

Vuyisile Mini Local Municipality

Integrated Waste Management Plan



IWMP 2026-2030

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1 EXECUTIVE SUMMARY

General Description

Vuyisile Mini Local Municipality recognizes that an Integrated Waste Management Plan is a very important instrument with very precise and significant implications on the goal of promoting sustainable development and service delivery with regards to waste management within the Municipality, and one that will inform the Integrated Development Plan (IDP) and other strategic Plans for the Municipality.

Study Area

Vuyisile Mini Local Municipality (VMLM), which has approximately 152 159 in population, is located within the Chris Hani District Municipality of the Eastern Cape. It has 21 wards, and is bounded by municipalities such as Sakhisizwe, Dr.A.B Xuma, Emalahleni, Enoch Mgijima, Amahlati, Mnquma, and Mbashe. Cofimvaba and Tsomo are the main towns and the rural residential component comprises 213 villages scattered throughout the municipal area.

Vuyisile mini prides itself of best agricultural resources in the land, with no less than three irrigation schemes in Ncora, Qamata and Bilatye Irrigation Schemes, which are considered to be the biggest not only in the province but in South Africa as the whole. With its rich biophysical endowments in the form of rivers and plains, its pristine natural veld, valleys and unique landscapes (for tourism), its rich heritage resources and its relatively good potential soils; Vuyisile Mini should be what “gold” is to Gauteng, “platinum” to North West, and “coal” in Mpumalanga in so far as economic development is concerned. It is incongruous that the area with such abundance of natural resources (water and land) remains trapped in abject poverty and high levels of unemployment.

Policy and Legislation

Existing legislation on waste management in South Africa is generally fragmented, diverse and ineffectively administered. The environment is a cross-sectional matter and it is therefore important that co-operation between government of all levels is necessary.

The Constitution of South Africa (Act 108 of 1996) protects everyone’s right to an environment that is not harmful to a person’s health and well-being. Furthermore, the constitution also describes the role and responsibilities of Local Government which involve the objectives in Section 152, namely:

- to promote social and economic development.
- to promote a safe and healthy environment.

The report also stipulated the various applicable sections of the National Environmental Management Act, National Water Act, Atmospheric Pollution Prevention Act and the National Waste Management Strategy.

Certain changes to this document will be made during the public consultation period to reflect the spirit of the Waste Management Act.

Existing Waste Management

The existing waste management within the Vuyisile Mini Local Municipality focuses on the street cleaning, collection, transportation and disposal. At the waste disposal sites (landfill and transfer station), there are waste sorting programs focusing on diverting waste from landfill.

Methodology and Current Status

The methodology of General Waste data collection is based on physical visits to the Operational Managers of the four service areas and the confirmation of waste volumes with them based on actual truck loads.

However, information on specific waste streams such as electronic waste, used tyres, batteries, etc are generally not recorded.

Waste Avoidance

Currently waste avoidance and minimisation are being practiced. Waste separation at source is being implemented in ward 8 and ward 14.

Collection

All formal residential areas in the Vuyisile Mini Local Municipality area are receiving a weekly door-to-door collection service. Informal residents /households are serviced with skip bins located in the strategic areas identified by the ward councilor and the community.

Waste Reduction

Waste reduction in Vuyisile Mini Local Municipality is currently practised by participation of residents and a private cooperative, the participants are collecting the sorted waste from informal recyclers. The materials collected through source separation are sorted at the Cofimvaba Landfill site. The municipality has started waste separation at source in ward 14 Cofimvaba and ward 8 Tsomo. Big businesses and supermarkets like Boxer super store are also privately practicing waste separation at source in their yards.

Waste Disposal

Disposal of municipal solid waste in Vuyisile Mini Local Municipality is practiced at the landfill site in Cofimvaba. Cofimvaba landfill site permit license has expired. Renewal processes has started and engagements with the department are underway.

Waste by-laws

Vuyisile Mini Local municipality has an existing waste management by law which was published in 2016, this by law is currently under review. It is now currently in Public participation stage then it can be gazzetted. The municipality has made a provision for this by law to be enforced by the existing by law enforcers.

Costs of Existing Waste Management

Municipality must encourage people to pay their tariffs and impose penalties to non-payers. Municipality must revise the waste management budget to include: salaries, equipment, and operation of landfills, impact studies and plant replacement plan.

GIS

The municipal GIS system does not currently reflect waste management data and the population of the GIS with such data will follow the implementation of the future statutory waste information system.

Staff Resources

Although municipal waste management in the Vuyisile Mini Local Municipality appears to be well managed, the main focus still appears to be more on collection and disposal, rather than waste avoidance and waste reduction. Although Vuyisile Mini Local Municipality has taken a leading role in the region with regard to source separation of recyclable materials, the participation rate is low and the resulting success rate with source separation extremely low, this caused by the limited resources (collection trucks and waste bailing machines).

Report Objectives

This report has in its goal the transformation of the current waste management system towards a system whereby an atmosphere is created that will conserve and protect the environment and natural resources. An outcome of this report will be the development of a communication/information/education strategy that will help to ensure public acceptance or ownership of the strategic objectives and to promote co-operative community action. The report will also provide a framework to address the municipality's growing waste management problem in accordance with the best prevailing norms, financial capacity and best environmental practice.

Finally the report will also attempt to address the three main objectives of the National Waste Management Strategy, i.e. waste Reduction, Re-use and Recycling.

Where waste reduction or minimisation has never been a municipal function, through the Waste Management Act, it now is.

To achieve the above, this report aims to ensure that waste management in the Vuyisile Mini Local Municipality complies with South African and International environmental standards so that it is beneficial to industrial and agricultural growth and the public's right to a clean and healthy environment.

In short, this implies that it is the aim of the Vuyisile Mini Local Municipality to minimise the entrance of material into the waste stream and to reduce all waste of which the generation cannot be avoided so that no material of value or biodegradable material, gets disposed of. Furthermore will it be the aim of Vuyisile Mini Local Municipality to dispose the waste that cannot be avoided, reduced or recycled be disposed at licensed facilities in accordance with regulatory requirements and with regular operational and environmental monitoring. The Vuyisile Mini Local Municipality therefore accepts its legal obligation regarding waste management.

IMPLEMENTATION INSTRUMENTS

Waste Avoidance is the primary focus of the National Waste Management Strategy and as such must be the priority of any Integrated Waste Management Plan. Waste Avoidance is defined as the action that avoids the entry of material into the waste stream, that is, when the generator of the potentially wastematerial exercises the decision to do something else with that material rather than to put it out for waste collection. The following are examples of waste avoidance:

- Composting of the organic/green waste at home
- Self delivery of glass/cardboard/newspaper/PET to recycling bins or school recycling projects
- Re-use of empty jars as storage containers at home
- Separate collection of source separated materials
- Separate collection of spent oils, solvents, print cartridges, x-ray and photographic developers by recovery contractors
- Reclamation of drum containers
- Recovery of fruit and food solid waste component as animal feed
- Recovery of chemicals (such as caustic soda) from industries
- Recovery of electronic equipment
- Changing raw materials of industrial processes to produce recoverable industrial waste

From the above it is clear that waste avoidance will result not only in less material to be disposed but also in less material to be collected by the waste collection system.

The following are Vuyisile Mini Local Municipality's plans for the promotion of waste avoidance in its area:

- The creation of Public Awareness and Education,
- Prevention Quantification through the setting of goals, and
- The publishing of Prevention Guidelines to assist waste generators.

Waste Reduction will be achieved through recycling, recovery and/or composting of waste after collection. For this purpose the municipality will establish strategically located material recovery facilities and composting facilities, or fully support existing infrastructure, in order to reduce the volume of waste destined for landfilling. In order to make waste reduction sustainable, the quality of the recovered material must be as uncontaminated as possible and to ensure this, the Municipality has expanded the current source separation initiative.

The Municipality will also expand on its current practice to provide the public the opportunity to separate their household hazardous waste, electronic waste and household healthcare waste and deliver it to waste facilities for safe disposal or treatment at other facilities in order to divert these special wastes from the General Waste landfills.

Sustainable waste disposal, although it is considered to be the least desirable option in the waste hierarchy, will be achieved through properly engineered waste disposal facilities and the frequent monitoring thereof.

Other waste management objectives to be met by the municipality are a review of its waste collection service to ensure an affordable and similar service to all, a proper waste data collection and capturing system and an appropriate waste cleansing system.

Since the Integrated Waste Management Plan as specified and required by the National Waste Management Strategy (and Waste Management Act) is a relatively vague and non-detail strategic framework, the implementation of its instruments is flexible and will require regular re-evaluation and modification, if necessary.

In order to accommodate the municipal budgeting process, it would be appropriate to implement the instruments over a number of financial years, focusing on the critical aspects .

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2 TECHNICAL DEFINITIONS

Aquifer is a water bearing formation capable of supplying a sufficient yield for a community based potable water source; (*National Water Act*)

Cell is a volume of waste generally placed during one working day and covered on all horizontal surfaces by cover soil.

Circular economy is an economic system based on the reuse and regeneration of materials or products, especially as a means of continuing production in a sustainable friendly manner.

Communal Landfill is the smallest landfill classification with a capacity of less than 25 tonnes per day;

Confirmation of Site Feasibility is the initial step in the DWAF permitting process that establishes the basic site features and general feasibility for a fully permitted landfill.

Controlled landfill is a solid waste management facility used for the disposal of non-hazardous domestic waste and non-infectious medical waste, which employs compaction of wastes, covering of waste with soil cover material, and the management of leachate and gaseous materials produced by the organic decomposition of the landfilled waste, all in such a manner as not to harm human health and minimise negative impacts to the environment;

Daily cover is a daily application and compaction of soil, with a minimum thickness of 15 centimetres, intended to control blowing litter, odours, flies, rats and fires, intended for an exposure of less than one week.

Design Drawings are drawings prepared by the landfill designer and include dimensions, specifications and other technical data regarding the construction of the landfill;

Domestic solid waste means waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes, which include: (a) garden and park waste (b) municipal waste (c) food waste.

Final Cover is an application and compaction of soil on the landfill after it has reached its designed elevation. The final cover soil shall be relatively impermeable and have a thickness of approximately 50 centimetres. However, the required thickness do vary with the respective type of landfill and must be consistent and in accordance with the design as specified by the *DWAF Minimum Requirements for Waste Disposal by Landfill, Second Edition 1998*.

Groundwater is all waters flowing or existing under the ground surface; (*National Waste Act*)

Hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles as outlined below:

- Waste from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing (a) hazardous portion of wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing.
- Waste from wood processing and the production of panels and furniture, pulp, paper and cardboard (a) hazardous portion of wastes from wood processing and the production of panels and furniture (b) hazardous portion of waste from wood preservation (c) hazardous portion of wastes from pulp, paper and cardboard production and processing.

Incineration means any method, technique or process to convert waste to flue gases and residues by means of oxidation.

Intermediate cover is an application and compaction of cover having the same functions as daily cover but applied at a thickness of 30 centimetres, intended to be exposed for a period of one week to one year.

Integrated waste management plan means a plan prepared in terms of section 12;

Landfill Classification is a system under the DWAF Minimum Requirements for classifying landfill according to the type and size (TPD) of the landfill, and its potential for significant leachate generation;

Landfill gas is the gaseous by-product of organic decomposition of landfilled waste. Landfill gas contains significant concentrations of methane gas, which is explosive at concentrations exceeding 5 percent.

Leachate is the liquid by-product of organic decomposition of landfilled waste or any liquid that comes in contact with solid waste in a sanitary landfill;

Lift is a series of one or more landfill cells forming a section of landfilled waste that extends horizontally across the landfill.

Medical waste is any waste generated by hospitals, clinics, nursing homes, doctor's offices, medical laboratories, research facilities and veterinarians, which are infectious or potentially infectious;

Operating Plan consists of drawings, descriptions and other documents regarding the operation of the landfill, placement of waste, building daily cells and lifts, leachate management, landfill gas management and all other functions related to the operation of the landfill.

Operator is the person or organisation responsible for the operation of the landfill. The operator may be the owner,

another public agency or private contractor.

Owner is the person or organisation who owns the property and/or facilities that constitute the landfill

Perimeter drains are open ditches surrounding the landfill installed to prevent surface water from entering the landfill.

Recycle means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.

South African Waste Information System (SAWIS) means a national waste information system established in terms of section 60 of the act.

Scavenging is the unauthorized separation of solid waste for recyclable materials and food for human consumption;

Solid Waste is waste of a solid nature generated by a person, business or industry;

Solid Waste Management facility is any facility used for the transportation, processing or disposal of solid waste, and includes transfer stations, recycling facilities, composting facilities, waste incinerators, and sanitary landfills;

Sorting is the authorised separation of solid waste materials for the purpose of recycling or disposal, either at the source of generation or at a solid waste management facility;

Special waste is a non-hazardous waste, which due to its nature requires special or separate handling at a sanitary landfill. Special wastes include but are not limited to tires, asbestos, demolition waste, industrial sludge of a non-hazardous nature, paper mill sludge, olive oil waste, abattoir wastes and petroleum waste oil;

Surface water is all waters in or coming from a water source which is found on the surface of the ground, excluding water under the surface of the ground and seawater; (*National Water act*)

Transfer Station is a facility that receives solid waste from collection vehicles and reloads that waste into larger vehicles for transfer to a disposal or processing facility;

Vectors are birds, insects, and rodents capable of carrying disease-causing bacteria, viruses or fungi from one host to another.

waste means—

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

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

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

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

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

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

Waste management licence means a licence issued in terms of section 49;

Waste management officer means a waste management officer designated in terms of section 10;

Waste transfer facility means a facility that is used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility;

Water Balance is a method for determining the potential for significant leachate generation which includes climatic conditions (rainfall and evaporation) and site condition ;(National Water act)

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

3 ABBREVIATIONS

AP	Action Plan
APIG	Action Plan Implementation Group
CBD	Central Business District
CEC	Committee for Environmental Co-ordination
CONNPP	Consultative National Environmental Policy Process
DFFE	Department of Forestry, Fisheries and the Environment
DFA	Development Facilitation Act 67 of 1995
DME	Department of Minerals and Energy
DTL	Departmental Task Leader
DWAF	Department of Water Affairs and Forestry
ECA	Environment Conservation Act, Act No. 73 of 1989
EIA	Environmental Impact Assessment
IDP	Integrated Development Plan
IP&WM	Integrated Pollution and Waste Management
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan
VMLM	Vuyisile Mini Local Municipality
LDO	Land Development Objectives
LUPO	Land Use Planning Ordinance
LGTA	Local Government Transition Act 209 of 1993
LFA	Logical Framework Analysis
NEAF	National Environmental Advisory Framework
NEMA	National Environmental Management Act, Act No. 107 of 1998

NWMS	National Waste Management Strategy
OLGA	Organised Local Government Act 52 of 1997
PMG	Project Management Group
PPA	Physical Planning Act 125 of 1991
PSC	Project Steering Committee

4 INTRODUCTION

4.1 *Project Background*

Vuyisile Mini Local Municipality recognizes that an Integrated Waste Management Plan is a very important instrument with very precise and significant implications on the goal of promoting sustainable development and service delivery with regards to waste management within the Municipality, and one that will inform the Integrated Development Plan (IDP) and other strategic Plans for the Municipality.

4.2 *Project Scope*

A phased approach was used for the development of the IWMP, namely:

- Phase 1: A Status Quo Assessment on waste management within the municipality
- Phase 2: Gap Analysis and Needs Assessment Report
- Phase 3: Development Options and Alternatives Assessment Report
- Phase 4: Develop a framework for an implementation strategy of the IWMP

4.3 *Study Area*

Vuyisile Mini Local Municipality (VMLM), which has an approximate population of 152 000, is located within the Chris Hani District Municipality of the Eastern Cape. It has 21 wards, and is bounded by municipalities such as Sakhisizwe, Dr A.BXuma, Emalahleni, Enoch Mgijima, Amahlati, Mnquma, and Mbashe. Cofimvaba and Tsomo are the main towns and the rural residential component comprises 213 villages scattered throughout the municipal area.

Vuyisile Mini prides itself of having one of the best agricultural resources in the land, with no less than three irrigation schemes viz Ncora, Qamata and Bilatye Irrigation Schemes, which are considered to be the biggest not only in the province but in South Africa as the whole. With its rich biophysical endowments in the form of rivers and plains, its pristine natural veld, valleys and unique landscapes (for tourism), its rich heritage resources and its relatively good potential soils; Vuyisile Mini's natural resources should be what "gold" is to Gauteng, "platinum" to North West, and "coal" in Mpumalanga in so far as economic development is concerned. It is incongruous that the area with such abundance of natural resources (water and land) remains trapped in abject poverty and high levels of unemployment.

4.4 Definition of Waste

The National Environmental Waste Management Act No 59 of 2008, defines waste as any substance whether solid, liquid or gaseous or any combination thereof which is:

- Emitted, discharged or deposited in the environment in such volume, constituency or manner as to cause an alteration to the environment,
- A surplus substance or which is discarded, rejected, unwanted or abandoned,
- Reused, recycled, reprocessed, recovered or purified by a separate operation from that which produced the substance or which may be or is intended to be re-used, recycled, reprocessed, recovered or purified, or
- Identified as waste by prescribed by regulation

Further to the above, waste the South African waste classification systems divides waste types into two broad types including General waste and Hazardous waste. These two are then further broken down into 3 classes derived from the waste source types namely:

- Domestic Waste
- Commercial
- Industrial

General Waste includes all urban waste that is produced within the jurisdiction of local authorities. It comprises rubble, garden, domestic, commercial and general industrial waste. It may also contain small quantities of hazardous substances dispersed within it such as batteries, insecticides and weed-killers discarded on domestic and commercial premises. General waste may be disposed of in a permitted landfill and may be equated to what is commonly referred to as domestic solid waste (DSW) and municipal solid waste (MSW) i.e. that which is normally managed by a local authority.

Hazardous Waste is regarded as all undesirable or superfluous by-products, emissions, residues or remainders of any process of activity, whether gaseous, liquid or solid, or a combination of these (Environmental Conservation Act (No 73 of 1989).

Hazardous waste was defined, for purposes of this investigation, as any waste, which poses a threat to human health or to the environment through risk of one or more of the following:

- Explosions or fires;

- Chemical instability, reactions or corrosion;
- Infections;
- Acute toxicity;
- Chronic toxicity, or cancers, mutations or birth defects;
- Eco-toxicity, or damage to natural systems; and
- Accumulation in biological food webs, or persistence in the environment and hence requiring special attention.

Special attention referred to above would mean that the waste could not, in its present form be released into the environment, or disposed in a sewer, or disposed of at an ordinary municipal refuse landfill site. Hazardous waste has been classified according to its source and to its Hazardous Rating.

High Hazard Waste requires the strictest control and urgent attention. Contents are deemed to be significantly toxic and persist in the environment and accumulate in biological tissues.

Moderately Hazardous Waste possesses highly dangerous characteristics and contains significant concentrations of highly/moderately toxic constituents.

Low Hazardous Waste has dangerous characteristics or with significant concentrations of leachable / biologically available toxic constituents.

Potentially Hazardous Waste has characteristics of concern or with toxic constituents, which are either in a form that will remain insoluble/ unavailable or are in insignificant concentrations.

Medical Waste is classified as a hazardous waste under the infection category (Class 6). Medical Waste comprises of any waste generated during diagnosis, treatment or immunization of humans or animals and comprises of two main categories:

- Anatomical waste is waste containing human or animal tissues such as body parts, used sanitary towels and used bandages and dressings; and
- Sharps are items that could cause cuts and needle stick injuries

Table1: Waste classification according to NWS 2020

Waste type		Local generation	Imports	Exports	Total tonnage managed	Storage / stockpile	Recycling / recovery	Treatment	Disposal	LOC
GW01	Municipal waste	4 821 430			4 821 430	0.0%	0.0%	0.0%	100.0%	
GW10	Commercial and industrial waste*	360 884			481 179	0.0%	0.0%	0.0%	100.0%	
GW14	Fly ash and dust	4 346 080			4 346 080	0.0%	3.1%	0.0%	96.9%	
GW15	Bottom ash	6 489 080			6 489 080	0.0%	3.1%	0.0%	96.9%	
GW16	Slag	4 859 025			4 859 025	0.0%	0.0%	0.0%	100.0%	
GW20	Organic waste	19 247 851	4 048	298	19 251 600	0.0%	49.2%	0.2%	50.8%	
GW30	Construction and demolition waste	4 482 992			4 482 992	0.0%	52.0%	0.0%	48.0%	
GW50	Paper	2 211 225	57 855	129 374	2 139 706	0.0%	58.0%	0.0%	42.0%	
GW51	Plastic	1 113 362	6 748	20 856	1 099 254	0.0%	43.7%	0.0%	56.3%	
GW52	Glass	2 752 636	38 378	11	2 791 003	0.0%	71.2%	0.0%	28.8%	
GW53	Metals	4 035 929	24 168	527 037	3 533 059	0.0%	80.0%	0.0%	20.0%	
GW54	Tyres	174 640		12 473	162 167	76.4%	23.6%	0.0%	0.0%	
GW99	Other	729 615			729 615	0.0%	9.0%	0.1%	91.0%	
TOTAL		55 624 746	131 196	690 050	55 186 188	0.2%	34.5%	0.1%	65.2%	

*Note that percentages may not add up to 100% due to rounding off.

**Note that level of confidence (LOC) of the values in the last column is indicated by the intensity of shading, i.e. high level of confidence in dark shading

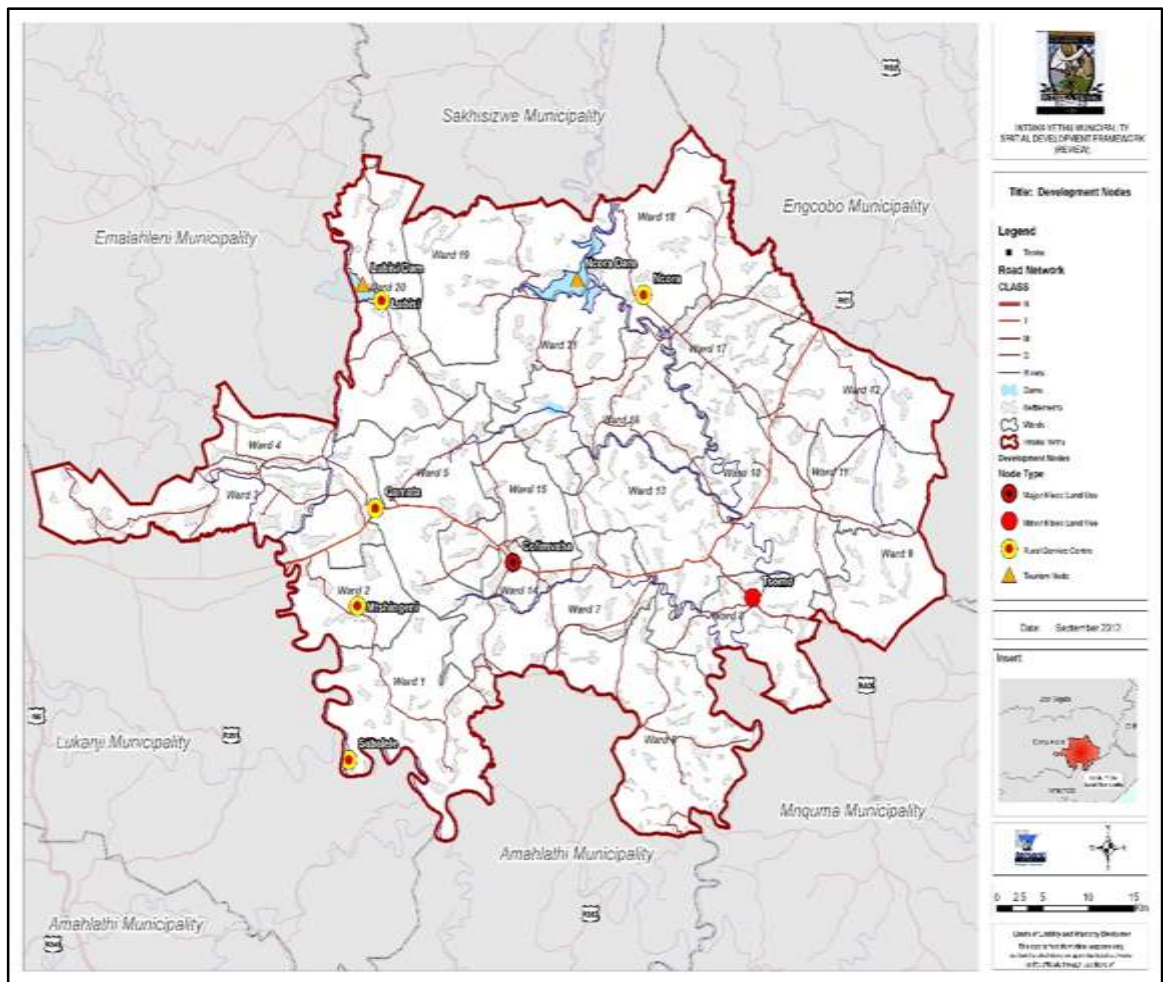
5 OVERVIEW OF VUYISILE MINI LOCAL MUNICIPALITY

5.1 Introduction

Vuyisile Mini Local Municipality (VMLM), which has approximately 153 000 in population, is located within the Chris Hani District Municipality of the Eastern Cape. It has 21 wards, and is bounded by municipalities such as Sakhisizwe, Dr A B Xuma, Emalahleni, Enoch Mgijima, Amahlathi, Mquma, and Mbashe. Cofimvaba and Tsomo are the main towns and the rural residential component comprises 213 villages scattered throughout the municipal area. Figure 1 displays the mapped locality of the municipality.”

Figure 1: Vuyisile Mini Local Municipality Locality Map

Vuyisile Mini Local Municipality is made up of two small towns which are: Cofimvaba and Tsomo.



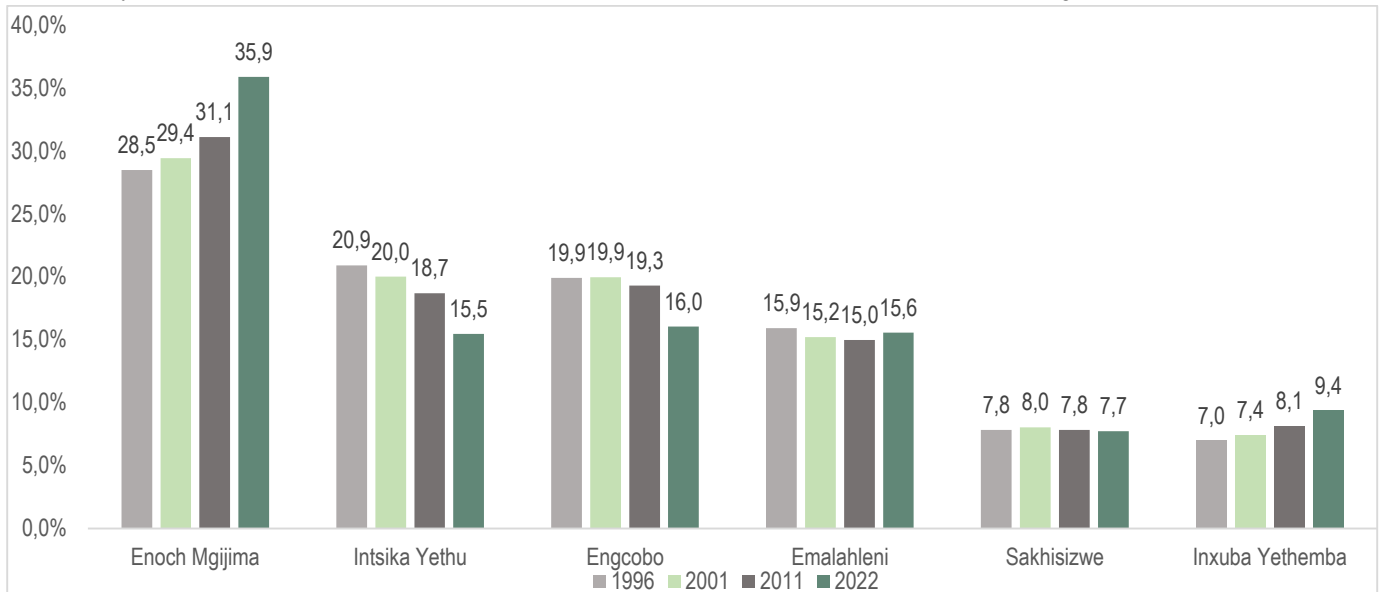
6 Socio-Economic Profile

6.1 Demographic Profile

This section provides a detailed analysis of the population of VMLM and provides some key insights into demographics, socio-economic conditions, infrastructural service levels within the Municipal area and environmental issues. The analysis lends weight to prioritisation of identified issues within the VMLM and conveys some urgency with regards to what needs to be done first. The primary source of the information.

Table 2: VMLM Population in relation to other LMs in CHDM

Vuyisile mini, Chris Hani, Eastern Cape and National Total, 1996-2022 [Numbers percentage]



Source: Stats SA Census

The table above shows us VMLM's total population in relation to other LMs in the Chris Hani District (CHDM). VMLM is the fourth largest LM in CHDM following Enoch Mgijima LM which is the largest followed by Engcobo and Emalahleni Municipality in terms of the size of its population. VMLM population has declined from the 2011 census, this can in part be attributed to demarcation changes in CHDM.

Residents of VMLM are predominantly rural, living in small villages which cluster around the relatively larger towns such as Cofimvaba and Tsomo. IsiXhosa is the most spoken language as a mother tongue within the municipality; census 2022 showed that around 87% of the people in the municipality were Xhosa 1st language speakers. VMLM is an almost racially homogenous municipality; Census 2022 estimates the percentage of Blacks/Africans in VMLM at 99%. VMLM has a higher female than male

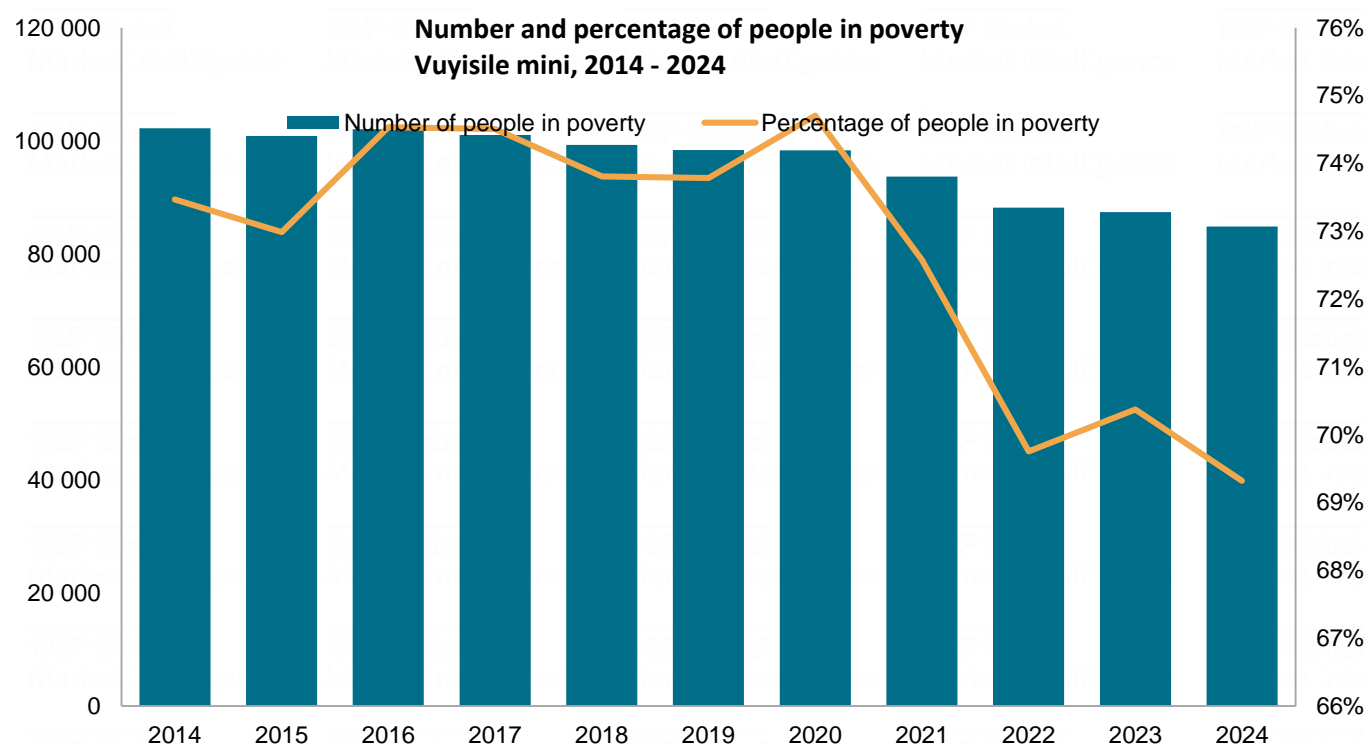
population, as is the case with the most other LMs in CHDM. The larger female population may be attributed to the general tendency of males of working age to migrate to other areas where employment opportunities are more available. Further research is required before we can conclude that the disparities between the male and female populations of VMLM and CHDM are due to outward migration of males, but such a trend is widely acknowledged throughout rural municipalities.

6.2 Poverty Rate in VMLM

This represents the portion of the population whose income, either from employment or social grant, is only enough to enable them to buy food and thus cannot afford to pay for other social amenities.

In 2024, there were 84 900 people living in poverty, using the upper poverty line definition, across Vuyisile Mini Local Municipality - this is 17.00% lower than the 102 000 in 2014. The percentage of people living in poverty has decreased from 73.47% in 2014 to 69.32% in 2024, which indicates a decrease of 4.15 percentage points.

Table 3: Percentage of people living with poverty in Vuyisile Mini 2014-2024



Source: South Africa Regional eXplorer v2646.

It is extremely important to note that measurements and perceptions of what poverty is vary from source to source thus another source may see far more or far less poverty in the same area based on the normative judgment

which is driven by a certain understanding of what constitutes poverty. In addition there are always various levels of poverty. The most severe level of poverty in South Africa is known as “indigent”, this refers to a person who lacks the most basic necessities of a decent life such as:

- Water;
- Sanitation;
- Energy;
- Refuse removal;
- Food and clothing; and
- Housing.

VMLM maintains an Indigent Policy from 2009 last reviewed in 2022 which aims to ensure that households that cannot afford municipal services are given access to the most basic municipal functions. The policy elaborates upon what exactly constitutes an indigent household in the VMLM context. Given the historical legacies of underdevelopment from the pre-democratic era, VMLM carries a heavy burden in terms of an indigent population. Further socio-economic analysis provides more insights into the dynamics of VMLM.

6.3 Income and Employment data

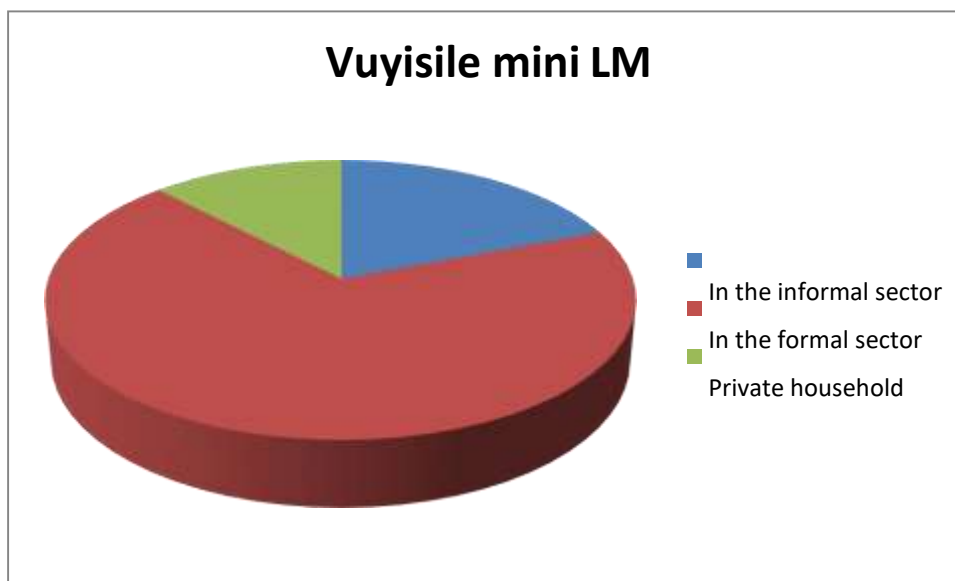
It was estimated that in 2024 6.40% of all households in the Vuyisile Mini Local Municipality were living on R30 000.00 or less per annum. In comparison with 2014's 23.64%, the number is significantly lower. The 7200-9600 income category has the highest number of households with a total number of 5210, followed by the 5400-7200 income category with 4630 households. Only 1.2 household fall within the 0-2400 income category. This is considered to be very low income by national standards.

Table 4: Household by income category

	Vuyisile mini	Chris Hani	Eastern Cape	National Total	Vuyisile mini as % of district municipality	Vuyisile mini as % of province	Vuyisile mini as % of national
0-2400	1	11	108	1,120	10.8%	1.11%	0.11%
2400-6000	15	146	1,410	12,900	10.4%	1.08%	0.12%
6000-12000	129	1,060	9,860	85,600	12.2%	1.31%	0.15%
12000-18000	414	3,180	29,000	245,000	13.0%	1.43%	0.17%
18000-30000	1,700	12,400	109,000	856,000	13.7%	1.56%	0.20%
30000-42000	2,700	19,200	161,000	1,230,000	14.1%	1.67%	0.22%
42000-54000	2,900	20,100	166,000	1,280,000	14.4%	1.75%	0.23%
54000-72000	4,630	30,400	239,000	1,830,000	15.2%	1.94%	0.25%
72000-96000	5,210	33,600	260,000	2,080,000	15.5%	2.01%	0.25%
96000-132000	4,550	28,400	224,000	1,970,000	16.0%	2.03%	0.23%
132000-192000	4,410	27,300	218,000	2,050,000	16.2%	2.03%	0.22%
192000-360000	4,420	28,600	246,000	2,610,000	15.4%	1.80%	0.17%
360000-600000	2,000	13,500	130,000	1,550,000	14.8%	1.54%	0.13%
600000-1200000	1,530	10,600	115,000	1,520,000	14.4%	1.34%	0.10%
1200000-2400000	580	3,980	48,000	698,000	14.6%	1.21%	0.08%
2400000+	60	550	8,670	145,000	10.9%	0.69%	0.04%
Total	35,300	233,000	1,960,000	18,200,000	15.1%	1.80%	0.19%

Source:SouthAfricaRegionaleXplorerv2646

Figure 2: Employment opportunities across economic sectors



	Employed		
	Eastern Cape	Chris Hani DM	Vuyisile mini LM
In the informal sector	148 812	15 431	2 012
In the formal sector	735 818	69 524	7 204
Private household	120 999	12 239	1 280

Table 5: Type of sector by Official employment status , EC135: Vuyisile mini
(Source: Statistics SA, census)

VMLM is characterised by high unemployment rates with 44% of the working population being officially unemployed in 2009, as in seeking work opportunities but unable to find them. There has been a reasonable drop in the rate of unemployment over the last 10 years since 2002 when unemployment stood at 54%. The largest employment sector in VMLM is the tertiary sector which employs 74% of all employed people within the formal sector. The largest numbers of people employed within the tertiary sector are involved in general government. ECSECC estimated that there would be about 4263 people working in general government.

7 LEGAL FRAMEWORK

7.1 Introduction

This section outlines the relevant legislation pertaining to waste management that need to be considered in parallel to the development of an integrated waste management plan.

7.2 National Laws

7.2.1 THE SOUTH AFRICAN NATIONAL CONSTITUION ACT 108 OF 1996

The South African Constitution (Act 108 of 1996) is the supreme law of the land. All law, including environmental waste management planning must comply with the Constitution.

The Constitution states that the people of South Africa have the right to an environment that is not detrimental to human health, and imposes a duty on the state to promulgate legislation and to implement policies to ensure that this right is upheld. All departments of state or administration in the national, provincial or local levels of government have similar obligations. The principles of co governance are also set out in the Constitution and the roles and responsibilities of the three levels of government are defined.

According to the Constitution, responsibility for waste management functions is to be devolved to the lowest possible level of government. Local government therefore is assigned the responsibility for refuse removal, refuse dumps and solid waste disposal. Provincial government has the exclusive responsibility to ensure that local government carries out these functions effectively.

7.2.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998

The National Environmental Management Act (NEMA) provides for co-operative governance by establishing principles and procedures for decision-makers on matters affecting the environment. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management. Some of the principles in the Act are Accountability; Affordability; Cradle to Grave Management; Equity; Integration; Open Information; Polluter Pays; Subsidiary; Waste Avoidance and Minimization; Co-operative Governance; Sustainable Development; and Environmental Protection and Justice.

Chapter 2 makes provision for the establishment of the Committee for Environmental Co-ordination (CEC). The objective of the committee is to promote the integration and co-ordination of environmental

functions by the relevant organs of state and in particular to promote the achievement of the purpose and objectives of environmental implementation plans and environmental management plans.

Chapter 3 requires that national government departments that have waste management responsibilities and every province must develop environmental implementation plans (EIP5) every four years and an environmental management plan (EMP). Local government is obliged to exercise its responsibilities in accordance with these plans and to report annually within four months from the end of its financial year on implementation of the environmental management plan or environmental implementation plan. Provincial government must ensure that municipalities adhere to the relevant environmental implementation and management plans within its province, as well as the principles in the preparation of any policy, programmer or plan, including the establishment of Integrated Development Plans (IDP5) and Land Development Objectives (LDO5).

Chapter 7 imposes a duty of care in respect of pollution and environmental degradation. Any person who has caused significant pollution or degradation of the environment must take steps to stop or minimize the pollution. Where an incident occurs that is potentially detrimental to the environment, the person who is responsible for the incident or the employer must, within 14 days of the incident, report to the Director- General, provincial head of department and municipality. The relevant authority may specify measures to address the problem and remediate the area within 7 days. The Acts also attach consequences for breaching the duty of care, namely that government authorities are empowered to issue directions and to remediate the situation and recover costs where the directions are not complied with.

Chapter 8 provides that the Minister and every MEC and municipality may enter into an environmental management co-operation agreement with any person or community for the purpose of promoting compliance with the principals laid down in NEMA. Environmental Cooperation Agreements may contain an undertaking by the person or community concerned to improve the standards laid down by law for the protection of the environment and a set of measurable targets and a timeframe for fulfilling the undertaking.

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

7.2.3 NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT 59 OF 2008

The National Environmental Management: Waste Act (No 59 of 2008) asserts the roles of both national and provincial government in waste management. National governments competence to legislate is established in line with section 44 of the Constitution on the grounds of the need to maintain essential national standards, establish uniform norms and standards, and to promote and give effect to the right to an environment that is not harmful to health and well-being. The Act establishes a national framework for waste planning, regulation and management with roles for all spheres of government, specifically:

- i) National government is tasked with establishing a national waste management strategy, including norms, standards and targets. National norms and standards may cover all aspects of the waste value chain, from planning to service delivery. Of particular importance from an intergovernmental perspective are the powers of national government with respect to norms and standards for:
 - ❖ The regionalization of waste management services;
 - ❖ Tariffs for waste services provided by municipalities, including providing for tariffs to be imposed to provide for waste management infrastructure or facilities and ensuring that funds obtained from the provision of waste services are used for the delivery of these services.
- ii) Provincial governments are tasked with the implementation of the national waste management strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards —must amongst other things facilitate and advance regionalization of waste management services.
- iii) Local governments are required to ensure the universal and sustainable delivery of services, subject to national and provincial regulation. In particular, they are required to maintain separate financial statements, including a balance sheet of the services provided.

Regionalization of Management Systems

The regionalization of waste management services is presumption is not specifically limited to any aspect of the waste value chain, though it would seem to apply most directly to transportation and disposal activities.

Integrated Waste Management Planning

The Waste Act also places considerable emphasis on the development of an integrated waste planning system, through the development of interlocking Integrated

Waste Management Plans (IWMPs) by all spheres of government and specified waste generators. This planning system is the primary tool for cooperative governance within the sector. While the requirement for these plans is new for national and provincial governments, and for waste generators, this is not the case for local governments who had been able to voluntarily prepare such plans within their Integrated Development Plans (IDPs). IWMPs are mandatory for national and provincial government and specified waste generators, but the situation for local government is made a little more ambiguous by the Constitutional assignment of concurrent powers to provincial and local governments in this respect, with only limited authority assigned to national government.

Norms, Standard, Tariffs and Financial Management Systems

Other focal areas of the Waste Act include provisions for the development of norms and standards, tariffs and financial management systems. These powers all largely repeat existing national or provincial powers that are provided for in other legislation. The key change is that the Minister of Environmental Affairs now assumes these powers in terms of the Act, although concurrently with other authorized Ministers notably in Local Government and Finance portfolios.

Listed Activities and Waste Licensing

Further to the above, a list of waste management activities that have, or are likely to have, a detrimental effect on the environment was Published in GG 41175 Notice Number 1094 date published in 11th October 2017 terms of the National Environmental Management: Waste Management Act (Act 59/ of 2008). These activities have been divided into two categories A and B. Category A activities are equivalent to those that require a basic assessment process, while Category B activities those that require Scoping/Environmental Impact Assessment as stipulated in the environmental impact assessment regulations made under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

7.2.4 ENVIRONMENT CONSERVATION ACT, 73 OF 1989

Although significant sections of the Environment Conservation Act (ECA) have been repealed, by NEMA and acts promulgated in terms of NEMA, particularly those dealing with waste management and environmental impact assessment relation to Waste Management this Act, it is still an important piece of legislation as a reference guide of where we come from and where we are going as far as waste management is concerned in South Africa. The Environment Conservation Act 73 of 1989 made specific provision for the regulation of waste management under Section 20 of the Act, as stated these will be repealed by NEMWA from 1st July 2009.

Noteworthy issues

- ❖ The administration of waste management was transferred from the Department of Water Affairs and Forestry to the Department of Environmental Affairs and Tourism, through the ECA Amendment Act (Act 50 of 2003). It is worth noting that permits issued in terms of Section 20 of ECA, remain valid subject to Section 81(2),(3) of NEMWA. Amendments and updates to this act in reference to Waste Management are listed below:
- ❖ National Environment Laws Amendment Act, 2008 (Act No. 44 of 2008) as published in Government Gazette No. 31685 dated 5 December 2008.
- ❖ New Waste Tyre Regulations, 2017, published in Government Gazette No. 41157 dated 29 September 2017.
- ❖ The Plastic Bag Regulations 2002 have been repealed and replaced by the Plastic Carrier Bags and Plastic Flat Bags Regulations as gazetted in 24739 dated 9 April, 2003.
- ❖ The Regulations regarding activities identified under section 21(1) have been amended as published in GG 23401 dated 10 May, 2002, and this same Gazette carried the notice amending the list of activities identified as having a substantial detrimental effect on the environment.
- ❖ The amendment of section 1 by the deletion of the definitions of “disposal site” and “waste”.
- ❖ The repeal of sections 19, 19A, 20, 24, 24A, 24B and 24C.

7.2.5 NATIONAL ENVIRONMENTAL MANAGEMENT AIR QUALITY ACT, 39 OF 2004

The objective of the Air Quality Act as stated in the Act is to 'protect the environment by providing reasonable measures for the protection and enhancement of the quality of air, the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development; and generally to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people.'

This Act will reform air quality governance by establishing national norms and standards, different from those in the previous Atmospheric Pollution Prevention Act. It will provide a regulatory framework for air quality management planning and reporting which will be enforced by a number of inspectors who can do spot checks on various organizations. The issuing of regulatory instruments such as licenses will be used for air pollution control in South Africa and compliance and enforcement with these licenses will be strengthened through the training of many more inspectors.

7.2.6 MUNICIPAL DEMARCATION ACT 27 OF 1998

The Municipal Demarcation Act 27 of 1998 provides criteria and procedures for the determination of municipal boundaries by an independent authority. In terms of the Act, the Municipal Demarcation Board is established to determine municipal boundaries.

Section 24 provides that when demarcating a municipal boundary, the Board must aim to establish an area that would enable the municipality to fulfill its Constitutional obligations, including the provision of services in an equitable and sustainable manner, the promotion of social and economic development and the promotion of a safe and healthy environment. The tax base must also be as inclusive as possible of users of municipal services in the municipality.

7.2.7 ORGANISED LOCAL GOVERNMENT ACT 52 OF 1997

The Organized Local Government Act 52 of 1997 provides for the recognition of national and provincial organizations representing the different categories of municipalities and determines various procedures concerning local government, including procedures by which local government may consult with national and provincial government.

7.2.8 MUNICIPAL STRUCTURES ACT 117 OF 1998

The main object of the Municipal Structures Act 117 of 1998 is to provide for the establishment of municipalities in accordance with the requirements relating to categories and types of municipality and to provide for an appropriate division of functions and powers between categories of municipality.

This act forms part of the legislation that is aimed at the transformation of local government into a more financially sustainable and performance orientated sphere of government. The Act is aimed at creating the permanent structures mandated by the Constitution, which will replace the transitional structures created by the Local Government Transition Act. Municipalities are categorized either as A, B or C depending on the level of development.

Chapter 5 sets out the functions and powers of the municipalities in accordance with the Constitution.

7.2.9 MUNICIPAL SYSTEMS ACT NO. 32 OF 2000

The Municipal Systems Act describes the core principles, mechanisms, and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of communities and ensure access to services that are affordable to all. Its focus is primarily on the internal systems and administration of the municipality.

The Act enables the process of decentralization of functions through assigning powers of general competence to local Government. Municipal By-Laws are regulated to achieve harmony with national and provincial legislation.

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

Performance management systems are to be developed to measure and evaluate performance in priority areas, which are to be reported annually to citizens and other spheres of government.

The process to be followed in planning, drafting and adopting the Integrated Development Plan is set out.

7.2.10 THE DEVELOPMENT FACILITATION ACT 67 OF 1995

The Development Facilitation Act 67 of 1995 sets out a planning and land development system, which ensures that national, provincial, and local government policies are implemented.

Section 28 describes the requirements for Land Development Objectives, which must be developed by each local authority. One of the objectives of Land Development Objectives is to create a new system of planning that encourages sustained utilization of the environment, particularly with regard to the environmental consequences of developments.

Municipalities are encouraged to co-operate in order to develop the capacity of each municipality to exercise its powers and duties and manage its affairs.

7.2.11 THE PHYSICAL PLANNING ACT 125 OF 1991

The objective of the Physical Planning Act 125 of 1991 is to provide for the division of the country into regions and to promote regional development. Policy plans consist of broad guidelines for the future physical development of the area and restrictions are placed on the use of land in the area to which the plan relates. Local authorities are required to develop urban structure plans for their areas of jurisdiction.

7.2.12 NATIONAL WATER ACT 36 OF 1998

The National Water Act contains a number of provisions that impact on waste management, including the disposing of waste in a manner, which detrimentally impacts on a water resource and the discharge of waste into a water resource. The Act allows the Minister to make regulations for: Prescribing waste standards, which specify the quantity, quality and temperature of waste that may be discharged or deposited into or allowed to enter a water resource. Prescribe the outcome or effect, which must be achieved through management practices for the treatment of waste before it is discharged or deposited into or allowed to enter a water resource. Requiring that waste discharged or deposited into or allowed to enter a water resource be monitored and analyzed according to prescribed mechanisms.

7.2.13 HEALTH ACT 63 OF 1977

The Health Act 63 of 1977 provides measures for the promotion of health, for the rendering of health services and defines duties of certain authorities which render health services in the Republic

Section 20 sets out the duties and powers of local authorities. It provides that every local government is obliged to take measures to maintain its district in a clean and hygienic condition and to prevent the occurrence of any nuisance, unhygienic or offensive condition or any other condition, which could be of danger to the health of any person. A "nuisance" includes any accumulation of refuse or other matter that is offensive or is injurious or dangerous to health. The local government is obliged to abate the nuisance or remedy the condition and to prevent the pollution of any water intended for the use of the inhabitants of its district.

Draft regulations for the control of environmental conditions constituting a danger to health or a nuisance were published in GNR21 of 14 January 2000. In terms of the proposed regulations, registration is required for: concerns that to carry out a scheduled trade, including waste incineration, waste (including Health Care Risk Waste) disposal sites and waste collecting, sorting, treating or processing sites.

Policy Papers and Guidelines

7.3 WHITE PAPER ON ENVIRONMENTAL MANAGEMENT NOTICE 749 OF 1998

The White Paper on Environmental Management was published in 1998. This policy sets out government's objectives in relation to environmental management, how it intends to achieve its objectives, and to guide government agencies and organs of state in developing strategies to meet their objectives.

The policy document is an overarching policy framework that refers to all government institutions and to all activities that impact on the environment. The policy states that government will allocate functions to the institutions and spheres of government that can most effectively achieve the objectives of sustainable development and integrated environmental management. This would include the allocation of certain functions to the municipal sphere of government. Where appropriate, provincial and local government are to develop their own legislation and implementation strategies to address their specific needs and conditions within the framework of the policy.

7.4 WHITE PAPER ON INTEGRATED POLLUTION AND WASTE MANAGEMENT FOR SOUTH AFRICA, NOTICE 227 OF 2000

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

The overarching goal reflected in the policy is integrated pollution and waste management, with the intention being to move away from fragmented and uncoordinated pollution control and waste

management towards integrated pollution and waste management as well as waste minimization. Within this framework of the overarching goal, the following strategic goals apply:

1. Effective institutional framework and legislation;
2. Pollution and waste minimization, impact management and remediation;
3. Holistic and integrated planning

The intention is to develop mechanisms to ensure that integrated pollution and waste management considerations are integrated into the development of government policies, strategies and programmes as well as all spatial and economic development planning processes and in all economic activity. The strategic mechanisms include the following:

- ❖ The incorporation of integrated environmental management principles and methodologies in spatial development planning as it relates to pollution and waste management;
- ❖ Making timeous and appropriate provision for adequate waste disposal facilities;
- ❖ Developing management instruments and mechanisms for the integration of pollution and waste management concerns in development planning and land allocation;
- ❖ Developing appropriate and agreed indicators to measure performance for inclusion in EIPs and EMPs as provided for in the National Environmental Management Act;
- ❖ Participation and partnerships in integrated pollution and waste management governance; and
- ❖ Empowerment and education in integrated pollution and waste management; Information management; and International co-operation.

7.5 DWAF MINIMUM REQUIREMENTS FOR LANDFILL, 2ND EDITION, 1998

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

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

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

7.6 NATIONAL WASTE MANAGEMENT STRATEGY AND ACTION PLANS (2020)

The overall objective of this strategy is centered around promoting circular economy and improving best sustainable environmental practices, with the aim to reduce the generation of waste and the environmental impact of all forms of waste and thereby ensure that the socioeconomic development of South Africa. A circular economy is defined as an economic growth by moving away from a take-make-waste industrial model to one that decouples economic activity from the environment and supports a just transition to renewable energy sources. There are three pillars in this strategy, each pillar has its focus area, objectives and its performance indicator as follows:

7.6.1 Pillar 1: Waste Minimization

The strategic aim of this pillar is minimizing the impact of waste especially packaging, increasing reuse, recycling alternatives and maximizing the role of waste sector in the circular economy. The long term expected outcomes is “zero waste to the landfill”, here are the focus areas of this strategic pillar:

- Creating an enabling environment
- Building sustainable partnership with all government and non-government players
- Minimizing general waste streams from the landfill
- Advanced cleaner Extended Producer Responsibility
- Advance waste as a resource.

7.6.2 Pillar 2: Effective and sustainable waste services

The strategic aim of this pillar is to build a strong cooperate governance and the relationship between the three spheres of governance and specifically the local government. Its main focus is as follows:

- Integrated Waste Management Planning
- Producers with the concurrence of municipalities for municipalities to provide a recycling drop off centres
- Waste collection including separation at source
- Safe management of hazardous household waste

7.6.3 Pillar 3: Compliance, Enforcement and Awareness

The 3rd strategic pillar aims on managing the environmental impact of waste and preventing pollution through changes in behavior an attitude that lead to a culture of compliance with acceptable local and international standards. Its main focus is as follows:

- Compliance promotion and awareness

- Waste services infrastructure provision
- Enforcement
- Awareness and community participation
- Reduce littering and illegal dumping
- Ensure municipal landfill sites and waste management facilities comply with the licensing requirements.

7.7 POLOKWANE DECLARATION

Representatives of government at national, provincial and local level, civil society and the business community signed the Polokwane Declaration on Waste Management during the first National Waste Summit in 2001. The representatives recognized that waste management is a priority for all South Africans, and the need for urgent action to reduce, reuse, and recycle waste in order to protect the environment. The vision of this Summit was to implement a waste management system, which contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective reduction of waste. Through cooperation, the goals of reducing waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for ZERO WASTE by 2030 was to be achieved. The delegation emphasized the essential role of efficient management of waste in sustainable development and the protection of human health and the environment. The resulting Polokwane Declaration lists a number of actions believed to be necessary to achieve the set goals:

- ❖ Prioritisation of Waste Management, Implementation of the National Waste Management Strategy
- ❖ Development and implementation of a Legislative and Regulatory Framework to promote waste avoidance, prevention, reduction, re-use and recycle,
- ❖ Provision of efficient and effective collection and disposal facilities
- ❖ Establishment and enforcement of targets for waste reduction and recycling,
- ❖ Setting benchmarks towards achieving the 2030 target,
- ❖ Disseminate information on the status and trends on waste reduction in the country,
- ❖ Introduce mandatory waste audit processes,
- ❖ Explore the use of economic instruments to support waste management initiatives,
- ❖ Develop and provide the public with educative resources necessary to allow participation in the waste elimination process on an informed basis,
- ❖ Develop Intergovernmental Capacity,
- ❖ Develop Waste Information and Monitoring Systems,

- ❖ Establish systems that ensure that physical and financial responsibility for waste is borne by the product producers,
- ❖ Effectively manage waste disposal/reprocessing facilities, thereby avoiding the need to establish new, or expand existing facilities,
- ❖ Promote employment and economic empowerment opportunities, in particular in Small, Medium and Micro Enterprises, through increased product reuse and material recycling.
- ❖ Promote clean technology and clean production.

8 INTEGRATED WASTE MANAGEMENT PLANNING

8.1 Introduction

In terms of the Constitution of South Africa Act 108 of 1996 environment and waste management are areas of shared responsibility between provincial and the local government. In terms of Chapter 7 of the Constitution, provincial government is required to support local government with respect to matters listed in Schedule 5 of the Constitution, which includes waste management. The promulgation of the National Environmental Management: Waste Act 59 of 2008 requires integrated waste management planning at both provincial and local level. South Africa's first National Waste Management Strategy (NWMS), published in 1998, and highlighted the need for integrated waste management at the local level as a high priority. Section 11 (4) of the National Environmental Management: Waste Act requires that municipalities submit IWMP's to the MEC for approval and to include the approved IWMP in its Integrated Development Plan (IDP) contemplated in Chapter 5 of the Municipal Systems Act. A municipal IWMP must comply with the aspects outlined in section 12 of the Municipal Systems Act, which includes consultative processes and public participation that must be followed during and before the finalization of the IWMP, as prescribed in section 29 of the Municipal Systems Act.

The waste management hierarchy adopted by the South African Waste Management strategy (NWMS) offers a wide range of options for waste management ranging including:

- Waste prevention and minimization;
- Generation of waste (generation areas and waste stream analysis);
- Separation of waste;
- Waste collection, transfer and transport;

- Waste treatment;
- Reduce, re-use and recycling of waste; and
- End disposal of waste at landfill as a last resort.

Figure 3: Waste Management Hierarchy



The success of an IWMP, in terms of implementation thereof by the relevant local authority, lies in allowing the implementing agent (Vuyisile Mini Local Municipality) to input directly into the planning process, such that the IWMP is practical and applicable to all parties concerned.

8.1.1 IWMP Objectives

The objectives of the IWMP will be to:

- Facilitate the implementation of the provisions of the NEM: Waste Act;
- Promote sustainable waste management practices within Vuyisile Mini Local Municipality;
- Provide guidance and support to the municipality and industries with respect to the integrated waste management planning;
- Minimize adverse social and environmental impacts of waste management operations, particularly on poor and vulnerable communities and improve their quality of life;

- Provide implementable and cost effective short, medium and long term goals to address waste management issues within Vuyisile Mini Local Municipality;
- Ensure alignment with relevant provincial and municipal strategies, policies, guidelines and action plans

The primary objectives of NEM: Waste Act is to protect health, well-being and the environment by providing reasonable measures for the following:

- Minimizing the consumption of natural resources;
- Avoiding and minimizing the generation of waste;
- Reducing, re-using, recycling and recovering waste;
- Treating and safely disposing of waste as a last resort;
- Preventing pollution and ecological degradation;
- Securing ecologically sustainable development while promoting justifiable economic and social development;
- Promoting and ensuring the effective delivery of waste services;
- Remediating land where contamination presents or may present a significant risk of harm to health or the environment; and
- Achieving integrated waste management reporting and planning.

In line with achieving compliance with the NEM: Waste Act and in giving effect to the primary objectives of NEM: Waste Act set out above, Vuyisile Mini Local Municipality has therefore embarked on a process of developing its own Integrated Waste Management Plan (IWMP).

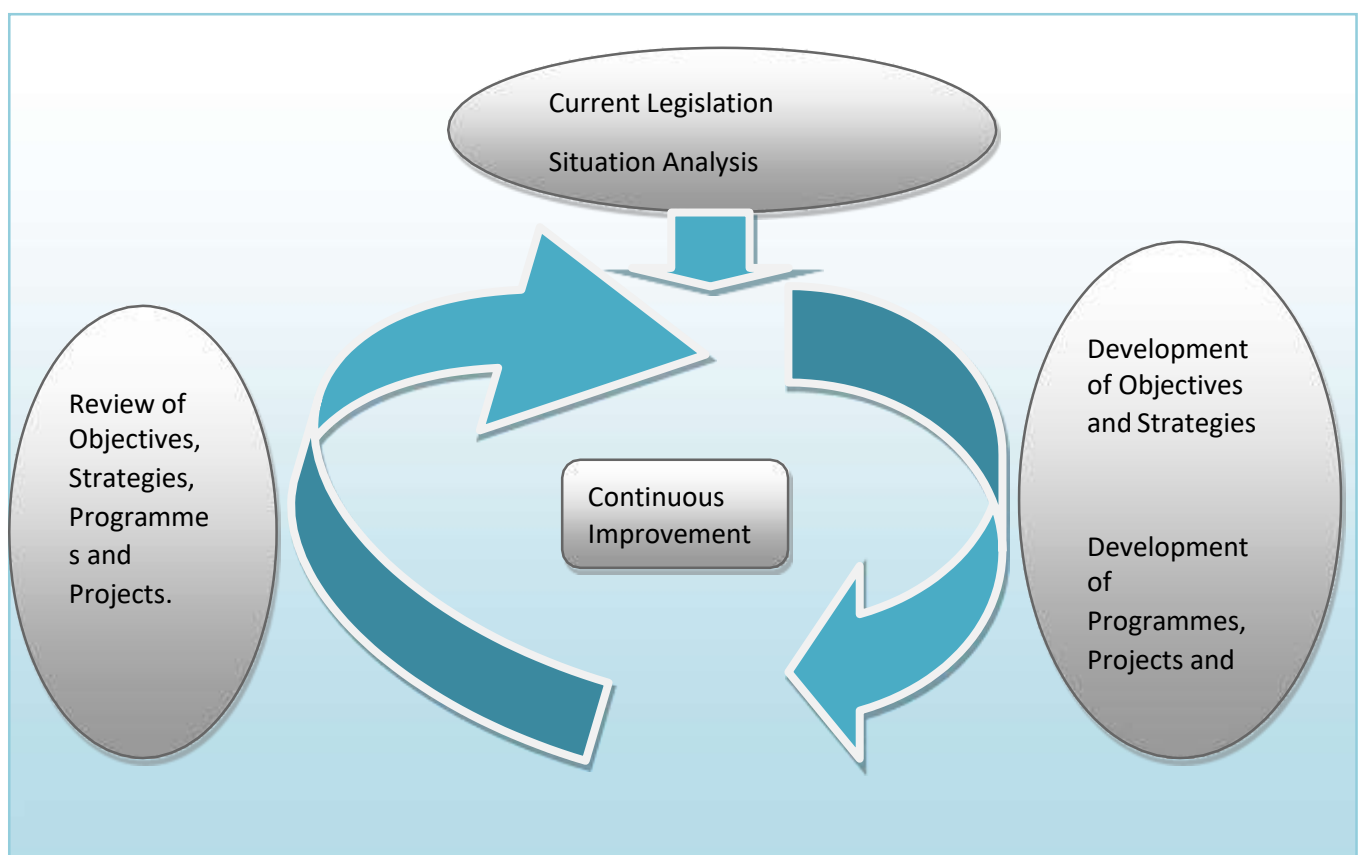
8.2 Project Approach and Methodology

In the White Paper on Integrated Pollution Control and Waste Management for South Africa, integrated waste management is defined as a holistic and integrated system and process of management. The waste management process is aimed at pollution prevention and minimization at source, managing the impact of pollution and waste on the receiving environment, and remediating damaged environments.

Specific waste management practices may be tailored to waste and site specific characteristics as well as to availability of re-use; recycling; treatment and disposal facilities and options.

The approach used in the development of this Integrated Waste Management Plan, is to ensure that the process which is followed will address all relevant aspects and obtain all key inputs, thereby facilitating an IWMP that will provide guidance to business, industry and Vuyisile Mini Local Municipality on how to ensure that waste management systems and practices are sustainable, efficient and effective, and comply with legislative requirements. In order to develop an IWMP, it is essential that the process to be followed is in line with the “Plan, Do, Check, Act” management approach as illustrated in Figure 7 below.

Figure 4: The IWMP Planning Process Cycle



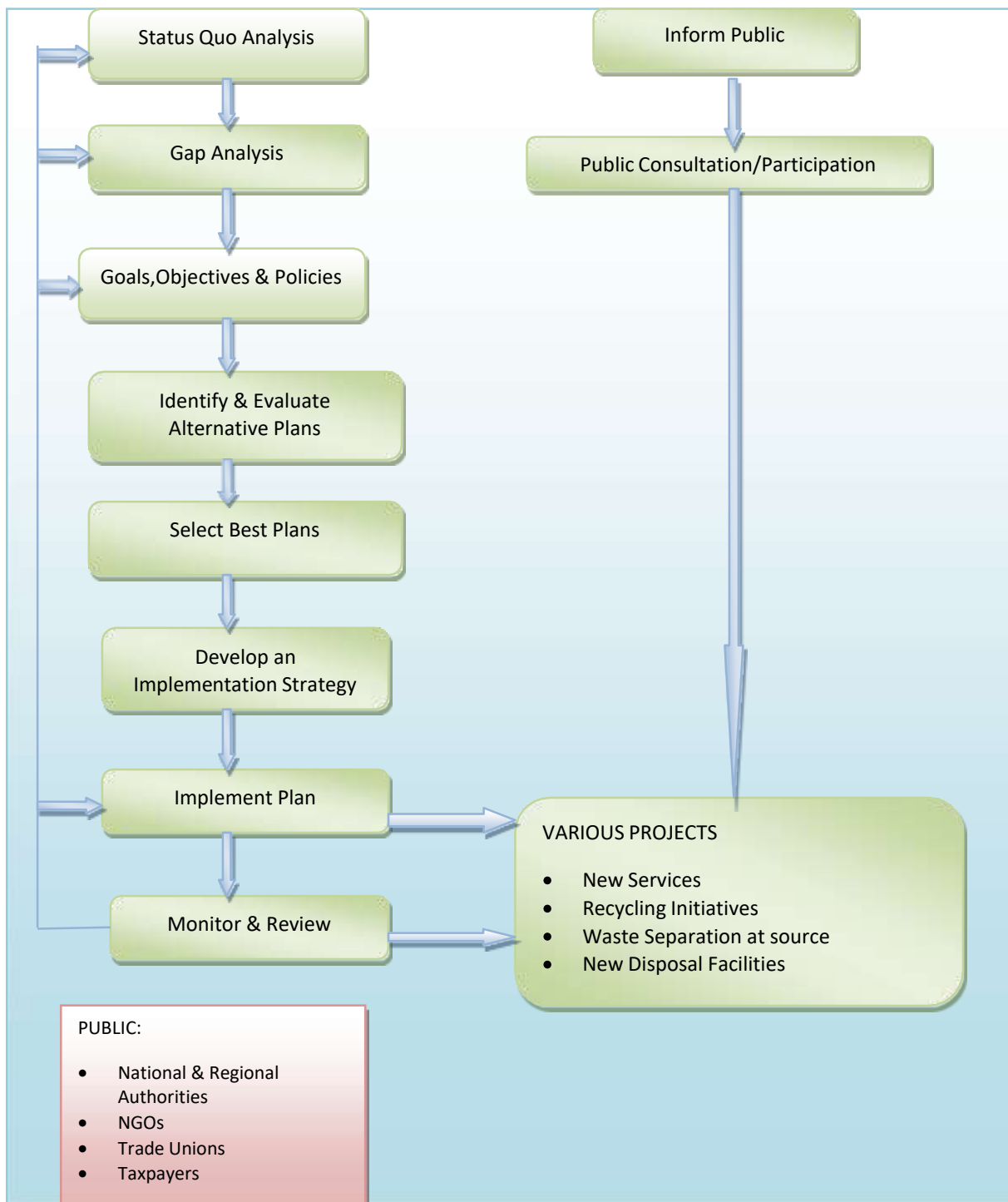
The integrated waste management planning process incorporates all the major stages of the process, namely:

- Analysing the current situation and legal framework
- Making projections of future requirements;
- Setting objectives;

- Developing projects and programmes to reach the set objectives
- Developing and implementing an integrated waste management plan;
- Periodically evaluating and reviewing the plan to ensure the respective
- Objectives are being met.

The process towards the development of the IWMP entailed the following steps illustrated in the diagram below:

Figure 5: IWMP Phase or Process



- (a) Establish the existing status (Status Quo) with regard to waste management in the local municipality
- (b) Determine management objectives and needs with regard to waste management through obtaining and integrating input from key stakeholders

- (c) Determine any gaps, backlogs, shortfalls, risks or impacts between the existing status and the desired end state that is relevant to waste management practices and systems.
- (d) Identify and evaluate waste management alternatives and options that could be taken to address these identified gaps, backlogs, shortfalls, risks and impacts that will achieve the management objectives. This evaluation is conducted against a pre-determined set of evaluation criteria, and includes as assessment from the perspective of Multi Criteria Decision Analysis (MCDA), which includes, but is more than just a Cost- Benefit Analysis (CBA), in order to determine and select the Best Practicable Environmental Option (BPEO).
- (e) Summarise the actions for implementation of the BPEO for waste management into a draft IWMP. Such an IWMP should be specific and concise, and should clearly indicate actions, responsibilities and timeframes.
- (f) Discuss the draft IWMP with key stakeholders to determine acceptability and implementability.
- (g) Finalise the draft IWMP, which would contain a framework for an implementation schedule, performance evaluation and monitoring measures, and timeframes for review

8.3 Phase 1: Status Quo Assessment

The main aim of this phase of the project is to quantify and qualify all aspects related to the existing waste management services and practices. This information will then be used as a point of departure for determining future needs, establishment of priorities, optimisation and budget requirements. The major tasks that will be carried out during the status quo analysis are Review; Information Analysis; Assessment and Report Generation. The specifics of these four tasks include the following aspects:

➤ Review of:-

- All relevant existing municipal, provincial and national documentation relating to waste management including any existing IWMP's for the District Municipality and Vuyisile Mini Local Municipality;
- All applicable national and provincial legislative arrangements, as well as the situation with regard to Municipal Waste Management Bylaws, their effectiveness and current levels of implementation, and determining any international arrangements or agreements that may be applicable.

- All available information on the current population demographics of the local municipality, growth estimates and development patterns, densities and the population's socio-economic categories and income levels; and
- Investigation and Research through literature review and individual interviews into all aspects relating to waste management in the local municipality including:
- All aspects of waste collection and street cleansing, including collection methods, vehicle routing, transport conditions, record keeping, complaints, etc;
 - Current status of equipment and machinery;
 - Current status of personnel, including level of skills and training needs;
 - Waste generation rates, patterns and trends, including a summary of domestic, industrial and business producers, volumes of general waste, primary waste storage systems (bins, bags etc), levels of service, etc;
 - Current status of waste management awareness and control, including implementation of waste related bylaws, aspects relating to littering, waste prevention and minimisation, buy-back and recycling centres, health concerns, and enforcement capabilities, and;
 - Capture data collected during review of documentation and investigation and research into intelligent and interactive database.
- Analysis and Assessment of:-
- Available and collected information to determine statistics with regard to current and projected demographics and waste generation patterns in the municipality, the types and amounts of general waste generated, the composition thereof, and projected future waste generation trends;
 - The services that are currently provided, or that are available, for the collection, minimisation, re-use, recycling and recovery, treatment and disposal of waste, and technical and operational aspects there-of;

- The existing waste management systems and practices, defining distinctive waste management patterns, and evaluating waste minimisation and cleaner production initiatives, as well as waste management education and awareness;
 - The current waste management services in terms of organisational structure and institutional arrangements, quality of service, legislative and regulatory issues, social and environmental impacts, including impacts from contaminated land, and public acceptance;
- Generation of Status Quo Report that addresses:-
 - Applicable legislative requirements and regulatory status quo;
 - Demographics and socio-economic status quo;
 - Waste quantities and characteristics;
 - Existing waste management systems and practices;
 - Technical and operational issues;
 - Waste information issues; and
 - Waste education and awareness.

The results of the status quo analysis will therefore be documented in a comprehensive Status Quo Report that clearly describes the current status of waste management in Vuyisile Mini Local Municipality, and that will be used during the needs assessment.

8.4 Phase 2: Needs Assessment and Gap Analysis

8.4.1 Needs Assessment

To identify needs regarding the IWMP's and Set Waste Management Objectives for the Plan, extensive public participation will be conducted. It is envisaged that at least one public meeting will need to be held. Key identified stakeholders will be invited to attend the meeting.

During the meeting, needs are to be determined and management objectives agreed upon for the following waste management aspects:

- Applicable legislative requirements and regulatory status quo;

- Demographics and socio-economic status quo;
- Waste quantities and characteristics;
- Existing waste management systems and practices;
- Technical and operational issues;
- Waste information issues; and
- Waste education and awareness.

Following the finalisation of the meeting, a Needs Assessment Report will be prepared.

8.4.2 Gap Analysis

Once the expectations, needs, and objectives of key stakeholders with regard to the management of waste in Vuyisile Mini Local Municipality have been determined, the gaps between the current Status Quo and the Desired End State (or Needs) can be established. An analysis of these gaps is therefore conducted on the following aspects:

- Applicable legislative requirements and regulatory status quo;
- Demographics and socio-economic status quo;
- Waste quantities and characteristics;
- Existing waste management systems and practices;
- Technical and operational issues;
- Waste information issues; and
- Waste education and awareness.

The outcome of the Gap Analysis will therefore identify the shortcomings and gaps between existing waste management systems and practices, and the needs, expectations and objectives of stakeholders, which will be summarised in a Gap Analysis Report.

8.5 Phase 3: Development and Evaluation of Alternative Scenarios

Based on the Status Quo Assessment, the Objectives and Needs expressed by stakeholders, as well as the Gap Analysis that identified shortfalls between the existing status and the desired outcomes, management options to address these gaps can be identified and/or developed, and evaluated.

8.6 Phase 4: Draft and Final IWMP

During this phase the IWMP for Vuyisile Mini Local Municipality is drafted, discussed with stakeholders, and following the consideration of comments received, finalised as a final Draft IWMP for submission to the municipal council.

8.7 Public Participation Approach

8.7.1 Development of I&AP Database

A database of interested and affected parties (I&APs) involved in waste management in the VMLM will be compiled. The main role players will be consulted to determine the status quo of waste management in the informal settlements and to assist with the development of the IWMP. A database including all the chiefs, community leaders, and interested parties will be developed in categories of those to ensure that information is communicated strategically at all levels. A complete list of key stakeholders and I&APs will be drawn up in consultation with the VMLM.

8.7.2 Advert and BID

An advert will be placed in local newspaper to be agreed upon with the VMLM. This will be to announce the project and its objectives and invite Interested Affected parties to register. Background information Documents (BID) of the project will be made available to all interested and Affected Parties (I&APs). Newsletters to inform the public will be distributed to each community to inform them of the project.

8.7.3 Public Meeting/Stakeholder Meetings

Based on the structural power sharing within the councillors and chiefs, will ensure that proper communication structures are in place to ensure proper flow of information. A number of meetings will be held in the area. These meetings will have the following function:

- Obtain additional data on producers, transportations, disposers etc. of waste;
- Identification of existing processes and alternative technologies for waste management:
- Education of the public with regards waste management: and

- Prioritization of any issues at identified above.

Meetings will be held in strategic places that will cover large numbers of communities. Community leaders will be made to take leadership in communication with the community since they know their people.

8.7.4 Awareness Raising Campaign

It is proposed that an intensive awareness raising communication campaign be launched in order to obtain additional information from the public at large. This will be done through the following:

- Advertisements in local newspaper
- Background information Documents with information of the project and the role required from the community

9 WASTE MANAGEMENT STATUS QUO OF VUYISILE MINI LOCAL MUNICIPALITY

9.1 Introduction

It is a fact that any waste management services and initiative can only be effective if informed by adequate information. This is particularly relevant in the case of waste quantities and types. Effective planning for waste minimization and recycling initiatives is totally dependent on such data.

This section encompasses a detailed assessment of the current status of solid waste management in the Vuyisile Mini Local Municipality. Development of Integrated Waste Management Plan (IWMP) demands the assessment of current solid waste management systems apart from their quantification and characterization which would further be useful for:

- Analyzing the availability, enforcement and impact of regulations and economic tools;
- Assessing the institutional framework, resources and jurisdictions for current institutions;
- Analyzing the efficiency and effectiveness of collection, treatment and disposal system including technologies;
- Understanding the role of different stakeholders at different levels of solid waste management chain; and
- Identifying the challenges and opportunities to improve waste management

The situational analysis of waste management within Vuyisile Mini Local Municipality was based on the following:

- Estimation of current and future waste generation using socio-economic data.
- Field and site inspections of waste generation areas and waste management facilities within the Vuyisile Mini Local Municipality;
- Field assessment and new data capturing;
- Mapping analysis and literature reviews; and
- Interview and interrogation of key municipal personnel as well as other key role players and stakeholders.

9.2 Waste Types and Waste Generation in Vuyisile Mini Local Municipality

9.2.1 Waste Types

In order to inform planning for waste management, particularly strategies for recycling, details of the types of waste in the waste stream are necessary.

The waste stream managed by the Municipality is made up of household waste with sometimes the addition of commercial wastes, small amounts of builder's rubble and garden waste (also referred to as domestic solid waste or municipal solid waste).

There are typically six broad categories of this waste stream:

- Biodegradable waste: food and kitchen waste, green/garden waste, paper (can also be recycled)
- Recyclable material: paper, glass, bottles, cans, metals, certain plastics, etc.
- Inert waste: construction and demolition waste, dirt, rocks, debris
- Composite wastes: waste clothing, Tetra Packs (polystyrene), waste plastics such as toys
- Domestic hazardous waste: (also called "household hazardous waste") and toxic waste: medication, paints, chemicals, light bulbs, fluorescent tubes, spray cans, fertilizer and pesticide containers, batteries, shoe polish
- Putrescible Organic Waste: -
- Waste from the production of edible animal and vegetable oils, slaughterhouses, tanneries, and other animal and vegetable based products.

Generally the towns and townships of Vuyisile Mini Local Municipality are provided with scheduled cleansing services. The rural villages are not provided with cleansing services and residents are

disposing their own waste on site or by burning it. Per capita waste generation, rates in these communities are very low and settlement densities and stretched are generally such that the environmental impacts associated with on the site, disposal are not yet considered significant.

The quantity of domestic waste generated within communities increases with increasing levels of households and affluence.

Below are the types of wastes and waste generators that were observed in VMLM.

9.2.1.1 Domestic

Domestic waste is collected throughout formal residential areas within the VMLM. The amount of waste from these residential areas is not recorded separately as it is combined with business waste and waste from public areas for transportation to the landfill site.

9.2.1.2 Green/Garden

Municipality collects garden refuse on request of property owners or occupiers. This waste is transported and disposed of in the landfill site. It is observed that a small quantity of this waste is disposed at the landfill site.

9.2.1.3 Retail Businesses

A demarcated waste storage area is located at the shops. Paper, cardboard and plastic waste are stored and segregated before it is collected and transported to the landfill site. The wastes are segregated by hand. Paper and cardboard waste are separated and stacked, while plastic refuse mainly from packaging materials is stored in large bulk bags.

9.2.1.4 Building Rubble

The large quantities of building rubble were observed near the Cofimvaba landfill site. Although there is not much development is occurring within the VMLM and therefore only a relatively small quantity of building rubble is generated in other towns. It is noticed that dumping of building rubble is an occasional problem.

This may however change rapidly should the development potential of the area be unlocked. Illegal dumping of building rubble may therefore become an increasing problem as the development in the area increases, if measures for effective disposal of building rubble are not specifically provided for.

9.2.1.5 Health Care Waste

Waste generated in the Health Care Sector at facilities such as clinics and hospitals consists of waste that can be classified as health care general waste, which is generally associated with the administration of these facilities, and health care risk waste which is classified as hazardous waste and is generally associated with treatment of patients. Of the hazardous wastes, infectious waste and toxic materials such as many pharmaceuticals, drugs and cytotoxic substances are classified as a subcategory Class 6 Hazardous Waste. Flammable liquids such as ether, alcohol and many formulated products such as cough mixtures are classified as Class 3 Flammable Liquids, while radioactive substances are Class 7 and compressed gases are Class 2. Radioactive wastes and infectious wastes are generally managed separately from the other categories, which all classify as chemical hazardous waste, whether they arise from a health care facility or the chemical and petroleum industry. Medical waste from Cofimvaba hospital is collected and treated by Compass Waste, a service provider appointed by the Department of Health, so therefore it falls outside the scope of the municipalities waste management activities.

9.2.1.6 Tyres

VMLM was registered with the Recycling and Economic Development Initiative of South Africa (REDISA). All tires delivered to VMLM landfill site were collected by REDISA and recorded in the Weigh bridge system installed in the landfill site. REDISA is no longer functional and the municipality has introduced measures to deal with waste tyres. The waste tyres are used to beautify the illegal dumping sites after the clearing and rehabilitation.

Figure 6: Tyres use for greening and beautification programs



9.2.1.7 Animal

While it is expected that a large degree of informal slaughtering and meat sales do take place, it is not clear how much waste is generated in this way and how it is disposed of. However, no carcasses of domestic animals were observed in the landfill sites. There are no registered abattoirs in the Vuyisile Mini Local Municipality area.

9.2.2 Projected Waste Generation in Vuyisile Mini Local Municipality

Waste generation growth estimates should take the economic growth, population growth rate, socio-economic profiles of the population, industrial growth and urban sprawl. They should also take into consideration waste minimization measures and recycling interventions over the planning horizon. The following assumptions were made during the estimation of waste generation using socio-economic data:

- Socio-economic data is taken from the current IDP, Census 2017
- The planning period for this IWMP is a five year planning period (2024 – 2028).
- Predictions were done for the period: 2024 up to and including 2028.
- Unless otherwise specified, the per capita waste generation rate assigned to the municipality is 0.3 kg/person/day. This value was used because 85% of personal incomes are less than R30000 per annum. This is based on the estimated per capita waste generation rates per socio-economic profile.

Income Category	Kg/person/day
Middle income R30000 – R132000 Per annum	0.7
Low income < R30000 Per annum	0.3
No income	0.2

Table 6: Generic waste generation rate to income group

Projection period

Table 7 and Table 8 provide the estimated population growth trends and waste generation rates for the Vuyisile Mini LM until 2023 (5 year period). The population is estimated to increase by approximately 6 412 people by 2027. The estimated volume of waste generated by each person is expected to increase by 10 tonnes per person in 2027 compared to current 11 tonnes per person/year (see section below). It must be noted that these waste generation estimates do not take into account future recycling initiatives.

Population	Growth Rate	2023	2024	2025	2026	2027
153 000		153 000	159 412	165 824	172 236	178 648

Table 7: Estimated population growth trends

Population	GenerationRate	2023	2024	2025	2026	2027
153 000	0.3	11 267	11 196	11 124	11 053	10 982

Table 8: Estimated waste generation rates (kg generated/person/year)

Note: Annum = 365 days (7 day week)

Theoretical waste generated in the Vuyisile Mini Local Municipality was estimated as follows:

AREA	POPULATION	WASTE GENERATED (KG/P/DAY)	GENERATED WEIGHT (TONNES/DAY)	GENERATED WEIGHT (TONNES/YEAR)
SERVICE AREAS				
Cofimvaba	7580	3600	3.6	1314
Tsomo	1 895	2000	2.0	730
TOTAL	9 475	5600	5.6	2044

Table 9: Theoretical waste generation figures base on the population given

Note: Annum = 365 days (7 day week)

	Number of households	Percentage
Removed by local authority/private company at least once a week	1151	2.8
Removed by local authority/private company less often	173	0.4
Communal refuse dump	557	1.4
Own refuse dump	25456	62.9
No rubbish disposal	11897	29.4
Other	1215	3
Total	40448	100

Table 10: Household access to refuse removal within VMLM

(Source: Census, Statistics, 2011.)

Table 10 shows that 62.9% of households in VMLM reported having to dump their refuse themselves instead of it being removed by authorities. 29.4% of households reported having no rubbish dumping facilities at all. Only 2.8% reported having their refuse removed on a weekly basis by a local authority. Such a situation has serious implications for the overall hygiene of residents in the area, especially because almost 25% of the residents use other sources of water like rivers, dams and lakes etc. as their only source of water, therefore posing a great health risk since water which is used for drinking and cooking could become exposed to harmful substances associated with refuse.

VMLM is responsible for providing refuse removal services to its areas of jurisdiction. Since the establishment of VMLM municipality in 2000, this service has generally been provided to the urban areas of Cofimvaba and Tsomo only. Rural areas generally use a range of temporary mechanisms such as their own dumps within the yard, illegal dumping sites and mobile tankers.

9.3 LANDFILL SITE EVALUATION

Periodic landfill site evaluations are undertaken by Chis Hani District and the provincial Department of Economic Development and Environmental Affairs at the Cofimvaba landfill site to ensure that the landfill operates within the stipulated requirements. The landfill has been found to be mostly compliant with the minimum requirements for waste disposal and national environmental management standards and have been awarded by the minister of Environmental Affairs as the best managed landfill site in the Eastern Cape 2015/2016 financial year. However the municipality recognizes areas that need improvement in order to ensure full and continued compliance. The site needs to be evaluated according to:

- **Environmental performance:** Drainage around the landfill is poor and of concern as surface drains are blocked resulting in ponding. There is currently no system separating

contaminated and uncontaminated water, resulting in contaminated water draining into the environment. Poor leachate management is likely causing pollution. Water and air quality monitoring has not been taking place on a monthly basis as stipulated in the permit and the site is not membraned to prevent migration of methane gas generated on site;

- **State of equipment and facilities:** Plant is in a fair conditions although improvement to existing facilities is needed;
- **Site management and administration:** Understaffed and perpetual training is needed;
- **Operational Plan:** The site does have an implementable operational Plan and there are measures being taken to minimise OHS incidents occurring on site. There is a controlled access of scavengers which lowers the risk of being injured by the machines;
- **Hazardous waste:** There is currently a lack of capacity for spotters to identify hazardous waste coming into the landfill

10 WASTE MINIMISATION AND AVOIDANCE

The provincial recycling strategy guidelines are yet to be developed by the municipality. Waste minimization or avoidance and reduction must be seen as the highest priority goal and objective within the waste management hierarchy of Vuyisile Mini Local Municipality. There are a number of internationally and nationally recognized alternatives and options for waste minimization that can be employed at various levels in order to realize waste reduction and avoidance. This section outlines the possible alternatives and makes recommendations for specific alternatives and options to be considered in the case of Vuyisile Mini Local Municipality. It is important to understand that a successful waste minimization option must involve interventions at the source of waste generation i.e. households, businesses (commercial areas), institutions and industry, and must involve paradigm shifts in mindsets, approach to business, and cleaner production. In South Africa, the NWMS lays out a framework for waste minimization, which includes specific measures that must be implemented at various levels.

10.1 *Recycling, Re-Use and Composting*

10.1.1 **Recycling, Re-Use**

Recycling is the activity, which allows for the recovery of waste materials so that they can be transformed into new products or **re-used** by extending the useful life of a product by passing it on to other users (for example re-useable bottles). In 2017, DEDEAT has funded the municipality with a pilot project of "Waste separation at source" which was a 12 months project with 83 participants.

It was an ideal concept that waste of different types be separated at source (e.g. in the household). Recycling wastes that have been mixed is difficult and messy. As a result this project had a positive impact on the community by viewing waste in a different perspective that waste is a resource rather than being nothing.

Separating waste at source requires separate storage and collection systems. Whilst this will make the storage and collection of the waste very costly, the downstream costs of waste handling and disposal will be greatly reduced.

Very little waste separation at source occurs at present. Most domestic households have very little awareness of the environment and all waste including putrescible, garden waste, glass, plastics, paper metals, textile items and domestic hazardous wastes are disposed of in a single bag or bin. The disposal of organic waste with other waste makes the downstream separation a difficult and messy operation.

There are several recycling initiatives on the go in the Cofimvaba area. After the project has ended, there are a lot of businesses that have adopted the concept by doing recycling and selling their own recyclables from their shops i.e: Some superstores have adopted this initiative since 2018.

Card boxes, Plastic, Cans and Paper Recycling

Litha Yethu, a co-operation run by women, is contracted by Vuyisile Mini LM. The co-operation does the separation and baling of the card boxes then sells them to Nampak in Durban. Nampak collects the baled card boxes from the Cofimvaba landfill site monthly. The co-operation also does separation of plastic and cans.

Glass Recycling

Glass is separated at the landfill site and collected by Canibal Glass from Port Elizabeth with workshop in Queenstown.

Tyres Recycling

Vuyisile Mini Local Municipality is using waste tyres for greening and beautification programs including rehabilitation of illegal dumping sites.

10.1.2 Composting

Composting is a natural process where the organic material is transformed by living organisms (such as bacteria, fungi, worms and other small animals) resulting in humus and nutrients (e.g. nitrogen and phosphorus) that can be utilised as natural fertiliser. The production and use of natural fertiliser reduces the need to for artificial fertiliser, which requires large amounts of energy (for nitrogen fixation) and limited resources (mined phosphorus).

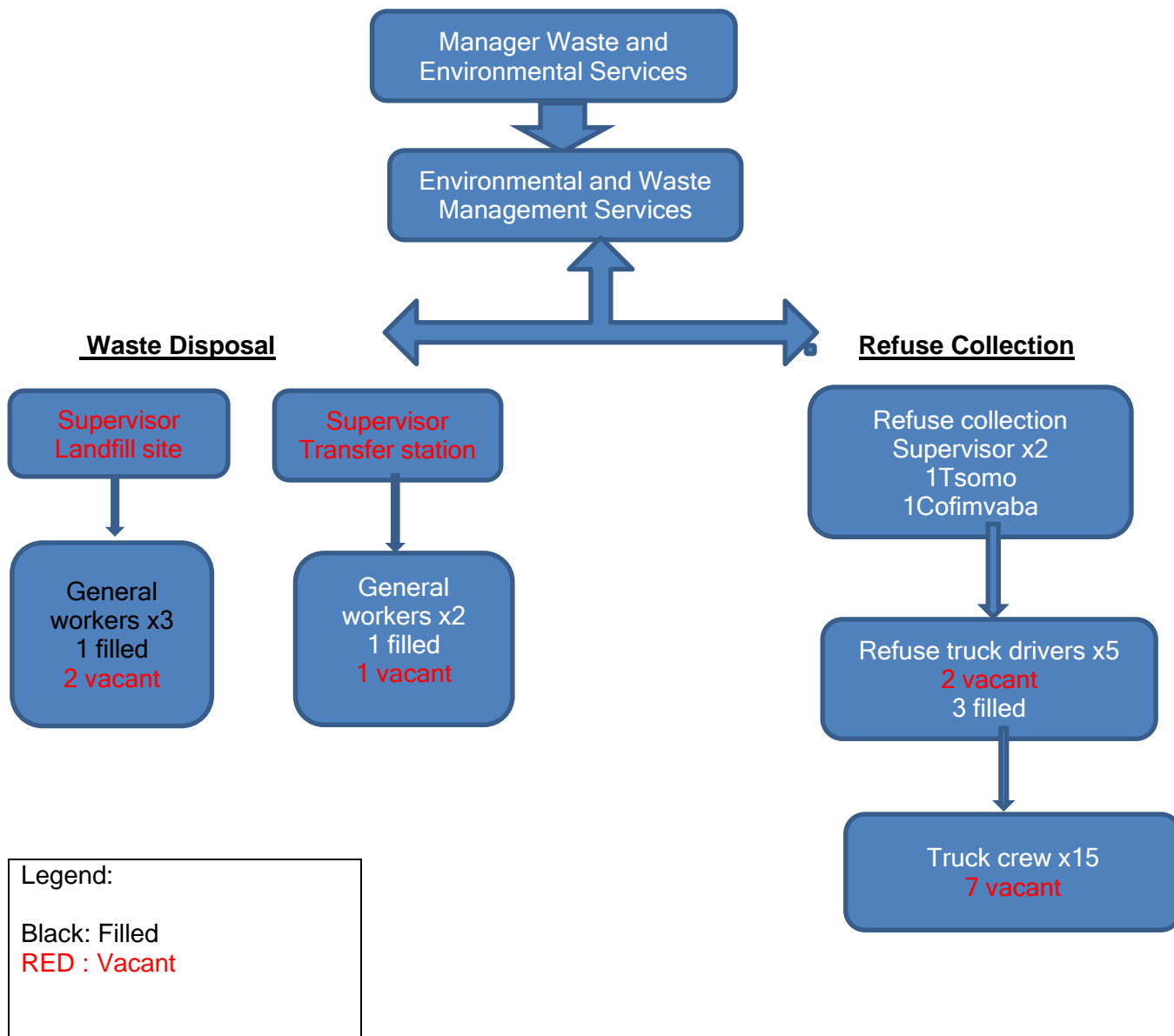
Compost is a fertiliser with positive long-term effects and is therefore usually used as soil improver ingardens, parks and landscaping. The value varies considerably depending on the quality and the local demand.

Vuyisile mini LM needs to plan for the development of composting facility and the green or garden waste to be transferred to the composting facility.

10.2 Vuyisile Mini Local Municipality Organisational Structure

The organisational structure of VMLM allows for a total of 31 personnel within the Waste Management Department as depicted by Figure below.

Figure 7: Vuyisile Mini Local Municipality: Environmental Management Organogram



10.3 Waste Collection and Transportation



10.3.1 Waste Containers

Waste containers are the primary units for any waste collection system and these can be used everywhere where waste is likely to be generated i.e. at source such as schools, shopping centres, offices, roadside or street side, public areas such as parks, rest stops, hospitals, nursing homes — the list goes on and on. Waste containers can be almost any size, shape or colour ranging from small plastic bags to much-larger containers.

The choice of receptacle is dependent on a number of factors including but not limited to the following:

- Type of waste to be collected for example if the waste stream is compactable or non-compactable Waste can influence the choice of receptacle.
- Amount of waste to be collected (quantities).
- Whether source separation system is employed or waste is intended for separation and recycling.
- Types of transportation vehicles and equipment available.

The various types of bins, skips and containers differ in cost implication.

Types	Variations	Suitability
<p>Drum Bins</p> 	<ul style="list-style-type: none"> ❖ 240lt Otto Bin (Wheeled bin, with lid) ❖ 210lt Drums ❖ 85lt Bins 	<p>Households</p> <p>Street Shopping malls</p> <p>Public places</p>
<p>Bulk Containers (Skip bins)</p> 	<p>6m3 Bin Dimensions (m) –3.65(l) x 1.88(w) x 1.28(h)</p>	<p>Heavy Waste e.g. Building rubble</p>

	9m³ Bin Dimensions (m) – 3.65(l) x 1.70(w) x 1.62(h)	Lighter waste e.g. garden refuses, ash.
	11m³ Bin (Dimensions (m) – 3.65(l) x 1.70(w) x 1.82(h)	Sawdust/wood/light industrial waste
	15m³ Bin (Dimensions (m) – 4.77(l) x 1.66(w) x 2.13(h)	Low density high volume products

Table 11: The various types of bins, skips and containers

Vuyisile Mini LM provides the households with black bins. The public places and business centers are provided with drums.

Types	Variations	Suitability
Drum Bins 	<ul style="list-style-type: none"> ❖ 240lt Otto Bin (Wheeled bin, with lid) ❖ 210lt Drums ❖ 85lt Bins 	Street Shopping mallsPublic places
PVC Bins and Steel Bins	6m³ Bin Dimensions (m)	Households

	<p>– 3.65(l) x 1.88(w) x 1.28(h)</p>	
	<p>9m³ Bin Dimensions (m)</p> <p>– 3.65(l) x 1.70(w) x 1.62(h)</p>	<p>Lighter waste e.g. garden refuses, ash.</p>
	<p>11m³ Bin (Dimensions (m))</p> <p>– 3.65(l) x 1.70(w) x 1.82(h)</p>	<p>Sawdust/wood/light industrial waste</p>

Table 12: Vuyisile Mini types of bins

Waste collection throughout the VMLM varies considerably, this usually being dependent on accessibility of areas by the (residential) and (commercial) Rear End Loader mobile compactors (or also referred to as RELs). The type of wastes collected, and the frequency of collection for each areas within the VMLM, is depicted in Table. The main reason for limited or no waste collection is also indicated.

Table 14: Waste types collected and frequency of collection within VMLM

Area	Waste Type	Collection Frequency	Comment
Cofimvaba	Domestic, Commercial, Garden and Industrial	Once a week (formal residential areas) Daily on CBD and formal business	There is a formal street cleansing service for the CBD area
Tsomo	Domestic, Commercial, Garden and Industrial	Once a week (formal residential areas) Daily on CBD and formal business	There is a formal street cleansing service for the CBD area

Other (informal residential areas)	Domestic, Commercial, Garden and Industrial	Three time a week	Informal settlements are serviced using communal Skip bins
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Table 13: Waste types collected and frequency of collection within VMLM

10.3.2 Waste Transportation

Tractors and trailers are used for waste collection purposes within the Vuyisile Mini Local Municipal Area. However, these vehicles are not used for waste management purposes only but also in other areas within the municipal management structure, wherever required. Vuyisile Mini LM also has compactor trucks and a cage truck.

Type	Application	VEHICLE CONDITION		
		Poor	Fair	Good
1xTractor and Trailer	Refuse Removal		<input type="checkbox"/>	
2xCompactor Truck	Refuse Removal		<input type="checkbox"/>	
1xCage Truck	Refuse Removal		<input type="checkbox"/>	
1xOnsite Refuse Compactor	Refuse Storage		<input type="checkbox"/>	

Table 14: Summary of equipment for Vuyisile mini LM

10.4 Waste Disposal by Landfill

10.4.1 Cofimvaba Landfill Site

The landfill site at Cofimvaba is permitted by the Department of Economic Development, Environmental Affairs and Tourism, in terms of Section 49(1) (a) of the National Environmental Management: Waste Act (Act No.58 of 2008). Cofimvaba landfill site permit license has expired. Renewal processes has started and engagements with the relevant departments (DEDEAT, DWS & the municipality) is ongoing.

Landfill site is well fenced; no informal recyclers. A permitted general waste is disposed of in the landfill site. The type of waste that was observed in the landfill site ranges from:

- Paper
- Cardboards
- Plastics
- Cans
- Glass
- Building Rubble
- Tyres
- Garden/Green waste
- Batteries

The buffer zone is approximately 2km from the residential area.

The main method of landfill is by cell, the waste is daily covered by cover material.

Position of site:	North East of Cofimvaba CBD
Permit validity:	2011-2021 (Renewal processes are ongoing)
Year issued & License number	2011 License no. EC/CH/A/15/001-2011
Classification of site:	G:C:B+
Site owner/permit holder	Vuyisile Mini Local Municipality
Type of Operation (end – tip, trench, cell):	The waste is currently disposed of in an unorganised manner due to the lack of airspace. There is adequate cover stockpiled but cannot be used due to lack of airspace. A landfill compactor is not available on site and other equipment.
Estimated size of site:	34,040m ²
Resources (Plant, personnel)	Plant: Refuse compactor, water tank, 1 Tractors and trailers, 2Compactor trucks, Cage truck Personnel: Environmental Manager and Environmental Officer ,landfill supervisor
Estimated remaining life of site:	15 years

Access (Signage, fencing, controls)	The main access road from Cofimvaba. There is a signage on this road indicating the landfill site access road. The gravel access road from the main road to the landfill is inaccessible during wet periods. The on-site roads are in good condition. There is a notice board at the site. The site is well fenced.
Infrastructure (Offices, ablutions, etc)	There is an office with ablution facilities at the entrance to the site. There is a contaminated water/leachate pond.
Traffic (Roads, signposting, controls, etc)	The roads on the site are well maintained, this makes access easy. There is site signage and a spotter present to direct incoming traffic.
Aesthetics and Nuisances (Dust, odours, litter, visibility, etc)	The landfill site is operated according to the permit requirements and it is inspected quarterly by the Chris Hani DM and annually by DEDEAT.
Separation of fresh and contaminated water:	No
Groundwater monitoring:	No
Volumes per day, week or month:	Average monthly volume is 170 Tonnes.
Is cover material available?	Yes
Is the drainage sufficient?	No
Is there access control?	Yes
Is the site fenced?	Yes
Does the site have a sufficient buffer zone?	Yes (2km)
Type of equipment utilised on site:	Refuse compactor, water tanker
Operating hours:	Monday to Friday: 08:00-16:30 Weekends and Public Holidays: 08:00-16:00

Estimating cost for closure:	The Municipality must implement a cost estimation plan to facilitate budgeting for the closure and rehabilitation of the landfill site.
Saving plan for closure:	

Table 15: Status Quo of Cofimvaba landfill Site

A landfill site inspection, offered some different and additional information to the status of the landfill site. After a site assessment of the Cofimvaba Landfill Site, certain points outlined below were deemed to be of notable importance:

- There is a site office.
- There is an access gate and notice boards.
- There is leachate collection pond.
- There is separation at source and storage facilities for waste separated by VMLM sorters
- Compaction density is very poor.
- There is a weighbridge at the landfill site.
- Equipment is sufficient and is utilized properly.
- Leachate monitored and managed correctly.

Figure 8: Weighbridge at the landfill site



10.4.2 Tsomo Transfer Station

The Tsomo Transfer Station is registered according to Norms and Standards Ref: CHR/C(a)/1/2018 issued on the 26th June 2018. The transfer station functions as a temporary waste storage facility for waste collected in Tsomo. The waste is then transported to the main landfill in Cofimvaba.



Figure9: Tsomo Transfer Station

11. WASTE INFORMATION SYSTEM

VMLM has a WIS that is operational. VMLM is reporting the waste quantities using WIS monthly to South African Waste Information Centre (SAWIC). At the landfill site, the environmental officer is capturing the waste quantities to SAWIC which is automatically verified.

CURRENT TARIFFS STRUCTURE

Vuyisile Mini LM tariff structure indicates separate billing structures for residential and commercial zones. The table below shows the differences in billing between the different sectors for waste removal and disposal.

REFUSE REMOVAL	20024/25	2025/26	2026/27
Domestic consumers (per month for one removal per week)	R93	R97	R102
Additional removal (per load or part thereof)	R103	R107	R112
Commercial consumers small (per month for two removals per week) Banks, Flats, Restaurants, internet café, filling stations	R191	R200	R209
Commercial consumers medium (per month for two removals per week) Retail shops, furniture shops, pharmacy , boarding houses	R587	R613	R641
Trolley bin (rental per month per removal)	R191	R200	R209
Additional removal (per load or part thereof)	R230	R240	R251
Commercial consumers large (Daily per removal removal) hardwares, supermarket, multipurpose, shopping complex	R14 712	R15 374	R16 066
Skip bin (rental per month per removal)	R945	R987	R1 032
Additional removal (per load or part thereof)	R485	R507	R530
Government Departments (Schools, Hostels, SAPS, Prison etc) per month	R1 026	R1072	R1120
Government Departments (Prison, Hospital etc) per month	R7 662	R8 006	R8 367
Additional removal (per load or part thereof)	R255	R267	R279
Garden refuse (per load to be paid in advance)	R255	R267	R279
Building Rubble fine per day	R769	R804	R840
Cleaning of Ervin (per load to be paid in advance)	R444	R464	R485

Table 16: Refuse removal and disposal tariffs (Image as provided by VMLM)

(Source: Vuyisile Mini Local Municipality)

12 INDUSTRIAL WASTE AND MINING WASTE

There are no major industries or mines that operate in the Vuyisile Mini Local Municipality. Therefore, the possibility of hazardous industrial or mining waste disposal on the landfill sites is minimal. The Municipality does not experience any problems with the disposal of hazardous waste on the landfills.

Once access to the disposal sites is properly controlled, the disposal of any possible hazardous waste on the adisposal sites would be prevented. Industries should be informed about the hazardousness of certain waste streams e.g. fluorescent tubes, empty paint containers, asbestos waste etc. The DEA has policies to deal with these specific waste streams. Fluorescent tubes for example in large quantities must

be crushed, treated and disposed of at a Class H:H disposal site. Empty paint containers should be rinsed with water holes punched into the containers and can then be disposed of at the General landfills.

An assessment to provide detail regarding light industrial waste streams would not be required by theWIS, but it is important to deal with these waste streams in accordance with authority policies when large volumes had to be disposed of. It is a fact that low percentages of these waste streams are disposed of with general waste on ad hoc occasions at the general landfills, and is impossible to control. The impact from these waste streams will be minimal unless disposed of in large quantities, which should then be prevented with proper access control at the disposal sites.

13 MEDICAL WASTE

There are a total of 10 healthcare facilities (mobile, fixed clinics and district hospital) in the Vuyisile Mini Local Municipality area. The healthcare hazardous waste (medical) is collected the by Compass Waste, which is contracted by the provincial health department. This means that as mentioned before, this type of waste stream falls outside the scope of the municipalities waste management system.

14 ILLEGAL DUMPING

Illegal dumping is widespread throughout the Vuyisile Mini Local Municipality. The picture below shows the illegally dumped waste. The dumped waste is the mixture of garden and domestic waste. The municipality does have by-laws that restrict the illegal dumping of waste, a bylaw enforcement unit has been established to enforce the by-laws.

Figure 10: Illegal dumping in close proximity to the Cofimvaba landfill site



15.GAP ANALYSIS AND NEEDS ASSESSMENT

15.1 Gap Analysis

In undertaking an investigation of this nature, to come up with suitable strategies (IWMP) to manage waste in line with all structures and legislation, it is to be expected that several gaps in information and waste management aspects exist. That is why it is important to structure Goals and Objectives in accordance with the Government's strategy of waste management and minimization. The official hierarchy adopted in the Government waste management strategy, in order of preference, is as follows:

- Waste avoidance
- Waste minimisation
- Waste re-use
- Waste recycling
- Waste treatment
- Waste disposal

This hierarchy remained central with the compilation of goals and objectives for the Vuyisile Mini Local Municipality that are discussed below. In addition, several gaps, backlogs and inadequacies in wastemanagement were identified. The main gaps in information and waste management aspects are set out in the subsections below.

15.1.1 Population Information

Typically, data on population is difficult to obtain as the growth and movement of the population is constantly changing. In the Vuyisile Mini situation, there is not enough, accurate information on the population distribution, with particular reference to the rural component.

15.1.2 Legislation

At a national and provincial level, certain legislation exists that governs waste management (See Section 4). The recent promulgation of the Waste Act, which consolidates national waste legislation, is significant and once it comes into full effect, will address waste management at all levels of government and the society at large. The current Vuyisile Mini Municipal by-law structure and detail, is not adequate and thus does not provide a legal basis for enforcement and monitoring.

15.1.3 Waste Collection Services – Current

While there is an existing waste collection service, this is not adequately serving the needs of all the residents and businesses. With only about ¼ of households within the VMLM receiving waste collection services from the Municipality, backlogs are a major concern. The gap in terms of waste collection services is made up of:

- Inadequate legal framework with by-laws that are difficult to enforce
- Lack of co-operation on the part of business users
- Lack of waste services in certain peri-urban areas
- Insufficient waste management equipment and vehicles to meet the growing demand for waste services.

15.1.4 Waste Collection Services – Future plans

Shortage of waste management vehicles has/have been identified in the Integrated Development Plan as well as the Intergrated Waste Management plan as some of the priorities for the municipality. The specialized vehicle for waste management is needed to expand the provision of waste collection services to the un – serviced poor household. The number of the un-serviced poor household's current is standing at 33 351 households and with the purchase of one truck the municipality will extend waste collection services to 2000 un serviced poor households.

15.1.5 Waste Disposal

(a) Transfer station

The transfer station in Tsomo is registered according to the norms and standards.

(b) Disposal Site

Although the disposal site has been subjected to audits, there are still some minor areas that need improvement. There is minimal ground water monitoring and leachate collection and monitoring, illegal dumping is evident in the access road to the site. Inadequate cover material and no monitoring plan.

15.1.6 Finances

Vuyisile Mini Local Municipality needs to revise the tariff structure to cater for the rural areas. This can be achieved by improving the indigent registry. Update the by-laws to encourage the rates payment by enforcing non-payment penalties. The budget for waste management services department need to berevised (increased) to include, salaries, equipment, operational and maintenance of landfill site and transfer station.

15.1.7 Waste Minimisation and Recycling

There is waste minimisation or recycling programmes in place which have been initiated or are managed by the Municipality, such as the waste recycling facility in the landfill site in Cofimvaba.

15.1.8 Education and Awareness

Vuyisile Mini has implemented awareness programmes with the assistance of the Department of Forestry Fisheries and the Environment (DFFE) Youth Environmental Coordinators. The municipality also participates in DEDEAT programs such as honoring of Environmental calendar eg Environmental month and Arbor week. The purpose hereof is to inform the users about environmental management issues and to promote appropriate waste management practices.

16. GOALS AND OBJECTIVES

16.1 Disposal Infrastructure Development

This section relates to the development, upgrading and legalisation of the disposal infrastructure. This includes the identification of new infrastructure required, the permitting of existing unlicensed facilities, upgrading of the current infrastructure as well as the improvement of management practices at the various locations. The Goals and Objectives are summarised below in Table 17:

GOAL	
Upgrade and Maintain Disposal Infrastructure to meet the required Standard. Develop additional infrastructure to suit.	
NEEDS AND GAP ANALYSIS	OBJECTIVES
LANDFILL OPERATION	
<ul style="list-style-type: none"> • Improve ground water monitoring • The existing cell has reached a capacity and needs to be rehabilitated. • New cells to increase capacity are required <p>LANDFILL SITE</p>	<ol style="list-style-type: none"> 1. Upgrade and improve Management of the landfill to comply with the Minimum Requirements and Permit Conditions. 2. Maintain landfill once it has been upgraded. <ul style="list-style-type: none"> ▪ There is need to develop a maintenance and operation plan. ▪ Audit reports must include ground water monitoring plan. ▪ A new cell needs to be constructed ▪ Develop a rehabilitation plan for existing cell. ▪ Record keeping is an important requirement. ▪ Cover needs to be applied daily and weekly.
RECORD KEEPING	
The current record keeping strategy at the Vuyisile mini Landfill Site needs improvement to incorporate waste quantities collected per service point.	Establish means to accurately measure the quantity of the differing waste streams collected and disposed of at the landfill site, in addition to the existing method.

GARDEN REFUSE	
There is currently no strategy for the garden refuse in the Vuyisile Mini Local Municipality	<ol style="list-style-type: none"> 1. Development of an effective and sustainable composting strategy 2. Ensure once the strategy is in place that it is properly maintained.
NEW DEVELOPMENTS:	
There should be provided for the expected future developments within Vuyisile mini Municipal Area (development of low housing units already identified)	<ol style="list-style-type: none"> 1. Incorporate the new developments for service delivery.
BY-LAWS:	
Although there is a waste bylaw in place pertaining to dumping, littering and waste collection. Vuyisile Mini Local Municipality needs by-laws that address issues such as waste minimisation and recycling, to enforce non rate payers to pay and also to enforce polluter must pay policy.	Develop By-Laws to include such issues as waste minimisation, waste information systems, recycling etc.
Municipal Forward Planning	
Currently not all-strategic planning initiatives for the municipality are reaching relevant service delivery departments.	<ul style="list-style-type: none"> ▪ There is need to integrate development planning objectives for the municipality to ensure that all service delivery departments (Cleansing in particular) are aware of and have commented on development proposals (i.e. planned housing developments, industrial areas etc.)

	<ul style="list-style-type: none"> ▪ Locations or areas where cleansing is failing to provide a service due to poor road infrastructure is to be communicated to the relevant department for prioritization on the municipal IDP (i.e. roads upgrading). ▪ Housing and land reform process to be communicated to the cleansing department for the provision of waste services.
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Table 17: Goals and objective for the Disposal Infrastructure Development

As stated in the Status Quo Section, the allowable amount of receptacles utilised per collection service point is unlimited. By establishing proper access control, accurate records can be kept of both the waste tonnages and type of waste disposed at the Landfill Site. Record keeping also enhances the effectiveness of other waste strategies such as recycling, composting etc. by enabling operators to determine future sustainability.

Some of the new developments have been identified but new developments will continually take place. Once identified and the service requirement of the new development are known, the capacity of the current waste disposal service should be assessed to see if it can accommodate the new development. If the current service has the capacity then the new development should be included in the current waste disposal strategy. If the current service does however not have the capacity then the existing strategy for the waste disposal of that area should be upgraded and updated. It should be determined what resources need upgrading and the waste disposal strategy should be adjusted accordingly.

16.2 Waste Collection Infrastructure

The shortcomings in the available collection infrastructure have been identified. This will involve possible fleet shortages, receptacle placement and route planning. Table 18 below is the summary of the goals and objectives for the Waste Collection Infrastructure:

GOAL	
Provide an effective waste collection service throughout the Vuyisile Mini Local Municipality.	
NEEDS AND GAP ANALYSIS	OBJECTIVES
COLLECTION OPERATION:	
A standardised level of service throughout the Municipal area that will be able to incorporate new Developments	<ol style="list-style-type: none"> 1. Standardise collection service and optimise the collection route and provide a regular waste disposal service to all residents of the Vuyisile Mini Local Municipality. 2. Optimise the waste collection strategy to ensure a continued cost effective service. (Without creating an environmental hazard). The waste collection strategy should be revised and adjusted to include service delivery to new developments. 3. Ensure each household is in possession of suitable receptacles to ensure an effective collection service is rendered.

Table 18: Goals and objectives for the Waste Collection Infrastructure

The waste collection strategy is currently functioning well but it needs to be updated and upgraded in order to take into account all future and present changes within the Municipality. Waste minimization strategies such as the recycling project as well as future planning for composting, new developments and improvement of the existing disposal infrastructure will all impact on the waste collection system. An extra vehicles will be required in order to be able to improve and provide waste collection services to the unserved areas of both Tsomo and Cofimvaba. Additional personnel will also be required for the improved and extended waste management services. The aim is to provide an effective waste collection service throughout the Vuyisile Mini Local Municipality. The type of service will be dependent on the relevant logistics.

16.3 Resource Extension

The shortcomings in the human and equipment resources are identified and strategies are developed to ensure that the requirements are satisfied. The existing financial resources are analysed and new structures and strategies are developed. Table 19 below is the summary of the goals and objectives for Resource Extension:

GOAL	
Develop and Extend resources sufficiently to provide a basic service to all and to comply with legislative requirements.	
NEEDS AND GAP ANALYSIS	OBJECTIVES
HUMAN RESOURCES:	
Additional personnel will be required for improvement and extended service delivery	Ensure that the staff complement complies with current and future service delivery requirements for the Vuyisile Mini Local Municipality.
FINANCIAL RESOURCES:	
Additional financial resources for all budgetary constraints and for the implementation of new projects such as possible composting facilities are required.	Ensure sufficient Financial Resources are available in order to provide a proper waste disposal service to the community.
WASTE MANAGEMENT OFFICER	
The municipality have a Waste Management Officer as stipulated in the Waste Act	
EQUIPMENT RESOURCES:	
The old equipment should be replaced. The equipment used for multiple municipal services. There should be	Ensure sufficient equipment availability in order to deliver a continued waste disposal service.

provided for the replacement of these vehicles in the near future as well as for additional equipment that will be required for an improved and extended waste management service.	
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Table 19: Goals and objectives for the Resource Extension within the VMLM

Human Resources

The aim is to ensure continued service and effective skills transferring by planning and structuring of the staff complement. Continued training and succession planning has been identified as crucial to maintain a competent and capable pool of employees.

Financial Resources

Tariff structures should be structured to ensure self-sufficiency of division and continued feasibility. Alternative funding strategies must be investigated for the funding of new projects aimed at waste minimisation and composting.

Equipment Resources

The main area of concern is the additional equipment that is needed in order to provide a continued waste disposal service to the inhabitants of the Vuyisile Mini Local Municipality. Currently the existing equipment is sufficient to provide for the existing service delivery requirements. However, changes for improvement of the existing services as well as new developments will require additional equipment in order to continue providing an effective service to the community of Vuyisile Mini LM. The Municipality continues to source out funding for specialized vehicles for waste management including the landfill site management. The specialized vehicles will assist in the landfill site operations (waste separation, covering and compaction of the cell, road mantainance inside the landfill site and transfer station and mantainance and redirection of surface runoff to the leachate dam). The specialized vehicles needed for waste management include Dozer, tipper truck, Excavator, TLB and refuse compactor truck. The purchasing of specialized vehicles will lead to the extension of waste management services to the informal settlements. The lifespan of the landfill site will also be extended due to operations line waste sorting, Reuse and recycling.

16.4 Waste Minimisation

The identification of specific waste minimisation strategies, whether it is separation and collection at the source, privatisation of reclamation activities, development of collection points throughout the area aswell as public awareness/education strategies. Table 20 below is the summary of the goals and objectives for Waste Minimisation:

GOAL
Vuyisile Mini Local Municipality should consider developing a recycling strategy

NEEDS AND GAP ANALYSIS	OBJECTIVES
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WASTE MINIMISATION STRATEGY	
<ul style="list-style-type: none"> ▪ Municipality does not have a recycling policy ▪ Municipality does not make available containers for recycling as per the Waste Act (Refer to Section 23.2 of the Waste Act). ▪ Municipality does not designate waste streams for recycling at source. ▪ There is no recycling of waste oil in the municipality. 	<ul style="list-style-type: none"> ▪ Municipality should consider developing a recycling policy for the municipality. The policy should include the municipality obligations in terms of the Waste Act. ▪ Municipality as far as is reasonably possible is to provide/ make available containers for recycling various waste streams in urban areas and retail trade hot spots in terms of its obligations as per the Waste Act (Refer to Section 23.2 of the Act). ▪ Predominant waste streams to target for recycling as identified in this include paper (various grades), plastics (various), metals, glass, and used oil. ▪ Considerations for the possible establishment of a number of waste transfer stations in key locations of the municipality must be considered. ▪ The municipality should consider providing a receiving area for the public or within an industrial area where waste oil can be dropped off. The municipality would need to consider if they would sell the used oil.

Even though VMLM does have a by-laws pertaining to waste management, it minimally addresses waste minimisation and recycling.	Address issues of waste minimisation in the revised set of By-Laws.
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Table 20: Goals and objective for Waste Minimisation

In the light of the Polokwane Declaration, the Waste Hierarchy generally accepted the national waste management strategy and the Government drive towards waste minimisation as well as the expected Waste Management Bill to be promulgated early 2005; this aspect of the waste management services should receive specific attention. Both a reduction of waste produced/generated as well as a reduction of waste disposed at landfills should be considered.

A fact that the minimisation strategy should take cognisance of is that any waste minimisation and recycling strategies amongst the general public is generally driven by an associated financial incentive. Waste minimisation and recycling is not considered as a source of income for the Vuyisile Mini Local Municipality since the market for recyclables is unpredictable. Waste minimisation may be a cost saving exercise in terms of less waste that needs to be disposed of. A further possible waste minimisation activity could be the development of a composting plant. A composting plant will assist in minimising the quantity of garden refuse that lands up on the landfill sites and it will promote recycling of organic waste material.

16.5 Management of Illegal Dumping Activities

As stated in the Status Quo Section, the Vuyisile Mini Local Municipality experience major problems regarding illegal dumping activities. In all the towns and their respective townships, illegal dumping is common. There are no skips put in strategic places in the Municipality. The Municipal By-Laws should however be revised to address enforcement of this issue in case of any future problems.

GOAL	
Revise by-laws to include the enforcement of illegal dumping by imposing penalties	
NEEDS AND GAP ANALYSIS	OBJECTIVES
ILLEGAL DUMPING	

<ul style="list-style-type: none"> ▪ Illegal dumping appears to be a widespread problem in some areas of the municipality. ▪ Public areas such as taxi ranks are not provided with waste bins. 	<ul style="list-style-type: none"> ▪ It must be kept in mind that taxi rank projects, and market development activities are magnets for formal and informal trade activities, which in themselves generate waste. ▪ Where there are areas with no waste collection service, provision of a skip or other container should be made.
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	<ul style="list-style-type: none"> ▪ Apart from a skip, the area should have a street sweeping service. ▪ Measures to counter act illegal dumping to be considered (instituting waste collection service in affected area especially where no service previously existed, creating education and awareness).
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Table 21: Goals and objectives for Management of illegal dumping activities

16.6 Waste Information System

There is a need for effective record keeping and development of a Waste Information System, the sharing of available information as well as cooperation of the various stakeholders within the municipality. The Waste Information System goals and objectives are summarised below in Table 22.

GOAL	
Establish a fully integrated waste information system to facilitate planning, decision-making and information sharing with the relevant authorities, internally and to the public.	
NEEDS AND GAP ANALYSIS	OBJECTIVES
WASTE INFORMATION SYSTEM (WIS):	

<p>Vuyisile mini is registered with SAWIC. The South African Waste Information System (SAWIC) developed by the Department of Environmental Affairs (DEA) in 2005, is a system used by government and industry to capture routine data on the tonnages of waste generated, recycled and disposed of in South Africa on a monthly and annual basis.</p>	<p>Develop and maintain a comprehensive waste information system (WIS) that can be used for report generation at municipal level.</p> <p>Develop and implement information dissemination strategies between all stakeholders.</p>
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Table 22: Goals and objectives for Waste Information System of Vuyisile Mini LM

The main objective would be to keep comprehensive records of waste disposal and collection on which informed decision-making can be based and to comply with the reporting requirements of the relevant authorities such as DFFE. The secondary objectives are to improve information sharing amongst all other stakeholders and interested parties such as residents and business located in the municipal area.

17. IMPLEMENTATION PLAN

The primary purpose of Vuyisile Mini Local Municipality entering into an Integrated Waste Management Planning process is to give effect to the goals and objectives of the NEMWA. Apart from merely attempting to achieve legal compliance with the Act, this IWMP is also aimed at elevating waste management practices within the municipality, beyond a 'compliance achievement' based approach, towards an environmental, economic and social best practice approach to managing waste within Vuyisile Mini Local Municipality over the next 5 year planning horizon. This Implementation Plan put forward a series of so-called 'priority' projects required for implementation by the municipality. In many instances, full co-operation from the relevant Department's responsible for directing and financing waste management, at a Local Government Level, will also be required to ensure the compliant implementation of the IWMP by the local municipality.

The Implementation Plan is the end result of the IWMP development process (apart from implementation and yearly monitoring thereof) and outlines the sequential role out of identified priority projects over the 5 year planning horizon determined for this IWMP. The identified priority projects deemed necessary to elevate the standard of waste management practices within the municipality are staggered over a 5 year period due to anticipated budgetary constraints that limit the possible implementation thereof over a shorter time-frame

17.1 Integrated Waste Management Plan Projects

The following tables present an overview of the priority projects that have been identified for implementation by the municipality. The table below aim to provide an overview and preliminary terms of reference for the relevant role players to initiate the necessary projects and project specific objectives. These objectives should be achieved by the implementing agents identified, and will be structured according to the three pillars of the National Waste Management Strategy 2020 i.e: **1st Pillar:** Waste Minimisation **2nd Pillar:** Effective and sustainable waste services **3rd Pillar:** Compliance, enforcement and awareness. Please note that the project costs indicated within each table are an estimated project cost to facilitate discussion over the practical implementation of the Implementation Plan.

17.1.1 Projects on Waste Minimisation-1st Pillar

1	PROJECT NAME: CBD RECYCLING PILOT PROGRAMME			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)

	<p>The VMLM should consider establishing a domestic waste recycling centre at a centrally located point within the Municipality. The project itself and the development learning curve associated therewith should be used to guide and inform the possible role out of similar projects throughout all major CBDs within the VMLM. The VMLM should consider possibly renting a relatively centrally located piece of un- used municipal land, as part of a PPP, at a nominal rate to a 'Private' party. The VMLM would need to take responsibility for the site itself and ensure that all necessary licenses and permits are in place prior to the establishment of the recycling/buy-back centre.</p>	<p>To promote recycling "at source" within the VMLM CBD's and save available landfill airspace. To create permanent employment opportunities within the ILM.</p>	R1 000,000.00	<p>One year for planning and implementation of VMLM Pilot Project. 18 Months for roll out of similar such initiatives (based on the success of the pilot) into other VMLM CBDs.</p>
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2	PROJECT NAME: ESTABLISH BUY-BACK CENTRE			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	<p>The Local Municipality to establish at least 1 pilot buy back centre.</p>	<p>To initiate and encourage recycling within the local municipality and for job creation</p>	R1 000,000.00	12 months

3	PROJECT NAME: ESTABLISH A PILOT COMPOSTING FACILITY			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	<p>This priority project would require the undertaking of all steps instrumental to the planning process for the composting operation and would include <i>interalia</i> the following key components: Development of financially sound business model; Site selection process for the composting operation; Attaining any licensing or environmental authorizations required to ultimately establish the composting site; Exploring mechanisms to source, transport and handle optimal amounts of compostable materials; Examining infrastructure requirements to address logistical needs (incl. consideration of requirements for drop of centres for garden waste); Exploring different composting methods to determine the most suitable method to local conditions; Determination of operational requirements; and Establishing the end user market needs and potential buyers.</p>	<p>To encourage composting within the VMLM To encourage sustainable livelihood through communities establishing vegetable gardens etc</p>	R1 200,000.00	3 Months

4	PROJECT NAME: EMPOWERMENT OF INFORMAL RECYCLING GROUPS			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The Local Municipality to ensure that informal recyclers are organized into coordinated programme. Provide training and capacity building for informal recyclers.	Encourage recycling within the communities, Empower Informal recyclers Establish Informal recyclers forums	R100,000.00 per annum	Ongoing
5	PROJECT NAME: PILOT MATERIAL RECOVERY FACILITY STRATEGY (MRF)			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The VMLM should explore the option of developing a Private Public Partnership (PPP) for the development and operation of aMRF within its jurisdiction.	To use this project as a pilot project to streamline and “fine tune” the potential establishment of similar such projects (MRF’s). The project should present no financial burden it should represent a sustainable model for implementation wherever possible throughout the VMLM. To develop Materials Recovery Facility strategy document	R2 500,000.00	Ongoing 12 months for the development of the document.

17.1.2 Effective and sustainable waste services- 2nd Pillar

1	PROJECT NAME: RECRUITMENT AND TRAINING OF WASTE MANAGEMENT OFFICIALS			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	<p>The VMLM, based on: Available operational budgets;IWMP project staffing requirements; and Existing staff compliment and technical capacity thereof, must recruit and train additional staff required to implement and monitor the Implementation Plan for this IWMP and associated projects. In accordance with NEMWA, the creation of a post of waste management officer at local, provincial and district levels.</p>	<p>To ensure that additional staff is appointed in order to see out the successful implementation, management and monitoring of the IWMP and associated projects.</p>	2 000 000	1 year
2	PROJECT NAME: ROUTE PLANNING			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	<p>Development of route plans for collection of general waste, in the VMLM, using GIS to optimise the efficiency of existing route plans. This will aim at reaching areas that are not reached due to inaccess of roads and poor planning.</p>	<p>To optimise the travel time/distances of collection vehicles within the VMLM, to ensure that the determined collection routes are the most financially viable/sustainable.</p>	R2 000,000.00	6 months

3	PROJECT NAME: FBRR SERVICE
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	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	Municipality to consider extending indigent policy towards waste management activities.	To ensure that all areas have been serviced in terms of waste management	R2 000,000.00	Years

4	PROJECT NAME: WASTE MANAGEMENT BY-LAW DEVELOPMENT			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	<p>The VMLM should develop and gazette 'generic' set of By-Laws tailored at addressing the VMLM waste management needs and issues. The By-Laws should thus be developed in consultation with the different stakeholders. The said By-Laws should be geared towards the following key deliverables:</p> <ul style="list-style-type: none"> • Tackling illegal dumping (especially in light of tariff evasion); • Determination/setting of penalties for offenders; • Specifying residents' rights and responsibilities, in terms of waste collection and end disposal; and • Specifying businesses rights and responsibilities, not only in terms of waste collection and end disposal, but also in terms of target setting for recycling by businesses within the municipality. • Following the development of the By-Laws the VMLM will have a specific window in which they need to adapt (if at all necessary) the By-Laws and implement/enforce them within their own respective jurisdictions. • • 	<p>To create a standard set of local By-Laws against which local residents' waste management responsibilities within the VMLM should be managed, and that sets out clear and standardised penalties for 95 offending parties</p>	R500,000.00	1 year 6 months
5	PROJECT NAME: LANDFILL AIRSPACE AUDIT (EXISTING LANDFILLS)			

	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The Local Municipality is required to appoint a qualified environmental consultant to conduct a landfill airspace audit for their respective landfill site/s.	To allow for informed future landfill planning in relation to the amount of remaining available airspace.	R500,000.00	8 months
6	PROJECT NAME: LANDFILL AUDITS AND DEVELOPMENT OF LANDFILL COMPLIANCE MANAGEMENT PLANS (EXISTING LANDFILLS)			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The VMLM is required to appoint an appropriately qualified specialist/auditor to assess the compliance of current landfills with the conditions of their permitting and with the principles and guidelines prescribed in DWAF's Minimum Requirements for waste disposal by landfill. Whilst the <i>Status Quo</i> Report highlights deficiencies in current management practices and allows for current remedial action within the VMLM, the required audit should also put forward a proposed plan of mitigation for each non-compliance encountered on the landfills at the time of the audit. The said Landfill Audit Reports must be submitted to the relevant National and Provincial Authorities responsible for regulating and monitoring landfills, within two months of the Report having been finalised by the independent auditor.	To highlight landfill management non-compliances, with a view to addressing the current challenges and achieving compliance to the conditions of landfill permitting.	R2 000,000.00	6 months

17.1.3 Compliance, Enforcement and awareness projects- 3rd Pillar

1	PROJECT NAME: EMPOWERMENT OF INFORMAL RECYCLING GROUPS			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The Local Municipality to ensure that informal recyclers are organized into coordinated programme. Provide training and capacity building for informal recyclers.	Encourage recycling within the communities, Empower Informal recyclers Establish Informal recyclers forums	R100,000.00 per annum	Ongoing
2	PROJECT NAME: AWARENESS, TRAINING AND CAPACITY BUILDING			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The Municipality should develop a Public Awareness / Education Strategy aimed at promoting awareness over waste management related issues within the VMLM. The strategy should, in particular, focus on bringing the attention of residents residing in the VMLM to their applicable Local Authority's waste management by-laws. The strategy should be focused on identifying priority focus groups within the VMLM to target during active awareness campaigns.	To improve compliance by VMLM residents to their locally applicable by-laws. In particular, the potential penalties relating to illegal dumping should be clearly communicated. The project will ultimately be aimed at reducing the level of illegal dumping and littering within the VMLM, encouraging separation at source, as well as shifting the mindsets of residents in relation to issues of waste management	R80, 000.00 for strategy development; and R1 000, 000.00 / active awareness campaign (incl. 10% escalation year on year)	Ongoing

3	PROJECT NAME: PILOT MATERIAL RECOVERY FACILITY STRATEGY (MRF)			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The VMLM should explore the option of developing a Private Public Partnership (PPP) for the development and operation of aMRF within its jurisdiction.	To use this project as a pilot project to streamline and “fine tune” the potential establishment of similarsuch projects (MRF’s). The project should present no financial burden it should represent a sustainable model for implementation wherever possible throughout the VMLM. To develop Materials Recovery Facility strategy document	R2 500,000.00	Ongoing 12 months for the development of the document.
4	PROJECT NAME: LANDFILL SITE REHABILITATION & DEVELOP OF A NEW CELL			
	PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
	The municipality will prioritize and appoint a service provider that will focus on rehabilitating the old cell. The existing cell is full so, rehabilitation plans should be in order and its closure as well. Any project of sustainable environmental practice will permitted to be performed on the affected area (cell). Development of a new cell will be required as the old cell is full and due for closure.	To ensure that the state of the environment is restored , even if its not restored to the original state but atleast try and minimize the negative impacts caused by the activities that were practiced on the cell. Development of a new cell, as the old one has reached its maximum capacity.	R10 500 000.00	36 months

5	PROJECT NAME: ORGANISATIONAL DESIGN AND INSTITUTIONAL DEVELOPMENT			
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PROJECT DESCRIPTION	PROJECT OBJECTIVES	PROJECT BUDGET (Estimation)	PROJECT PERIOD (Estimation)
<p>The VMLM will need to develop and refine their organisational designs (in terms of waste management roles and responsibilities, leading to the implementation of the IWMP and increased efficiency of existing operations). Each municipality will need to take responsibility for reviewing their own existing structures, while effective communication and co-operation between VMLM will be essential in ensuring improved efficiency of the said structures. At present, no structures exist for “waste management” within the VMLM and will need to be developed as a matter of urgency and based on recommendations made in the IWMP.</p>	<p>To optimise efficiency within existing municipal structures (waste management), and to ensure sufficient institutional capacity to allow the appropriate implementation of the IWMP</p>	<p>-</p>	<p>Three Months</p>

Table 23: Integrated Waste Management Plan Projects

18 VUYISILE MINI LOCAL MUNICIPALITY IMPLEMENTATION SCHEDULE

The implementation of the above actions towards Integrated Waste Management Plan must be schedule a way that is realistic, achievable and financially feasible.

No	Activity	Mid Term		Long Term			5-10 Years	10-15 Years	High (H), Medium (M), Low (L)
		25/26	26/27	27/28	28/29	29/30			
1	TARIFF STRUCTURE REVIEW								H
2	ORGANISATIONAL DESIGN AND INSTITUTIONAL DEVELOPMENT								
3	WASTE MANAGEMENT BY-LAW DEVELOPMENT								H

4	CBD RECYCLING PILOT PROGRAMME									Low
5	LANDFILL AIRSPACE AUDIT (EXISTING LANDFILLS)									H
6	LANDFILL AUDITS AND DEVELOPMENT OF LANDFILL COMPLIANCE MANAGEMENT PLANS (EXISTING LANDFILLS)									H
7	RECRUITMENT AND TRAINING OF WASTE MANAGEMENT OFFICIALS									Low
8	ROUTE PLANNING									M
9	ESTABLISH BUY- BACK CENTRE									H

10	EMPOWERMENT OF INFORMAL RECYCLING GROUPS									M
11	AWARENESS, TRAINING AND CAPACITY BUILDING									H
12	PILOT MATERIAL RECOVERY FACILITY STRATEGY (MRF)									M
13	ESTABLISH A PILOT COMPOSITING FACILITY									H
14	FBRR SERVICE									H

Table 24: Vuyisile Mini LM Implementation Plan

19.1 Objectives of a Financial Plan

In terms of the IWMP, the objective of the financial Plan is to present guidance for key elements, which need to be considered for implementation of the IWMP. It is not the intention to develop detailed financial analyses for the plan, as such analyses would require far more detailed and comprehensive cost estimating information, and would be impractical at this stage, due to the large number of variables interms of implementation, as well as the variable factors (such as: subsidisation, contractual agreements, etc.), which exist in the VMLM.

19.2 Sources of Funding for Waste Projects

Financing sources for projects arising from the IWMP are discussed in the following paragraphs. This discussion is presented in two categories: domestic and international. The focus is on financing sources, which could potentially be accessed by the private sector. Financing sources for the VMLM could come from a number of areas such as provincial and national government, as well as international donors. It must however be noted that the South African government is familiar with financing opportunities for government-sponsored projects.

The sources listed below are not exhaustive. Further, it must be recognized that some sources could provide financing for project planning, while others may be suited to project implementation (particularly construction).

19.2.1 Local Funding Sources

- The Municipal Infrastructure Investment Unit (MIIU), a source for support for municipalities which are committed to investigating Municipal Service Partnerships;
- The Development Bank of Southern Africa (DBSA), willing to finance a portion of solid waste facilities;
- Municipal Infrastructure Grant (MIG) funding. This funding will be geared towards landfill construction; and waste management specialized vehicles
- The Industrial Development Corporation (IDC) publicly committed to funding infrastructure projects;
- Capital Expenditure Programme (CAPEX), which finances capital projects such as the development of buy-back centres;
- The South Africa Infrastructure Fund, which is composed of numerous insurance and pension fund members, with an interest in funding infrastructure projects in South Africa.

- Black Empowerment Groups (investment groups);
- Companies with international affiliations, which may have access to greater and/or lower cost capital through their international partners;
- Department of Trade and Industry / Department of Transport, through the Spatial Development Initiative, may provide support to initiatives which can encourage direct foreign investment;
- Department of Environmental Affairs through its social responsibility funding programme; and
- Buyisa-e-Bag funding. Though this funding is focused on collection and recycling of plastic bags, it could be accessed in the development of buy-back centres and material recycling facilities.

19.3 Government Funding Sources

19.3.1 National Treasury Funding

Since 2005, there has been a substantial increase in local government share mainly targeted towards the provision of free basic services and the extension of services to areas not presently serviced.

National transfers to local government are divided into three major categories:

- The Equitable Share Grant
- Infrastructure conditional grants (mainly the Municipal Infrastructure Grant)
- Capacity Building and Restructuring conditional grants

19.3.2 Equitable Share Grant

The Equitable Share Grant from national government is provided in support of the accelerated implementation of free basic services to poor households. All municipalities are therefore being pressurised by National Government to prioritise the provision of free basic services to poor households, including better targeting and performance reporting.

The Division of Revenue Bill has developed a new local government equitable share formula, which takes account of the particular Municipality's revenue raising capacity, as well as a two tier subsidy for serviced and un-serviced households. Of particular interest to waste management service provision are the new recommended service subsidies for serviced and un-serviced households.

Type of Households	Subsidy
Serviced households	R30 per household per month
Un-serviced households	R10 per household per month

Table 25: Recommended service subsidies

If the Municipalities access the Equitable Share Grant based on the above subsidies, there should be no reason why they cannot provide basic waste collection (door-to-door) and disposal services to all residents, through private sector (SMME) contractors. Even in the case of the un-serviced subsidy of R10, a communal skip system can be implemented for this amount.

The Equitable Share formula makes allowance for variations in functions performed between the District Municipalities (category C) and Local Municipalities (category B), with allocations directed to the Municipality that carries out that function.

19.3.3 Municipal Infrastructure Grant

According to National Treasury, the MIG complements the equitable share allocations to give effect to national objectives to:

- Expand the delivery of basic services to all households, including the delivery of free basic services to poor households and other poverty alleviating objectives; and
- Stimulate local economic development and job creation over the medium term.
- Municipalities are also required to use their capital budgets to promote labour-based infrastructure methods (Expanded Public Works Programme) for projects where this is appropriate. In direct contrast with the former CMIP funding, the MIG does not fund specific projects, but is designed to complement the capital budget of a Municipality. Reporting on MIG therefore focuses on the entire capital budget of a Municipality.
- The District Municipality has a responsibility to ensure that low capacity local municipalities are supported in their applications for MIG funds, and that they will comply with the requirements of the MFMA and the 2005 Division of Revenue Bill in terms of budgeting. Section 37(2) enables municipalities to receive MIG funding provided that they prepare sector plans showing how backlogs are being addressed relating to the key sectors such as electricity, water, sanitation, waste removal, roads and transport.
- Traditionally, MIG, IUDG and UDDG would only make provision for funding of fixed waste infrastructure such as landfill sites, transfer stations and recycling facilities. This has proven difficult for the majority of municipalities because waste management is different from other basic services that depend on connector infrastructure like pipes or cables etc. To move waste from points of generation to the disposal facilities, specialized trucks are needed. The DFFeE and SALGA successfully lobbied the national Treasury and Department of Cooperative Governance and Traditional Affairs (COGTA) to seek changes that would let municipalities use these conditional grants to buy specialized vehicles.

19.3.4 Capacity Building and Restructuring Grant

The capacity building grants were set up to assist municipalities in improving management, planning, technical and financial management skills and capacity for effective service delivery, with the major portions of grants flowing directly to municipalities. The following programmes are being supported from this grant:

- Financial Management Grant;
- Municipal Systems Improvement Programmes; and
- Restructuring Grant.

19.4 International Funding Sources

In addition to locally available funding mechanisms within South Africa mentioned above, there are a number of international finance houses and donor agencies who are playing key roles in the waste management and environmental sector in South Africa and these include:

- International Finance Corporation (IFC), a member of the World Bank Group, a private sector division which finances private sector projects in developing countries and helps companies to access financing in international markets. It promotes sustainable private sector investment in developing countries as a way to reduce poverty and improve people's lives;
- The Southern Africa Enterprise Development Fund (SAEDF), which is a U.S. Government- funded, privately managed venture capital fund, which takes an equity position of up to 25% in its investments;
- New African Advisors, a U.S. based private venture capital fund with guarantees provided by the Overseas Private Investment Corporation (OPIC);
- The OPIC Global Environment Fund (GEF), a U.S. based investment fund which sponsors and manages investment entities with equity involvement in infrastructure projects; and
- Various U.S. based private investment funds, which have expressed interest in South African infrastructure projects.

The following agencies can assist in obtaining, structuring, and/or insuring investments:

- Various merchant banks in South Africa which have declared an interest in structuring financing for Municipal Service Partnerships;
- The Export-Import Bank of the United States (Ex-Im Bank), which helps to finance sales of U.S.A goods and services outside the U.S.A;
- The Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, which provides insurance to private investors against risks such as currency transfer, expropriation and civil disturbance, as well as technical assistance; and
- The Overseas Private Investment Corporation (OPIC), a U.S. government agency that provides both financing and insurance to U.S. companies involved in international investments

19.5 Risks Associated with Funding

A number of potential risks to investors for projects include such risks as construction risk, operational risk, regulatory risk, market risk, and political risk. A detailed risk analysis should however be part of a financial analysis of the various projects and elements of the project. The following discussion gives a brief description of the different risk groups listed above together with comments on mitigating the risks from the perspective of investors in private sector projects and/or Private Public Partnerships.

Construction risk is the risk that the project elements will not be constructed (or completed) on time, within budget, or to the parameters originally specified. This risk can be mitigated by various measures, including the use of qualified construction companies, the use of insurance, and the provision of bonus and penalty clauses in construction contracts.

Operational risk is the risk that the project elements will be faulty and not operate efficiently or within the parameters specified by the owner and/or by the regulatory agencies. A certain amount of operational risk is unavoidable, therefore lenders must protect their position through for example minimum debt service coverage ratio, limitations on capital expenditures, limitations on long-term debt, and limitations on guarantees.

Regulatory risk refers to the potential for the regulatory controls on the project elements to change during the life of the project, thereby influencing the requirements for project performance. Should the performance requirements change, the costs of investments for upgrading, and the increased operational costs, must be addressed. Strategies used to manage regulatory risk include the appropriate identification of responsibilities for upgrading in contracts.

Market Risk fluctuates depending upon the implementation model within which the project elements operate. For example, in an unregulated competitive market, such as the recycling market, the project faces risks related to the market size, the price, and the payments. However, if the market is regulated, the market size is controlled, and price and payments can be controlled through a regulatory agency. Several strategies are used by lenders to reduce market risks, including guarantees by government agencies, letters of credit, limitations on debt exposure, and independent appraisals.

Political Risk signifies a variety of potential events which can be triggered through local political actions, and which cannot reliably be predicted, such as: expropriation, confiscation and nationalization of assets; forced abandonment; currency inconvertibility; funds transfer risk; violence such as strikes, riots, civil commotion, or malicious damage. Certain political risks can be mitigated through insurance.

20 MONITORING AND REVIEW

Monitoring of the IWMP is an ongoing activity that will constitute an essential and integral part of the Integrated Waste Management planning process. A monitoring regime and criteria against which the plan will be monitored is largely dependent on the Implementation Plan and the monitoring and evaluation of the key projects detailed within this IWMP and subsequent revisions.

The primary criteria against which the implementation of this IWMP should be monitored are as follows:

- Compliance with time-frames prescribed for project implementation within the Implementation Plan of the IWMP.
- Achievement of objectives of proposed priority projects.
- Appropriate consultation with Interested and Affected Parties (I&APs), where appropriate and required, as part of project implementation prescribed by this IWMP Report and associated Implementation Plan.
- Project implementation within the prescribed (conservative) project budgets outlined within this IWMP Report.
- Initiative and ingenuity shown by the VMLM to source the funding required and;
- Supplementing budgets required to implement the Implementation Strategy.

21 CONCLUSION AND RECOMMENDATIONS

The Implementation Plan forms the backbone of the VMLM IWMP. The Implementation Plan is intended to provide a practical methodology for the successful roll out of identified priority projects that are aimed at addressing the VMLM's waste management needs at all tiers of the waste management hierarchy. Projects have been selected and 'staggered' over a 5 year planning time horizon based on their relative importance and funding requirements.

The intention of the Implementation Plan is not to burden the VMLM with administrative tasks and unrealistic expectations, but rather to promote a culture of skills development and capacity building within the respective organisations. This will allow them to improve drastically on current waste management practices and potentially profit from their efforts at the end of the planning time horizon. Municipality must expand the waste management to reach the underserved and un-served areas (Rural areas) through proper registration of the indigent communities.

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