



EMAKHAZENI LOCAL MUNICIPALITY

INTEGRATED WASTE MANAGEMENT PLAN (IWMP)

(Draft Report)

Complied through the use of the Department of Environment, Forestry and Fisheries' IWMP Portal

June 2020

Executive summary

An Integrated Waste Management Plan (IWMP) is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) which came into effect on the 1st of July 2009. Its goal is the transformation of the historic methodology of waste management, i.e collection and disposal, to a sustainable practice focusing on waste avoidance and environmental sustainability. The development of an IWMP is necessary as it is an integral tool to identify current needs related to Municipality's waste management service and acts as guide towards sustainable waste management in a Municipality. The compilation of this IWMP was compiled in-house with the assistance from the Department of Environment Forestry and Fisheries (DEFF), and it was compiled using the DEFF IWMP portal.

The following provides a summary of the status and recommendations made for the various waste management aspects in the Emakhazeni Local Municipality:

Status of waste disposal infrastructure

The Emakhazeni Local Municipality has four operational municipal solid waste disposal sites, those are: Belfast, Dullstroom, Waterval Boven and Machadodorp waste disposal site. Belfast, Dullstroom and Waterval Boven waste disposal sites have waste disposal licence with the exception of Machadodorp waste disposal site as the closure licence had expired.

The Emakhazeni Local Municipality's waste disposal sites are generally not well operated and the non-compliant waste disposal sites should be closed with formal closure process and the remaining waste disposal sites must be improved to comply with the waste disposal licence conditions.

In the case of the **Machadodorp waste disposal site**, the Municipality must reapply for the closure licence and carry on with the closure of the site. **Belfast waste disposal site**: construction is ongoing and it is at an advance stage. Required waste disposal site's resources must be provided to ensure that the waste disposal site is complying with the licence conditions. In the case of the **Dullstroom waste disposal site**, the Municipality must apply for the closure licence and carry on with the closure of the site. The **Waterval Boven waste disposal**, the Municipality must apply for the closure licence and carry on with the closure of the site.

The Municipality must consider constructing waste transfer stations at Dullstroom, Machadodorp and Waterval Boven after getting rid of the non-compliant waste disposal sites, a centralized area must be identified to construct a regional landfill site that will cater for the municipal solid waste collected around the Emakhazeni Local Municipality.

Waste collection fleet

The Emakhazeni Municipality does not have sufficient equipment for waste management section. The Municipality is however experiencing a problem of the aging and frequent breakdown of some of the current waste collection vehicles. 80% of the vehicles are older than 7 years and generally needs repairs to keep it running. The replacement of the old waste collection vehicles is therefore a definite need for the Municipality. Although, one brand new compactor truck was purchased on February 2019 to assist with refuse collection in Entokozweni and Emthonjeni Unit. However, with the proposed inclusion of the new developments in the municipal area and the extension of services to the un-serviced areas couple with frequent breakdown of the current waste management fleet, the following additional waste collection vehicles will have to be purchased as well:

- 2 compactor trucks to collect refuse at Siyathuthuka and Emakhazeni (Belfast)
- 1 compactor truck to collect refuse at Dullstroom and Sakhelwe
- 1 compactor truck to collect refuse at Waterval Boven and Emgwenya
- 40 skip bins and to be used for disposing waste
- 2 x skip bin loader truck to assist on collecting skip bins around all the units of Emakhazeni Local Municipality

Challenges

As much as the Municipality is striving to provide 100% of households with access to waste collection services, there are still challenges experienced with the provision of waste collection services to informal and yard dwellers due to inaccessible roads by compactor trucks. This ultimately contributes to challenges such as increased illegal dumping of waste.

To improve the current situation, the Municipality can also deploy additional skips or bulk bins at strategic locations across the towns and settlements to minimize illegal dumping. The Municipality can also introduce adopt a spot programme that will aim to prevent illegal dumping within their specific area.

Illegal dumping areas should be cleared and the cleared waste must be taken to the relevant waste disposal site. The Municipality should launch clean-up campaigns to assist with clean-up operations. Skips should be placed at “illegally dumping hot spot areas”, as well as signage to try and prevent further illegal dumping in these areas once cleaned. The Municipality must establish waste drop off facilities for the communities to drop off their recyclables in order to avoid sending recyclables to the landfill sites and also to reduce the illegal dumping of waste by the residents. Waste management by-laws must be enforced and penalties associated with illegal dumping of waste must be strengthened to deal with illegal dumping within the municipality.

Waste characterization

Emakhazeni Local Municipality, Nkangala District Municipality, Department of Agriculture Rural Development Land and Environmental Affairs, Department of Environmental Affairs, CWP and waste pickers had completed a waste characterization study at Belfast waste disposal site. The study was conducted in November 2019 and is representative of waste generated at Emakhazeni Local Municipality. The samples were taken from refuse bags that were put out for collection. The main categories for the results were split into organics, recyclables and non-recyclables. The combined results of the characterization study are shown below. The results are shown below and used for the purpose of IWMP.

Table 1: Waste stream analysis

WASTE STREAM	PERCENTAGE
PAPER AND CARDBOARD	9%
GLASS	10%
METAL	1%
PLASTICS	15%
POLYSTERENE	3%
OTHER PLASTIC	1%
TEXTILE	0%
FOOD WASTE	26%
GARDEN WASTE	0%
GENERAL ASH	0%
MIXED ORGANICS	0%
E-WASTE	0%
MIXED GENERAL CONTAMINATED	29%
SANITARY WASTE	7%
TOTAL	100%

Waste quantities

The Emakhazeni Local Municipality's landfill sites do not have weighbridge for estimation of the waste quantities sent to the landfill sites. The landfill site's official uses volume estimates to determine the amount of waste disposed at the landfill sites.

Waste Minimization

A recycling initiative with Petco Recycling has already been started with residents of Emgwenya. The feasibility of establishing recycling, buy-back centers and composting facilities across all the units should be investigated. A plan will be drafted that will focus on recycling and separation of waste at source. The Municipality should promote the above initiatives.

General

The Municipality has registered all its operational landfill sites with SAWIS, currently the Municipality do report the waste data collected and disposed in all the landfill sites started with the waste record of January 2019 to SAWIS. A Waste Information System should be always updated. The aim of this information system will be to provide all the necessary detail information pertaining to waste management i.e. permit/licence status of disposal facilities, volumes disposed off, condition of the landfills/transfer station, number and type of equipment, date of purchase, operating and maintenance cost, replacement date, type of service, number of service points (domestic, commercial and industrial), the number of personnel involved, etc. Decisions concerning new equipment or services can then be made based on accurate information provided by the above system. Awareness campaigns should be implemented to educate the communities on responsible waste management.

IWMP monitoring and review

Regular and ongoing monitoring of the implementation plan is required to ensure that the goals, objectives and targets of the IWMP are accomplished within the allocated timeframes. According to section 13(2) of the National Environmental Management Waste Act (Act 59 of 2008), performance reports on the implementation of the integrated waste management plan must be prepared in terms of Section 46 of the Municipal Systems Act and must contain information such as the extent to which the plan has been implemented during the period, the level of compliance with the plan and the measures that have been taken to make any necessary amendments to the plan. The designated Waste Management Officer (WMO) is responsible for preparing the performance reports on the implementation of the IWMP on an annual basis. Lastly, as the IWMP forms part of the Integrated Development Plan (IDP) required in terms of Chapter 5 of the Municipal Systems Act, this IWMP must be comprehensively reviewed after 5 years.

DEFINITIONS

The definitions mostly provided below are in terms of the National Environmental Management: Waste Act, 2008, (Act No. 59 of 2008) and are provided for ease of reference.

Building waste includes all waste produced during the construction, alteration, repair or demolition of any structure, and includes building rubble, earth, vegetation and rock displaced during such construction, alteration, repair or demolition

Buy-back centre is a location where disposed and recyclable materials can be exchanged for money for further transportation to a recycling facility. The price for the waste is determined by the current markets and the quantities of waste.

Business waste means waste, other than hazardous waste, medical waste, infectious waste, building waste, industrial waste, garden waste, bulky waste, recyclable waste and special industrial waste, generated on premises used for non-residential purposes;

Composting is the biological degradation of organic materials in the presence of oxygen, yielding carbon dioxide, heat and stabilized organic residues that may be used as a soil additive.

Container is a disposable or re-usable vessel in which waste is placed for the purposes of storing, accumulating, handling, transporting, treating or disposing of that waste, and includes bags, bins, bin-liners and skips.

Designated Waste Management Officer is a person in the employ of the council authorized to be a designated officer in terms of Section 10(5) of the NEMWA, Act 59 of 2008.

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

Domestic waste means waste normally generated from a premises used as a residence or private dwelling house, including flats, schools, hostels, boarding houses, compounds, benevolent societies, churches and halls situated on private property and which can be easily removed without damaging the bin liner, but does not include business waste, building waste, garden waste or bulky waste.

General waste is waste that does not pose an immediate hazard or threat to health or to the environment, and includes: Domestic waste; Building and demolition waste; Business waste; and Inert waste.

Garden waste means organic waste which emanates from gardening or landscaping activities at residential, business or industrial premises including but not limited to grass cuttings, leaves, branches, and includes any biodegradable material and excludes waste products of animal origin and bulky waste.

Hazardous waste is any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological cause harm to the human health and the environment.

Integrated Waste Management Plan is a plan prepared in terms of section 12 of NEMWA.

Landfill is an appropriately designed, engineered and authorised waste disposal facility.

Pollution means any change in the environment caused by: Substances; Radioactive or other waves; or Noise odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person, or organ of state, where that changes has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in future.

Recovery is the controlled extraction of a material or the retrieval of energy from waste to produce a product.

Recycling is a process where waste is reclaimed for further use, which 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.

Re-use is to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.

Separation at source is the separation of recyclable material from other waste at the point and time the waste is generated. This includes separation of recyclable material into its component categories and may include further separation within each category.

Treatment is any method, technique or process that is designed to: Change the physical, biological or chemical character or composition of a waste; or Remove, separate, concentrate or recover a hazardous or toxic component of a waste; or Destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal.

Waste means any substance, whether or not that substance can be reduced, re-used, recycled and recovered – That is surplus, unwanted, rejected, discarded, abandoned or disposed of; Which the generator has no further use of for the purposes of production; That must be treated or disposed of; or That is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining medical or other sector, but –

- (i) a by-product is not considered waste; and
- (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste.

Waste avoidance is to employ efficiency-centred actions that remove or reduce the need to consume materials in the first place and hence avoid the generation of waste with the same outcome.

Waste generator means any source of general waste that may contain recyclables that can be separated at source for purposes of formalised recycling.

Waste hierarchy is recognized for promoting waste management in the following order: avoidance, reduce, reuse, recycle, recover and disposal.

Waste Management Services refers waste collection, treatment, recycling and disposal services.

Waste Minimisation refers to techniques used to keep waste generation at a minimum level in order to divert materials from landfill. The term waste minimisation is also applied to recycling and other efforts to reduce the amount of waste going into the waste stream.

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.

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ACRONYMS

ELM	Emakhazeni Local Municipality
IWMP	Integrated waste management plan
NDM	Nkangala District Municipality
DEFF	Department of Environment, Forestry and Fisheries
NEMA	National Environmental Management Act No 107 of 1998
NEM:WA	National Environmental Management: Waste Act No 59 of 2008
PPP	Public Private Partnerships
SAWIS	South African Waste Information System

1. Defining the geographical area

Emakhazeni Local Municipality (ELM) is one of the six local municipalities that compose the Nkangala District Municipality. The Greater Groblersdal and Thaba-Chweu Local Municipalities, which form part of the Ehlanzeni District Municipality, border the Emakhazeni Municipality to the north. It is bordered to the west by the Steve Tshwete Municipality (also part of Nkangala DM) and to the south by Albert Luthuli Local Municipality. It is bordered to the east by the City of Mbombela Municipality. The ELM consists of 8 wards with a total geographical area of 4736 km². The Municipality is composed of four Towns (Belfast, Entokozweni, Waterval Boven and Dullstroom) and 4 locations (Siyathuthuka, Emgwenya, Emthonjeni and Sakhelwe). The area is sparsely populated with low population density of 1 person per 0.8 hectare. Some of the areas of Emakhazeni Local Municipality are becoming popular as a tourist destination, with Dullstroom being the main attraction because of trout fishing and other recreational activities. However, the major economic activities include agricultural activities and mining activities.

The Emakhazeni is situated on the N4 Maputo corridor, the main link between Gauteng Province, Mpumalanga Province and Mozambique. Road R540 which runs in a northern direction from the N4 freeway through Emakhazeni and Dullstroom provides an important link to Lydenburg and other centers in the Lowveld, particularly Hoedspruit, Pilgrims Rest and Graskop together with R36 respectively and R33 connecting Stofberg and Carolina. There are railway lines originating in Gauteng which stretch through this area and provide linkages with the Maputo and Richardsbay harbor respectively.

According to the 2011 Community Survey Report, the total population of ELM amounts to 47 216, with 12 127 households in the municipal area serviced. The overall unemployment rate within the Municipality has decreased from 25.9% in 2011 to 22.8%. Unemployment opportunities are unfavorable in the Municipality for females (29.2%) compared to males (19.9%). The number of people below the lower bound poverty line was almost 15 675 in 2016. The community survey indicates that the poverty headcount in the Municipality deteriorated from 6.4% in 2011 to 8.7% in 2016 and this translates to 8th highest in the province. However, the so called poverty intensity decreased slightly from 41.3% to 43.1% in the same period. Currently waste collection is practiced in all the Towns and locations within ELM namely: Emakhazeni, Entokozweni, Waterval boven, Dullstroom, Emthonjeni, Siyathuthuka, Emgwenya and Sakhelwe. Waste collection is done in house waste waste Compactor trucks and the ELM uses waste collection schedule when collecting the waste. The entire study area is shown on the map below.

MAP OF EMAKHAZENI LOCAL MUNICIPALITY

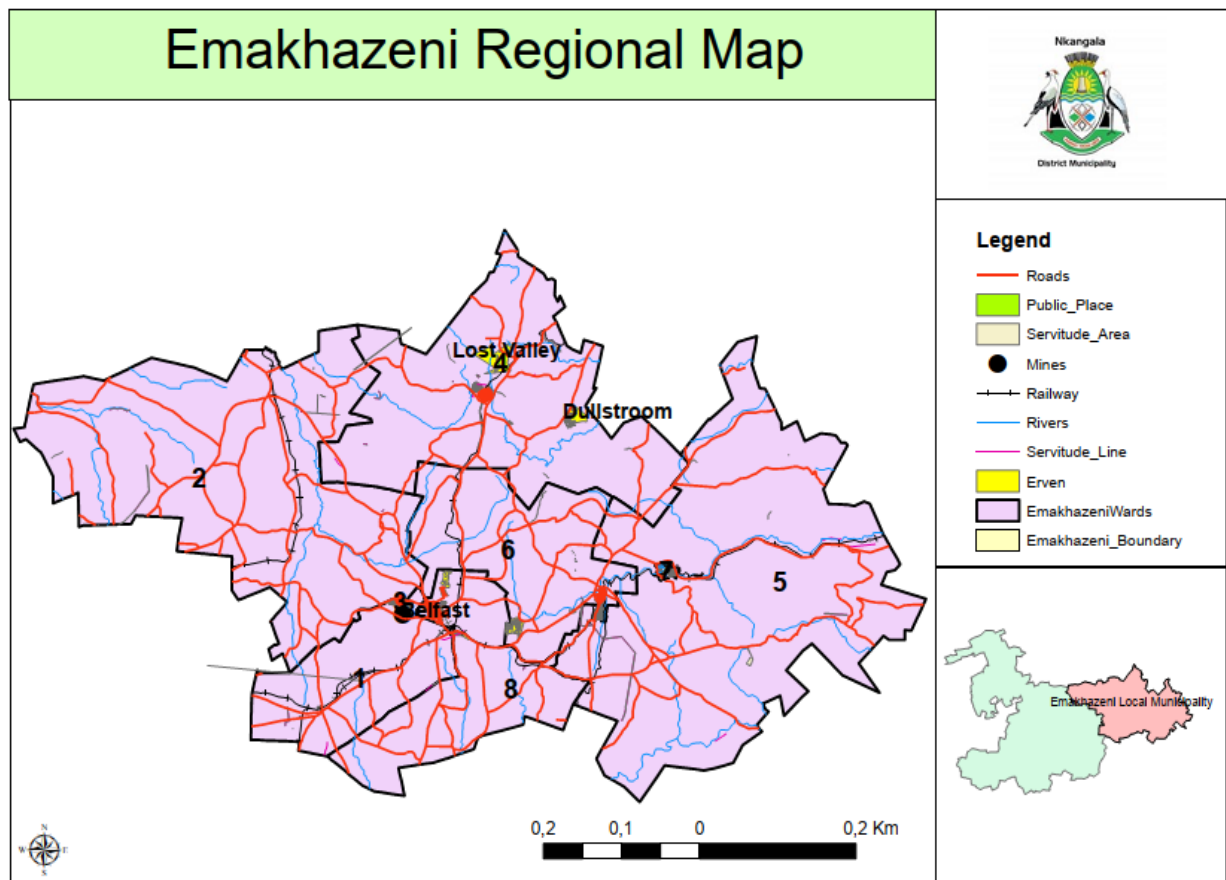


Figure 1: Emakhazeni Local Municipality Map (Source: Prepared by Nkangala District Municipality's GIS officer)

2. Situation analysis

2.1 DEMOGRAPHICS (POPULATION AND DEVELOPMENT PROFILES)

Table 2: Growth & Demographic Profile

Growth estimates	
Municipality Population (as per Census 2011):	47216
Estimated Population Growth (%) as per Census 2011:	0.93
Estimated current population as of 2016 (year is a parameter):	49411.5
Demographic profile	
Age:	
Youth	30966
Middle age	12149
Old age	4100
Gender:	
Male	24099
Female	23117
Education:	
Primary	11372
Secondary	21593
Tertiary	2397
Employment:	
Employed	13671
Unemployed	22301

Figure 2: Population distribution graphs:

<p>Graph 9</p> <p>If you are reading this message, please be sure to enter all of the relevant data to obtain a graph.</p>	<p>Graph 10</p> <p>If you are reading this message, please be sure to enter all of the relevant data to obtain a graph.</p>
<p>Graph 11</p> <p>If you are reading this message, please be sure to enter all of the relevant data to obtain a graph.</p>	<p>Graph 12</p> <p>If you are reading this message, please be sure to enter all of the relevant data to obtain a graph.</p>

Source: Stats SA, 2011

Table 3: Dwelling Types

House or brick/concrete block structure on a separate stand or yard or on a farm:	10541
Traditional dwelling/hut/structure made of traditional materials:	736
Flat or apartment in a block of flats:	142
Cluster house in complex:	12
Townhouse (semi-detached house in a complex):	11
Semi-detached house:	123
House/flat/room in backyard:	193
Informal dwelling (shack in backyard):	618
Informal dwelling (shack not in backyard e.g. in a informal/squatter settlement or on a farm:	920

Room/flat on a property or larger dwelling/servants quarters/granny flat:	208
Caravan/tent:	32
Other:	188

2.2 DETERMINING CURRENT WASTE GENERATION AND ESTIMATING FUTURE WASTE GENERATION RATES AND QUANTITIES

Table 3: Domestic Waste generation

Current waste generation and estimated future waste generation	
Current domestic waste generation rates per person annum	242.48
Current domestic waste generation rates per person per day	0.66
Future domestic waste generation rates (in 10 years)	192.48

2.3 WASTE QUANTITIES AND TYPES

2.3.1 Weighbridge

Currently the Municipality does not have a weighbridge for calculating the quantity of waste received at all the landfill sites in Emakhazeni Local Municipality.

2.3.2. Volume density estimation system

Due to the reason being that the Emakhazeni Local Municipality does not have weighbridge at all its landfill site, the Municipality had engaged Department of Environment, Forestry and Fisheries (DEFF) formerly known as Department of Environmental Affairs (DEA) to conduct waste recording training using volume estimate. The training was conducted by DEA officials to capacitate the officials working at Municipal landfill sites. Currently the Emakhazeni Local Municipality makes use of templates that were developed by National Department of Environmental Affairs (DEA) to record the waste that is disposed at our landfill site such also help use to report waste data to SAWIS.

2.3.3. Waste stream analysis

Emakhazeni Local Municipality, Nkangala District Municipality, Department of Agriculture Rural Development Land and Environmental Affairs, Department of Environmental Affairs, CWP and recyclers, completed a waste stream analysis study at Belfast landfill site. The study was conducted in November 2019 and is representative of waste generated at Emakhazeni Local Municipality. The samples were taken from refuse bags that were put out for collection. The main categories for the results were split into organics, recyclables and non-recyclables.

The combined results of the characterization study are shown below. The results are shown below and used for the purpose of IWMP.

Table 4: Waste stream analysis

WASTE STREAM	PERCENTAGE
Paper and cardboard	9%
Glass	10%
Metal	1%
Plastics	15%
Polysterene	3%
Other plastic	1%
Textile	0%
Food waste	26%
Garden waste	0%
General ash	0%
Mixed organics	0%
E-waste	0%
Mixed general contaminated	29%
Sanitary waste	7%
Total	100%

2.4 DISPOSAL, TREATMENT AND WASTE RECYCLING

2.4.1 Status Quo of Waste Disposal Facilities

Waste disposal sites in Emakhazeni Local Municipality

The Emakhazeni Municipal Area has four solid waste disposal facilities, Belfast, Dullstroom, Waterval Boven and Machadodorp. Belfast, Dullstroom and Emgwenya waste disposal facilities are in possession of a waste disposal licence; however, the closure licence of Machadodorp has expired. All the sites are reporting waste data to SAWIS.

The following is the summary of the waste disposal sites found in Emakhazeni Local Municipality

Machadodorp waste disposal

The site does not have a permit as the closure licence has expired. The current operation of the Machadodorp waste disposal site is not good, and the waste disposal site is in a bad state. Waste is being disposed off haphazardly with no compaction and covering. The fence of the site is damaged and access to the site is not controlled. There is no ablution facility no guard house. Waste pickers are found at the site trying to sort some recyclables for selling.

Table 5: Machadodorp waste disposal

Name of landfill site	Machadodorp waste disposal site
Position of site:	The site is located between Entokozweni and Emthonjeni location alongside R36 road from Entokozweni leading to Emthonjeni: (Co-ordinates: 25°41'03"S and 30°14'45"E; 25°41'02"S and 30°14'53"E; 25°40'57"S and 30°14'50"E; 25°40'56"S and 30°14'47"E).
Licensed:	The closure licence had expired
Permit No:	17/4/WL/MP314/14/02
Year issued:	30 September 2014
Classification of site:	GCB- (provisional)
Type of Operation (end – tip, trench, cell):	End-tip.
Estimated size of site:	Approximately 1 ha.
Estimated remaining life of site:	N/A
Separation of fresh and contaminated water:	No.
Groundwater monitoring:	No Borehole
Is cover material available?	No
Is the drainage sufficient?	No
Is there access control?	No.
Is the site fenced?	Yes, but the fence is damaged
Does the site have a sufficient buffer	No

zone?	
Type of equipment utilised on site:	No equipment on site, Bulldozer is brought in as and when required.
Operating hours as per the landfill site licence:	07H30 to 18H00 Mondays to Friday, 09H00 to 13H00 on Saturdays, Sundays and Public Holidays according to the closure licence.
Site facilities, i.e. ablutions, guard house:	None
Is the site reporting to SAWIS	Yes

Belfast waste disposal site

The Belfast waste disposal site has licence that was granted in 30 April 2015 in terms of Section 20 (b) of the National Environmental Management: Waste Act 2008, (Act No. 59 of 2008) and the licence was granted for 10 years by the Department of Agriculture, Rural Development, Land and Environmental Affairs.

The site is fenced there is ablution facilities, guard house, working cell and the leachate dam have been constructed, the weighbridge will be also laid after the completion of the construction as the construction is still ongoing. The site is not well managed; waste is not covered as per licence condition. No proper operational method is followed. Waste is dumped on the ground and pushed against an embankment. There are waste pickers on site. The operation of the site should be upgraded by regular compacting and covering the waste to ensure compliance with the permit conditions of the site.

Table 6: Belfast waste disposal site

Name of the waste disposal site	Belfast waste disposal site
Position of site:	The site is 2.2 km south west of Belfast: (Co ordinates: 25°41'05.75" S & 30°01'06.26" E)
Licence/Permit:	Yes
Licence number:	17/4/WL/MP314/13/01
Year issued:	30 April 2015
Classification of site:	GSB-

Type of Operation (end – tip, trench, cell):	There was no formal operational plan followed, waste disposed off and pushed against embankment. However, working cell has been constructed for formal disposal of waste
Estimated size of site:	Approximately 1 ha
Estimated remaining life of site:	The remaining life of the site is estimated at ± 5 years
Separation -fresh and contaminated water:	The site has been upgraded to also cater for storm water management
Groundwater monitoring:	No
Is cover material available?	Yes, as working cells have been constructed, waste covering will be taking place.
Is the drainage sufficient?	Yes
Is there access control?	Yes
Is the site fenced?	Yes, the site has been fenced according to the licence condition
Does the site have a sufficient buffer zone?	Yes.
Type of equipment utilised on site:	Dozer, TLB and Tipper truck are brought on as and when required.
Operating hours as per the landfill site licence:	07:30 – 18:00 Monday to Saturday and from 9:00 - 13:00 Sundays and public holidays
Site facilities, i.e. ablutions, guard house:	Yes, there are ablution blocks and guard house
Is the site reporting to SAWIS	Yes

Dullstroom waste disposal site

The Dullstroom waste disposal site has been licensed by the Provincial Department of Agriculture, Rural Development, land and Environmental Affairs on the 30th of September 2014 in terms of Section 20 (b) of the National Environmental Management: Waste Act 2008, (Act No. 59 of 2008). The permit has been granted for 10 years.

The site is not properly operated. Waste is being disposed off in an open trench. Waste is not covered on a daily basis. Littering is also occurring around the vicinity of the site. The bulldozer is brought in from time to time to scrap the waste. The fence of the site has been vandalized and access is not properly controlled. The site is no longer having the guard house nor ablution facility after they were vandalized.

Table 7: Dullstroom waste disposal site

Name of landfill site	Dullstroom waste disposal site
Position of site:	The site is located outside of the Dullstroom town: (Coordinates 25°25'43" S & 30°05'43" E; 25°25'42" S & 30°05'39" E; 25°25'39" S & 30°05'46" E; 25°25'36" S and 30°05'42" E)
Licensed:	Yes
Licence No:	17/4/WL/MP314/14/01
Year issued:	30 September 2014
Classification of site:	GCB ⁺
Type of Operation (end – tip, trench, cell):	Open trench or pit on site
Estimated size of site:	Approximately 1 ha.
Estimated remaining life of site:	Approximately 5 years
Separation of fresh and contaminated water:	No
Groundwater monitoring:	No boreholes
Is cover material available?	No
Is the drainage sufficient?	Yes
Is there access control?	No
Is the site fenced?	No
Does the site have a sufficient buffer zone?	No
Type of equipment utilised on site:	

	Dozer is brought in as and when required
Operating hours as per the landfill site licence :	07H30 to 18H00 Mondays to Friday, and 09H00 to 13H00 on Saturdays, Sundays and Public Holidays according to licence condition.
Site facilities, i.e. ablutions, guard house:	No site facilities
Is the site reporting to SAWIS	Yes

Waterval Boven waste disposal site

The Waterval Boven waste disposal site has been licenced by the Mpumalanga Department of Water Affairs and Forestry in terms of section 20 (5) (b) of the Environment Conservation Act 1089 (Act No. 79 of 1989). The licence was granted on 2002-09-06. Waste is being pushed on a heap with no covering taking place. The site is not fenced and there is no ablution facility. There is no compaction and covering of the waste taking place.

Table 8: Waterval Boven waste disposal site

Name of waste disposal site	Waterval Boven waste disposal site
Position of site:	The site is located 5.4 km north-east (Co-ordinates: S 25° 39' 46" and E 30° 20' 56.8").
Licence:	Yes
Year issued:	2002-09-06
Classification of site:	GCB ⁻
Type of Operation (end – tip, trench, cell):	Waste disposed off and pushed against embankment
Estimated size of site:	Approximately 1 ha.
Estimated remaining life of site:	Approximately 10 years.
Separation of fresh and contaminated water:	No.
Groundwater monitoring:	No monitoring is carried out.
Is cover material available?	No

Is the drainage sufficient?	No
Is there access control?	No (no gate)
Is the site fenced?	No
Does the site have a sufficient buffer zone?	No, houses in close proximity to site
Operating hours:	Licence didn't stipulate the operating hours
Site facilities, i.e. ablutions, guard house:	There is only a guard house
Is the site reporting to SAWIS	Yes

2.4.2 Status Quo of Waste Treatment Facilities

Currently the Municipality does not have waste treatment facilities

2.4.3. Status Quo of Waste Recyclers

Currently the Municipality does not have accurate record of the number or statistics of waste recyclers around the vicinity of Emakhazeni Local Municipality recycling initiative with Petco Recycling company has initiated been started with residents of Emgwenya. The feasibility of establishing recycling, buy-back centers and composting facilities across all the units should be investigated. An Environmental Committee will be established in each town to focus on recycling and separation of waste. The Municipality should promote the above initiatives.

2.4.4. Status Quo of other types of facilities

There are no other types of waste management facilities except the landfill sites in Emakhazeni Local Municipality.

2.5 COLLECTION SERVICES

Table 9: National Domestic Waste Collection Standards

Item	Total number
Households	14 633
Serviced households	12 554
Un-serviced households	2079
Indigent households	3582
Un-serviced indigent households	0

2.6 FINANCING OF WASTE MANAGEMENT

Table 10: Budget/Expenditure: Income and expenditure

Item	Amount
Collection	
Transportation	R 350 0000
Capex-purchase (vehicles)	R 1 600 000
Maintenance	R 8 160 000
Fuel	R 711 384
Receptacles	R 69 996
General	R 0
Total	R 10 891 380
Governance	
Staff (remuneration)	R 8 052 300
Education and awareness	R 0
IWMPS	R 0
By-laws	R 0
Total	R 8 052 300
Disposal	
Transfer station	R 0
Disposal sites	R 0
Acquisition of land, equipment	R 0
Regulatory compliance, EIA's and licence	R 0
Total	R 0

Table 11: Revenue sources

Source	Amount
Funding sources	R 13 432 380
MIG Funding	R 0
Equitable share funding	R 0
Revenue from waste disposal fees	R 0
Total	R 13 432 380

2.6.3 Organisational and institutional matters

Solid waste management for the Emakhazeni Local Municipality falls under the Infrastructure, Planning and Social Development. The section entails refuse collection, street cleansing and disposal.

Chapter 3 of the Waste Act states that:

“10. (3) Each municipality authorised to carry out waste management services by the Municipal Structures Act, 1998 (Act No. 117 of 1998), must designate in writing a waste management officer from its administration to be responsible for coordinating matters pertaining to waste management in that municipality.

(4) A power delegated or a duty assigned to a waste management officer by virtue of subsection (3) may be sub-delegated or further assigned by that officer to another official in the service of the same administration, subject to such limitations or conditions as may be determined by the municipality.

(5) Waste management officers must co-ordinate their activities with other waste management activities in the manner set out in the national waste management strategy established in terms of section 6 or determined by the Minister by notice in the Gazette.”

The Municipality is yet to appoint Waste Management Officer

The refuse removal and street cleansing sections are led by the Manager: Infrastructure, Planning and Social Development. The unit's refuse removal teams (Emakhazeni, Dullstroom, Entokozweni and Emgwenya) are managed by unit's Environmental Supervisors. The Municipality is experiencing shortages of labourers for waste collection; Posts will have to be created for the additional services that will have to be rendered as the towns expand and new developments are established. The Environmental Management Organogram is presented in the Figure below.

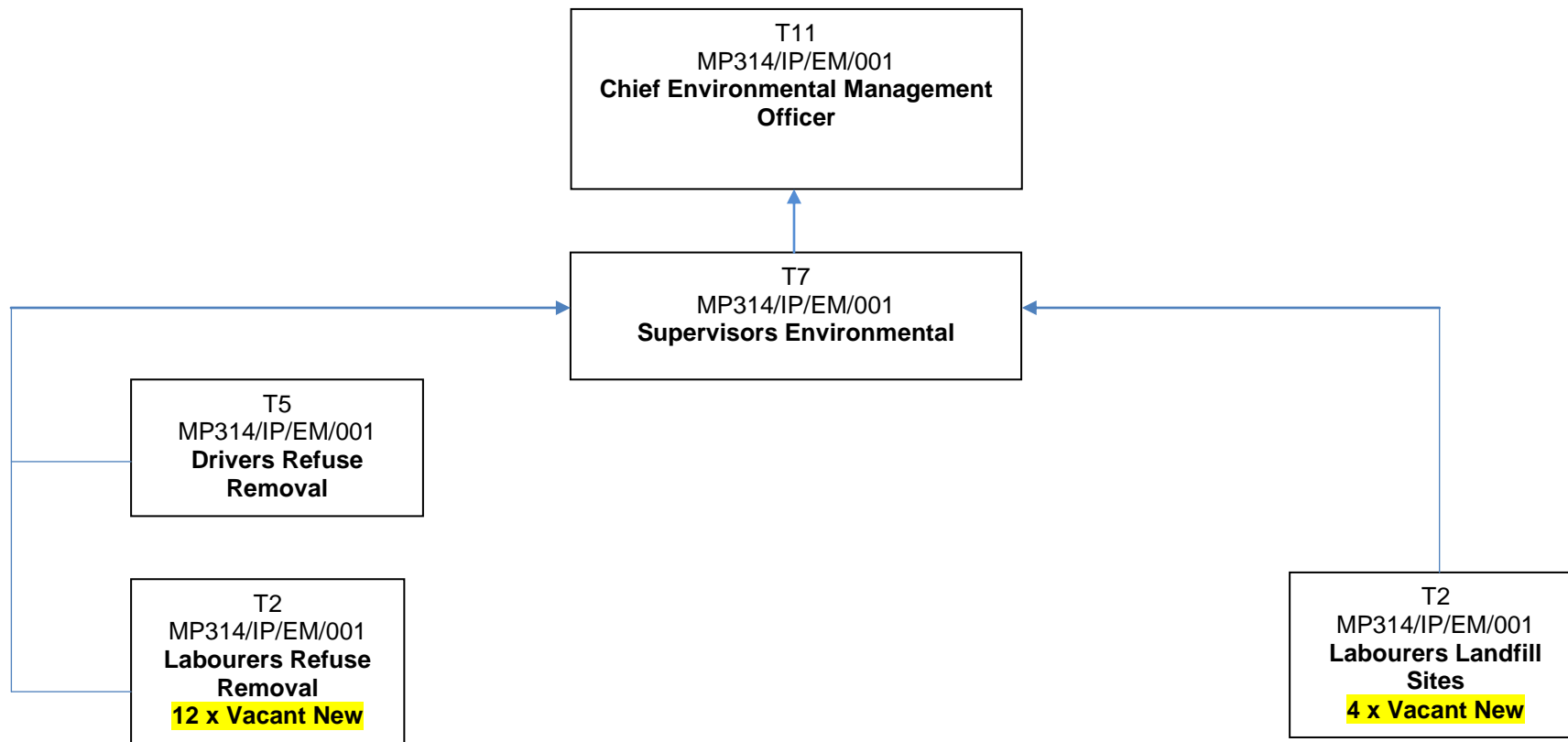


Figure 3: Approved Emakhazeni Local Municipality Environmental Management Organogram

Equipment for refuse collection

The Emakhazeni Municipality solid waste management department has vehicles that are old or aging and are due for replacement due to frequent breakdown. The vehicles conditions are indicated as “old” are in need of replacement in the near future. The refuse removal fleets belong to the municipality and the Municipality is responsible for the maintenance of its fleet.

The Municipality should implement a vehicle replacement plan to ensure that future planning for the replacement of the vehicles is done at the appropriate time. The Municipality currently does have a shortage of vehicles for waste removal; the only challenge is the frequent breakdown of the compactor trucks, which affect the refuse removal.

The Emakhazeni Local Municipality solid waste collection fleet consists of the following vehicles:

Table 12: Waste collection fleet

VEHICLE DESCRIPTION AS PER LOCATION/ UNIT	CONDITION
Emakhazeni and Siyathuthuka	
Isuzu Compactor Truck	Fair
Nissan UD Compactor Truck	Fair
Entokozweni and Emthonjeni	
Nissan UD Compactor Truck	Good (Bought in 2019)
Tata Compactor Truck	Poor
Waterval Boven Emgwenya	
Isuzu Compactor truck	Fair
UD Compactor Truck	Fair
Dullstroom and Sakhelwe	
Isuzu compactor truck	Fair

3. Desired end state

SETTING STRATEGIC GOALS, TARGETS, ACTIVITIES, AND TIMEFRAMES

Goal 1: By 2025 ELM aims to promote waste minimization, re-use, recycling and recovery of waste in order to comply with the National Waste Management Strategy in the various areas within its jurisdiction			
Objectives	Targets	Activities	Timeframe
Formalise and encourage recycling activities	Waste minimisation	Develop database of recyclers in the municipality	Year 1
		Update the database of recyclers	
		Provide capacity building platform for the recyclers	Year 2
Encourage waste minimisation projects	Waste minimisation	Initiate recycling project	Year 3
Promote reuse, recycling and recovery	Divert recyclables from landfill site for re-use, recycling and recovery	Establish feasibility study of establishing buy-back centres	Year 2
		Establish buy-back centres if it is possible	Year 4
	To divert garden waste from landfill site	Conduct feasibility study of establishing composting site	Year 2
		Establish composting site	Year 5

Goal 2: By 2025 the ELM aims to ensure the effectiveness and efficient delivery of waste services within Emakhazeni			
Objectives	Targets	Activities	Timeframe
Extend access to waste services and maintain current service delivery to all areas within the Emakhazeni Local Municipality	Roll out waste collection to un-serviced areas including indigent households	Identify and update new un-serviced areas	Year 1 – Year 5
		Extend waste collection services to informal settlements/ un-serviced areas and new settlements	
		Review and update the waste collection schedule	
		Procure waste management equipment & maintain current fleet to ensure consistence refuse removal	
		Key vacant positions in the solid waste department need to be filled and cleansing department expanded in order to keep up with the growth in the Municipality	

Goal 3: By 2024, the ELM aims to ensure the safe and proper disposal of waste in line with the licence conditions and the Waste Act			
Objectives	Targets	Activities	Timeframe
To ensure that all waste management facilities complies with the licence conditions	Ensure compliance of all waste management facilities	Conduct landfill sites monitoring	Quarterly
		Provide training to landfill sites personnel to improve and upgrade operations at the sites	Year 1- year 2
		Conduct landfill sites audit	Annually
		Develop and review a landfill sites operational and maintenance plan	Year 1

Goal 4: By 2023, the ELM aims to ensure that people are aware of the impact of the waste on their health, well-being and the environment			
Objectives	Targets	Activities	Timeframe
To create awareness of waste management issues	Conduct waste awareness campaign to keep public informed regarding waste management issues	Develop an education and awareness programme	Quarterly
		Implementation of education and awareness campaign	Annually
	To conduct awareness campaign at school to keep learners informed about waste management issues	Conduct education and awareness campaign at schools	
	Strengthen capacity and raise awareness on integrated waste management	Emakhazeni LM Solid waste management officials to attend education seminars and waste management forums	Annually

Goal 5: By 2023, ELM aims to achieve integrated waste management planning			
Objectives	Targets	Activities	Timeframe
To ensure continuous reporting of waste management facilities to SAWIC	To have all waste management facilities reporting to SAWIS	Registering of waste generators, transporters and recyclers and reporting to the municipality.	Year 1- year 5

Goal 6: By 2023, the ELM aims to ensure compliance and enforcement to Waste Act, Waste by-laws and policies

Objectives	Targets	Activities	Timeframe
The institution aims to ensure that legislative tools are developed and or reviewed to deliver on the objects of the waste act and other applicable legislation	Compliance with the environmental legislative tools	Review and promulgate waste management by-law	Year 2
		Monitor and enforce compliance with regulations, authorisation conditions and plans	Year 1- year 5
		Develop and review a system for residents to report transgressions	Year 2- year 5
		Update and maintain the waste information system	Year 3
		Participate in waste management intergovernmental meetings, training and workshop	Year 1

4. Identify, evaluate and select alternatives

STRATEGIC GOALS, TARGETS, ACTIVITIES, AND BUDGET

Goal 1: By 2025, ELM aims to promote waste minimization, re-use, recycling and recovery of waste in order to comply with the National Waste Management Strategy in the various areas within its jurisdiction			
Objectives	Targets	Activities	Budget
Formalise and encourage recycling activities	Waste minimisation	Develop database of recyclers in the municipality	None
		Update the database of recyclers	None
		Provide capacity building platform for the recyclers	R 45 000
Encourage waste minimisation projects	Waste minimisation	Initiate office recycling project	R250 000
Promote reuse, recycling and recovery	Divert recyclables from landfill site for re-use, recycling and recovery	Establish feasibility study of establishing buy-back centres	None
		Establish buy-back centres if it is possible	R260 000
	To divert garden waste from landfill site	Conduct feasibility study of establishing composting site	None
		Establish composting site	R350 000

Goal 2: By 2025, ELM aims to ensure the effective and efficient delivery of waste services within Emakhazeni			
Objectives	Targets	Activities	Budget
Extend access to waste services and maintain current service delivery to all areas within the Emakhazeni Local Municipality	Roll out waste collection to un-serviced areas including indigent households	Identify and update new un-serviced areas on waste collection	None
		Extend waste collection services to informal settlements/ un-serviced areas and new settlements	R 1 300 000
		Review and update the waste collection schedule	None
		Procure waste management equipment and maintain current fleet for ensuring consistence refuse removal	R2 000 000
		Key vacant positions in the solid waste department need to be filled and cleansing department expanded in order to keep up with the growth in the Municipality	

Goal 3: By 2024, ELM aims to ensure the safe and proper disposal of waste in line with the licence conditions and the Waste Act			
Objectives	Targets	Activities	Budget
To ensure that all waste management facilities complies with the licence conditions	Ensure compliance of all waste management facilities	Conduct landfill sites internal and external audit	R 280 000
		Provide training for the landfill sites personnel to improve and upgrade operations at the sites.	None
		Conduct landfill sites monitoring	None
		Develop & review a landfill sites operational and maintenance plan	None

Goal 4: By 2023, ELM aims to ensure that people are aware of the impact of the waste on their health, well-being and the environment			
Objectives	Targets	Activities	Budget
To create awareness of waste management issues	Conduct waste awareness campaign to keep public informed regarding waste management issues	Develop an education and awareness programme	
		Implementation of education and awareness campaign	R100 000
	To conduct awareness campaign at school to keep learners informed about waste management issues	Conduct education and awareness campaign at schools	R50 000
	Strengthen capacity and raise awareness on integrated waste management	Emakhazeni LM Solid waste management officials to attend education seminars and waste management forums	

Goal 5: By 2023, ELM aims to achieve integrated waste management planning			
Objectives	Targets	Activities	Budget
To ensure continuous reporting of waste management facilities to SAWIC	To have all waste management facilities reporting to SAWIS	Registering of waste generators, transporters and recyclers and reporting to the municipality.	None

Goal 6: By 2023, ELM aims to ensure compliance and enforcement to Waste Act, Waste by-laws and policies			
Objectives	Targets	Activities	Budget
The institution aims to ensure that legislative tools are developed and or reviewed to deliver on the objects of the waste act and other applicable legislation	Compliance with the environmental legislative tools	Review waste management by-law	None
		Monitor and enforce compliance with regulations, authorisation conditions and plans	None
		Develop and review a system for residents to report transgressions	None
		Update and maintain the waste information system	None
		Participate in waste management intergovernmental meetings, training and workshop	None

5. Communication and Stakeholder Participation

5.1 CONSULTATION PROCESS SUMMARY

Stakeholder	Issues raised/ Concerns	Municipality's response	General comments

6. Implementation Instruments

6.1 PARTNERSHIPS

The development of partnership as a mechanism for providing the services and facilities required for the IWMP will be considered. The categories of partnerships that will be considered include the following:

Private-Public partnership

The municipality will request some sort of funding from the private sectors around the Emakhazeni Local Municipality to assist with construction of the waste management facilities such as landfill site, waste transfer stations, buy-back centres and waste drop off facilities. Furthermore, the municipality will work with waste generator to establish the separation at source.

6.2 LEGISLATIVE FRAMEWORK

The following is a short summary of all the relevant legislation pertaining to waste management.

CONSTITUTION OF REPUBLIC OF SOUTH AFRICA, 1996 (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.

In addition to the Constitution, a number of government policies and statutes are relevant to waste management at the local government level, which includes the following:

- National Environmental Management Act 107 of 1998
- National Environmental Management: Waste Act, 2008
- National Environment Management: Air Quality Act 39 of 2004
- Municipal Structures Act 117 of 1998
- Municipal Systems Act 32 of 2000
- National Water Act 36 of 1998
- National Health Act 61 of 2003
- White Paper on Environmental Management Notice 749 of 1998
- White Paper on Integrated Pollution and Waste Management for South Africa, Notice 227 of 2000
- Minimum Requirements for Waste Disposal by Landfill, 2nd edition, 1998
- Minimum Requirements for the Handling and Disposal of Hazardous Waste, 2nd Edition, 1998
- Minimum Requirements for Monitoring at Waste Management Facilities, 2nd edition, 1998
- National Waste Management Strategy and Action Plans.
- Relevant Provincial Legislation
- Local government by-laws on waste management.

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 Minimisation; Co-operative Governance; Sustainable Development; and Environmental Protection and Justice.

Chapter 2 makes provision for the establishment of the Committee for Environmental Co-ordination. 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 (EIPs) every four years and an environmental management plan (EMP). Local government is obliged to exercise its responsibilities in accordance with these plans and to report annually within four months from the end of its financial year on implementation of the environmental management plan or environmental implementation plan. 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, programme or plan, including the establishment of Integrated Development Plans (IDPs) and Land Development Objectives (LDOs).

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 minimise 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 Co- operation Agreements may contain an undertaking by the person or community concerned to improve the standards laid down by law for the protection of the environment and a set of measurable targets and a timeframe for 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.

NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT 59 OF 2008.

The National Environmental Management: Waste Act (Act 59 of 2008) was published in No 278 in Government Gazette No. 32000, on 10 March 2009. The Act was signed by the President on 6 March 2009 and published on 10 March 2009. The commencement date was 1 July 2009.

The Act will entrench best practices in waste management into law, replacing the outdated and unsustainable “end of pipe” approach with a new, and more environmentally responsible and sustainable approach.

The Act deals with minimising the consumption of natural resources, waste generation, recycling, waste disposal, prevention of pollution, promotion of waste services, remedying land degradation, and achieving integrated waste management reporting and planning.

Waste activities listed under Schedule 1 in the National Environment Management Waste Act 2008 as defined in the environmental impact assessment (EIA) regulations made under section 24(5) of the National Environment Management Act 2008 (NEMA), should be licensed in terms of Section 45 of the National Environmental Management: Waste Act 59 of 2008. Therefore as from 1 July 2009 owners of waste disposal facilities will have to apply for licences in terms of the abovementioned legislation and not in terms of the Environment Conservation Act (as amended in 2006) anymore.

NATIONAL ENVIRONMENT MANAGEMENT: AIR QUALITY ACT 39 OF 2004

The purpose of the National Environmental Management: Air Quality Act 39 of 2004 is to reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.

Part 2 of Chapter 2 of the Act sets out national, provincial and local ambient air quality and emission standards, chapter 3 institutional and planning matters, chapter 4 air quality management measures (priority

areas, Listing of activities resulting in atmospheric emissions, controlled emitters, controlled fuels and other emitters.

Chapter 5 describes the procedures to apply for licenses for listed activities, while chapter 7 describes the offences and penalties for non-adherence.

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. It is one of a set of 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.

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 up-liftment 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 corporatization and joint ventures to private sector delivery options.

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

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

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 analysed according to prescribed mechanisms.

NATIONAL HEALTH ACT 61 OF 2003

The National Health Act 61 of 2003 provides a framework for a structured uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services; and to provide for matters connected therewith.

Section 32 of the Health Act (Act 61 of 2003) requires provincial Health MECs to assign environmental health functions to district and metropolitan municipalities. The definition of these functions in the Health Act includes environmental pollution control, waste management and water quality monitoring.

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.

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

1. Effective institutional framework and legislation;
2. Pollution and waste minimisation, 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;
- Empowerment and education in integrated pollution and waste management;
- Information management; and
- International co-operation.

NATIONAL WASTE MANAGEMENT STRATEGY AND ACTION PLANS

The overall objective of this strategy is to reduce the generation of waste and the environmental impact of all forms of waste and thereby ensure that the socio-economic development of South Africa, the health of the people and the quality of its environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management. The internationally accepted waste hierarchical approach was adopted of waste prevention/minimisation, recycle/reuse, treatment and finally disposal.

The strategy outlines the functions and responsibilities of the three levels of government and where possible, firm plans and targets are specified. During the development of the strategy a number of priority strategic initiatives were identified which were categorized into short-term (by the year 2004), medium-term (by the year 2008) and long-term (by the year 2012) initiatives. Action plans have been developed for the short-term initiatives for integrated waste management planning, a waste information system, waste minimisation and recycling, general waste collection, waste treatment and disposal, and capacity building, education, awareness and communication. A logical framework analysis approach was adopted to develop the Action Plans that analysed the problems, stakeholders, and the risks to successful implementation followed by the development of outputs, activities, inputs and assumptions, as well as a proposed allocation of functions, roles, and responsibilities of the three levels of government.

The roles and responsibilities in terms of the NWMS for local government include:

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

REGULATIONS

National Environmental Management: Waste Act: National standard for disposal of waste to landfill august 2013

The standard provide for the new classification of landfill sites and requirements for containment and barrier designs. The new classification are class A, B, C and D. the standards prescribes types of waste (as per the classification of waste by R.635) to be disposed at different classes of landfill sites. The standards also provide for waste disposal restrictions on certain types of waste such as tyres, asbestos, PCBS and pops.

National Environmental Management: Waste Act: National standard for assessment of waste august 2013.

The standard prescribes the requirements for the assessment of waste prior to disposal to landfill, as regulation 8(1) (b) and (c) of the waste classification and management regulation 2013.

National Environmental Management: Waste Act: List of waste management activities that have, or are likely to have a detrimental effect on the environment, R921 November 2013

The regulations provide a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. These activities are set out in three categories, namely category A, B, and C.

National Environmental Management: Waste Act: National waste information regulations, January 2013

Waste generators are obliged to report waste quantities generated, diverted and treated. This is required in order to ensure efficient planning for waste management activities. In terms of the regulations, certain requirements must be complied with during reporting such as the name of the facility, waste types and quantities generated percentage of waste diverted etc.

National Domestic Waste Collection Standards (Government Gazette, 21 January 2011)

The standards came into effect on 21 January 2011 and aim to redress the past imbalances in waste collection services. Through these minimum standards, municipalities are required to meet waste services in urban, peri-urban and rural areas. Municipalities will use the standards to determine the level of service (on site disposal, central collection points, kerbside collection or a mixture of the latter 2) to provide and to select the best options for waste collection, separation at source, provision of receptacles, collection vehicles and health and safety standards.

GENERAL

It must be noted that some of the above Acts and Regulations are currently under review for changes and / or additions, and some are due for complete replacement with new Acts soon.

6.3 FUNDING MECHANISMS

Funding mechanisms need to be explored. The cost requirements of many of the proposed projects cannot be funded by the IPSD Department itself, even if it is operating with a profit. The amount of capital is simply too much without an alternative sources of funds.

Waste minimization will require financial support and continual public awareness and education (which is ongoing and very important) is also continuous expenses.

7. IMPLEMENTATION PLAN (SUMMARY OF AN IWMP PLANNING PROCESS)

Situation Analysis	Desired end state (Goals)	Targets	Y1	Y2	Y3	Y4	Y5	(Implementation mechanisms) Resources		
								Human Resource (HR)	Equipment (EQP)	Finance (HR+EQP)
No formalised recycling activities	Goal 1: Promote minimisation, reuse, recycling and recovery of waste	Develop database of recyclers in the Municipality	X					Municipal employees	Laptop	N/A
		Update the database of recyclers	X					Municipal employees	Laptop	N/A
		Provide capacity building platform for the recyclers		X				Municipal employees and stakeholders	Pamphlets	R20 000
No formalised waste minimisation projects		Initiate waste recycling project			X			Recruitment of 5 personnel to manage the project	Colour coded bins and educate everyone at the municipality	R50 000
All waste is going to landfill sites		Establish feasibility study of establishing buy-back centres		X				Municipal employees	Laptop	N/A
	Establish buy-back centres if it is possible				X		Recruitment of 5 employees to manage the project	Site; Building with water, toilets and electricity; A well fenced area; 30m x 50m Minimum open storage facility or	R800 000	

									sorting bay; 6m x 4m shelter for Baler Machine; 3 phase DB Box and a bailer machine	
		Conduct feasibility study of establishing composting site		X				Municipal employees	Laptop	N/A
		Establish composting site					X	Recruitment of 2 Employees	Wood chippers, forklifts, grinding bucks	
Not all residents of Emakhazeni Local Municipality are receiving waste management services	Goal 2: Ensure the effectiveness and efficient delivery of waste services	Identify and update new un-serviced areas	x	x	X	X	x	Municipal employees	Laptop	N/A
		Extend waste collection services to informal settlements/ un-serviced areas and new settlements	X	X	X	X	X	TBD	Tractor with trailer system, and Skip bins	R4 000 000
		Review and update the waste collection schedule	X	X	X	X	X	None	Laptop	N/A
		Procure waste management equipment & maintain current fleet to ensure consistence refuse removal	X	X	X	X	X	None	Compactor Trucks, Mini trucks to collect refuse bags	R5 000 000

		Key vacant positions in the solid waste department need to be filled and cleansing department expanded in order to keep up with the growth in the Municipality	X	X	X	X	X	Recruitment of personnel to beef up waste management team		
Waste disposal sites not operated according to licence condition	Goal 3: ensure safe and proper disposal of waste	Conduct landfill sites monitoring	x	x	x	x	x	Municipal employees	Landfill monitoring checklist	N/A
		Provide training to landfill sites personnel to improve and upgrade operations at the sites	X	X				Municipal employees and stakeholders	None	N/A
		Conduct landfill sites internal and external audit	X	X	X	X	X	Municipal employees	Checklist	N/A
		Develop and review a landfill sites operational and maintenance plan	X					Municipal employees	Laptop	N/A
Lack of awareness on impact of waste	Goal 4: Ensure that people are aware of the impact of the waste on their health, well-being	Develop an education and awareness programme	X	x	x	x	X	Municipal employees	Laptop	N/A
		Implementation of education and awareness campaign	X	X	X	X	X	Municipal employees	Catering	R50 000
		Conduct education and awareness campaign at schools	X	X	X	X	X	Municipal employees	Pamphlets, banners, projector	R 20 000

	and the environment	Emakhazeni LM Solid waste management officials to attend education seminars and waste management forums	X	X	X	X	X	Municipal employees	None	N/A
No record of waste transporters and recycled waste	Goal 5: Achieve integrated waste management planning	Registering of waste generators, transporters and recyclers and reporting to the municipality.	X	X	X	X	X	Municipal employees	Laptop	N/A
No promulgated waste management by-laws to enforce non-compliance for waste management	Goal 6: To ensure compliance and enforcement	Review and promulgate waste management by-law	X	X				Municipal employees and stakeholders	Laptop	N/A
		Monitor and enforce compliance with regulations, authorisation conditions and plans	X	X	X	X	X	Municipal employees	Vehicles and camera	R7 000 for cameras
		Develop and review a system for residents to report transgressions		X	X	X	X	Municipal employees	Laptop	N/A
		Update and maintain the waste information system	X	X	X	X	X	Municipal employees	Laptop	N/A
		Participate in waste management intergovernmental meetings, training and workshop	X	X	X	X	X	Municipal employees	None	N/A

8. Monitoring and review

8.1 Establishment of an IWMP monitoring committee

To ensure that the IWMP remains up to date as far as practically possible and stays relevant, it must go through a review process. This process will be initiated and followed by the IWMP advisory committee. The committee will review the proposed projects and implementation items contained in the IWMP. The members of the committee responsible for their separate tasks will ensure that projects are followed reported on and the IWMP and its schedule are up to date.

8.2 Monitoring programme

For the IWMP to be an effective and relevant tool and guide for integrated waste management in the Emakhazeni Local Municipality, it will need to be monitored and reviewed. Monitoring relates to the goals and targets set out in the IWMP and whether they are being achieved or pursued. Reviewing relates to the document and the projects themselves which will require regular updates to stay up to date, specifically the implementation items.

8.3 Waste management implementation

For solid waste management department to provide effective and efficient service, adequate operational and capital budget should be provided to effectively achieve the deliverables.

9. CONCLUSION AND RECOMMENDATION

In the course of the development of this IWMP, the current solid waste management system of the Emakhazeni Local Municipality has been assessed in order to find out the adequacy, shortcomings and possible improvements.

A Waste Information System should be implemented for the Municipality. The aim of this information system will be to provide all the necessary detail information pertaining to waste management i.e. permit/licence status of disposal facilities, volumes disposed off, condition of the landfills, number and type of equipment, date of purchase, operating and maintenance cost, replacement date, type of service, number of service points (domestic, commercial and industrial), the number of personnel involved, etc.

Decisions concerning new equipment or services can then be made based on accurate information provided by the above system. Some of the information in this document can serve as a basis for future development of such a Waste Information System. The above is regarded to be of the utmost important to the Municipality.

This IWMP should be regularly reviewed as to ensure that future planning is done correctly for an instance:

- Community awareness campaigns should be implemented to educate the communities and school learners on responsible waste management
- The Municipality should promote recycling and/or waste minimisation.
- The informal salvaging operations at the landfill sites should be formalised to ensure that the reclaimers co-operate with the landfill supervisor.

The above recommendations should ensure that the short term waste management requirements are met. Once the Waste Information System is implemented, this Plan should be re-evaluated and if need be adjusted. Long term planning can then be done in a more responsible manner. This will ensure that sound waste management is practiced in the municipality.