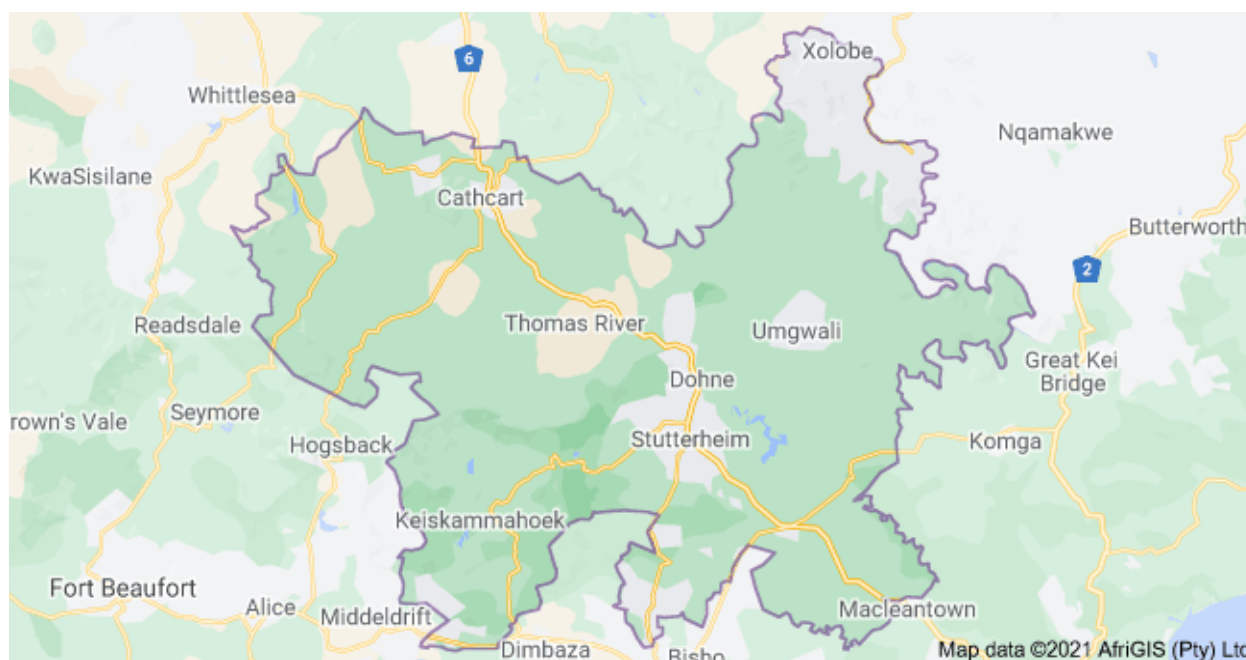


Figure 4: Map of Amahlathi

The Amahlathi Local Municipality (ALM) is situated in the northern part of Amathole District Municipality within mid- section of the Eastern Cape Province and covers an area of approximately 4 268.8 km². It is bordered by six (6) Local Municipalities: Lukhanji Municipality in the North, Mquma Municipality in the North East, Great Kei Municipality in the East, Buffalo City Municipality in the South, Nkonkobe Municipality in the West, and Intsika Yethu Municipality in the North West.

The Municipality is comprising of fifteen (15) wards and is characterized by a range of settlement patterns and associated land uses, including formal and informal rural settlements, and extensive, privately owned farmlands. The municipality comprises of towns and rural hinterlands of Stutterheim, Cathcart, Keiskammahoek, Kei Road, and a portion of the rural areas of King Williamstown and Tsomo districts. In terms of regional access, Stutterheim and Cathcart are located along the N6 road while Keiskammahoek is accessed through the R52 route and Kei Road via the N6 and R63 routes.

1.5.1 Stutterheim landfill site location



Figure 5: Map of Stutterheim waste site

The Stutterheim landfill site is located approximately two (2) kilometers North East of the Stutterheim town, and approximately 1.3 kilometers north west of the Cumakala township and is accessed on a gravel road off spring road, close to the N6. Coordinates for the site are 32°33'16.09"S (latitude) and 27°26'6.08"E (Longitude).

Figure 5 above shows the locality map of Stutterheim Landfill. The landfill site has never been developed neither is the site boundary known. The footprint size of the landfill site is approximately 23,634m² and the utilized area estimated at 11,533m² (google earth,2021).

1.5.2 Cathcart Landfill site location

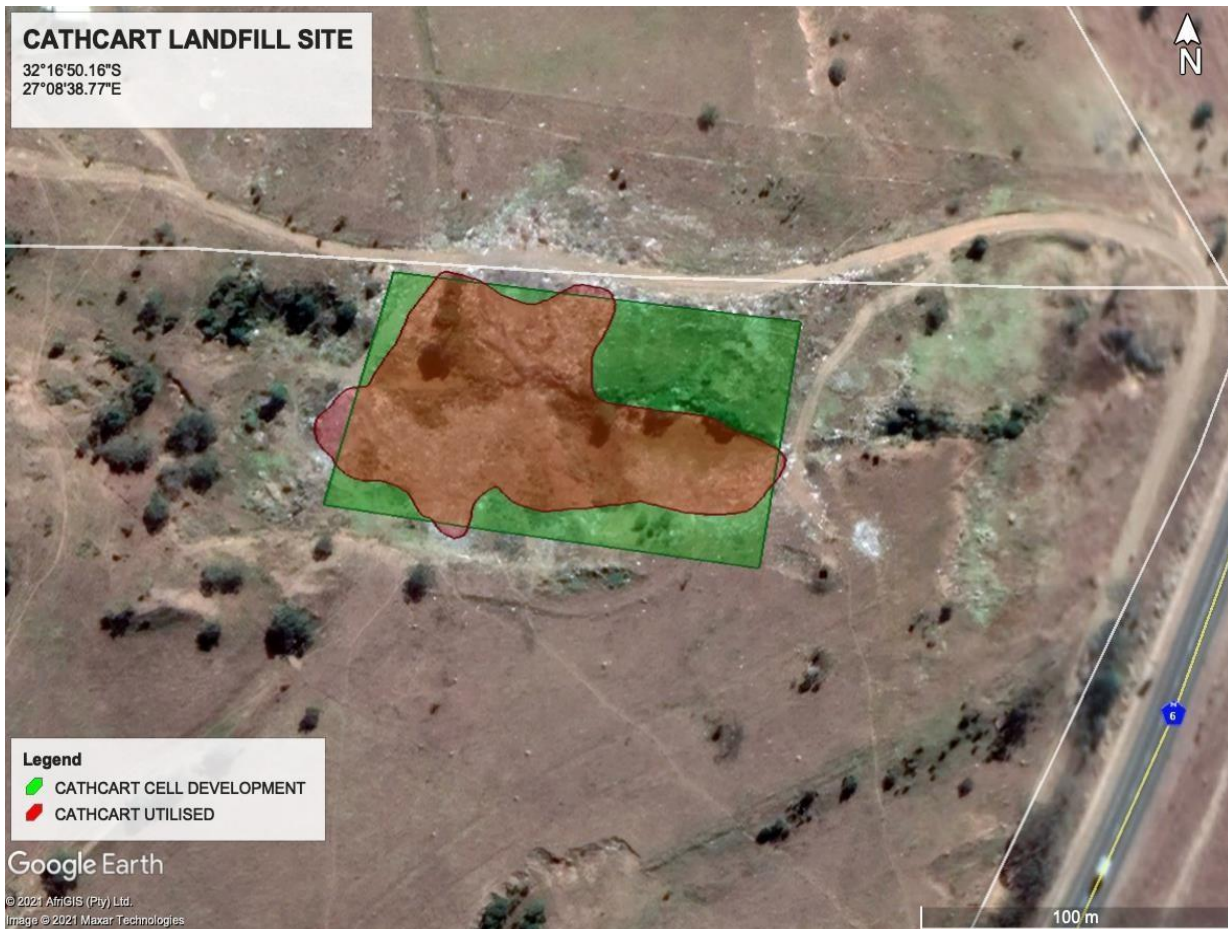


Figure 6: Map of Cathcart waste site

As reflected in **figure 6** above, Cathcart landfill is located approximately 1.51 kilometers north of Cathcart town and 1.61 kilometers north west of Kati-kati township. Access to the site is off the N6 road, and the Coordinates for the site are 32°16'48.91"S (latitude) and 27°08'36.30"E (longitude). Figure 2 shows the location of Cathcart Landfill site. The landfill site has never been developed neither is the site boundary known.

1.5.3 Keiskammahoek Landfill site location

The Keiskammahoek Landfill Site is located approximately 1.67 kilometers south west of the Keiskammahoek town, accessed through a gravel road off the R352. The coordinates for the site are 32°41'33.80"S (latitude) and 27° 8'6.78"E (longitude). **Figure 7** below shows the locality map of Keiskammahoek Landfill site.



Figure 7: Map of Keiskammahoek waste site

1.6 Stakeholder Analysis

Table 1: Analysis of Interested and affected parties

Stakeholder Analysis			
Stakeholder	Needs & Expectations	Power	Predictability (Low/moderate/high)
Amathole District	Need: Regulation & determination of a waste disposal strategy for the ALM Expectation: To enjoy full cooperation of its ALM	Regulation of waste disposal strategy	High
Enoch Mgijima Mnquma Great Kei Buffalo City Nkonkobe Intsika Yethu	Need: Manage, facilitate and co-ordinate the disposal of waste Expectation: Cooperation with ALM on mutual issues	Cooperate with ALM 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 government Expectation: Full cooperation of the client	Law enforcement and capacity building	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 programs	Moderate

Stakeholder	Needs & Expectations	Power	Predictability (Low/moderate/high)
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 ALM 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 recognized 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 recognized 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

1.7 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.

1.7.1. 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.

1.7.2. 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 ALM with the preparation of by-laws for the purposes of implementing this Act.

1.7.3. 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.

1.7.4. 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.

1.7.5 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.

1.7.6. 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 ALM. 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.

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

The Municipal Systems Act describes the core principles, mechanisms, and processes that are necessary to enable ALM 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 a Ministration 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, ALM 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.

1.7.8 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

1.7.9. 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 programmes as well as all spatial and economic development planning processes and in all economic activity.

The strategic mechanisms include the following:

- The incorporation of integrated environmental management principles and methodologies in spatial development planning as it relates to pollution and waste management;
- Making 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.

1.7.10. 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 a Minister 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.

1.7.11. 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.

1.7.12. 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;
- ALM may also require transporters of waste to register on a list of waste transporters.

1.7.13 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 ALM 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 ALM, financial management systems, while being mindful of the need to ensure that there is uniformity when dealing with various cases of the indigent households

1.7.14. 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.

1.8 Social Analysis

1.8.1 Total Population & households

As seen in **Table 2** below, the population of Amahlathi has decreased from **108 000** to **99 500** based on the new boundaries as per the 2016 Community survey done by Statistics SA. This came as a result of the number of wards that have been reduced from 20 to 15 by the Demarcation board. About 13 villages have been moved to Buffalo City Metro Municipality (BCMM) and 10 villages to Intsika Yethu Municipality (IYLM).

Table 2: Total population of Amahlathi from 2006-2016

	Amahlathi	Amatole	Eastern Cape	National Total	Amahlathi as % of district municipality	Amahlathi as % of province	Amahlathi as % of national
2006	108,000	893,000	6,450,000	47,800,000	12.1%	1.67%	0.23%
2007	106,000	884,000	6,470,000	48,400,000	12.0%	1.64%	0.22%
2008	104,000	876,000	6,500,000	49,100,000	11.9%	1.61%	0.21%
2009	103,000	870,000	6,540,000	49,800,000	11.8%	1.57%	0.21%
2010	102,000	866,000	6,600,000	50,700,000	11.8%	1.55%	0.20%
2011	101,000	862,000	6,650,000	51,500,000	11.7%	1.52%	0.20%
2012	100,000	858,000	6,710,000	52,400,000	11.7%	1.49%	0.19%
2013	99,900	857,000	6,780,000	53,200,000	11.6%	1.47%	0.19%
2014	99,600	858,000	6,850,000	54,100,000	11.6%	1.45%	0.18%
2015	99,500	859,000	6,930,000	54,900,000	11.6%	1.44%	0.18%
2016	99,500	862,000	7,010,000	55,700,000	11.5%	1.42%	0.18%

Source: HIS Markit Regional Explorer version 1156

The 2016 Community Survey also shows a decrease in the households from **27 600** to **27 200** households during the period 2006 to 2016 for reasons earlier given. The population is unevenly distributed among the 15 wards with more than 100 rural villages. The ranking in terms of size of Amahlathi compared to the other regions remained the same between 2006 and 2016.

Table 3: Number of Households of Amahlathi from 2006-2016

	Amahlathi	Amatole	Eastern Cape	National Total	Amahlathi as % of district municipality	Amahlathi as % of province	Amahlathi as % of national
2006	27,600	218,000	1,570,000	13,000,000	12.7%	1.76%	0.21%
2007	27,600	219,000	1,590,000	13,100,000	12.6%	1.73%	0.21%
2008	27,700	223,000	1,620,000	13,400,000	12.4%	1.70%	0.21%
2009	28,000	227,000	1,670,000	13,700,000	12.3%	1.68%	0.20%
2010	27,700	227,000	1,680,000	13,900,000	12.2%	1.65%	0.20%
2011	27,500	226,000	1,700,000	14,200,000	12.2%	1.62%	0.19%
2012	27,500	227,000	1,720,000	14,500,000	12.1%	1.60%	0.19%
2013	27,300	226,000	1,730,000	14,700,000	12.1%	1.58%	0.19%
2014	27,100	225,000	1,740,000	15,000,000	12.0%	1.55%	0.18%
2015	27,100	226,000	1,770,000	15,400,000	12.0%	1.53%	0.18%
2016	27,200	227,000	1,790,000	15,800,000	12.0%	1.52%	0.17%

Source: HIS Markit Regional Explorer version 1156

1.8.2 Population projections

Based on the present age-gender structure and the present fertility, mortality and migration rates, Amahlathi's population is projected to grow at an average annual rate of 0.4% from **99 500** in 2016 to **101 000** in 2021 (See Table: 4 below). When looking at the population projection of Amahlathi Local Municipality shows an estimated average annual growth rate of 0.4% between 2016 and 2021. The average annual growth rate in the population over the projection period for ADM, E.C Province and South Africa is 0.5%, 1.0% and 1.4% respectively. The Eastern Cape Province is estimated to have an average growth rate of 1.0% which is very similar to that of the Amahlathi Local Municipality.

Table 4: Population projections

	Amahlathi	Amatole	Eastern Cape	National Total	Amahlathi as % of district municipality	Amahlathi as % of province	Amahlathi as % of national
2016	99,500	862,000	7,010,000	55,700,000	11.5%	1.42%	0.18%
2017	99,700	866,000	7,080,000	56,500,000	11.5%	1.41%	0.18%
2018	100,000	870,000	7,160,000	57,400,000	11.5%	1.40%	0.17%
2019	100,000	875,000	7,240,000	58,100,000	11.5%	1.39%	0.17%
2020	101,000	880,000	7,310,000	58,900,000	11.5%	1.38%	0.17%
2021	101,000	886,000	7,380,000	59,600,000	11.4%	1.37%	0.17%
Average Annual growth							
2016-2021	0.35%	0.54%	1.05%	1.37%			

Source: IHS Markit Regional explorer version 1156

1.8.3 Population by Demographics

Table 5: Population by Population Group, Gender & Age

	Female	Male	Female	Male	Female	Male
00-04	5,730	6,050	46	46	51	74
05-09	5,160	5,210	47	61	57	40
10-14	4,030	4,210	64	47	78	33
15-19	3,930	4,190	27	53	68	54
20-24	3,820	4,660	24	24	51	53
25-29	3,840	4,390	32	32	49	46
30-34	3,530	3,670	82	55	21	45
35-39	2,740	2,880	41	42	46	29
40-44	2,380	1,990	54	59	41	38
45-49	2,300	1,490	73	95	37	27
50-54	2,760	1,580	56	50	37	31
55-59	2,720	1,690	76	72	26	41
60-64	1,960	1,440	56	59	14	10
65-69	1,770	1,270	64	36	12	17
70-74	1,520	967	66	55	25	10
75+	1,820	754	114	75	8	0
Total	50,000	46,400	1 22	1 60	1 20	1 47

Source: IHS Markit Regional explorer version 1156

Table 5 above reflects that in 2016, the Amahlathi Local Municipality's population consisted of 96.92% African (96 400), 1.79% White (1 780), 1.17% Coloured (1 170) and 0.12% Asian (118) people. The largest share of population is within the babies and kids (0-14 years) age category with a total number of 31 000 or 31.2% of the total population. The age category with the second largest number of people is the young working age (25-44 years) age category with a total share of 26.3%, followed by the teenagers and youth (15-24 years) age category with 17 000 people. The age category with the least number of people is the retired / old age (65 years and older) age category with only 8 600 people. **Table 6** below is a depiction of the broader demographics of the region between 2011 and 2016.

Table 6: Demographics (2011-2016)

Demographics	2011		2016	
	Number	Percent (%)	Number	Percent
Population	101 035		10 826	
Population growth				
Population profile				
Black African	96 765	95.8	97 591	95.8
Colored	1477	1.5	1 575	1.5
Indian or Asian	100	0.1	116	0.1
White	2489	2.5	2543	2.5
Population density				
Population by Home language				
Afrikaans	2 228	2.2	1 742	1.7
English	3057	3.1	2 366	2.4
IsiXhosa	92 607	93.1	95 506	95.2
IsiZulu	159	0.2	129	0.1
Sesotho	242	0.2	230	0.2
Other	1 223	1.2	367	0.4
Number of households	28 593		24 577	
Household size	3.5		4.1	
Gender				
Male	48 357	47.9	49 133	48.3
Female	52 678	52.1	52 693	51.8
Age				
0 – 14	31 046	30.7	32 050	31.5
15-34	31 486	31.2	41 598	40.9
35-64	30 055	29.7	19 787	19.4
65+	8447	8.4	8390	8.2

Source: Stats SA, Census 2011 & Community Survey 2016

1.8.4 Household services and ratings

A distinction is made between formal and informal refuse removal. When refuse is removed by the local authorities, it is referred to as formal refuse removal. Informal refuse removal is where either the household or the community disposes of the waste, or where there is no refuse removal at all. A further

breakdown is used in terms of the frequency by which the refuse is taken away, thus leading to the following categories:

- Removed weekly by authority
- Removed less often than weekly by authority
- Removed by community members
- Personal removal / (own dump)

Table 7: Household services

Household Services	2011		2016	
	Number	Percent	Number	Percent
Access to housing				
Formal	17 447	61.5	13 046	53.1
Traditional	9 571	33.8	10 024	40.8
Informal	1 081	3.8	1 325	5.4
Other	258	0.9	181	0.7
Access to water				
Access to piped water	26 269	92.0	22 041	89.7
No access to piped water	2 278	8.0	2 535	10.3
Access to sanitation				
Flush toilet	7 640	27.5	6 040	24.6
Chemical	412	1.5	1 512	6.2
Pit toilet	18 263	65.7	15 235	62.0
Bucket	67	0.2	48	0.2
None	1 403	5.0	1 460	5.9
Energy for lighting				
Electricity	20 577	72.3	20 840	85.9
Other	7 880	27.7	3 429	14.1
Access to refuse removal				
Removed by local authority at least once a week	7 113	24.9	3 438	14.0
Removed by local authority less often	96	0.3	256	1.0
Communal refuse dump	316	1.1	2 637	10.7
Own refuse dump	19 789	69.3	17 323	70.5
No rubbish disposal	1 150	4.0	231	0.9

Table 7 above is an indication of services the community of Amahlathi receives as documented by Stats SA (2016). As a mostly rural municipality it is not quite surprising how low the number of people have access to waste services. However, the ALM status quo report 2021 indicates that 6532 households are expected to receive the service and at the time of reporting in 2021, households that were receiving the service were 4207.

1.8.5 Free Basic Services and Rating of Quality of Municipal Services

Table 8: Free Basic Services

Free Basic Services	2014		2015	
	Number	Percent	Number	
Indigent Households	14 197		17 242	
Water	0		0	
Electricity	14 197		14 658	
Sewerage & Sanitation	0		0	
Solid Waste Management	2828		2 995	

Table 9: Rating of quality of municipal services

Rating of quality of municipal services	2011		2016	
	Number	Percent	Number	Percent
Water (goods)			16 014	67.3
Electricity supply (good			17 502	75.2
Sanitation (good)			7 712	38.6
Refuse removal (good			7 071	50.0

Tables 8 and Table 9 above are results of an assessment of Free Basic Services and municipal services in general in Amahlathi. The ratings are positive and there is still room for improvement regarding waste service and sanitation. The municipality does have an indigent policy and a database of such stakeholders. What is not clear though is how the beneficiaries of the policy alternatively benefit from the policy, apart from getting refuse removal for free or how the municipality benefits from having such policies is not documented. In other words, 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.

1.9 Technological or Infrastructural analysis

1.9.1 Waste Collection and Transportation

The purpose of a waste collection service is to separate the generated waste from the community for health reasons. Linked to the life cycle of a common house fly, the preferred frequency of collection services to households is once a week. A more frequent service i.e. daily removal is required for restaurant putrescible waste (organic waste that quickly decomposes). The reliability of the service is more important than the type of receptacle or collection vehicles used. At household level, the type of service determines the type of receptacles, infrastructure and equipment required to render the service.

Regular and planned vehicle maintenance is required to ensure the reliability of the transport fleet. Special waste management arrangements should be made for emergency situations such as events and/or peak seasons to ensure that waste is collected efficiently. A contingency plan, detailing the course of action in cases of vehicle breakdowns, is required in order to maintain the required level of service. There is no documented procedure to follow when such happens in ALM at present.

Below is **Table 10** reflecting some of the technology used by ALM in providing the service to its community. **Figure 8** is one of 2 rear load compactor trucks used by the municipality. Builders' rubble and organic waste such as gardening waste is mainly transported by private individuals and this does not create a proper platform for proper management of this material resulting in illegal dumping in some instances.

Table 10: Waste Management transport and equipment

Type of equipment	Quantity	Tonnage	Service Area
Rear Load Compactor Truck	02	15m ³	Stutterheim
Rear Load Compactor Truck	01	14m ³	Stutterheim
Cage Truck	01	7m ³	Keiskammahoek
Hook Lift/ skip Truck	01	15m ³	Stutterheim
Tractor & Trailer	01	-	Cathcart
Skip bins	10	-	Stutterheim



Figure 8: Compactor truck

1.9.2 Waste Storage

Prior to landfilling or dumping, waste storage does not only make use of receptacles as seen in **figures 10 – 13**. It also involves the use of facilities such as Materials Recovery Facilities (MRF), Buy Back Centres, Transfer Stations, Central Collection Points, Drop-off, Garden sites. Depending on the level of sophistication of a region's economy, one or more of these facilities are used to provide the service. Currently ALM makes use of the MRF located in Stutterheim (see figure 9 below) to store extracted material from the landfill and has an unused but licensed Transfer station located in Cathcart.



Figure 9: Material Recovery Facility in Stutterheim

Waste is stored at points of generation before collection. Receptacles at points of generation are intended for the storage of waste between collection days. The municipality utilises a refuse bag system in the residential areas and bins at the commercial areas. The kerbside collection system is currently being used and can do with more in-depth planning in order to improve its efficiency so that some of the waste would not go to the landfill. However, most receptacles in Stutterheim were vandalized during the civil unrest of 2017. General storage containers used in the Amahlathi Municipality include the following:

- Metal Bins
- Concrete Bins
- Plastic Bins



Figure 10: Metal Bins in Stutterheim town



Figure 11: Concrete bins & builder's rubble Cathcart

The municipality must endeavour to replace the run-down receptacles and at the same time it should improve on properly locating recycling infrastructure in order to encourage recycling throughout the urban areas of the municipality. The municipality is not clamping down hard on people dumping builder's rubble anyhow. There is a need, in the urban space in particular, for the municipality to rent-out skips to people undertaking construction work (**See figure 11 above**).



Figure 12: Wheelie Bins in Cathcart



Figure 13: Plastic storage bag

As seen in **figure 11** above, there is a need for the waste services to have constant interaction with the engineering or building section in order for integrated planning to take place and in the process reducing the impact of visual intrusion caused by indiscriminate dumping.

The municipality does have a transfer station in Cathcart that is licensed (AM/A/1,5/L001/10). As seen in **figure 14** below, a state of the art licensed transfer station was built but has not been in use ever since it was established.



Figure 14: Locked up Cathcart transfer station

1.9.3 Landfilling technology of Amahlathi

1.9.3.1 Stutterheim landfill

When it comes to landfilling, Stutterheim has been receiving the most pronounced focus in the ALM. It has access to electricity as reflected in **figures 16-17** below. It has a weighbridge seen in **figure 17** but unfortunately it has been malfunctioning since 2018.



Figure 15: Front-End Loader Compactor



Figure 16: Weighbridge computer in Stutterheim



Figure 17: Weighbridge in Stutterheim



Figure 18: Regressed Stutterheim site

Table 11: Salient data pertaining to Stutterheim landfill site

Item (from Minimum Requirements (DWAF, 1998))	Stutterheim Landfill Site Particulars	
PERTINENT INFORMATION	Position of site:	32°33'16.09"S
	Permit to operate:	Yes, Ref No. 16/2/7/S600/D2/Z1/P508
	Year Issued:	2005
	Classification of site:	G:S:B+
	Type of operation:	Cell
	Size:	23,634 m ²
INFRASTRUCTURE	Remaining life of site:	5 years from 2022
	Office:	None
	Access control:	Yes. Security on site.
	Guardhouse:	Yes.
	Storage sheds:	Yes. Shed used as a recycling facility.
	Fencing:	Yes. 1.8m high razor wire right round.
	Signage:	Yes, at the entrance and none inside the
	Buffer:	Adequate.
	Firebreak / access road around	Yes. Needs routine maintenance
	Weighbridge with access control:	Yes. Not operational, due for repairs.
	Ablution facilities:	Yes
	Record keeping:	Yes
EQUIPMENT	Compactor:	Not available
	TLB (tractor-loader-backhoe):	Availed on request
	Tractor:	Availed on request
	Other Equipment:	None
	Cells:	Yes.
WASTE BODY	Cover material:	There are stockpiles of cover material on site.
	Disposal means (tipping, conveyor, etc.):	Direct deposition from waste disposers onto landfill area.
	Compaction:	Yes
	Leachate Detection / Drainage:	Pond on site drained quarterly by district
	Stormwater Management:	Yes
	Reclamation:	Yes. Formal reclamation activity taking place

1.9.3.2 Cathcart landfill

The landfill site has never been developed neither is the site boundary known.

Table 12: Salient data pertaining to Cathcart landfill site

Item (from Minimum Requirements (DWAf, 1998))		Cathcart Landfill Site Particulars
PERTINENT INFORMATION	Position of site:	32°16'48.91"S
	Permit to operate:	No. Closure Permit, Ref: HO/A/20/L007/12 expired in 2015
	Year Issued:	2013
	Classification of site:	G:C:B-
	Type of operation:	General Waste
	Size:	6,862m ²
INFRASTRUCTURE	Remaining life of site:	Nil
	Office:	None
	Access control:	None
	Guardhouse:	None
	Storage sheds:	None
	Fencing:	None
	Signage:	None
	Buffer:	Yes.
	Firebreak / access road around site:	Yes. Needs maintenance.
	Weighbridge with access control:	Yes
	Ablution facilities:	None
	Record keeping:	None
EQUIPMENT	Compactor:	None
	TLB (tractor-loader-backhoe):	On request
	Tractor:	On request
	Other Equipment:	None
	Cells:	None
WASTE BODY	Cover material:	None
	Disposal means (tipping, conveyor, etc.)	Direct deposition from waste disposers onto landfill area.
	Compaction:	None
	Leachate Detection / Drainage:	None
	Stormwater Management:	None
	Reclamation:	Yes. Informal reclamation activity taking place



Figure 19: Cathcart dumpsite

The dumpsite is located on the left hand side on your way to Queenstown from Cathcart. The entrance is adjacent the one to the Cathcart golf course on the opposite side of the road. No landfill site development plan was available for further development of the site

The site is more than 500 metres away from the nearest residential home or house which is legally acceptable. However, the municipality must take all reasonable steps, such as suitable zoning and or written agreements with adjacent landowners to prevent the development of further residential and or light industrial areas closer to the site other than any existing residential areas while the site is still operational.

Storm water Management

Storm water arising from land adjacent to the site ought to be diverted in order to prevent contamination by leachate. Any storm water runoff arising from the site should be tested to determine the levels of contamination and whether it can be discharged into the environment or requires treatment before being discharged. All contaminated water should be treated as leachate and discharged / disposed of in a legal manner.

All storm water containment structures are also required to maintain a freeboard of 0.5 meters.

- Stormwater management systems preventing water from entering the site from adjacent properties have not been constructed and do not exist.
- The runoff arising on site is in direct contact with the waste body and therefore contaminated.

1.9.3.3 Keiskammahoek

Table 13: Salient data pertaining to Keiskammahoek Landfill Site

Item (from Minimum Requirements (DWAf, 1998))	Keiskammahoek Landfill Site Particulars	
PERTINENT INFORMATION	Position of site:	27°20'32.88"S
	Permit to operate:	16/2/7/R101/D6/Z1/P396
	Year Issued:	2001
	Classification of site:	G:C:B-
	Type of operation:	Trenches
	Size:	16,876 m ²
INFRASTRUCTURE	Remaining life of site:	5 years
	Office:	Yes. Prefabricated office structure.
	Access control:	Main entrance to the landfill does not have a lockable gate
	Guardhouse:	None
	Storage sheds:	None
	Fencing:	Yes. 1.8 m high razor wire fencing in place.
	Signage:	None
	Buffer:	Adequate
	Firebreak / access road around site:	Yes. Needs routine maintenance.
	Weighbridge with access	None.
	Ablution facilities:	None
	Record keeping:	None.
EQUIPMENT	Compactor:	None.
	TLB (tractor-loader-backhoe):	Avalied on request.
	Tractor:	Hired when needed.
	Other Equipment:	None
	Cells:	Trenches
	Cover material:	Yes. Material available on site.

Waste is dumped and burned in trenches. When a trench is full, it is buried and waste is dumped into the next trench. No landfill site development plan was available for further development of the site.



Figure 20: Keiskammahoek landfill site

1.9. 4 Technological Overall Summary

As seen in **Table 14** below, the municipality has the basic technology to provide the service. 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. Keiskammahoek however should be provided with a landfill compactor.

Table 14: Availability of various technology

Issue	Stutterheim	Cathcart	Keiskammahoek
Weigh Bridges	Y	N	N
Bailers	N	N	N
Compactor	Y	N	N
Trucks			
Trailers	N	Y	N

Tractors	N	Y	N
Caged trucks	N	N	Y
Electricity	Y	N	N
Wheelie bins	Y	Y	Y
Skips	Y	N	N
Materials Recovery Facilities	Y	N	N
Drop off points for recyclables	N	N	N
Portable weather stations	N	N	N

1. 10 Economic Analysis

The economic state of ALM is put into perspective by comparing it on a spatial level with its neighboring locals, Amatole District Municipality, Eastern Cape Province and South Africa. The ALM does not function in isolation from Amatole, Eastern Cape Province, South Africa and the world and now, more than ever, it is crucial to have reliable information on its economy for effective planning. Information is needed that will empower the municipality to plan and implement policies that will encourage the social development and economic growth of the people and industries in the municipality respectively (ECSECC, 2017).

1.10.1 GROSS DOMESTIC PRODUCT BY REGION (GDP-R)

The Gross Domestic Product (GDP), an important indicator of economic performance, is used to compare economies and economic states. GDP-R can be measured using either current or constant prices, where the current prices measures the economy in actual Rand, and constant prices measures the economy by removing the effect of inflation, and therefore captures the real growth in volumes, as if prices were fixed in a given base year (ECSECC, 2017).

TABLE 15. GROSS DOMESTIC PRODUCT (GDP) - AMAHLATHI, AMATOLE, EASTERN CAPE AND NATIONAL TOTAL, 2006-2016 [R BILLIONS, CURRENT PRICES]

Year	Amahlathi	Amathole	Eastern Cape	National Total
2006	4.3%	3.7%	5.3%	5.3%
2007	5.6%	3.6%	5.3%	5.4%
2008	2.1%	3.1%	3.2%	3.2%
2009	-1.3%	-1.4%	-1.0%	-1.5%
2010	0.2%	0.4%	2.4%	3.0%
2011	1.6%	2.7%	3.7%	3.3%
2012	0.6%	0.1%	2.0%	2.2%
2013	0.3%	-0.4%	1.4%	2.5%
2014	0.3%	-0.3%	1.1%	1.7%
2015	0.2%	-0.4%	0.7%	1.3%
2016	-0.9%	-0.4%	0.2%	0.3%
Average annual growth 2006-2015	0.85%	0.77%	1.89%	2.12%

Source: HIS Markit Regional eXplorer version 1156

With a GDP of R 3.92 billion in 2016 (up from R 1.81 billion in 2006), the Amahlathi Local Municipality contributed 14.03% to the Amatole District Municipality GDP of R 27.9 billion in 2016 increasing in the share of the Amatole from 14.29% in 2006. The Amahlathi Local Municipality contributes 1.16% to the GDP of Eastern Cape Province and 0.09% the GDP of South Africa which had a total GDP of R 4.34 trillion in 2016 (as measured in nominal or current prices). It's contribution to the national economy stayed similar in importance from 2006 when it contributed 0.10% to South Africa, but it is lower than the peak of 0.10% in 2007.

TABLE 16 GROSS DOMESTIC PRODUCT (GDP) - AMAHLATHI, AMATOLE, EASTERN CAPE AND NATIONAL TOTAL, 2006-2016 [ANNUAL PERCENTAGE CHANGE, CONSTANT 2010 PRICES]

	2016 (Current prices)	Share of local Municipality	2006 (Constant Prices)	2016 (Constant Prices)	Average Annual growth
Amahlathi	3.92	14.3%	2.45	2.66	0.85%
Mbhashe	4.15	14.86%	2.75	2.83	0.28%
Mnquma	8.46	30.3%	5.51	5.72	0.36%
Great Kei	3.41	12.22%	1.94	2.34	1.89%

Ngqushwa	2.78	9.96%	1.74	1.88	0.77%
Raymond Mhlaba	5.20	18.62%%	3.13	3.49	1.09%

Source: HIS Markit Regional explorer version 1156

In 2016, the Amahlathi Local Municipality achieved an annual growth rate of -0.90% which is a significant lower GDP growth than the Eastern Cape Province's 0.25%, but is lower than that of South Africa, where the 2016 GDP growth rate was 0.28%. Similar to the short-term growth rate of 2016, the longer-term average growth rate for Amahlathi (0.85%) is also significant lower than that of South Africa (2.12%). The economic growth in Amahlathi peaked in 2007 at 5.58%.

The Amahlathi Local Municipality had a total GDP of R 3.92 billion and in terms of total contribution towards Amatole District Municipality the Amahlathi Local Municipality ranked fourth relative to all the regional economies to total Amatole District Municipality GDP. This ranking in terms of size compared to other regions of Amahlathi remained the same since 2006. In terms of its share, it was in 2016 (14.0%) slightly smaller compared to what it was in 2006 (14.3%). For the period 2006 to 2016, the average annual growth rate of 0.8% of Amahlathi was the third relative to its peers in terms of growth in constant 2010 prices.

TABLE 17: GROSS DOMESTIC PRODUCTS (GDP) - REGIONS WITHIN AMATOLE DISTRICT MUNICIPALITY, 2006 TO 2016, SHARE AND GROWTH

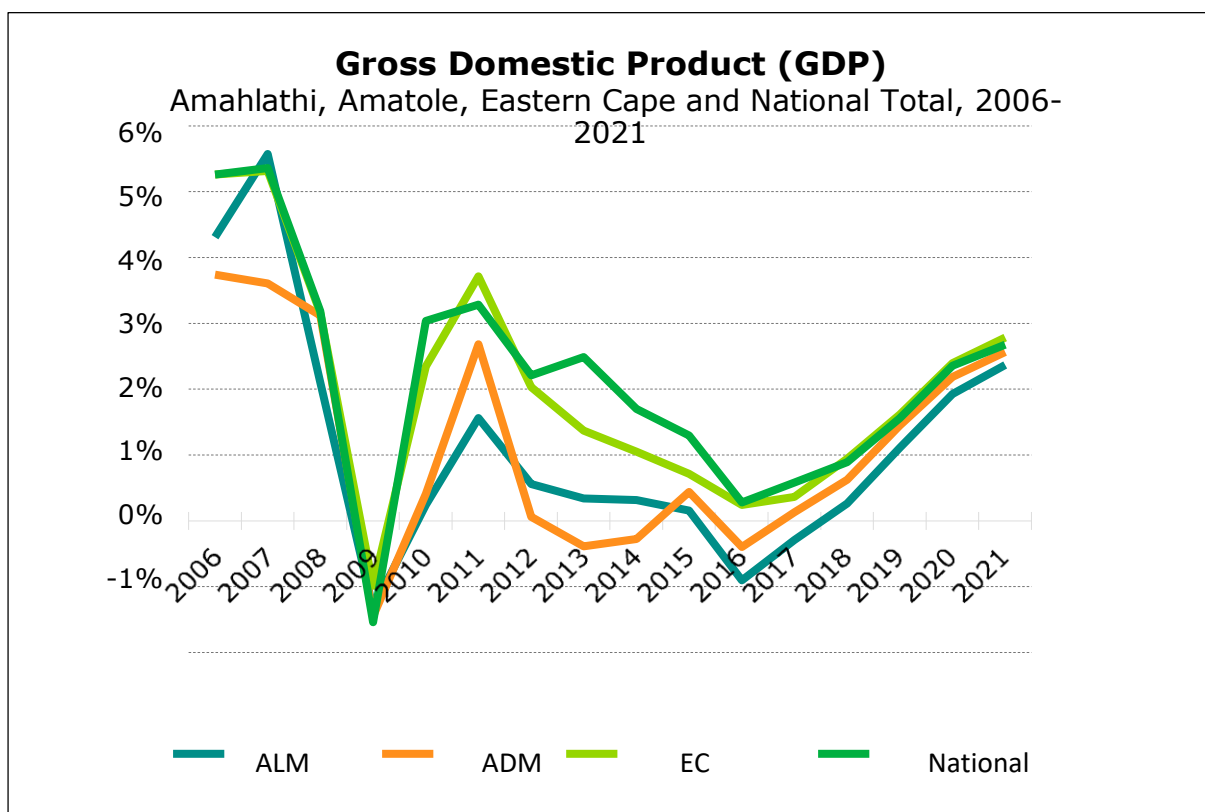
	2021 (Current prices)	Share of local Municipality	2006 (Constant Prices)	2021 (Constant Prices)	Average Annual growth
Amahlathi	5.34	26.34%	2.45	2.81	0.92%
Mbhashe	5.72	28.2%	2.75	3.01	0.59%
Mnquma	11.84	58.44%	5.51	6.17	0.75%
Great Kei	4.80	23.6%	1.94	2.55	1.85%
Ngqushwa	3.81	18.79%	1.74	1.99	0.90%
Raymond Mhlaba	7.23	35.66%%	3.13	3.75	1.20%

Source: HIS Markit Regional eXplorer version 1156

1.10.2 ECONOMIC GROWTH FORECAST

It is expected that Amahlathi Local Municipality will grow at an average annual rate of 1.07% from 2016 to 2021. The average annual growth rate in the GDP of Amatole District Municipality and Eastern Cape Province is expected to be 1.39% and 1.62% respectively. South Africa is forecasted to grow at an average annual growth rate of 1.61%, which is higher than that of the Amahlathi Local Municipality. In 2021, Amahlathi's forecasted GDP will be an estimated R 2.81 billion (constant 2010 prices) or 13.9% of the total GDP of Amatole District Municipality. The ranking in terms of size of the Amahlathi Local Municipality will remain the same between 2016 and 2021, with a contribution to the Amatole District Municipality GDP of 13.9% in 2021 compared to the 14.1% in 2016. At a 1.07% average annual GDP growth rate between 2016 and 2021, Amahlathi ranked the lowest compared to the other regional economies (See Chart 1 below).

CHART 1. GROSS DOMESTIC PRODUCT (GDP) - AMAHLATHI, AMATOLE, EASTERN CAPE AND NATIONAL TOTAL, 2006-2021 [AVERAGE ANNUAL GROWTH RATE, CONSTANT 2010 PRICES]



1.10.3 Location Quotient

If the location quotient is larger than one for a specified sector within a region, then that region has a comparative advantage in that sector. This is because the share of that sector of the specified regional economy is greater than the same sector in the national economy. The location quotient is usually computed by taking the percentage share of the sector in the regional economy divided by the percentage share of that same sector in the national economy. For 2016 Amahlathi Local Municipality has a very large comparative advantage in the community services sector. The agriculture sector has a comparative advantage. The construction also has a comparative advantage when comparing it to the South Africa economy as a whole, although less prominent. The Amahlathi Local Municipality has a comparative disadvantage when it comes to the mining and electricity sector which has a very large comparative disadvantage. In general mining is a very concentrated economic sector. Unfortunately, the Amahlathi Local Municipality area currently does not have a lot of mining activity, with an LQ of only 0.0159.

1.10.4 Economically Active Population (EAP)

The economically active population (EAP) is a good indicator of how many of the total working age population are in reality participating in the labour market of a region. If a person is economically active, he or she forms part of the labour force.

TABLE 18. ECONOMICALLY ACTIVE POPULATION (EAP) - AMAHLATHI, AMATOLE, EASTERN CAPE AND NATIONAL TOTAL, 2006-2016 [NUMBER, PERCENTAGE]

	Amahlathi	Amatole	Eastern Cape	National Total	Amahlathi as % of district municipality	Amahlathi as % of province	Amahlathi as % of national
2006	29,500	184,000	1,840,000	17,500,000	16.1%	1.61%	0.17%
2007	28,800	182,000	1,850,000	18,000,000	15.9%	1.56%	0.16%
2008	27,600	177,000	1,840,000	18,400,000	15.6%	1.50%	0.15%
2009	25,800	168,000	1,790,000	18,300,000	15.4%	1.44%	0.14%
2010	24,000	158,000	1,730,000	18,100,000	15.2%	1.38%	0.13%
2011	23,200	155,000	1,740,000	18,300,000	15.0%	1.33%	0.13%
2012	23,400	157,000	1,770,000	18,700,000	14.9%	1.32%	0.12%
2013	24,500	166,000	1,840,000	19,300,000	14.8%	1.33%	0.13%
2014	26,000	177,000	1,940,000	20,100,000	14.7%	1.34%	0.13%
2015	27,000	184,000	2,000,000	20,800,000	14.7%	1.35%	0.13%
2016	27,700	190,000	2,060,000	21,300,000	14.6%	1.35%	0.13%
Average Annual growth							
2006-2016	-0.64%	0.30%	1.12%	1.97%			

Source: IHS Markit Regional eXplorer version 1156

TABLE 18 Above indicates Amahlathi Local Municipality's EAP was 27 700 in 2016, which is 27.85% of its total population of 99 500, and roughly 14.61% of the total EAP of the Amatole District Municipality. From 2006 to 2016, the average annual decrease in the EAP in the Amahlathi Local Municipality was - 0.64%, which is 0.94 percentage points lower than the growth in the EAP of Amatole's for the same period.

1.10.5 Income and Expenditure

In a growing economy among which production factors are increasing, most of the household incomes are spent on purchasing goods and services. Therefore, the measuring of the income and expenditure of households is a major indicator of a number of economic trends. It is also a good marker of growth as well as consumer tendencies.

1.10.5.1 NUMBER OF HOUSEHOLDS BY INCOME CATEGORY

The number of households is grouped according to predefined income categories or brackets, where income is calculated as the sum of all household gross disposable income: payments in kind, gifts, homemade goods sold, old age pensions, income from informal sector activities, subsistence income, etc.). Note that income tax is included in the income distribution.

Income categories start at R0 - R2,400 per annum and go up to R2,400,000+ per annum. A household is either a group of people who live together and provide themselves jointly with food and/or other essentials for living, or it is a single person living on his/her own. These income brackets do not take into account inflation creep: over time, movement of households "up" the brackets is natural, even if they are not earning any more in real terms. It was estimated that in 2016, **18.86%** of all the households in the Amahlathi Local Municipality, were living on R30,000 or less per annum. In comparison with 2006's 56.03%, the number is more than half. The 54000-72000 income category has the highest number of households with a total number of 3 760, followed by the 30000-42000 income category with 3 680 households. Only 2.4 households fall within the 0-2400 income category (See Table 19 below).

TABLE 19. HOUSEHOLDS BY INCOME CATEGORY - AMAHLATHI, AMATOLE, EASTERN CAPE AND NATIONAL TOTAL, 2016 [NUMBER PERCENTAGE]

	Amahlathi	Amatole	Eastern	National	Amahlathi as % of district	Amahlathi as % of province	Amahlathi as % of national
0-2400	2	24	206	1,880	9.8%	1.17%	0.13%
2400-6000	49	459	3,800	33,300	10.7%	1.29%	0.15%
6000-12000	564	5,010	38,400	314,000	11.3%	1.47%	0.18%
12000-18000	1,140	9,900	76,400	624,000	11.6%	1.50%	0.18%
18000-30000	3,360	29,300	220,000	1,720,000	11.5%	1.53%	0.20%
30000-42000	3,680	32,000	231,000	1,730,000	11.5%	1.60%	0.21%
42000-54000	3,430	29,100	204,000	1,520,000	11.8%	1.68%	0.23%
54000-72000	3,760	31,400	217,000	1,630,000	12.0%	1.74%	0.23%
72000-96000	3,290	26,700	185,000	1,490,000	12.3%	1.78%	0.22%
96000-132000	2,650	21,100	156,000	1,390,000	12.5%	1.70%	0.19%
132000-192000	2,010	16,100	133,000	1,320,000	12.5%	1.51%	0.15%
192000-360000	1,760	14,300	150,000	1,690,000	12.3%	1.18%	0.10%
360000-600000	832	6,840	88,200	1,090,000	12.2%	0.94%	0.08%
600000-1200000	465	3,840	59,000	785,000	12.1%	0.79%	0.06%
1200000-2400000	121	1,020	17,600	238,000	11.9%	0.69%	0.05%
2400000+	16	115	2,670	39,100	14.1%	0.61%	0.04%
Total	27,100	227,000	1,780,000	15,600,000	11.9%	1.52%	0.17%

1.10.6 Waste in the Economy

According to Paper Manufactures Association of South Africa (PAMSA) there is a concern of shortage of wastepaper within the recycling industry. In other words, the demand far exceeds the supply and therefore placing a lot of pressure on paper mills. This is worrisome when you note that the majority of general solid waste that is currently disposed, burned and buried at the ALM 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. The municipality is one of the cleanest in the province. The municipality 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 for the waste facilities. There is currently no waste information system in place in order to assist any recycling initiatives taking place.

1.10.6.1 HOUSEHOLDS BY REFUSE DISPOSAL

A distinction is made between formal and informal refuse removal. When refuse is removed by the local authorities, it is referred to as formal refuse removal. Informal refuse removal is where either the household or the community disposes of the waste, or where there is no refuse removal at all. A further breakdown is used in terms of the frequency by which the refuse is taken away, thus leading to the following categories:

- Removed weekly by authority
- Removed less often than weekly by authority
- Removed by community members
- Personal removal / (own dump)
- No refuse removal

Amahlathi Local Municipality had a total number of 4 840 (19.01%) households which had their refuse removed weekly by the authority, a total of 250 (0.98%) households had their refuse removed less often than weekly by the authority and a total number of 18 300 (71.97%) households which had to remove their refuse personally (own dump). The region within Amatole with the highest number of households where the refuse is removed weekly by the authority is Raymond Mhlaba local municipality with 14 400 or a share of 34.98% of the households where the refuse is removed weekly by the authority within Amatole. The region with the lowest number of households where the refuse is removed weekly by the authority is Ngqushwa local municipality with a total of 1 520 or a share of 3.71% of the total households where the refuse is removed weekly by the authority within the district municipality (see figure 20 below)

TABLE 20. HOUSEHOLDS BY REFUSE DISPOSAL - AMAHLATHI AND THE REST OF AMATOLE, 2016 [NUMBER]

	Removed weekly by authority	Removed less often than weekly by authority	Removed by community members	Personal removal (own dump)	No refuse removal	Total
Amahlathi	4,840	250	1,180	18,300	868	25,500
Mbhashe	5,310	467	1,780	37,600	12,700	57,800
Mnquma	12,500	288	1,240	42,700	6,640	63,300
Great Kei	2,580	85	239	4,200	628	7,740
Ngqushwa	1,520	65	455	14,200	726	17,000
Raymond Mhlaba	14,400	909	1,220	22,500	1,580	40,600
Total Amatole	41,109	2,062	6,111	139,493	23,139	211,914

Source: IHS Markit Regional eXplorer version 1156

1.10.6.2 ALM Waste Reduction, Re- Use and Recycling market realities

The **recycling** market at ALM is at its infancy stage and would do with some boosting of structured planning. Potential users of waste material and potential suppliers are not aware of each other hence the **re-use** element is lagging behind. There is a need to create a system where potential buyers can source available materials. The price of recyclable materials can vary month to month as it depends on the supply and demand for recyclables at the large recycling plants in South Africa. Reduction at ALM also requires careful planning in order to know which strategies to effect.

The demand for the recoverable material is outside of the ALM located in the surrounding municipalities. The EL IDZ for an example has established a Materials Recovery Facility and there are about 20 recycling companies based in East London as reflected in **Table 21** below that will assist in augmenting the demand side of things.

Table 21: EL based recycling companies

Company Name	Resource interest	Service type	Location
Collect a Can	Cans	Recycling	JHB
SAPPI	Paper	Recycling	Durban
Mondi paper	Paper	Recycling	Durban
Glass recycling company		Recycling	Cape Town
Border scrap	Metal	Recycling	East London
Buffalo scrap metals	Metal	Recycling	East London
Buffalo scrap/ Cash for scrap	Metal	Recycling	East London
Burner oil	Oil	Recycling	East London
Collect All group	mixed waste	Recycling	East London
Collect all paper	Paper	Recycling	East London
Compass Waste	mixed waste	Waste collection	East London
Enviroserve	mixed waste	Waste collection	East London
Mdantsane Bottle Exchange	Bottle	Recycling	East London
King Box	Cardboard boxes	Recycling	East London
New Reclamation Group	mixed waste	Recycling	East London
Oil Kol	Oil	Recycling	East London
paper man	Paper	Recycling	East London
Rec. Oil	OIL	Recycling	East London

Reclam,	mixed waste	Recycling	East London
Solid Waste Technologies	mixed waste	Recycling	East London
Pro grow compost	organics	Recycling	East London
DNF Waste & Environmental Service	mixed waste	Waste collection	East London
Smart Waste- Ed	mixed waste	Recycling	East London
Buyisa-e-Bag funding	Plastic bags	Recycling	JHB
Chick's	Metal	Recycling	King Williams Town

1.10.7 Waste Profile

1.10.7.1 Waste Generation Quantities

In order for ALM to be able to plan for future waste management activities the types and volumes of waste generated in the area needs to be identified. ALM 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.

1.10.7.1.1 Challenges encountered

- The ALM did not make waste collection / waste billing records available for review for the service provided.
- Further, disposal tonnages are not being recorded at the landfills in ALM since there are no weighbridges. Thus waste generation for ALM should be estimated based on population statistics. However, such an option cannot be completely relied upon because there are no precise waste records, waste is burned at the waste sites and,
- The information for Stutterheim weighbridge results is for the years in which it was in use which is between 2015 and 2018.

- It should further be noted that the statistics information provided lumps together information from the different towns it does not express socio-economic information per region or town.
- Information on recycled waste was not obtainable and no records were available about waste transporters.
- The information provided through the weighbridge use does not specify the weight received of the different types of waste. It lumps the data even though the character of the waste is not the same. Nonetheless the exercise of waste quantification and classification was done.
- The bags obtained from the streets and landfill cannot be linked to a particular household whose socio-economic data is known by the client and the researchers.
- Seasonal variations could not be accommodated in the exercise.

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 ALM.

Table 22: Waste generation by households per income group

Income group	Annual Household Income	Percentage %	Number of households
Low	0-2400		2
	2400-6000		49
	6000-12000		564
	12000-18000		1 140
	18000-30000		3 360
	30000-42000		3680
Low sub-total		32.4	8795
Middle	42000-		3 430
	54000-		3 760
	72000-		3 290
	96000-		2 650
	132000		2 010
	192000		1 760
Middle sub-total		62.3	16900
High	360000		832
	600000		465
	120000		121
	240000		16
High sub-total		5.2	1434
Total		100	27 129

Table 23: Estimated quantity of waste generation per household in income groups in the ALM in 2016

Income group	Estimated Generation quantities per Household (tons)			
	Per day	Per week	Per month	Per year
Low income	13. 21758	92. 52306	370.09224	4 824. 4167
Middle income	45. 87149	321. 10043	1284. 40172	16 743. 09385
High income	6. 67446	46. 72122	186. 88488	2 436. 1779
Total	65. 76353	460.344471	1841. 37884	24 003. 68845

1.10.7.2 Waste Stream Composition

1.10.7.2.1 Methodology

A one-day visit was undertaken per town and landfill site and about 10 bags were obtained from the streets of the towns and another 10 at the landfill. The waste was then sorted according to its character or type. After putting the collected waste according to its character the sample was weighed using a mobile scale, black bags or wheelie bin based on waste type. About **2640.18 kg** of waste was weighed and each waste type was referenced to the total weight of waste observed at these sites in order to estimate percentages of different waste received by the landfills.

Table 24: Waste materials observed on the waste site (S)

Waste category	Quantity (kg) composition	% Composition
High quality office paper	0.545	1.28
Paper other	24.98	9.46
Corrugated cardboard	3.71	1.40
Non-corrugated cardboard	13.84	5.24
Paper & cardboard subtotal	45.91	17.38
Organics - garden waste	46.58	17.63
Organics - food waste	47.91	18.14
Organics subtotal	94.49	35.77
PET Plastic	9.8	3.71
PE-HD Plastic	10.86	4.11
PVC Plastic	1.02	0.45
PE-LD Plastic	4.93	1.87
PP Plastic	6.11	2.31
Polystyrene Plastic	3.19	1.21
Plastics Other	0.28	0.11
Plastics subtotal	36.09	13.66
Hazardous waste	0.38	0.14
Health care risk waste	1.33	0.50
Nappies	8.605	3.26
Hazardous and HCRW subtotal	10.315	3.90
Metal subtotal	6.215	2.35
E- waste subtotal	1.68	0.64
Glass subtotal	18.33	6.94
Construction waste subtotal	1.36	0.52
Other subtotal	10.92	4.13
Fines subtotal	38.85	14.71
TOTAL	2640.18 kg	100.00

1.11 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. The municipality is one of the cleanest in the province. The municipality 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 for 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 ALM towns have no formal relationship with the municipality and necessarily have not signed any indemnity agreements with the municipality in relation to them having access to the sites.

As seen in **figure 21** and **22** below, in general, the municipality has a very good waste ethic which should be maintained that is depicted by few illegal dumping sites that were observed. It does however mean that efforts must be made to ensure that the good standards are kept. The good waste ethic is also supported by municipal awareness campaigns at school level such as the Good Green Deeds that the municipality champions.



Figure 21: Clean Cathcart main road



Figure 22: Clean Keiskammahoek main road

There is a view that that a new site should be established in Stutterheim 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 ADM should establish annually reviewed programs of support for the municipality. Part of the annual program should involve drafting applications for funding through MIG funding amongst other things. Proper waste characterization and quantification should be done targeting 30% of the serviced community and the community at large in particular because waste is currently being banned at the waste sites. The income level of the main waste generators (Private sector and government) is unknown hence a direct and more precise approach of waste characterization and quantification should be prioritised.

Table 24 below is a summary of the environmental issues observed in this particular region. 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 and vandalized. The municipality does have by-laws that need to be enforced.

Table 25: Environmental issues identified

KEY (N=NONE, Y= AVAILABLE, L= LIMITED)

Issue	Stutterheim	Cathcart	Keiskammahoek
Landfill/ waste site	Y	Y	Y
Landfill fencing	Y	Y	Y
Landfill operations and maintenance plan	N	N	N
Landfill permit	Y	Y	Y
Landfill (for closure)		Y	N
Landfill Unpermitted	N	N	N
Daily cover	N	N	N
Landfill monitoring team/ committee	N	N	N
Landfill internal audits	N	N	N
Landfill external audits	N	N	N
Landfill site security office	Y	N	N
Landfill ablution facilities	Y	N	
Leachate management system	N	N	N
Borehole (water quality testing)	N	N	N
Waste collection system	Y	Y	Y
Collection points (strategically positioned)	N	N	N
Staff	Y	Y	Y
Cleansing standards and ops plan/ system	N	N	N
Cleansing information was limited if at all covered	Y	Y	Y

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

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 for all aspects of the service. 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).

1.11.1 Hazardous waste

Although there is no data on volumes of **hazardous waste generated** in ALM, significant amounts of hazardous waste are generated in the region viz: pharmaceutical waste, electronic waste, electrical waste, expired pesticides, paint residuals etc. These hazardous waste streams are generated even at household level while the region does not have facilities to manage hazardous waste. Hazardous waste collected at household level is collected and disposed of with general waste in disposal sites meant for general waste and this is a noncompliance issue.

1.11.2 Electric and Electronic waste

It is illegal to dispose these materials at landfill sites in the country. With access to the sites not being controlled it becomes difficult or impossible to enforce compliance by the municipality.

1.11.3 Medical waste collection

Medical waste collection at clinics and private medical practices are monitored by the provincial department of health. ALM has no knowledge at present how much of this waste is collected.

1.12 Political or Governance / Administrative Analysis

1.12.1 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.

1.12.2 The role of provincial government

The DEDEAT is responsible for monitoring and enforcing waste management standards 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;

1.12.3 The role of local government

ALM are responsible for providing waste management services, and managing waste disposal facilities.

Specific functions to be carried out by ALM 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

1.12.4 By- Law formulation and enforcement

Amahlathi 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.

1.12.5 Amahlathi Community Services Directorate Organogram

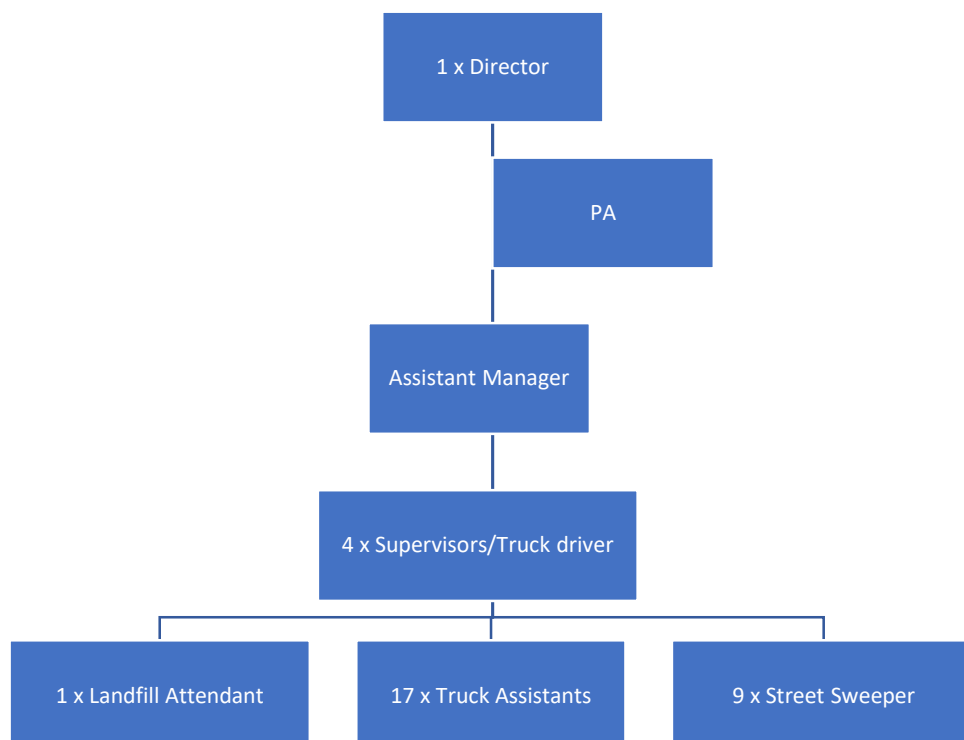


Figure 23: Amahlathi organogram

Figure 23 Above is diagrammatic representation of the ALM directorate of Community Services. Waste and cleansing services are housed in this directorate which also focuses on public amenities such as parks, libraries and traffic management. From the organogram above it is quite clear that stakeholder engagement and other communication aspects of the municipality are challenged and yet this directorate is the face of the organization. Continuous engagement of the community is a necessity for this directorate. It therefore implies that the municipality must decide whether it wants to continue to rely on other directorates or appoint an individual to form part of the directorate or outsource the service and appoint service providers capacitated in Institutional and Social Development (ISD) issues.

There are issues of marketing recyclables that need to be addressed and the current organogram is not capacitated well enough for such. The municipality does not have continuous relations with role players such as waste transporters and waste spotters or recyclers or companies hence it is advisable that the communication/ stakeholder engagement arm of the organization is augmented. The monitoring aspects of the service is also in dire need of augmentation. The municipality does have a designated Waste Management Officer (WMO) in the form of the position of Assistant Manager: Community Services

1.12.6 Amahlathi weekly collection program

Table 26 below is a weekly refuse removal schedule for the municipality. 64% 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. With the financial challenges the municipality faces it implies therefore that there are very limited prospects for the organization to deal with rural waste.

Table 26: Weekly Refuse Collection Schedule

	Sutterheim	Cathcart	Keiskammahoek
Monday	Businesses and Factories	Cathcart High School, Hospital, Old Age Home, Clinic, Surgery, Golf course, Houses, Shops	Residential & Business in town
Tuesday	Residential town, Dhone, Amatolaville and Lower Qolorha	Residential areas, street bins, butchery, shops, litter picking at waste site.	Residential & litter bins in town and Park
Wednesday	Businesses and factories	Kati-kati, business, street bins, litter picking at waste site	Sophumelela township & Business
Thursday	Mlungisi Residential and Zenyu	Daliwe, street bins, litter picking at waste site.	Ash collection, collection of paper
Friday	Businesses, Factories, Kei Road, Amabele, Kologha new Development area	Cathcart High School, Hospital, Old age home, shops, butchery, surgery, street bins, litter picking at waste site	Business areas and paper collection

1.12.7 FINANCING OF WASTE MANAGEMENT

The service is financed primarily through provisions of the Division of Revenue Act and through revenue streams such as collection of rates and taxes. The Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) supported the Municipality by providing funding for waste management intervention - Restoration of Sutterheim waste disposal facility over a three-year cycle period i.e. 2020 – 2023 under the Expanded Public Works Programme in three phases. A total of 6.6 million was allocated in the 2020/201 financial year for Phase 1 where Abantu Environmental Consultants were appointed in October 2020 for implementing the project which was completed in May 2021.

An allocation of R 3.3 million was allocated in the 2022/2023 for phase 2 which includes design and construction of a new cell, drainage system and establishment of a recycling storage facility. A critical precondition for the successful implementation of the ALM 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 ALM should use and whose recommendations it should implement. 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.

1.12.8 Current budget

Table 27: Budget 2022/2023

Cost category	Amount
Employee Related Costs	R 11 255 822
Employee Social Contribution	R 163 965.00
Landfill site Impairments	R 400 000
Repairs & Maintenance (fleet, tools & implements)	R 350 000
Finance Charges- Landfill site interest	
Grants & Subsidies (Contribution to Indigent households)	
General Expenses	R 76 884

TOTAL	R 12 246 671.00
Capital Budget	R 3 300 000
GRAND TOTAL BUDGET	R 15 546 671

1.12.9 Funding instruments

Some of the funding organizations that can assist the ALM in implementing waste management activities are listed in **Table 28** below:

Table 28: Some of the funding sources for waste management projects

LOCAL FUNDING SOURCES
ADM , 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.
<p>Special MIG Innovation Fund (SMIF) has been established to encourage and support innovative projects in municipalities.</p> <p>The SMIF has been established to:</p> <ul style="list-style-type: none"> • 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 Amathole 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.

1.12.10 OTHER SOURCES OF FUNDING

Table 29: 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

1.12.11 IWMP APPROVAL PROCESS

Figure 24 below depicts the role players and process involved in the planning and implementation of the ALM Integrated Waste Management Plan (IWMP) process

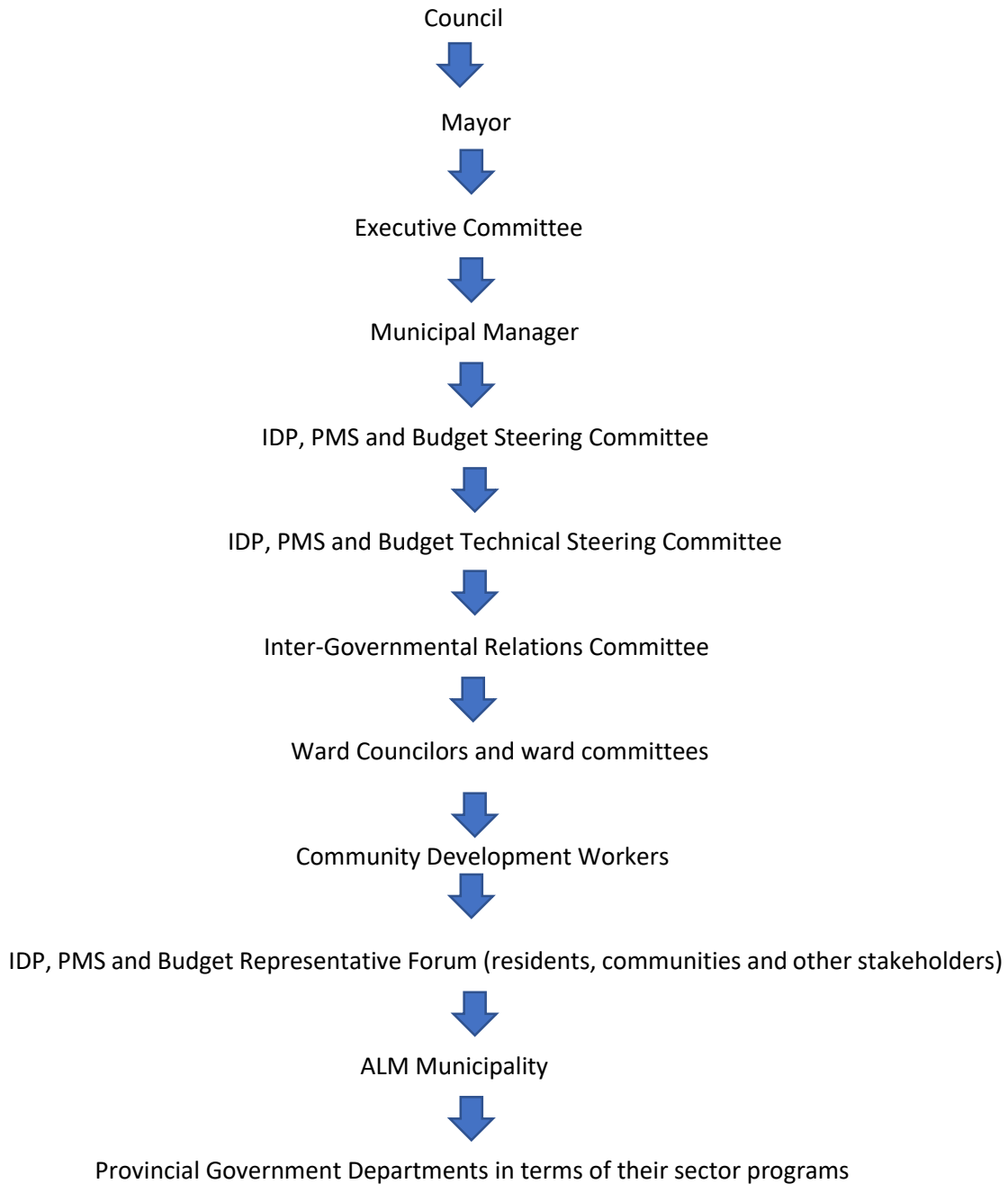


Figure 24: Role players and processes

1.13 SWOT Analysis

Strengths, Weakness, Opportunity and Threats Analysis				
Aspect	Strengths	Weaknesses	Opportunities	Threats
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 ALM	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	ALM 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 ALM	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 ALM	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 ALM 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	ALM 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	All 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

Aspect	Strengths	Weaknesses	Opportunities	Threats
Political/ governance	Very qualified personnel	Migration of labour force	Staff retention plan and staff development	Pouching of staff by bigger municipalities or competition
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
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

1.14 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

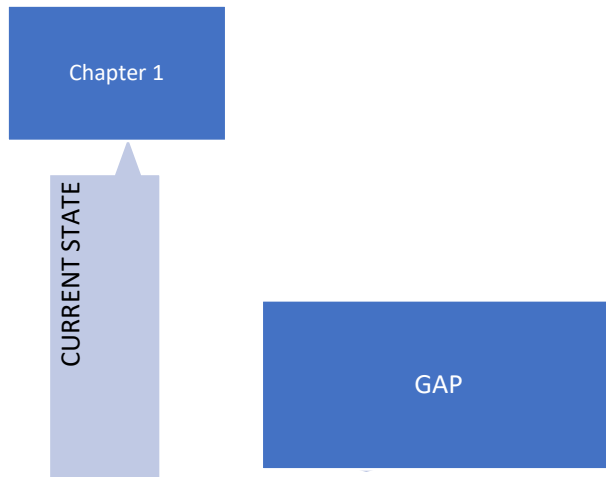
STRATEGIC OBJECTIVES	RISK TYPE	RISK CAUSES	RISKS	RISK CONSEQUENCES	MITIGATION MEASURES
Ensure improved waste information management	Technological	Lack of prioritization of waste in GIS map work	Constricted planning	Huge implementation budget	Include use of GIS in service planning
Build technical capacity 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 piling 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 ALM 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 end 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
 - 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 ALM and the various government institutions
 - Encourage private sector participation in municipal 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
 - 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
 - Emergency rediness should be prioritised

Chapter 3: Objectives, Strategies and Targets (Alternatives identification)

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 ALM. In other words, it addresses how the ALM 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 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 2023
		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. CHLM to coordinate and monitor.	1.2 50 % of government stakeholders participating by 2023 and 100% by 2026
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 2022/2023

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 2022/2023
Planning	1. Explore green economy opportunities in the region	1.5 Encourage youth and women participation in our programmes	1.5 Report on ALM 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 ALM and such information would assist in developing local strategies (e.g. used oil collectors)	1.6 List of participants completed by 2023
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 2023

Implementation	1. Explore green economy opportunities in the region	1.8 Purchase protective clothing for participants in informal recycling	1.8 Protective clothing for participants purchased	1.8 As part of our social responsibility, protective clothes should be purchased meeting health and safety requirements	1.8 ALM to annually purchase protective clothing by 2023
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 2023/2024
Implementation	1.Explore green economy opportunities in the region	1.10 Pilot separation at source initiatives in the municipality	1.10 Separation at source strategy in place in ALM	1.10 From a small scale the ALM should implement a formal or planned pilot program and expand from lessons learnt.	1.10 Pilot projects should start by 2024/2025
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 ALM to agree with its stakeholders what the priorities are for the region taking into account stakeholder needs and interests	2.1 Action plan in place by 2022
Planning	2. Ensure improved communication between stakeholders	2.2 Develop a communication strategy/ plan or matrix relating to LM-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 2022

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 2022-2026
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 2022-2026
Monitoring	2. Ensure improved communication between stakeholders	2.5 Annually do customer care surveys (statistics)	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 ALM	2.5 Starting from 2022-2026
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 ALM	2.6 Starting from 2022-2026
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 2023

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	2.9 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 2022
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 2022/2023
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 2022
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 2022-2026
Monitoring	3.Improve systems and mechanisms in ALM operations	3.1 Set up monitoring and evaluation mechanisms	3.1 Monthly Monitoring report	3.1 Annual municipality IWMP review by LM should be prioritised	3.1 Monitoring and evaluation report in place by 2022

Priority area or focus	Objective	Strategy	Indicator	Standard	Target
Goal 2	Ensure the effective and efficient delivery of waste services.				
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
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. ALM 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 2022

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 ALM Health Check-up programs should conform to law requirements. This would be in compliance with OHS	3.5 Responsive HR plans in place by 2022
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 2022
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 2022
Implementation	4. Build technical capacity and awareness	4.1 Provide 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 2022
Implementation	4. Build technical capacity and awareness	4.2 Assess training needs	4.2 Report submitted to HR about training needs at the 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 2022

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 2022
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 2022
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 2022/23
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 2022

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 2024
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 ALM and the LM to support	6.1 Business plans to be developed as from 2022
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 2022

4. Chapter 4: Implementation Plan & 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.

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

Table 30: Implementation Plan

No.	Action	Priority ranking	2022/23	2023/24	2024/25	2025/26	2026/27	Funding cost PA	Funding source
Objective 1: Explore green economy opportunities in the ALM									
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 with focus on 30% of recipients of service as per stats SA requirements	High	x					45 000	internal
1.4	Encourage private sector participation in ALM forums	Medium	x	x	x	x	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	x	x	x	x	Nil	N/A
1.7	Draw up and sign informal recycler indemnity agreements	Medium	x	x	x	x	x	Nil	N/A
1.8	Purchase protective clothing for Participants in Informal recycling	Low		x	x	x	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	2022/23	2023/24	2024/25	2025/26	2026/27	Funding cost	Funding source
Objective 2 : Ensure improved communication between stakeholders									
2.1	Develop with ALM 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 LM-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 & implement the use of various media platforms to address service delivery issues	Medium	x	x	x	x	x	Nil	N/A
2.5	Annually do Customer care surveys (statistical info)	Medium	x	x	x	x	x	40 000	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 ALM Environmental forum for peer review	Low	x	x	x	x	x	Nil	N/A
2.10	Establish & operationalise landfill monitoring committee	High	x	x	x	x	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	2022/23	2023/24	2024/25	2025/26	2026/27	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 municipal urban area	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	100 000	N/A
3.7	Establish landfill operations and maintenance plans for all facilities	High		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	100 000	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	2022/23	2023/24	2024/25	2025/26	2026/27	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	Maintain weighbridge operations in Stutterheim	Medium	x	x	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 clothing	High	x	x	x	x	x	50 000	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

Table 31: Urgent matters

FINDING	RECOMMENDATION
There are no Operational and Management Plans Plan in place for the landfill sites.	Drafting and implementation of a Management and Operating Plan as per Minimum Requirements and permit conditions.
Absence of plant for daily site works.	Provision of plant on site to perform the required activities as per Minimum Requirements
Insufficient boreholes for water monitoring	A water monitoring system should be installed. Early detection of contaminants in groundwater released from landfill sites helps facilitate timely and effective source control and mitigation. A suitable network of boreholes should be drilled close to the landfill so that ground water can be regularly tested for quality monitoring.
No firebreak/ poor access roads around landfill site	Construction of a firebreak around the facility perimeter is recommended so as to prevent the spreading of possible fires. Also, access roads should be improved to ease access of operators and landfill employees around the site.
Surface profile of waste body not being monitored	Development of an End-Use Plan and Waste Body Slopes Re-Profiling for the site and commencement of progressive rehabilitation / remediation.
Lack of water supply	A reliable supply of water should be provided on-site. This is an essential aspect of good sanitation and health. A constant water supply will also enable the use of ablution facilities by security guards, landfill staff, recyclers and visitors. With the global COVID-19 pandemic, handwashing is a crucial aspect of promoting public health hence the need for a water supply at the landfill site.
There is no rehabilitation plan	Development of a progressive rehabilitation plan, and the rehabilitation of the site as per Minimum Requirements. Drilling of a borehole for water quality monitoring and monitoring of surface water.
No drop off facilities for reduce, re –use and recycle	Demarcate drop off points for recyclables and for emergency situations and involve a social facilitators
Communication is weak	recycling and other waste issues need a dedicated person
weak data	Consider engaging university students or school leavers to assist in data capture of waste information

In reviewing the ALM IWMP and Developing a new one, the objectives of the ALM had to be aligned with national and provincial imperatives. 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 landfills must be included into the tariff structure if not currently done. A reconciliation of the billing system and collection services should be done regularly in order to correctly cost the service. In other words, the cost and 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 annually project budgets 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 enforced for the service regardless of the high levels of compliance by all stakeholders.

The urban areas of Amahlathi 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 or hotspots are 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 upgrading 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 setting up recycling drop off points at residential and business areas. The regression of standards at the Stutterheim landfill site is an indication of a need for the development of operations and maintenance plans for the waste service and the landfill sites. There is also a need for the institution to conduct its own research regarding the recipients of the service and identify strategic areas for servicing

This IWMP will require council approval prior to it being adopted and implemented by the Cleansing Services Sub-directorate. As prescribed by Chapter 3 of the National Environmental Management: Waste Act (59 of 2008), the plan will also, 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).

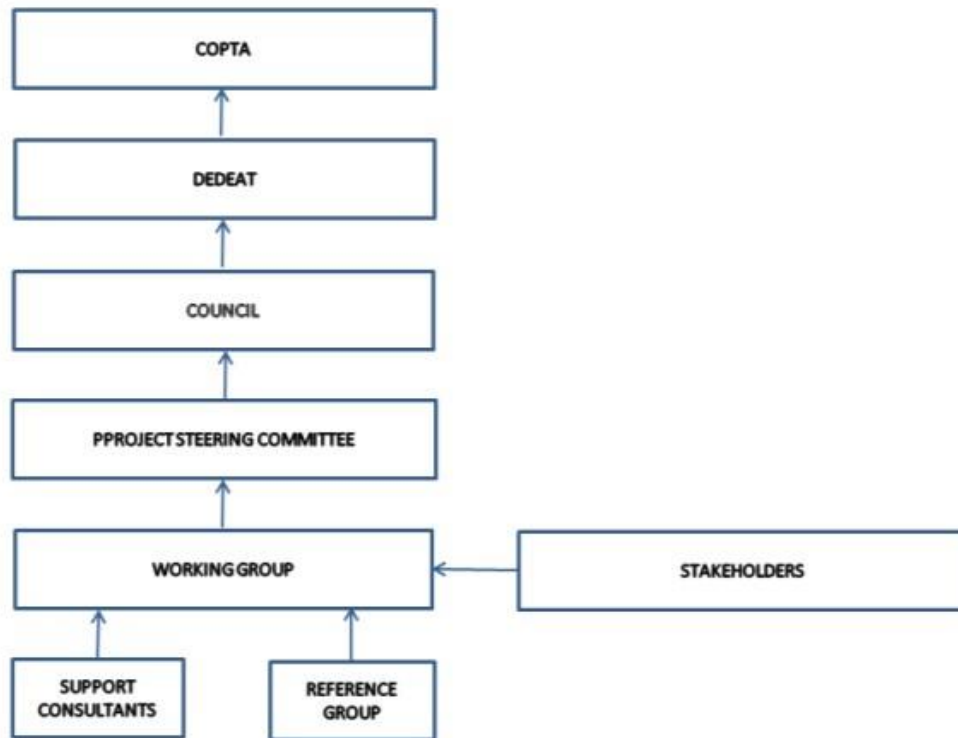


Figure25: The process of IWMP endorsement

Chapter 6. REFERENCES

Reference list

- Amahlathi Municipality Integrated Development Plan 2012/ 2016
- Amahlathi Municipality IWMP, 2012-2017
- Amahlathi Municipality Spatial Development Framework Review, 2012
- Demarcation Board Website: www.demarcation.org.za
- Department of Environmental Affairs and Tourism. (2004). Overview of Integrated Environmental Management, Integrated Environmental Management, Information Series 0, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- Department of Economic Development, Environmental Affairs and Tourism. 2018. Eastern Cape Provincial Integrated Waste Management Plan 2018 – 2023, Draft. Bhisho.
- Department of Environmental Affairs. 2011. National Waste Management Strategy. Pretoria.
- Department of Environmental Affairs. 2011. Solid waste tariff setting guidelines for local authorities. Pretoria.
- Department of Environmental Affairs, 2013. National Environmental Management: Waste Act 59 of 2008: National Norms and Standards for the Storage of Waste, General Notice 926 of 2013. Department of Environmental Affairs, Pretoria.
- Department of Environmental Affairs, 2011. National Policy for the Provision of Basic Refuse Removal Services to Indigent Households, Government Notice 413 of 2011. Department of Environmental Affairs, Pretoria.
- Department of Environmental Affairs; 2011. National Environmental Management: Waste Act, Act No. 59 of 2008: National Domestic Waste Collection Standards; Government Notice 21 of 2011. Department of Environmental Affairs, Pretoria.
- Department of Environmental Affairs; 2014. National Environmental Management: Waste AmenLMent Act, Act No, 26 of 2014. Department of Environmental Affairs, Pretoria..
- DWAF, 1998: Minimum Requirements for Waste Disposal by Landfill, Waste Management
- Department of Water Affairs and Forestry, Second Edition, 1998. Waste Management Series. Minimum Requirements for Waste Disposal by Landfill.
- Department of Environmental Affairs and Tourism and Department of Water Affairs and Forestry, 1999. National Waste Management Strategy, Version D.
- Department of Environmental Affairs and Tourism, 1999. National Waste Management Strategies and Action Plans South Africa: Action Plan for Integrated Waste Management Planning, Version C.
- Eastern Cape Development Corporation Website, www.ecdc.co.za

- Eastern Cape Competitive Advantage Assessment and Training Support Project compiled by European Consultants Organization.
- Eastern Cape Socio Economic Consultative Council 2017 Website, www.ecsecc.org
- Municipal Demarcation Board, 2003: Draft report for District Municipal Areas
- Municipal Demarcation Board, 2004
- Nhamo, G. 2009. Addressing Challenges with Waste Service Delivery in South Africa – Review of Municipal Indigent Policies
- Roads and Transport Infrastructure Master Plan Financial year 2009/2010: Eastern Cape Provincial Department of Roads and Transport
- Statistics South Africa. 2015. Income Dynamics and Poverty Status of Households in South Africa. Pretoria.
- Swanson, T & Goschl, T. 2000. Property rights issues involving plant genetic resources: Implications of ownership for economic efficiency. *Ecological Economics* 32: 75–92.
- Waste Stream Assessment by North Carolina Division of Pollution Prevention and Environmental Assistance
- 2006/2007 Annual report by Department of Health in the Eastern Cape
- Polokwane Declaration, Waste Summit held in 2001: www.environment.org.za
- Eastern Cape Development Corporation Website, www.ecdc.co.za
- Demarcation Board Website: www.demarcation.org.za

Annexure A: Stakeholder Engagement Zoom Meeting participants

1. **Inception meeting**

27 July 2021

2. **Stakeholder Session (PSC)**

30 September 2021

Log in details

<https://teams.live.com/join/94570738252617>

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Annexure B: Stakeholder presentation



Amahlathi Local Municipality DRAFT IWMP

Presentation by: A. Mxenge (30/09/2021)

Outline of the Presentation

A. Introduction	3
B. Efficiency vs Effectiveness	5
C. Overall approach	6
1. Situational analysis	8
2. Gap Analysis Key issues	9
3. Goals, objectives & strategies	17
4. Implementation Plan	19
5. Conclusion and Recommendations	20
List of figures	

Annexure C: Stakeholder comments & response register

Source	Comment	Response
Megan Hugo Cell: 0822593981 Email: megan@indwecon.co.za	Requested a copy of the draft report	A copy of the draft report was submitted to her and she made no further inputs to the process
30/09/2021 PSC	Climate change issues should be included in the document	The TOR did not cover such aspects of the project and the meeting held on 30 September 2021 resolved that the budget and scope of the project should be reworked.
30/09/2021 PSC	Is the municipality capacitated enough to render the service?	The gaps where the municipality is falling short have been highlighted in the document from limitations Gaps identified and recommendations made by the report. However, a more detailed assessment of infrastructure needs that would enhance the service is required and the report has recommended that a recycling study for an example be done in order to give more detailed data that aids planning. The 30/09/21 meeting resolved that more resources should be availed in order to provide more detailed information regarding Infrastructure, Technological and financial assessment and needs for the organization
30/09/2021 meeting resolution	The current government approaches to waste stream analysis relating to characterization and quantification is misleading and too positivistic.	Waste types are made up of different properties and necessarily weigh differently. It is up to the researcher to use whichever data when doing quantification and there is no specific guide. Seasonal variations to waste generation are also not considered in the current approaches. Not all waste types will be obtainable from municipal garbage bags hence more realistic approaches should be used.

		For the sake of progress we have used the format provided by DAF
Comments from DEDEAT (Amathole region)	Identify and address the negative impact of poor waste management practices on health and the environment in the absence of an approved Integrated Waste Management Plan and measures that would be put in place to address them.	The whole exercise was designed to address this particular question hence the situation analysis part of the plan which is linked to an implementation plan that addresses the issues identified as impacts of poor waste management at Amahlathi.
Comments from DEDEAT (Amathole region)	Provide a description of the services that are provided for minimisation, re-use, recycling and recovery, treatment of waste and if there is no such provision that must be clearly indicated in the plan.	The situation analysis part of this plan addresses this question. The chapter addresses aspects of recycling from availability to non-availability of the program as well as the market and infrastructure.
Comments from DEDEAT (Amathole region)	Kindly ensure that all issues, questions and comments received during the Public Participation Period are adequately addressed.	Noted
Comments from DEDEAT (Amathole region)	Kindly ensure that all relevant Interested and Affected Parties (I&APs), organs of state are furnished with the Draft IWMP and given the minimum prescribed period to comment.	Noted
Comments from DEDEAT (Amathole region)	And ensure that all relevant local traditional leaders, ward councillors, municipal authorities etc. are included in the Public Participation process and are furnished with the Draft Plan for comment.	Noted

Annexure D: Site visit pictures

Stutterheim



Cathcart



Keiskammahoek



Annexure E: Daily Dispatch advert of the Public Participation Process

