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# A REPORT FOR THE ASSESSMENT OF WASTE DISPOSAL SITES IN THE PROVINCE OF KWAZULU-NATAL

A STUDY COMMISSIONED BY THE PROVINCIAL  
PLANNING AND DEVELOPMENT COMMISSION  
(PPDC)

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## PPDC Waste Disposal Sites

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## EXECUTIVE SUMMARY

### Introduction

South Africa currently faces the challenge of an integrated waste management system. This consists of a drive towards prevention and minimisation, the proper management of unavoidable wastes throughout their "life", pollution that can't be prevented must be remedied, and all the while taking into consideration the needs and rights of vulnerable, and marginalised communities. In essence it must be remembered that landfills are but a component of the entire waste management process. This is in addition to people who use these services.

The Provincial Planning and Development Commission (PPDC) has commissioned this study to determine information gaps at a Municipal level, regarding the status of waste disposal sites<sup>1</sup> in the province. The outcome will serve as a foundation to provide guidelines for the future planning and infrastructure investment related to the solid waste disposal sites.

The main aim of the study is to establish a database, sites status quo and determine what future demands might be required for waste disposal sites in the province.

Other objectives for the study can be summarised as follows:

1. To carry out a Provincial wide assessment of existing solid waste sites (legal and illegal). The objective being to provide an audit and overview of all existing formal and informal solid waste facilities. The exercise will determine the status quo and the needs of the Municipalities with regard to solid waste disposal.
2. To identify each site in terms of its location (GIS mapping) and to develop a database indicating the location of the sites.
3. To present a global future trends map (in terms of systems, approaches and models) in the development and management of solid waste facilities.
4. To review national, provincial legislation and international conventions and standards, and the innovations in solid waste management, which are being brought to bear at an accelerated rate. These forms of research will inform a framework, which will serve as a mechanism against which the existing sites will be evaluated.

Some of the problems encountered were the difficulty in obtaining complete data about each waste disposal site (In some cases municipal officials were not able to determine the life expectancy of some of the waste disposal sites). Also, once all of the site visits had been completed it was difficult to get the relevant stakeholders from a local and district municipality together for the workshops. Despite the difficulties every effort was made to gather all of the relevant stakeholders together for the district workshops.

### Literature Review

Waste management is guided nationally by three pieces of legislation; these include the Water Act, Environmental Conservation Act and the National Environmental Management Act. In terms of a definitive guide and policy, the Department of Water Affairs and Forestry's Waste Management Series (DAAF, 1998) is recognised as the authority on all aspects of waste disposal sites in the country. The document sets forth guidance on all aspects from landfill siting, permitting management and closure.

### Methodology

In order to achieve the objectives of this study a relevant framework was developed. The framework consisted of a review of relevant policy and legislation applicable to waste

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<sup>1</sup> Formal and informal sites.

management. This section also presented a best practice model on which sites visited would be assessed on.

Contact with municipalities (local and district) was established through a questionnaire designed to collect basic information about the waste disposal sites within the jurisdiction of the municipalities. This was followed up with a visit to each of the sites identified by the municipality.

Once all of the data had been collated, a site visit report was compiled for each local and district municipality including an assessment for each of the sites and recommendations as a way forward. The information contained within these reports was verified and corrected at a workshop held with each district and associated local municipalities. In this way municipal officials confirmed the findings for the site visits.

### **Data Analysis**

Ninety-five waste disposal sites were visited through out the province. A number of findings were reported in relation to each of these. Almost fifty percent of the waste disposal sites within the province are not permitted in terms of DWAF requirements. Many of these unregistered waste disposal sites are managed by local municipalities. Probably related to the above is the fact that a number of these waste disposal sites are inappropriately sited, this includes areas with a high water tables and streams. There are also a number of social issues connected with each site, including informal communities dependant on picking from each site, these communities are at risk from improperly disposed of wastes or poor management practices on site (in particular the disposal of medical waste was found to be a source of concern at certain locations).

In terms of municipal capacity most municipalities have prioritised waste management on their IDPs. Municipalities have also been prioritised where there is a need for assistance in terms of infrastructural development.

### **Conclusion**

A number of problem areas have been identified with respect to waste disposal sites within the province. These include the registration of waste disposal sites, site management, site selection and (or potential) conflicts with local communities including people at risk from poorly managed sites (medical waste or uncontrolled picking from the sites).

This study provides a summary of waste disposal facilities province wide. These are compiled in to a database of facilities which are also mapped. A suitable framework is also presented which described the relevant legislation and also a best practice model that may be applied for waste management.

## CHAPTER 1. INTRODUCTION

### 1.1 Background

South Africa currently faces the challenge of an integrated waste management system. The White Paper on Integrated Pollution and Waste Management<sup>2</sup> represents a shift from a segmented end point approach to waste management, to an integrated, systemic and generally more holistic way of addressing the problem<sup>3</sup>. The approach consists of a drive towards prevention and minimisation, the proper management of unavoidable wastes throughout their 'life cycle', pollution that can't be prevented must be remedied, and all the while taking into consideration the needs and rights of vulnerable, and marginalised communities. Mayet (1993: 1) indicates that the disposal of waste on land is the cheapest form of disposal available to us today (unfortunately) that is in comparison to "...incineration, recycling, pulverisation, pyrolysis, and other refuse driven fuel processes".

It follows that landfill sites should now be considered within the context of this waste management strategy. Waste management should not begin and end with merely planning landfill sites; it should be a considered process in which the quantity and composition of waste being disposed of is carefully considered. For the purposes of this study, consideration is given to issues surrounding landfill sites. However, it must be remembered that landfills are but a component of the entire waste management process. This is in addition to people who use these services.

Considering socio-cultural aspects demonstrates sensitivity to the concept of providing services that are "people focused". It also acknowledges that people and their culture are inseparable. The Provincial Planning and Development Commission (PPDC) has commissioned this study to determine information gaps at a Municipal level, regarding the status of waste disposal sites<sup>4</sup> in the province.

### 1.2 Problem Statement

The PPDC has highlighted the need to give greater attention to rural development and issues, which impact on the people of KwaZulu-Natal. Solid Waste Facilities have been identified as a basic need for all communities, impacting on many aspects of life, and as such there is an urgent need to co-ordinate and manage solid waste sites in KZN in a sustainable manner. The appropriate operation of waste disposal sites is an important aspect of ensuring a clean and healthy environment for all South Africans

This project is aimed at responding to sectoral information gaps latent within the Province. The outcome will serve as a foundation to provide guidelines for the future planning and infrastructure investment related to the solid waste disposal sites.

In view of the funding source for the project, it is assumed that the data would serve to guide and provide a platform for strategic decision-making in relation to infrastructure planning. Therefore, this study will be presented in accordance with this objective.

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<sup>2</sup> IPWM, 2000

<sup>3</sup> That is considered over the entire life cycle of the waste produced

<sup>4</sup> Formal and informal sites.

### **1.3 Significance of the study**

The main benefit of the study will be a data base supported by maps of waste disposal sites within the province. The study will also provide an assessment of each site, in terms of the current and future capacity and also an indication in terms of some of the problems associated with each site. The assessment is based on a comprehensive review of both national and international literature, including policy and legislation relevant to waste disposal. This assessment will lead to the development of strategies and recommendations at a district and municipal level.

### **1.4 Significance of the Socio-Cultural Input**

Whilst the project is chiefly of a technical nature, socio-cultural input will seek to identify if there are areas of weakness in the 'people' dimension of planning. Recommendations to ensure that policies and plans are in line with people's traditions, customs, beliefs and cultural values will be made. Services should be culture congruent to ensure acceptability of the services and facilities provided; this in turn contributes to peace and tranquillity.

### **1.5 Problems Encountered**

There were a number of problems related to the project.

#### ***Data Provided***

It was difficult to collect basic information about site statistics. In some cases municipalities had all of this information at hand, but sometimes for the smaller municipalities it was some times difficult to source information (i.e. the predicted life span of the facility etc.) where officials were not able to provide the required information, unknown was recorded for each particular issue.

#### ***Timeframes***

While every effort was made to keep within the time frames, it was difficult to arrange for all stakeholders to be present at the same time for the district workshops. In some cases after repeated efforts to arrange for participation, officials may not have turned up for the workshops.

The same was true for site visits to verify facilities on the ground, in some cases appointments were made to be shown facilities, but officials may not have been available for those appointments.

#### ***Social Cultural Assessment***

It was originally intended that Fikanodumo would accompany the SiVEST team during all of the site visits to local municipalities. It became increasingly obvious that this was not possible given the other commitments of the social cultural team and the sometimes short notice within which municipal officials were available for interviews.

It was eventually decided that the social cultural team would undertake to communicate with local municipalities and also attend all of the district level workshops that were organised by the SiVEST team. This was successful and the team were able to collect data on the social cultural aspects of cemeteries and crematoria for this report.

## 1.6 Aims and Objectives

The main aim of the study is to establish a database, sites status quo and determine what future demands might be required for waste disposal sites in the province.

Other objectives for the study can be summarised as follows:

5. To carry out a Provincial wide assessment of existing solid waste sites (legal and illegal). The objective being to provide an audit and overview of all existing formal and informal solid waste facilities. The exercise will determine the status quo and the needs of the Municipalities with regard to solid waste disposal.
6. To identify each site in terms of its location (GIS mapping) and to develop a database indicating the location of the sites.
7. To present a global future trends map (in terms of systems, approaches and models) in the development and management of solid waste facilities.
8. To review national, provincial legislation and international conventions and standards, and the innovations in solid waste management, which are being brought to bear at an accelerated rate. These forms of research will inform a framework, which will serve as a mechanism against which the existing sites will be evaluated.

## 1.7 Synopsis of the methodology

This activities of this study were divided in to three parts. The first was to establish an appropriate framework around which the legal requirements and some of the technical issues for waste disposal sites could be established. This framework would also present some of the main issues around waste disposal sites, which would serve as a best practice model. This would later be used to assess waste disposal sites during the site visits.

Initial contact was then established with municipalities through a questionnaire. Municipalities were required to indicate the facilities (waste disposal sites) within their jurisdiction and also what prioritisation was made on the municipal IDP for alternative waste disposal sites.

Following this initial contact with municipalities, site visits were conducted with each local municipality. Facilities were assessed in light of the framework established and a site visit report was compiled for each site. The social cultural assessments were carried out by Fikanodumo.

Each district and local municipality was given the opportunity to assess the site visit report compiled for their area, through a district workshop. All local and district stakeholders were invited. Researchers from Fikanodumo evaluating the social cultural aspects of waste disposal sites were also present during the site visits. They were also present during most of the district workshops where they used this opportunity to collect data on socio cultural issues within each of the districts.

This final report captures the major findings for each of the local and district municipalities. Each of the sites visited have been mapped and captured within a database for the entire province.



## 1.8 Assumptions and Limitations

During the course of this study, it was assumed that:

- The Municipality/representative is aware of where the waste disposal sites are located.
- The study excludes the identification of additional specific sites for development but recommendations regarding the number of sites required will be made where possible.
- Budget has made provision for 4 steering committee meetings and 11 District Municipality workshops.
- The objectives of this appointment must be seen within the context of the budget of R200 000 to carry out a Provincial wide assessment. The site assessments will therefore be at a broad level and not include survey assessments or specialist studies such as geological, hydrological, air specialist etc.

There were a number of problems or limitations related to the project.

### **Data Provided**

It was difficult to collect basic information about site statistics. In some cases municipalities had all of this information at hand, but sometimes for the smaller municipalities it was sometimes difficult to source this information (i.e. the predicted life span of the facility etc.) where officials were not able to provide the required information, **unknown** was recorded for each particular issue.

### **Timeframes**

While every effort was made to keep within the time frames, it was difficult to arrange for all stakeholders to be present at the same time for district workshops. In some cases after repeated efforts to arrange for participation, officials did not attend the workshops.

The same was true for site visits to verify facilities on the ground, in some cases appointments were made with local authorities to be shown facilities, but officials may not have been available for those appointments.

### **Social Cultural Assessment**

It was originally intended that Fikanodumo would accompany the SiVEST team during all of the site visits to local municipalities. It became increasingly obvious that this was not always possible given the other commitments of the social cultural team and the sometimes short notice within which municipal officials were available for interviews.

It was eventually decided that the social cultural team would conduct some site visits and communicate with local municipalities. They also attended all of the district level workshops that were organised by the SiVEST team. This was successful and the team were able to collect data on the social cultural aspects of cemeteries and crematoria for this report.

## CHAPTER 2. LITERATURE REVIEW

Following is a review of some of the terms used throughout this report. This is followed by some of the issues related to the identification and management of waste disposal sites. In addition to the above a comprehensive review of national and provincial legislation is also included.

### 2.1 Socio Cultural and Technical Terms Used for Waste Disposal Sites

The definitive resource on the requirements for landfill and waste disposal site is the Department of Water Affairs and Forestry (DWAF) Minimum requirements Series documents. See section 4.2 of this document for an overview.

According to the Minimum Requirements for Waste Disposal by Landfill, a waste disposal site is also known as a landfill. There are various categories of landfill site as set out in the minimum requirements. These are defined and classified based on three criteria, i.e. the type of waste, the size of the waste stream, and whether a significant amount of leachate produced.

#### 2.1.1 Type of Waste

Two waste types are recognised, these are General and Hazardous waste. The distinction between these two types of waste is their effect on human health and / or the environment. Hazardous wastes are able to cause adverse human and health effects even at low concentrations.

#### 2.1.2 The Size of the Waste Stream or Waste Disposal Option

##### **General waste landfills**

The impact of a landfill<sup>5</sup> will depend on the size of the landfill operation. This in turn will depend on the rate at which waste is generated, or the size of the population that the waste disposal site serves, based on a calculated figure known as the **Maximum Rate of Disposal**<sup>6</sup>. It is then a simple matter to classify whether a landfill site falls within one of the following categories.

- Communal            or        **C**
- Small                or        **S**
- Medium             or        **M**
- Large                or        **L**

#### 2.1.3 Hazardous waste landfills

This classification is not based on the size or volume of the waste stream but the hazard rating of the waste to be disposed of. Certain types of wastes even at very low quantities / concentrations may have very serious implications for public health or the well being of the environment. These wastes are appropriately rated to be hazardous wastes<sup>7</sup>. There are four categories of hazardous wastes. These are Extreme hazard, High hazard, Moderate hazard, and Low hazard wastes. (DWAF, 1998a)

#### 2.1.4 The Potential for Significant Leachate Production

The potential for significant leachate production is based on whether the landfill is able to produce a significant amount of leachate. Leachate production is the main source of pollution of landfill

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<sup>5</sup> On humans or on the environment  
<sup>6</sup> This is the projected maximum average, annual rate of waste deposition, in tons per day, during the expected life span of the landfill site. In order to calculate the MRD it is important to know the existing *waste stream in tons per day*, for the site under consideration.

<sup>7</sup> See Section 3.2(ii) of the Minimum Requirements for Waste Disposal by Landfill

sites. Where it is produced in significant quantities it must be managed through an appropriate leachate collection and treatment system. The production of significant leachate is represented by B+, and where the leachate produced is not significant B-.

**Table 2.1: A Summary of the Landfill Classification System<sup>8</sup>.**

Waste Type	G General								H Hazardous	
Landfill size	C		S		M		L		h Hazard rating 3 & 4	H Hazard rating 1 to 4
Water balance (Leachate Production)	B -	B +	B -	B +	B -	B +	B -	B +		

### 2.1.5 Medical Waste

Medical waste falls under the subheading “Miscellaneous waste” under hazardous waste in section 3.2 of the minimum requirements for waste disposal by landfill. These wastes can affect on public health or the environment even at low concentrations.

In the Minimum Requirements for the Handling Classification and Disposal of Hazardous Waste, medical waste is defined on a source basis. It includes wastes from human and veterinary hospitals, clinics, surgeries, chemists, and sanitary services (DWAF, 1998b)

The disposal of unprocessed medical waste to landfill is prohibited. It is mandatory that all medical waste<sup>9</sup> be incinerated and the ash is to be disposed of under dry conditions at an approved hazardous waste site (DWAF, 1998b)

### 2.1.6 Culture

Culture consists of particular knowledge, attitudes, values and beliefs shared by members of a community. These are highly valued and enable people to operate in a manner that is acceptable to the group.

South Africa, like many other countries, is a multicultural country. There are many cultural universalities; that is shared meanings, beliefs and values and many cultural diversities, that is variability in meanings, beliefs and values that need consideration in planning and development of services. To ensure that services are accepted as culture congruent, plans must be directed at cultural preservation of what is good, cultural accommodation which implies negotiations to change only the detrimental practices and cultural re-planning or restructuring which implies a total change of a culture which is not conducive to physical and social health. (Leininger 1988: 27).

### 2.1.7 Community Participation

In the context of this study, community participation refers to active involvement of communities, through meaningful representation, in all stages of development and planning. It is the cornerstone of democracy. Bailey (1995:13) cites Bekker and Louw (1994) who described it as an

<sup>8</sup> From the Minimum Requirements for Waste Disposal by Landfill, 1998  
<sup>9</sup> Infectious and Human Tissues wastes

important instrument for strengthening community capacity, promoting credibility and forming partnerships that allow for the shifting of power from the local authority structures to the communities.

## 2.2 Issues Related To Identification and Management of Disposal Sites

### 2.2.1 Control over Landfills and Waste disposal Sites

Landfills may be established, owned or run by private companies or this control may be in the hands of the local or municipal council. Concerning permitting, final control over Landfills and waste disposal sites lies with the Department of Water Affairs and Forestry. The ECA<sup>10</sup> states that no person may establish a waste disposal site without a permit issued by the Minister of water affairs and forestry, enter offensive trades permit, rezoning as an issue of land for waste disposal, EIA regulations as point of departure for control over landfill sites.

### 2.2.2 Sustainable Solid Waste Management

The concept of sustainable waste management is reflected in the spirit of the *White Paper on Integrated Pollution and Waste Management*<sup>11</sup>. The white paper represents a paradigm shift from dealing with waste after it is produced, to

- Pollution prevention
- Waste minimisation
- Impact management and
- Remediation

The concept of a sustainable landfill should be contextualised within the waste management process. If the process works pollution is prevented when waste is minimised, and the impacts of that waste are properly managed through a remediation process.

### 2.2.3 Site Selection

This is a fundamental step in the development of a landfill site. Provisions in the constitution provide for environmental protection<sup>12</sup>, and therefore the establishment of waste disposal sites must not violate this. Included in the selection process is public participation and forward planning for the required site. At this stage fatal flaws in the alternative sites must be identified, of which a list is provided in the minimum requirements document<sup>13</sup>. Various criteria are also provided with regards to evaluating alternative sites. These include economic, environmental, and issues of public acceptance. Alternative sites are then ranked on the basis of the above criteria using a matrix system. After a site has been deemed to be suitable, taking in to account the evaluation of alternatives, the applicant must now initiate the permitting procedure. The applicant must provide a description of the landfill class and provide other technical information in a technical report (DWAF, 1998a). It will be necessary to investigate whether any of the sites have any issues in connection with sitting that have to be investigated.

### 2.2.4 Security at Disposal Sites

It is a minimum requirement that there is controlled access to landfill sites. In addition, security must be provided, especially at hazardous sites, where for public health reasons squatting and reclamation should be prohibited. Squatting is a problem not limited to waste disposal sites, but certainly affecting the operations of poorly sited waste disposal sites. Squatters may have arrived with the intention of reclaiming some of the reusable goods found at disposal sites, only to set up makeshift shelters at the periphery of these sites. It is necessary to investigate whether this

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<sup>10</sup> Environmental Conservation Act, Act 73 of 1989.

<sup>11</sup> THE WHITE PAPER

<sup>12</sup> Section 24 of the Constitution Series. Minimum Requirements for Waste Disposal by Landfill.

<sup>13</sup> Department of Water Affairs and Forestry, Second Edition, 1998. Waste Management Series. Minimum Requirements for Waste Disposal by Landfill.

provision is being enforced at a local Municipal level. Access control is also important to determine what waste is being disposed of at the site, and whether this is in conformation with the permitting requirements of the site.

### **2.2.5 The Demographics Associated with Waste Generation**

The location of waste disposal sites is a function of the technical parameters that guide the siting of these facilities, but also social and economic characteristics need to be taken in to account. The challenge for service delivery to formally disadvantaged communities. Any attempt to manage waste at local level should take in to account the quantities and the composition of waste streams that come from these households. Cognisance of the living standards and customs of local communities will also need to be included in any such waste management study (Poswa TT, 2002).

Okonkwo illustrates this need for local level investigation. In a survey conducted in Thohoyandou. It was noted that the practice of mixing both biodegradable and non-biodegradable waste was commonplace. These form some of the cultural and social aspects of waste management planning (Okonkwo, 2002).

### **2.2.6 Procedures to Comply with In Establishing Landfills**

There are a number of regulatory and procedural steps to satisfy when establishing a landfill site. These are covered in more detail in the Minimum Requirements for Waste Disposal by Landfill. Two scenarios are described:

- The first describes the procedure for new sites to be developed.
- The second describes the procedure to be applied for sites that are already in operation but are not permitted.

The registration of a new site would entail classifying proposed landfill sites and starting a public participation process. Through these activities sites are ranked. A feasibility study is conducted to determine the most appropriate alternatives; these results are presented to DWAF including documentation on the site investigation, environmental impact, landfill design, the end use plan, an operating plan, and a water monitoring plan. Once DWAF approval has been obtained the site may be prepared and operated. At the end of the life span of the site a closure permit (DWAF) will need to be applied for.

In terms of already operating sites a similar process may be affected. In the initial stages the site would need to be classified in terms of the Minimum Requirements. A comprehensive public participation would need to be effected to determine the landfills future. Documentation outlining the site investigation, environmental impact, landfill design, the end use plan, an operating plan, and a water monitoring plan would be compiled and submitted to DWAF to obtain a permit. At this stage if it was determined to close the landfill site a closure permit would need to be applied for and the site closed. Where this site would continue operating, the suggested upgrades would be made and the waste disposal activities on site would continue.

## **2.3 Legal Requirements for Waste Disposal Sites**

### **2.3.1 National Requirements**

At a national level various legislature governs the disposal of wastes. These include the following.

#### ***Constitution of the Republic of South Africa<sup>14</sup>***

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<sup>14</sup> Act 108 of 1996

The constitution is the source of all legislature in the Republic of South Africa, and contained therein are specific references to the management of waste, pollution and environmental protection. In particular the constitution is relevant with respect to the Bill of Rights<sup>15</sup> and also as the legal basis for the allocation of all powers to various spheres of government.

It follows that the state (National and Provincial government) has a duty to ensure that these rights are upheld. Under part B Schedule 5 of the Constitution, refuse removal, refuse dumps, solid waste disposal, cemeteries, funeral parlours, and crematoria all fall under, matters for local government control.

#### ***Environmental Conservation Act (ECA)***<sup>16</sup>

The Environmental Conservation Act provides for control of environmental pollution<sup>17</sup> and the control of activities<sup>18</sup>, which may have a detrimental effect on the environment (**Government Gazette, 1989**). Waste disposal is prohibited from being undertaken<sup>19</sup> without written authorisation of the minister, a local authority, or an officer designated by the Minister.

The said minister is also required to keep a register in which details of all registered sites are recorded. He is also entitled to issue directives with regards to the control management and disposal (general or specific types) of certain waste disposal sites and various aspects of their closure or "change of purpose" an example of these conditions are set out in the "Minimum Requirements Series"<sup>20</sup>.

Under the same Act, no waste may be discarded at a place other than a disposal site, which has written authorisation, and in a manner other than as prescribed by the minister. See also the EIA regulations below and the minimum requirement series in section 4.2.

#### ***Environmental Impact Assessment Regulations (EIA REGS)***

The EIA regulations come into force through section 21, 22, and 26 of the ECA. The decision as to whether an EIA must be carried out is based on whether the intended activity falls within the **Description of Activities**<sup>21</sup> under the ECA. Under the regulations an EIA is required for a change in land use, and the disposal of waste<sup>22</sup>.

The relevant authorities are the provincial environmental authorities<sup>23</sup>, who will receive applications for consideration. Other relevant authorities recognised at a local level (i.e. municipalities) will also have to be consulted early on in the process.

The exact procedure for an EIA can be found in DEAT guidelines<sup>24</sup>. Briefly this includes making an application and reporting on the potential impacts<sup>25</sup> of the development on the environment, including interested and affected parties. The developer must be able to indicate what how local communities were involved in the process. At various stages these documents are reviewed by

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<sup>15</sup> Section 24 of the constitution makes provision for the right to a healthy environment, and the right to have the environment protected by preventing pollution and degradation, ecologically sustainable development, and the promotion of conservation.

<sup>16</sup> Act 73 of 1989

<sup>17</sup> Section 20 ECA, in particular this includes littering and waste disposal sites

<sup>18</sup> Section 21 of the ECA

<sup>19</sup> Section 22 of the ECA

<sup>20</sup> Department of Water Affairs and Forestry, Second Edition, 1998. Waste Management Series. Minimum Requirements for Waste Disposal by Landfill.

<sup>21</sup> Section 21 of the ECA.

<sup>22</sup> Section 2 in the description of activities

<sup>23</sup> This is the Department of Agriculture and Environmental Affairs (DAEA) for developments that will have a local provincial effect, and for other developments that will have a Trans-boundary or inter-provincial effect the Department of Environmental Affairs and Tourism (DEAT).

<sup>24</sup> DEAT, 1998. Guideline Document: EIA Regulations, implementation of Section 21 22 and 26 of the Environmental Conservation Act. Department of Environmental Affairs and Tourism

<sup>25</sup> This includes the positive and negative and how they can be mitigated, so as to reduce the effects of negative impacts and enhanced where a positive impact is concerned.

authorities, specialists, and interested and affected parties before a record of decision is filed. The guidelines must be consulted and the procedure followed to the letter if a successful application is to be made.

**National Environmental Management Act (NEMA)<sup>26</sup>**

NEMA establishes principles for decision making on matters affecting the environment (**Government Gazette, 1998**). Principles directly related to waste management and the location of cemeteries and crematoria are included in Chapter 1 of NEMA and include the following,

- People's needs<sup>27</sup> must be put at the forefront when matters of environmental management are considered.
- Development must be socially, environmentally and economically sustainable.
- Pollution, environmental degradation, and waste must be avoided minimised or remedied.
- Adverse impacts should not be distributed to discriminate unfairly against the vulnerable or disadvantaged<sup>28</sup>.
- The responsibility and costs associated with remedying pollution or any degradation exists throughout the life cycle of the service or activity (cradle to grave) provided.
- Participation of vulnerable and disadvantaged interested and affected parties must be promoted with community wellbeing, and empowerment also being promoted.

Also provided for under Chapter 5 of the Act, is Integrated Environmental Management. This section provides for the investigation, assessment, and communication of activities with potential impacts on the environments.

**The Local Government Municipal Systems Act (LGMSA)<sup>29</sup>**

The Act provides a framework for the planning process. This is referred to as integrated development planning (IDP)<sup>30</sup>, the core components of which are detailed in Part 2 (Oosthuizen, 2002).

**The Local Government Municipal Structures Amendment Act (LGMSA)<sup>31</sup>**

This Act amends the Municipal structures Act 117 of 1998. The amendment of section 84(1) provides for the functions and powers of district Municipalities. This includes integrated development planning by the district Municipality and all local Municipalities in area<sup>32</sup>. The district Municipality also has to provide for solid waste disposal sites, by determining a strategy and sites for waste disposal, and through the regulation of waste disposal<sup>33</sup> (Oosthuizen, 2002).

**National Water Act (NWA)<sup>34</sup>**

The new National Water Act provides major reform of the laws applicable to water resources. Chapter three of the Act provides for protection of water resources, which is ultimately related to their utility. Under the act, waste is defined as any solid material with the ability to cause pollution. And the Act recognises the potential for land based activities to affect the status of water resources.

Under Section 19, the responsibility for any adverse effects rests with the "...owner... ..person in control... " or occupying the land where the adverse effect originated, and is required to take the appropriate action to prevent the occurrences.

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<sup>26</sup> Act 107 of 1998  
<sup>27</sup> As relates to their physical, psychological, developmental, cultural and social interests.  
<sup>28</sup> Environmental justice  
<sup>29</sup> Act 32 of 2000  
<sup>30</sup> Chapter 5 of the Act  
<sup>31</sup> Act 33 of 2000  
<sup>32</sup> Section 84 (1) a  
<sup>33</sup> Section 84 (1) e  
<sup>34</sup> Act No. 36 of 1998

The Chief Director: Water Use and Conservation, is authorised to direct any offending person to take the necessary steps to remedy the situation. If this is not done, the above mentioned may take such action as it sees fit and recover all costs from the responsible or offending persons.

The siting of landfill and waste disposal sites could have a deleterious effect on water resources, and due consideration should be made for this potential when designing these facilities. The Chief Director Water Use and Conservation should be involved in the initial planning stages for these amenities.

### 2.3.2 Policy and Other Documents

#### ***White Paper on Integrated Pollution and Waste Management (IPWM)***

The IPWM strategy provides for a paradigm shift to waste prevention from concentrating on end pipe solutions. This policy specifically subscribes to the vision, principle, goals, and the regulatory approach enshrined in NEMA, and is the policy for pollution and waste management for the South African government.

Land fills must be seen not only as the final solution to the problem of waste and pollution, but must be considered but one of the steps in “sustainable waste management”, after all has been done to prevent, and minimise that waste.

Key issues identified by the policy are that waste disposal sites are a major source of land pollution. Specifically mentioned are those sites disposing of hazardous, medical and veterinary waste. Other problems include poor location and management of sites, leachate, illegal sites and poor town planning<sup>35</sup>.

#### ***KZN Draft Waste Management Policy (KZN WMP)***

This policy represents the efforts of the province to take on its responsibility as prescribed in the ECA (Section 24, Act No. 73, 1998) to make regulations with respect to waste management.

The general objective<sup>36</sup> is

- Registration of waste generators and handlers
- Access to information
- An equitable system of governance, for generators and handlers, with a view to eliminating illegal practices.

The policy states with regards to solid waste that this includes the management of waste on site and only where necessary, the transport to suitable licensed landfill sites<sup>37</sup>.

With regards to hazardous and medical waste, the policy states that it is important to identify the need for hazardous and waste disposal sites and address issues like siting and management “if the need exists”.

#### ***Minimum Requirements for Waste Disposal by Landfill***<sup>38</sup>

The minimum requirements series consists of three documents, these include,

- *Minimum Requirements for the Handling Classification and Disposal of Hazardous Waste,*
- *Minimum Requirements for Waste Disposal by Landfill,*
- *Minimum Requirements for Monitoring at Waste Management Facilities.*

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<sup>35</sup> Section 3.3 of the White Paper on IPWM.

<sup>36</sup> Section 4.1 of the KZN WMP.

<sup>37</sup> Section 4.1.1 of the KZN WMP.

<sup>38</sup> DWAF Minimum Requirements Series



The legal basis for these documents stems from the ECA<sup>39</sup>. *The Minimum Requirements for Waste Disposal by Landfill* guides the process of site selection<sup>40</sup>, permitting<sup>41</sup>, investigation<sup>42</sup>, assessment and mitigation of impacts<sup>43</sup>, landfill design<sup>44</sup>, site preparation<sup>45</sup>, operation<sup>46</sup>, monitoring<sup>47</sup>, rehabilitation and closure<sup>48</sup>.

The Minimum Requirements for Waste Disposal by Landfill represents the definitive guideline for the establishment of waste disposal sites under the Environmental Conservation Act. In terms of the permitting requirements for waste disposal the procedure is covered in great detail in the document, and will not be duplicated here. Particular attention must be paid to the permitting procedure, which must be followed to the letter to avoid falling short of any regulating authorities.

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<sup>39</sup> Section 20 (1) of the Environmental Conservation Act.

<sup>40</sup> Section 4

<sup>41</sup> Section 5

<sup>42</sup> Section 6

<sup>43</sup> Section 7

<sup>44</sup> Section 8

<sup>45</sup> Section 9

<sup>46</sup> Section 10

<sup>47</sup> Section 11

<sup>48</sup> Section 12

## CHAPTER 3. METHODOLOGY

This study was conducted with local and district municipalities in KwaZulu-Natal. All local and district municipalities were sampled in this study. It was assumed that municipal officials would provide information on the number of waste disposal sites within their municipal jurisdiction.

A short questionnaire was distributed to municipalities requesting information on the facilities available. This information was used to guide more detailed investigations during the site visits. Other research tools used include interviews and workshops at a district level. Fikanodumo were represented during the district level workshops. All of the information for each local municipality was then compiled in to a database, presented in the findings section below.

The methodology followed during the study is set out in more detail below.

### 3.1 Establish an Appropriate Framework

An appropriate framework was established in terms of Section 2.2.1 above, within which the assessment of current waste disposal sites was evaluated and future projects identified. This was done using national and provincial legislation, coupled with guidelines where relevant. This framework guides the project and includes a review of the following:

- A definition for a waste disposal site
- Legal requirements for waste disposal sites, provincial and national
- Summary of best practice
- Issues related to identifying and managing waste disposal sites

### 3.2 Interviews with Municipalities and Site Visits

Meetings with the Municipality were combined with site visits. Prior to the site visit, Municipalities were issued with a **questionnaire** in order to establish an informed base data source as well as prepare them for the site visits. The following data aims to be extrapolated from these questionnaires:

- Request for a list and details of existing and known waste disposal sites (both legal and illegal).
- Quantify (where possible) the amount of waste being disposed of.
- Provide an outline of waste processes currently adopted by the Municipality.
- Determine whether a strategy has been put into place for Waste Disposal and in particular whether waste disposal was prioritised on the municipalities IDP.
- Highlighting the primary concerns with the existing sites.
- List and details of available reports that have been conducted in the area.

The initial questionnaire was aimed at providing an adequate base to begin evaluating the issues at hand. Given that the project team would not be in a position to have knowledge or identify all existing sites, it is assumed that the Municipality would be in a suitable position to guide the team in terms of pointing these out and where possible, provide relevant data in accordance therewith.

To supplement the initial interview and to provide the basis for information assessment on level terms, a checklist was developed for use during the actual site visit. This checklist provided the foundation to assess each site in terms of a pre-determined set of variables and factors that were incorporated into a data sheet.

The said data sheet establishes an assessment criterion consistent with legislation, DWAF's requirements as well as DAEA thereby serving as an appropriate tool to assess each site through common evaluative criteria.

Prior to the site visit, The Department of Water Affairs and Forestry and the Department of Agriculture & Environmental Affairs were also consulted to further establish which sites are registered on their databases as well as those being assessed at present.

Upon finalisation of the data collected in relation to the above, a data sheet was formulated to validify information made available. This sheet will accompany the relevant professional team member to the site. The contents of the data would entail inter alia: -

- Condition and status of waste disposal site
- Type of waste being disposed
- Capacity of site
- Expected life span
- Security
- Buffer zones (including prevailing social conditions in proximity of the site)
- Photographs of the condition of each site

### **3.3 Compile a Database for Each District and Local Municipality**

Upon completion of the site visits (accompanied by the Municipal official), the relevant information was collated and incorporated into a database in report format containing a breakdown and assessment for each District and Local Municipality.

In effect, each District Municipality has a document that summarises the extent of the number of sites, coupled with recommendations and ways forward for their future planning.

### **3.4 Preparation and Compilation of Report, Maps and Presentation**

The findings of the site visits, interviews and review of existing information are summarized and documented in this report to be presented to the PPDC. The framework developed will provide the context for the report serving as a basis and best practice methodology for future planning.

The current situation, likely future trends and recommendations for each Local and District Municipality are detailed and grouped according to District Municipality, with a general overview and potential funding requirements and sources being given for each District Municipality. Lastly the report will provide a general assessment at Provincial Level and provide overall conclusions and recommendations.

### **3.4 Prioritising Municipalities for Assistance**

From the data captured it was possible to prioritise municipalities in need of assistance. After the site visits, capacity that existed within each local municipality was determined. Where a municipality did not have waste disposal site, this was identified as a priority. Also where a waste disposal site was full or about to reach capacity this municipality was also considered a priority. Priorities were determined for each district municipality and compared to prioritisation in terms of associated IDPs. The results of this exercise and a way forward are presented in the findings and recommendations section for each municipality below. A limitation to this process was the inability of the local municipality to predict the life span of their waste disposal sites.

## CHAPTER 4. DATA ANALYSIS AND INTERPRETATION

The site visit findings are presented below under each district visited. The data presented below was analysed quantitatively using Microsoft Excel to perform basic calculations i.e. where the mean was calculated.

### 4.1 Site Visit Findings and Assessment of Waste Disposal Sites

#### DC 27: uMkhanyakude District

##### Database and locality of facilities

The district is made up of five local municipalities. These include the local municipalities indicated in Table 4.1 below. A total of nine sites were visited. These were indicated as being the responsibility of the local municipalities indicated below. None of these sites are permitted in terms of DWAF regulations.

Most of the waste disposed of reportedly consists of general domestic or household waste. This forms approximately 1664 tons being disposed per month<sup>49</sup>. There is some indication that the disposal of sawdust may be a problem for the Mbazwana area, where there is illegal dumping of sawdust within a closed waste disposal site. This practice may constitute a hazard with respect to the danger of a fire breaking out on site. Especially considering that the waste disposal site is located adjacent to an airfield and a small timber milling facility.

Considering that none of the sites in this municipality are registered with DWAF, it is not possible to estimate the life span for the sites in question. Consider that as a part of the permitting process, DWAF sites are generally frequently inspected or have monitoring committees associated with them. This generally helps to build a database of records associated with each site. It later becomes possible to predict the expected lifespan of a site where this monitoring occurs. It was not possible to predict the expected lifespan for all the unregistered sites detailed below.

**Table 4.1: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed (tons)	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Umhlabuyalingana</b>					<b>No</b>
<i>Manguzi landfill</i>	Not Permitted	224 tons	Domestic and Garden refuse	Unknown	
<i>Mbazwana landfill</i>	Not Permitted	120 tons	Domestic and Garden refuse  Reported illegal dumping of sawdust	Full <sup>50</sup>	
<b>Jozini</b>					<b>Yes</b>
<i>Jozini old dumping site</i>	Not	-	-	Closed <sup>51</sup>	

<sup>49</sup> 1 m<sup>3</sup> of waste is taken to be equivalent to 0.60 tons of the same waste. This value is used through out the report to calculate the mass of waste generated, where a volume (m<sup>3</sup>) for general domestic waste is given. The composition of waste will vary from area to area, levels of affluence and economic activity will also affect the density of the waste generated. In addition to this whether the waste has undergone any form of compaction will influence the density of the waste.

<sup>50</sup> Waste disposal still continues despite the fact he the site is reportedly full.

<sup>51</sup> The site is closed and no waste disposal occurs.

	Permitted				
<i>Jozini recycling centre</i>	N.A.	400 tons	Domestic refuse	N.A.	
<i>Mkuze disposal site</i>	Not Permitted	480 tons	Domestic refuse	Unknown	
<b>The Big Five False Bay</b>					<b>No</b>
<i>Hluhluwe disposal</i>	Not Permitted	168 tons	Domestic refuse	Unknown	
<b>Hlabisa</b>					<b>Yes</b>
<i>Hlabisa disposal</i>	Not Permitted	43 tons	Domestic refuse	Unknown	
<b>Mtubatuba</b>					<b>Yes</b>
<i>St. Lucia Landfill</i>	Not Permitted	40 tons	Domestic refuse	Unknown	
<i>Mtubatuba Landfill</i>	Not Permitted	232 tons	Domestic and Garden refuse	Unknown	

### Key issues

All of the waste disposal sites within the district are not registered in terms of DWAF regulations. The department makes provision for different levels of registration where waste disposal sites are concerned and this needs to be further investigated and applied with assistance from DWAF. In terms of the Environmental Conservation Act (No. 73 of 1989) these sites may be considered illegal.

There is a general impact of air pollution from uncontrolled burning of wastes and wind scatter from the sites because waste is not covered. Another general issue is that sites are generally under capacitated in terms of equipment used onsite. This is sometimes inadequate for the tasks at hand. These are management issues related to each site that are having an impact on surrounding communities and the environment in general.

There is a problem with security at waste disposal sites, where tip pickers have gained access and salvage food or other material from sites. While recycling should be encouraged this needs to be done in a controlled and safe way. Security (fencing and site access in general) needs to be improved.

Formal recycling initiatives in the area are only reported in Jozini. If applied more extensively in the area this could reduce the total waste stream but also provide jobs and an income for communities in the area. This needs to be done in an organized and systematic manner (to prevent occupational injuries associated with the waste disposal sites).

All municipalities, except the Big Five False Bay, indicated that they had prioritised waste disposal sites on their IDPs. It was not possible to prioritise the municipalities with regards to those requiring urgent assistance in the form of waste disposal sites. This is because it was not possible for municipalities to indicate the life expectancies of their sites. Most of the waste disposal sites are indicated to be unregistered and burning of waste probably takes place on site. This means that it unlikely that they would be able to give an accurate figure in terms of the life expectancy of the sites.

**Findings and recommendations**

- There is a need to register all waste disposal sites in the district (DWAF registration).
- Illegal dumping of waste needs to be investigated and controlled.
- Site management in terms of burning, covering waste, and the control of individuals onsite needs to be improved.
- Formal recycling initiatives need to be encouraged in the district.

**DC 28: Uthungulu District**

**Database and locality of facilities**

There are a total of six local municipalities (Table 4.2) in the district. In total eight waste disposal sites were visited with the assistance of the local municipality.

A total of eight sites were visited for this district. The large regional site in Empangeni, Melmoth and the Alton site are both registered in terms of DWAF regulations. Umlalazi site is registered under the old permitting system. There are four waste disposal sites that are not registered with the DWAF.

Approximately 7454.2 tons of waste is disposed of every month. This ranges from domestic and garden refuse, builder's rubble and sawdust from timber industries within the area.

Ntambanana reported no municipal waste disposal sites. There is no formal waste collection system from the area and it must be assumed that waste is being disposed by each individual household.

Regional capacity in terms of waste disposal exists in uMhlatuze (Empangeni Regional Disposal Site), for the next eight years. Waste from Mtunzini will be diverted here within the next year when a transfer station is established adjacent to the current waste disposal site.

**Table 4.2: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Mbonambi</b>					<b>Yes</b>
<i>KwaMbonambi Disposal Site</i>	Not Permitted	38.4 tons	Domestic and garden refuse, builders rubble and sawdust	Unknown	
<b>uMhlatuze</b>					<b>Yes</b>
<i>Alton Landfill</i>	Permitted (GMB+)	Closed	Domestic and Garden refuse	closed <sup>52</sup>	
<i>Empangeni Regional Disposal Site</i>	Permitted (GMB+)	7000 tons	Domestic and Garden refuse	8 years	
<b>Ntambanana</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>No</b>
<b>Umlalazi</b>					<b>Yes</b>
<i>Umlalazi Disposal Site</i>	Permitted (P-Old classification)	45 tons	Domestic and Garden refuse	30 years	
<i>Mtunzini Disposal Site</i>	Not Permitted	30 tons	Domestic and Garden refuse	1 year <sup>53</sup>	
<b>Mthonjaneni</b>					<b>Yes</b>
<i>Melmoth Disposal Site</i>	Permitted (GCB)	240 tons	Domestic and garden refuse	10 years <sup>54</sup>	

<sup>52</sup> There is reportedly space available for an additional two years of capacity; however, there is a regional site recently developed in Empangeni.

<sup>53</sup> The site will be converted to a transfer station during 2004. Waste will be transferred to the Empangeni Regional site.

<sup>54</sup> To be converted to a transfer station after it reaches its capacity after 10 years.

			and builders rubble		
<b>Nkandla</b>					<b>Yes</b>
<i>Nkandla Old Dump Site</i>	Not Permitted	100.8	Domestic and garden refuse, builders rubble and sawdust	Unknown	
<i>Nkandla New Dump Site<sup>55</sup></i>	Not Permitted	-	Domestic refuse	Unknown	

### Key issues

There are a number of unregistered waste disposal sites in the district. There are also activities taking place which puts a strain on surrounding people and environment (i.e. uncontrolled fires, people 'picking waste' and the possibility of occupational health and safety (OHS) injuries due to accidents on site etc).

In some cases squatters are resident at a waste disposal site. This puts them and their property at risk should a fire break out in the area. In some cases squatters are possibly reported to be responsible for theft or vandalism of infrastructure onsite.

Kwabonambi waste disposal site has a problem with the informal settlement (Slovo's squatter camp) on its boundary. People from the site reportedly frequently cut fences to gain access to the waste, which they may sell as scrap or paper for recycling purposes.

The new Empangeni regional site is located adjacent to an old landfill site (within the boundary fence). This does not appear to have been completely rehabilitated. There is a large amount of wind scatter from waste that wasn't covered on site and also a stockpile of tyres which may pose a fire hazard for the site.

Tip pickers at the Umlalazi waste disposal site are not restricted from the working face. They collect cardboard and other items while heavy machinery (compactors and trucks etc) is in operation. This inadvertently puts them at risk from injury.

Ntambanana has indicated that it doesn't have any municipal waste disposal sites, but the municipality has indicated that they have not yet prioritised this on their IDP.

### Findings and recommendations

- Unregistered sites need to be registered with DWAF.
- Formal and well controlled recycling will need to be encouraged as a means to saving air space at current waste disposal sites and preventing accidents (which the proprietor will be responsible for from a public health perspective onsite).  
People should be allowed the opportunity to recycle waste but this must be done away from the working face. Alternatively people may be allowed on to the site when equipment is not in use.
- Security at some waste disposal sites is not adequate. This should include restricted access through to intact fencing etc.
- Ntambanana will need to prioritise a waste disposal site on their IDP. The municipality does not have a site and this needs to be prioritised.

<sup>55</sup> The site is reportedly prepared but is not being used due to a land dispute with local traditional leaders.



**DC 26: Zululand**

**Database and locality of facilities**

A total of fifteen waste disposal sites were visited in this district. The majority of these are not registered with the DWAF. The only registered sites are in uPhongolo municipality

For the entire district approximately 2765 tons are disposed of on a monthly basis. This consists waste ranging from garden refuse, domestic waste, builders rubble and sawdust. Most of the waste disposal sites disposing of small quantities of waste tend to have projected life spans of approximately 15-20 years. However the Vryheid waste disposal site disposing of approximately 1000 tons only has space for another 4 years.

**Table 4.3: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Edumbe</b>					<b>Yes</b>
<i>Paulpietersburg Disposal Site</i>	Not Permitted	12 tons	Domestic, garden refuse and sawdust	2008	
<i>Bilanyoni waste disposal site</i>	Not Permitted	20 tons	Domestic refuse	2011	
<i>Western Pine and Palate Disposal Site</i>	Not permitted	Closed <sup>56</sup>	Sawdust	Closed	
<b>uPhongolo</b>					<b>No</b>
<i>uPhongolo Landfill</i>	Permitted (GSB)	1058.8 tons	Domestic refuse	15 years	
<i>uPhongolo Old Disposal Site</i>	Permitted (Closed)	Closed	Closed	Closed	
<i>Belgrade Illegal Disposal Site</i>	Not Permitted	2 tons	Domestic and garden refuse and builders rubble	Unknown	
<b>Abaqulusi</b>					<b>Yes</b>
<i>Louusburg Disposal Site</i>	Not Permitted	30 tons	Domestic and garden refuse and builders rubble	20 years	
<i>Vaalbank/Hlobane/Thuhukane Transfer Station</i>	Not Permitted	24 tons	Domestic and garden refuse and builders rubble	Unknown	
<i>Emondlo/Bhekhumthetho Disposal Site</i>	Not Permitted	320 tons	Domestic and garden refuse and builders rubble	Unknown	

<sup>56</sup> Waste was dumped illegally by owners of the sawmill. The company has since gone bankrupt and the municipality has been left with this problem.

<i>Vryheid Disposal Site</i>	Not Permitted	1000 tons	Domestic and garden refuse and builders rubble	2008	
<i>Coronation Disposal Site</i>	Not Permitted	48 tons	Domestic and garden refuse and builders rubble	Closed	
<i>Nkongolwane Disposal Site</i>	Not Permitted	80 tons	Domestic and garden refuse and builders rubble	Closed	
<b>Nongoma</b>					<b>Yes</b>
<i>Nongoma Disposal Site</i>	Not Permitted	60 tons	Domestic and garden refuse and builders rubble	Unknown	
<b>Ulundi</b>					<b>Yes</b>
<i>Ulundi Disposal Site</i>	Not Permitted	80 tons	Domestic and garden refuse and builders rubble	20 years	
<i>Babanango Disposal Site</i>	Not Permitted	30 tons	Domestic and garden refuse and builders rubble	20 years	

### Key issues

Security at all waste disposal sites in the district appears to be a point of concern. This is mainly restricted to fencing of each site where individuals gain access to the site and in some cases disrupts waste disposal activities taking place. This could be controlled through improving perimeter fencing, restricting access, and establishing a resident caretaker to manage or oversee activities at the site.

General site management can also be improved. This includes aspects such as covering waste frequently, reducing fires onsite, and the control of people recycling waste.

Infrastructure support for waste disposal sites includes a good road network and waste transport system. The use of a tractor and trailer for waste transportation is cheap and convenient as long as the distances between waste collection and disposal are small (i.e. < 5km). Where these distances increase an improved transport system must be considered (This is true where service delivery is being extended to outlying areas). There is a need to be able to access waste disposal sites that have capacity to accept the waste.

The disposal of sawdust from the timber industry appears to be a problem in some areas. This has manifest in the form of illegal dumping of sawdust in Paulpietersburg. Western Pine and Timber are reported to have stored sawdust at their milling plant. Unfortunately the company has gone bankrupt with the result that the waste has been left where it was stored. Unfortunately the

stockpile of sawdust has since caught a light and has been smouldering for the last six months. Posing a hazard for children playing in the vicinity, as the site is not even fenced off.

There are also a number of closed waste disposal sites in the area. A number of these are in need of rehabilitation. This would include restoring the site to a state where it ceases to have a negative impact (visual or polluting etc) on the environment and people in the area (Coronation and Western Pine and Palate).

All of the local municipalities, except uPhongolo, have indicated that they have prioritised waste disposal on their IDPs. The uPhongolo municipality has indicated that it has a registered waste disposal site with an estimated capacity of 15 years. All of the other municipalities have waste disposal sites with capacities of over four years.

#### **Findings and recommendations**

- Unregistered waste disposal sites need to be registered with DWAF.
- An alternative to replace the Vryheid Waste disposal site (which only has capacity for another 4 years) needs to be found.
- Improving security through perimeter fencing, restricted site access, and establishing a resident caretaker to manage or oversee activities at the site.
- Improve general site management including reducing wind scatter and air pollution. Care should be taken when using erosion dongas for waste disposal as the possibility of ground or surface water contamination exists.
- Where possible consider improving transport net works and infrastructure so that waste can be delivered to disposal sites in the most cost effective manner.
- The disposal of sawdust needs to be strictly controlled as these poses a fire hazard for waste disposal sites. Options for recycling, and composting need to be considered.
- A protocol for the rehabilitation of closed waste disposal sites needs to be established. Plans for the rehabilitation of existing sites once closed needs to be considered.

**DC 22: uMgungundlovu**

**Database and locality of facilities**

A total of six waste disposal sites were visited in the seven local municipalities. Two Municipalities do not have any municipal waste disposal sites (Umshwati and Mkhambathini).

There are only three DWAF registered waste disposal sites. These are sites primarily disposing of general domestic waste.

**Table 4.4: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Umshwati</b>					<b>Yes</b>
	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	
<b>Umngeni</b>					<b>No</b>
<i>Howick Landfill</i>	Permitted (GMB+)	Unknown	Domestic and Garden refuse	Unknown	
<i>Hilton Garden Refuse Site</i>	Permitted (GSB-)	Unknown	Domestic and Garden refuse	Unknown	
<b>Mooi-Mpofana</b>					<b>Yes</b>
<i>Mooi River Disposal Site</i>	Not Permitted	168 tons	Domestic refuse	Unknown	
<b>Impendle</b>					<b>Yes</b>
<i>Impendle Disposal Site</i>	Not Permitted	Unknown	Domestic and Garden refuse	Unknown	
<b>Msunduzi</b>					<b>Yes</b>
<i>New England Disposal Site</i>	Permitted (GLB+)	400 tons	Domestic and garden refuse, builders rubble and sawdust	Unknown	
<b>Mkhambathini</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>Finalising their IDP</b>
<b>Richmond</b>					<b>Yes</b>
<i>Richmond Disposal Site</i>	Permitted	unknown	Domestic and garden refuse, builders rubble and sawdust	Unknown	

**Key issues**

There is a general problem with fencing at sites; some of the smaller unregistered waste disposal sites in particular seem to have a problem with restricting access to the facilities. As a result there may sometimes be problems where squatters or tip pickers disrupting activities on site. Where access has been controlled there appears not to have been this problem. In certain instances these problems are caused because fences are stolen as is the case with New England waste disposal site where management are constantly having a problem with thieves cutting razor wire to get access to the waste disposal site.

Other concerns arise with regards to the general management of waste disposal sites. There is a particular problem with management of waste at each site. In some cases waste is not covered frequently enough. This result in the proliferation of rodents, vermin and also insects associated with the landfill. This is common of the smaller unregistered sites, but is also taking place in some of the large sites. Related to this is the issue of lifespan for each site. The Hilton landfill site has a shortage of cover material. This is used to cover waste to prevent problems with rodents, flies etc. As a result the effective capacity for waste disposal at this site is radically reduced.

The disposal of medical and pharmaceutical waste is of concern in the Richmond area. There is an incinerator at the Richmond site used for the disposal of syringes and pharmaceuticals. Unfortunately the municipality reports that in some cases health care practitioners dump waste at the incinerator which then stays here until the incinerator is fired up or activated. The Richmond site is also located close to a stream. This site is due to be closed in the near future, and preparations are being made to establish an alternative waste disposal site.

Care should be exercised in allowing individuals to conduct their own recycling at waste disposal sites. If not managed this will inevitably lead to OHS problems especially if this is being carried out in the vicinity of heavy equipment. Recycling needs to be controlled and managed properly for it to contribute to job creation and the sustainable utilisation of recyclable waste materials.

Mkhambathini and Umshwati local municipalities can be prioritised in terms of a need for a waste disposal site. These municipalities do not have any capacity with regards to waste disposal sites. Mkhambathini has not finalized its IDP and will need to include this requirement.

#### **Findings and recommendations**

- Recycling initiatives need to be further developed. This would include “visible” receptacles available for the public to deposit their sorted waste in at waste disposal sites. Managed correctly this could also be a source of employment for members of the community.
- Alternative arrangements for the disposal of medical waste needs to be made with medical waste companies who collect and dispose of waste directly from the practitioner and dispose of it at a registered waste disposal site.
- Management at waste disposal sites needs to be improved. This includes more frequently covering waste.
- Security at sites also needs to be improved; this includes restricting access to each site (i.e. through a fence or gate).
- Mkhambathini has not finalized its IDP and will need to include the need for a waste disposal site on its IDP.

**DC 24: uMzinyathi**

**Database and locality of facilities**

There are only two-registered waste disposal sites in the district. In most cases it was not possible to ascertain the monthly waste disposed, nor the expected life span for most sites, as this information was in most cases not readily available to the local municipalities. It was also not possible for them to predict the life expectancy of their waste disposal sites (Table 4.4).

**Table 4.4: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Endumeni</b>					<b>Yes</b>
<i>Wasbank Disposal Site</i>	Not Permitted		Domestic refuse	Unknown	
<i>Endumeni (Glencoe) Landfill site</i>	Permitted (GSB+)	Unknown <sup>57</sup>	General Domestic	20 years	
<b>Nqutu</b>					<b>Yes</b>
<i>Nqutu Disposal Site</i>	Not Permitted	Unknown	Domestic refuse	Unknown	
<i>Nondweni Disposal Site<sup>58</sup></i>	Not Permitted	Unknown	Domestic refuse	Unknown	
<b>Umsinga</b>					<b>No</b>
<i>Tugela Ferry Disposal Site</i>	Not Permitted		Domestic refuse	Unknown	
<i>Pomeroy Disposal Site</i>	Not Permitted	Unknown	Domestic and Garden refuse	Unknown	
<b>Umvoti</b>					<b>No</b>
<i>Umvoti Garden Refuse Site</i>	Not Permitted	Unknown	Domestic refuse	Unknown	
<i>Umvoti Transfer Station</i>	Permitted	168 tons	Domestic refuse	Unknown	

**Key issues**

Table 4.4 indicates that most waste disposal sites in the district are not registered. For the registered site in Glencoe it was not possible to determine how much waste was being disposed because the site had not yet begun receiving waste.

Security needs to be improved at most of the above sites. There are incidents where cattle are allowed to graze on waste disposal sites. Also in certain instances children playing near or on waste disposal sites are exposed to illegally dump medical waste.

Other issues of concern are the negative visual impacts of wind scatter and air pollution caused by burning waste. The waste disposal site indicated as "Nondweni" above is established within a donga. This practice may jeopardise ground and surface water in the area as leachate from the donga may enter these water bodies.

<sup>57</sup> The site had not yet commenced operations at the time of the site visit, it was not possible to get a figure for the waste disposed on site.

<sup>58</sup> The site is not permitted, and is located in the Nondweni area. it is not registered with DWAF but is under the jurisdiction of traditional authorities in the area.

Umvoti local municipality have indicated that they urgently require a waste disposal site, since all the waste they generate is being disposed of in Pietermaritzburg. The result is high tariffs for the residents within the municipality. Unfortunately they have indicated that they have not prioritised waste disposal on their IDP.

**Findings and Recommendations**

- Unregistered waste disposal sites need to be registered with DWAF.
- Security needs to be improved at most sites. This could be done with an intact fence and a gate to restrict access. Additional measures may include a caretaker resident on site and security lighting in the area.
- The siting of waste disposal sites needs to take in to account potential pollution of ground and surface water reserves.
- Covering waste frequently may significantly reduce Wind scatter. This will also reduce flies and rodents breeding in the waste. Out breaks of fires on site may cause air pollution and serve to increase the occupational hazards at the waste disposal site. This can be reduced by restricting access to the site, and by having a visual security presence onsite.
- Recycling initiatives will contribute to enhancing the life span of waste disposal sites
- Umvoti local municipality need to prioritise the need for wastes disposal sites on their IDPs.

DC 23: Uthukela

**Database and locality of facilities**

A total of seven waste disposal sites were visited in the district. Among these is a private waste disposal site on the outskirts of Ladysmith. Imbabazane municipality does not have any municipal waste disposal sites.

**Table 4.6: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Emnambithi</b>					<b>Yes</b>
<i>Ladysmith Disposal Site</i>	Not Permitted	2000 tons	Domestic refuse	Unknown	
<i>Ithala Ezakheni Industrial Estate</i>	Permitted (GSB )	525 tons	Domestic refuse	9 years	
<b>Indaka</b>					<b>No</b>
<i>Ekuveni Disposal Site</i>	Not Permitted	Unknown	Domestic refuse	Unknown	
<b>Umtshezi</b>					<b>Yes</b>
<i>Wembezi Disposal Site<sup>59</sup></i>	Not Permitted	24 tons	Domestic refuse	Unknown	
<i>Kwanabamba (Weenan) Disposal Site</i>	Not Permitted	Unknown	Domestic refuse	Unknown	
<i>Escourt Disposal Site</i>	Permitted (GMB-)	Unknown	Domestic and Garden refuse	Unknown	
<b>Okhahlamba</b>					<b>Unknown<sup>60</sup></b>
<i>Emause transfer Site</i>	Not Permitted	72 tons	Domestic refuse	Unknown	
<i>Van Reenan (Total) Disposal Site</i>	Not Permitted	1 ton	Domestic refuse	5 years	
<i>Van Reenan Disposal Site</i>	Not Permitted	Unknown	Domestic refuse	5 years	
<b>Imbabazane</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>Yes</b>

**Key issues**

Most waste disposal sites in the district are not registered in terms of the DWAF minimum requirements. Ithala Ezakheni Industrial Estate is the only private registered waste disposal site in the district.

Security (fencing and access to sites), and general management (covering waste, wind scatter and tip pickers) at waste disposal sites appears to be an issue that needs to be addressed in almost all waste disposal sites. In addition to this the disposal of waste using dongas needs to be reassessed (Ladysmith waste disposal site). Disposal should be done so that there is no possibility for ground or surface water contamination during the rainy season. Related to this a waste disposal site is located in close proximity to a water body (Ekuveni waste disposal site). It is not clear whether the water body is a permanent or seasonal feature; nevertheless waste

<sup>59</sup> The site is not permitted, and is located in the Nondweni area. It is not registered with DWAF but is under the jurisdiction of traditional authorities in the area.

<sup>60</sup> The municipality has not yet finalised their IDP.



appears to be dumped on the shores of this water body. This may have implications for water quality in the area.

Wembezi waste disposal site is situated in close proximity to an expanding community. This is reportedly an illegal site being used for waste disposal by the local community. Squatters are reportedly encroaching on to the waste disposal site. Unfortunately the site is not fenced, animals often graze and children can also be seen playing in the waste disposal site. Municipal waste from the area is currently disposed of at the Escourt waste disposal site. Similarly the lack of security (fencing) at Kwanabamba waste disposal site and the Emause transfer station has lead to animals and people picking from the waste disposal site.

Imbazane has been identified as not having a waste disposal site. The other local municipalities have not been able to predict the lifespan of their waste disposal sites. Given the above it is possible to prioritise Imbazane as requiring a waste disposal site. This has been indicated as a need in terms of the IDP.

### **Findings and recommendations**

- There is a need to register waste disposal sites in the district in term of the new DWAF requirements
- Access needs to be restricted at waste disposal sites.
- General management in terms of DWAF needs to be improved. This would include covering waste to avoid vermin, wind scatter (environmental pollution).
- Sites located in close proximity to water bodies need to be closed and the area rehabilitated.
- Wembezi waste disposal site needs to be closed and the area rehabilitated considering the movement of squatters in to this area.
- Imbazane needs to be prioritised in terms of a waste disposal site. the municipality currently has no municipal sites, and has indicated this as a priority on their IDP.

**DC 25: Amajuba**

**Database and locality of facilities**

A total of four waste disposal sites were visited in the district. Total waste disposed consists of 4692 tons of waste; this is generally composed of domestic waste. The Newcastle waste disposal site currently has airspace for the next two years, after which the municipality intends to apply for a new permit to coincide with the development of an additional site with an estimated 12 years of service.

An additional waste disposal site is to be developed in the Newcastle area. Permitting status to be applied for from DWAF is GMB+. The reason for the additional sites is the expansion of service delivery (waste collection) to adjacent areas of Osizweni, Leslie and Blauboss etc. this will require additional waste disposal capacity in terms of landfill space within the municipality.

The Utrecht waste disposal site is listed as having an indefinite lifespan; this is because the municipality selects dongas in the area to be used for waste disposal. It is not possible to determine what future capacity is available as these are developed as and when required.

The Dannhauser municipality is reportedly in the process of closing its waste disposal site. A new site has been earmarked for development however there is a problem with funding the development of the new site. Security at the current site is not adequate (the site is not fenced, and waste is not covered regularly), this has resulted in site pickers scavenging onsite and possibly being exposed to occupational health and safety risks. In addition to this the site is located adjacent to a cemetery site and the wind scatter from the waste disposal site inevitably finds its way here.

**Table 4.7: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Newcastle</b>					<b>Yes</b>
<i>Newcastle Disposal Site</i>	Permitted (Class 2-1994 permit)	4460 tons	Domestic refuse	12 years	
<i>Charlestown Waste disposal Site</i>	Not Permitted	Unknown	Domestic and garden	Unknown	
<b>Utrecht</b>					<b>Yes</b>
<i>Utrecht Disposal Site</i>	Permitted (Class 2)	72 tons	Domestic and garden refuse	Indefinite <sup>61</sup>	
<b>Dannhauser</b>					<b>Yes</b>
<i>Dannhauser Disposal Site</i>	Not Permitted	160 tons	Domestic refuse	Unknown	

**Key issues**

An additional site is to be established in the Newcastle area to meet the demand from increased service delivery to additional areas within the municipality. This will coincide with the eventual rehabilitation of the Newcastle site.

<sup>61</sup> The municipality makes use of dongas caused by soil erosion in the area. These are backfilled and banked to minimise storm water runoff.

The use of dongas for waste disposal needs to be carefully considered. This is especially true when considering ground and surface water pollution, as runoff from the donga contaminated with leachate could be a source of pollution. The rehabilitation of these sites is being done in a well-planned and systematic manner.

Management of waste disposal sites in some instances needs to be improved. This would include the frequency of covering waste and restricting access to the sites (security) to prevent occupational health incidents, theft of infrastructure and disruption of activities onsite.

All three municipalities have prioritised waste disposal sites on their IDPs. Newcastle has capacity for the next 12 years; however Dannhauser is having some problems with their current site (management problems). Utrecht still has some capacity in terms of the life span of their waste disposal site. In terms of the three local municipalities Dannhauser can be prioritised in terms of needing alternative waste disposal sites.

#### **Findings and recommendations**

- All of the waste disposal sites need to be registered under current DWAF regulations.
- Preparation for the rehabilitation of the Dannhauser waste disposal site needs to be made (a plan for the closure of the site) related to this is sourcing of funding so that activities at the new proposed site can commence.
- Care needs to be exercised over the use of dongas for waste disposal. This is to prevent the contamination of surface and ground water facilitates in the area.
- General management of the waste disposal sites needs to take in to account frequent covering of waste and avoiding fires. This will reduce the incidents of wind scatter and air pollution in the area. As a general rule access to all waste disposal sites needs to be restricted.
- In terms of the three local municipalities Dannhauser can be prioritised in terms of needing alternative waste disposal sites.

**DC 43: Sisonke**

**Database and locality of facilities**

A total of seven waste disposal sites were visited during this assessment, in addition two incinerators were also seen one disposing of medical waste at Ixopo, and the other used for incinerating waste in Himeville.

Most of the waste disposal sites in the district are not permitted in terms of DWAF regulations. This includes Creighton, Bulwer, Matatiele and Cedarville waste disposal sites (Table 4.8).

A closure permit has since been issued for the Kokstad waste disposal site, although there are no other alternatives for the disposal of waste in the area. This has been brought about by problems related to the management of the site, which is currently disposing of approximately 240 tons of waste per month.

The Compass waste incinerator is run by a private company and it was not possible to obtain figures for the total waste disposed per month, also some of the smaller waste disposal sites were not able to estimate the total quantity of waste disposed on a monthly basis. Approximately 936 tons of waste is being disposed of from the district on a monthly basis. This mostly consists of general domestic waste and garden refuse. Local authorities did not know lifespan for most of these sites.

**Table 4.8: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>Ingwe</b>					<b>Yes</b>
<i>Creighton Disposal Site</i>	Not Permitted	40 tons	Domestic refuse	Unknown	
<i>Bulwer Disposal Site</i>	Not Permitted	20 tons	Domestic refuse	1 year	
<b>Kwasani</b>					<b>Yes</b>
<i>Himeville Disposal Site</i>	Permitted (GCB-)	204 tons	Domestic refuse	Unknown	
<b>Matatiele</b>					<b>Yes</b>
<i>Matatiele Disposal Site</i>	Not Permitted	432 tons	Domestic refuse	Unknown	
<i>Cedarville Disposal Site</i>	Not Permitted	Unknown	Domestic refuse	Unknown	
<b>Greater Kokstad</b>					<b>Yes</b>
<i>Kokstad Disposal Site</i>	Permitted (Closure Permit issued)	240 tons	Domestic refuse	Closure permit issued	
<b>Ubuhlebezwe</b>					<b>Yes</b>
<i>Ixopo-Compass Waste Incinerator</i>	Permitted	Unknown	Medical and health care waste	Indefinite	

**Key issues**

There is a general problem of security on waste disposal sites. This has hastened a closure permit being issued for the Kokstad waste disposal site despite the fact that the site is not yet completely full. Access to the site is not restricted with the result that animals are seen grazing on the waste. Unfortunately adults and children can also be seen picking waste food and recycling other items from the waste disposal site. A similar scenario was encountered at the Matatiele waste disposal site where access to the site is gained through holes cut in the fence. The Matatiele waste disposal site has been sited on a hill just outside the town, unfortunately fires started onsite causes smoke to drift down towards a housing development adjacent to the waste disposal site. It has not been easy to control this air pollution. The municipality is unable to control access to the site despite the presence of a security guard onsite.

The Bulwer waste disposal site is also in the process of being closed and rehabilitated. It was reported that there was a lot of illegal dumping on site that resulted in wind scatter in the vicinity of the waste disposal site. Unfortunately there is no fence on site and access cannot be restricted. The Bulwer waste disposal site is located close to the Bulwer Biosphere reserve, the presence of wind scatter has been lamented by the surrounding communities who depend on tourism for their livelihood.

Management of waste needs to be improved. This includes covering waste that has had any useful components removed. Ideally this should be done away from the working face of the waste disposal site at a separate area dedicated for this purpose. Recycling needs to be encouraged but this needs to be done in a safe and hygienic manner. People should not be put at risk.

All of the local municipalities have prioritised waste disposal sites on their IDPs. The Ingwe municipality is the only waste disposal site that has an estimated lifespan, and this is to expire within the next year. The Greater Kokstad municipality has also had a closure permit issued for the waste disposal site. In terms of priority the Greater Kokstad and Ingwe municipality can be described as priorities in terms of needing viable waste disposal sites.

#### **Findings and recommendations**

- Security at waste disposal sites needs to be controlled. This includes access to the site which needs to be restricted with a fence or a wall where necessary.
- Management at waste disposal sites needs to include frequent covering of waste to avoid issues like wind scatter, and to prevent too many people finding their way to pick from the site. If waste is left uncovered this will be seen as an opportunity for unauthorised picking from the site. The faster waste can be covered the more difficult it will be for unauthorised picking to take place.
- A rehabilitation plan for the Kokstad and Bulwer waste disposal site needs to be formulated.
- Kokstad and Ingwe municipalities need to be prioritised for the provision of waste disposal sites. These areas are soon to face shortages in light of space for the disposal of waste materials.

**DC 21: Ugu**

**Database and locality of facilities**

A total of five waste disposal sites were visited in the six municipalities. A combined total of approximately 4128 tons of waste is currently disposed of within the district. This does not include garden refuse being disposed of at the New Bolton site, as records are not available.

Almost all sites visited in the district are registered with DWAF (with exception of New Bolton Garden refuse site).

Two municipalities including Vulamehlo and Umzumbe do not have any formal waste disposal activities. These are relatively newly established municipalities without a formal waste management system in place.

**Table 4.9: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised on the IDP?
<b>Vulamehlo</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>Yes</b>
<b>Umdoni</b>					<b>Yes</b>
<i>Humberdale Landfill</i>	Permitted (GMB+)	984 tons	Domestic refuse	20 years	
<b>Umzumbe</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>Yes</b>
<b>Umuziwabantu</b>					<b>Yes</b>
<i>Harding Disposal Site</i>	Permitted (GSB-)	504 tons	Domestic refuse	4 years	
<b>Izingolweni</b>					<b>Yes</b>
<i>Izingolweni Recycling Centre</i>	N.A.	240 tons	Domestic refuse	N.A.	
<b>Hibiscus Coast</b>					<b>No</b>
<i>Oaklands</i>	Permitted (GMB+)	2400 tons	Domestic refuse	16 years	
<i>New Bolton Garden Refuse</i>	Not Permitted	Unknown	Garden refuse	Unknown	

**Key issues**

Humberdale landfill has only recently (2002) been established and has an estimated lifespan of approximately 20 years. However it is reported that there is no compactor onsite. This could significantly reduce the overall life span of the site, as waste will not be suitably compressed.

There is generally a lack of control over individuals recycling waste at the smaller waste disposal sites. There is a need to control the activities of these individuals because any occupational injuries may be the responsibility of the local municipality concerned. Recycling needs to be encouraged but this needs to be done in a controlled, safe and responsible manner.

Related to the above is also general management of the site. Waste needs to be covered more frequently to avoid wind scatter, burning waste also needs to be controlled as this may be a source of pollution.

All except the Hibiscus Coast local Municipality have prioritised waste disposal on their IDP. Hibiscus Coast local Municipality has capacity for the next 16 years. Vulamehlo and Umzumbe may be considered as priority areas since there are no municipal waste disposal sites within these areas.

#### **Findings and Recommendations**

- Infrastructure (i.e. Compacting equipment) for the sites needs to be purchased.
- A study to establish what are the needs of the two municipalities (Vulamehlo and Umzumbe) needs to be undertaken. This should cover service delivery (waste collection), disposal and recycling initiatives.
- Security needs to be improved. This includes intact fences, restricted access to sites and closely controlled recycling onsite.
- General site management needs to include more frequent covering of waste and prevention of fires onsite.
- Vulamehlo and Umzumbe need to be considered priority areas with regards to waste disposal sites in the municipality. These areas have prioritised waste disposal sites on their IDP.

**DC 29: Ilembe District**

**Database and locality of facilities**

There are four local municipalities in the district. A total of four waste disposal sites were visited. Both Ndwedwe and Maphumulo do not have any waste disposal sites.

The Isithebe Industrial Park is registered under the old DWAF permitting system. Other waste disposal sites in the district have current registration with the DWAF. Approximately 22908 tons of waste is disposed of every month from within the district. The majority of this waste is disposed at the Sappi Tugela Landfill. This comprises 88% of the total waste stream generated within the district.

Unfortunately Sappi Tugela only has capacity for another year's service. A formal application has been submitted to DWAF to have the site extended. The local municipality is currently using a transfer station to transport its waste to La Mercy for disposal. Unfortunately this is proving to be a costly exercise and negotiations have been underway for some time to get Sappi to accept domestic waste from the municipality.

In addition to the above negotiations are currently underway to establish a regional waste disposal site with an 80 year capacity. Land has been identified for the site, and the owner has indicated a willingness to sell, unfortunately there is not enough funding to purchase the land. Approximately R 10m has been promised by CMIP unfortunately the district is unable to meet capital costs for the purchase of this land. It is estimated that the site should be operational once the site has been purchased.

**Table 4.10: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised on the IDP?
<b>eNdondakusuka</b>					<b>Yes</b>
<i>Isithebe Industrial Park</i>	Class 2A	1500 tons	General industrial	1 year	
<i>Mandeni Transfer Station</i>	Permitted (Transfer Station)	688 tons	Domestic refuse	Indefinite	
<i>Sappi Tugela Landfill</i> <sup>62</sup>	Permitted (GMB+)	20 000 tons	Wood by-products (wood chip, saw dust, paper, pulp etc)	1 year	
<b>Kwadukuza</b>					<b>No</b>
<i>Shakaville Garden Refuse</i>	Permitted	720 tons	Garden refuse and sawdust.	Unknown	
<b>Ndwedwe</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>Yes</b>
<b>Maphumulo</b>	No Municipal Site	No Municipal Site	No Municipal Site	No Municipal Site	<b>Yes</b>

**Key issues**

<sup>62</sup> This is a private waste disposal site.



There is a general problem with security at some of the small waste disposal sites. This has resulted in individuals picking from the waste disposal sites to make a living. These individuals run the risk of injury from heavy earth moving equipment. In some cases individuals have taken up residence within the waste disposal site. This is especially true of the Shakaville garden refuse site where a squatter camp has developed. Individuals make a living by picking waste from the site. The fence has been stolen and there are stockpiles of tyres and sawdust illegally dumped onsite which are a potential fire hazard.

Recycling needs to be encouraged within the district. This needs to be done in a controlled manner so that people can be protected from injury. The benefits of recycling include jointly employment, and sustainable waste management.

Ndwedwe and Maphumulo need to be prioritised in terms of providing waste disposal sites. Both of these have indicated this as a priority issue on their IDP. eNdondakusuka has not prioritised waste disposal as an IDP issue but both of the waste disposal sites will soon be running out of space.

**Findings and recommendations**

- The disposal of tyres and sawdust (fire hazards) needs to be controlled. The site needs to be fenced off to control people entering this facility. If possible the presence of a caretaker onsite may help to reduce theft and vandalism.
- Waste disposal sites that have not already done so need to be registered in terms of the DWAF minimum requirements.
- Funding for the establishment of a regional waste disposal site needs to be identified. There is a shortage of capacity within the district with regards to sourcing funding.
- eNdondakusuka needs to identify alternative sites or extend the current sites within the municipal area, if it is to meet waste disposal needs within the next few years.

**eThekwini: Durban Metro**

**Database and Locality of Facilities**

There are a total of five transfer stations and ten 'Garden Refuse' sites within the Unicity. These act as collection points for garden refuse and domestic waste in the Unicity. A total of 4784 tons of domestic waste and 1191 tons of garden refuse are generated per month.

In general all of the garden refuse and transfer stations appear to be well run. In terms of security all the sites either have a wall or fence, and access is restricted with a gate. The only site visited that was not fenced was the Malacca Garden Refuse site.

Commercial waste disposal is handled by the landfills. In particular landscaping companies are requested to deliver waste directly to the landfill sites. Payment for the disposal of waste is reflected on the companies' electricity tariff at the end of each month. This varies from approximately R27.50 for a one-ton vehicle.

Residents in the area are allowed to dispose of garden waste. They are allowed to make two trips a day to the garden refuse centre free of charge. Additional trips are chargeable. Domestic waste is normally collected from residences with a refuse compactor on a weekly basis. Residents are not normally allowed to deliver domestic waste to a transfer station, this would be an exception.

There are six waste disposal sites in the Unicity. Shongweni and Bulbul drive are privately owned while the Unicity manages the rest.

**Table 4.11: Database of Existing Facilities**

Local Municipality	DWAF Permit Status	Monthly Waste Disposed	Description of Wastes Disposed	Expected Lifespan	Prioritised in the IDP?
<b>eThekwini</b>					Yes
Mount Edgecombe Transfer station	Permitted	880 tons	General Domestic Waste	Indefinite	
Sagittarius Rd. Transfer Station	Permitted	1280 tons	General Domestic Waste	Indefinite	
Umlazi Transfer Station	Permitted	1280 tons	General Domestic Waste	Indefinite	
Hammersdale Transfer Station	Permitted	64 tons	General Domestic Waste	Indefinite	
Flower Rd. Transfer Station	Permitted	1280 tons	General Domestic Waste	Indefinite	
				Indefinite	
Travencor Garden Refuse	Permitted	140 tons	Garden Refuse	Indefinite	
Bellaire Garden Refuse	Permitted	64 tons	Garden Refuse	Indefinite	
Sagittarius Rd. Garden Refuse	Permitted	72 tons	Garden Refuse	Indefinite	
Tara Rd. Garden Refuse Site	Permitted	160 tons	Garden Refuse	Indefinite	
Riverside Garden Refuse Site	Permitted	64 tons	Garden Refuse	Indefinite	
Mallaca Rd.	Permitted	64 tons	Garden Refuse	Indefinite	

Garden Refuse Site					
Phoenix Garden Refuse Site	Permitted	72 tons	Garden Refuse	Indefinite	
Newlands Garden Refuse Site	Permitted	25 tons	Garden Refuse	Indefinite	
Glenville Garden Refuse Site	Permitted	82 tons	Garden Refuse	Indefinite	
Mount Edgecombe Garden Refuse Site	Permitted	448 tons	Garden Refuse	Indefinite	
Shongweni Waste Disposal Site	Permitted (H:h)	10 000 tons	General Domestic Waste and Garden Refuse	12 years	
La Mercy disposal site	Class 2	5 040 tons	General Domestic Waste and Garden Refuse	1 year (Applied for extension of the site)	
Bulbul Drive Disposal Site	Permitted (H:H)	13 000 tons	General Domestic Waste and Garden Refuse	Unknown	
WasteTech-Umlazi Disposal Site	Closed	Closed	Specialised industrial waste.	Closed	
Mariannahill Disposal Site	GLB+	21 000 tons	General Domestic Waste and Garden Refuse	<10 years	
Bisasar Disposal Site	Permitted (GLB+)	58 333 tons	General Domestic Waste and Garden Refuse	12 years	

### Key issues

There are no major issues surrounding the transfer stations and garden refuse sites. These are all generally well managed with good security onsite restricting access (gates, walls or fences in some cases) and someone onsite for most of the time to manage people disposing of waste. There was one garden refuse site located in Malacca road that was not fenced.

There is a problem of waste disposal sites being located close to settlements. Where the site is not managed properly there may be a chance of a negative interaction between the waste disposal site and the human settlements. There were no major problems noted in Durban. Most of the waste disposal sites appear to be well run, there is a strict system in place to monitor waste disposal sites. Any unusual odour or pollution is quickly picked up by the public or monitoring committees.

### Findings and recommendations

The Durban Unicity appears to be generally well run, in terms of waste disposal. There are no major issues or findings with regards to this area. A minor note is for security at Mallaca road garden refuse site. This site needs to be fenced, and access restricted with a gate.

## 4.2 Key Issues and Problem Areas within the Province

There are a number of issues that recur when reviewing waste disposal from a district perspective, these are dealt with generally under the headings given below.

### Site Selection

There are a number of waste disposal facilities inappropriately sited within the province. This may be for technical, geotechnical, environmental or social reason reasons.

The Bisasar waste (Durban metro) disposal site is located close to an informal settlement. This poses numerous problems related to managing the site including an informed public (monitoring committee) that frequently exercises their rights to complain especially if odours or vermin should increase due to bad management of the site.

Other problems frequently seen are related to informal settlements in close proximity to landfill sites. This is true of, but not limited to new Empangeni Regional, Kwabonambi, Waste disposal site, Hluhluwe, Shakaville garden refuse site and the Wembezi waste disposal site.

Related to poor siting is the Ekuveni waste disposal site in Indaka. The waste disposal site is located next to what appears to be an area with a high water table. The area around where water collects is used as a waste disposal site. This needs to be investigated further. The Richmond waste disposal site is located adjacent to a stream. This site is in the process of being closed as arrangements are being made for an alternative site.

### Registration of waste disposal sites

There are many unregistered (DWAF) waste disposal sites in the province. Some of these appear to have been created by residents living in areas where there are no waste collection services, but others are operated and managed by local municipalities.

Registration of waste disposal facilities is covered by the Environmental Conservation Act, the Water Act and the National Environmental Management Act. It is the responsibility of the owner of a proposed waste disposal site to register this with the Department of Water Affairs and Forestry. Various categories of registration exist precisely because there are different needs associated with waste disposal sites in different areas. These range from small, communal and large landfill sites. There are different levels of management associated with each level but generally these are minimal with smaller site registration and get more technical with larger landfill operation and management.

### People at Risk-Security at Waste Disposal Sites

Through out all of the districts mentioned in Chapter 2, there is a general problem with security at landfill sites. Access to sites needs to be restricted and carefully controlled.

Only people disposing of waste should have access to waste disposal sites. People should not be allowed on to the working face of a waste disposal site as this is where heavy machinery may be operating. The risks of injury from machinery or poisoning from the consumption of expired foods are very real.

It becomes difficult to restrict access to a site when the fence is constantly being breached. A simple solution to this problem is to ensure that the waste is covered on a regular basis. If this happens there will be little left for people to pick from. Waste disposal sites need a ready source of cover material. The Hilton site is lacking in this regard. Related to the above is the management of the waste disposal sites discussed below.

### Site Management

There is a general problem with management of waste at waste disposal sites through out the province. This is more prevalent (but not limited) to the smaller municipalities where resources are lacking, technical expertise, or the willpower to commit budget to these activities is extremely

poor. Most of the waste disposal sites in the Durban Unicity have monitoring committees associated with their activities. These associations monitor such aspects as odour, or wind scatter problems associated with each site.

When waste arrives on site it must either be covered immediately or an opportunity provided to have the waste sorted. A separate area needs to be provided away from the working face, where this waste can be sorted to remove those items with any value. Covering the waste immediately reduces the likelihood of vermin or insects (flies) breeding. This also precludes any tip pickers from cutting fences to get access to the waste disposal site as the waste will have been covered and hopefully also compacted.

#### **Site Pickers**

Generally though out the province there is a problem with security at waste disposal sites. Unfortunately this has meant that people who “pick” from the sites are exposed to all manner of danger from heavy equipment on site, consuming expired, unsuitable food and medical waste disposed of inappropriately. There is a great need to ensure that waste disposal sites are adequately fenced to restrict access. Also recycling needs to be encouraged but this must be overseen and not done in a haphazard manner such that recyclers are allowed to riffle through potentially hazardous waste. This should be done in an organised and well planned manner.

#### **4.3 Summary of Waste Disposal Facilities within the Province**

Approximately ninety five waste disposal sites were visited through out the province, all together disposing of approximately 161 296 tons<sup>63</sup> of waste on a monthly basis. There are approximately forty nine permitted waste disposal sites throughout the province (disposing of 155196.8 tons monthly) and forty eight non-permitted sites (disposing of 6200 tons monthly).

**Table 4.12: Summary of Waste disposed in the KZN Province**

<b>District</b>	<b>Total No. of Sites</b>	<b>Permitted Sites</b>	<b>Approximate Waste Disposed Per Month</b>	<b>Sites Not Permitted</b>	<b>Waste Disposed Per Month (tons)</b>
uMkhanyakude	9	1	400	8	1307
Uthungulu	9	4	7285	5	270.6
Zululand	15	2	1058.8	13	1706
uMgungundlovu	6	4	400	2	168
Umzinyathi	8	2	168	6	0
Uthukela	9	2	525	7	2097
Amajuba	4	2	4532	2	160
Sisonke	7	3	444	4	492
Ugu	5	4	4128	1	0
Ilembe	4	4	22908	0	0
Durban	21	21	113348	0	
<b>Total</b>	<b>97</b>	<b>49</b>	<b>155196.8</b>	<b>48</b>	<b>6200</b>

<sup>63</sup> This figure is only an approximation and is expected to be an underestimation, given the fact that there are many unregistered sites for which the tonnage of waste disposed is either not calculated or is not known by municipal officials.

Table 4.12 above provides a rough guide as to the number of facilities available in the province. Almost all of the sites in the uMkhanyakude district are not registered and it is not possible to predict the life spans of these sites. The recycling centre will be operational indefinitely.

Uthungulu district has eight waste disposal sites. Five of the sites visited are not registered with the DWAF. The Mtunzini waste disposal site is due to be closed within the next year. The Empangeni regional waste disposal site has capacity to receive waste for the next eight years at the current disposal rate. There are plans to install a system of transfer stations in Mtunzini and Melmoth for this purpose. Ntambanana does not have a formal waste disposal site.

Of the 15 sites in Zululand 13 are unregistered. Vryheid waste disposal site is due to close in the next four years, Paulpietersburg also has capacity for the next four years.

Mkhambathini and Umshwati local municipality in UMgungundlovu district do not have formal waste disposal sites. These areas need to be prioritised in terms of providing formal waste disposal sites.

There is only one registered waste disposal site in Umzinyathi district. The other site is a transfer station which disposing of waste to the New England waste disposal site in UMgungundlovu district. All of the sites need to be registered in terms of DWAF requirements.

Uthukela district only has two registered waste disposal sites. In addition to this the Imbabazane local municipality does not have any municipal waste disposal site. This area will have to be prioritised in terms of providing waste disposal sites.

Dannhauser waste disposal site in Amajuba district is due to be closed within the next two years. This site has numerous problems associated with site management. There is an area set aside for an alternative site but the municipality is still in the process of finalising this.

The kokstad waste disposal site is in the process of being closed. This is because of problems with management of waste onsite. The Bulwer waste disposal site also has some waste management problems but this site is in the process of being closed, and a new site is being developed within the area.

The Oaklands waste disposal site serves as a regional site for the lower south coast region (From Izingolweni including Margate and Port Shepstone areas). The Harding waste disposal site is reportedly due to close within the next five years. There is currently no waste disposal sites in the Vulamehlo and Umzumbe local municipalities. These areas need to be prioritised in terms of installing waste disposal sites and a waste management plan.

The Ilembe district is also facing difficulties with regards to waste disposal facilities. There are no municipal waste disposal sites in Ndwedwe and Maphumulo local municipalities. Both of the registered sites in the eNdongakusuka municipality only have one year's capacity left. Alternative sites have been proposed and an alternative waste disposal site to act as a regional waste disposal site has been identified. However the district lacks the financial capacity to purchase the land. The situation requires urgent attention.

Durban Unicity operates three categories of waste disposal site. This includes: garden refuse sites, transfer stations, and waste disposal sites. Twenty-one of these sites were visited. Waste disposal in the region depends on capacity at the waste disposal sites. In some cases eNdongakusuka (Ilembe district) also depends on the current lifespan of waste disposal sites in the Durban Unicity. Unfortunately the La Mercy waste disposal site is running out of capacity within the next year and is due to be closed. This will mean that waste disposal within the municipality (and Ilembe which is currently facing a problem- see Ilembe) will be put under a lot of pressure. Plans for an alternative waste disposal site needs to be made. In addition the possibility of extending the current lifespan of the La Mercy site needs to be assessed. The Mallaca garden

refuse site is reportedly also due to be closed. The site is currently operating without a fence and security on site needs to be assessed. More detail is provided below on specific issues relating to waste disposal sites.

## **CHAPTER 5. CONCLUSION**

### **5.1 The Objectives of the Study**

The main aim of the study was to establish a database, sites status quo and determine what future demands might be required for waste disposal sites within the province. The aims and objectives of this study are listed in Section 1.6.

With regards to the objectives of the study these have all been achieved. A framework document has been drawn up. This has included the legal and policy requirements for waste disposal sites. The framework has also identified several issues which need to be considered in terms of waste disposal sites. These issues and the legislation reviewed were later used to assess all of the sites visited within each municipality.

Waste disposal sites were then visited throughout the province. Legal and illegal sites were determined in terms of Department of Water Affairs and Forestry (DWAF). All DWAF permitted sites are considered legal, while illegal sites are considered to be those sites that are not registered by the department. In some cases it was common for municipalities to operate unregistered sites (see section 1.3) especially the smaller or newly demarcated municipalities. All waste disposal sites were assessed in terms of the issues identified in the framework (literature review), the results of which are presented in Chapter 4.

All of the waste disposal sites were mapped using Arcview GIS and presented in maps for each district and municipality. Each of the waste disposal facilities was assessed and site specific recommendations were presented with regards to the future management of these sites, this included systems to be put in to place, or approaches to the management of these sites.

In conclusion, the foregoing provides an impression of the current state of waste disposal within the province of KwaZulu-Natal. There is a problem within some municipalities where there has been insufficient drive to prioritise waste disposal facilities in terms of their IDP. There are also a number of issues related to the sites (registered and unregistered). Some of the most worrisome include protection of individuals recycling waste on an informal basis at waste disposal sites. In some cases individuals are exposed to medical waste or have access to food that is not fit for human consumption. There are also other issues related to landfill or waste disposal sites including siting, security, capacity and life span.

There are a number of instances where waste disposal site selection has resulted in conflicts with surrounding land use activities or communities. This may have resulted from poor or no site planning or more realistically urban sprawl. Most landfill sites were initially situated on the outskirts of towns or settlements. With time and growth of those settlements waste disposal sites have become islands in sprawling suburbs.

For each of the municipalities a cohesive and sustainable plan for waste disposal needs to be drawn up and effected. Recycling initiatives need to also be encouraged albeit in a safe and well managed manner. This can be achieved through cooperation between local and district municipalities.

### **5.2 Provincial Recommendations for Waste Disposal Sites**

A set of recommendations is provided for each waste disposal site (site visit reports) and also from a district perspective within this document (section 4.1). What follows are recommendations from a provincial perspective for waste disposal sites, these follow on from the key issues and problems identified at a provincial level.

#### **Site Selection**



Waste disposal sites need to be established in an organised and systematic manner. The site selection process needs to be based on what the surrounding environment can sustain and also the consultative process through which the surrounding community is engaged. Technical and financial criteria may be used to guide the site selection process. The EIA process is mandatory in establishing a waste disposal site, if executed correctly all potential problems related to the establishing the site should be identified.

Ideally waste disposal sites should not be located in close proximity to established settlements. By the very nature of the waste disposal process, these would be unsuitable land uses to be located in close proximity to settlements.

Where informal settlements have developed around the periphery of waste disposal sites, this has usually occurred because the residents have recognised the possibility of deriving a livelihood from the waste being disposed. Depending on the situation onsite, recycling should be encouraged, but this should be done in a planned and systematic manner:

- There needs to be a separate area where useful waste may be removed from the waste stream.
- This needs to be away from the working face of the waste disposal site, so as not to interfere with the process or endanger the lives of individuals (occupational health risks for which the entity managing the waste disposal site becomes responsible for).

#### **Registration of waste disposal sites**

Where waste disposal sites have not been registered this needs to be done in accordance with the criteria laid down by the Department of Water Affairs and Forestry (DWAF). The department has indicated varying levels of registration, varying from communal to requirements for hazardous waste disposal sites. There are different levels of management associated with each level but generally these are minimal with smaller site registration and get more technical with larger landfill operation and management.

#### **People at Risk-Security at Waste Disposal Sites**

Waste disposal sites need to be well secured. Sites need to be fenced off to prevent unregulated public access. Where recycling is to occur under some form of community initiative, this needs to be well managed by the responsible authorities. If it is not possible to control recycling, waste needs to be covered as frequently as possible to ensure pickers do not have access to expired goods or dangerous articles disposed.

Pickers should not be considered a nuisance, but rather a partner in achieving sustainable waste management. Where the relationship between the site management and the pickers is one of mutual understanding a good working relationship can be built. Pickers will be able to remove recyclable items from the waste disposal site. These could be used to generate a sustainable livelihood for the communities involved; the underlining issue is that this must be done in a well planned and organised manner.

#### **Site Management**

A number of problems have been identified at waste disposal sites. This includes vermin, wind scatter and unregulated pickers. Where possible the waste needs to be covered on a daily basis. This will include waste that has had any useful recyclable materials already removed. This will also reduce the amount of wind scatter, and the vermin breeding onsite.

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