



INTEGRATED WASTE MANAGEMENT PLAN

2015

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1. INTRODUCTION

1.1 Background: All human activities give rise to residual materials which are not immediately use where they arise. These residuals may be recycled, reclaimed, or reused; otherwise they constitute waste which will ultimately be released to the environment. The biosphere has the capacity to transform many wastes over time, either into harmless products or into nutrients which can be used again.

However, the natural assimilation capacity of the environment can easily be exceeded if wastes, particularly those from man's industrial activities, are not controlled. Indeed, for some wastes such as persistent plastics and chlorinated organic compounds, the environment appears to have little or no assimilative capacity. In such circumstances, pollution and loss of environmental quality will ensue.

Careful planning and control of waste management is thus required. Ideally, waste management should be viewed as a unit, with integrated control directed at all three waste receiving media, namely air, water, and land. However, the complexity of such an approach has led to fragmentation, with the various problems being dealt with in a piecemeal fashion, as and when the environmental insults reaches such proportions as to demand immediate action.

The relationships between the three waste receiving media must always be born in mind. The reduction of air pollution by removing particulate materials or acidic gases before discharge produces either a solid or a liquid waste for disposal; the reduction of water pollution normally produces sludge. Wastes which are not acceptable for discharge to water, including solids, sludges, and some liquids, are normally disposed of on land. Attempts to treat this waste to make them more acceptable for disposal, for example by incineration, simply shifts some of the waste load back to the atmosphere or back to water, exchanging one pollution for another.

1.2 Description of the Area: Uthukela District Municipality is one of the ten District Municipalities in the Province of KwaZulu-Natal. It was established during the 2000 transformation of local government. The District Municipality derives its name from the Uthukela River that arises from the Drakensburg Mountains and supplies water to a large portion of KZN as well as Gauteng.

The municipality is about 11 500km² in size. It is located in the western boundary of KwaZulu-Natal and predominantly rural; with three of its five municipalities being rurally based. The socio-economic indicators of the District are characterised by low revenue base, poor infrastructure, limited access to services, low economic base, high levels of poverty, unemployment, skill shortage, lack of resources and low level of education. The District is underdeveloped and its settlements patterns make it difficult to plan for effective service delivery.

As indicated earlier on, the municipality has five local municipalities namely Indaka local municipality ,Emnambithi / Ladysmith Local municipality, Umtshezi local municipality, Okhahlamba local municipality and Imbabazane Local municipality.

1.3 Goal: The main goal of the district Integrated Waste Management Plan is to optimise waste management by maximising efficiency and minimising associated health and environmental impacts and financial costs.

1.4 Objectives: The objectives are:

- ◊ To access the current waste management system and highlight positive aspects and deficiencies in respect of waste management within uThukela District.
- ◊ To improve waste management in the District.
- ◊ To institute a process of waste management aimed at pollution prevention and minimisation at source.
- ◊ To manage the impact of pollution and waste on the receiving environment.
- ◊ To manage waste in a holistic and integrated manner.

2. POLICY AND LEGISLATIVE REVIEW

The Integrated Pollution and Waste Management Policy and the National Waste Management Strategy are the prescripts that compel the municipality to develop an integrated waste management system. In order to achieve the policy objectives, the municipality in terms of the policy and the Waste Management Act is required to develop and implement a local waste management plan which articulates strategies and initiatives for integrated waste management. The integrated waste management plan has to translate policy objectives into practice and address the deficiencies and gaps in the municipal waste management systems.

Below is a brief overview of the legislative framework taken into account when compiling this strategy document.

2.1 The Constitution of South Africa Act No.108 of 1996

- ◊ Section 24 of the Constitution says that everyone has a right to an environment that is not harmful to their health or well being.
- ◊ It further gives assurance that people have a right to have the environment protected for the benefit of present and future generation through reasonable legislation and other measures that:
 - Prevent pollution and ecological degradation
 - Promote conservation and

- Secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development

2.2 The National Environmental Management Act No. 107 of 1998

- ◇ The Act provides for cooperative environmental governance by establishing principles for decision making on matters affecting the environment and institutions that promote cooperative governance.
- ◇ It also lays down procedures for coordinating environmental functions exercised by organs of state.

2.3 The Environment Conservation Act No. 73 of 1989

- ◇ The main aim of this Act is to provide and give guidelines for the effective protection and controlled utilisation of the environment. It major emphasis in on:
 - Protection of natural environment
 - Control of environmental protection
 - Control of activities which may have detrimental effect on the environment
 - Gives provisions on regulation of waste management, littering, noise, vibration and shock.
 - Gives guidelines on how to treat non-compliances.

2.4 The Hazardous Substances Act No. 15 of 1973

- ◇ This Act gives guidelines on how to control substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances, and for the control of certain electronic products.
- ◇ The Act further groups these hazardous substances according to their degree of danger and gives guidelines on importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products.

2.5 The National Water Act No. 36 of 1998

- ◇ The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account the following:
 - Meeting of basic human needs of present and future generations.
 - Promote equitable access to water.

- Redress the results of past racial and gender discrimination.
- Promote the efficient, sustainable and beneficial use of water in the public interest.
- Facilitate social and economic development.
- Provide for growing demand of water use.
- Protecting aquatic and associated ecosystems and their biological diversity.
- Reducing and preventing pollution and degradation of water resources.
- Managing floods and droughts.

2.6 Integrated Pollution and Waste Management Policy:

- ◇ This policy applies to all government institutions, society at large and to all activities that impact on pollution and waste management.
- ◇ It seeks to promote and enforce
 - Prevention of waste generation.
 - Minimisation of waste generation.
 - Management and minimisation of the impact of unavoidable waste from its generation to its final disposal.
 - Remediation of polluted environment by holding culprits accountable.
 - Prosecution of non-compliance with authorization and legislation

2.7 The National Waste Management Strategy:

- ◇ The strategy helps in operationalizing the IP& WMP by delineating short term priority action plans consisting of six key elements namely:
 - Integrated waste management planning
 - Waste information system
 - General waste collection
 - Waste minimisation and recycling
 - Waste treatment and disposal
 - Capacity building, education, awareness and communication

2.8 The Policy on the Disposal of Medical Waste:

- ◇ All medical waste must be incinerated for at least 1 second at 800°C in an incinerator with a valid licence in terms of the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965), which has available capacity.
- ◇ If transportation of medical waste from different sources to a central point is required (this is the case with all clinics and hospitals in Uthukela), all precautions necessary to minimise the risk of spillages should be taken.

2.9 The Agenda 21 Summit Document:

- ◇ This is basically a declaration on Environment and Development by approximately 178 countries in the 1992 Rio Conference.
- ◇ Its major goal is to establish new and equitable global partnerships through the creation of new levels of cooperation among states, key sectors of societies and people working towards international agreements. It also seeks to respect and protect the integrity of global environment and developmental systems, while simultaneously recognising the integral and interdependent nature of the Earth.
- ◇ In achieving environmental protection, the following has to be considered:
 - Social and economic dimensions
 - Conservation and management of resources for development
 - Strengthening the role of major groups
 - Provision of the means of implementations

The founding principles of this plan are based on the principles of Integrated Waste Management and the waste hierarchy below. Most important for this plan to be successful is the creation of conditions that support and encourage responsible behaviour, particularly amongst generators, service providers and regulators. The NWMS's strategic objectives are many but mostly focus on creating a holistic and integrated approach to managing waste, ensuring sustainable environmental and public health protection, developing waste information systems and rigorous law enforcement and pursuing the principle that the polluter pays. It sets out a plan of action on how waste should be dealt with in the future, the focus of which is a hierarchy system that aims first to promote the reduction and minimisation of waste production, thereafter reuse and recycling options are to be pursued. Disposal is to be the last option in tackling waste.

Integrated Waste Management and the Waste Hierarchy Approach

WASTE HIERACHY	
CLEANER PRODUCTION	Prevention
	Minimisation
COLLECTION & TRANSPORT	Recovery
	Re-use
	Re-use

RECYLING	Recovery
	Treatment, Composting, Landfilling
DISPOSAL	

This plan conceptualises the first attempt at setting up a strategy for future waste management and planning for Uthukela District Municipality. It encourages a hierarchy approach towards more sustainable methods of prevention, minimisation and recycle and final disposal. The primary objective of the plan is to integrate, improve and optimise waste management in order to maximise efficiency by providing an adequate service to residents and businesses and, minimise the associated environmental impacts and financial costs to improve the quality of life of all people in Uthukela District Municipality.

The reliance on disposal to land should no longer be the only option for the future. Current waste practices need to change to avoid the loss of valuable resources in the waste and the risk of long-term pollution to the physical environment. A sustainable waste management strategy requires changes to the way waste is managed and the plan's approach is based on the principles of sustainable waste management as referred to above. The objectives of this plan as set out below are derived from the Integrated Pollution and Waste Management Policy, the National Waste Management Strategy and the principles of the National Environmental Management Act. These objectives are:

- ◆ To provide an integrated waste management strategy combining all methods of waste management with regard to the waste hierarchy.
- ◆ To progressively reduce the amount of waste which is currently disposed.
- ◆ To increase waste prevention, minimisation and recycling.
- ◆ To treat and dispose of all the waste within Uthukela District Municipality.
- ◆ Minimise adverse social and environmental impacts related to waste management and thereby improve the quality of life for all the citizens within Uthukela District Municipality.

3. STATUS QUO ANALYSIS

3.1 Demographic

Uthukela District Municipality covers an area of 11,329km² and has a population of 630 000 people with about 134 845 households. The district municipality consist of five local municipalities namely, Emnambithi/Ladysmith local municipality, Imbabazane local municipality, Indaka local municipality, Okhahlamba local municipality and Umtshezi local municipality. Emnambithi local municipality has the largest population at 230 511 and Umtshezi local municipality the smallest at 48 328.

The average population density is 56 people/km², ranging from 23 people/km² in Umtshezi to 157 people/km² in Imbabazane. The average household size varies within the rural area from 5 to 8 persons. Urban areas include Ladysmith, Ezakheni, Colenso, Ekuvukeni, Escourt, Weenen, Bergville and Winterton and/or Khethani.

VARIABLE	EMNAMBITHI	IMBABAZANE	INDAKA	OKHAHLAMBA	UMTSHEZI
Population	237 437	113 073	103 116	132 068	83 153
Number of Households	58 058	22 365	20 035	27 576	19 252
Human Concentration	Driefontein		Entire Municipality	Winterton, Catkin & EmaSwazini (Ward 1)	Escourt, & Weenen
Informal Settlements	Roosbom, Watersmeet, Driefontein, Peace town, St Chads & Umbulwana		Uitval	None	Mostly Rural areas
Households Receiving Waste Collection	34 310	None	2 734	18 500	8 939
% Households with no Waste Collection	41%	None	86%	33%	54%

3.2 Waste Quantities and Characteristics (wastes quantities in tons per annum)

3.2.1 Ladysmith Local Municipality

	WASTE SOURCES	Domestic	Business	Industrial	Medical	Mining
WASTE QUANTITIES						
Generated		30 990	13 094	10 550	109	26
Collected		30 990	13 094	10 550	109	26
Stored		None	None	None	None	26
Recycled		None	37	None	None	None
Treated		None	None	None	109	None
Disposed		30 990	13 094	10 550	109	26

3.2.2 Imbabazane Local Municipality

	WASTE SOURCES	Domestic	Business	Industrial	Medical	Mining
WASTE QUANTITIES						
Generated		NR	NR	1 327	UPH	None
Collected		None	None	1 327	UPH	None
Stored		None	None	1 327	UPH	None
Recycled		None	None	None	UPH	None
Treated		None	None	None	UPH	None
Disposed		None	None	1 327	UPH	None

NR – Not Recorded UPH – Medical Waste sent to Umtshezi Provincial Hospital

3.2.3 Indaka Local Municipality

	WASTE SOURCES	Domestic	Business	Industrial	Medical	Mining
WASTE QUANTITIES						
Generated		2 400	480	None	LPH	None
Collected		2 400	480	None	LPH	None
Stored		None	None	None	LPH	None
Recycled		None	None	None	LPH	None
Treated		None	None	None	LPH	None
Disposed		2 400	480	None	LPH	None

LPH – Medical Waste sent to Ladysmith Provincial Hospital

3.2.4 Okhahlamba Local Municipality

	WASTE SOURCES	Domestic	Business	Industrial	Medical	Mining
WASTE QUANTITIES						
Generated		624	5 748	None	26	None
Collected		624	5 748	None	26	None
Stored		None	None	None	None	None
Recycled		None	None	None	None	None
Treated		312	1 817	None	26	None
Disposed		312	3 931	None	26	None

3.2.5 Umtshezi Local Municipality

	WASTE SOURCES	Domestic	Business	Industrial	Medical	Mining
WASTE QUANTITIES						
Generated		3 170	1 378	3 776	72	None
Collected		3 170	1 378	3 776	72	None
Stored		None	None	None	None	None
Recycled		None	None	None	None	None
Treated		None	None	None	72	None
Disposed		3 170	1 378	3 776	72	None

There are two main categories that describe the waste that is generated within Uthukela District Municipality namely,

- ◆ General waste: - this is waste that does not pose an immediate threat to humans or the environment (like household waste, building rubble, garden waste and certain dry industrial and business waste).
- ◆ Hazardous waste: - means waste that is associated with chemical reactivity or toxic, explosive, corrosive or other characteristics which cause or are likely to cause danger to health or the environment whether alone or in contact with other waste. Medical waste which is quite prevalent in the area falls under this category.

3.3 Existing Waste Management Systems and Practice

VARIABLE	EMNAMBITHI	IMBABAZANE	INDAKA	OKHAHLAMBA	UMTSHEZI
Collection Services	Yes	No	Yes	Yes	Yes
Cleansing Services	Yes	No	Yes	Yes	Yes
Transport of Waste	Yes	No	Yes	Yes	Yes
Transfer of Waste	No	No	No	No	Yes
Waste Minimisation	No	No	No	No	No
Recycling Systems	Yes	No	No	No	No
Waste Disposal	Yes	No	Yes	Yes	Yes

3.3.1 As can be seen from the above, only four local municipalities namely Emnambithi, Indaka, Umtshezi and Okhahlamba have a refuse collection services.

3.3.2 Imbabazane Local Municipality does not have a formal refuse collection service as it does not have urban residents within its area of jurisdiction. Rural communities dispose of their solid waste on site by digging refuse pits and bury waste in those pits. Some of these solid wastes is burned. The municipality, local library and Home Affairs refuse is taken once a week to the Umtshezi landfill site.

3.3.3 Medical waste in all clinics and hospitals is kept safe in specifically labelled refuse bags and taken to an incinerator in Pinetown.

3.3.4 Why Waste, which is based in Ladysmith, is the major recycling enterprise in the whole of Uthukela. They recycle the following:

- ◆ Paper and cardboards,
- ◆ Plastics,
- ◆ Clothing materials,
- ◆ Uncured rubber,
- ◆ Glass,
- ◆ Ferrous metal and
- ◆ Non-ferrous metals.

3.3.5 Very little waste minimisation takes place in the District.

3.3.6 Waste Treatment Facility

DESCRIPTION	EMNAMBITHI	IMBABAZANE	INDAKA	OKHAHLAMBA	UMTSHEZI
Name	None	None	None	Bergville	None
Geographic Location	None	None	None	Cathkin Park	None
Type of Treatment	None	None	None	Incineration	None
Year of Construction	None	None	None	2001	None
Capacity	None	None	None	NR	None
Throughput	None	None	None	NR	None
Hours of Operation	None	None	None	8	None
Input & Output Chart	None	None	None	None	None
Residue Characteristics	None	None	None	Ash	None
Enviro Monitoring Programme	None	None	None	Monthly	None
Environmental Impact	None	None	None	None	None
Permit Certificate	None	None	None	None	None

3.3.7 Waste Disposal Site

DESCRIPTION	EMNAMBITHI	IMBABAZANE	INDAKA	OKHAHLAMBA	UMTSHEZI
Name	Acaciavale	None	Ekuvukeni	Bergville	Umtshezi
Geographic Location	Acaciavale	None		R74 Bergville	Beacon Hill near R103
Area Covered	Ladysmith, Steadville & Zakheni	None	Ekuvukeni T/ship	Bergville & Winterton	Escourt & Weenen
Year of Construction	1995	None		1975	1993
Resources Available	Compactor	None	None, Ransacked	Incinerator	Guard house, shed, jojo water tank, compactor, leachate dam, high pressure washer, tools & spanners
Permit Certificate	B33/2/2020/p163	None	None	None	B33/2/2020/15p76
Type and Quantities	Household, Business & Industrial 44 640 tons	None	Household, 66 tons	Household & Business, 117 tons	Household, Business & Industrial 581 tons
Description of Neighbouring Area	Residential	None	Residential & Rural	Residential, River	Informal Settlement
Signposting & Road Access	Yes	None	Yes	Poor & Accessible	Yes
Type of Site	General	None	General	General	General
Access Control	No	None	No	Yes	24 Hour Security
Collection of Disposal Tariffs	Yes	None	Yes	Yes	Yes
Landfill Operation	Compacting & Cover	None	None, just throw staff	Cover	Compacting & Cover
Method of Landfilling	Trench System	None	Trench System	Trench System	Trench System
Co-disposal	Solid Waste Only	None	Solid Waste Only	Solid Waste Only	None
Health Care Waste	None	None	None	None	None
Excavation for Cover	Yes	None	Yes	No	Yes
Drainage	Yes, cut off drains around site	None	None	Not Required	Yes, cut off drains around site
Control of Nuisances	Daily Covering	None	None	Daily Covering	Daily Covering
Salvaging Activities	Prohibited	None	Prohibited	Prohibited	Prohibited
Waste Reclamation	Prohibited	None	None	Prohibited	Prohibited
Leachate & Waste Management	Random Checks	None	None	Not Checked	Random Checks
Rehabilitation	Ongoing	None	None	Ongoing	Ongoing
Final Cover	Ongoing	None	None	Ongoing	Ongoing

Public Participation		None	No		Yes
Plans for Extending/Closing		None	Extension	Closing	No, 10 years left
Environmental Monitoring	Yes, Random	None	None	Yes	Yes, Random

4. GAPS AND NEEDS ASSESSMENTS

4.1 Waste Management Gaps

STRATEGIC ISSUES	GAPS
Integrated Waste Management Planning	<ul style="list-style-type: none"> ◇ Lack of waste avoidance ◇ Poor resource recovery ◇ Lack of waste treatment ◇ Poor waste disposal practices
Waste Management Information	<ul style="list-style-type: none"> ◇ Lack of information ◇ Lack of waste information collection, capturing and recording systems ◇ Lack of reporting requirements ◇ Lack of information management and dissemination systems
Waste Collection Services	<ul style="list-style-type: none"> ◇ Lack of access to collection services for some households especially rural areas ◇ Lack of standardized waste collection systems for some inaccessible areas ◇ Inflexibility of current waste collection systems to collect separated waste for recycling ◇ Illegal dumping ◇ Poor monitoring of waste collection services
Waste Minimisation and Recycling	<ul style="list-style-type: none"> ◇ No separation at source ◇ Disposal of garden waste in landfill sites ◇ No composting facilities ◇ Poor coordination of recycling activities
Waste Disposal Facilities	<ul style="list-style-type: none"> ◇ Poor design of landfill sites ◇ Incorrect location of landfill sites. Buffer zone in most cases is less than the required minimum of 500m ◇ Poor rehabilitation of abandoned landfill sites, rehabilitation not done as per DWAF Minimum Requirements ◇ Unlicensed Landfill sites ◇ Lack of fencing and poor access control ◇ Scavenging by people and animals ◇ No waste screening objects to prevent waste debris flying all around the landfill site ◇ Co-disposal of waste like garden waste with domestic waste, construction and demolition waste
Closed Landfill Sites	<ul style="list-style-type: none"> ◇ Poor site capping ◇ Poor ground water monitoring ◇ Poor site monitoring
Institutional/Organisational	<ul style="list-style-type: none"> ◇ Institutional and organisational capacity ◇ Clearly defined roles and responsibilities

Education, Capacity Building and Awareness Needs	<ul style="list-style-type: none"> ◇ Lack of coordination of education and awareness ◇ Inadequate education and awareness on waste management issues ◇ Lack of comprehensive understanding of waste management issues
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4.2 Waste Management Needs

STRATEGIC ISSUES	Needs
Integrated Waste Management Planning	<ul style="list-style-type: none"> ◇ Implement separation at source ◇ Start recycling programmes ◇ Treat waste where possible ◇ Improve waste disposal practices
Waste Management Information	<ul style="list-style-type: none"> ◇ Collect information general waste management including operation of landfill sites ◇ Monthly meetings to report on waste management ◇ Collect information on environmental impact and resources in general
Waste Collection Services	<ul style="list-style-type: none"> ◇ Include collection services for households in rural areas ◇ Provide resources like appropriate refuse bags and bins to kick start separation at source ◇ Mark and monitor areas prone to illegal dumping ◇ Regulate and monitor of waste production through use of bylaws ◇ Enforce waste control measures ◇ Appropriate and suitable waste collection systems for inaccessible areas
Waste Minimisation and Recycling	<ul style="list-style-type: none"> ◇ Implement separation at source to facilitate formation of more recycling centres ◇ Encourage people to use biodegradable materials to build their own composts ◇ Establish composting facilities to make use of all of garden wastes and other biodegradable materials ◇ Recycling infrastructure ◇ Market for recyclables

Waste Disposal Facilities	<ul style="list-style-type: none"> ◇ Design landfill sites as per DEA requirements ◇ Build landfill sites in appropriate areas. Keep to buffer zone requirements. ◇ Closed landfill sites should be appropriately rehabilitated as per DEA Minimum Requirements ◇ Unlicensed Landfill sites should be closed down. ◇ Landfill sites should be fenced to prevent scavenging ◇ Plant or erect waste screening objects to prevent waste debris flying all around the landfill site ◇ Different types of wastes should be separated and disposed of appropriately ◇ Appropriate and efficient management of landfill sites ◇ Waste treatment and processing technologies and facilities
Closed Landfill Sites	<ul style="list-style-type: none"> ◇ Use appropriate materials to do site capping ◇ Ground water should be monitored to determine the extent of groundwater contamination ◇ Site monitoring should be done on an ongoing bases using predetermined parameters
Institutional/Organisational	<ul style="list-style-type: none"> ◇ to have an organisational structure in line with all waste management planning requirement ◇ Implement appropriate mechanisms for monitoring and enforcement of waste management ◇ Ensure enforcement efforts are efficient, well coordinated and effective ◇ Ensure that there is sufficient capacity and capability in the municipality for waste management planning, contract management, a monitoring and enforcement
Education, Capacity Building and Awareness Needs	<ul style="list-style-type: none"> ◇ Involve communities in waste management committees ◇ Educate communities and run awareness campaigns on waste management issues ◇ Conduct refresher courses on staff involved with waste management issues

4.3 Future Waste Generation Rates Quantities (tons) and Characteristics

4.3.1 Ladysmith Local Municipality

	WASTE QUANTITIES	2015	2016	2017	2018	2019
WASTE SOURCES						
Domestic		27 240	30 990	35 948	42 417	50 900
Business		11 470	13 094	14 769	16 984	19 871
Industrial		9 080	10 550	12 238	14 318	16 895
Medical		96	109	124	141	161
Mining		24	26	28	30	32

- (a) Domestic waste increases by an average of 18% per annum due to development of new residential areas both in the suburbs and township. We are also looking at extension of waste collection services to some rural areas.
- (b) Waste generated by businesses will increase due to improved collection coverage and proposed shopping centre becoming operational.
- (c) There is also marginal increase in industrial waste generated due to new investments in the municipality and improved waste collection.
- (d) Increases in medical and mining waste are negligible.

(e) SUPPORTING BUDGET

BUDGETED YEARS	2015	2016	2017	2018	2019
Budget Figures	11 164 537.00	12 504 281.00	14 004 795.00	15 685 370.00	17 567 614.00

- (i) The increment in budget is 12% per annum to cater for inflation and other cost increases like maintenance charges and refuse bags.
- (ii) The municipality needs to budget for coloured refuse bags to help with separation at source for recyclable materials (R2m).
- (iii) The landfill site will have to be fenced with palisade fencing to access to the site.

4.3.2 Imbabazane Local Municipality

	WASTE QUANTITIES	2015	2016	2017	2018	2019
WASTE SOURCES						
Domestic		NR	NR	NR	NR	NR
Business		NR	NR	NR	NR	NR
Industrial		1 327	1460	1 635	1 848	2 088
Medical		NR	NR	NR	NR	NR
Mining		None	None	None	None	None

- (a) This municipality has no record of waste generation, collection and disposal because it currently does not provide these services to its residents.

NR – Not Recorded UPH – Medical Waste sent to Umtshezi Provincial Hospital

(e) SUPPORTING BUDGET

BUDGETED YEARS	2015	2016	2017	2018	2019
Budget Figures	-	-	4 950 000	1 500 000	1 680 000

- (i) The municipality needs to start setting up its waste management department. Therefore there needs to be a budget for personnel and equipments; and a suitable place for a transfer station needs to be identified. Recycling projects to be undertaken at the transfer station in order to minimise waste.
- (ii) Waste needs to be collected from:
- Schools
 - Taxi ranks
 - General stores and spaza shops
 - Special events like sports grounds and pay points
 - Strategically placed industrial refuse containers or mechanical skips.

4.3.3 Indaka Local Municipality

	WASTE QUANTITIES	2015	2016	2017	2018	2019
WASTE SOURCES						
Domestic		2 215	2 400	2 592	2 851	3 193
Business		389	480	528	591	674
Industrial		None	None	None	None	None
Medical		LPH	LPH	LPH	LPH	LPH
Mining		None	None	None	None	None

- (a) There is an average of 10% increase in domestic waste due to expansion of Ekuvukeni township, as there are developments of new settlements in the area.
- (b) 12% increase in volumes of business waste due to collection of waste in taxi ranks, general stores and the completion of the proposed shopping centre.

LPH – Medical Waste is sent to Ladysmith Provincial Hospital

(c) SUPPORTING BUDGET

BUDGETED YEARS	2015	2016	2017	2018	2019
Budget Figures	679 400	781 310	898 507	1 033 283	1 188 276

- (i) The increment in budget is 15% per annum to cater for inflation.

4.3.4 Okhahlamba Local Municipality

	WASTE QUANTITIES	2015	2016	2017	2018	2019
WASTE SOURCES						
Domestic		580	624	674	728	786
Business		5 115	5 748	6 178	6 919	7 959
Industrial		None	None	12	20	30
Medical		20	26	28	31	36
Mining		None	None	None	None	None

- (a) There is an average of 8% increase in domestic waste due to residential estates being built and development of current urban settlements.
- (b) 12% increase in volumes of business waste due to increase numbers of people in town and town expansion.
- (c) There is a moderate 11% increase in medical waste.

(d) SUPPORTING BUDGET

BUDGETED YEARS	2015	2016	2017	2018	2019
Budget Figures	1 000 000	1 500 000	1 680 000	1 881 600	2 107 392

- (i) The increment in budget is 12% per annum to cater for inflation.

The existing waste disposal site should be converted to a transfer station.

4.3.5 Umtshezi Local Municipality

	WASTE QUANTITIES	2015	2016	2017	2018	2019
WASTE SOURCES						
Domestic		3 052	3 170	3 424	3 835	4 410
Business		1 209	1 378	1 571	1 822	2 150
Industrial		3 799	3 977	4 613	5 397	6 369
Medical		65	72	80	89	99
Mining		None	None	None	None	None

- (a) Domestic waste increases by an average of 12% per annum due to completion of new residential areas both in the township and the town. Collection services are to be extended to some areas not currently serviced (rural areas)
- (b) Waste generated by commercial businesses will increase by an average of 16% due to new business developments and improved collection coverage.
- (c) There is also an average increase of 17% in industrial waste generated due to new investments in the municipality and improved waste collection.

(d) SUPPORTING BUDGET

BUDGETED YEARS	2015	2016	2017	2018	2019
Budget Figures	4 000 000.00	4 925 841.00	5 664 717.00	6 514 425.00	7 491 589.00

- (i) The increment in budget is 15% per annum to cater for inflation and other cost increases like maintenance charges and hiring of equipments.
- (ii) The current waste disposal site should be converted to a transfer station.

5. DEVELOPMENT OF GOALS, OBJECTIVES AND POLICIES

The overarching goal of the waste management plan is to ensure that waste is managed in an environmentally sound manner and in an integrated way so as to prevent harm to the health of the people and the environment. The intention is to move away from the 'end of pipe' approach to an integrated waste management approach based on the waste management hierarchy (avoidance, minimisation, re-use, recover, re-cycle and dispose).

5.1 Waste Information Management

5.1.1 Goal: to have accurate waste information and effective information management systems

5.1.2 Objectives: they are

- ♦ to develop information systems to capture relevant data for current operation and future planning for optimum waste management and budgeting
- ♦ to establish a monitoring and information system to track waste generation, collection, reuse, recycling, reprocessing and disposal in terms of waste flow and facilitate waste exchange (indicators and unit costs)
- ♦ assist in the delivery of information on waste services
- ♦ enforce the retrieval of information from the private sector

5.1.3 Target: to have a fully operational WIS in place this will include an extensive business and household waste database to feed in the up to date waste management information system.

5.2 Waste Collection Services

5.2.1 Goal: to provide an appropriate, affordable and sustainable waste collection service to all people in the District and ensure that they live in a healthy and clean environment free of illegal dumping.

5.2.2 Objectives:

- ◊ To extend access to quality and sustainable waste management services.
- ◊ To initiate and implement appropriate waste collection services to informal settlements, and high-density low. income and informal trading areas especially taxi ranks.
- ◊ To create awareness about waste management issues within the community and thereby empower communities to take responsibility for the cleanliness of their surrounding environment.
- ◊ To minimise illegal dumping and littering through sustained clean-up programmes, education and by-law enforcement
- ◊ To promote and support waste minimisation and recycling initiatives through user-friendly recycling facilities

5.2.3 Target: All households to receive a regular waste collection services and illegal dumping phased out.

5.3 Waste Minimisation and Recycling

5.3.1 Goal: To implement sustainable and formalised recycling projects that create sustainable jobs people in Uthukela District giving due consideration to social, environmental and economic factors.

5.3.2 Objectives:

- ◊ To encourage and promote separation of waste at source
- ◊ To promote waste minimisation and recycling
- ◊ To promote cleaner production
- ◊ To reduce waste quantities disposed of at landfill sites
- ◊ To evaluate and implement appropriate mechanisms to formalise salvaging at the transfer station and working face of the landfill site.
- ◊ To ensure that waste minimisation and recycling procedures and practices are adopted by all sectors of society
- ◊ To create sustainable employment through local entrepreneur development in waste recycling partnerships
- ◊ To comply with government policies, strategies and legislation related to waste management and recycling

5.3.3 Target: A target of 50% reduction of the domestic and commercial waste streams disposed to a landfill site by 2030.

5.4 Waste Disposal

5.4.1 Goal: to ensure sufficient long term waste disposal capacity that is environmentally and publicly acceptable, and also to ensure that the landfills are progressively rehabilitated in such a manner so as to minimise the impact on the environment and nearby communities.

5.4.2 Objectives:

- ◊ To establish a district landfill site with sufficient capacity to accept projected waste to be generated from the five local municipality for a period of over 50 years.
- ◊ To develop a plan for the progressive rehabilitation of current and future landfill sites and that addresses long-term impacts such as water pollution and landfill gas emissions
- ◊ Convert the current landfill sites to transfer stations.
- ◊ Address the potential impact and possible rehabilitation of all of the illegal dump sites within the District.

5.4.3 Targets:

- ◊ Develop and commission new big district landfill site to receive waste
- ◊ Closure and rehabilitation of all old landfill sites and convert them to transfer station

5.5 Garden Waste and Composting

5.5.1 Goal: To divert green and garden waste from the general waste stream to composting facilities

5.5.2 Objectives:

- ◊ To develop an incentive based integrated garden waste and composting strategy to achieve the proposed goal of 50% diversion of garden waste from landfill sites
- ◊ To develop partnerships with the private sector so as to optimise the management, quality, marketability of the garden waste sites and the final compost product
- ◊ To investigate ways of collecting garden waste sites and the final compost product
- ◊ To encourage the participation of the public in achieving the goal and the key objectives, through education and

awareness and also by creating an incentive based composting strategy

- ◊ To investigate and determine the viability of enhancing the garden waste compost product with the addition of an acceptable waste water sludge (biological and inorganic quality)

5.5.3 Target: To divert 50% of green and garden waste currently being landfilled to new garden waste composting sites by 2025.

5.6 Organisational, Institutional and Regulatory

5.6.1 Goal: Successful implementation and five year review of the waste management plan from an organisational and institutional perspective with all targets set up by WMP being realised

5.6.2 Objective:

- ◊ To implement appropriate mechanisms for monitoring and enforcement of waste management by-laws
- ◊ That enforcement efforts are efficient, well coordinated and effective
- ◊ That there is sufficient capacity and capability in the municipality for planning, contract management, and monitoring or enforcement
- ◊ To have an organisational structure in line with all waste management planning requirement

5.6.3 Target: To develop and implement waste management by-laws by year 2025.

5.7 Waste Management Education, Capacity Building and Awareness

5.7.1 Goal: To ensure that the populace of Uthukela District Municipality are informed and made aware of waste management issues in general and of the integrated waste management system and that the municipal staff involved with waste management and related issues is capacitated to implement the plan successfully.

5.7.2 Objectives:

- ◊ Develop and implement a communication and public awareness programme
- ◊ To build capacity and raise the skill profiles of the municipal staff

- ◊ That the public and private sector understand their specific roles and cooperate and participate in the waste management issues
- ◊ To have a relatively high level of commitment and understanding from the public and from industry to strive for a clean environment
- ◊ To have structured successful awareness raising and information campaigns established within the District
- ◊ To change the historical mindset around illegal dumping and littering

5.7.3 Target: that 95% of all the populace of the District will have been exposed to information and been aware of waste management and waste management planning issues by the end of 2025.

6. DEVELOPMENT AND EVALUATION OF ALTERNATIVES AND SCENARIOS

This section describes the recommended strategies and action plans relating to all the strategic priorities above. The action plan outlines the strategic goals, activities, outcomes, time frames and implementation requirements. The activities proposed in this section are short, medium and long term.

6.1 Waste Minimisation and Recycling

6.1.1 Waste Minimisation and Recycling Strategy: The municipality strategy for waste minimisation should be based on the waste hierarchy approach which is as follows

- ◊ Cleaner production (waste prevention and minimisation)
- ◊ Recycling (reuse, recovery and composting)
- ◊ Treatment (physical, thermal and chemical destruction)
- ◊ Disposal (landfilling)

The waste management hierarchy is an important component for achieving sustainable waste management. By implementing the hierarchy:

- ◊ Industries will avoid or minimise waste production at source by reviewing their production processes and substituting environmentally hazardous with less hazardous raw materials
- ◊ The service sector and consumers will reduce waste through the selection of appropriate use of products
- ◊ Certain waste products in the production process are recycled to recover raw material for further use in industrial processes
- ◊ Post consumption products are reused or recycled for resource recovery

In addition, recycling has the potential for job creation, by promoting entrepreneurs to establish community collection systems and recycling centres. **Therefore the municipality needs to establish**

- ◇ **recycling centres** (metal, plastic, bottles and paper)
- ◇ **buy-back centres** (metal, plastic, bottles and paper)
- ◇ **composting plant** (for garden waste)

Collect-a-Can, Enviro-Glass and Mondi Paper could be important partners in these ventures.

Recycling is also a viable alternative to informal salvaging at landfills, which is undesirable due to the associated problems of health and safety.

The overall aim of the strategy is to help reduce the amount of waste produced in the District by encouraging responsible attitudes towards waste management and sustainable waste management practices.

6.1.2 Action Plan

In order to ensure the effective implementation of the waste minimisation and recycling strategic priorities an action plan has to be developed. The action plan identifies strategic objectives and key activities that need to be undertaken to achieve these goals.

The following is the strategy for the promotion of Waste Minimisation:

STRATEGIC INITIATIVES	ACTIVITIES
Legislative and Regulatory	<ul style="list-style-type: none"> ◇ Set legislated targets for waste minimisation and recycling ◇ Amend by-laws to require separation at source ◇ Develop appropriate legal framework for waste minimisation and recycling ◇ Make waste minimisation an integral part of licensing procedures
Economic Parameter	<ul style="list-style-type: none"> ◇ Investigate the feasibility of introducing economic instruments ◇ Identify alternative markets for recyclable products
Information Sharing	<ul style="list-style-type: none"> ◇ Develop information and communication programmes for civil society and private sector ◇ Develop and display public information sheets ◇ Provide information on municipality and general waste handling ◇ Develop and implement a promotional campaign

	<ul style="list-style-type: none"> ◊ Develop municipal waste minimisation and recycling programme ◊ Modify procurement policy to incorporate a requirement for purchase and acquisition of green products ◊ Develop green procurement guide for Uthukela ◊ Produce quarterly recycling publication for Uthukela
Infrastructure Development	<ul style="list-style-type: none"> ◊ Formalise waste reclamation at landfill sites ◊ Establish new recycling programmes ◊ Establish new buy back centres ◊ Establish composting facilities ◊ Research alternative/appropriate technologies for recycling ◊ Establish a private public partnership for the collection of recyclables and management of recycling facilities
Education and Awareness Programmes	<ul style="list-style-type: none"> ◊ Undertake need analysis on education, awareness and capacity ◊ Design education and awareness programmes ◊ Conduct education, awareness and capacity building programme

6.1.3 Strategic Outcomes

The following general outcomes will result from the implementation of the waste minimisation and recycling action plan.

STRATEGIC INITIATIVE	STRATEGIC OUTCOMES
Enforcement of Regulatory Requirements	<ul style="list-style-type: none"> ◊ Defining priority waste streams and targets for waste minimisation and recycling; introducing waste minimisation and recycling requirements in procedures relating licensing, permitting and environmental impact assessments ◊ Incorporating waste minimisation considerations in the municipal procurement contracts; identifying and removing particular barriers for cleaner production in existing legislation ◊ Examining the feasibility of introducing product based regulations as a means of promoting waste minimisation and recycling
Economic Incentives	<ul style="list-style-type: none"> ◊ The introduction of economic instruments and incentives to promote waste minimisation and recycling ◊ The implementation of deposit return schemes for certain refillable or recyclable containers
Infrastructure Development	<ul style="list-style-type: none"> ◊ Increase in collection and recycling of materials ◊ Availability of recycling facilities ◊ Reduction in waste generation and disposal ◊ Less dependence on landfilling ◊ Jobs and economic opportunities ◊ Less waste disposed to landfill sites ◊ Natural resources (renewable and non-renewable) will therefore be conserved, landfill space can be minimised, pollution will be avoided and environmental degradation will be reduced

Education & Awareness Programmes	<ul style="list-style-type: none"> ◊ The dissemination of information on waste minimisation through the development of a directory of case studies and sector specific guides ◊ The implementation of demonstration projects; the promotion of information and awareness campaigns about waste minimisation and recycling ◊ Amending educational curricula to reflect cleaner production, waste minimisation and recycling approaches to waste management
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6.2 Waste Collection

6.2.1 Waste Collection Strategy: The strategic initiatives and activities identified for this strategic priority represents activities aimed at addressing the key issues, needs and problems currently experienced with general waste collection in the District.

To meet the objectives of waste collection priority, waste collection systems based on partnerships with communities and private sector will have to be implemented. These include community based systems and public private partnerships. Services will have to be established for non serviced residential areas, partly or poorly serviced residential areas, non serviced low density residential areas and "hot spots" or dangerous areas.

6.2.2 Action Plan: To improve the quality of waste collection and access, the following action plan has been developed.

STRATEGIC INITIATIVE	ACTIVITIES
Extending access and improving the quality	<ul style="list-style-type: none"> ◊ Identify areas where services is non existent and initiate and implement appropriate waste collection systems ◊ Review waste collection operations, in order to make them as efficient as possible, with due regard to value for money in the area of municipal waste collection ◊ Collect accurate data regarding general and commercial waste generation and collection ◊ Investigate and implement waste collection systems that are appropriate for informal settlements and high density ◊ Set standards for street cleaning ◊ Set standards for services provided to low income areas and informal settlements ◊ Implement waste collection regulations ◊ Implement waste collectors permitting scheme
Refuse storage	<ul style="list-style-type: none"> ◊ Provide appropriate receptacles to all households, including informal settlements and low income neighbourhoods ◊ Investigate the feasibility of providing all residents with 120 L

	bins for recyclable materials
Illegal dumping and littering management	<ul style="list-style-type: none"> ◊ Identify illegal dumping hot spots ◊ Development and implement a clean up campaigns ◊ Provide Bulk Containers to places such as taxi rank and bus terminals ◊ Develop and implement anti-dumping campaigns ◊ Develop mechanisms and procedures to deal with illegal dumping of building waste ◊ Investigate alternative uses of building waste ◊ Monitor and enforce municipal by-laws on illegal dumping ◊ Implement anti-litter programme ◊ Review provisions under the waste management by laws to strengthen disincentives to illegal dumping behaviour and to encourage responsible disposal of waste
Payment for services	<ul style="list-style-type: none"> ◊ Develop education and awareness programmes, for example through the "Wake up to Waste" campaigns. Awareness programmes will be used to promote an understanding of the importance of waste management, including the collection and the service fees used to fund this waste collection ◊ Develop community based waste management systems to stimulate local economies

6.2.3 Strategic Outcomes: The following strategic outcomes will result from the implementation of the waste collection services action plan:

- ◊ improve access to quality, affordable and sustainable waste collection services
- ◊ proper waste storage facilities
- ◊ clean ups of illegal dumps and reduction in illegal dumping
- ◊ increase payment for services, increasing revenue generation
- ◊ stimulation of local economy thereby creating jobs and economic opportunities
- ◊ improvement in health and the environment

6.3 Waste Disposal

6.3.1 Waste Disposal Strategy: According to the integrated waste management hierarchy, waste disposal is the last waste management option that should be considered. Although waste minimisation reduces the amount of waste that requires disposal, a portion of the waste stream will still require final disposal at a landfill site. The municipality has to ensure that there is sufficient future

airspace, and that disposal is done in an environmentally sound manner.

The principal objective of the waste disposal strategic priority is to reduce the generation and environmental impact of all forms of waste, so that the socio-economic development of the District, the health of its people and the quality of its environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management.

6.3.2 Action Plan

STRATEGIC INITIATIVES	ACTIVITIES
Landfill Site Management	<ul style="list-style-type: none"> ◊ Develop a landfill site code of practice based on standard operating procedures ◊ Investigate, close and rehabilitate all the unofficial dumpsites ◊ Formalise and control salvaging on old landfill sites ◊ Investigate and rehabilitate all closed and historical dumpsite
Disposal Infrastructure development	<ul style="list-style-type: none"> ◊ Investigate the need and development of central non hazardous waste disposal facility (big district landfill site)
Disposal Infrastructure development	<ul style="list-style-type: none"> ◊ Development of central disposal facility ◊ Convert current and old landfill sites to transfer stations
Reduction of Waste disposed in landfill sites	<ul style="list-style-type: none"> ◊ Reduce the amount of waste disposed by landfill sites by 80% in 2030 ◊ Divert garden waste from landfill sites to composting facilities by 80% in 2030 ◊ Divert construction and demolition waste from landfill sites to a recycling facility and reuse 70% by 2030 ◊ Promulgate regulations setting diversion targets and prohibiting co-disposal of green waste, paper bottles, cans, glass, scrap metal, textile, tires and wet waste at landfill sites ◊ Investigate alternative technologies for waste disposal and treatment

6.3.3 Strategic Outcomes: With the implementation of the waste treatment and disposal action plan the following outcome will result:

- ◊ Increased disposal capacity in the District
- ◊ Environmentally sound management of landfill sites
- ◊ Formalisation of reclamation
- ◊ Diversion of large quantities of waste to recycling facilities and re-users

- ◊ Increase in waste minimisation and recycling
- ◊ Job creation
- ◊ Creation of Black Economic Empowerment opportunities

6.4 Waste Information Management

6.4.1 Waste Information Management Strategy: The main requirement is to address the problem that exists in the waste generation and management information sets. An analysis of existing information management practices highlight a number of gaps in the current system, viz. limited consistent and accurate information, lack of integrated reporting systems, inadequate legislative and regulatory instruments requiring waste generators, transporters and disposers to report information on the waste and uncertainty as to who is responsible for waste information management.

An effective information management system will be established which will comprise the following elements:

- ◊ Waste information reporting by waste disposers
- ◊ Data collection
- ◊ Verification and quality assurance of the information and data processing and information dissemination

6.4.2 Action Plan

STRATEGIC INITIATIVE	ACTIVITIES
Waste Information System	<ul style="list-style-type: none"> ◊ Develop a WIS framework document ◊ Develop waste database structure, data capturing and analysis system ◊ Develop data collection and reporting system ◊ Develop a register for all waste handlers ◊ Populate WIS system ◊ Develop waste information indicators to measure progress ◊ Monitor and enforce WIS reporting

6.4.3 Strategic Outcomes: There are a number of outcomes that will result from the implementation of the WIM action plan. These outcomes are dependent on the critical assumptions which are that the enabling legislation is in place and that the financial, institutional, personnel and capacity requirements are met.

6.5 Capacity Building, Education and Awareness

6.5.1 Capacity Building, Education and Awareness Strategy: It is quite clear from the status quo analysis that the municipality as well as the public need to be made aware and educated on waste management issues as well as on waste management planning within Uthukela District Municipality. There are two specific areas which the strategy focuses on in the short term. The first consideration is that of educating and creating an awareness of waste management as well as establishing an understanding of the integrated waste management approach. The second consideration is that of building capacity of municipal staff to implement the action plans outlined above.

For the implementation of the strategy capacity building will consist of the following two initiatives:

- ♦ Emphasis should be placed on training and skills development. Strategic initiatives are aimed at identification, development and sustained provision of appropriate capacity building programmes for the waste information system, waste minimisation and recycling, waste collection and waste treatment and disposal.
- ♦ All capacity building programmes should include the development of conceptual and social skills, identification, development and sustained provision, in conjunction with stakeholders, of the appropriate education, awareness and communication programmes for civil society, for the waste information system, waste collection, waste minimisation and recycling and waste treatment and disposal. These programmes and accompanying action plans should have stipulated time frames.

6.5.2 Action Plan

STRATEGIC INITIATIVE	ACTIVITY
Avoidance of Green Waste	<ul style="list-style-type: none">♦ Promote and establish community garden network♦ Conduct study into opportunities for expansion of network♦ Develop a 'how to guide' to get community gardens up and running♦ Investigate establishment of a resource library
Collection/recycling and disposal of general waste	<ul style="list-style-type: none">♦ Introduction and promotion on new council collection and recycling services aimed at separation at source
Avoidance, reuse and recycling of solid waste	<ul style="list-style-type: none">♦ Develop a waste minimisation and recycling education and awareness programme, guides and information packs♦ Develop waste recycling resources for schools♦ Introduce a recycling competition for schools

	<ul style="list-style-type: none"> ◊ Prepare waste audit guides for schools ◊ Develop and conduct waste minimisation for municipal staff ◊ Fund waste minimisation pilot projects with the municipality
Reuse and recycling of green waste and food waste	<ul style="list-style-type: none"> ◊ Promote and implement home composting programmes
Recycling of green waste and food waste	<ul style="list-style-type: none"> ◊ Prepare, disseminate and promote a 'good composting guide'
Avoidance, reuse and recycling of waste	<ul style="list-style-type: none"> ◊ Develop and distribute guides to all communities and institutions
Avoidance and recycling of general hazardous waste	<ul style="list-style-type: none"> ◊ Implement and promote general hazardous waste programme
Avoidance, reuse and recycling of commercial and industrial waste	<ul style="list-style-type: none"> ◊ Conduct educational skills assessment of municipal authorised officers and health inspectors dealing with waste minimisation and management legislation and cleaner production principles ◊ Conduct training on waste minimisation and management and cleaner production principles for municipal authorised officers and environmental officers ◊ Initiate, conduct and promote pilot waste minimisation projects and disseminate and promote case studies
Proper disposal of waste	<ul style="list-style-type: none"> ◊ Develop and conduct a municipal wide "No Dumping" campaign in conjunction with other waste industry players
Recycling of waste	<ul style="list-style-type: none"> ◊ Implement and promote public place/special events recycling ◊ Conduct training for municipal employees
Capacity building	<ul style="list-style-type: none"> ◊ Conduct a skills analysis ◊ Develop a capacity building programme ◊ Provide capacity building programme

6.5.3 Strategic Outcomes

The following strategic outcomes will result from the implementation of the capacity building, education, awareness, and communication action plan

Implementation of the capacity building programme will result:

- ◊ Identification, development and sustained provision of appropriate capacity building programmes.
- ◊ Capacitated organization and personnel development on a sustainable basis.

Implementation of education, awareness and communication programmes will result:

- ◊ Increase in awareness on waste management issues
- ◊ Payment for services
- ◊ Reduction in illegal dumping incidents
- ◊ Less illegal dumping
- ◊ Responsible waste management

7. IMPLEMENTATION

7.1 Implementation Parameters and Policies

Each specific strategic priority needs a diverse set of resources and capabilities for effective implementation. The implementation instruments that are required to ensure successful implementation include:

7.1.1 Information: Bylaws need to be introduced to ensure the cooperation of the Private Sector in provision of waste related information. Because of strong competition within the waste management industry, regulations would have to be imposed to obtain the required information. These by-laws could describe in detail the responsibility of the waste producers, the waste transportation organization, and the recycling and/or disposal facilities.

The local by-laws will have to be inline with national law and policy. The development and promulgation of National regulations is essential to act as a support to the implementation of by-laws relating to information gathering.

7.1.2 Recycling: If by-laws are implemented for recycling, it is necessary to provide a “level playing field” for all recyclable commodities to ensure the effectiveness of the objectives. The Council can regulate recovery of recyclable material through legal contracts that would define the quantities and type of waste delivered and the charging systems to be applied.

The licensing of business could be linked to the requirement to separate and recycle specified waste materials. Industrial estates should be encouraged to form waste minimization and recycling group within the estate. This would require the preparation of instructions for waste minimization, separation at source, recycling and proper disposal.

7.1.3 Enforcement: Enforcement of the by-laws has always been an integral component of the success of the by-laws. However, insufficient capacity, uncertainty regarding enforcement jurisdiction, low fines and penalties, disinterest or low priority given to waste management offences, have all contributed to many offenders not complying with by-laws. Enforcement is critical to the success of the plan.

7.1.4 Economic Instruments: Economic instruments can be used to ensure that the costs of providing waste management services are recovered, as well as to influence the behaviour of waste generators and to ensure the preferred direction of the waste stream, i.e. disposal or recycling. Economic instruments may therefore promote optimal utilization of services and provide incentives to reduce waste production. It is generally

thought that economic instruments for environmental protection can generate the same level of waste reduction at a lower cost than via the more conventional regulatory approach.

7.1.5 Communicative Instruments: Effective communication is vital to the ultimate success and sustainability of the plan. There are two types of communicative instruments:

7.1.5.1 Information: The presence of knowledge and understanding of the waste system is of vital importance in order to enable the parties involved in waste-management to co-operate and act as intended. The transfer of information has therefore become essential in modern waste management.

Information generally has two purposes:

- ◊ An instructive purpose; and
- ◊ A motivating purpose

The instructive purpose aims to inform people of what to do. It can be information about the correct sorting of waste or it can be information about where to deliver certain fraction of waste e.g. where to deliver used batteries. This type of instructive information will often be a combination of national campaigns and local information.

The motivating information will often be national, provincial and local campaigns informing and motivating people to be “waste aware”. It could include campaigns that explain why public should actively participate in integrated waste management.

To ensure maximum involvement by the generators as well as by the private waste companies, an education awareness programme will have to be set up by the municipality. This will have to highlight issues relating to legislative requirements, benefits to the private and the commercial sector, waste management requirements and the different waste information systems.

7.1.5.2 Capacity building

Implementing, controlling and national legislation and governmental policies require a certain administrative capability at all administrative levels. This means that each administrative level should have a sufficient number of staff with the appropriate professional knowledge to administrate the regulation and supervise the public.

The waste management planning process, which is strategic process-oriented and problem based, as well as the implementation process, may be more challenging for the officials than a more technical and goal-oriented concept. Therefore, capacity building in this field is necessary within the Council (and utility) waste departments. With respect to the utility responsibility will be upheld through the service delivery agreement. Capacity building will also have to be undertaken at political level and the structures which are currently in place could be used for this undertaken.

The municipal short-term action programme should include measures to improve the capability of the officials engaged in waste management planning. Education and training activities may compromise the following:

- ◊ General environmental and waste management education;
- ◊ Training in planning issues in general and waste management planning in particular;
- ◊ Waste information systems;
- ◊ Technological solutions for the waste sector, including collections systems, transfer and transport systems, recycling, recovery and treatment facilities (composting), and disposal facilities;
- ◊ Issues regarding utility/private sector participation, including tender documents and procedures, tender evaluation and selection of contractors, contract negotiation; contract monitoring and follow-up; quality control and follow-up;
- ◊ Operations control and planning, including operations of disposal facilities;
- ◊ Management issues, including accounting systems, employment, team building, work planning and division of responsibilities; and
- ◊ Political processes, dissemination of information and public consultations, including understanding of the approval process of the waste plan, involvement of the public;

7.1.6 Institutional Capacity

For the successful implementation of the plan appropriate institutional capacity for training and human resources development for waste management within the municipality should be established at the central and regional level. All staff should have appropriate training in waste management, and if this is currently not the case, skills and training will have to be provided.

Private sector involvement in waste management implies a shift in the role of the municipal institutions from service provision to contract

management and regulations. The District has the following roles regarding the legal administration of waste management:

- ◊ Regulations
- ◊ Planning
- ◊ Public service
- ◊ Monitoring and control

It is important that one department dedicated to waste management within the municipality undertakes all or most of the main functions mentioned above. The advantages of having a one stop department dealing with waste management include the following:

- ◊ It establishes a single point of responsibility for waste management, where the manager will have a level of authority which is commensurate with his/hers responsibility.
- ◊ It facilitates long term planning and monitoring /control of performance.
- ◊ It aids in the development of a common approach to waste management (e.g. progress from a reactive to a proactive approach).
- ◊ It facilitates planning and co-ordination of service provision.
- ◊ It reduces overlap in activities and potential conflict of responsibility between different sections.
- ◊ It encourages personnel management and co-ordination.
- ◊ It facilitates personnel training, development and budgeting.

7.1.7 Municipal Task

Implementation of new legislation and requirements regarding waste management requires a review of the management and organization of waste management in the District. The Waste Management Department in the Municipality must meet the needs of waste management while also meeting the social and economic aspirations of the area (reducing poverty and unemployment). This section includes a description and evaluation of:

- ◊ Functions of local authorities in waste management administration producers, with particular reference to four key roles, which they are required to discharge: as regulating authorities; waste management planning; provision of services; and controlling the operation of service providers.
- ◊ Regulations, which cover the legal obligation of the Municipality, waste producers and those engaged in collection and disposal of waste.
- ◊ Operational issues in connection with the function of collection, recycling or disposal of waste including advantages and disadvantages of public, private and combination of public/private involvement in the waste management system.

7.1.7.1 Regulations

The enforcement of waste management regulations presents a major challenge to the municipality in terms of resources and management systems. Implementation of local regulations (by-laws) requires ongoing review and compliance monitoring. Such review would cover:

- ◊ Waste collection schemes, market conditions and controls;
- ◊ Recycling centers, buy-back centers, composting plants, disposal site, etc. would be subject to annual reviews, regular spot checks and compliance with operational plans;
- ◊ Collection of information about waste quantities and types reported and analysis of this data;
- ◊ Illegal dumping

The municipality should assess compliance with regulations and by-laws on the basis of these inspections and assessments. Actions resulting from supervisory role could include:

- ◊ Follow up inspections of waste generators, collectors, transporters and disposers where irregularities in waste type or quantity are indicated in spot test, and fines can be imposed accordingly. Repeat offences, which result in environmentally irresponsible handling of waste, can be dealt with by revoking their licenses or through legal remedy.
- ◊ Fines and/or imprisonment of offenders who illegally dump their waste.

7.1.7.2 Waste Management Planning

Waste management planning includes the development and review of the IWM Plan, public participation, environmental impact assessment process, data collection, recording of collection, recycling, treatment and disposal methods, and feasibility studies on the technical, financial and administrative aspects of waste systems, monitoring and evaluation. The following illustrates in general the task/activities that will be required for integrated waste management planning:

- ◊ Establish by-laws to implement national and provincial regulations, and review of new legislation.
- ◊ Collection of information and data for planning and for Provincial/National requirements.

- ◊ Incorporate waste minimization and recycling in municipal waste management activities.
- ◊ Promote the development of waste minimization and recycling partnerships with the private sector.
- ◊ Regulate waste management activities undertaken by the Waste Management Utility (collection, disposal, composing, initiatives, etc.).
- ◊ Establish public-private partnerships.
- ◊ Co-ordinate collection contracts for high-density low income areas (informal settlements).
- ◊ Review, evaluate and report on the performance of community waste collection services.
- ◊ Monitoring progress on implementing waste management plan initiatives.
- ◊ Developing communication strategy
 - ◊ Embark on the WIS education,
 - ◊ Enhance education and awareness on recycling to promote extensive implementation of recycling and composting practices
 - ◊ Undertake waste minimization recycling and waste management education, awareness and communication programmes.
- ◊ Commenting on environmental impact assessment within interacting areas, such as water, air, land-use, traffic.
- ◊ Revise and update general waste management plans.
- ◊ Establish and implement waste data collection systems.
- ◊ Setting up pilot projects
- ◊ Implement the guidelines for health care waste care and hazardous waste collection and transportation.
- ◊ Co-operation and exchange of experience among stakeholders like National, Provincial, other Councils and service providers,

7.1.7.3 Public Service

The concept of customer service is an essential part of the municipal's role in relation to waste management. This requires the establishment and maintenance of an information database and reporting systems by means of which the public both directly and through the media can be informed. These systems would facilitate the recording of public complaints with the municipality. The public relations role of the municipality will also be to disseminate information through pamphlets, which could include information on:

- ◊ Waste management initiatives within the District.

- ◊ Locations and availability generally of recycling centers.
- ◊ Location and contact details for the municipality.
- ◊ Reporting and complaints hotline numbers, etc.

Apart from information dissemination, customers invariably seek answers to questions and make complains about services. Systematic recording of these interactions provides valuable information on the public attitude to the service and may assist in identifying performance weaknesses. In promoting recycling and waste reduction, public information plays a critical role. Such information can usefully be provided through public meetings, schools, libraries, and residents associations. In this way, concept can be improved collection and recycling can be developed. In relation to commercial waste, it is considered necessary to have a published booklet, which provides information to customers on collection schemes, regulations and by-laws, recycling or disposal facilities and suitable outlets for different kinds of waste. Personal contact via regional environmental health officers as well as the role of central waste officers will play an important role in communicating this information to waste generators.

To ensure that the municipality is seen to be active in waste management, a system aimed at facilitating the management of complaints, reports and questions posed by the people of the District, must be established within the municipality. The system will facilitate, among other things:

- ◊ Systematic and user friendly recording of complaints by type, location, source, and dates and other attributes.
- ◊ E-mail generated complaint processing.
- ◊ Complaint handling (assignment of complaint relevant section).
- ◊ Complaint monitoring (recording of action planned and action taken).
- ◊ Resources analysis and management (response time , manpower, and cost required to rectify), and
- ◊ Public relations (automatic letter of acknowledgement and status reports to news media and public).

7.1.7.4 Monitoring and Control

Relevant municipal departments will undertake the following activities:

- ◊ Prepare and conduct competitive tendering processes for involving the private sector in waste collection, waste recycling and treatment, etc.

- ◊ Undertake contract negotiations, administration, control and monitoring of contracts performance management.
- ◊ Inspect and monitor areas that are prone to illegal dumping.
- ◊ Compliance monitoring of license holders.
- ◊ Monitoring of the implementation of this plan.
- ◊ Monitoring and inspection of service providers to determine their efficiency of operation.

7.2 Implementation Requirements

7.2.1 Human Resources: An estimate of the resources necessary for the implementation of the waste management plan should be outlined. It should be stressed that the estimate only gives an indication of the minimum requirements with respect to waste management resources. A substantial increase in human resources and other corporate resources within the municipality will be required to effectively implement the waste management plan. In terms of additional staff resources, the new waste management shall be organized to fulfill its new functions to ensure compliance with relevant legislation. Implementation of this plan will require considerable efforts to plan and initiate projects; provide overall guidance and supervision of various projects and activities, and to coordinate the efforts of the municipality and other stakeholders. The WMP cannot be effectively implemented if the planning process is not properly institutionalized, and if additional personnel resources are not mobilized.

7.2.2 Financial Resources: Waste management plan requires investment in new infrastructure as well as the provision of services for the following primary categories:

- ◊ Collection of information
- ◊ Collection of waste in inaccessible areas
- ◊ Recycling facilities (drop-off facilities, buy-back centres) and separated waste collection
- ◊ Composting facilities
- ◊ Transfer facilities
- ◊ Landfill site development , operation and maintenance

7.2.1 Types of Financial Sources

Financing sources for projects arising from the WMP are discussed in the following paragraphs. The focus is on financing sources which could potentially be accessed by the private sector. Financing sources for the municipality could come from the number of arenas. Provincial and National government, and international funding from Denmark (DANIDA), Germany (GTZ), Norway (NORAD), Japan (SIDA), etc.

The sources listed below are not exhaustive. Further, it must be recognised that some sources could provide financing for project planning, while others may be suited to project implementation (particularly construction) and the Municipal budget to cover operation and maintenance.

7.2.1.1 Other Sources

- ♦ The Municipal Infrastructure Investment Unit (MIIU), a source for support for municipalities which are committed to investigating Municipality Service Partnership.
- ♦ The Development Bank of Southern Africa (DBSA), willing to finance a portion of solid waste facilities.
- ♦ Municipal Infrastructure Grant (MIG).
- ♦ 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.

7.2.1.2 International Sources

- ♦ International Finance Corporation (IFS), 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 improves people's lives.

8. MONITORING AND REVIEW

8.1 Introduction

The monitoring and review of the waste management plan is an essential element of the plan process and serve to ensure that sustainable waste management is achieved in the District. Monitoring the plan's implementation is necessary to make sure it provides a relevant, cost effective, sustainable and flexible framework to guide waste development and that if required adjustments can be made to the plan. As the development of the plan in some cases has been based on certain assumptions, it would be best to verify these by monitoring so that the waste management plan, and its various projects can be reviewed and refined with time.

8.2 Monitoring

An effective monitoring programme is essential to provide information against which the plan's performance is measured. For example monitoring waste information over time can indicate the extent of change in the community's behaviour and this in turn will provide an indication of waste generation in the future. The objectives of monitoring are to:

- ◊ Ensure that the progress on the implementation of the waste management plan is on track according to the implementation programme and those adjustments and refinements can be made where required.
- ◊ Improve service provision.
- ◊ Fulfil the monitoring requirements as may be imposed in terms of the provisions of the Local Government: Municipal System Act and other legislation.

To ensure that implementation of the IWMP runs smoothly and that the system is sustainable, regular monitoring is required. Improvements and alterations to an IWMP will enhance the plan and ultimately improve waste management in the District.

8.2.1 Monitoring Activities

Monitoring should focus on the short-term objectives of the waste management planning process to assess current problems and hurdles and to re-evaluate the implementation programme for the short, medium and long term. Monitoring of activities will therefore determine to what extent targets are being met. Overall monitoring activities would include:

- ◊ Volumes of waste generated, recycled and disposed.
- ◊ Success of various collection services.
- ◊ Recycling and composting initiatives.
- ◊ Illegal dumping and littering.
- ◊ Effectiveness of legislation, regulations, ordinances and/or by-laws.
- ◊ Complaints received regarding poor waste management.
- ◊ Management and control of salvaging at landfill sites.
- ◊ Compliance of landfill sites to permits conditions, etc.
- ◊ Finances, such as expenditure and income, payment for services, and recovery of cost, unit cost, etc.

The guidelines on Integrated Waste Management Planning from the National Waste Management Strategy list what type of activities should be considered for monitoring. These are as follows:

8.2.1.1 General Issues

- ◊ Resource situation;

- ◇ Staff appointments, allocation of functions and training;
- ◇ Payments for services;
- ◇ Rates of generation of waste, verified by the waste information system;
- ◇ Reporting to the waste information system;
- ◇ Illegal dumping and littering;
- ◇ Complaints regarding poor waste management;

8.2.1.2 Waste prevention and minimizing

- ◇ Annual reports of waste minimizing programmes and projects;
- ◇ Annual environmental reports on emissions to air, water and land;
- ◇ Achievement of targets for prioritized waste streams and pollutants;
- ◇ Information exchange and the establishment of waste minimization clubs.

8.2.1.3 Collection and Transportation

- ◇ Annual reports on the implementation of collection and transportation services;
- ◇ Payment received for waste collection and transportation services as against the actual cost for provision of these services.

8.2.1.4 Recycling

- ◇ Annual reports on waste recycling programmes and projects;
- ◇ Information exchange between stakeholders;
- ◇ Stakeholders forums coordinating new recycling activities;
- ◇ Social and environmental impacts of the implementation of new recycling initiative
- ◇ Treatment
- ◇ Registration and licensing of waste treatment facilities;
- ◇ Auditing of waste incineration facilities by provincial authorities;
- ◇ Environmental performance and impact;
- ◇ Provision of adequate hazardous waste treatment facilities.
- ◇ Disposal
- ◇ Auditing of general waste disposal facilities by provincial departments;
- ◇ Provision of adequate hazardous waste disposal facilities;
- ◇ Management and control of salvaging at landfill sites.

Performance indicators or monitoring indicators and feedback mechanisms are required so that the effectiveness of waste management projects can be assessed and corrective action may be taken if performance does not meet expectations. According to the White Paper on Local Government (1998), performance management is critical in ensuring that:

- ♦ Plans are implemented
- ♦ Resources are used efficiently and optimally, and
- ♦ The implementation has the desired effect

The following are just some examples of performance indicators, which could be considered when monitoring the performance of the implementation of the waste management plan. In addition, the Waste Management Department should formulate their own performance indicators based on the projects implemented as well as certain aspects of the waste management plan. Examples include:

- ♦ Amount of additional data obtained compared to baseline information (assumed percentage increases).
- ♦ Progress of waste management planning implementation in relation to programme schedule.
- ♦ Number of educational surveys undertaken to determine level of understanding of waste management issued by the public.
- ♦ Number of private sector waste companies registered with the Council.
- ♦ Number of approved proposal for the recovery of waste as percentage of total proposals received.
- ♦ Amount of the garden waste stream being sent to composting facilities.
- ♦ Proportion of total waste going to landfill compared with target reductions.

The District Municipality will produce an Annual Monitoring Report on implementation of the integrated waste management plan for consideration by the Council.

8.3 Evaluation and Review

A performance review will be undertaken to determine the level of success of the implementation of the plan. The reason for reviewing the plan and its implementation on a regular basis is to ensure its practicality, suitability and usability. Only by monitoring and reviewing the plan can the level of

performance be determined. It is here where the principle of continual improvement should be adhered. The review and evaluation of the plan will be done annually.

9. CONCLUSIONS

It is quite clear from the above discussion that a lot needs to be done for waste management practices within Uthukela District Municipality to conform to the National Integrated Pollution and Waste Management Strategy.

This plan will ensure that waste is appropriately managed in an integrated manner, environmentally friendly manner, socially acceptable manner and economically viable manner from cradle to grave in Uthukela District. The implementation of the plan will promote the principles of "Polluter Pays" and "Waste is Money".