

Thulamela Local Municipality



Integrated Waste management plan : 2024 to 2029

Final

**integrated waste management plan for Thulamela Local
Municipality**

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Table 1: list of abbreviations & acronyms

List of Abbreviations / Acronyms	
DFFE	Department of Forestry, Fisheries and the Environment
NDP	National Development System
NWMS	National Waste Management Strategy
IDP	Integrated Development Plan
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan
LEDET	Limpopo Economic Development, Environment and Tourism
NEMA	National Environmental Management Act, Act No. 107 of 1998
NEMWA	National Environment Management: Waste Act, 2008
NEM:WA	National Environmental Management: Waste Act, 2014
HCRW	Health Care Risk Waste
MEC	Member of Executive Council
SAWIC	South African Waste Information Centre
SAWIS	South African Waste Information System
TLM	Thulamela Local Municipality
BBBEE	Broad-Based Black Economic Empowerment BEE Black Economic Empowerment
CBD	Central Business District
CBO	Community Based Organisations
CCC	Clean City Campaign
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DEAT	Department of Environment Affairs & Tourism
DEDET	Department of Economic Development, Environment and Tourism

List of Abbreviations / Acronyms	
DM	District Municipality
DMC	District Municipal Council
DoH	Department of Health
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs & Forestry
DWS	Department of Water and Sanitation
ECA	Environment Conservation Act, Act 73 of 1989
EIP	Environmental Implementation Plan
EMI	Environmental Management Inspector
EO	Environmental Officer
EPWP	Extended Public Work Programme
FBRR	National Policy on Free Basic Refuse Removal
GPs	General Practitioners
HCRW	Health Care Risk Waste
HDPE	High Density Polyethylene
HR	Human Resource
IDP	Integrated Development Plan
IWMSA	Institute for Waste Management South Africa
PRO	Producer Responsibility Organisation
EPR	Extended Producer Responsibility
PIWMP	Provincial Integrated Waste Management Plan
WMO	Waste Management Officer
SME's	Small and Medium Enterprise's
WIS	Waste Information System
MRF	Material Recovery Facility
HHW	Household Hazardous Waste

DEFINITIONS

TABLE 2: TABLE OF DEFINITIONS

Word	Description
Department of Forestry, Fisheries and the Environment	This is a government department responsible for managing and regulating various aspects of South Africa's environment, including forestry, fisheries, and environmental protection.
National Development Plan	The NDP is a long-term vision document that outlines South Africa's development goals and strategies for achieving a more equitable and prosperous society. It covers a broad range of sectors, including education, healthcare, employment, infrastructure, and environmental sustainability. The NDP is often considered the cornerstone of South Africa's national development framework.
National Waste Management Strategy	The NWMS is a strategic plan that guides waste management policies and practices in South Africa. It outlines the country's goals for sustainable waste management, including waste reduction and recycling targets.
Integrated Development Plan	Integrated development planning (IDP) is a co-ordinating synergistic legal instrument for municipal planning in South Africa which extends to the national and provincial spheres of government.
Integrated Waste Management	An Integrated waste management is a holistic approach to waste reduction, which includes the reduction, collection, disposal, and recycling of waste in an environmentally responsible and sustainable manner
Integrated Waste Management Plan	An Integrated waste management Plan is a comprehensive strategy that outlines how a municipality or organization intends to manage its waste, including waste reduction, recycling, and disposal methods.

Word	Description
Limpopo Economic Development, Environment and Tourism	LEDET is a government department in Limpopo, South Africa, responsible for economic development, environmental protection, and tourism promotion in the region.
National Environmental Management Act, Act No. 107 of 1998	NEMA is a South African environmental law that provides a framework for managing and protecting the environment, including natural resources and ecosystems.
National Environment Management: Waste Act, 2008, Act 59 of 2008	This is an environmental law in South Africa that focuses on the management of waste and aims to promote responsible waste management practices.
National Environmental Management: Waste Act, 2014, Amended	This is an updated version of the NEMWA that strengthens regulations and provisions related to waste management in South Africa.
Health Care Risk Waste	This refers to waste generated in healthcare facilities that may pose a risk to human health or the environment, such as infectious materials or hazardous chemicals.
South African Waste Information Centre	The South African Waste Information Centre (SAWIC) is a centralized and comprehensive information hub dedicated to collecting, managing, and disseminating data and information related to waste management and environmental conservation. SAWIC serves as a repository for various types of waste-related data, including statistics on waste generation, recycling rates, landfill usage, and other pertinent information. This organization's primary goal is to provide reliable and up-to-date waste-related information to government agencies, organizations, researchers, and the public, supporting evidence-based decision-making and policies aimed at improving waste management and environmental sustainability in South Africa.

Word	Description
South African Waste Information System	The South African Waste Information System (SAWIS) is a comprehensive and integrated data management and reporting system used in South Africa to collect, manage, and analyse information related to waste generation, disposal, recycling, and other aspects of waste management. SAWIS is designed to provide accurate and up-to-date data for decision-making, monitoring compliance with environmental regulations, and developing strategies for sustainable waste management practices in South Africa.

EXECUTIVE SUMMARY

The Integrated Waste Management Plan (IWMP) for Thulamela Local Municipality (TLM) represents a comprehensive strategy aimed at addressing the municipality's waste management challenges while aligning with broader provincial and national objectives. Initiated by the Department of Economic Development, Environment and Tourism (LEDET), this plan is part of a collaborative effort to support municipalities in formulating effective waste management strategies as mandated by national regulations.

Through meticulous Situational Analysis, crucial insights into TLM's waste landscape were obtained, considering demographic shifts, waste characteristics, and existing infrastructure. The IWMP outlines clear and measurable goals, ranging from improving waste services delivery to enhancing institutional capacity and compliance with waste regulations.

Stakeholder engagement has been integral throughout the development process, ensuring diverse perspectives are considered. Recommendations include promoting waste management awareness, enhancing facilities, and implementing waste reduction initiatives.

Monitoring, evaluation, and review mechanisms are vital for IWMP success, with annual assessments recommended to maintain relevance and stakeholder engagement. The IWMP serves as a roadmap towards a resilient waste management framework for TLM, fostering sustainability and positively impacting the local community and environmental landscape.

1. INTRODUCTION

LEDET is dedicated to providing support to seven municipalities in the development of their Local Municipal Integrated Waste Management plans. This initiative aligns with the requirements outlined in section 11 (4) of the National Waste Management Act 2008 (Act no. 59 of 2008). The objective is to assist these municipalities in establishing effective waste management strategies and plans that not only adhere to national regulations but also align with the National Waste Management Strategy. This collaborative effort aims to contribute to a more sustainable and environmentally responsible waste management system. Through this initiative, LEDET seeks to promote responsible waste management practices, ensuring that all plans and actions are in line with the National Waste Management Strategy and that municipalities are well-prepared to manage their waste in compliance with legislative requirements.

A public invitation to bid, titled "Appointment of professional service providers for the development of a municipal integrated waste management plan for seven (07) Municipalities in the Limpopo Province", with the Bid Reference number : EDET 291/2023 was advertised on all relevant platforms.

Thulamela Local Municipality is one of the municipalities selected to develop its Integrated Waste Management Plan (IWMP) through the current process facilitated by the appointed professional service provider, Mosa Green Consulting. This project is part of the initiative to support municipalities in formulating comprehensive waste management strategies as mandated by relevant regulations. Mosa Green Consulting will play a pivotal role in guiding and assisting Thulamela Local Municipality in crafting an effective IWMP that aligns with regulatory standards and promotes sustainable waste management practices within the region.

The aim of the Integrated Waste Management Plan (IWMP) for Thulamela Local Municipality is to assess the current state of waste management and propose strategies for its improvement. Specifically, the objective is to outline a roadmap for waste management in the municipality over the next five years. In line with the National Waste Management Strategy of 2020 (NWMS), the primary goal is to integrate and optimize waste management practices to maximize efficiency while minimizing environmental impacts and financial costs. By doing so, the IWMP seeks to

enhance the quality of life for all residents of Thulamela and contribute to sustainable development in the region. This involves implementing measures to reduce waste generation, increase recycling and resource recovery, and ensure the proper disposal of residual waste. Additionally, public education and community engagement will play a crucial role in fostering a culture of responsible waste management practices. Overall, the IWMP aims to create a more sustainable and resilient waste management system that meets the needs of the population in Thulamela Local Municipality. The NWMS also presents the waste management hierarchy which outlines the preferred methods for management of waste, as illustrated in figure 1 below,

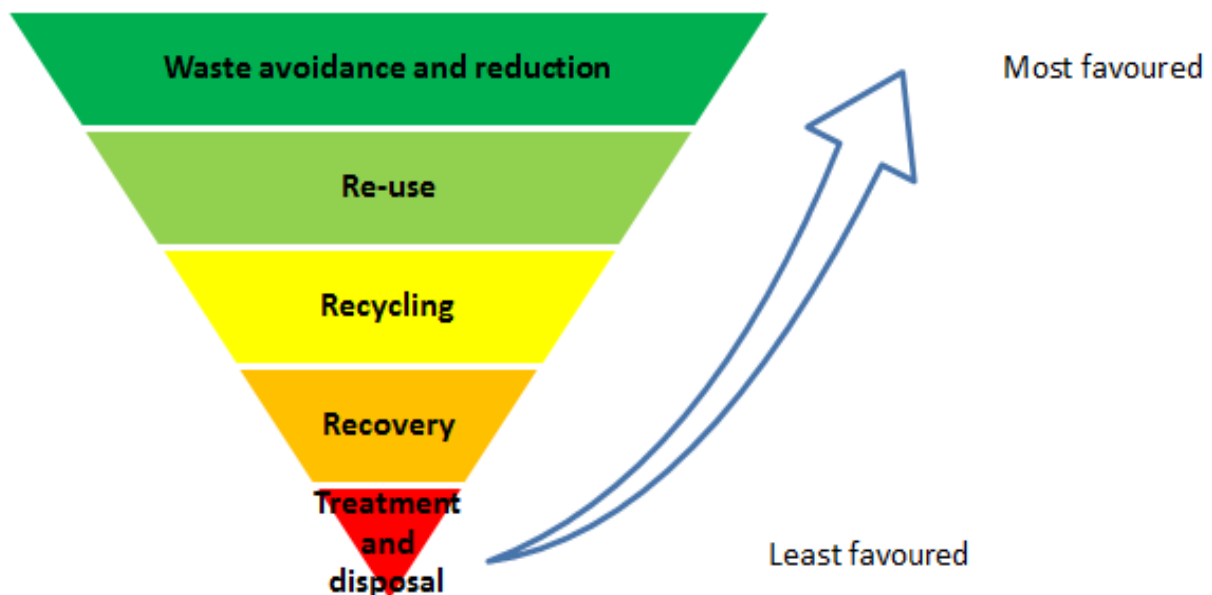


Figure 1: The Waste Hierarchy as per The National Waste Management Strategy , (DEA, 2011)

1.1. DEFINITION OF WASTE

The Waste Act defines waste as follows:

- a) any substance, material or object that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 of this Act; or
- b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette, but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste-
 - I. once an application for its re-use, recycling or recovery has been approved or, after such approval once it is, or has been re-used, recycled or recovered;
 - II. where approval is not required, once a waste is, or has been re-used, recycled or recovered;
 - III. where the Minister has, in terms of Section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste;
 - IV. where the Minister has, in the prescribed manner, excluded any waste stream of a portion of a waste stream from the definition of waste.

1.2. INTEGRATED WASTE MANAGEMENT PLAN DEVELOPMENT PROCESS

The primary aim of IWMPs is to consolidate and streamline waste management planning within the province to maximize effectiveness while minimizing environmental impacts and financial costs. This effort also seeks to enhance the overall quality of life for all South Africans. In addition to the Waste Act, two documents were considered when developing this IWMP. The first is the Department of Environmental Affairs (DEA) Guideline for the Development of Integrated Waste Management Plans (IWMPs). Figure 1, illustrates the adopted process which was used for integrated waste management planning.

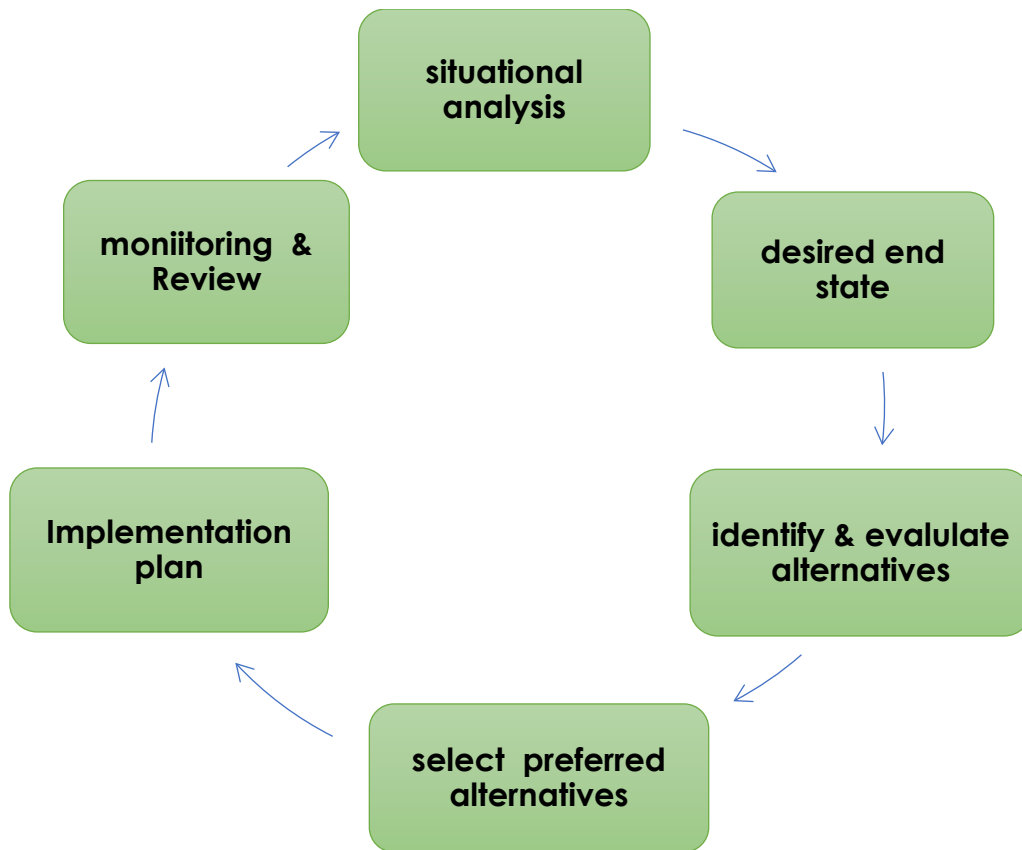


Figure 2: IWMP Planning Process

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

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

1.3. LEGISLATIVE REQUIREMENTS

The Republic of South Africa is committed to environmental protection through a comprehensive legislative framework. The nation adheres to various national acts, regulations, guidelines, and international conventions that play a crucial role in shaping the development of Integrated Waste Management Plans (IWMPs). The upcoming sections and tables offer a brief summary of critical South African legislation that oversees waste management.

The requirements of the National Environmental Management Waste Act (Act 59 of 2008, as amended) (refer to Table 3) and the Department of Environmental Affairs (DEA) Guideline for the Development of Integrated Waste Management Plans were used to guide the development of this IWMP.

TABLE 3: Table Of The South African National Acts

National Act	Relevance
The Constitution of the Republic of South Africa (Act 108 of 1996)	The supreme law of the country and provides the legal foundation for every law developed. 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, promote conservation, and secure ecologically sustainable development and use.
The National Environmental Management Act (Act 107 of 1998) as amended (NEMA)	The framework Act dealing with environmental management in South Africa. It imposes a duty of care on every person who causes environmental degradation to put measures in place to stop, reduce or rectify the pollution as it occurs. The Environmental Impact Assessments (EIAs) that are required for the establishment and management of waste facilities are conducted under this legislation. The National Environmental Management Principles in S2 of the Act provide for the sound management of the environment, which includes waste aspects such as the polluter pays-, duty of care-, proximity-, regionalization- and cradle-to-grave principles. S24 of the Act makes provision for the application and enforcement of waste management licenses. The duty of care and the remediation of environmental damage are addressed in S28 of the Act. The principles enunciated in the NEMA need to inform waste management decision making and practices.

National Act	Relevance
The National Environmental Management Act: Waste Act (Act 59 of 2008) as amended (NEM:WA)	Regulates waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith. S11 of the NEW:WA, as amended, requires provincial departments, responsible for waste management to prepare IWMPs. S12 of the Act elaborates on the contents of IWMPs, while S13 provides the requirements for the implementation and reporting of IWMPs. Section 11.4 (a) requires municipality to submit its IWMP to the MEC for endorsement.
The National Environmental Management: Air Quality Act (Act 39 of 2004) as amended	Reforms the law regulating air quality in order to protect the environment by providing measures for the prevention of pollution and ecological degradation and for securing ecological sustainable development while promoting justifiable economic and social development; provides for national norms and standards regulating air quality monitoring, management and control of all spheres of government; for specific air quality measures; and for matters incidental thereto. This Act is furthermore relevant to the management of waste as it may impact on air quality and ultimately contribute to the mitigation of climate change. S15 of NEM: AQA requires the provincial department responsible for air quality management to prepare an Air Quality Management Plan. This plan is separate from the IWMP, but the MPIWMP does take mitigation and planning measures into account in the context of the impacts of waste on air quality.

National Act	Relevance
The National Water Act (Act 36 of 1998) (NWA)	Controls pollution as it impacts upon surface and ground water in the country. The Act imposes a duty of care on polluters to restrict the amount of pollution contaminating water resources. It also deals with Water Use Licenses. These are needed for users who discharge water containing waste into a water resource, amongst others. The MPIWMP shall take cognizance of the requirements of the NWA to the extent that it relates to waste management. S20 – prescribe the control of emergency incidents that may pollute or have detrimental impact on a waste source S21 – lists “water uses” activities that necessitates an application for a Water Use License amongst: Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; Disposing of waste in a manner which may detrimentally impact on a water resource; Disposing in any manner of water which contains waste from or which has been heated in any industrial or power generation process.
National Waste Management Strategy of the NEM: WA, 2008 (NWMS)	Compulsory National Standards in terms of S9(1) and Measures to Conserve Water in terms of S 73(1)(j) A water services institution must take reasonable measures to prevent any substance other than uncontaminated storm water to enter – any storm water drain; or any watercourse, except in accordance with the provisions of the National Water Act, Act 36 of 1998. A water services institution must take reasonable measures to prevent storm water from entering its sewerage system. Item 12 (draft) Compulsory National Standards: A water services institution must ensure that any major or visible leak in its water services system is repaired within 48 hours after the water services institution became aware thereof.

National Act	Relevance
	A water services institution must have a consumer service to which leaks can be reported.
The Environment Conservation Act (Act 73 of 1989)	Provides for the effective protection and controlled utilization of the environment. This Act has been largely re-pealed by the NEMA, but certain provisions remain, such as the Regulations for the prohibition of the use, manufacturing, import and export of asbestos and asbestos-containing materials (GN 341 of 2001), which is applicable to the management of asbestos- or asbestos-containing waste material.
The Mineral and Petroleum Resources Development Act (Act 28 of 2002)	Given effect to the objects of Integrated Environmental Management mining applications are required to include an Environmental Management Plan (EMP), which covers waste management issues. Provides for the regulation and management of mining waste in the form of residue deposits and residue stockpiles. The management of residue deposits and residue stockpiles has been excluded from the MPIWMP, since the management of these mining-related wastes is the mandate of the Department of Mineral Resources (DMR).
The Explosives Act (Act 15 of 2003)	Provides for the regulation of explosives including the destruction thereof. This Act is relevant to the waste economy only in so far as the destruction/disposal of explosives is concerned.
National Health Act, 2003 (Act 63 of 1977)	Defines "municipal health services" to include water quality monitoring; food control; waste management; health surveillance of premises; surveillance and prevention of communicable diseases, excluding immunizations; vector control; environmental pollution control; disposal of the dead; and chemical safety, but excludes port health, malaria control and control of hazardous substances. S20 (1) (a) states that "every local authority shall take all lawful, necessary and reasonably practicable measures to maintain its district at all times in a hygienic and clean condition."

National Act	Relevance
	S20(1)(b) states that “every local authority shall take all lawful, necessary and reasonably practicable measures to prevent the occurrence within its district of any nuisance, unhygienic condition, offensive condition or any other condition dangerous to the health of any person.” S32 of the Act requires that the municipal health services [including waste management must be effectively and equitably provided. Furthermore, national and provincial government must enter into a service level agreement as contemplated in S156 (4) of the Constitution, assigning the administration of the listed matters to the Municipality. The service level agreement must according to S32(3) provide for: • the services to be rendered by the Municipality; • the resources that the relevant member of the Executive Council must make available performance standards which must be used to monitor services rendered by the Municipality; and conditions under which the agreement may be terminated. This Act also pertains to health care waste management, which is referred to as Health Care Risk Waste (HCRW) in the Waste Act. The Act in relation to waste activities designates the municipal services by including waste management in terms of formulating regulations regarding medical and health care waste by the Minister responsible. Note that careful consideration should be given in the MPIWMP with regards to HCRW because health care waste and hazardous waste are considered as a provincial responsibility. (it is undertaken by the Department of health)

National Act	Relevance
The Disaster Management Act, (Act 57 of 2002)	provides a framework for the effective management and coordination of disaster response and recovery efforts in South Africa. It outlines the roles and responsibilities of various authorities, establishes the National Disaster Management Centre, and sets forth procedures for declaring a state of disaster. The Act aims to enhance the country's resilience and preparedness in dealing with disasters, whether natural or human-made, and facilitates a coordinated and efficient response to mitigate their impact on communities and infrastructure.
The National Health Act (Act 61 of 2003)	The National Health Act (Act 61 of 2003) is a pivotal piece of legislation in South Africa that governs various aspects of the country's health system. Enacted to promote and protect public health, the Act outlines principles and norms for healthcare services. It addresses matters such as patient rights, confidentiality of health information, and the establishment of the Office of Health Standards Compliance.
The Hazardous Substances Act (Act 15 of 1973)	The Hazardous Substances Act (Act 15 of 1973) in South Africa is legislation designed to regulate the control, use, and handling of substances with inherent hazards. Enacted to protect public health and the environment, the law empowers the government to oversee the import, manufacturing, sale, and disposal of hazardous substances. This includes the classification of such substances, setting permissible exposure limits, and the licensing of activities involving them. The Act aims to mitigate potential risks associated with hazardous substances, ensuring that their management adheres to strict safety standards.
The Housing Act, No. 107 of 1997	S9(1) (a) (ii) states that "every Municipality must, as part of the Municipality's process of integrated development planning, take all reasonable and necessary steps to ensure that conditions not conducive to the health and safety of the inhabitants of its area are prevented or removed."

National Act	Relevance
The Municipal Structures Act (Act 117 of 1998)	The Municipal Structures Act (Act 117 of 1998) sets the stage for effective waste management at the local level in South Africa by defining the structure and functions of municipalities. Within the framework of this Act, municipalities are empowered to develop and implement Integrated Waste Management Plans (IWMPs) in line with national legislation, such as the Waste Act of 2008. The Act establishes the authority and responsibilities of local government in waste management, emphasizing the importance of coordination, planning, and community involvement. This ensures that municipalities play a vital role in managing and mitigating the environmental impact of waste within their jurisdictions.
The Municipal Systems Act (Act 32 of 2000) as amended	Establishes the need for environmentally sustainable service delivery and the need for local IDPs. The Act defines the different levels of service provider and distinguishes between the service authority and the service provider. The Act states that municipal services have to be financially sustainable. It establishes the process through which municipalities should go in order to outsource service delivery functions, through the S78 process.
The Municipal Finance Management Act (Act 56 of 2003)	Should be complied with should a Municipality decide to outsource service delivery functions. The object of this Act is to secure a sound and sustainable management of the fiscal and financial affairs of municipalities and municipal entities by establishing norms and standards and other requirements for- Ensuring transparency, accountability and appropriate lines of responsibility in the fiscal and financial affairs of municipalities; • The management of their revenues, expenditures, assets and liabilities and the handling of the financial dealings.

National Act	Relevance
	• Budgetary and financial planning processes and the coordination of those within the processes of organs of state in other spheres of government. • Borrowing; • The handling of financial problems in municipalities; • Supply chain management; and Other financial matters.
The Occupational Health and Safety Act (Act 85 of 1993)	Contains provisions that protect waste workers from harm during the waste management process. In particular there are regulations protecting workers and the public from exposure to asbestos, hazardous chemicals and lead. The act and its regulations are of particular importance to the management of the health and safety of workers responsible for the handling of waste. This Act could also be applicable to waste harvesters, if they are allowed by a Municipality to reclaim waste. All waste facilities and its employers are covered by this act defining safe working environment and conditions. This includes the responsible management of people salvaging from a waste facility.
The Public Finance Management Act (Act 29 of 1999) as amended	Regulates financial management in the national and provincial government to ensure that all revenue, expenditure, assets and liabilities of those government are managed efficiently and effectively, to provide for the responsibilities of persons entrusted with financial management in those government, and to provide for matters connected therewith. This Act is of importance to the financial aspects of waste management planning.
The National Domestic Waste Collection Standards	The National Domestic Waste Collection Standards, as outlined in Government Gazette No. 33935 on 21 January 2011, serve as a crucial set of guidelines in South Africa for the proper and standardized collection of domestic waste. These standards provide a framework for municipalities and waste

National Act	Relevance
(Government Gazette No. 33935, 21 January 2011)	management entities to ensure consistency and efficiency in the collection process, addressing aspects such as collection frequencies, container types, and segregation practices. By setting clear parameters, these standards contribute to effective waste management practices, promoting environmental sustainability and public health
The National Policy for the Provision of Basic Refuse Removal Services to Indigent Households (GN 34385, 22 June 2011)	The National Policy for the Provision of Basic Refuse Removal Services to Indigent Households, a stipulated in Government Notice 34385 on 22 June 2011, outlines a comprehensive framework in South Africa for ensuring that basic refuse removal services are provided to households facing financial hardships. The policy is designed to promote inclusivity and address socio-economic disparities by establishing criteria for identifying indigent households and defining the scope of essential refuse removal services that should be provided to them. It likely includes considerations such as the frequency of refuse collection, types of waste covered, and mechanisms for ensuring affordability for qualifying households. To gain a precise understanding of the policy's details, referring directly to the official government publication or relevant authorities in South Africa is recommended.

Table 4: Table Of Regulations & Policies Governing Waste Management

Regulation/policy /legislation	Summary
The White Paper on Integrated Pollution and Waste Management for South Africa (1999)	The White Paper on Integrated Pollution and Waste Management for South Africa (1999) is a foundational document that provides a strategic framework for managing pollution and waste in an integrated manner. This policy blueprint outlines the principles, objectives, and strategies for achieving sustainable development while minimizing adverse environmental impacts. Some key elements commonly found in such documents.
The National Policy on Thermal Treatment of General and Hazardous Waste GN 777 of 2009	The National Policy on Thermal Treatment of General and Hazardous Waste, as outlined in Government Notice (GN) 777 of 2009, serves as a regulatory framework for the thermal treatment of both general and hazardous waste in South Africa The policy presents government's position on the thermal treatment of waste as an acceptable waste management option in SA. The incineration of general and hazardous waste in dedicated incinerators or other high-temperature thermal treatment technologies including but not limited to pyrolysis and the gasification and co-processing of selected general and hazardous waste as alternative fuel and/or raw materials (AFR) in cement production is provided for. Schedule 4 of the policy sets out minimum conditions that must be adhered to at these facilities.
Waste Tyre Regulation GNR 149 of 2009	The Waste Tyre Regulations, as outlined in Government Notice GNR 149 of 2009 in South Africa, establish specific guidelines and requirements for the management and disposal of waste tyres. The management of waste tyres are handles under the Waste Bureau, which is managed by The DFFE.
The Waste Sector Plan GNR 270 of 2011	It provides an overview of the existing waste generation rates and the backlog in waste services at the district municipality level. Additionally, the document outlines the broader landscape of the waste

Regulation/policy /legislation	Summary
	sector, elucidating the roles and responsibilities of various stakeholders, encompassing both government entities and private sector participants.
The National Domestic Waste Collection Standards GNR 21 of 2011	Government Notice GNR 21 of 2011, known as the National Domestic Waste Collection Standards, sets forth comprehensive guidelines for the collection of domestic waste in South Africa. These standards establish a framework for municipalities and waste management entities, outlining specific criteria for the proper and consistent collection of household waste. The document likely addresses various aspects, including collection frequencies, types of waste accepted, container specifications, and measures to enhance the efficiency and effectiveness of domestic waste collection services.
The National Waste Management Strategy GNR 344 of 2011 (NWMS)	Government Notice GNR 344 of 2011 introduces the National Waste Management Strategy (NWMS) in South Africa. This strategic document outlines the comprehensive framework and objectives for waste management practices in the country. The NWMS likely covers various aspects, including waste minimization, recycling initiatives, disposal methods, and regulatory frameworks. It may also emphasize the principles of sustainability, environmental conservation, and the integration of waste management into broader developmental goals.
The National Waste Information Regulation GNR 625 of 2012	Government Notice GNR 625 of 2012, known as the National Waste Information Regulation, establishes a regulatory framework for the comprehensive management of waste information in South Africa. These regulations likely outline specific requirements for the reporting, collection, and dissemination of data related to waste generation, disposal, recycling, and other relevant aspects. The objective is to enhance transparency, promote effective waste management practices, and facilitate informed decision-making

Regulation/policy /legislation	Summary
The National Norms and Standards for the Remediation of Contaminated Land and Soil Quality in the Republic of South Africa GN 467 of 2013	Government Notice GN 467 of 2013 introduces the National Norms and Standards for the Remediation of Contaminated Land and Soil Quality in the Republic of South Africa. This regulatory document sets forth guidelines and benchmarks for the assessment and remediation of land contaminated by pollutants. The norms and standards likely detail the procedures, methodologies, and acceptable levels for remediating contaminated sites, with the aim of protecting human health and the environment.
The List of Waste Management Activities that Have or Are Likely to Have a Detrimental Effect on the Environment GN 921 of 2013	Government Notice GN 921 of 2013 pertains to the List of Waste Management Activities that Have or Are Likely to Have a Detrimental Effect on the Environment. This regulatory document likely enumerates specific waste management activities that could potentially harm the environment. The list may include activities that require special attention, monitoring, or permits due to their potential negative impact on ecosystems, air, water, or soil quality.
The Waste Classification and Management Regulation GNR 634 of 2013	Regulate the classification and management of waste in a manner which supports and implements the provisions of the Act, establishes a mechanism and procedure for the listing of waste management activities that do not require a waste management license, prescribes requirements for the disposal of waste to landfill, prescribes requirements and timeframes for the management of certain wastes, and prescribes the general duties of waste transporters and managers
The National Norms and Standards for the Assessment of Waste for Landfill Disposal GNR 635 of 2013	Government Notice GNR 635 of 2013 introduces the National Norms and Standards for the Assessment of Waste for Landfill Disposal in South Africa. This regulatory document likely outlines the criteria and guidelines for evaluating waste materials destined for landfill disposal. The norms and standards may cover aspects such as waste characterization, classification, and permissible disposal methods. The

Regulation/policy /legislation	Summary
	objective is to establish a systematic approach to assess and manage waste prior to landfilling, ensuring compliance with environmental regulations and minimizing adverse impacts on the surrounding environment.
The National Norms and Standards for Disposal of Waste to landfill GNR 636 of 2013	Government Notice GNR 636 of 2013 introduces the National Norms and Standards for the Disposal of Waste to Landfill in South Africa. This regulatory document is likely to delineate the specific criteria, guidelines, and requirements governing the disposal of waste in landfills. The norms and standards may encompass aspects such as landfill site design, waste acceptance criteria, operational practices, and environmental monitoring. The overarching goal is to establish a systematic and environmentally sound framework for the disposal of waste in landfills, ensuring that it aligns with sustainable waste management practices and minimizes adverse environmental impacts.
The National Norms and Standards for the Extraction, Flaring and Recovery of Landfill GNR 924 of 2013	Aims at controlling the extraction, flaring or recovery of landfill gas at facilities which were initiated, constructed or up-graded after the coming into operation of these standards, in order to prevent or minimize potentially negative impacts on the bio-physical and socio-economic environments.
The National Norms and Standards for the Scrapping or Recovery of Motor Vehicles GNR 925 of 2013	Aims at controlling the scrapping or recovery of motor vehicles at a facility with an operational area in excess of 500 m ² in order to pre-vent or minimize potentially negative impacts on the bio-physical and socio-economic environment.
The National Norms and Standards for the Storage of Waste GNR 926 of 2013	Provides a uniform national approach relating to the management of waste storage facilities, ensure best practice in the management of waste storage facilities, and provide a uniform standard for the design and operation of new and existing waste storage facilities.

Regulation/policy /legislation	Summary
The National Norms and Standards for Organic Waste Composting (draft) GN 68 of 2014	Aims at controlling the composting of organic waste at a facility that falls within the threshold of these norms and standards in order to prevent or minimize potentially negative impacts on the bio-physical and socio-economic environment.
National Treasury: Environmental Fiscal Reform Policy, 2006	The aim of the policy is to introduce instruments, such as taxes and charges that are environmentally based as an approach of supporting sustainable development.
Strategic Framework for Sustainable Development in South Africa, 2006	Addressing consumption patterns and meeting the United Nations Millennium Development Goals (MDGs) (now referred to as the UN Sustainable Development Goals)
Municipal Waste Sector Plan Policy 2012	All sector departments should account for all service backlogs and based on this information develop a sector service plan. The sector plan provides a summary of the current status of waste generation and waste service backlogs at district Municipality level. It further provides an overview of the waste sector including the roles and responsibilities of all the different players including the different spheres of government and the private sector.

2. SITUATIONAL ANALYSIS

2.1. SCOPE AND PURPOSE OF THE SITUATION ANALYSIS

The initial phase of any Integrated Waste Management Plan (IWMP) involves a comprehensive situation analysis. It's crucial to recognize that this analysis provides a snapshot of the present state of waste management. Given the dynamic nature of legislative adjustments and continuous operational shifts, the situation analysis is in a constant state of evolution. It is imperative to conduct a thorough review of the situation analysis, at least aligning with the five-year IWMP review, considering all facets of waste management, encompassing aspects such as waste infrastructure, institutional capacity, and the financial aspects of waste management services.

2.2. METHODOLOGY

The investigation into the situational analysis followed the subsequent methodology:

- (i) Comprehensive records from the Municipality's Waste Management Section were acquired for the study's purposes.
- (ii) Municipality site visits occurred on November 09th and 10th , with interviews conducted with relevant representatives.
- (iii) On the specified dates, all areas within the study were personally visited to gain first hand insights into the current status of waste management services.
- (iv) Site visits on the same dates included inspections of waste infrastructure, particularly waste disposal sites.
- (v) Waste characterisation studies were done on the municipal landfills
- (vi) Financial details pertaining to waste management were extracted from the Final Reviewed IDP Budget 2021/2022.
- (vii) General information was gathered as part of the investigative process obtained from the Thulamela Local Municipality IDP (2022/2023) and STATS 2022 data
- (viii) Mosa Green Consulting ensured that this situational analysis report includes the following information, as outlined in Chapter 3, Section 12 of the Waste Act.

2.2. GEOGRAPHIC AREA

The Vhembe District is situated in the northern part of the Limpopo Province and shares borders with the Capricorn and Mopani districts to the east and west, respectively. These borders extend to Zimbabwe in the north, Botswana in the northwest, and Mozambique in the southeast through the Kruger National Park. Covering an area of 25,597 square kilometres, the district encompasses four towns: Makhado, Malamulele, Musina, and Thohoyandou.

As of 2022 Stats SA results, the Vhembe District has a total population of 1 653 022 people. The population distribution across the local municipalities is as follows: 575 929 in Thulamela, 502 397 in Makhado, 443 798 in Collins Chabane, and 130 899 in Musina local municipality. Thulamela Local Municipality stands out as the most populous municipality in the district, while Musina LM is the least populated.

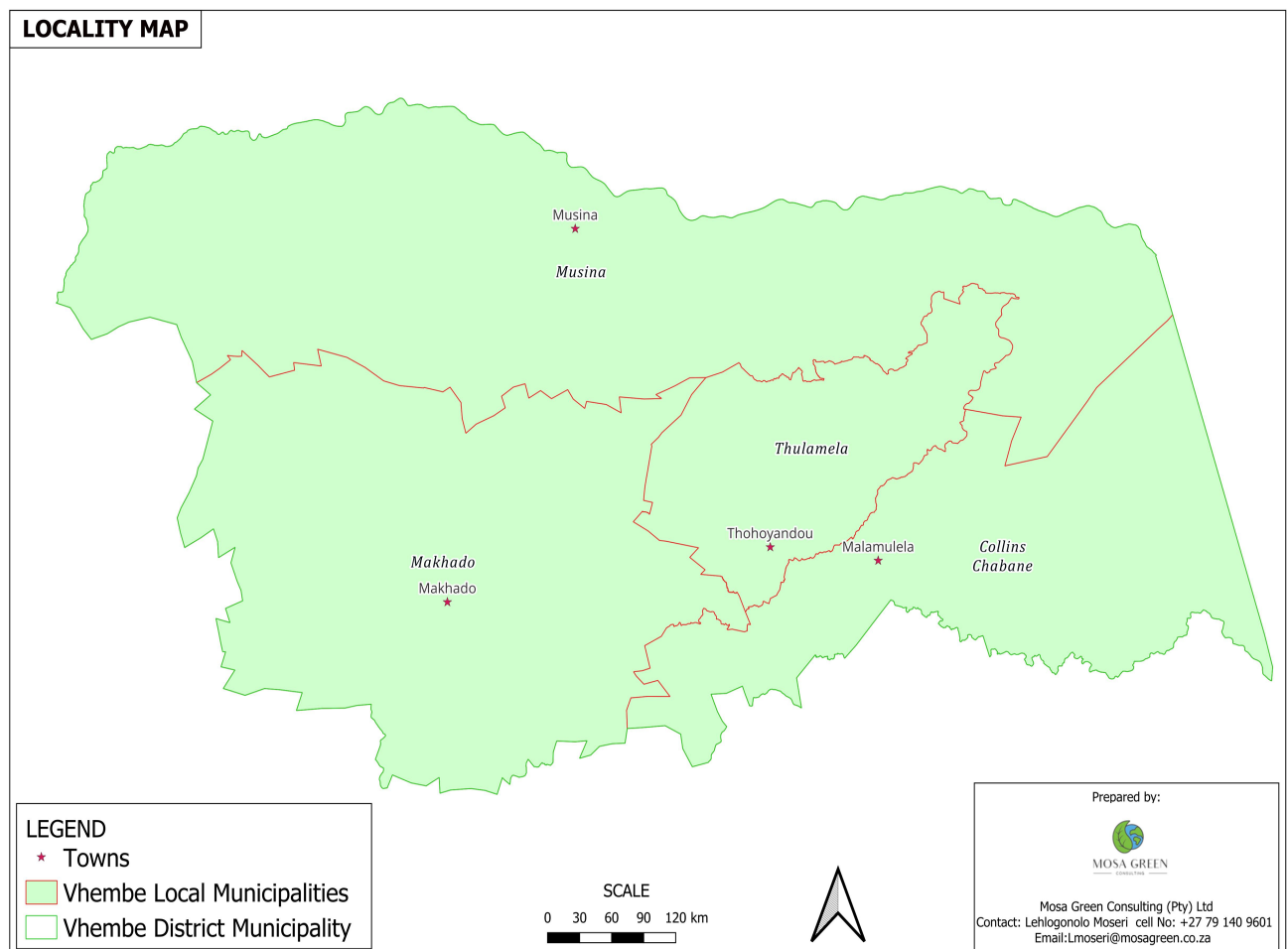


Figure 3: Vhembe District Municipality Map

2.3. LOCALITY THULAMELA LOCAL MUNICIPALITY

The Thulamela municipal area covers approximately 2,966.41197 square kilometres, which accounts for 13.86% of the total area of the Vhembe District Municipal Area. In terms of population, it is estimated that Thulamela is home to around 537,454 people, constituting 48.95% of the total population of the Vhembe District Municipal Area. The Thulamela municipal area is divided into 38 wards, each representing a distinct administrative and geographic unit within the municipality. These figures highlight the significant size and population concentration of Thulamela within the broader context of the Vhembe District.

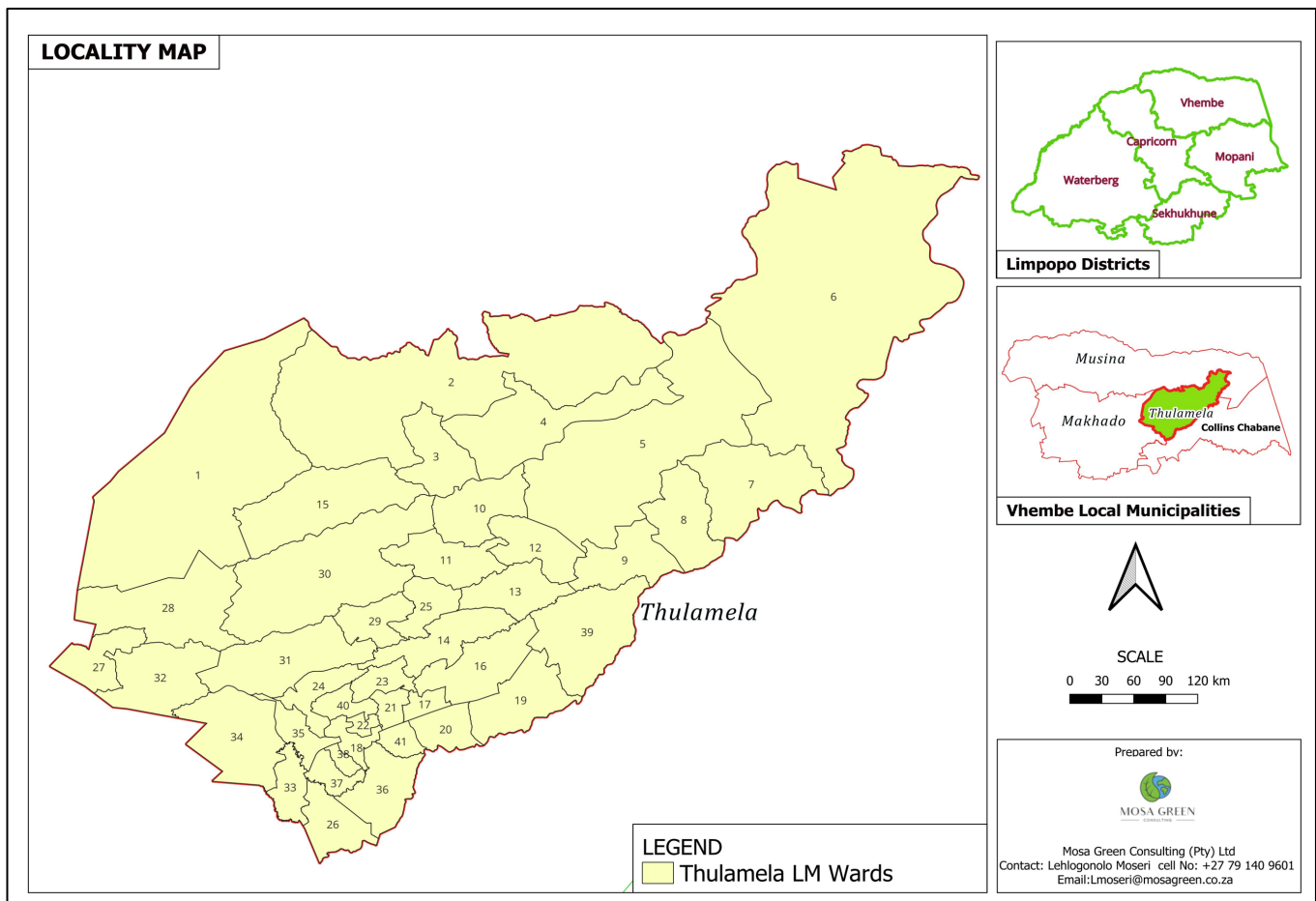


Figure 4: Thulamela Local Municipality -Locality Map with the wards

2.4. DEMOGRAPHICS AND POPULATION GROWTH

2.4.1. DEMOGRAPHIC – POPULATION AND PROFILE

The combination of demographic features and developmental traits in Thulamela Local Municipality provides a thorough overview of its population. Demographics involve a variety of statistical factors that illustrate the composition of a community at a particular moment and location. These factors cover aspects such as gender, race, age, socioeconomic status, how households are spread out, poverty rates, educational achievements, employment status, and more. Together, they paint a comprehensive picture of the people living in Thulamela Local Municipality.

In the context of waste management, demographic data plays a crucial role in accurately forecasting both current and expected waste volumes. This information is vital for various reasons, including the precise assessment of present waste generation and the anticipation of future trends in waste production.

According to the guidelines set forth by the Department of Environmental Affairs (DEA) Integrated Waste Management Plan (IWMP) in 2009, demographic data plays a crucial role in forecasting present and future amounts of waste. This information is vital to:

- Ensure that areas that were previously underserved, including informal settlements and thinly populated rural regions, are taken into account.
- Serve as the basis for estimating the quantities and types of waste in the projections.
- Evaluate the potential for financial recovery in waste management initiatives.
- Assess the required resources for delivering waste management services and constructing associated infrastructure.

Essentially, demographic data is crucial for making precise predictions, addressing areas that lack proper services, and strategically planning effective waste management and related initiatives in alignment with the guidelines provided by the Department of Environmental Affairs (DEA).

2.4.1.1. POPULATION SIZE AND DISTRIBUTION

Population data has been extracted from Statistics South Africa, relying on the records of the 2022 Census and the Thulamela Local Municipality Integrated Development Plan (IDP) for the year 2021/2022. According to the latest Statistics South Africa Census conducted in 2022, the Thulamela Local Municipality (TLM) has a total population of 575 929 individuals distributed across 142 527 households. This reflects a substantial 21.8% increase compared to the population figures recorded in the 2011 Stats SA census, which reported a population 450 131 for the municipality.

Over the period from 2011 to 2022, there has been a substantial 27.9% increase in the total population, reaching 575,929. Gender dynamics have witnessed noteworthy shifts, with a decrease in the proportion of males from 45.1% to 46.6% and a concurrent increase in the proportion of females from 54.9% to 53.4%. While the male population experienced a slight decrease of 3.7%, the female population saw a notable rise of 9.5%. Consequently, the male-to-female ratio shifted from 0.819 in 2011 to 0.872 in 2022. These demographic changes have profound implications for service delivery, particularly in areas such as healthcare, education, and social services, where adjustments are needed to meet the specific needs of the growing and shifting population. Moreover, the increase in population poses challenges to waste management, requiring municipalities to adapt strategies to accommodate higher waste generation. Tailored service delivery initiatives are essential to effectively address the evolving needs and demands associated with the changing demographic composition.

Table 5: Total population for 2022 and 2011 (census 2022)

Year	Total population	Male	Female
2022	575 929	268 293 (46,6 %)	307 636 (53,4 %)
2011	450 131	278 650 (45,1%)	339 812 (54,9 %)

Table 6 and figure 5 below, Analyses the racial composition data, it is evident that the majority of the population in the surveyed area identifies as Black African, constituting a substantial 98.7%. Coloured individuals represent a minimal 0.1%, while Indian/Asian individuals make up 1.1%. The White population is also at 0.1%, and the category labelled as "Other" is negligible at 0.0%. These figures underscore a predominantly Black African demographic, emphasizing the need for policies and services that are culturally sensitive and inclusive. Furthermore, this diversity in racial groups necessitates tailored approaches in sectors such as education, healthcare, and social services to address specific needs and promote equity across the varied racial backgrounds present in the population.

Table 6:Population & Racial Distribution (Census 2022)

Racial Group	Frequency	%
Black African	568 002	98,7 %
Coloured	714	0,1%
Indian/Asian	6390	1,1 %
White	473	0,1 %
Other	188	0,0%

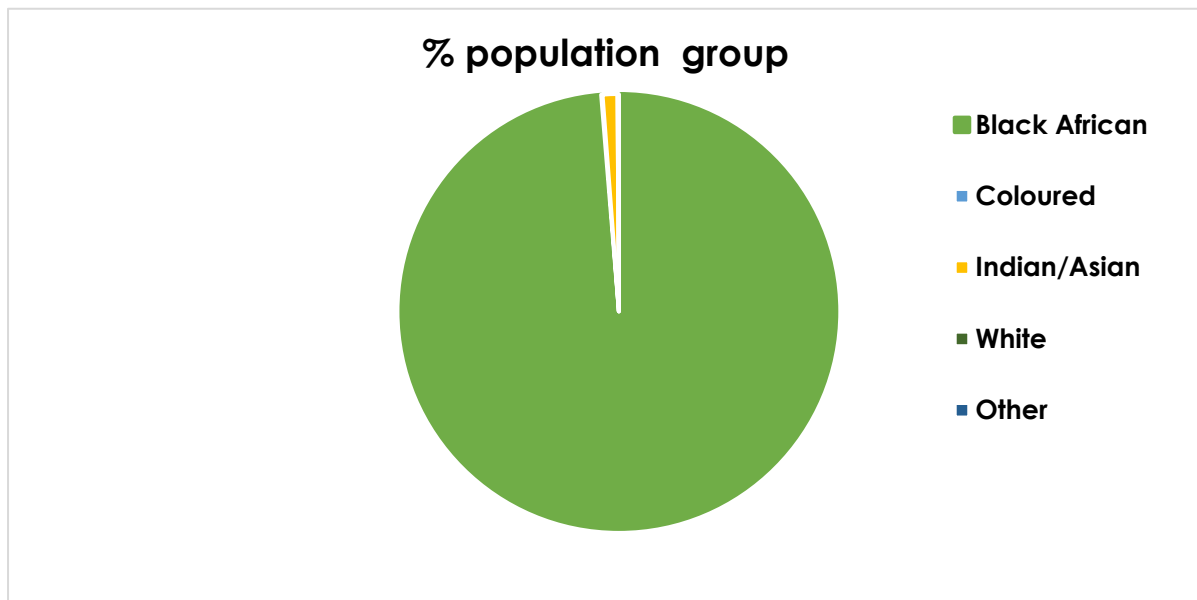


Figure 5: Race & Population Distribution Chart (Census 2022)

2.4.1.2. HOUSE HOLDS AND LIVING CONDITIONS

Table 7: Number Of Households (Community Survey 2016)

Year	Number of Households
2022	142 527
2011	114 001

Table 7 indicates the number of households Over the period from 2011 to 2022, there has been a notable increase in the number of households in Thulamela Local Municipality. In 2011, the municipality had 114,001 households, and by 2022, this figure had risen to 142,527. This represents a significant growth of approximately 25%. The surge in the number of households has implications for various aspects of municipal planning and service provision, including housing infrastructure, utilities, and community services. Municipalities need to adapt and plan for the changing landscape to ensure effective service delivery and the well-being of the growing population.

Table 8: formal dwellings (community survey 2016)

Name	Frequency	%
Formal dwelling	137 427	96,4 %
Traditional dwelling	3996	2,8 %%
Informal dwelling	793	0,6%
Other	132	0,2%

The data reveals a clear dominance of formal dwellings, constituting an overwhelming 96.4% of the surveyed areas. This suggests a robust infrastructure and service framework in these regions. Traditional dwellings, while comprising a smaller percentage at 2.8%, signify a notable cultural presence that warrants attention to address specific community needs. Informal dwellings, though representing a modest 0.6%, raise concerns about potential deficiencies in basic amenities and services. Additionally, the category labelled as "Other" with a minimal 0.2% requires further investigation to understand its nature and service delivery requirements. In light of these findings, municipal executives should focus on maintaining and improving services in formal dwelling areas, incorporating cultural sensitivity in traditional regions,

and developing targeted strategies to uplift living conditions in informal settlements. Addressing the unique challenges posed by different dwelling types and fostering community engagement will be instrumental in achieving comprehensive and equitable municipal service delivery.

2.4.1.3. AVERAGE HOUSE HOLD INCOME

Table 9: Average Household Income (Community Survey 2016)

INCOME	Percentage (%)
R0 – R400	0,4%
R400 – R800	0,3%
R800 – R1,6K	3,2%
R1,6K – R3,2K	13%
R3,2K – R6,4K	32,9%
R6,4K – R12,8K	6,8%
R12,8K – R25,6K	11,9%
R25,6K – R51,2K	22,4%
R51,2K – R102,4K	7,2%
R102,4K – R204,8K	1,6%
R204,8K – R409,6K	0,3%
R409,6K – R819,2K	0%

The income distribution data above provides a comprehensive overview of the surveyed population's financial standing. Notably, a substantial proportion falls within the middle-income brackets, with 32.9% earning between R3,200 and R6,400, and 22.4% falling into the R25,600 to R51,200 range. This suggests a relatively balanced distribution among the working-class. However, there are also noteworthy disparities, as 13% fall within the R1,600 to R3,200 category, indicating a sizable segment facing lower-middle-income challenges. The upper-income brackets, encompassing R51,200 to R102,400 (7.2%), R102,400 to R204,800 (1.6%), and R204,800 to R409,600 (0.3%), illustrate a smaller but still significant affluent demographic. On the other hand, the data indicates a concerning 0.4% in the lowest income bracket (R0 to R400), underscoring potential economic vulnerabilities. Municipal executives should tailor socio-economic policies to uplift the lower-income segments, foster opportunities for

upward mobility, and ensure that services and infrastructure meet the diverse needs across income groups

2.4.1.4. AGE AND GENDER DISTRIBUTION

The age and gender distribution data represented in Table 10, presents a multifaceted demographic landscape for the municipality. In the 0-19 age group, there is a fairly balanced representation between males (20.3%) and females (20.1%). Similarly, in the 20-39 age bracket, both genders are well-represented with 15% for males and 16.1% for females. However, a notable divergence occurs in the 40-59 age range, with 8% of males and 10.9% of females, indicating a higher proportion of middle-aged women. The 60-85+ age group further accentuates this gender gap, with 2.2% of males and 3.3% of females. To address this demographic variation, the municipality should consider implementing targeted programs and services that cater to the specific needs of the aging female population, such as healthcare facilities, social services, and community engagement initiatives. Additionally, fostering gender-inclusive policies and projects that empower women economically and socially can contribute to a more balanced and equitable community development. Collaborative efforts with local organizations and community leaders can ensure that initiatives are tailored to the unique challenges and opportunities associated with each demographic segment. Regular assessments and adaptability in municipal strategies will be crucial for addressing the evolving needs of the diverse age and gender groups within the community.

Table 10: Age Vs Gender Distribution (Census 2022)

Age	0-19		20-39		40-59		60-85+	
Gender	Male	Female	Male	Female	Male	Female	Male	Female
(%)	20,3	20,1	15	16,1	8	10,9	2,2	3,3

2.4.1.5. EDUCATION STATUS

Table 11 below outline the educational levels of the population in Thulamela Local Municipality, specifically detailing the number of individuals with primary, secondary, and tertiary qualifications. This information is derived from the community survey 2016 and is presented in the municipality's Integrated Development Plan (IDP) for the fiscal years 2021/22 to 2023/24. The data offers valuable insights into the educational profile of the community.

The educational profile of Thulamela Local Municipality's population, reveals a diverse landscape of educational attainment. A notable 17.10% of the population reports having received no formal schooling, underscoring a crucial need for educational interventions to address this substantial segment. Approximately 16.38% have completed primary education, suggesting a foundational level of academic achievement. Another 16.33% have received some secondary education, indicating a partial educational background that might benefit from initiatives supporting the completion of secondary education. About 7.72% of the population has successfully completed Grade 12 or Standard 10, representing a higher level of educational attainment. The majority, constituting 41.45%, has pursued higher education, indicating a well-educated segment within the community. The "Other" category, comprising only 0.17%, requires further examination for a nuanced understanding of its unique educational circumstances. In summary, the data underscores the importance of tailored educational interventions to address varying levels of educational attainment within Thulamela's population, with a focus on promoting higher education and bridging gaps in primary and secondary education.

Table 11: TLM Educational Status (Community Survey 2016)

Name	Frequency	%
No Schooling	85029	17,10
Completed Primary	81 481	16,38
Some secondary	81 148	16,33
Grade 12/Std10	38374	7,72
Higher Education	206171	41,45
Other	829	0,17
Total	497237	

2.4.1.6. ECONOMIC AND SOCIAL STATUS

The data on table 12 presents the results from census 2011, and the same data set is used/ reported in the municipality 's **IDP2021/22-2023/24 FY**. The data shows a comprehensive picture of the employment status within the population of 450,131 individuals. Notably, a substantial segment, comprising 254,929 individuals, falls under the "Not Applicable" category, suggesting a diverse range of circumstances such as retirees, students, or those not actively seeking employment. Among the actively engaged workforce, 16.77% are employed, totalling 75,592 individuals, while 13.09% are unemployed, accounting for 58,917 individuals. Additionally, 7.44% are classified as discouraged work seekers (33,530 individuals), and 43.43% fall into the "Not Economically Active" category (195,493 individuals). The data underscores the complexity of the employment landscape, emphasizing the need to consider a spectrum of factors that contribute to the varied dynamics of the workforce within this population.

Table 12: TLM Economic Status (Community Survey 2016)

Employment Status	Number
Employed	75 592
Unemployed	58 917
Discouraged Work Seeker	33 530
Not Economically active	195 493
Not applicable	254929
Grand Total	618462

Table 13: Monthly income status (IDP 2021/2022)

Monthly Income Status	Number
No Income	260152
R 1 - R 400	188178
R 401 - R 800	25807
R 801 - R 1 600	71121
R 1 601 - R 3 200	13954
R 3 201 - R 6 400	9697
R 6 401 - R 12 800	11471
R 12 801 - R 25 600	7849
R 25 601 - R 51 200	1383
R 51 201 - R 102 400	218
R 102 401 - R 204 800	228

Monthly Income Status	Number
R 204 801 or more	191
Unspecified	22469
Not applicable	5743
Grand Total	618462

3. WASTE GENERATION AND CHARACTERISATION

3.1. WASTE CHARACTERISATION

Waste characterization is defined as the process of defining, identifying, categorizing, and quantifying the various types of waste generated in a specific area. The primary aim of waste characterization is to establish a comprehensive understanding of the composition of the waste stream, a critical factor for facilitating effective waste management and informing environmental planning strategies.

The waste characterization process was conducted to determine the weight percentage of each sub-category within the waste stream, such as various types of plastics and paper. This initiative offers a detailed breakdown of the composition of waste collected from households or commercial outlets, specifically highlighting the proportions of different materials present.

Mosa Green Consulting determined the quantities and the types of waste generated in the municipality. This involved establishing the current quantities of waste generated, recycled, treated and disposed of. Waste quantities were measured by mass (kilograms or tons).

3.1.1. WASTE PROFILE (WASTE QUANTITIES & TYPES)

As outlined in the Guidelines for the development of Integrated Waste Management Plans (IWMPs), the Municipality is responsible for identifying and quantifying the various categories of waste within its administrative boundaries. This entails evaluating the present volumes of waste produced, recycled, treated, and disposed of, usually quantified in terms of mass, measured in kilograms or tons.

Data was collected from various sources, including:

- Municipal Waste officials on November 09th to 10th, 2023.
- Examination of Integrated Development Plan (IDP) and municipal records (IDP 2021/2022).

- A waste characterization study conducted by the Mosa Green Consulting team at the TLM landfill site.

Various waste types, including plastic (including PET and HDPE), paper, food, metal, cardboard, diapers, glass bottles, textile, mixed waste, and polystyrene, are classified as general waste. These are generated within the Thulamela Local Municipality (TLM) and disposed of at the Thulamela Landfill site.

3.1.2. WASTE CHARACTERISATION METHODOLOGY

The following is a short description of the waste characterisation methodology followed in the execution of the project:

I. Data Collection Methodology

As there was no weighbridge at the landfill site, TLM utilized the DEA&DP gate control sheet to record waste entries. This sheet had been developed to assist municipalities without weighbridges in quantifying their waste.

- Samples were taken from various trucks arriving from different locations throughout the municipality.
- From each truck, the contents were separated into different waste streams (waste types) using black bags, which were then weighed.
- The results of the waste characterization were presented below.

- II. Projections and Future Waste Quantities:** Based on the study's findings, projections for future waste quantities by considering population growth, economic trends, and other relevant factors was made. This will aid in long-term waste management planning.

Table 14: Mass Of Waste Types (Compactor 1)- from Thohoyandou CBD

Waste Category	Waste stream (Kg)	waste stream (%)
PET - clear	36,8	6,89
PET- mixed	16,7	3,13
clear plastic (plastic wrap)	14,4	2,70
HDPE	7,6	1,42
Mixed Polystyrene	0,9	0,17

Waste Category	Waste stream (Kg)	waste stream (%)
mixed plastic	16,8	3,15
alu cans	2,9	0,54
white paper	24,6	4,61
mixed paper	45,1	8,44
food waste	52,3	9,79
metal (steel)	7,7	1,44
cardboard	55,4	10,37
diapers	170,9	32,00
glass	28,5	5,34
textiles	22,2	4,16
tins	12,3	2,30
other (non-recyclables)	19,0	3,56
total	534,1	100,00

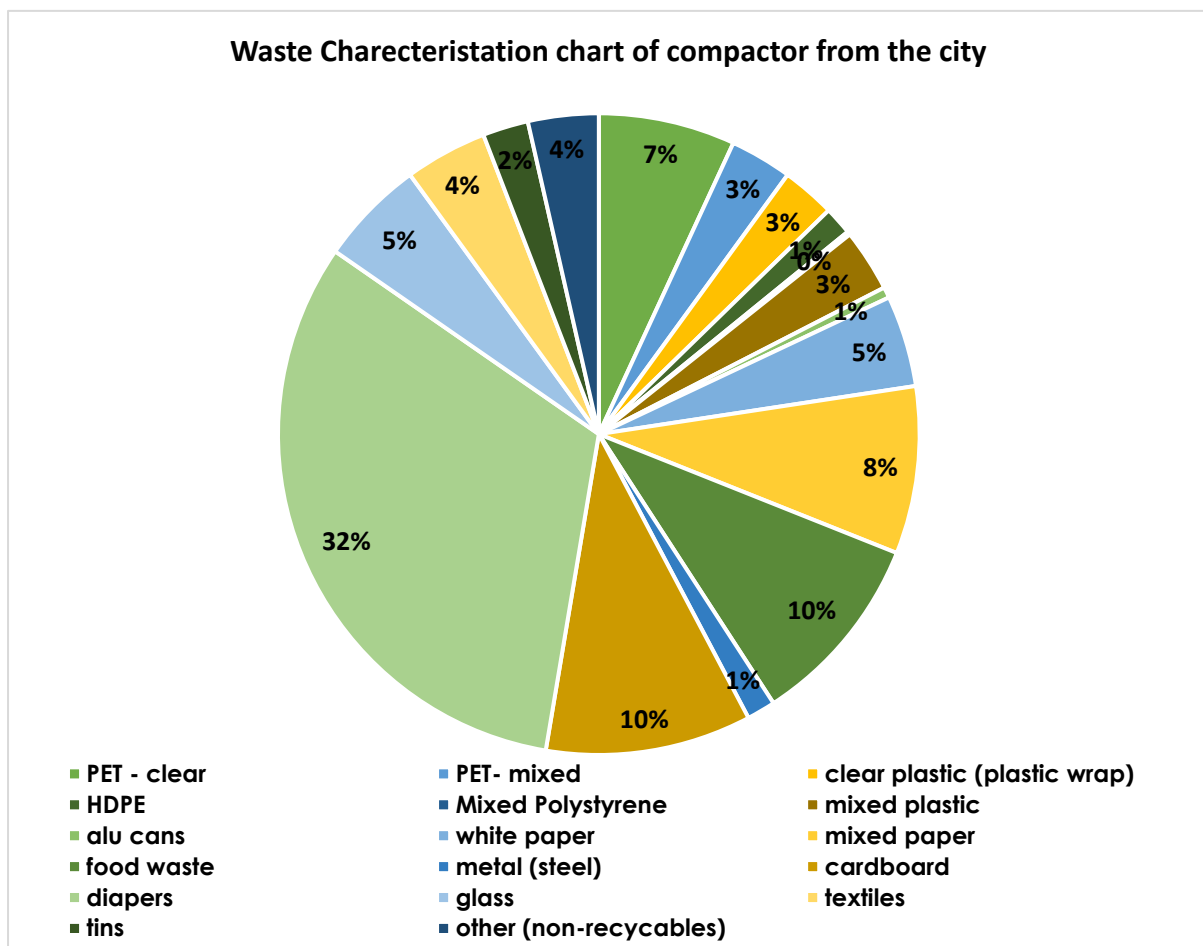


Figure 6: Waste Characterisation Data- from Thohoyandou CBD

The waste stream data above, which was characterised from 1 compactor truck at the Thohoyandou landfill site, highlights a diverse composition, with "diapers," "cardboard," and "food waste" emerging as primary contributors, collectively constituting a significant 51.16% of the total waste. This underscores the importance of targeted waste management strategies for these categories. The substantial presence of paper and cardboard waste, including "white paper" and "mixed paper," suggests the potential for effective recycling programs to mitigate environmental impact. Various plastic waste categories, accounting for 18.29%, signal the need for initiatives to reduce single-use plastics and promote recycling. Addressing the considerable "food waste" component calls for measures such as composting or waste-to-energy solutions. Additionally, materials like "glass," "metal (steel)," "textiles," and "tins" contribute 12.24% collectively, emphasizing the importance of specific recycling programs for these materials. Lastly, efforts should be directed towards identifying and minimizing the use of materials categorized as "non-recyclables." A comprehensive waste management approach, incorporating recycling, waste reduction, public awareness campaigns, and collaborative initiatives with local communities and businesses, is essential for a sustainable and environmentally conscious waste management system.

Table 14: Mass Of Waste Types – compactor from Thohoyandou block N

Waste Category	Waste stream (Kg)	waste stream (%)
PET - clear	53,6	13,78
PET- mixed	13,9	3,57
clear plastic (plastic wrap)	21,5	5,53
HDPE	11,8	3,03
Mixed Polystyrene	4,1	1,05
mixed plastic	6,9	1,77
ALU cans	0	0,00
white paper	16,9	4,34
mixed paper	24,6	6,32
food waste	18,9	4,86
metal (steel)	0	0,00
cardboard	29,6	7,61
diapers	96,5	24,80
glass	36,7	9,43
textiles	9,8	2,52
tins	17,9	4,60
other (non-recyclables)	26,4	6,78
total	389,1	100,00

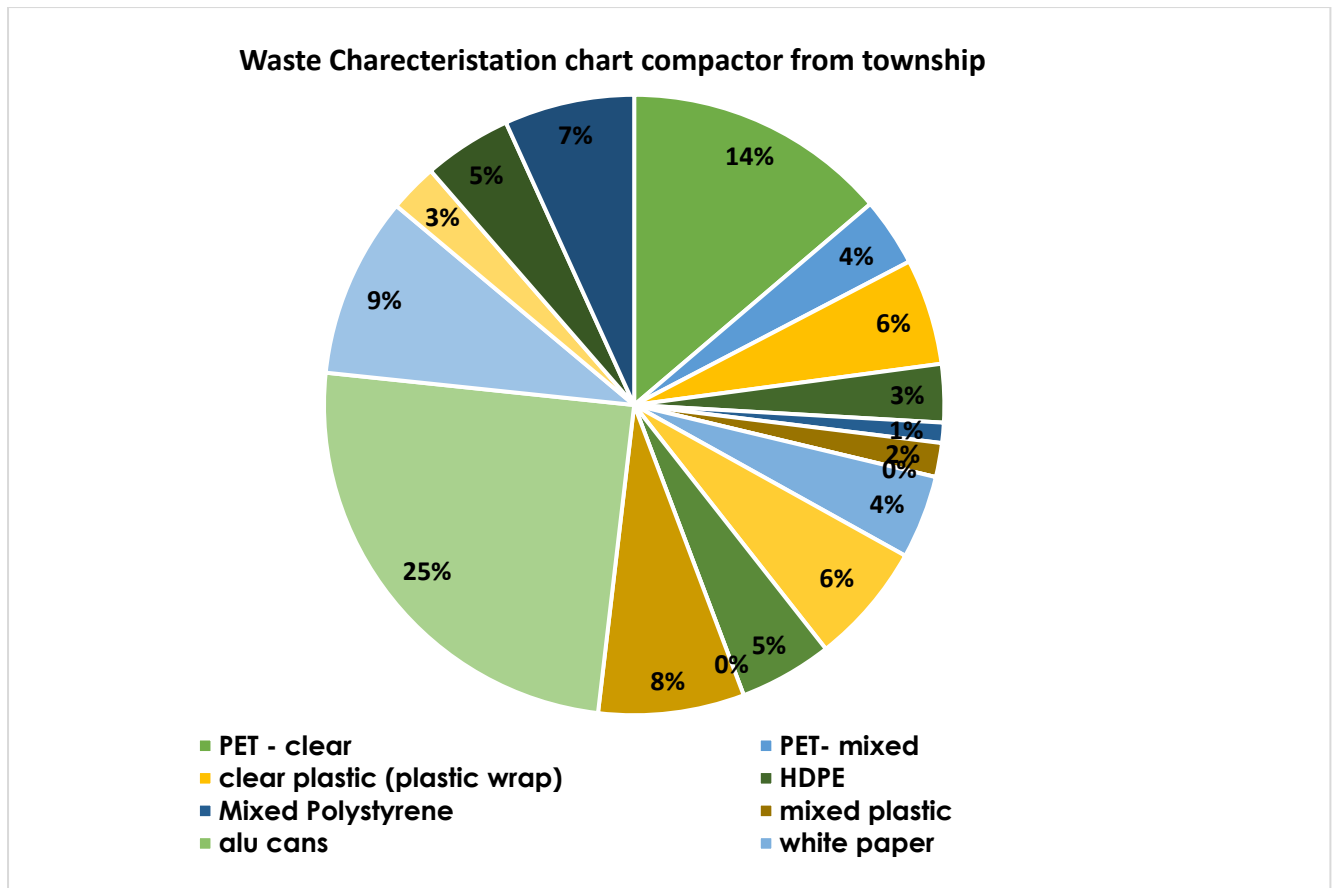


Figure 7 :Waste Characterisation Chart – compactor from Thohoyandou block N

On table 14 and figure 5 above, the waste stream data depicts a varied distribution of materials, with notable percentages attributed to specific categories. Plastic waste, encompassing "PET - clear," "PET - mixed," and "clear plastic," constitutes 23.88% of the total waste. Paper and cardboard, including "white paper," "mixed paper," and "cardboard," contribute 18.27%. Organic waste, primarily "food waste" and "diapers," accounts for 29.66%. Glass and metal categories collectively represent 9.43%, with textiles, tins, and "other (non-recyclables)" contributing 13.90%. Notably, "alu cans" and "metal (steel)" exhibit a 0% share. These percentages underscore the significance of plastic and organic waste in the overall composition, indicating potential areas for targeted recycling and waste reduction initiatives to enhance sustainability.

Table 15: Mass Of Various Waste Types – skip loader from Thavhani mall (recycling)

Waste Category	Waste stream (Kg)	waste stream (%)
PET - clear	0	0,00
PET- mixed	0	0,00
clear plastic (plastic wrap)	70,5	38,57
HDPE	8	4,38
Mixed Polystyrene	2,8	1,53
mixed plastic	73,4	40,15
ALU cans	0	0,00
white paper	5,7	3,12
mixed paper	6,8	3,72
food waste	0	0,00
metal (steel)	0	0,00
cardboard	0	0,00
diapers	0	0,00
glass	0	0,00
textiles	0	0,00
tins	0	0,00
other (non-recyclables)	15,6	8,53
total	182,8	100,00

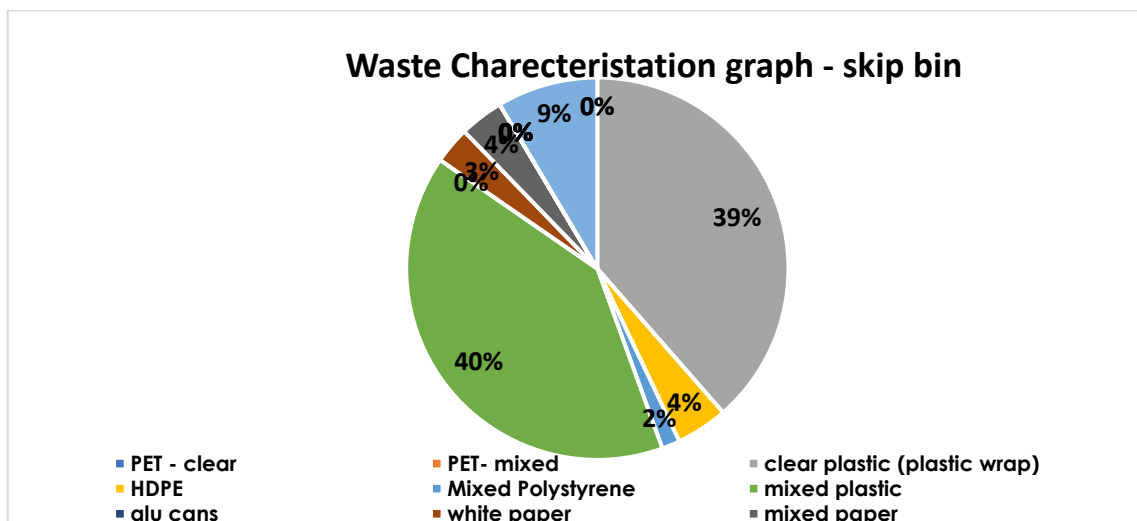


Figure 8: Waste Characterisation Chart- skip loader from Thavhani mall (recycling)

The waste stream data indicates a significant concentration in specific categories, notably "clear plastic (plastic wrap)" and "mixed plastic," which collectively contribute 78.72% of the total waste. It's intriguing to note that certain categories, including "PET - clear," "PET - mixed," "alu cans," "food waste," "metal (steel)," "cardboard," "diapers,"

"glass," "textiles," and "tins," report zero kilograms, suggesting a potentially minimal or absent presence in the waste stream. This phenomenon could be attributed to the proactive involvement of local waste pickers or recyclers in these areas and the city. These individuals may target specific materials for collection before skip trucks arrive, leading to the absence of these materials in the reported waste stream. Additionally, partnerships between local businesses and waste recyclers may explain the zero values, as some establishments arrange for the selective collection of preferred waste groups, often those with a higher retailing price, leaving out the remainder for municipal collection.

Table 16: Mass Of Waste Types – skip bin from Thavhani mall (spar supermarket)

Waste Category	Waste stream (Kg)	waste stream (%)
PET - clear	0	0,00
PET- mixed	0	0,00
clear plastic (plastic wrap)	41,4	36,38
HDPE	8,9	7,82
Mixed Polystyrene	5,9	5,18
mixed plastic	19,9	17,49
Aluminium cans	0	0,00
white paper	6,6	5,80
mixed paper	5,5	4,83
food waste	0	0,00
metal (steel)	0	0,00
cardboard	0	0,00
diapers	0	0,00
glass	0	0,00
textiles	0	0,00
tins	0	0,00
other (non-recyclables)	25,6	22,50
total	113,8	100,00

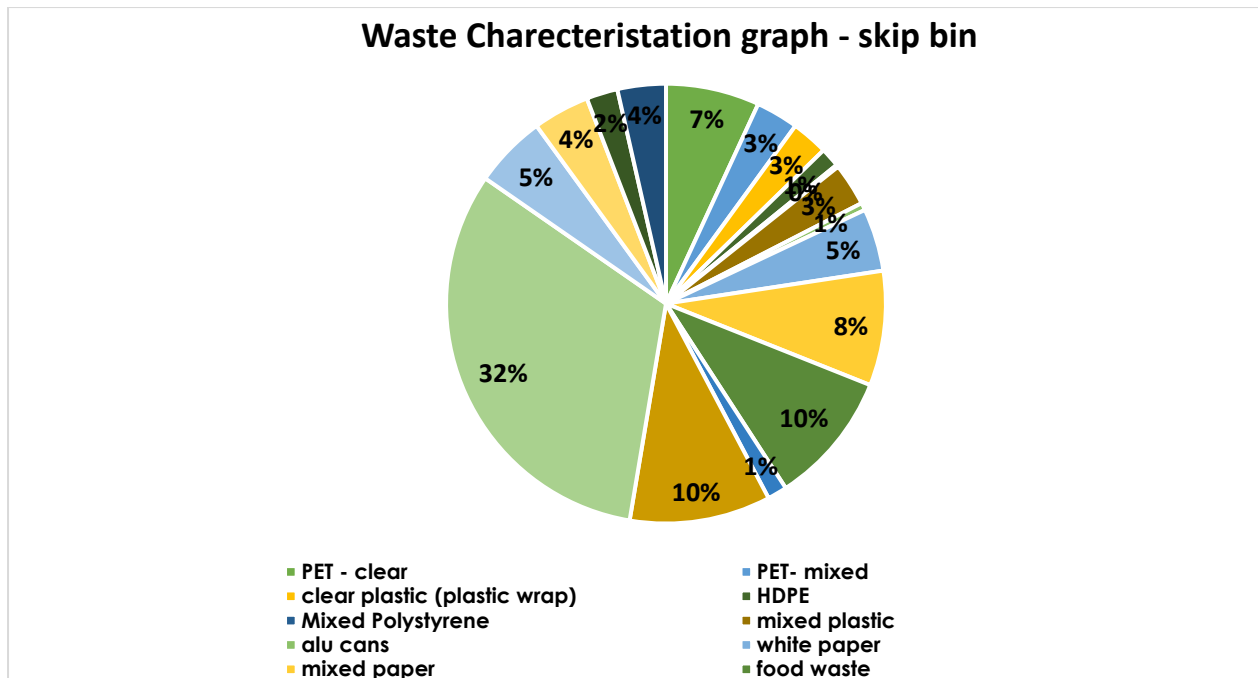


Figure 9 :Waste Characterisation Chart - Skip Loader from Thavhani mall (Spar super market)

The waste stream data taken from a skip loader truck from the city , indicates a distinct composition with "clear plastic (plastic wrap)" being the predominant contributor at 36.38%, followed by "mixed plastic" at 17.49%, together comprising 53.87% of the total waste. Notably, categories such as "PET - clear," "PET - mixed," "alu cans," "food waste," "metal (steel)," "cardboard," "diapers," "glass," "textiles," and "tins" report zero kilograms, signifying their minimal or non-existent presence in the waste stream at this location, or they may have been already collected by the local recyclers. . The substantial share of "other (non-recyclables)" at 22.50% highlights the presence of materials requiring specialized disposal methods. This data suggests opportunities for targeted recycling programs for plastic and paper waste while addressing the challenges posed by non-recyclable materials

3.1.3. WASTE CHARACTERISATION DATA ANALYSIS – SUMMARY

The analysis of the waste stream data reveals consistent patterns across various categories. Plastics, specifically "clear plastic (plastic wrap)" and "mixed plastic," consistently emerge as major contributors, constituting substantial percentages of the

overall waste. While the contribution of paper and cardboard varies, these materials consistently play a role in the waste stream. Conversely, certain categories like "PET - clear" and "PET - mixed" consistently show minimal or no presence, suggesting potential intervention by local waste pickers, recyclers, or business partnerships. The persistent representation of "Other (non-recyclables)" highlights the ongoing challenge of managing materials requiring specialized disposal. To address these patterns, municipalities should prioritize targeted recycling initiatives for plastics and paper, advocate for the reduction of single-use plastics, optimize collaborations with waste pickers and local businesses, and explore sustainable alternatives for non-recyclable materials. Public awareness campaigns are essential for fostering community engagement, and regular assessments of waste management strategies are crucial for long-term sustainability and effectiveness.

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

Some households within the TLM do not utilize the municipal collection service, choosing instead to employ private refuse disposal methods or establish personal refuse dumps. As a result, the waste generated by these households may not be directed to official landfill sites.

- Certain households located in remote areas, especially those with gravel roads, are outside the reach of the municipality's waste delivery services. These areas may face difficulties in waste disposal and may be inadequately served by the existing municipal waste management infrastructure.
- Similar to numerous municipalities in South Africa, the TLM grapples with the issue of illegal waste dumping. Despite intermittent clean-up campaigns, not all unlawfully discarded waste finds its way to designated landfill sites where it can be formally documented. The persistent problem of illegal dumping presents .

NB: Images illustrating the waste characterization sampling process are provided below.

Table 17: Waste Characterisation Sampling And Process

Waste characterisation study, data collection (sampling at the Thoyondou (Thulamela) Landfill site)



Waste characterisation study, data collection (sampling at the Thoyondou (Thulamela) Landfill site)



Waste characterisation study, data collection (sampling at the Thoyondou (Thulamela) Landfill site)



3.2. WASTE GENERATION

3.2.1. DETERMINE CURRENT DOMESTIC WASTE GENERATION PER CAPITA

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

Waste generation quantities can be calculated using the following three methods:

- Option 1: Weighbridge - Using a weighbridge the municipality must record the amounts of waste entering its waste disposal facility, by weighing the vehicles at the point of entry and again on the way out. The difference in the mass of the vehicle between the 'in' and 'out' provides the mass of the waste.
- Option 2: Without a weighbridge - municipality can estimate the amount of waste generated by using a volume density-based estimation. This requires accurate records.
- Option 3: The Waste Calculator Estimation technique can be used to calculate waste generation. This technique derived from the South African Waste Information System Guideline which governed by the R.625 National Environmental Management: Waste Act (59/2008): National Waste Information Regulations, 2013 and not the Minimum Requirements for Waste Disposal. The municipality must record waste quantities that are being disposed of at the landfill site according to the National Waste Information Regulations.

The South Africa State of Environmental Report, 2006 (SOER) calculates waste generation volumes per income level as follows, estimating that each individual person generates about 0,7 kg of waste a day. This is further categorised into different income brackets as follows:

Estimations on the amount of waste generated can be calculated per week, per month or per year. The 2006 State of the Environment Report (SOER) indicated that South Africa generated 42 million m³ of solid waste per year. This amounted to 0,7kg's per person per day. The generation rates were further broken down into generation rates per income category and the results were as follows:

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

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

- Low income R 0 – R74,999 per year;
- Middle income R 75,000 – R 999,000 per year; and
- High income R 1 million + per year.

The TLM income profile was determined based on STATs SA records (Census 2011) and the TLM DP (2021/2022). A population of 130 899 persons was used (TLM IDP, 2021/2022) to calculate the waste tonnages presented on table 18 below.

Table 18: Estimations Of Waste Volumes Per Household

Waste generation/ income group	Income group	% of population	No. person	waste generates kg/day	Waste generation kg/annum	Waste generation, tonnes/annum
low income R 0 – R74,999 per year; (0,41 kg/person/day) (149.65kg/person/year_	no income	45,17	260152	106662,32	38931746,8	38931,75
	R 1 - R 400	32,67	188178	77152,98	28160837,7	28160,84
	R 401 - R 800	4,48	25807	10580,87	3862017,55	3862,02
	R 801 - R 1 600	12,35	71121	29159,61	10643257,65	10643,26
	R 1 601 - R 3 200	2,42	13954	5721,14	2088216,1	2088,22
	R 3 201 - R 6 400	1,68	9697	3975,77	1451156,05	1451,16
subtotal		98,78	568909	233252,69	85137231,85	85137,23
Middle income R 75,000 – R 999,000 per year; (0,74 Kg/person/day) (270.1kg/person/year)	R 6 401 - R 12 800	1,99	11471	8488,54	3098317,1	3098,32
	R 12 801 - R 25 600	1,36	7849	5808,26	2120014,9	2120,01
	R 25 601 - R 51 200	0,24	1383	1023,42	373548,3	373,55
	R 51 201 - R 102 400	0,04	218	161,32	58881,8	58,88
subtotal		3,63	20921	15481,54	5650762,1	5650,76
High income R 1 million + per year(1,29 kg/person/day) (470.85kg/person/year)	R 102 401 - R 204 800	0,03	191	246,39	89932,35	89,93
	R 204 801 or more	3,90	22469	28985,01	10579528,65	10579,53
subtotal		3,93	22660	29231,4	10669461	10669,46
Total		106,35	612490,00	277965,63	101457454,95	101457,45

Based on the analysis presented in Table 19, a conservative estimate indicates that the annual domestic waste generation amounts to 101,457.45 tons. This calculation is based on data extracted from the Integrated Development Plan (IDP) for the year 2021/2022. The estimation considers individuals across different income brackets, offering a comprehensive perspective on the expected domestic waste output in the specified area.

3.3. ESTIMATING FUTURE WASTE GENERATION RATES AND QUANTITIES

3.3.1. FUTURE DOMESTIC WASTE GENERATION

Anticipating future waste generation is crucial for effective waste planning and should be a key consideration in an Integrated Waste Management Plan (IWMP). The table 20 provided below offers estimates for waste generation over both a five and ten-year timeframe. Projections for waste generation rates take into account historical data as well as expected population growth.

The planning of waste management in TLM will be significantly impacted by factors such as the pace of urbanization, population growth, and immigration from neighbouring countries like Zimbabwe. Although a substantial increase in population growth is not anticipated in the next decade, proactive waste management planning by the local municipality remains crucial. A notable shift in the waste collection landscape within TLM is expected due to the growth and expansion of urban centres, driven by rural-to-urban migration and the development of these areas. This transformation also necessitates careful consideration in the overall waste management planning process.

This may materialize in the following ways:

- Influx of undocumented foreign Nationals;
- Mining and Tourism;
- The presence and expansions of tertiary institutions such as the University of Venda
- Informal settlements (if the migration is not managed);
- Increased service-based industry to support the demands of the influx of people and the development of the region in general;

Table 19: Future Waste Volumes Estimation Produced Per Capita

Type of settlement	Base population	Future Population estimates	Current domestic waste generation rates per capita (kg)	Future domestic waste generation rates per capita (in 10 years) (Kg)	Future domestic waste generation rates per capita (in 10 years) (in kg)	Future domestic waste generation rates per capita (in 10 years) , (in tonnes)
Low Income	568909	582563	85137231,85	85137231,85	87180525,41	87180,53
Middle income	20921	21423	5650762,1	5650762,1	5786380,39	5786,38
High Income	22660	23203,84	10669461	10669461	10925528,06	10925,53

To estimate the future waste generated per capita , the following guidelines by the DFFE were used :

- Assuming that the population growth rates will remain constant for the next 10 years
- Assuming that the per capita waste generation rates would be according to the 2006 State of the Environment Report for all income categories:
 - Low income=0.41kg/person/day
 - Middle income=0.74kg/person/day,
 - High income=1.29kg/person/day

Taking into account a population growth rate of 2.4% over the next 10 years, the conservative estimate outlined in Table 20 indicates that the future domestic waste in TLM is expected to be approximately 87,180.53 tons, 5,786.38 tons, and 10,925.53 tons per year for low, middle, and high-income rates, respectively. These projections factor in the anticipated changes in population size and provide valuable insights into potential waste generation trends within different income brackets in the TLM region over the specified period.

3.4. WASTE RECYCLING, TREATMENT AND DISPOSAL

3.4.1. WASTE RECYCLING

Recycling of waste is located above recovery, treatment and disposal in the waste management hierarchy in terms of best practise waste management. Over the last five years, the South African Government has enacted several waste-related legislations , such as the National Waste Management Strategy 2020. This updated strategy, the NWMS 2020, is a revision and enhancement of the 2011 strategy. It draws upon the achievements and insights gained from implementing the previous strategy. The NWMS 2020 has a comprehensive emphasis on waste prevention and diverting waste from landfills. It utilizes the Circular Economy concept as a driving force to foster sustainable and inclusive economic growth and development within the waste sector. Concurrently, it aims to mitigate the social and environmental impacts associated with waste.

In South Africa, the term "waste recycling" is frequently misapplied. True waste recycling involves a comprehensive process encompassing material collection, sorting, transportation, and the subsequent transformation into a new material. To illustrate, the act of the public depositing cardboard boxes at a recycling centre does not constitute recycling. The boxes are considered recycled only when they undergo the process of being converted into a new product, such as new boxes or packaging.

This report employs the term "facilities" to encompass organizations involved in one or more stages of the recycling process, such as recycling companies engaged in sorting recyclables, recycling drop-off facilities where recyclables can be deposited, and buy-back centres. Buy-back centres are locations where individuals can exchange recyclable materials for compensation.

At present, 23 companies participate in the recycling process, primarily focusing on collecting recyclables sourced from local waste pickers, **please see Appendix A**, for the list of the recycling companies and their operational status. These entities function as local and independent buy-back centres. Subsequent to acquiring the materials, they typically transport them to Johannesburg, where the materials undergo conversion into new products, thereby finalizing the recycling process.

3.4.2. MATERIAL RECOVERY FACILITIES

Within the TLM, aside from recycling, no other waste treatment activities are currently underway. Regarding recycling activities in the TLM area, both formal and informal sectors play a role. The informal sector primarily comprises waste pickers, with 22, currently operating within the Thulamela landfill. On the other hand, participants in the formal sector include traders, dealers, and users, with the majority of recycling companies/groups operating within the municipal jurisdiction. The total amount of registered waste recyclers is 23.

3.4.3. TREATMENT AND DISPOSAL

Table 20: Thohoyandou Landfill Profile

Location	ERF # 2484, Thohoyandou, J-extension
Site classification	Class B
License type/use	Permit : 12/4/10/8-B/8V/4
Date issued	June 2018
Estimated remaining life and anticipated closure date	The landfill has at least 13 years, anticipated closure will be in 2036
Estimated size of facility	-
Access control and signage	There is adequate access control. Signage, gate and a fence present
Surrounding land use	Formal settlements , outside/ away from the buffer zone
Facilities	Adequate facilities, and office
Plant used on site	Compactor, Tipper, Truck, TLB, Water tanker and excavator
Description of waste management	Public are directed to drop off area. Waste is chipped in working area. However, during the site visit the chipper was in for repairs.
Waste accepted on site	General waste (domestic Waste)
Use of cover material	Waste is compacted regularly, with adequate dust suppressant machinery around the landfill
Storm water management & drainage system	Not present
Recycling	Waste is separated at the landfill site , mainly by local citizens
Informal reclaimers present?	Yes
Operating hours	Monday – Saturday: 08h00 – 17h00 Public Holidays: 08h00 – 13h00
Estimated cost for closure	There is currently no estimated costs for closure
Challenges	• The landfill has no weighbridge • There is no fence at the landfill, which enable illegal migrants to enter and take mixed waste to separate outside the landfill premises, which results in illegal dumping's around the municipality. • The facility must have a space for garden for food waste, to enable other activities such as composting • There is no dedicated area to put the separated waste streams by the informal waste pickers, this poses a serious housekeeping concern around the perimeter of the landfill

3.4.4. STATUS OF THULAMELA LOCAL MUNICIPALITY LANDFILL SITE

There are currently three landfill sites in TLM, however only one is operational, which is Thohoyandou Landfill. Table 21 below gives an overview of the current landfills available under TLM and their status. Table 22 is illustrating some of the site images at the Thohoyandou landfill site.

Table 21: Status Of Landfill Sites In Thulamela local Municipality

Municipality	Permitted/ Licensed	Status
Thulamela	Thohoyandou Landfill	Operational
	Gundani Landfill	In development stage (landfill cell design/development stage)
	Makwilidza Landfill	In design phase

Table 22: Images Of Thohoyandou Landfill Site





Compactor truck offloading waste at the landfill site



Compactor truck at the landfill



TLB equipment at the landfill



Landfill site



Landfill site



Landfill drive through- showing good housekeeping & adequate dust control



3.4.5. ILLEGAL DUMPING

Listed in the IDP for the fiscal years 2021/22-2023/24 under the category of external negatives (threats) for the Thulamela Municipality as part of its SWOT analysis to enhance its standing as the best municipality are priorities and targets per cluster. One of the priorities is waste management and addressing illegal dumping. Additionally, included in the priorities is the cleaning of various areas and the establishment of licensed landfill sites.

Currently, a dedicated team is actively addressing illegal dumping sites in identified hotspots, offering their services on weekends and as the need arises. This proactive approach reflects a commitment to maintaining a clean and healthy environment.

3.5. STATUS OF WASTE COLLECTION SERVICES

3.5.1. WASTE COLLECTION STATUS

As outlined in the Integrated Development Plan (IDP) for the fiscal years 2021/22-2023/24, the Thulamela Local Municipality takes on the responsibility for waste collection services catering to 59,097 households. These services are notably extended to diverse areas such as Makwarela, Thohoyandou, Shayandima, Thohoyandou Block F, Thohoyandou Block J, Maniini, Thohoyandou Golgotha, Thohoyandou Block G, Thohoyandou N, Thohoyandou P-East, Unit C, Mbaleni, Thohoyandou A, Thohoyandou Q, Unit D, and Tshishushuru.

Waste collection provisions also encompass the Central Business Districts (CBD) of Thohoyandou, Sibasa, and Mutale. Furthermore, an extension of refuse removal services has been implemented, reaching additional villages such as Mulodi, Phalama, Khubvi, Makonde, Lwamondo, Tswinga, Khumbe, Tshidzete, and Tshalovha.

For areas not covered at the household level, services are rendered at the (RDP) level, along main roads, and collection is systematically carried out at designated Nappy Stands. This comprehensive waste management strategy ensures the effective coverage of various regions within the municipality.

TLM's Service delivery norms:

- Town: Daily refuse collection
- Residential: Refuse collection scheduled once per week
- Rural Area: Refuse collection conducted once per week

Waste collection in the Municipality is characterized by its distinction between urban and rural areas. The Thulamela municipality collects approximately 5,761 cubic meters of waste respectively at around 59,097 households. However, waste collection in rural areas lacks a systematic approach, resulting in a backlog in these villages. To address waste management in rural areas, transfer stations have been established in Tshikombani, Tshaulu, and Makonde. Collection activities occur once a week in the proclaimed areas and on a daily basis in the Central Business Districts (CBDs).

3.5.2. WASTE COLLECTION TRANSPORT

Efficient waste service delivery in the Municipality relies significantly on the appropriate selection and proper maintenance of vehicles within the waste management department. Currently, the TLM waste management department possesses a total of 23 vehicles, encompassing Fourteen (14) compactor trucks, two (2) skip trucks, three (3) tipper trucks, five (5) LDVs, one (1) half-trucks, one (1) minibus, and one (1) TLB. For detailed quantities and operational statuses of each vehicle type, please refer to table 24. Some of these vehicles have experienced breakdowns, posing a potential challenge to ensuring uninterrupted waste delivery services. Establishing an effective management system is imperative to mitigate the impact of vehicle breakdowns on waste collection service delivery. Key considerations include

implementing regular maintenance schedules, employing vehicle tracking systems for real-time monitoring and developing comprehensive breakdown response plans. Additionally, maintaining an inventory of spare parts, monitoring vehicle performance, fostering communication between departments, budgeting for replacements, analysing data for route optimization, and considering environmental aspects contribute to an integrated approach for managing the waste management fleet efficiently and sustainably.

Table 23: TLM Waste Management Fleet Information

#	Vehicle Type	Make & model	Vehicle Registration	Year	Operational status
	compactor truck	Isuzu	CHN 197 L	2011	Breakdown
	Compactor truck	Nissan	DGM 822 L	2015	Breakdown
	Compactor truck	UD truck	DHF 634 L	2015	Operational
4.	Compactor truck	Nissan	DSW 342 L	2017	Operational
5.	Compactor truck	Nissan	DSW 349 L	2017	Breakdown
6.	Compactor truck	Nissan	DSW 347 L	2017	Breakdown
7.	Compactor truck	Nissan	DWK 337L	2018	Breakdown
8.	Compactor truck	Nissan	DWK 360L	2018	Breakdown
9.	Compactor truck	Nissan	DWK 354 L	2018	operational
10.	Compactor truck	Nissan	DWK 348L	2018	Breakdown
11.	Compactor truck	Nissan	FPY 481L	2021	operational
12.	Compactor truck	Nissan	FPY 492 L	2021	operational
13.	Compactor truck	ISUZU	FCS 643 L	2021	operational
14.	Skip truck	UD truck	DGM 826 L	2015	operational
15.	Skip truck	UD truck	DTB 464 L	2017	Breakdown
16.	Tipper truck	TATA	CPX 951L	2012	Operational
17.	Tipper truck	ISUZU	FSC 648 L	2021	Operational
18.	Tipper truck	ISUZU	FSC659 L	2021	Operational
19.	LDV	Toyota	GFH 582 L	2015	Operational
20.	LDV	Toyota	FRF 370 L	2021	Operational
21.	LDV	Ford	DSY 013 L	2017	Operational
22.	LDV	Ford	DSY 014 L	2017	Operational
23.	LDV	Ford	DSY 017 L	2017	Operational
24.	Half truck	Nissan	CWM 085 L	2013	Operational
25.	Minibus	Toyota	DFX 520 L	2015	Operational
26.	TLB	Bell	DBD 050 L	2014	Operational

3.6. FINANCING OF WASTE MANAGEMENT

A comprehensive understanding of both operational and capital costs in waste management is crucial for accurate financial planning. When navigating the financial aspects of waste management, it is essential to consider operational costs, capital costs, recapitalization costs, and rehabilitation costs. The Municipal Systems Act, Act no. 32 of 2000 (Chapter 8, ss73-86A), mandates that municipalities ensure proper budgeting to fulfil their constitutional obligations related to waste services provision. To successfully implement an Integrated Waste Management Plan (IWMP), a municipality must assess its current available resources, including finances, human resources, and technical skills, to effectively meet the municipality's mandate. This involves achieving goals and targets outlined in the plan, such as developing by-laws, as well as securing funding for operational and maintenance costs to ensure efficient waste service delivery and the establishment of waste disposal facilities. Effective financial management and budgeting play a crucial role in identifying future resource needs, particularly in scenarios where an increase in households requiring waste collection services may necessitate additional resources for service delivery.

Tables 24 and 25 below depict the budgeted income and revenue plan for the Financial Years as indicated on the corresponding tables. The revenue generated and planned are both surpassing the budgeted expenditure, indicating sound financial planning practices and effective resource allocation for waste management services throughout the municipality. The municipality consistently adheres to budgeting practices in alignment with the Municipal Finance Management Act (MFMA).

Table 24: Budget Allocation For TLM Waste Management Services For Different Financial Years

Activity	2021/2022	2022/2023	2023/2024
Solid waste removal: operational costs	R 11 765 530,00	R 11 861 886,00	R 12 382 974,00
Admin, Human resources & capacity building	R 765 530,00	R 797 682,00	R 832 780,00
Total	R 12 148 530,00	R 12 658 768,00	R 13 215 754,00

Table 25: Revenue Generated From Waste Management Service In TLM

Activity	2021/2022	2022/2023	2023/2024
Refuse Residential	R 15 615 000,00	R 16 302 060,00	R 20 000 000,00
Dumping Site	R 936 900,00	R 978 124,00	R 1 022 139,00
Refuse Business	R 11 451 000, 00	R 11 954 844,00	R 15 000 000,00
Trading Of Animals	R 10 410,00	R 10 868,00	R 11 357,00
Sale Of Empty Containers	R 5 205,00	R 5 434,00	R 5 679,00
Waste Management: Refuse Bin	R 4 164,00	R 4 347,00	R 4 543,00
Receivables: Service Charges	R 177,00	R 185,00	R 193,00
Condemnation And Containers	R 15 615,00	R 16 302,00	R 17 036,00
Total	R 28 038 471,00	R 29 272 164,00	R 36 060 946,00

3.6.1. BUDGETING FOR WASTE SERVICES AND TARIFF SYSTEM

Achieving sustainable waste management in TLM municipality is a formidable task due to prevalent poverty and a limited income base. However, it is crucial to establish a systematic process for accurate accounting of waste services while aiming for financial self-sustainability. The Department of Environmental Affairs (DEA) has provided Solid Waste Tariff Model and Solid Waste Tariff Setting Guidelines for Local Authorities, which TLM should consider adopting for effective waste management budgeting. Compliance with the Municipal Systems Act No. 32 of 2000 mandates municipalities to maintain records of income and expenditure for proper budgeting,

taking into account factors like the number of indigents and their allocation. TLM's Integrated Development Plans (IDPs) should incorporate various revenue sources, and it is recommended to follow key financial management guidelines, including the Municipal Solid Waste Tariff Strategy (2012) and the National Pricing Strategy for Waste Management Charges (2014), especially when contemplating a tariff review.

3.6.2. PROVISION OF FREE BASIC SERVICES

The Municipality initiated a Free Basic Services Policy in 2003, which continues to be operational and undergoes annual reviews to adapt to emerging developments. According to this policy, registered indigents are entitled to a Free Basic Refuse removal service that is fully subsidized upon refuse collection. The service includes waste collection at least once per week or the removal of a bulk refuse container within a designated area. Households with a combined income not exceeding R 3,560 per month (proof of pay slips/copy of recent bond statements required) qualify for free basic services as outlined in the policy.

4. INSTITUTIONAL MATTERS

The availability of the organizational structure is instrumental in assessing the human resources dedicated to delivering waste services. This structured representation delineates the number of staff allocated to specific sections, encompassing management responsibilities, planning, waste collection, recycling, disposal, and enforcement. This framework is a valuable tool for identifying gaps, particularly in areas necessitating new functions to meet the requirements stipulated by the Waste Act.

Figure 10 provides a visual representation of the organogram for the waste management services, encompassing both refuse removal and landfill management within TLM. There are 26 vacant positions within the waste management services at TLM, as shown in table 27, which comprises of one (01) environmental officer and twenty-five (25) General assistant workers. The municipality is still in planning phase on filling up the vacant positions. This organogram serves as a comprehensive outline of the hierarchy and roles within the waste management department, highlighting the

positions and responsibilities of personnel involved in ensuring effective refuse removal and landfill management operations.

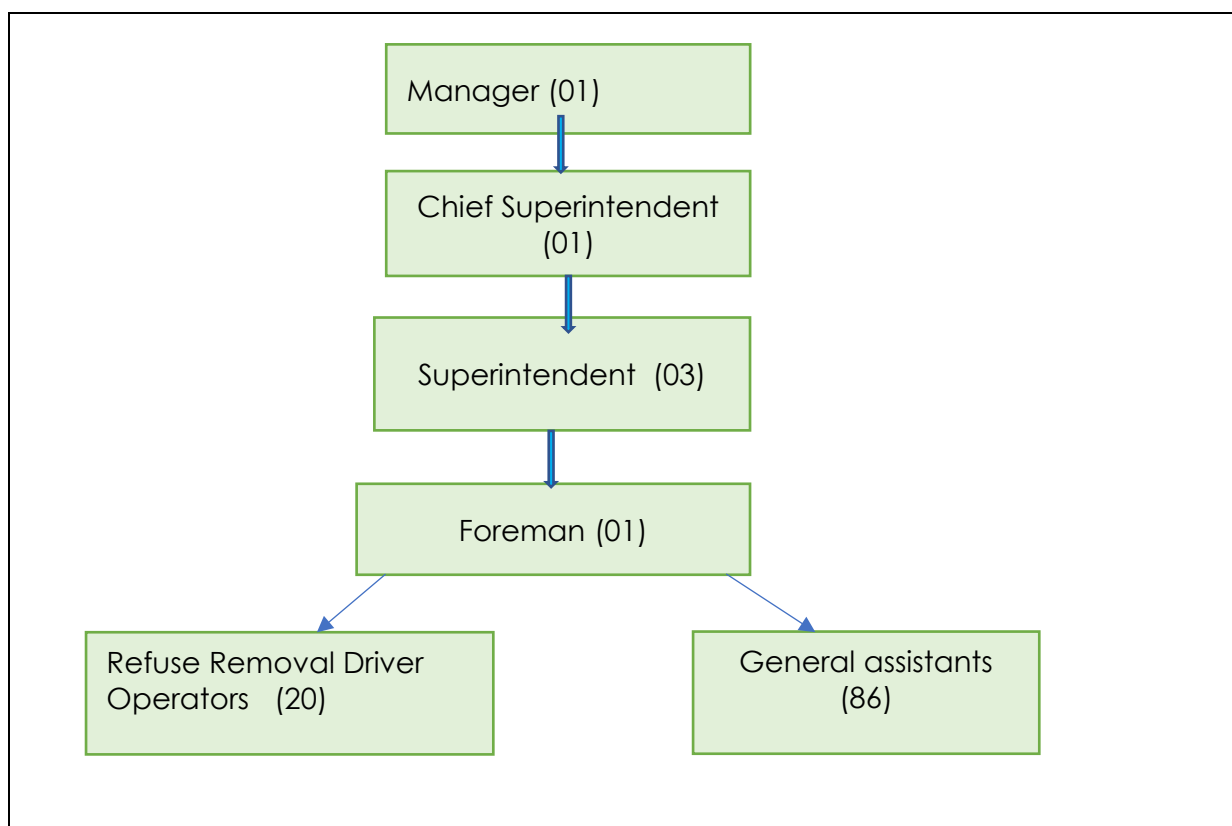


Figure 10: TLM Organogram For The Environment & Waste Management Division

Table 26: Vacant position in the TLM waste management department

Position	Number of Vacant positions
Environmental Officer	01
General Assistant workers	25

4.1. ROLES AND RESPONSIBILITIES OF A WASTE MANAGEMENT OFFICER

A Waste Management Officer plays a crucial role in managing and implementing waste management programs to ensure proper disposal and recycling of waste materials. The specific duties and responsibilities may vary depending on the organization and the scope of the position, but generally, the role involves the following:

1. **Developing and Implementing Waste Management Plans:** Creating comprehensive waste management plans that outline strategies for waste reduction, recycling, and proper disposal. This may involve collaborating with other departments, local authorities, and waste disposal facilities.
2. **Compliance Monitoring:** Ensuring that waste management activities comply with local, state, and federal regulations. This includes staying informed about changes in legislation related to waste management and adjusting strategies accordingly.
3. **Educating and Training:** Conducting awareness programs and training sessions for employees and the community on proper waste disposal practices, recycling initiatives, and the importance of reducing waste.
4. **Waste Audits:** Conducting waste audits to analyse the types and quantities of waste generated by an organization. This information can be used to identify opportunities for waste reduction and recycling.
5. **Coordination with Waste Disposal Facilities:** Collaborating with waste disposal facilities, recycling centres, and other waste management service providers to ensure the proper and environmentally friendly disposal of different types of waste.
6. **Monitoring Waste Collection Systems:** Overseeing waste collection processes to ensure efficiency and effectiveness. This may involve working with waste collection contractors or managing in-house waste collection teams.
7. **Data Collection and Reporting:** Collecting data on waste generation, recycling rates, and other relevant metrics. This information is used to evaluate the success of waste management programs and to prepare reports for internal and external stakeholders.

8. Research and Innovation: Keeping abreast of new technologies and best practices in waste management. Identifying and implementing innovative solutions for waste reduction and recycling.
9. Emergency Response Planning: Developing and implementing plans for handling hazardous waste and responding to environmental emergencies, such as spills or accidents involving hazardous materials.
10. Community Engagement: Engaging with the local community to promote sustainable waste management practices. This may involve organizing community clean-up events, participating in public forums, and addressing concerns related to waste management. Overall, the Waste Management Officer plays a critical role in promoting environmentally responsible and sustainable waste management practices within an organization or community.

5. GAPS AND NEEDS ANALYSIS

5.1. DESIRED END STATE

This section aims to define the municipality's objectives in waste management, drawing insights from past and current waste management practices. Through this assessment, we formulate a strategic plan with specific goals designed to bridge gaps and cater to the community's needs. These objectives align with both the National and Provincial Waste Management Strategies. The plan also outlines a roadmap for achieving these goals, incorporating relevant waste laws and guidelines while adhering to the waste management hierarchy. Furthermore, specific targets for various waste services, including collection, recycling, recovery, and disposal, are established. These objectives and targets take into account the municipality's alignment with the National Waste Management Strategy, which sets mandatory goals for compliance with the Waste Act. It is imperative to establish a clear timeline within the five years following plan approval to ensure the municipality progresses towards these national objectives, concurrently addressing local requirements and regulatory compliance.

5.2. GAPS AND NEEDS IDENTIFIED

Gaps and needs were identified based on the situational analysis studies, including the waste characterisation, interviews with stakeholders, inspection of fleet and facilities, and a review of the legislative and best practice guidelines.

The Summary of the current waste management issues at TLM follows below,

Gaps and needs have been listed under the following headings:

1. Waste collection & management services
2. Waste recycling;
3. Organic waste management;
4. Waste management facilities;
5. Waste management fleet and equipment;
6. Waste management information system
7. IWMP implementation and monitoring

8. Waste generation and disposal records
9. Waste education and awareness
10. Institutional functioning;
11. Financial management
12. By-laws and enforcement of by-laws; - Legal compliance

TABLE 27: Waste Management Gaps And Needs Identified At Thulamela Local Municipality

Legislated requirement/ best practice	Gaps	Needs
1. Waste collection & management services		
- The NWMS 2011 requires 95% of urban and 75% of rural households to have access to adequate levels of waste collection services. Non-recyclable waste must be collected weekly from households, as a minimum. - The National Policy for Provision of Basic Refuse Removal Services to Indigent Households (GN 413 of 2011) requires municipalities to provide free receptacles for waste storage to indigent houses.	Waste management practices - There is average, not inadequate municipal services and basic infrastructure within the TLM. - There is generally a lack of information on waste streams. - Waste collections services do not reach some rural areas . - There is illegal dumping's in villages, around the CBD - The Municipality has 23 waste management fleet, encompassing Fourteen (14) compactor trucks, two (2) skip trucks, three (3) tipper trucks, five (5) LDVs, one (1) half-trucks, one (1) minibus, and one (1) TLB.	- Ensure that all households receive waste management collection services due to being away from town/urban areas and in villages, poor roads, etc, this households which are not receiving a service need to be identified to determine the best possible for a feasible and sustainable waste collection provision services. - The provision of collection services to informal areas needs to be improved. - Community awareness and involvement In waste management must be improvement in order to decrease illegal dumping's. - The Municipality has three transfer stations, in Tshikomboni, Tshaulu & Makonde, although not fully utilised,

Legislated requirement/ best practice	Gaps	Needs
	Breakdown of waste fleet poses potential challenges to ensuring uninterrupted waste delivery services.	there need to be community awareness of bet waste management practices to ensure that the transfer stations and efficient sustainable waste minimisation practices are utilized to their full potential. The municipality need to put in place a systematic and sustainable vehicle maintenance plan to ensure that breakdowns do not negatively affect the waste management services
2. Waste recycling		
- The NWMS, 2011 sets a target of 25% diversion rate of recyclables by 2016. - The draft 2018 NMWS sets a target of 50% diversion of waste by 2023 and 80% diversion by 2028.	- The accurate % of recycled domestic, commercial and industrial waste generated within the TLM has not been determined/ established - There is a no participation of the separation at source programme in some of the residential areas.	The quantity of waste being recycled within the TLM needs to be increased. This can be done through the following measures: ⇒ increasing participation of households in the separation at source programme –

Legislated requirement/ best practice	Gaps	Needs
• Operation Phakisa sets a target of 50% diversion of municipal waste by 2023. • The Waste Act requires municipalities to put in place measures that seek to reduce the amount of waste generated, and where generated, measures to ensure that it is re-used, recycled and recovered, treated and disposed of. • The PIWMP require municipalities to provide an enabling environment for recycling.	• TLM has only 23 privately owned recycling companies . • Recycling companies face changes such as theft, depreciation of recyclable's value, access to different funding, lack of equipment's, infrastructure and transport expenses, these , changes limit their effective functioning of waste recycling facilities. • At the Thohoyandou landfill site , there is recycling that is done by local documented waste reclaimers, however there is also a very high presence of informal, undocumented waste reclaimers • TLM does not have waste infrastructures such as Buy Back Centre (but has about three transfer stations)	increase education and awareness regarding this programme. ⇒ Provision of easily accessible recycling drop- off facilities for households which do not use a kerbside collection service. ⇒ Increased awareness around the importance of recycling. This can be achieved through school competitions. ⇒ Ensuring the existing swap shops continue to function and raising awareness with the public around the need for donations for the swap shops. • TLM must conduct community awareness and create an enabling environment for locals to participate in waste recycling, including schools, and there gatherings etc • TLM must ensure that a weighbridge is in place to ensure accurate measurement of the waste that the landfill receives,

Legislated requirement/ best practice	Gaps	Needs
	• There is a high amount of recyclable material that goes into the landfill site (e.g. Plastic, Glass, Plastic cardboard, etc.). • There is limited recycling, considering the amount of recyclable material observed during waste characterisation	• TLM needs to put a programme for the implementation and management of a buy-back centre, this may also ensure more participation of reclaimers in the municipality
3. Organic waste management		
• The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) – 25% diversion rate of garden waste from landfill by 2018 and 50% by 2023. • Limpopo Provincial IWMP and National Medium Term Strategic Framework– 50% diversion of organic waste by 2022 and 100% diversion rate by 2027.	• At present, the majority of organic waste generated within the TLM is disposed of at landfill. • TLM does not have any facilities for composting of organic waste at present • The TLM do not charge companies and contractors to dispose of organic waste at the landfill and are challenged by available airspace,	• A regional composting facility. • Additional drop-off facilities for green waste. • As part of the community awareness programmes, household composting project needs to be rolled out • An organic waste diversion plan needs to be developed for the TLM landfill

Legislated requirement/ best practice	Gaps	Needs
	particularly as waste taken to this facility is not chipped. There is no organic waste diversion plan TLM	
4. Waste Management facilities		
The National Norms and Standards for the Storage of Waste GNR 926 of 2013	- There are three landfill sites under Thulamela, only one is operational i.e. Thohoyandou landfill site, and the other two are still under development stages, namely Gundani & Makwilidza NB: This assessment will be based on the Thohoyandou and Gundani landfill site as it is the only one that's fully operational. - The waste records generated at this facility are due to mass estimates, as there is no weighbridge – they are not adequately accurate. - The landfill has no fencing, which enables illegal access to the site.	- A weighbridge needs to be installed at the landfill, this will ensure accurate data capturing - Construct a fencing around the landfill to ensure controlled access - Consider implementing a disposal fee for contractors and garden services. - Within the landfill facility footprint, identify a site for garden and food waste disposal, - Roll out a very comprehensive and sustainable community awareness programme, encouraging locals to be part of the recycling community.

Legislated requirement/ best practice	Gaps	Needs
	undocumented foreigners access to the landfill, posing may problems as they do not perform separation at source, but take all waste streams to separates anywhere, posing a bigger problem on illegal dumping • There is no facility available for garden and organic waste at the landfill.	
5. Waste management fleet and transportation		
The National Domestic Waste Collection Standards (GN 21 of 2011) requires that all vehicles in the waste management fleet are roadworthy and that waste is transported in closed vehicles.	• Frequent truck breakdowns, posing challenges to uninterrupted waste delivery services	• TLM must review their fleet and allocate and plan for replacement to meet the required standards. • Implement regular maintenance services • Develop a comprehensive breakdown response plan • Ensure there is an efficient spare inventory
6. Waste management information system		

Legislated requirement/ best practice	Gaps	Needs
6.2. IWMP development, implementation & monitoring		
The Waste Act requires that the IWMP is submitted to DEA&DP for endorsement, it is incorporated into the IDP that annual reports of the IWMP implementation are undertaken.	- There is no IWMP, - The IWMP must be developed and must set realistic ambitions and targets looking at available resources in the TLM .	- Once the IWMP is finalised, TLM must ensure that annual reports are prepared and submitted in line with the Municipal Systems Act (Act 32 of 2000). - The IWMP must come up with short, medium and long-term solutions to waste problem in the TLM.
6.3. Waste generation & disposal records		
The National Waste Information Records require information to be uploaded onto SAWIS on a quarterly basis.	- Waste collection rounds cover a combination of domestic and businesses. It is not possible to determine how much domestic and how much commercial and industrial waste is generated from these records. - There are gaps in the data for commercial waste.	Collect information on business / commercial waste collection using tagging system of bins.

Legislated requirement/ best practice	Gaps	Needs
	• Generation of recyclables volumes	• Develop a strategy/ plan n recording recyclable waste.
7. Waste education and awareness		
• The NWMS, 2016 & 2020 , sets a target that 80% of schools must undertake waste awareness campaigns. • The municipality must provide guidelines on how to separate waste.	NB: Thulamela Local Municipality has partnered with the University of Venda and Vhembe TVET College to do awareness and cleanup campaigns around Thulamela Local Municipality. NB: The effectiveness of this campaigns must be established • The TLM does not undertake follow up surveys to determine the effectiveness of waste awareness campaigns. • Lack of public awareness concerning good waste management practises. – based on the illegal dumping's	• Appoint staff as waste awareness educators. • The TLM must ensure they appoint waste awareness educators who are fluent in the prevalent languages within the municipality

Legislated requirement/ best practice	Gaps	Needs
	- Capacity building and training on waste minimization and recycling does not exist. - Awareness campaigns were done by youth jobs in waste/clean- up campaigns,	
8. By laws and enforcement of by-laws – Legal compliance		
Thulamela Waste Management By-Law	- There are no dedicated waste rangers to enforce waste management by-laws. - Littering and illegal dumping occurs in open areas across the TLM. - Skip sites become illegal dumping sites. - TLM needs to move toward legal compliance in terms of landfill site operations. - The powers allocated to TLM in terms of the Constitution need to be adhered to.	- The TLM needs to review the by-laws and they should be aligned with the Waste Act and waste management by-laws. - Waste rangers need to be appointed to enforce the by-laws, particularly around litter and illegal dumping. - Skip sites to be cleaned up and then manned using EPWP / temporary workers to improve control.

Legislated requirement/ best practice	Gaps	Needs
	The TLM by-laws must be updated as there is a need to align them to the objectives and goal once the IWMP has been finalised and adopted.	
9. Institutional functional and financial management		
- The Legislated National Waste Act and The National Waste Management strategy 2011 (2020) ,requires that a WMO is designated for each municipality. - The Waste Act requires municipalities to keep separate financial statements including a balance sheet of services provided. - Full-cost accounting for waste services are to be undertaken and cost reflective tariffs implemented (NWMS, 2020)	- There is not sufficient skilled personnel) - TLM financial & capacity resources are adequate but can improve (the revenue is higher than the budget for the past financial year), but more resources still need to be allocated for waste services, to ensure that the municipality waste tariffs are good enough	- The TLM need to review the organogram and prioritise positions which need to be filled. - The staff need to be skilled on waste awareness services and stakeholder engagement with regards to waste management and circular economy initiatives - Develop a full cost accounting waste tarrifs, to ensure that the municipality waste tarrifs are adequate

6 SETTING STRATEGIC GOALS, OBJECTIVES , TARGETS, INDICATORS AND INSTRUMENTS FOR IMPLEMENTATION

Considering the gaps and needs identified in the TLM IWMP, a desired outcome is established. This involves defining priorities and strategic objectives that TLM aims to achieve in relation to the IWMP. The strategic goals are aligned with pertinent waste legislation and policies, adhering to the waste management hierarchy. The formulation of these strategic goals is guided by the National Waste Management Strategy (NWMS) 2020, as well as the Provincial Integrated Waste Management Plan (PIWMP) 2020-2025 which has been developed and revised to fulfil the objectives outlined in the Waste Act.

In an Integrated Waste Management Plan (IWMP), goals and objectives serve to tackle identified shortcomings or improvements needed in the existing waste management system. Goals represent long-term aspirations, while objectives are specific, measurable targets. When implemented effectively, objectives contribute to the municipality achieving its overarching goals. The terminology employed in formulating the goals, objectives, and implementation plan aligns with the Integrated Waste Management Planning Guideline for Waste Management Planning provided by the Department of Environmental Affairs and Development Planning (DEA&DP).

Table 29 below presents a desired end state derived from the identified Integrated Waste Management Plan (IWMP) issues and observations. This encompasses the identification of priorities and strategic goals that the Thulamela Local Municipality (TLM) aims to achieve regarding IWMP. The strategic goals are informed by pertinent waste legislations and policies, guided by the waste management hierarchy. It is important to highlight that the National Waste Management Strategy (NWMS) outlines a set of goals that municipalities must accomplish within a five-year period to effectively implement the Waste Act.

Establishing specific target dates within a quantifiable timeframe is essential for achieving municipal strategic goals and targets within the five-year period following the approval of the Integrated Waste Management Plan (IWMP). The target dates for each strategic goal can be categorized into three overarching timeframes as follows:

- Immediate 1 year
- Short Term: 2 to 3 years
- Medium Term: 3 to 5 years
- Long Term: 5 to 10 years

These goals aim to address the gaps and needs of the communities and more importantly respond to the requirements of the Waste Act as well as the eight Goals of the NWMS and the Provincial goals. Further to this, other general strategic objectives to augment the above objective were considered. Such objectives included but were not limited to:

- Waste awareness campaigns, training, and capacity building of municipal officials and councillors responsible for waste management;
- Defining institutional requirements and organisational structures at various levels of waste management;
- Compliance monitoring and enforcement; and
- Defining the relevant policy and legislative framework for achieving the goals and objectives set. This will include national, provincial and local government policies and legislation.

Table 28: Goals And Objectives Terminology As Per DEA & DP Guide For Waste Management Planning

Term	Description	Example
Goal	Long term desired result which can be accomplished through various projects. Goals are not necessarily measurable but instead present a long term desired end state for the municipality. The goals will be aligned to the NWMS and the Limpopo PIWMP.	Increased waste diversion from landfill

Term	Description	Example
Objective	Measurable outputs which, once completed, will contribute to the accomplishment of a goal. Objectives will have deadlines to drive their implementation.	An increase of diversion of recyclable waste from landfill by 5% to 10%.
Policy (target)	Smaller projects which when combined will fulfil the requirement of an objective. As with the objectives, the policies will also have deadlines for implementation.	Expand the two bag system to new areas
		Develop two buy back centres in low income areas
		Place drop-off facilities for recyclables at all existing municipal waste management facilities.

6.1. ALIGNMENT WITH NATIONAL AND PROVINCIAL GOALS

6.1.1. THE NATIONAL WASTE MANAGEMENT STRATEGY

The justification for NWMS 2020 is as follows:

The management of waste in South Africa falls within the mandate of the Department of Environment, Forestry and Fisheries (DEFF). This mandate is derived from Section 24 (Environment) of the Constitution of the Republic of South Africa (Act 108 of 1996) which states:

"Everyone has the right –

- a) to an environment that is not harmful to their health or wellbeing; and
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –
 - i. prevent pollution and other degradation;
 - ii. promote conservation; and

- iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

To implement its mandate, the Department of Environment, Forestry and Fisheries (DEFF) has formulated various policies, legislation, strategies, and programs. Notably, the National Environmental Management: Waste Act 59, 2008 (referred to as "the Waste Act") and the National Waste Management Strategy of 2011 (NWMS) are key components. The NWMS is a mandatory requirement under the Waste Act.

The NWMS serves as a comprehensive framework for executing the Waste Act, outlining the government's policy and strategic approach to waste management in alignment with South Africa's socio-economic development goals of being "equitable, inclusive, sustainable, and environmentally sound."

The current NWMS 2020, which updates the 2011 strategy, accomplishes the following:

- Aligns the strategic waste management approach with the commitments of the Sustainable Development Goals 2030 (referred to as "the SDGs") and South Africa's National Development Plan: Vision 2030 (referred to as "the NDP").
- Emphasizes waste management as a crucial element of South Africa's economy and societal framework.
- Incorporates and creates a supportive environment for the DEFF's 2017 Chemicals and Waste Economy Phakisa and the government's 2019 Good Green Deeds Programme.

The NWMS 2020 considers relevant feedback from public consultation processes on the draft version. It also reflects progress, challenges, and lessons learned from the implementation of the 2011 NWMS, taking into account the political, social, environmental, and economic context influencing the waste sector.

6.1.2. ALIGNMENT OF NATIONAL AND PROVINCIAL GOAL

The NWMS 2020 is structured around a framework of three strategic pillars, which are listed in Table 30 below. The alignment the NWMS 2020 with the Limpopo Provincial IWMP goals. The 2020 NWMS and the Limpopo PIWMP (2020-2025), along with the status quo of waste management within the TLM were used to inform the TLM IWMP

and goals. Please see table 3 , for the Alignment Of TLM Goals With The National & Provincial Goals.

Table 29: Summary Of 2020 NMWS Goals

Strategic pillar	Outcome	Key intervention
Waste minimisation	45% of waste from diverted from landfill within 5 years; 55% within 10 years; and at least 70% within 15 years leading to Zero - Waste going to landfill.	• Prevent waste generation through cleaner production, industrial symbiosis and extended producer responsibility; • Prevent Food Waste; • Increase re -use, recycling and recovery rates; • Divert organic waste from landfill through composting and the recovery of energy; • Divert construction and demolition waste from landfill through beneficiation; and • Increase technical capacity and innovation for beneficiation of waste.
Effective and Sustainable Services	All South Africans live in clean communities with waste services that are well managed and financially sustainable	• Separate waste at source; • Safe and environmentally sustainable disposal of hazardous household waste; • Cities Support Programme Implementation; and • Effective integrated waste management planning.

Strategic pillar	Outcome	Key intervention
Compliance, Enforcement and Awareness	Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping	• Reduce Pollution, littering and illegal dumping; • Enhance capacity to monitor compliance and enforce the Waste Act and International Agreements; and • Ensure municipal landfill sites and waste management facilities comply with licensing requirements

6.2. PROVINCIAL INTEGRATED WASTE MANAGEMENT PLAN FOR LIMPOPO PROVINCE: 2020 - 2025

In the year 2020, the Limpopo province formulated the Provincial Integrated Waste Management Plan (PIWMP) spanning the period from 2020 to 2025. The Implementation Plan of the Integrated Waste Management Plan (IWMP) delineates the objectives, indicators, and responsibilities of Local Municipalities (LM), District Municipalities (DM), and the Department. This document provides a detailed breakdown of their respective roles in attaining the goals outlined in the IWMP. Table 31 highlights the key focus areas and proposed actions, placing emphasis on the specific duties assigned to Local Municipalities in the realm of waste management. Furthermore, it is imperative for Local Municipalities to comprehend the roles and responsibilities of the Province, particularly regarding initiatives that support waste management at the local level, such as offering training programs or specifying reporting requirements.

Table 30: Priority Areas & Proposed Implementation Of The Limpopo PIWMP

#	Activities	Indicators	Name of implementing state or organisation
Goal 1: Expansion of Waste Services and Cost Recovery			
1.1.	Expand waste collection services (Supply of refuse bags, bins, Contracts with transporters)	Collection route networks and frequency	DM & LM
1.2.	Develop a plan to establish a rural collection system (Improve infrastructure and transportation)	Rural refuse removal plan	DM & LM
1.3.	Identify hotspots and un-serviced areas and develop programme for clean-up and monitoring	New service points	LM
1.4.	Develop minimum service standards	Waste collection standards	DM, LM & DEDET
1.5.	Conduct survey on willingness to pay for services and develop a plan for cost recovery	Survey Report Cost & recovery plan	DM, LM & DEDET
Goal 2: Encourage waste minimization initiatives and promote recycling project			
2.1.	Reduce the number of dumpsites by 50%	List of closed dumpsites	DM, LM & DEDET
2.1.1.	Prioritize dumpsites to be closed and rehabilitated	Rehabilitated Sites	DM, LM & DEDET
2.2.	License all landfill sites	List of licensed landfills and transfer stations	DM, LM & DEDET
2.2.1.	Rehabilitate dumps and convert to fully licensed transfer stations and landfills		
Goal 3: Establishment of licensed and well-managed waste disposal facilities			

#	Activities	Indicators	Name of implementing state or organisation
3.1.	Encourage/train separation at source	Reduced waste volumes collected	DM, LM & DEDET
3.2.	Establish minimum recycling standards at source and transfer stations	Operational standards	DEDET & LM
3.3.	Develop recycling guidelines for all waste streams	Recycling Guidelines	DEDET & LM
3.4.	Establish 3 Pilot Project on recycling 3.4.1. Establish an Integrated Waste Exchange system (IWEX)	Recycling Pilot Project operational IWEX system operational	DEDET, DM, LM & Civil society
3.5.	Conduct survey of all recycling projects	Survey report, GIS and mapping	DEDET, DM, LM
Goal 4: Ensure safe and integrated hazardous waste management			
4.1.	Conduct Baseline Study on hazardous waste	Baseline Study report	DEDET & LM
4.1.1.	List hotspots and waste generators	List of waste sources mapped	DEDET & LM
4.2.	Develop hazardous waste cell	Hazardous waste disposal receptacle	DEDET, DM, DFFE & LM
4.3.	Encourage/train sorting at source	Hazardous domestic/ industrial waste sorted	LM, DEDET, & Industry,
4.3.1.	Household hazardous waste sorting practiced	Hazardous domestic/ industrial waste sorted	LM, DEDET, & Industry,

#	Activities	Indicators	Name of implementing state or organisation
4.4.	- Establish provincial health care waste management plan (including facilities like home-based care and hospices) - Increase number of operational incinerators, Decommission obsolete incinerators	- HCW Implementation Plan. - Licensed and compliant incinerators. - List of decommissioned incinerators.	DEDET /Dept of Health & LM
4.5.	Establish Pilot Project for agricultural waste recycling for compost development	Agricultural Waste Recycling Pilot Compost site established Compost market established	DEDET, Dept of Agriculture & LM
4.6.	Identify hazardous waste of concern and develop management plan	Hazardous waste stream management plan.	DEDET/Industry, Civil society , DFFE & LM
Goal 5: Strengthening institutional capacity for waste management			
5.1.	Increase number of waste management staff, align posts in all spheres of government	Increased number of waste management staff	DM, LM & DEDET
5.2.	Training/ skills transfer	Skilled staff	DEDET, DM, LMD PLG & LM
5.3.	Develop Waste Information System	Waste Database	DM, LM, DEDET, & DEAT
5.4.	Develop Green Procurement Policy and Cleaner Production Strategy	Green Procurement Policy Cleaner Production Strategy	DEDET, NCPC, DME, DEAT & LM

#	Activities	Indicators	Name of implementing state or organisation
5.5.	Establish Pilot Project for Cleaner Production and Clean Development Mechanism (Climate Change Mitigation)	Pilot project as a learning tool Trained Staff	DEDET, LM, NCPC, DMR, DM, DEA & Industry
Goal 6: Develop waste regulations and by-laws and strengthening enforcement capacity			
6.1.	Develop by-laws for waste management in line with Waste Management Act, 2008	By-laws	DM, LM & DEDET
6.2.	Training of Environmental Management Inspectors	Number of trained staff for inspection, audits and enforcement	DM, LM, DEDET & Health sector
6.3.	Develop database of environmental cases	Database	DEDET, & LM
6.4.	Develop guideline and electronic data capture system for case management	Guideline, data capture system	DEDET & LM
6.5.	Implement Waste management System Education and awareness on the system	Data on waste generated, transported and disposed: WIS Information brochure	DEDET, Industry, Health sector & LM
6.5.1.	Develop information brochure on procedure		
Goal 7: Promote education and awareness on waste issues			
7.1.	Develop an education and awareness plan which includes all crosscutting issues	Education and awareness plan	DEDET, Civil society & LM
7.2.	Develop posters and awareness brochures	Education materials	DM, LM & DEDET

#	Activities	Indicators	Name of implementing state or organisation
7.3.	Establish Environmental Clubs and Forum	Environmental clubs in each municipality	DM, LM, DEDET,
Goal 8: Facilitate and guide regionalization of disposal facilities			
8.1.	Conduct Feasibility study of possible regional facility development	Feasibility study report, GIS and Mapping	DM, LM & DEDET
8.2.	Establish regional facility	Regional facility operational	DM, LM & DEDET, Construction company
Goal 9: Develop tools for risk assessment, monitoring and evaluation			
9.1.	Development of an Interdepartmental Committee for IWMP review and monitoring Develop monitoring programme	Interdepartmental Monitoring Committee Monitoring Programme	DEDET, SECTOR DEPT, Industry Civil society & LM
9.2.	Auditing of all waste programmes and projects (Recycling, training, transfer stations, landfills etc, waste minimization clubs)	Auditing Report	DEDET & LM
9.3.	Increase number of environmental Indicators included in the State of Environment Reporting	State of Environment Report Annual Report	DM, LM & DEDET

6.3. GOALS IDENTIFIED FOR THULAMELA LOCAL MUNICIPALITY

Alignment of Thulamela Local Municipality Goals with National and Provincial Goals

The determination and identification the of TLM goals was guided by insights from the 2020 National Waste Management Strategy (NMWS), the Limpopo Provincial Integrated Waste Management Plan (PIWMP) covering the period 2020 to 2025, and the TLM situational analysis report completed.

Based on this integrated information, a total of nine goals were identified for the TLM, as detailed below. Additionally, Table 32 below provides a comprehensive overview, highlighting the alignment of TLM goals with both national and provincial objectives.

The goals identified for Thulamela local Municipality are as follows:

Goal 1 : Waste collection provision services – Ensure the effective and efficient delivery of waste services

Goal 2 : Waste recycling - Increased waste minimisation and recycling

Goal 3: Waste management facilities - Ensure Effective Management of Landfill Sites

Goal 4 : Waste management information systems - Effective waste information management and reporting

Goal 5: IWMP implementation and monitoring

Goal 6: Waste education and awareness - Improved waste education and awareness,

Goal 7: Institutional functioning- Improve institutional functioning and capacity

Goal 8: Financial management - Provision of efficient and financially viable waste management services

Goal 9: By-laws and enforcement of by-laws - Establish effective compliance with and enforcement of the Waste Act.

Table 31: Alignment Of TLM Goals With The National & Provincial Goals

TLM goal	2020 NMWS	Limpopo -PIWMP(2020-2025)
Goal 1 : Waste collection provision services – Ensure the effective and efficient delivery of waste services	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable.	• Goal 1: Expansion of Waste Services and Cost Recovery • Goal 5: Strengthening institutional capacity for waste management
Goal 2 : Waste recycling - Increased waste minimisation and recycling	Goal 1 : Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable: Separate waste at source;	Goal 2: Encourage waste minimization initiatives and promote recycling project
Goal 3: Waste management facilities - Ensure Effective Management of Landfill Sites	Goal 3: Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution,	Goal 3: Establishment of licensed and well-managed waste disposal facilities

TLM goal	2020 NMWS	Limpopo - PIWMP(2020-2025)
	litter and illegal dumping : Ensure municipal landfill sites and waste management facilities comply with licensing requirements	
Goal 4 : Waste management information systems - Effective waste information management and reporting	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable	Goal 5: Strengthening institutional capacity for waste management
Goal 5: IWMP implementation and monitoring	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable	Goal 9: Develop tools for risk assessment, monitoring and evaluation
Goal 6: Waste education and awareness - Improved waste education and awareness,	Goal 3: Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping	Goal 7: Promote education and awareness on waste issues
Goal 7: Institutional functioning- Improve institutional functioning and capacity	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable	Goal 5: Strengthening institutional capacity for waste management
Goal 8: Financial management - Provision of efficient and financially viable waste management services	Goal 2: All South Africans live in clean communities with waste services that are	Goal 1: Expansion of Waste Services and Cost Recovery

TLM goal	2020 NMWS	Limpopo - PIWMP(2020-2025)
	well managed and financially sustainable	
Goal 9: By-laws and enforcement of by-laws - Establish effective compliance with and enforcement of the Waste Act.	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable	Goal 6: Develop waste regulations and by-laws and strengthening enforcement capacity

6.4. OBJECTIVES AND ALTERNATIVES FOR THULAMELA LOCAL MUNICIPALITY

The primary objective of the Integrated Waste Management Plan (IWMP) is to tackle identified goals by offering multiple solutions. The preliminary actions and targets detailed in the table 33 below propose various alternatives to achieve these objectives. The following section will delve into alternative actions, emphasizing the significance of taking into account social, economic, and environmental impacts during decision-making.

In alignment with the aforementioned goals, specific objectives and corresponding alternatives have been pinpointed for the TLM. The selected alternatives, emphasized in this section, will be seamlessly incorporated into the implementation plan, ensuring a holistic and comprehensive approach.

Table 32: TLM Waste Management Objectives, Actions, targets And Alternatives

Objective	Actions and Targets	Comment on Alternative
Goal 1 : Waste collection provision services – Ensure the effective and efficient delivery of waste services		
1.1.Expand waste collection services (Supply of refuse bags, bins, Contracts with transporters.	• Develop programme to expand services to other areas within the municipality. • Development and adoption of a waste service level in line with National Domestic Waste Collection Standards (2019)	There's is no alternative for this objective
1.2.Provision of efficient and functional Waste management fleet and equipment- Ensure the effective and efficient delivery of waste services. The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required	• Develop and implement a waste management fleet replacement plan in order to ensure that vehicles are timeously replaced and operate efficiently. • Review level agreements with sub-contractors and establish waste service level agreement policy for the TLM and for sub- contractors.	There is no feasible alternative to this project.
1.3.A kerbside collection service is provided to all future residential developments	Undertake a route planning exercise in order to ensure that the most economic collection route is followed by the waste collection fleet.	There is no feasible alternative to this project that would ensure that

Objective	Actions and Targets	Comment on Alternative
		the most economic collection route is followed.
	Waste specifications to be developed for all future municipal and private developments (e.g. road widths and provision for drop-off centres)	The alternative to this project would be to appoint a private service provider to service all new housing developments. This is not deemed as a viable alternative as the TLM is responsible for the provision of refuse collection services to residents.
1.4. Increase and improve the collection of waste in rural areas,	- Undertake a route planning exercise in order to ensure that the most economic collection route is followed by the waste collection fleet. - Develop buy-back in rural areas, (or areas that are a long distance from the landfill site)	There is already three transfer stations. The possible next solution will be buy-back centre to encourage more recycling
Goal 2 : Waste recycling - Increased waste minimisation and recycling		
2.1. Increased diversion of waste from landfills.	Promote a greater participation of households in the separation at source programme and should raise awareness around what materials	An alternative to this project could be to install a dirty MRF to sort mixed domestic waste. This is not deemed as a suitable

Objective	Actions and Targets	Comment on Alternative
	can be recycled in order to minimise contamination.	alternative as the cost of recyclables decreases with contamination and separation at source programmes aid in raising the public's awareness of recycling.
	Implement drop-off zones , for recyclables in public places	Drop -off facilities, or implement buy-back centres that are easy to reach for community
	Enable an environment for local recyclers to participate and grow in the Recycling / circular economy sector	There is no feasible alternative to this project.
2.2. The Diversion Of Organic Waste From Landfill Is Increased	Awareness Programme For Household And School Composting Programmes.	Drop-off facilities for food waste could be added to transfer stations and drop-off centres, however as food waste decomposes quickly, these bins would need to be emptied regularly and at present there are no municipal composting facilities for food

Objective	Actions and Targets	Comment on Alternative
		waste. This is therefore not deemed as a viable alternative. The alternative is to develop a regional composting facility- (establish the feasibility)
Goal 3: Waste Management Facilities: Ensure Effective Management of Landfill Sites		
3.1.All waste facilities are operated in accordance with their licenses, and the required legislations	- Ensure the Thohoyandou landfill is managed in accordance with the license conditions. - Construct fencing around the landfill, to manage access control	There's no alternative for this objective
	The landfill must be audited internally and externally at the frequency specified in their waste management license or registration	There is no alternative to this project. Internal and external audits are required by the waste management licenses.
3.2.Decreased land-filled waste by 30% volume within 5 years through the 3R's (waste reduction, re- use, recycling) and alternative treatment. This can be done	- Develop landfill site monitoring programme. - Encourage and roll-out a community empowerment programmes for the	There's no alternative option for this.

Objective	Actions and Targets	Comment on Alternative
through a comprehensive integration of waste reclaimers into the landfill	participation of local reclaimers in the landfill • Develop a data base for reclaimers at the landfill site and also look into best practice from other local municipalities regarding management of reclaimers at the landfill site. • Provide PPE for registered reclaimers. • Develop a checklist according to license conditions	
Goal 4: Waste management information systems - Effective waste information management and reporting		
4.1. Accurate waste information is reported on the SAWIS on a regular basis. TLM must be accurately aware of the type and quantity of waste generated in the municipality.	A weighbridge must be installed at the landfill for accurate waste quantities	There are no feasible alternatives to this project. The municipality has a legal requirement in terms of the National Waste Information Regulations to report on the SAWIS.
4.2. Effective internal management of waste related data	All municipal waste facilities are registered and reporting on the SAWIS	There are no feasible alternatives to this project. The TLM is required in terms of the waste

Objective	Actions and Targets	Comment on Alternative
		management by-laws, to report on the SAWIS.
Goal 5: IWMP implementation and monitoring		
5.1. Develop IWMP to include guidelines on implementation, recommendations, Key performance indicators and responsibilities	• Development of an IWMP by April 2024. • Endorsement of the IWMP by the MEC by April 2024	There is no feasible alternative to this project.
5.2. Promote Integrated Waste Management Planning. (including sanitation)	• Stakeholder engagement • Identify waste types within the TLM that require dedicated waste management protocols (e.g. diapers, Cardboard, Plastic). • Continuous improvement : Foster a culture of continuous improvement by regularly reviewing and updating the Integrated Waste Management Plan based on evolving waste management trends, technologies, and community needs. • Public- Private Partnerships – Explore opportunities for public-private partnerships to enhance waste management services. Collaborate with private entities for waste	There is no feasible alternative to this project.

Objective	Actions and Targets	Comment on Alternative
	collection, recycling, and other related activities, leveraging external expertise and resources.	
5.5. Establish a Local Municipal Environmental Forum and participate in the District Municipal Environmental Forum.	WMO to continue participating in the Local and District Environmental Forum: Waste Sub-Committee quarterly meetings.	There is no feasible alternative to this project.
5.6. Elevate status of waste management in the IDP process.	Establish a waste management committee	There is no feasible alternative to this project.
5.7. Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets	The TLM is to develop a waste infrastructure masterplan to guide the development of waste facilities over the next 10 – 15 years.	The waste management infrastructure plan can also form part of the Waste management services budget and planning
Goal 6: Waste education and awareness - Improved waste education and awareness		
6.1. Waste awareness campaigns are well planned and executed. Sufficient	Develop an annual waste awareness calendar and maintain a record of all waste awareness activities undertaken	There is no feasible alternative to this project.

Objective	Actions and Targets	Comment on Alternative
awareness materials are available for the waste awareness campaign	Waste awareness campaigns are to be undertaken by trained and experienced personnel	There is no feasible alternative to this project. In order for waste awareness campaigns to be undertaken successfully, they need to be undertaken by personnel with experience in waste management.
6.2. The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed	TLM to support with hazardous waste awareness programmes with business and industry. These programmes should focus on the hazardous cell at the regional landfill site and inform business and industry of registration requirements	The alternative to this project would be for the TLM to undertake their own hazardous waste awareness programme. As the TLM is the custodian of the landfill site, it is recommended that the TLM lead awareness programmes with support from the local municipality.
	TLM to undertake hazardous waste awareness programmes with the public with a focus on HHW	There is no viable alternative to this project. Alternatives methods for undertaking awareness campaigns (e.g. open days vs

Objective	Actions and Targets	Comment on Alternative
		community meetings) could be considered.
6.3. Waste awareness campaigns are mainstreamed at schools and all learners and educated on good waste management practices	Waste awareness campaigns to be undertaken at all schools within TLM	There is no viable alternative to this project. Alternatives methods for undertaking awareness campaigns (e.g. school competitions vs puppet shows) could be considered.
Goal 7: Institutional functioning- Improve institutional functioning and capacity		
7.1. The Solid Waste Management Department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented	The TLM 's Solid Waste Management Department's organogram is to be reviewed to determine whether sufficient positions are listed to allow implementation of this IWMP. All key positions are to be filled	The alternative to this project would be to outsource functions covered by vacant positions. This is not deemed as a suitable alternative as the TLM should focus on building expertise internally and the cost to outsource will likely be higher than to appoint an employee.
	Dedicated employees for waste education and awareness to be appointed. Key	An alternative to this project could be to add waste awareness campaigns to existing employees'

Objective	Actions and Targets	Comment on Alternative
	performance indicators (KPIs) to be included in their formal job descriptions	duties, however there is a risk that the employees may not have time available to adequately perform the additional role.
	Implementation of the IWMP to be added as KPIs to the Waste Manager or supervisors performance evaluation criteria.	An alternative could be to not have any KPIs relating to IWMP implementation but this risks failure to implement the IWMP.
	Training schedule developed with training needs for employees at different levels identified.	There is no feasible alternative to this project.
Goal 8: Financial management – Budgeting and financing of waste management		
8.1. Continuous Improvement financial sustainability of waste management in TLM	Develop financial planning model for waste services to include all costs associated with the provision of waste services and align tariffs with costs.	There is no feasible alternative to this project that would ensure that the most economic collection route is followed.
8.2. Allocate more resources for waste management from existing budget and other sources of funding	Identify funding sources for capital projects (e.g. Municipal Infrastructure Grant (MIG) and motivation of waste projects in IDP and other budgeting processes.	There is no feasible alternative to this project.

Objective	Actions and Targets	Comment on Alternative
	Engage with DEA / LEDET concerning funding model. capital projects (e.g. Municipal Infrastructure Grant (MIG) and motivation of waste projects in IDP and other budgeting processes.	
8.3. Ensure there is adequate budget for new and maintenance of infrastructure for waste management	- The IWMP review must include review of waste services financial plan. - Engage with DEA / LEDET concerning funding model. - Initiate and explore measures to increase the revenue stream - Ensure ongoing motivation of waste projects in IDP and other budgeting processes - Ensure ongoing annual review of waste services financial plan.	There is no viable alternate to this project. It is required by legislation to ensure sufficient budget for waste management infrastructure
Goal 9: By-laws and enforcement of by-laws - Establish effective compliance with and enforcement of the Waste Act.		

Objective	Actions and Targets	Comment on Alternative
9.1. Littering and illegal dumping is reduced and the by-laws related to waste management issues are enforced	Ensure that there is a provision for a fining schedule in the integrated waste management bylaws.	There is no viable alternate to this project.
	Appoint a waste ranger to enforce the by-laws.	An alternative to this project would be to add the waste ranger function to existing employees functions. There is a risk that employees may not have capacity to undertake this role in addition to their existing roles. One could also look to designate one of the current traffic peace officers to focus on waste, however this would reduce the capacity in the traffic department, which is not preferable.
	Undertake clean-up campaigns in areas where litter and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations or	An alternative to this project would be for the TLM to undertake all clean-up campaigns in-house without

Objective	Actions and Targets	Comment on Alternative
	communities and used as waste awareness campaign	engaging the communities. Clean up campaigns can be used to raise awareness so this is not deemed a suitable alternative.
9.2. The waste facility is operated in accordance with the license	Ensure that the landfill site is managed according to its license conditions	There is no alternative to this project
	All waste facilities to be audited internally and externally at the frequency specified in their waste management license or registration	There is no alternative to this project. Internal and external audits are required by the waste management licenses.

7. IMPLEMENTATION INSTRUMENTS

Implementation instruments, refer to the practical tools and mechanisms employed to execute and realize the strategic goals and objectives defined in the plan. These instruments encompass a range of elements such as partnerships with relevant entities, formulation of legislative frameworks, development of economic measures, and establishment of a financial plan. Each of these instruments plays a pivotal role in translating the IWMP from a conceptual framework into tangible actions on the ground. The collaborative involvement of stakeholders ensures that these instruments are tailored to the specific needs and dynamics of the municipality, thereby facilitating effective and sustainable waste management practices.

The implementation instruments encompass several key components vital for the successful execution of the Integrated Waste Management Plan (IWMP). These include:

1. **Partnerships:** Involves collaborations and alliances with external entities, organizations, or community stakeholders to enhance the collective effectiveness of waste management initiatives.
2. **Legislative Instruments:** Involves the development and enforcement of by-laws and regulations to establish a legal framework for waste management practices, ensuring compliance and accountability.
3. **Funding Mechanisms:** Entails the identification and establishment of financial resources and mechanisms to support the implementation of the IWMP. This includes budget allocations, grants, and other financial instruments.
4. **Implementation Plan:** Comprises a detailed and comprehensive roadmap outlining specific actions, responsibilities, and timelines for achieving the goals and objectives set forth in the IWMP. It serves as a guiding document for the step-by-step execution of the waste management plan.

These implementation instruments collectively form an integrated strategy for addressing waste management challenges, ensuring a systematic and coordinated approach to achieve the desired outcomes outlined in the IWMP. They play a crucial role in facilitating effective waste management practices and promoting sustainable solutions within the community.

7.1. PARTNERSHIPS

Establishing partnerships is recognized as a crucial mechanism for delivering the necessary services and facilities integral to the Municipal Integrated Waste Management Plan (TLM IWMP). The expenses and requisites associated with a sustainable waste management system are substantial, necessitating contributions and engagement from diverse stakeholders. Therefore, it becomes imperative for municipalities to foster collaborations with various stakeholders, aiming to sustain and advocate for sound waste management practices among all community members. A spectrum of partnerships, encompassing Public-Public Partnership, Public-Private Partnership, and Public-Community Partnership, can be forged to achieve these objectives. Descriptions of these partnerships are detailed below.

7.1.1. PUBLIC-PUBLIC PARTNERSHIPS

Public-Public Partnerships (PUP) refer to collaborations and alliances formed between public entities, such as government agencies, local authorities, or public institutions. In the context of waste management, this type of partnership involves cooperation between different public bodies at various levels, such as municipal, regional, or national, to collectively address and manage waste-related challenges. Public-Public Partnerships aim to leverage shared resources, knowledge, and expertise to enhance the efficiency and effectiveness of waste management practices and initiatives. These partnerships often contribute to the development of comprehensive and coordinated strategies for waste reduction, recycling, and disposal, ensuring a unified approach to address community needs and environmental concerns.

Collaboration and support can be sought through established connections with public institutions. Instances of such existing relationships include:

- LEDET - compliance with environmental legislation and EIA regulations, licensing of landfills and other waste activities, quarterly Environmental Forum (EQM)
- DWS – compliance with water legislation and regulations including sewage treatment facilities, cemeteries, catchment management etc.
- DEA – Extended Public Work Programme (EPWP).

- DEA- Chemicals and Waste Management.
- Waste Bureau - One of its functions is to support and advice on the development and implementation of Industry Waste Management Plans.

Additional prospects for collaboration and knowledge-sharing could involve partnering with other municipalities in Limpopo that have operational waste management departments.

7.1.2. PUBLIC-PRIVATE PARTNERSHIPS

A Public-Private Partnership (PPP) is a collaborative arrangement between a public-sector institution or organization and a private company or party. In this partnership, the private entity assumes the financial risks associated with the project, covering capital costs, facility design and construction, as well as operational expenses. While the public entity typically retains ownership of the land, the fixed assets are funded and sponsored by the private entity, eventually transitioning into state property. This arrangement allows for shared responsibilities and resources, leveraging the strengths of both sectors to achieve project success.

Few existing public-private partnerships are currently in place that are pertinent to waste management in TLM. Recognized partners include:

- Private Waste management and Recycling companies

Establishing partnerships with the private sector is crucial for the effective implementation, especially in waste minimization, reuse, and recycling initiatives. Numerous commercial entities in Limpopo are involved in the recycling or reclamation of various types of waste.

The following solutions must be implemented to ensure to strengthen effective private partnerships :

- Continuous roll-out and implementations of public interventions such as operation Phakisa, the DFFE's Recycling Enterprise Support Programme, and the Waste Bureau. This programmes must also have a monitoring and evaluation element to ensure progress and growth of the organisations supported

- PRO's and EPR schemes - PROs and EPR schemes play vital roles in supporting the public sector in waste management by shifting the responsibility for waste from municipalities to producers and manufacturers. PROs and EPR schemes alleviate the financial and operational burdens on the public sector by shifting responsibility to producers. By promoting sustainable practices, investing in infrastructure, and encouraging waste reduction, these initiatives contribute significantly to effective waste management. **Examples of PRO's that must participate include:**
 - PETCO
 - The glass recycling company
 - SAPPI
 - Polyco
 - Consol
 - Fibre circle
- Local recyclers need enhanced empowerment to ensure the establishment and maintenance of effective systems.
- Other recycling organisations include :
 - National Recycling Forum
 - Glass recycling association of South Africa
 - Paper recycling Association of South Africa
 - National Oil Recycling Association of South Africa
 - Rose Foundation
 - PRO Alliance

7.1.3. PUBLIC-COMMUNITY (NGO/CBO) PARTNERSHIPS

This collaboration involves community members receiving the service actively participating in the partnership with the public entity providing the service. A common illustration in waste management is the involvement of community-based contractors in recycling programs. This includes tasks such as collecting recyclables separated at the source.

Opportunities for collaboration regarding community-based waste management programs are potential with the following organizations:

- **South African Local Government Association (SALGA):**
 - SALGA offers support across various disciplines, including waste management. TLM can actively engage with SALGA to participate in and derive benefits from their extensive programs.
- **Clean City Campaign (CCC):**
 - CCC encompasses the Recycling Forum and brings together key stakeholders, including councillors, private companies, and NGOs. TLM has the opportunity to collaborate and contribute to this platform, fostering a collective approach to waste management.
- **Institute for Waste Management South Africa (IWMSA):**
 - TLM can explore collaboration with IWMSA by engaging in various training programs. Joining interest groups within IWMSA, such as Collection and Transport, Landfill and Waste Treatment, and Waste Minimization and Recycling, offers TLM opportunities to stay informed and contribute to industry advancements.

7.2. LEGISLATIVE INSTRUMENTS: DEVELOPMENT AND ENFORCEMENT OF BY-LAW

The development and execution of Integrated Waste Management Plans (IWMPs) hinge on the enactment of appropriate municipal legislation. Municipalities possess the authority to institute by-laws, which serve to complement national and provincial regulatory frameworks. The enforcement of these by-laws is vital and can be carried out through municipal channels, such as Peace Officers, or through other designated authorities within the municipality, including Ward Counsellors.

It is strongly recommended that TLM undertakes the revision of existing by-laws (as outlined in Provincial Gazette No.2858 of 20 October 2017) and actively implements and enforces relevant provisions to address the following issues in waste management:

- Domestic waste, littering, and illegal dumping.
- Landfill site reclaimers who are residents.
- Disposal of medical waste generated by private medical institutions, such as General Practitioners (GPs) and private clinics.
- Management of industrial waste.
- Handling of commercial waste, with a specific focus on the disposal of used oils, old vehicle body parts, chassis, etc.

7.3. FUNDING MECHANISMS

The successful implementation of the TLM Integrated Waste Management Plan (IWMP) is contingent upon having adequate funds available to execute the plan. Considering the strategies identified in the gap and analysis chapter, funding will likely be essential for the following priority projects recommended:

1. **Waste Management Training and Awareness Programme for Officials and Councillors:**

- Funding is needed to facilitate comprehensive training programs for municipal officials and councillors to enhance their understanding and proficiency in waste management practices.

2. **Waste Management Awareness Programme for the Public:**

- Financial support is required for developing and executing public awareness campaigns to educate and engage the community in effective waste management practices.

3. **Waste Management Awareness Initiatives for Informal Settlements and Ward Councillors:**

- Funding is necessary to implement targeted awareness initiatives tailored to informal settlements, involving collaboration with ward councillors to ensure effective communication and engagement.

4. **Schools Waste Awareness Programmes:**

- Financial resources are needed to establish waste awareness programs in schools, fostering a culture of responsible waste management among students.

5. **Capacitating Officials for the Implementation of By-Laws:**

- Capacitating officials through training programs on the implementation of revised by-laws requires funding support to ensure effective enforcement and compliance.

Securing funds for these priority projects will be instrumental in advancing the TLM IWMP, promoting sustainable waste management practices, and fostering community participation and compliance.

8. IMPLEMENTATION PLAN

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

- Goal and objective
- Action requires
- Indicator / target
- Project priority;
- Timeframes;
- Anticipated budget;

Waste Management Officer

The successful execution of the IWMP will heavily depend on the municipality to formally designating a competent, well-equipped, and suitably qualified Waste Management Officer (WMO), and a supporting team. As previously mentioned in this document, according to the Waste Act, it is obligatory for Local Municipalities (LMs) to designate a WMO, and it is a key priority for the municipality to comply with this requirement. The responsibilities and duties of a WMO are also outlined within the report.

Moreover, it is believed that a sufficiently skilled WMO could effectively address many of the identified issues and tasks without the need to resort to outsourcing to external service providers or consultants.

The proposed implementation plan is outlined in Table 33.

Table 33: Implementation Plan

No.	Action	Indicator/target	Timeframe	Budget
Goal 1 : Waste collection provision services – Ensure the effective and efficient delivery of waste services				
Objective 1.1:Expand waste collection services (Supply of refuse bags, bins, Contracts with transporters.) , by 50 %				
1.1.1.	Develop programme to expand services to other areas within the municipality.	Implemented collection routes and frequency , and allocate budget.	1 – 3 years	R 3 000 000,00
1.1.2.	Development and adoption of a waste service level in line with National Domestic Waste Collection Standards (2019)	Availability of service level standards	1 year	Nil – to be undertaken internally
Objective 1.2: Provision of efficient and functional Waste management fleet and equipment- Ensure the effective and efficient delivery of waste services. The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required				
1.2.1.	Develop and implement a waste management fleet replacement plan in order to ensure that vehicles are timeously replaced and operate efficiently.	A fleet replacement policy which considers age, kilometres, and maintenance, repair and fuel costs.	1- 3 years	Nil – to be undertaken internally
1.2.2.	Review level agreements with sub-contractors and establish waste service level agreement policy for the TLM and for sub-contractors.	Updated service level agreements	1 – 3 years	Nil – to be undertaken internally

No.	Action	Indicator/target	Timeframe	Budget
Objective 1.3.: A kerbside collection service is provided to all future residential developments				
1.3.1	Undertake a route planning exercise in order to ensure that the most economic collection route is followed by the waste collection fleet.	Documented, and optimised collection route – that is most economic	1 – 3 years	Nil – to be undertaken internally
1.3.2.	Waste specifications to be developed for all future municipal and private developments (e.g. road widths and provision for drop-of centres)	Waste specification included in all frameworks and future developments (forms part of all recommendation for municipal reports)	3-5 years	Nil – to be undertaken internally
Objective 1.4: increase and improve the collection of waste in rural areas, by 50%				
1.4.1.	Undertake a route planning exercise in order to ensure that the most economic collection route is followed by the waste collection fleet.	Implement collection routes and frequency , and allocate budget	1 year	Nil
1.4.2.	Develop buy-back centres or transfer centres in rural areas, (or areas that are a long distance from the landfill site)	Commission and ensure the three transfer stations (already existing) in the municipality are operational	1 – 2 years	R 500 000,00
Goal 2 : Waste recycling - Increased waste minimisation and recycling				
Objective 2.1: . Increased diversion of waste from landfills. Reduce the number of waste sent to landfill by 50%.				

No.	Action	Indicator/target	Timeframe	Budget
2.1.1.	Promote a greater participation of households in the separation at source programme and should raise awareness around what materials can be recycled in order to minimise contamination.	- A separation at source programme implemented into at least 30 % of the households. - Reduced waste sent to landfill by 50%	1-3 years	R 450 000,000
2.1.2.	Integrate and empower recyclers and waste pickers in the overall waste management plans of the municipality.	- On the current recyclers and waste pickers available in the municipality, ensure 100 % are retained and supported, - Increase the number of recyclers by 20 %, - Decreased numbers of illegal dumping sites by 100 % 50 % recyclable waste sent to landfill (50 % of waste recycled, and not sent to landfill)	1- 2 years	R 500 000,000
2.1.3.	Foster and Enable a conducive environment for local recyclers to participate and grow in the Recycling / circular economy sector	Increase in number of local recyclers by 20%	1 year	N/A

No.	Action	Indicator/target	Timeframe	Budget
		- Develop by-laws for producers and retailers on ensuring support of local recyclers , such as local economic development plan on retailers to ensure that the recyclables are collected by locals. - Develop by-laws on liquor stores for bottle clean-ups, i.e. Ensuring their responsibility to ensure empty liquor bottles are delivered to recycling facility or registered recycler		
2.1.4.	Implement a schools Recycling programmes	A school recycling programme- monitored by LEDET	1 years	Nil- can be done through EPR schemes
Objective 2.2 : increase The Diversion Of Organic Waste From Landfill				

No.	Action	Indicator/target	Timeframe	Budget
2.2.1.	- Awareness Programme For Household And School Composting Programmes. - Dedicate area for organic waste in the landfill and ensure that the landfill management team uses it.	- Education & awareness plan for organic waste composting - Review the landfill monitoring documents / SLA and ensure the addition of organic waste management	1 – 2 years	Nil – to be undertaken internally
Goal 3: Waste Management Facilities: Ensure Effective Management of Landfill Sites				
Objective 3.1.: All waste facilities are operated in accordance with their licenses, and the required legislations				
3.1.1.	Ensure the Thohoyandou landfill is managed in accordance with the license conditions.	- A landfill monitoring programme - Internal & external landfill audit are undertaken	1 – 3 years	R 150 000,00
3.1.2	Ensure adequate equipment and fleet for the management of the landfill	SLA with the service provider for landfill management to ensure there's adequate fleet according to the landfill management specification document	1 – 3 years	NIL- Done internally
3.1.3	Construct fencing around the landfill, to manage access control	Fencing around the landfill , and sufficient access control	1 – 3 years	Construction In progress

No.	Action	Indicator/target	Timeframe	Budget
Objective 3.2.: Decreased land-fill waste by 50 % volume within 5 years through the 3R's (waste reduction, re- use, recycling) and alternative treatment				
3.2.1.	Implementation of a separation at source programme in households	- Separation at source programme plan/ document - Continuous and monitored Awareness campaigns	1-3 years	Nil- can be done through EPR schemes
3.2.2	Develop a comprehensive integration support programme of waste pickers in the landfill, aligned with the EPR schemes	- A data-base of reclaimers in the landfill - Waste reclaimers support programme (provision of skill development, PPE, and other equipment's) - A monitoring plan to Ensure the compliance of the EPR schemes, through the responsible PRO's -	1 year	Nil- can be done through EPR schemes
Goal 4: Waste management information systems - Effective waste information management and reporting				
Objective 4.1.: Accurate waste information is reported on the SAWIS on a regular basis. TLM must be accurately aware of the type and quantity of waste generated in the municipality.				

No.	Action	Indicator/target	Timeframe	Budget
4.1.1.	A weighbridge must be installed at the landfill for accurate waste quantities	Working weighbridge	3-5 years	Approx. R 2 500 000,00
Objective 4.2.: Effective internal management of waste related data				
4.2.1.	All municipal waste facilities are registered and reporting on the SAWIS	Available SAWIS data	1 – 3 years	Nil – to be done internally
4.2.2.	Ensure that the waste information system feeds into the government WIS (waste information system) and meets the requirements of the National waste management strategy	Available SAWIs data	1 year	Nil – to be done internally
Goal 5: IWMP implementation and monitoring				
Objective 5.1: Develop IWMP to include guidelines on implementation, recommendations, Key performance indicators and responsibilities				
5.1.1.	Development of an IWMP by April 2024 Endorsement of the IWMP by the MEC by April 2024	An endorsed IWMP by April 2024	1 – 3 years	Nil – IWMP plan / budget by LEDET
Objective 5.2.: Promote Integrated Waste Management Planning.				
5.2.1	Identify waste types within the TLM that require dedicated waste management	An endorsed IWMP by April 2024	1 year	Nil – IWMP plan / budget by LEDET

No.	Action	Indicator/target	Timeframe	Budget
	protocols (e.g. diapers, Cardboard, Plastic). • Continuous improvement : Foster a culture of continuous improvement by regularly reviewing and updating the Integrated Waste Management Plan based on evolving waste management trends, technologies, and community needs • Public- Private Partnerships – Explore opportunities for public-private partnerships to enhance waste management services. Collaborate with private entities for waste collection, recycling, and other related activities, leveraging external expertise and resources • Engage with the DFFE on the policies of EPR's and PRO programmes, and ensure accountability.	(NB: The IWMP contains the information) • A documented and approved monitoring programme and target sets for the DFFE for monitoring the PRO's on adequate implementation of the EPR schemes in the local municipalities.		
Objective 5.3. Establish a Local Municipal Environmental Forum and participate in the District Municipal Environmental Forum.				

No.	Action	Indicator/target	Timeframe	Budget
5.3.1.	WMO to continue participating in the Local and District Environmental Forum: Waste Sub-Committee quarterly meetings.	Attendance of district or regional Waste management meetings	On-going	Nil
5.3.2.	Establish environmental community clean-up clubs in the municipality	Active Environmental club in the municipality	1-3 years	Nil
Objective 5.4: Elevate status of waste management in the IDP process.				
5.4.1	Establish a waste management committee	Waste management committee	1 – 3 years	Nil – to be done internally
Objective 5.5. Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets				
5.5.1	The TLM is to develop a waste infrastructure masterplan to guide the development of waste facilities over the next 10 – 15 years	.Waste Infrastructure Master Plan	5 -10 years	N/A
Goal 6: Waste education and awareness - Improved waste education and awareness				
6.1.1.	Develop an annual waste awareness calendar and maintain a record of all waste awareness activities undertaken	Annual waste awareness calendar	. 1-3 years	Nil – to be done internally
6.1.2.	Waste awareness campaigns are to be undertaken by trained and experienced personnel.	Trained/ skilled municipal personnel	1-3 years	Approx. R 500 000,00

No.	Action	Indicator/target	Timeframe	Budget
	Undertake clean-up campaigns in areas where litter and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations or communities and used as waste awareness campaign			
Objective 6.2: The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed				
6.2.1.	Conduct research on the status and quantity of medical and hazardous commercial and domestic waste produced Develop a database of all producers of medical and hazardous waste	- Documented data -base - implemented monitoring plan	1 – 3 years	Nil – to be done internally
6.2.2.	TLM to undertake hazardous waste awareness programmes with the public with a focus on HHW	Monitoring programme or document on medical waste, which must be produced by the Department of Health	1 year	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
	Promote appropriate disposal of medical, commercial and industrial waste and ensure adequate management by the respective waste generators and service providers	(Medical waste is a legal responsibility of the Provincial Department of Health) - A data base of hazardous waste generators , and filed proof of disposal certificates – bi-annual audit to be conducted. - Updated municipal by-laws and penalties on failure to comply		
6.2.3	Ensure that the management, responsibility and penalties of hazardous waste such as oils are included in the municipal by-laws, and the public, both formal and informal business are aware of the	- reviewed by-laws with the inclusion of hazardous waste management, and penalties - empower local recyclers on the opportunities that are available in the hazardous waste sector, such as used oil.	1 year	Nil

No.	Action	Indicator/target	Timeframe	Budget
6.2.4	empower local recyclers on the opportunities that are available in the hazardous waste sector, such as used oil.	A minimum of three local recyclers that are empowered and supported in the collection and recycling of used oil,	1 year	R 150 000,00
Goal 7: Institutional functioning- Improve institutional functioning and capacity				
Objective 7.1. The Waste Management Department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented				
7.1.1.	The TLM 's Waste Management Department's organogram is to be reviewed to determine whether sufficient positions are listed to allow implementation of this IWMP. All key positions are to be filled	Reviewed organogram, with sufficient personnel	. 1-3 years	N/A
7.1.2.	Dedicated employees for waste education and awareness to be appointed. Key performance indicators (KPIs) to be included in their formal job descriptions	Training schedule developed with training needs for employees at different levels identified.	1-3years	N/A
7.1.3	Implementation of the IWMP to be added as KPIs to the Waste Manager or supervisors performance evaluation criteria.	Waste Management Officer – KPI has IWMP implementation	1-3 years	N/A

No.	Action	Indicator/target	Timeframe	Budget
Goal 8: Financial management – Budgeting and financing of waste management				
Objective 8.1.: Continuous Improvement and financial sustainability of waste management in TLM				
8.1.1.	Develop financial planning model for waste services to include all costs associated with the provision of waste services and align tariffs with costs.	IDP outlines a comprehensive and efficient waste services budget to enable effective implementation of IWMP	1-3 years	Nil – to be done internally
8.1.2.	- Allocate more resources for waste management from existing budget and other sources of funding. - Identify funding sources for capital projects (e.g. Municipal Infrastructure Grant (MIG) and motivation of waste projects in IDP and other budgeting processes. - Engage with DFFE / LEDET concerning funding model. Capital projects (e.g. Municipal Infrastructure Grant (MIG) and motivation of waste projects in IDP and other budgeting processes.	- To have a budget that address all the equipment required by 2024/2025 , 2025/2026 - A database of all funders in place, with relevant proposals	1-3 years	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
8.1.3.	Ensure there is adequate budget for new and maintenance of infrastructure for waste. The IWMP must include review of waste services financial plan. - Initiate and explore measures to increase the revenue stream - Ensure ongoing motivation of waste projects in IDP and other budgeting processes - Ensure ongoing annual review of waste services financial plan.	Annual review of tariff structure and debt collection strategy by June 2021	1-3 years	Nil – to be done internally
8.1.4.	Ensure that the “free basic service” for qualifying indigents is implemented	Implemented indigent free basic service for qualifying indigents	1-3 years	
Goal 9: By-laws and enforcement of by-laws – Establish effective compliance with and enforcement of the Waste Act.				
Objective 9.1.: Littering and illegal dumping is reduced and the by-laws related to waste management issues are enforced				
9.1.1.	- Ensure that there is a provision for a fining schedule in the integrated waste management by-laws. - Ensure that by-laws are comprehensive	100% introduction and enforcement of by laws.	1 year	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
	Ensure by-laws are in line with the NWMA			
9.1.2.	Ensure that sufficient and trained staff are in place to enforce the by-laws	Appoint a waste rangers to enforce the by-laws	1 – 3 years	R 500 000,00

9. REPORTING ON IMPLEMENTATION, MONITORING AND REVIEW

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

- The extent to which the plan has been implemented during the period;
- The waste management initiatives that have been undertaken during the reporting period;
- the delivery of waste management services and measures taken to secure the efficient delivery of waste management services, if applicable;
- The level of compliance with the plan and any applicable waste management standards;
- The measures taken to secure compliance with waste management standards;
- The waste management monitoring activities;
- The actual budget expended on implementing the plan;
- The measures that have been taken to make any necessary amendments to the plan; These annual reviews should culminate in a formal review report which should be made available to the provincial authorities.

A full review of the IWMP should be undertaken in 2029, however intermediate reviews may also be required if the status quo of waste management changes significantly before 2029.

10. CONCLUSION

In conclusion, the Integrated Waste Management Plan (IWMP) for Thulamela Local Municipality (TLM) outlines a comprehensive strategy aimed at tackling the municipality's waste management challenges while aligning with broader provincial and national objectives. Through meticulous Situational Analysis, critical insights into TLM's waste landscape were gleaned, encompassing demographic shifts, waste characteristics, and existing infrastructure.

The identified goals for TLM include:

1. Ensure the effective and efficient delivery of waste services.
2. Increase waste minimization and recycling efforts.
3. Ensure effective management of landfill sites.
4. Establish effective waste information management and reporting systems.
5. Implement and monitor the IWMP.
6. Improve waste education and awareness within the community.
7. Enhance institutional functioning and capacity.
8. Provide efficient and financially viable waste management services.
9. Establish effective compliance with and enforcement of waste regulations through by-laws.

The alignment of these goals with provincial and national waste management strategies underscores the municipality's dedication to integrated and coordinated efforts. The identified goals encompass various facets of waste management, including service delivery, education, institutional capacity building, and regulatory compliance.

Stakeholder engagement throughout the development process has been integral, ensuring that diverse perspectives are considered and integrated. This inclusive approach fosters ownership and support for the IWMP, enhancing its effectiveness and sustainability.

To address existing gaps and improve rudimentary waste management practices, various implementation instruments have been explored, including partnerships, legislative measures, funding mechanisms, and the development of an implementation plan. Recommendations include promoting waste management

awareness and training programs, enhancing waste management facilities, addressing illegal dumping sites, updating waste management tariffs, and encouraging waste reduction, reuse, and recycling initiatives.

Monitoring, evaluation, and review are vital for the success of the IWMP. Establishing a robust monitoring framework to prioritize IWMP goals and ensure adequate resource allocation is crucial. This dynamic document requires ongoing review, with annual assessments recommended to maintain relevance and stakeholder engagement. The next review in 2025 is essential to prevent the IWMP from becoming obsolete and to uphold stakeholder confidence and utilization.

In essence, the IWMP serves as a strategic roadmap toward a resilient waste management framework for TLM. Through collaboration, stakeholder engagement, and adherence to regulatory frameworks, TLM aims to realize its vision of sustainable waste management practices that positively impact both the local community and the broader environmental landscape.

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Thulamela Local Municipality, Draft Integrated Development plan 2021- 2022

12. ANNEXURES

APPENDIX A: LIST OF RECYCLERS AND THEIR OPERATIONAL STATUS

#	Name of Organisation	Operational status
1.	Keep it Clean Environmental Solutions	Active
2.	Tshiwangamatembele Cooperative Limited	Active
3.	Westside Legacy Holdings Pty (Ltd)	Active
4.	Tito Recycling and General Supply	Active
5.	Dare Waste Technologies	Active
6.	LTT Waste	Active
7.	Mukula Takalani Environmental	Active
8.	Winners Environmental Project	Active
9.	Riashuma Recyling Company	Active
10.	Tshikofokofo Adopt a River Community Project	Active
11.	Vhudi-Vhudele dopt a River Community Project	Active
12.	Tswera Adopt a River Community Project	Active
13.	Makonde Adopt a River Community Project	Active
14.	Tshampome Adopt A River Community Project	Active
15.	Mugodo Adopt a River Community Project	Active
16.	Tshidzivhe Adopt a River Community Project	Active
17.	Tshinwamukumbi Adopt a River Project	Active
18.	Thandululo Adopt a River Project	Active
19.	Mufulwi Adopt a River	Active
20.	Malavuwe Adopt a River	Active
21.	Tshaulu Adopt a River Project	Active
22.	Dimani Environmental Project	Active
23.	Tshiheni Adopt a River	Active

ANNEXURE B:

THE STAKEHOLDER ENGAGEMENT REPORT

**INTERGRATED WASTE MANAGEMNT REPORT FOR THULAMELA LOCAL
MUNICIPALITY**

Prepared for: Thulamela Local Municipality



**On behalf of Limpopo Department of Economic Development, Environment
and Tourism**



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

**DEPARTMENT OF
ECONOMIC DEVELOPMENT, ENVIRONMENT & TOURISM**

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Annexure B-1: Public meeting programme & Attendance register

Annexure B-2: Images from the public meeting

Annexure B-3: Information shared during the public meeting – The draft implementation plan

Table 1: List of abbreviations & acronyms

Abbreviation	Description
DEFF	Department of Environment, Forestry and Fisheries
I & APs	Interested and Affected Parties
IDP	Integrated Development Plan
IWMP	Integrated Waste Management Plan
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LM	Local Municipality
NEM: WA	National Environmental Management Waste Act (Act No 59 of 1998)
PPP	Public Participation Process
PSC	Project Steering Committee
WMO	Waste Management Officer
PRO	Producer responsibility organisation
EPR	Expended Producer Responsibility

Definitions

Table 2: List of definitions

Word	Description
Department of Forestry, Fisheries and the Environment	This is a government department responsible for managing and regulating various aspects of South Africa's environment, including forestry, fisheries, and environmental protection.
National Development Plan	The NDP is a long-term vision document that outlines South Africa's development goals and strategies for achieving a more equitable and prosperous society. It covers a broad range of sectors, including education, healthcare, employment, infrastructure, and environmental sustainability. The NDP is often

Word	Description
	considered the cornerstone of South Africa's national development framework.
National Waste Management Strategy	The NWMS is a strategic plan that guides waste management policies and practices in South Africa. It outlines the country's goals for sustainable waste management, including waste reduction and recycling targets.
Integrated Development Plan	Integrated development planning (IDP) is a co-ordinating synergistic legal instrument for municipal planning in South Africa which extends to the national and provincial spheres of government.
Integrated Waste Management	An Integrated waste management is a holistic approach to waste reduction, which includes the reduction, collection, disposal, and recycling of waste in an environmentally responsible and sustainable manner
Integrated Waste Management Plan	An Integrated waste management Plan is a comprehensive strategy that outlines how a municipality or organization intends to manage its waste, including waste reduction, recycling, and disposal methods.
Limpopo Economic Development, Environment and Tourism	LEDET is a government department in Limpopo, South Africa, responsible for economic development, environmental protection, and tourism promotion in the region.
National Environmental Management Act, Act No. 107 of 1998	NEMA is a South African environmental law that provides a framework for managing and protecting the environment, including natural resources and ecosystems.
National Environment Management: Waste Act, 2008, Act 59 of 2008	This is an environmental law in South Africa that focuses on the management of waste and aims to promote responsible waste management practices.

Word	Description
National Environmental Management: Waste Act, 2014, Amended	This is an updated version of the NEMWA that strengthens regulations and provisions related to waste management in South Africa.
Health Care Risk Waste	This refers to waste generated in healthcare facilities that may pose a risk to human health or the environment, such as infectious materials or hazardous chemicals.
South African Waste Information Centre	The South African Waste Information Centre (SAWIC) is a centralized and comprehensive information hub dedicated to collecting, managing, and disseminating data and information related to waste management and environmental conservation. SAWIC serves as a repository for various types of waste-related data, including statistics on waste generation, recycling rates, landfill usage, and other pertinent information. This organization's primary goal is to provide reliable and up-to-date waste-related information to government agencies, organizations, researchers, and the public, supporting evidence-based decision-making and policies aimed at improving waste management and environmental sustainability in South Africa.
South African Waste Information System	The South African Waste Information System (SAWIS) is a comprehensive and integrated data management and reporting system used in South Africa to collect, manage, and analyse information related to waste generation, disposal, recycling, and other aspects of waste management. SAWIS is designed to provide accurate and up-to-date data for decision-making, monitoring compliance with environmental regulations, and developing strategies for sustainable waste management practices in South Africa.
Circular Economy	an economic system based on the reuse and regeneration of materials or products, especially as

Word	Description
	a means of continuing production in a sustainable or environmentally friendly way.
Recycling	Recycling is the process of converting waste materials into new materials and objects
Waste picker (Waste reclaimer)	An individual who collects, sort, recycle, re-purpose and sell these materials to recycling industries. They also are collectors of recyclable materials, diverters, or informal recyclers.
Producer Responsibility organisation	An organisation that serve as intermediaries between producers and the government, overseeing the collection, recycling and disposal of certain product categories post-consumer use. Their primary aim is to ensure that producers meet their environmental and waste management responsibilities.
Extended Producer Responsibility	an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle

1. CONTEXT AND BACKGROUND

The creation of this IWMP must follow a process of public participation and consultation as outlined in Section 72 and Section 73 of the NEM:WA (National Environmental Management: Waste Act), as amended. Presented below is a structured outline of the stakeholder engagement process in compliance with these sections. This engagement process guarantees that the IWMP development is inclusive, transparent, and attentive to the requirements and viewpoints of all involved stakeholders.

2. STAKEHOLDER ENGAGEMENT PROCESS OUTLINE:

2.1. Initiation and Planning:

- Process steering committee members from LEDET and the Thulamela Local Municipality were selected
- A team responsible for stakeholder engagement was established.
- A stakeholder engagement plan was developed outlining objectives, methods, timelines, and responsibilities.

2.2. Identification of Stakeholders:

- All stakeholders who had an interest in or were affected by the IWMP development were identified.
- Stakeholders were classified based on their level of interest, influence, and potential impact on the plan.

2.3. Notification and Initial Engagement:

- Stakeholders were notified about the IWMP development process, including the purpose, scope, and timeline, through a newspaper advert
- Initial engagement in the form of a stakeholder meetings and information sessions were initiated to introduce the project and gather initial input.

2.4. Consultation and Feedback:

- Consultations with stakeholders were conducted through various channels such as public meetings, and written submissions for comments and queries on the project

- Stakeholders were provided opportunities to provide feedback, suggestions, and concerns regarding the IWMP.

2.5. Information Dissemination:

- Relevant information about the IWMP, including draft documents, reports, and updates, was shared with stakeholders.
- Transparency and accessibility of information were ensured to all stakeholders. The report was placed on the municipality website, as well as availability of hard copies at the Municipality offices.

2.6. Analysis and Incorporation:

- The feedback and input received from stakeholders were analysed.
- Stakeholder input was incorporated into the development of the IWMP where feasible and appropriate.

2.7. Review and Revision:

- The draft IWMP was reviewed in light of stakeholder feedback and any relevant legislative requirements.
- The IWMP was revised as necessary to address stakeholder concerns and ensure alignment with objectives.

2.8. Finalization and Approval:

- The IWMP document was finalized based on the outcomes of stakeholder engagement and the review process.
- Approval from relevant authorities or governing bodies was sought for the final IWMP, the office of the Municipal manager and the LEDET MEC

2.9. Communication of Outcomes:

- The outcomes of the stakeholder engagement process, including how stakeholder input was considered and incorporated into the IWMP, were communicated.

2.10. Monitoring and Review:

- Mechanisms for ongoing monitoring and review of the IWMP implementation were established.
- Stakeholders will periodically be engaged to assess progress, identify challenges, and make necessary adjustments to the plan. The monitoring review plan forms part of this report on section 9.

3. CONSULTATION WITH KEY STAKEHOLDER

The consultation with the key stakeholders (i.e. Waste Management Officers from LMs, LEDET Waste management team) was in the form of an initial projection inception meeting which took place at LEDET offices and thereafter monthly progress update meetings were held at the Thulamela Local municipality office.

Throughout the development of the IWMP, a consultative approach was adhered to, incorporating the following steps to enable stakeholders to offer feedback on different stages of the IWMP,

- Identification of Stakeholders: The key stakeholders and project steering involved in waste management practices within the municipality and the development of the IWMP were identified and are listed in table 2-1 of this report.
- Stakeholder Database: Following the identification of stakeholders, a database, was established and maintained throughout the IWMP process, please see table 2-2 In the report.
- Public Engagement: An announcement was published in the local newspaper, namely the Limpopo Mirror, to notify the public about the availability of the draft IWMP for review (for a period of 30 days) and to encourage attendance at various public meetings. These meetings were organized to inform the public about the IWMP review and update, allowing them an opportunity to provide feedback, suggestions and comments on the IWMP.

Refer to Figure 1, for the outlined stakeholder engagement process that was followed below.



Figure 1: the stakeholder engagement process

3.1. THE PRIMARY OBJECTIVE OF PPP

The primary objectives of the Public Participation process were as follows:

- Inform interested and affected parties (I&APs) and key stakeholders about the development of the IWMP
- Facilitate meaningful and timely involvement of I&APs.
- Identify key issues and concerns of stakeholders and I&APs regarding the IWMP,
- Establish a structured approach for communication and collaboration with I&APs and key stakeholders.
- Ensure inclusivity by considering the needs, interests, and values of I&APs throughout the development of the IWMP
- Address queries from I&APs promptly and comprehensively.

3.2. THE PROJECT STEERING COMMITTEE AND KEY STAKEHOLDERS

Table 3: Project steering committee & key stakeholders

Name	Position
LEDET Team	
Tshepo Maselela	Assistant Director : General waste management
Tshepo Magongwa	
Tendani Munzhedzi	Junior Environmental officer
Mosa Green Consulting Project Management Team	
Lehlogonolo Moseri	Project Lead
Vunene Maswanganyi	Environmental Scientist
Jerida Golane	Junior Environmental Scientist
Vuyokazi April	Senior Environmental Scientist
Mpendulo Gindiza	Sustainability and Waste Manager
Thulamela Local Municipality Project Steering committee team	
Simon Madi	Manager : Waste management & community services
Vutshilo Ravele	Superintended : Waste Management

3.3. NEWSPAPER ADVERTISEMENT

Newspaper Advertisements informing Interested & Affected Parties placed in the local newspaper, namely The Limpopo Mirror

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LIMPOPO MIRROR, 15 MARCH 2024



A 21-year-old, Ellah Munyai, from Rivoni village, is a finalist in the Miss South Africa Heritage 2024 pageant. Photo: RMSC photography.

Ellah Munyai aims to shape

BY THEMBI SIAGA

A Miss South Africa Heritage 2024 finalist, Ellah Munyai (21) from Shirley village, hopes to inspire and shape the future of children.

The young beauty from Vhembe has already won two titles. Ellah was crowned as the first-ever Miss South

pansberg 2022/2023 and then became 1st Princess in the Miss Golden Dreams 2023/2024 pageant.

Ellah will compete with 19 other finalists from nine provinces at the crowning ceremony scheduled for 28 September, with the venue yet to be confirmed.

Ellah's passion for modelling started in 2018 when, at the age of 16, she discovered

her love for the industry to do more research. I entered for the pageant in 2019, and I made it to the final 10. Going home with the title did not disappoint, it helped with modelling and your physical appearance, but more about you," she said. Beyond her

Musina's young entrepreneurs fend for themselves by grow

BY BERNARD CHIGUVARE

The partnership between the Modern Community Foundation (MC Foundation) and the Shumela Hayani non-profit organisation is gradually yielding the intended results, as 20 youths from Musina, including people living with disabilities, are starting to derive an income from the partnership.

Established in 2022 by the MC Foundation, a Johannesburg-based organisation, Shumela Hayani is now training youths in agriculture. The 20 youths are growing various fruits and vegetables on a 10-hectare piece of land near Campbell township, in the Musina Municipality.

According to Revel Harris, managing director of MC Foundation, a need to partner with the Shumela Hayani organisation existed as the youth in Musina were not actively involved

Musina residents. "The business is running very well. We hope to produce more, so that our community grows," said Maphaha.

Karabo Mukhuwa, one of the beneficiaries, said that the partnership had come at the right time.



Some of the Musina youths display their produce that is ready for the market. Photo supplied.

PUBLIC NOTICE

INVITATION FOR PUBLIC PARTICIPATION AND SUBMISSION OF COMMENTS ON THE DRAFT INTEGRATED WASTE MANAGEMENT PLAN THULAMELA LOCAL MUNICIPALITY

Thulamela Local Municipality Council invites community members and stakeholders to the public participation meeting on the draft Integrated Waste Management plan, in accordance with section 11 to 13 of the Local Government Municipal Systems Act, 2000 (Act 32 of 2000).

These Public Participation meeting will take place as follows:
Venue: Vuledzani Bulala Indoor Sports Complex
Date : 20 March 2024
Time: 10:00 AM

NB: The draft IWWP document can be found on the municipal website: www.thulamela.gov.za

The closing date for the submission of comments is 13 April 2024 at 12:00 pm

Enquiries: Ms. Lehlogonolo Moseri • Email : Lmoseri@mosagreen.co.za
• Phone: 079 140 9601

Issued by the office of the speaker
THULAMELA LOCAL MUNICIPALITY



NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEMARCATION OF 356 SITES (EJULILAS EXTENSION) IN THE FARMER'S MARKET 2815 WITHIN THE MUKHOSI LOCAL MUNICIPALITY OF

in any activities that could earn them a living. Though they have enough land, the organisation still needs farming tools to enhance production and transport to deliver their harvest to the market.

Speaking to *Limpopo Mirror*, Annah Maphaha, Shumela Hayani's project coordinator, said the 20 youths worked as a group and sold the products to a big food retailer, local street vendors, and ordinary

SPEED
BRAKE

Figure 2:- The newspaper advert

Public meetings were held in conjunction with the municipal Integrated Development Plan (IDP) public participation process as follows:

Table 4: The public participation meeting information

Venue	Clusters	Ward	Date	Time
Vuledzani Bulala Indoor Sports Complex	ALL	ALL	20 March 2024	10:00 Am

4. THE AVAILABILITY OF THE DRAFT IWMP

The Draft IWMP was made accessible for public review from the 15th March 2024 to the 13th April 2024. The report was placed at the Thulamela Local Municipality's offices as well the website on www.thulamela.gov.za and via email upon request. The draft document was also made available to all ward councillors for further communication with the community members.

5. COMMENTS AND RESPONSE

The technical issues, comments, and concerns gathered throughout the public participation process were duly recorded and documented in the comments and response report provided below

Table 5: Comments & Response Report

#	Comment	Response
1	The % of waste minimisation and recycling goal must be quantified,	This is outlined in Table 34: The Implementaon plan , under goal 1, objective 1,4: improve and increase the collection of waste in rural areas by 50%
2	Hazardous waste found in the landfill. The municipality is urged to put measures into the hazardous waste that is regularly found in the landfill and other in town	Addressed in table 34 , Goal 6, objective 6,2 : The public, business & industry must be informed on what constitutes hazardous waste & the management of hazardous waste - The municipality to liase with the Department of Health – as medical waste is part of their responsibility - The municipality to update by-laws to ensure that hazardous waste producers are monitored and produce disposal certificates on the hazards in their organisations - All private medical doctors' offices will be monitored ad proper disposal certificates will be requested and filed
3	Does the municipality have trained people that now what is waste disposal In our areas. The whole of Thohoyandou you find waste that is not separated	This is addressed in the implementation plan f this IWMP , as part of goal 9, objective 9.1.2 as follows: Ensure that sufficient and trained staff are in place to enforce the by-laws
4	Integration of waste pickers into the IWMP – are there plans and solutions to integrate waste pickers into the	This is outlined in Goal 2, objective 2.1.2: integrate & empower waste pickers and recyclers into the integrated waste management plan of the municipality

#	Comment	Response
	municipal operations and the overall IWMP implementation What efforts are In place to empower recyclers and waste pickers into the municipality	Objective 2.1.3 : Foster and Enable a conducive environment for local recyclers to participate and grow in the Recycling / circular economy sector This is outlined in Goal 3, objective 3.2.2.: Develop a comprehensive integrated support programme for waste pickers into the landfill and municipality, which must also be aligned with the EPR schemes for effective monitoring and compliance.
5	The municipal by laws must be re-enforced, as there is illegal dumping in the whole municipality,	This is outlined in Goal 9, objective 9.1.1: Ensure that there is a provision for a fining schedule in the integrated waste management by-laws.
6	Landfill must be far from communities and public participation on landfill must be done	This issue is being addressed by the relevant departments within the municipality and the communities. It does of form part of the current IWMP.
7	There is a high number of Foreign national in the landfill and lack of control	The municipality has advised that they have advertised a tender for the construction of a fence around the landfill to ensure controlled access into the landfill

Annexure B1: Public meeting attendance registers



Stakeholder Engagement Meeting

Draft IWMP_ Thulamela Local Municipality

Date – 20th March 2024

Program Director- Cllr Mphaphuli M

1. Opening – TLM representative
2. Welcoming remarks - Cllr Nemasiwana F
3. Acknowledgement of Guests - Cllr Nemasiwana F
4. Roll call and apologies – TLM representative
5. Purpose of the gathering- Ravele V
6. Presentation - Draft Integrated Waste Management Plan- Moseri L & LEDET representative
7. Questions and inputs- All
8. Way forward - Moseri L
9. Vote of thanks- Cllr Matshavha M
10. Closure -Volunteers

Cell: 072 140 9501
landlines: 010 599 0301
015 101 0500
Email: info@mosagreen.co.za

Address: Fina station,
15 Baker Street,
Rosebank, Johannesburg



ACTIVITY : TWM P Public Participation
 DATE : 20/03/2024
 TIME : 10:00H
 VENUE : Indoor Sport Centre

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
Lelegane HL	DFE	F	080 322 5485	leleganehl@gmail.com	
Mutheloa O	DFE	F	076 583 5798	mutheloa@gmail.com	
Mphahlele K.C	DFE	F	082 266 4313	mphahlelek@gmail.com	
Munyana M.T	DFE	F	076 911 7331	munyanam@gmail.com	
MAZWEZHI I.S	DFE	M	072 830 1800	mazwezhi@gmail.com	
MAZWEZHI F.S	DFE	F	076 385 9353	mazwezhi@gmail.com	
Mphahlele M	DFE	M	079 581 3012	mphahlelem@gmail.com	
Mphahlele N.E	DFE	M	082 622 1853	mphahlelen@gmail.com	
Mphahlele V.A	DFE	F	—	—	
Mphahlele T.V	DFE	F	072 732 1701	—	
Mphahlele E.T	DFE	F	060 812 0112	—	
Mphahlele E	DFE	F	082 832 4182	—	
Mphahlele M.T	DFE	F	076 029 9143	—	



ACTIVITY : INWMP Public Participation

DATE : 20/03/2024

TIME : 09:40 - 10:40

VENUE : Indoor Sports Centre

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
Mulaudi RJ	DFFE	F	0791881377	mulaudi@gmail	Mulaudi
Mufune L	DFFE	F	060 624 7727	lonbatswana@gmail.com	
Mbedzi R.I	DFFE	F	0722462902	mbzrmbzr@gmail.com	
Moodi LM	DFFE	F	0765209831	carloloie.moureen@gmail.com	Ellard LM
Nemadziuhagani T.L	DFFE	F	0728262630	tsambopepe@gmail.com	
Muhuma M	DFFE	F	06805 05939	cindisusce@gmail.com	
Murida T.G	DFFE	F	0829686218	tsaklwag@gmail.com	
Radziari R	DFFE	F	0727470457	Kotlwananxodi@gmail.com	
Chauke E.I	DFFE	F	0818763210	Chaukeedag@gmail.com	
Mudau WL	DFFE	F	0760966809	wabuwab@gmail.com	
Rathodi V	DFFE	F	0720632121	vinubhathodi@gmail.com	
Ramagida LA	DFFE	F	0795322790	lathodi@gmail.com	
Nyazani T	DFFE	F	0822546790	nyazani.mtsheni@gmail.com	Nyazani T



ACTIVITY : I WMP Public participation

DATE : 20/03/2024

TIME : 10:00

VENUE : Incoor Sports Centre

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
MUTHIENWA P	Ward Committee	FEMALE	076 856 7194	partiamuthi@wintanet.co.za	[Signature]
MNDANGANI T.A	Ward Committee	MALE	082 673 3588	mndangani@wintanet.co.za	[Signature]
Masebe R.L	U3A	Male	071 521 8438	masebe@wintanet.co.za	[Signature]
MNGONHELA T.	WARD COMMITTEE	FEMALE	079 567 134	N/A	[Signature]
Mphahlele T.L	Ward Committee	FEMALE	082 061 2050	N/A	[Signature]
Mungangane M.E	Ward Committee	FEMALE	072 103 2136	N/A	[Signature]
Mathema R.R	Ward CLR 16	FEMALE	071 213 5191	—	[Signature]
Munzhele T.E	Ward CLR 40	FEMALE	079 564 2250	—	[Signature]
Mudau N.G.	Ward 38	F	072 401 1739	—	[Signature]
Munzhele M	Ward 38	F	079 212 0745	munzhele@wintanet.co.za	[Signature]
Nkomo N	Ward Committee	M	076 816 5883	—	[Signature]
MADZUNYA D	Ward Committee	M	071 516 5666	—	[Signature]
Munzhele E.P.	Ward Committee	M	072 311 1196	—	[Signature]



ACTIVITY : FWNIP Public Participation
 DATE : 20/03/2024
 TIME : 10:00
 VENUE : Indoor Sports Centre Thohoyandou

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
Sikho T. T.	SANCO Textile	M	082 095 1823		
Netshilema N.	Black Textile	F	072 427 8263		
Rambuda P.	Black Textile	F	072 881 037		
NESAMUNU A.P.	WARD Msechinyane	M	076 666 9333	apnesamununu@gmail.com	
Siwaleletso M.	wardcomer	F	073 549 3226	sim	
MURAH Nig	ward comer	F	072 401 1739		
Makungo M.E.	Ward Committee	M	072 779 3737	Kinglambula	
Magadani T.	Tshidzini	F	072 261 3606	Magadani Tshidzini@gmail.com	
Mphahlele T.	ARC	M	071 321 3366	mphahlele@arc.co.za	
Maphele J.C.	WARD COMEE	M	079 123 140		
Madisa M.	PR CLIC	F	071 544 4500	madisa.madisa@gmail.com	
MAHUYISA K.	WARD COMEE	M	079 444 4347	Manyaga.konke@gmail.com	
MURAH F.S.	WARD COMEE	F	073 516 7009	murah.f.s@gmail.com	



ACTIVITY : IWNIP
 DATE : 20/03/2024
 TIME : 08:00 10:100
 VENUE : Indaba Sport Centre Thlokgandya

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
Fetenei T	Block 5 E2401	F	0795136432	—	
Mudau A.P	Block 5 ex 1	M	0727599077	—	
Ligamane M.S	Ward 41 Ulu	M	0827528077	ligamane.josua@gmail.com	
Heleshe T.A	Ward 18 C1X	M	072900773	—	
Moema M.S	Ward 14 C1X	F	0712336714	—	
Muthandir M.S	Ward 10 C1X	F	0673378464	—	
Mudau L	civic	F	0728059595	mudau.linda@gmail.com	
Ramathuni B.P	Block 3	F	0795868180	ramathuni	
Mphahle M.S	Block 3	F	0824256181	—	
Metsuani A.J	Ward 10 C1X	M	0790726332	Jethuana@gmail.com	
Ramathuni M.S	Block 3	F	0795868180	—	
MURIDI L	Ward 10 C1X	F	0795868180	—	
Mphahle M.S	Ward 10 C1X	M	0794994499	Mphahle M.S	



Activity: TWMP

DATE: 20/03/2024

TIME: 10:40

VENUE: Inkosi Sport Centre Tlokgeng

ORGANISATION: CPW

LEDET

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LEDET

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
Mfendi D	CPW	male	0829583117	Amphibio@gmail.com	
Maroda T	LEDET	female	082-0013211	maroda@lede-t.com	
Tshishe UM	LEDET	female	065173865	umtshishe@gmail.com	
Ramulunga A	LEDET	female	0797357288	ramulunga@lede-t.com	
Luthengo L	LEDET	female	0780025303	luthengo@lede-t.com	
Rapheunga N	Muledone	f	0714245505		
Mudau M J	Muledone	f	0764436163		
Mandlwana T	Muledone	m	0714245505		
Mabasa Tani	Muledone	m	0763518097		
Mamela R G	Tulaneia	f	0664798064	mamela@tulaneia.com	
Mphidi M F	LEDET	f	0823714336	mphidi@lede-t.com	
Klorambi D	Manini	f	0768667678		
Memothoda V	Block 5 EXD	f	0764763462	netman@lede-t.com	



ACTIVITY : HWMP. Public Participation
 DATE : 20/03/2024
 TIME : 10 H00
 VENUE : Indoor Sport Centre (Maitfall)

SURNAME AND INITIALS	ORGANISATION	GENDER	CELL PHONE	E-MAIL ADDRESS	SIGNATURE
Munzobehi T	LEDET	F	076 122 5956	tendaniunzhe@gmail.com	
Murpi S	W.D.	F	071 201 7228	gudani@fionet.co	
Meapoleme H	W.D.	F	081 850 9936	—	
Lukoto S.G.	W.D.	M	0716495306	—	
Mathubele M	W.D.	M	082 748444	—	
Thapwano A	Thulamele	M	0797457123	—	
Rahbuda T.L	Thulamele	F	0721418369	rambuda1@thulamele.co	
Ravie V	Thulamele	F	072 987 7176	ravieV@thulamele.co	
Mathavha Z.G	Thulamele	F	066 479 8064	mathavha@thulamele.co	

Annexure B2: Images from the public meetings

Public Participation Meeting Images

Images from the various public participation meetings



Images from the various public participation meetings



Images from the various public participation meetings



Annexure B 3: The information shared during the public meeting

During the public meeting the project information and progress was presented to the public. **The draft implementation plan** was also shared, as outlined below:

Thulamela Local Municipality



Implementation Plan

Draft

**Development of municipality integrated waste management plans
for Thulamela Local Municipality for a period of six months**

Project reference: EDET 291/2023

Date: 29 February 2024

Project information & Document Control

Project information	
Project Title	Development of municipality integrated waste management plans for Thulamela Local Municipality for a period of six months
Document title	Implementation Plan
Document ID	MOSA_EDET_TLM_005
Report status	Draft

Quality Control				
Role	Name	Designation	Signature	Date
Author	Lehlogonolo Moseri	Senior Environmental Scientist & Project Lead		14 February 2024
Review & Approval	Vuyokazi April	Principal Environmental Scientist		29 February 2024

Client Distribution and Approval				
Name	Organisation	Designation	Signature	Date
T. Maselela	LEDET	Deputy Director: General Waste Management		

Executive Summary

The Integrated Waste Management Plan (IWMP) for Thulamela Local Municipality aims to evaluate the current state of waste management and devise strategies for improvement. Its primary objective is to chart a course for waste management in the municipality over the next five years, aligned with the National Waste Management Strategy of 2020 (NWMS). The overarching goal is to integrate and optimize waste management practices to enhance efficiency while minimizing environmental impacts and financial costs. Through these efforts, the IWMP seeks to elevate the quality of life for Thulamela residents and contribute to sustainable development in the region. Key strategies include reducing waste generation, boosting recycling and resource recovery, and ensuring proper disposal of residual waste. Public education and community engagement are pivotal for fostering responsible waste management practices. Ultimately, the IWMP aims to establish a more sustainable and resilient waste management system tailored to the needs of Thulamela's population. Figure 1, illustrates the adopted process which was used for integrated waste management planning.

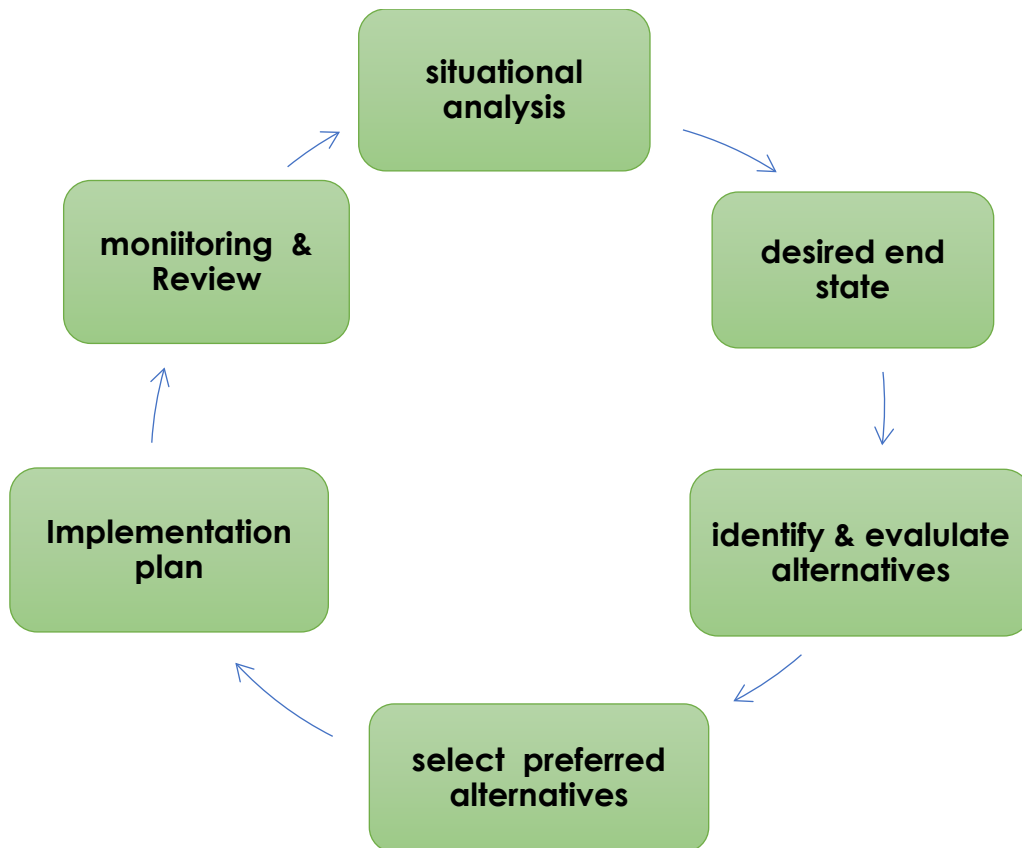


Figure 1: IWMP Planning Process

Key goals identified for Thulamela Local Municipality's waste management programme include:

1. Enhancing the effective and efficient delivery of waste services.
2. Increasing waste minimization and recycling efforts.
3. Ensuring the effective management of landfill sites.
4. Establishing effective waste information management and reporting systems.
5. Implementing and monitoring the IWMP.
6. Improving waste education and awareness within the community.
7. Enhancing institutional functioning and capacity.
8. Providing efficient and financially viable waste management services.

9. Establishing effective compliance with and enforcement of waste regulations through by-laws.

Stakeholder engagement has been integral throughout the development process, fostering ownership and support for the IWMP. Implementation strategies include partnerships, legislative measures, and funding mechanisms. Monitoring and review mechanisms are crucial for ongoing effectiveness, with annual assessments recommended to maintain relevance and stakeholder engagement. Overall, the IWMP aims to create a resilient waste management framework for TLM, benefiting both the local community and the broader environmental landscape.

After undergoing a thorough process, the implementation plan for the Integrated Waste Management Plan (IWMP) has been drafted. This plan will be subjected to further stakeholder engagements and input to ensure its alignment with the needs and expectations of the stakeholders.

Table 1 Below is a high-level summary of the proposed implementation actions:

Table 1: Draft Implementation Plan For Thulamela Local Municipality

No.	Action	Indicator/target	Timeframe	Budget
Goal 1 : Waste collection provision services – Ensure the effective and efficient delivery of waste services				
Objective 1.1:Expand waste collection services (Supply of refuse bags, bins, Contracts with transporters.)				
1.1.3.	Develop programme to expand services to other areas within the municipality.	Implement collection routes and frequency , and allocate budget.	1 – 3 years	R 3 000 000,00
1.1.4.	Development and adoption of a waste service level in line with National Domestic Waste Collection Standards (2019)	Develop service level standards	1- 3 years	Nil – to be undertaken internally
Objective 1.2: Provision of efficient and functional Waste management fleet and equipment- Ensure the effective and efficient delivery of waste services. The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required				
1.2.1.	Develop and implement a waste management fleet replacement plan in order to ensure that vehicles are timeously replaced and operate efficiently.	A fleet replacement policy which considers age, kilometres, and maintenance, repair and fuel costs.	1- 3 years	Nil – to be undertaken internally
1.2.2.	Review level agreements with sub- contractors and establish waste service level agreement policy for the TLM and for sub- contractors.	Updated service level agreements	1 – 3 years	Nil – to be undertaken internally
Objective 1.3.: A kerbside collection service is provided to all future residential developments				

No.	Action	Indicator/target	Timeframe	Budget
1.3.1	Undertake a route planning exercise in order to ensure that the most economic collection route is followed by the waste collection fleet.	Documented, and optimised collection route – that is most economic	1 – 3 years	Nil – to be undertaken internally
1.3.2.	Waste specifications to be developed for all future municipal and private developments (e.g. road widths and provision for drop-off centres)	Waste specification included in all frameworks and future developments (forms part of all recommendation for municipal reports)	3-5 years	Nil – to be undertaken internally
Objective 1.4: increase and improve the collection of waste In rural areas,				
1.4.1.	Undertake a route planning exercise in order to ensure that the most economic collection route is followed by the waste collection fleet.	Implement collection routes and frequency , and allocate budget	1 – 3 years	Nil
1.4.2.	Develop buy-back centres or transfer centres in rural areas, (or areas that are a long distance from the landfill site)	- Operational transfer centre - Operational Buy-back centre ,	1-3 years	Requires Budget for Construction
Goal 2 : Waste recycling - Increased waste minimisation and recycling				
Objective 2.1: . Increased diversion of waste from landfills.				
2.1.1.	Promote a greater participation of households in the separation at source programme and should raise awareness around what materials	Reduced waste sent to landfill	1-3 years	R 200 000,00

No.	Action	Indicator/target	Timeframe	Budget
	can be recycled in order to minimise contamination.			
2.1.2.	Implement drop-off zones , for recyclables in public places	Decreased numbers of illegal dumping sites	1-3 years	n/a
2.1.5.	Enable an environment for local recyclers to participate and grow in the Recycling / circular economy sector	• Increase in number of local recyclers • Decrease in number of waste sent to landfill	1-3 years	N/A
Objective 2.2 : The Diversion Of Organic Waste From Landfill Is Increased				
2.2.1.	Awareness Programme For Household And School Composting Programmes.	Education & awareness plan	1-3 years	Nil – to be undertaken internally
Goal 3: Waste Management Facilities: Ensure Effective Management of Landfill Sites				
Objective 3.1.: All waste facilities are operated in accordance with their licenses, and the required legislations				
3.1.1.	Ensure the Thohoyandou landfill is managed in accordance with the license conditions.	• A landfill monitoring programme • Internal & external landfill audit are undertaken	1 – 3 years	R 150 000,00
3.1.2.	Construct fencing around the landfill, to manage access control	Fencing around the landfill , and sufficient access control	1 – 3 years	Construction In progress

No.	Action	Indicator/target	Timeframe	Budget
Objective 3.2.: Decreased land-fill waste by 30% volume within 5 years through the 3R's (waste reduction, re- use, recycling) and alternative treatment				
3.2.1.	Implementation of a separation at source programme in households	- Separation at source programme plan/ document - Awareness campaigns	1-3 years	Nil- can be done through EPR schemes
3.2.2	Develop a comprehensive integration of waste reclaimers into the landfill	- A data-base of reclaimers in the landfill - Waste reclaimers support programme (provision of PPE, and other equipment's)	1 – 3 years	Nil- can be done through EPR schemes
Goal 4: Waste management information systems - Effective waste information management and reporting				
Objective 4.1.: Accurate waste information is reported on the SAWIS on a regular basis. TLM must be accurately aware of the type and quantity of waste generated in the municipality.				
4.1.1.	A weighbridge must be installed at the landfill for accurate waste quantities	Working weighbridge	3-5 years	Approx. R 2 500 000,00
Objective 4.2.: Effective internal management of waste related data				
4.2.1.	All municipal waste facilities are registered and reporting on the SAWIS	Available SAWIS data	1 – 3 years	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
4.2.3.	Ensure that the waste information system feeds into the government WIS (waste information system) and meets the requirements of the National waste management strategy	Available SAWIs data	1 year	Nil – to be done internally
Goal 5: IWMP implementation and monitoring				
Objective 5.1: Develop IWMP to include guidelines on implementation, recommendations, Key performance indicators and responsibilities				
5.1.1.	Development of an IWMP by April 2024 Endorsement of the IWMP by the MEC by April 2024	An endorsed IWMP by April 2024	1 – 3 years	Nil – IWMP plan / budget by LEDET
Objective 5.2.: Promote Integrated Waste Management Planning.				
5.2.1	- Identify waste types within the TLM that require dedicated waste management protocols (e.g. diapers, Cardboard, Plastic). Continuous improvement : Foster a culture of continuous improvement by regularly reviewing and updating the Integrated Waste Management Plan based on evolving waste management trends, technologies, and community needs Public- Private Partnerships – Explore opportunities for public-private partnerships	An endorsed IWMP by April 2024 (NB: The IWMP contains the information)	1 – 3 years	Nil – IWMP plan / budget by LEDET

No.	Action	Indicator/target	Timeframe	Budget
	to enhance waste management services. Collaborate with private entities for waste collection, recycling, and other related activities, leveraging external expertise and resources			
Objective 5.3. Establish a Local Municipal Environmental Forum and participate in the District Municipal Environmental Forum.				
5.3.1.	WMO to continue participating in the Local and District Environmental Forum: Waste Sub-Committee quarterly meetings.	Attendance of district or regional Waste management meetings	On-going	Nil
5.3.2.	Establish environmental community clean-up clubs in the municipality	Active Environmental club in the municipality	1-3 years	Nil
Objective 5.4: Elevate status of waste management in the IDP process.				
5.4.1	Establish a waste management committee	Waste management committee	1 – 3 years	Nil – to be done internally
Objective 5.5. Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets				
5.5.1	The TLM is to develop a waste infrastructure masterplan to guide the development of waste facilities over the next 10 – 15 years	.Waste Infrastructure Master Plan	5 -10 years	N/A
Goal 6: Waste education and awareness - Improved waste education and awareness				

No.	Action	Indicator/target	Timeframe	Budget
6.1.1.	Develop an annual waste awareness calendar and maintain a record of all waste awareness activities undertaken	Annual waste awareness calendar	. 1-3 years	Nil – to be done internally
6.1.2.	- Waste awareness campaigns are to be undertaken by trained and experienced personnel. - Undertake clean-up campaigns in areas where litter and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations or communities and used as waste awareness campaign	Trained/ skilled municipal personnel	1-3 years	Approx. R 500 000,00
Objective 6.2: The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed				
6.2.1.	Conduct research on the status and quantity of medical and hazardous commercial and domestic waste produced Develop a database of all producers of medical and hazardous waste	Documented data -base and implemented monitoring plan	1 – 3 years	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
6.2.2.	TLM to undertake hazardous waste awareness programmes with the public with a focus on HHW	Promote appropriate disposal of medical, commercial and industrial waste and ensure adequate management by the respective waste generators and service providers	1 – 3 years	Nil – to be done internally
Goal 7: Institutional functioning- Improve institutional functioning and capacity				
Objective 7.1. The Waste Management Department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented				
7.1.1.	The TLM 's Waste Management Department's organogram is to be reviewed to determine whether sufficient positions are listed to allow implementation of this IWMP. All key positions are to be filled	Reviewed organogram, with sufficient personnel	. 1-3 years	N/A
7.1.2.	Dedicated employees for waste education and awareness to be appointed. Key performance indicators (KPIs) to be included in their formal job descriptions	Training schedule developed with training needs for employees at different levels identified.	1-3years	N/A
7.1.3	Implementation of the IWMP to be added as KPIs to the Waste Manager or supervisors performance evaluation criteria.	Waste Management Officer – KPI has IWMP implementation	1-3 years	N/A
Goal 8: Financial management – Budgeting and financing of waste management				
Objective 8.1.: Continuous Improvement financial sustainability of waste management in TLM				

No.	Action	Indicator/target	Timeframe	Budget
8.1.1.	Develop financial planning model for waste services to include all costs associated with the provision of waste services and align tariffs with costs.	IDP outlines a comprehensive and efficient waste services budget to enable effective implementation of IWMP	1-3 years	Nil – to be done internally
8.1.2.	- Allocate more resources for waste management from existing budget and other sources of funding. - Identify funding sources for capital projects (e.g. Municipal Infrastructure Grant (MIG) and motivation of waste projects in IDP and other budgeting processes. - Engage with DEA / LEDET concerning funding model. Capital projects (e.g. Municipal Infrastructure Grant (MIG) and motivation of waste projects in IDP and other budgeting processes.	- To have a budget that address all the equipment required by 2024/2025 , 2025/2026 - A database of all funders in place, with relevant proposal	1-3 years	Nil – to be done internally
8.1.3.	Ensure there is adequate budget for new and maintenance of infrastructure for waste. The	Annual review of tariff structure and debt collection strategy by June 2021	1-3 years	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
	IWMP must include review of waste services financial plan. - Initiate and explore measures to increase the revenue stream - Ensure ongoing motivation of waste projects in IDP and other budgeting processes - Ensure ongoing annual review of waste services financial plan. Management			
8.1.4.	Ensure that the "free basic service" for qualifying indigents is implemented	Implemented indigent free basic service for qualifying indigents	1-3 years	
Goal 9: By-laws and enforcement of by-laws – Establish effective compliance with and enforcement of the Waste Act.				
Objective 9.1.: Littering and illegal dumping is reduced and the by-laws related to waste management issues are enforced				
9.1.1.	- Ensure that there is a provision for a fining schedule in the integrated waste management bylaws. - Ensure that by-laws are comprehensive - Ensure by-laws are in line with the NWMA	100% introduction and enforcement of by laws.	1 year	Nil – to be done internally

No.	Action	Indicator/target	Timeframe	Budget
9.1.2.	Ensure that sufficient, dedicated staff are in place to enforce the by-laws	Appoint a waste ranger to enforce the by-laws	1 – 3 years	TBC