



THE ROAD TO
ZERO WASTE
EASTERN CAPE
CONFERENCE 2015

Waste License applications: To be a Bureaucracy or not to be a bureaucracy, is that the Question??



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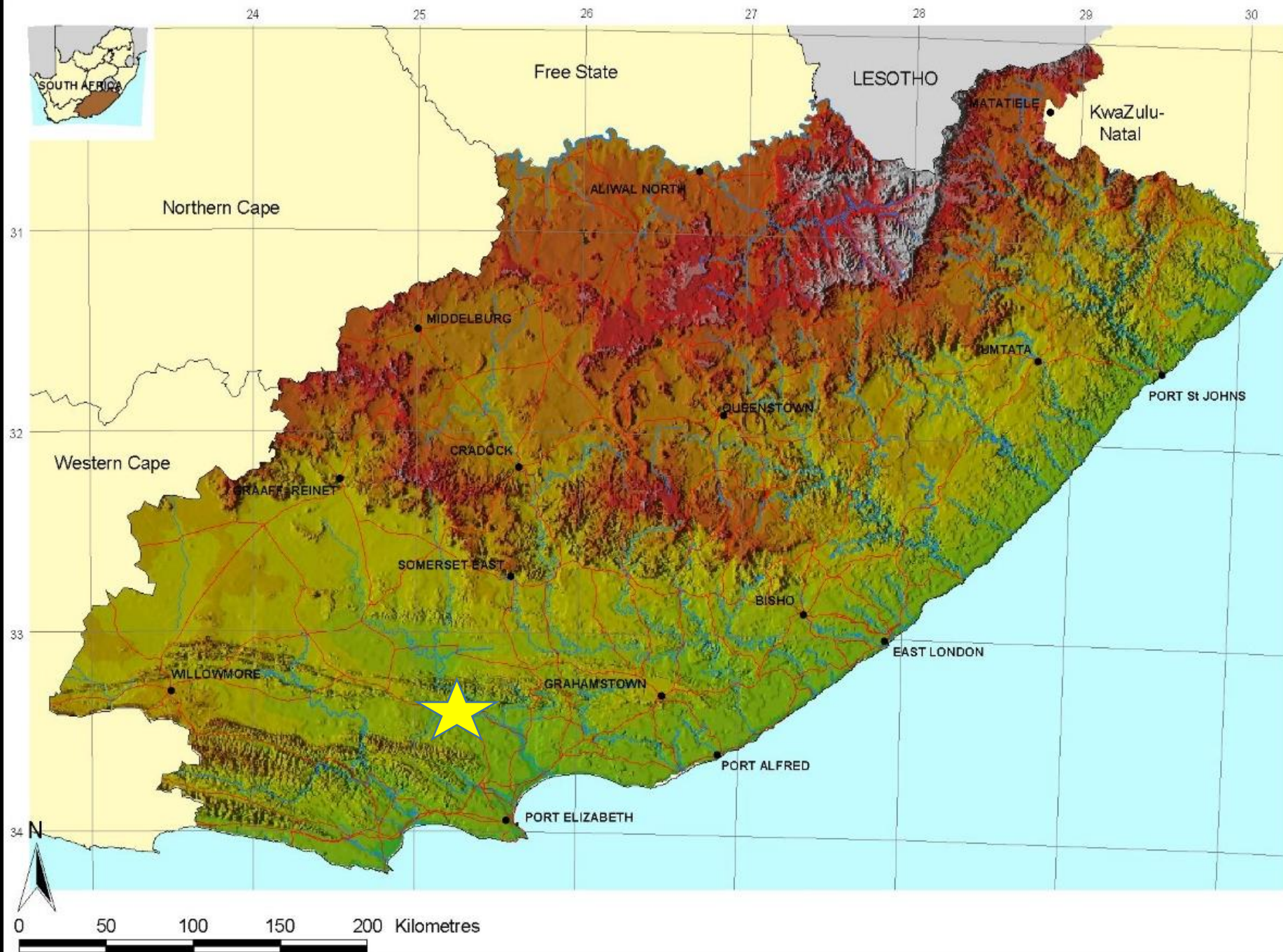
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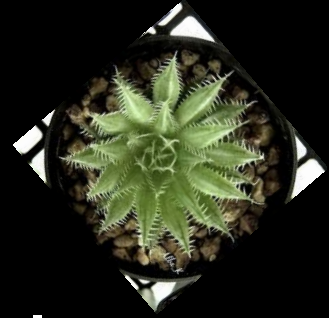
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Waste License applications: To be a Bureaucracy or not to be a bureaucracy, is that the Question??

Jansenville
Case study

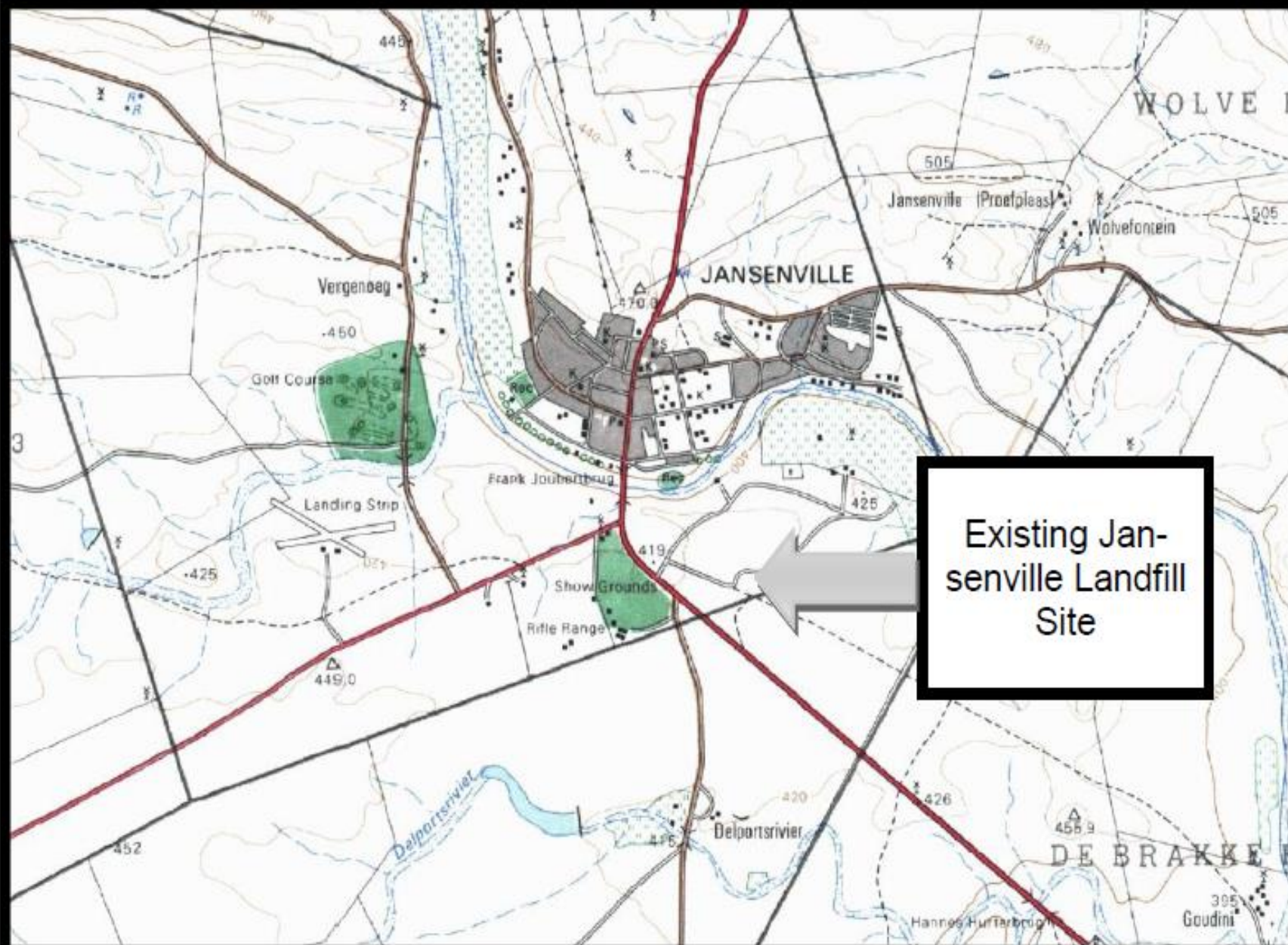






The Story

- Jansenville Landfill site not permitted i.t.o **National Environmental Management: Waste Act (NEM: WA)** (No 59 of 2008)
- Non-compliant i.t.o Minimum Requirements for Waste disposal by Landfill (DWAF, 1998)
- The Ikwezi Local Municipality therefore proposes the upgrading and permitting of the existing Jansenville Landfill Site
- Located +/- 1Km south of the town of Jansenville (32°57'1691"S 24°19'3210"E) on Municipal Commonage
- Classified as a GCB- site i.e. a communal site with a negative climatic water balance used for the disposal of general waste



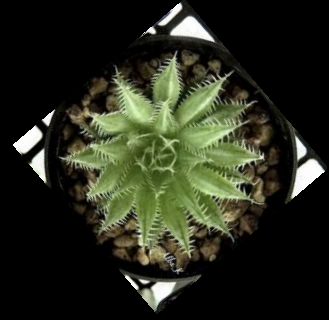
The Story

- Low population density and high levels of poverty
- 76% of households earn <R1 600 per month
- Unemployment range from 33% to 71% with approximately 62% of the adult population unemployed (Ikwezi LM IDP)
- Limited economic potential
- Waste service delivery from Jansenville
- 2 748 properties
- No differentiation between domestic, commercial and industrial service points
- Low commercial activity and lack of industries most of the waste can be classified as domestic



The Story





The Story

In terms of the Minimum Requirements the following compulsory upgrades are requisite:

- Formalisation and **lining** of waste disposal cells
- Upgrading of **fence** around the site
- **Stormwater** diversion measures
- The establishment of Waste Acceptance **Facilities** and Procedures at the site
- Erection of proper signposting at the site
- Guardhouse for control of vehicle access to the site
- Grading of the site

The Stage



Objectives NEM:WA (59 of 2008, Section 2)

to protect health, well-being and the environment by providing reasonable measures for:

- *minimising* the consumption of natural resources
- *avoiding and minimising* the generation of waste
- *reducing, re-using, recycling and recovering* waste
- *treating and safely disposing of waste* as a last resort
- *preventing* pollution and ecological degradation
- *securing* ecologically *sustainable* development
- *while promoting justifiable economic and social development*



Objectives NEM:WA (59 of 2008, Section 2)



- *promoting and ensuring the effective delivery of waste services*
- *remediating land where contamination presents, or may present, a significant risk of harm to health or the environment*
- *achieving integrated waste management reporting and planning*
- ensure that people are aware of the impact of waste
 - on their health
 - well-being and the environment
- provide for compliance with the measures set out in paragraph (a)
- generally, to give effect to section 24 of the Constitution

In addition the Act in Section 8 (3) states that



*“The norms and standards contemplated in subsection (2) must amongst other things **facilitate and advance:***

- planning and provision of waste management services*
- regionalisation of waste management services within the province*
- minimisation, re-use, recycling and recovery of waste, with the exception of standards that may have national implications or that may have a significant impact on the national economy and*
- treatment and disposal of waste, including the planning and operation of waste treatment and waste disposal facilities, licensed by provincial authorities”*

Scene 1

- Semi-arid
- Mean annual precipitation is 265mm
- Mean annual evaporation (A-pan) is 1891mm
- Mean annual soil moisture stress (MASMS) of 82% (WRC, 2005)
- This contributes to the classification as GCB⁻ with no leachate



Scene 1 Act 2



Scene 1 Act 3

- Estimated calculation of the amount of waste

Area	2008 Population	Per Capita waste Generation (Tonnes p/d)	Generated waste (Tonnes p/d)	Generated Waste (Tonnes p/a)
Jansenville	5140	075kg/p/d	36	936

- However, these estimates are likely in excess of actual disposal volumes

Scene 2 Act 1

No formal operation system is in place at the current site and there are currently no staff or equipment on site This leads to the following issues:

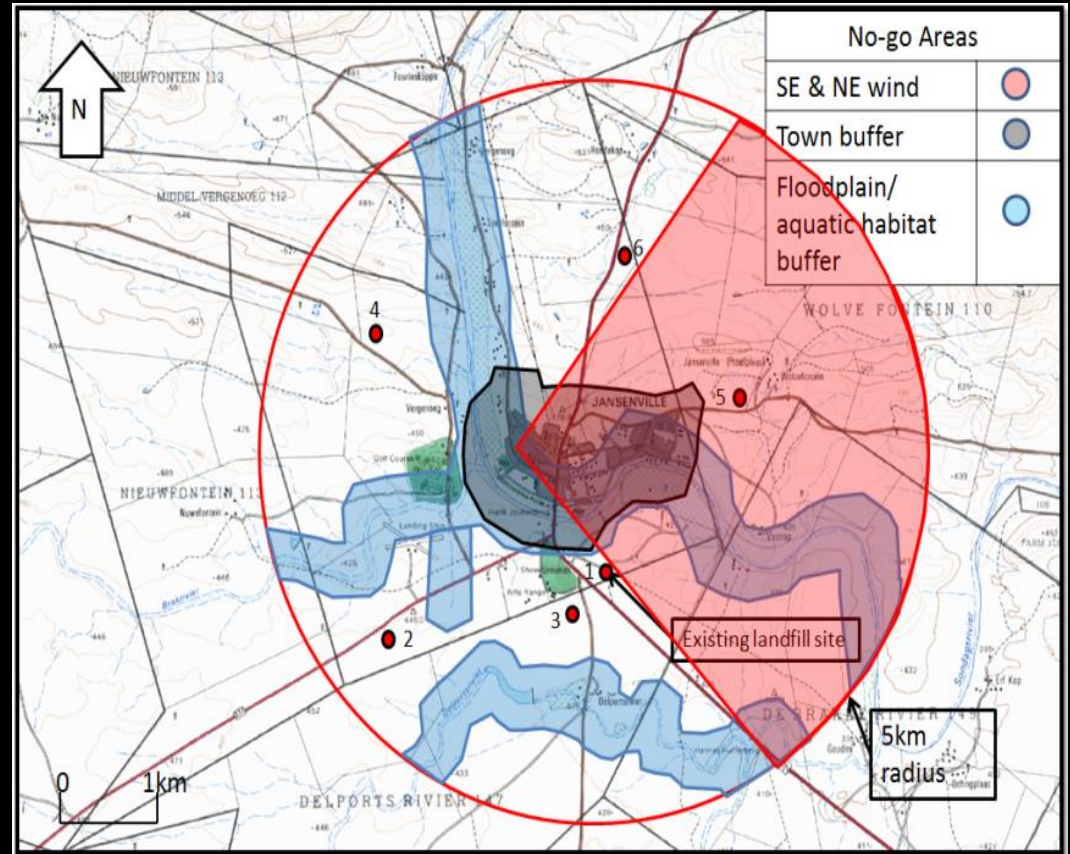
- There is no system in place to regulate the type or amount of waste disposed at the site
- No records are being kept for operations, e.g. volumes, number of trips, other sources, waste types
- Waste is being disposed anywhere on the site ie areas are not allocated for different types of waste such as black bags, garden refuse and building rubble
- There are no environmental control measures in place
- Waste is not covered and is regularly burnt and
- Waste is seldom compacted to minimise the size of the current waste body

Scene 2 Act 2



Scene 3 Act 1

6 Alternative sites investigated based on proximity to the town and distance from existing road infrastructure



Scene 4 Act 1



- Monitoring borehole (DWA) noted alongside the access road to the site
- Purpose of sealed borehole is unknown
- DWA consulted - no feedback received
- No records available to indicate whether any groundwater contamination is taking place

Scene 5 Act 1

- Existing site most feasible alternative
- Recommended that a Waste License be issued for the upgrade and permitting of the existing landfill site
- Additionally, it is recommended that Ikwezi LM upgrade the existing landfill site **while initiating and managing recycling initiatives to increase its life-span**
- These initiatives are to be driven by the Ikwezi LM and to include recycling at source for businesses
- Sorting of household waste at the landfill site (jobs)
- Recycling trips to Port Elizabeth may be combined with other recycling initiatives in the area (Steytlerville, Klipplaat and Graaff Reinet) to reduce costs

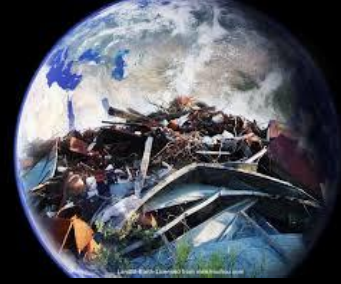
Scene 5 Act 2



Following measures to be implemented according the DWA Minimum Requirements for Waste Disposal by Landfill (1998):

- Employ a suitably qualified Engineer to design the Jansenville landfill site and all other relevant legislation and including:
 - Upgrading of existing fencing, gates, guardhouse, access road and sanitation facilities
 - Upgrade the exiting landfill site (lining of the existing cells)
 - Construction of a new lined cell
 - Construction of an impermeable surface area for delivery of waste
- Regular monitoring (at least monthly) of the EMPr

Scene 5 Act 3



- Compile and submit the relevant Water Use License to the DWA when designs are finalised and quantities can be included in this application
- The Ikwezi LM to create a stormwater management plan that will prevent surface runoff from entering the landfill site as well as retain all runoff leaving the site to prevent contamination of the Sundays River
- The Ikwezi LM to create a waste management plan including recycling initiatives to include the methods to be employed for sorting of waste at commercial businesses and at the landfill site These initiatives to be initiated within 1 year of the completion of the upgraded landfill site

Scene 5 Act 3



- The Ikwezi LM to further investigate the feasibility of implementing recycling initiatives and combining these with small landfill sites in the area within 1 year of the completion of the upgraded landfill site
- The Ikwezi LM to create and conform to a comprehensive operational management plan incorporating, operational, recycling, closure and rehabilitation procedures prior to the completion of the upgraded landfill site
- Drill 1 additional monitoring borehole (to be used in conjunction with the existing borehole) 20m from the landfill site and in a suitable location as determined by the geohydrological survey and ensure sampling of groundwater is performed every 6-months (as per Minimum requirements for water monitoring at waste management facilities 1998)

Scene 6 Act 1

- The next stage of the process involves the submission of the final Environmental Impact Report (fEIR) to I&APs and state departments for a 21 day commenting period
- August 2013 - **No movement**
- **To date no Authorisation!!!!!!!**





In a galaxy not so far
away.....

Scene 1

Act 1

2005



Completed construction of the first 2.5 ha capacity waste cell

Landfill site at Roundhill in Eastern Cape to be fully operational soon



Construction of 700 klt leachate tank to collect leachate generated by the waste cell

Municipality's Directorate of Engineering Services and the process was monitored by the Waste Management Services Department.

Successful project management and technical expertise culminated in the design and construction of a modern, well-engineered landfill facility which is fully compliant with current minimum requirements. A fully lined 2.5 ha cell has been built to high standards suitable for both domestic and low hazardous waste. The waste cell has been constructed as a lined dam and provides an outlet system draining all traces of leachate into containment tanks. The infrastructure services include 1.8 m palmade fencing enclosing the site, road and stormwater networks, a weigh bridge and waste receiving area, as well as operational buildings.

Since inception, R40 million has been spent on the Regional Disposal Scheme funded mainly by central government, through the CMIP programme and the municipality. Of this, R30 million has been spent on construction on the landfill site. The waste cell alone cost R10 million.

Once the waste cell has been completely utilised it will be capped using soil, clay and hydro-seeded soil. A new waste cell will be constructed annually that will exceed future construction costs of R10 million.

Although buildings to house the operations staff will only be completed by the end of 2005, the Roundhill landfill site can technically be used. Commissioning is at present under way to prepare the site for operations with the recruitment of a landfill site manager and procuring of an operations contractor.

AFTER MANY YEARS of effort, the first waste cell at the newly constructed Roundhill landfill is operational. The Buffalo City Municipality has developed a landfill site for the disposal of local general waste and regional low hazardous waste, which was initiated by the 1989 Environmental Act requiring licensed landfill sites for waste disposal.

The last eleven years has seen a number of potential sites identified and ranked and the prescribed feasibility study completed in 1998 with a permit being obtained in 2000. As funds have become available, construction has proceeded slowly and basic infrastructure services have been constructed, culminating in the completion of the first waste cell in June 2005.

The Roundhill landfill site is situated between the N2 and R102 at Berlin in the Eastern Cape. This new central landfill replaces the existing illegal landfill sites. In addition to the central landfill, a network of transfer stations is being developed across Buffalo City to optimise the transport of waste over the long distances. Simultaneously, a comprehensive recycling programme is being introduced to reduce the overall costs of waste management.

The Buffalo City Municipality awarded the design and construction management to consulting engineers Arcus Gibb, who project managed the team of specialists. The project included cell excavation by Roberia Bros and lining by Fountain Civils. The project team worked with Buffalo City

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Scene 2 Act 1


Daily Dispatch


BCM's landfill is '84% non-compliant'


By ARETHA LINDEN on November 5, 2014 in Metro, News · 2 Comments


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A compliance audit conducted on the Roundhill landfill site in Berlin has found the site is 84% non-compliant.

This was revealed in a progress report on the rehabilitation project of the site. The report was presented to council last week.



Roundhill Tip site in Berlin Picture: FILE

Scene 2 Act 2

Ecological Risk Assessment of Landfill Sites in South Africa

Roundhill Landfill Site

Case Study

Steve Kalule

**Director USK Waste & Environmental Engineering
Chairman Institute of Waste Management of Southern Africa**

Scene 2 Act 2

Waste Management Facilities permit status in South Africa (2010)

Type of Facility	No of Facilities	No of Permitted Facilities	% backlog
General landfill	1203	524	56.4%
Hazardous landfill	77	41	46.8%
Medical	12	4	66.7%
Recycling	9	2	77.8%
Transfer	35	12	65.7%

- These statistics paint a really gloom picture not only for the level of service delivery, but for the potential impact on the environment

Scene ??? Act ???

Roundhill

- Authorised
- No compliance ??

Jansenville

- No Recycling to commence
- No Zero Waste
- Could have been a success story?



Is the Authorities ignoring the
objectives of NEM:WA?

Or

Is bureaucracy the winner???

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Thank you for your attention

Any questions?



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Abstract

The Klipplaat and Jansenville Waste sites are located in the Ikwezi Local Municipality in the Eastern Cape. The sites produce <1 ton of general waste per day, the bulk of the waste consist of recyclables with very little putrescibles. The area is part of the Karoo, be arid with an average rainfall of 240mm per annum and an evaporation rate of >1980mm per annum. In May 2011 Ikwezi LM commenced a process to formalise their waste site in terms of the National Environmental Management Waste Act (59 of 2008). In addition to the dry character of the physical environment, the socio-economic profile is mostly at the lower end of the scale with >60% unemployment rate. The socio-economic composition limits waste production to a minimum and with low putrescible content. All the above will culminate in a site with limited leachate production and a high recyclable potential.

At time of the commencement of the Waste License application no formal guidelines for management of waste were promulgated, therefore the application process reverted to using the “Minimum Requirements for Waste Disposal by Landfill, Chapter 8 – Design as published in 2005. The “Minimum guidelines” has a clear philosophy for dealing with sites.

“If it is found that the unpermitted landfill will pose little environmental risk, due to sound siting, design and operation, or simply because of high ash and low putrescible content of the waste, or because significant leachate is not generated then such a site would only need to be upgraded in terms of design and operation, and permitted for continued operation in accordance with the Minimum Requirements.

Abstract

It is thus clear that upgrading of the site and recycling would be priorities to allow for positive outcome to this application. Three years, later the application has come to a standstill.

This paper will set out to explore how a relatively simple process became a tangled web of inter-dependencies between approvals required from various departments. Most prominently DWS has brought the finalisation of the application to a standstill, requesting a formal monitoring data/investigation. Effectively, this bureaucratic approach supersedes any sound design principles, as depicted in a substantive document like the “Minimum guidelines”, thus making a common-sense approach towards implementation redundant.

The paper will further follow the trail and will highlight how two fundamental principles of Integrated Environmental Management (IEM) encapsulated in NEMA, viz “polluter pays” and “the precautionary principle” are blatantly ignored due to non-action of the same bureaucracy on regional sites. These bigger sites have exponentially higher risk ratings and the concern is the same requirements that is now enforced on a non-entity are not enforced on sites where leachate is a real threat, contributing to quantifiable environmental impact that is ignored.

Finally, the paper will discuss how discarding the basic IEM principles, in favour of a tick-box exercise, and the lack of informed decision making are impacting financially on a cash-strapped Municipality. Simultaneously, the socio-economic impacts are transferred to a economically poor struggling community as proposed recycling projects cannot commence until the site is licenced.

Legal Aspects

A Scoping-Environmental Assessment Process (S-EIA) is required for the proposed project (as per NEMA GN R543-546)¹ The following listed activities are triggered in terms of NEM: WA:

- **Category B (Scoping & EIA)**
 - **Activity (4)(10):** The disposal of general waste to land covering an area in excess of 200m²
 - **(Activity (4)11):** The construction of facilities for activities listed in Category B of this Schedule (not in isolation to associated activity),

Ikwezi Municipality is also currently looking into various reduction, reuse and recycling initiatives, which might trigger the following activities in terms of NEM: WA

- **Category A (Basic Assessment)**
 - **Activity 3(5):** The sorting, shredding, grinding or bailing of general waste at a facility that has the capacity to process in excess of one ton of general waste per day
 - **Activity 3(7):** The recycling or re-use of general waste of more than 10 tons per month