



**A WASTE MANAGEMENT BEST PRACTICE
EXAMPLE BY ENVIRONMENTAL HEALTH:
SOUTH AFRICA**

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Abstract

Waste management in South Africa is regulated by various legislation and different role-players, including environmental health services (EHS) (known at local government level as Municipal Health Services [MHS]) at Metropolitan and District Municipalities. Although MHS is classified by government as a basic service, together with waste and other key municipal services, government is not supporting MHS appropriately to ensure effective waste management services to communities in order to prevent associated ill health burden to the country's health system.

MHS lacks standardised systems, guidelines and tools to ensure proper waste management implementation and coordination to prevent ill health and any negative environmental impacts. Poor waste management practices have resultant effects to our communities and the environments we live in.

The MHS section at a district municipality in the Eastern Cape Province embraced its legal mandate and developed programmes according to the legislative prescribes to address the environmental health risks in the district associated with waste.

Amongst others the MHS section developed a systematic risk management approach and standardized monitoring tools, systems and routines which optimized the use of resources and alleviated waste challenges in the district.

Background

- The primary objective of EHS is to ensure a safe & healthy environment and to prevent people from getting into health facilities due to preventable diseases [1 - 8];
- MHS is a fundamental component of public health, but is rendered at a municipal level and as a result does not get sufficient support from either the National Department of Health nor the Department of Local Government [8 - 13].
- Large scale urbanisation without appropriate adjustment for the growing need in waste and sanitation services results in poor and unhygienic environmental conditions which has a direct impact on the burden of disease for a region and the country (**BOX 1**) [1, 7, 8, 14, 15].
- Environmental health services (EHS) originated as result of these appalling living & working conditions during ancient times, but are still struggling to emphasise the urgency and need for addressing waste related challenges as a preventive measure in reducing the burden of diseases to the country's health system and basic service delivery agenda and it is mostly affecting the poor (**BOXs 1 and 2**) [5 - 7].

Background (Cont.)

- With the enactment of the Constitution of the RSA (Act 108 of 1996) and the subsequent legislation, the function for the rendering of MHS were allocated to Metropolitan and District Municipalities and it entails amongst others the functions for waste management , environmental pollution and vector control [8 – 12].
- The Scope of the Profession of Environmental Health (Reg. 968 of 2009) clarifies the exact activities that the EHPs are responsible for, amongst others, waste management (**BOX 3**) [16].
- Legislation also regulates the orderly planning IDP and the appropriate implementation of municipal services (SDBIP and PMS) [12, 13, 17].

Environmental health challenges that impact on waste management

- EHS in SA mainly approaching and deliver their work on an *ad-hoc* basis, which does not support the risk and project based approach to optimise the available resources to address the real environmental health risks appropriately [2, 18].
- Lack of standardised service delivery systems (tools, procedures and routines) [2, 8, 12].
- Lack of support and integration from government institutions [12, 13, 19].
- High environmental health practitioner (EHP) staff turnover – skills and experience retention challenges in especially rural settings [1, 3, 19].
- Poor waste management practices (storage, collection and disposal) at local municipalities [8, 19].
- Waste services not a priority for most municipalities, which affects its budgets and other resource allocations to sustainably support the service (8, 19, 22).
- As a result it contributes to the filthy environmental conditions that sustain the burden of disease and increase the rehabilitation costs [8, 19, 22].
- This resulted in the District Municipality to implement a structured approach that are aligned with all the relevant available information to optimise their limited resources in order to address, amongst others their waste management challenges in the area with their limited resources [19, 23].

Method

- The MHS Section embraced their legal as well as professional mandate and developed a strategic plan, which is aligned to the IDP (Integrated Development Plan), SDBIP (Service Delivery, Budget Implementation Plan) and the Performance Management System (PMS), which amongst others prioritised waste management to address the associated challenges in a sustainable way [19].
- Due to limited resources they applied “Project Management Principles” [19, 23]
- They prioritised their functions and activities, based on the Pareto Principle (80/20 or 90/10), therefore, focusing on issues with biggest impact on the health of the communities (e.g. water, sanitation and waste) [8, 19, 23]
- The waste management approach specifically focuses on the monitoring, evaluation and control of only two manageable functions e.g. [19]
 - Landfill site conditions and
 - Illegal (indiscriminate) waste dumping sites (points) as priority waste interventions in the respective communities.
- Standardised systems and monitoring tools were designed and implemented and commitment to the appropriate use were ensured [19]
- Information gained from the regular monitoring program were communicated to relevant role-players that should addressing the challenges [19].
- The monitoring tools were put in use to inform management decisions for directing limited resources to the areas of greatest need [19].

Waste management system, tools and approach

A waste management protocol were developed, which guided the standardised approach in waste management in the area **(Fig. 1)**.

- A specialised Waste Coordinator (Champion) for the MHS Unit were nominated to facilitate the waste management program for the entire district.
- All the MHS staff were capacitated to ensure they know what is expected of them, with very specific arrangements i.e. what they must do, when, where and how.
- It was ensured that EHPs had to know their area:
 - Identify all the waste related risks i.e. list all formal (permitted & unpermitted) landfill sites as well as all indiscriminate / illegal waste sites in communities.
 - Deal with it by plotting it on the town layout map – visual display and visit them weekly, using the monitoring tools.
- EHPs must compile weekly pictorial reports of the landfill and indiscriminate dumping sites **(Fig. 2)**,
- Interpret results of findings per site and indicate status of sites on the prescribed time-line **(Fig. 3)**.
- Follow communication lines and provide weekly status reports (pictorial report and time-lines) to relevant role-players (local municipality waste units and management) for remedial action **(Fig. 1)**.
- Monitor submission of weekly reports to role-players for remedial action **(Fig. 4)**.
- Integrate said reports in monthly management reports and performance management system to inform IDP (Integrated Development Plan) and SDBIP (Service, delivery, budget implementation plan) targets (KPA's [Key performance areas] and KPI's [indicators]) **(Fig. 1)**.

Figure 1: MHS Waste Monitoring Approach

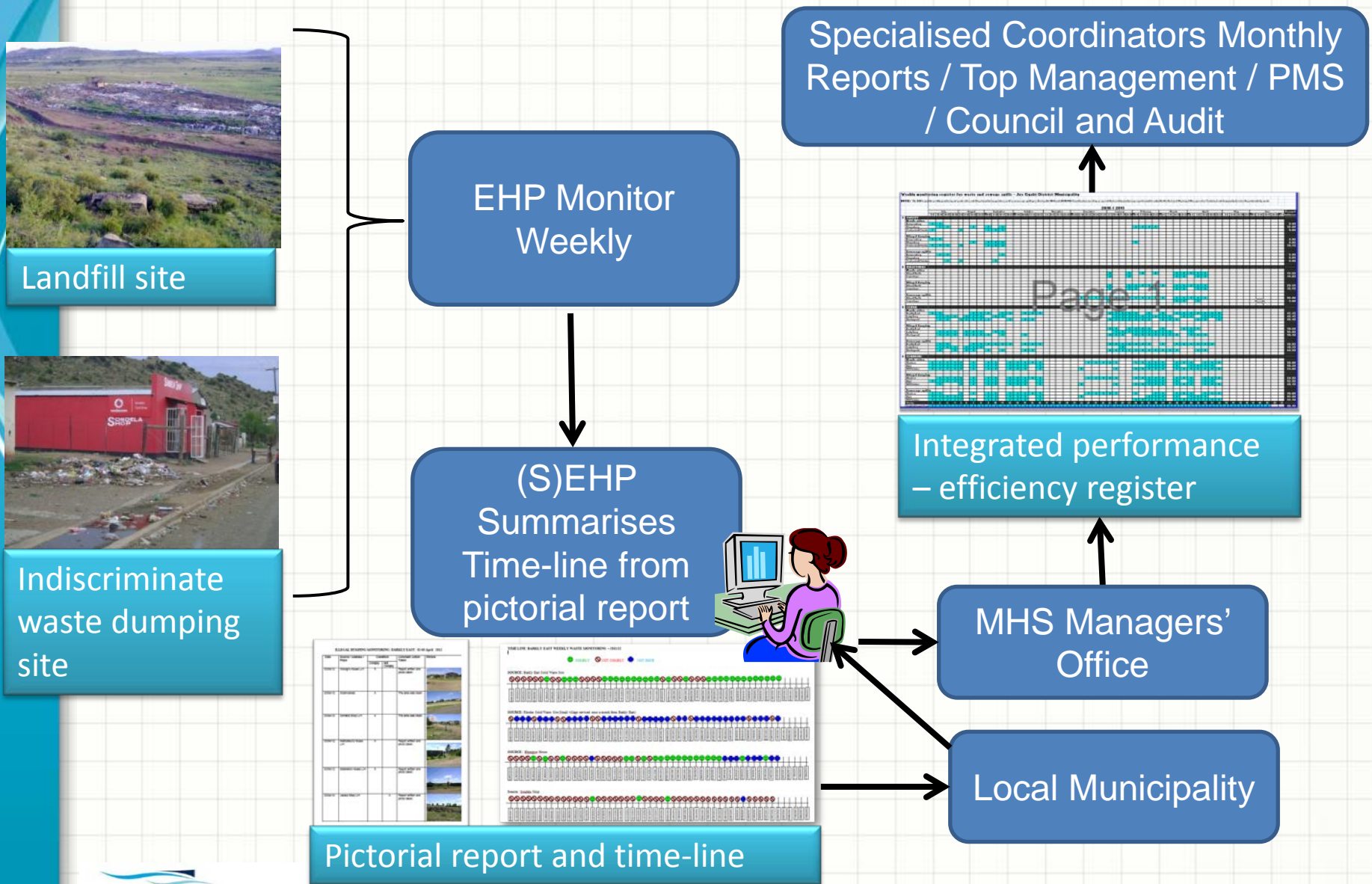


Figure 2: Monitoring & Evaluation Tools – Dashboard – Pictorial report

- Showing monitoring sites that corresponds with information on town lay-out map and situation in field.
- Depict weekly status of sampling point per town (short description and photo)
- Date of visit

“To measure is to know”

ILLEGAL DUMPING MONITORING: BARKLY EAST: 01-05 April 2012

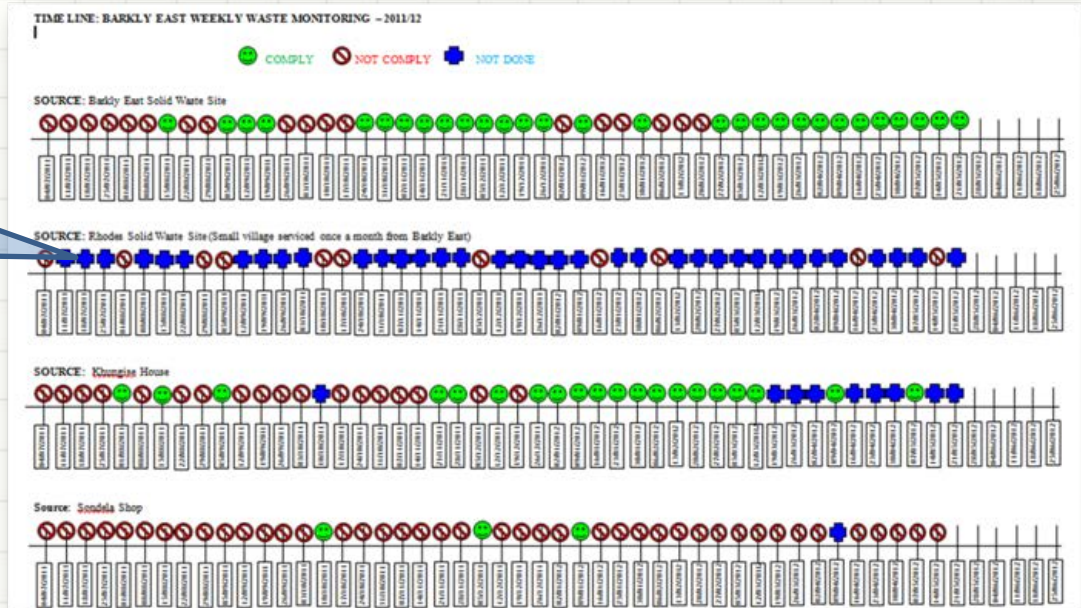
Date	Source / Address / Place	Condition		Comment / Action Taken	Picture
		Comply	Not Comply		
01/04/12	Khung's House LH	X		Report written and photo taken.	
01/04/12	Sidamulwad	X		The area was clean.	
01/04/12	Sonela Drop LH	X		The area was clean.	
01/04/12	MORRISON'S HOUSE LH	X		Report written and photo taken.	
01/04/12	Moshel's House LH	X		Report written and photo taken.	
01/04/12	JARAK Drop LH		X	Report written and photo taken.	

Figure 3: Time Line – Summary / Overview

- Time-line represents a financial year.
- Divided into weekly increments to capture weekly status for each landfill and indiscriminate waste site in a particular community and area.

ILLEGAL DUMPING MONITORING: BARKLY EAST: 01-09 April 2012

Date	Source / Address / Place	Condition		Comment / Action Taken	Picture
		Comply	Not Comply		
01/04/12	Young's House LH	X		Report written and photo taken.	
01/04/12	Sidamwadi	X		The area was clean.	
01/04/12	Sonoko Shop LH	X		The area was clean.	
01/04/12	Wongobong's House LH	X		Report written and photo taken.	
01/04/12	Magnolia's House LH	X		Report written and photo taken.	
01/04/12	Jubak Shop LH	X		Report written and photo taken.	



“To measure is to know”

Findings

- Managers do not have time to read each weeks' or monthly detailed reports, therefore summary on the time-line give a quick 'dashboard' impression of areas with greatest need to direct institutional effort and resources (i.e. technical services and other departments responsible for addressing the challenges).
- Intervention benefit the entire institution's efficiency, pro-active response and improve cost effectiveness of service delivery.
- Top management became more aware of the extent of waste challenges and better support associated programmes from E/MHS.
- The MHS management approach resulted in improved conditions at waste sites and in communities due to better management and regular and appropriate communication of waste site conditions.
- A standardized waste monitoring and reporting tool was developed that proves invaluable for management decisions (i.e. pictorial report combined with the time-line).
- More waste related projects were implemented by local municipalities focusing on the identified "**hot spot**" areas.
- Waste management crises on landfill sites are averted because of preventative monitoring and interactive interventions.

Findings (Cont.)

- The district municipality did not only performed their compliance enforcement role but also capacitated local municipalities by:
 - Exposing them to waste best practices through outreaches to best practice sites in other provinces as well as,
 - Assisting the local municipalities with funding motivations to address their waste challenges.
- This approach motivate MHS staff to stay focused because they could see the results of their effort.
- This waste management approach led to better cooperation between authorities in the multi-level and trans-disciplinary service delivery systems.
- Positive response from communities and other authorities.
- The Department of Environmental Affairs DEA also want to cooperate closer with the district municipality to ensure better and more efficient compliance monitoring programmes and actions between the two institutions.

Conclusion

- Waste management continues to be a challenge and requires dedicated, coordinated and integrated attention and interventions.
- M/EHS is the first level of compliance enforcement, which is not integrated with the provincial and national waste management strategies and enforcement initiatives.
- M/EHS can play a significant role in addressing waste management challenges at a local level.
- Waste management activities are prioritised based on those that have the largest impact on the environment and health, therefore optimising limited resources.
- Have proper monitoring and evaluation tools that shows the risk areas and that are integrated to show progress.
- Have dedicated staff “champion” to ensure the system is maintained.
- Need better coordinated approach and support by DEDEAT (Greenest town competition) for the DM to be able to play its role in compliance enforcement almost like an internal auditing process.

Conditions in our communities

BOX 1: WASTE MANAGEMENT CHALLENGES



Technical services department did not want to allow their equipment to work on the landfill site, operated by the community services department, due to the cost for routine tire repairs and maintenance. However, the municipality had to pay significantly higher cost (R250 000) for rehabilitating the site. Constant crisis and reactive management results in wastage of limited resources.

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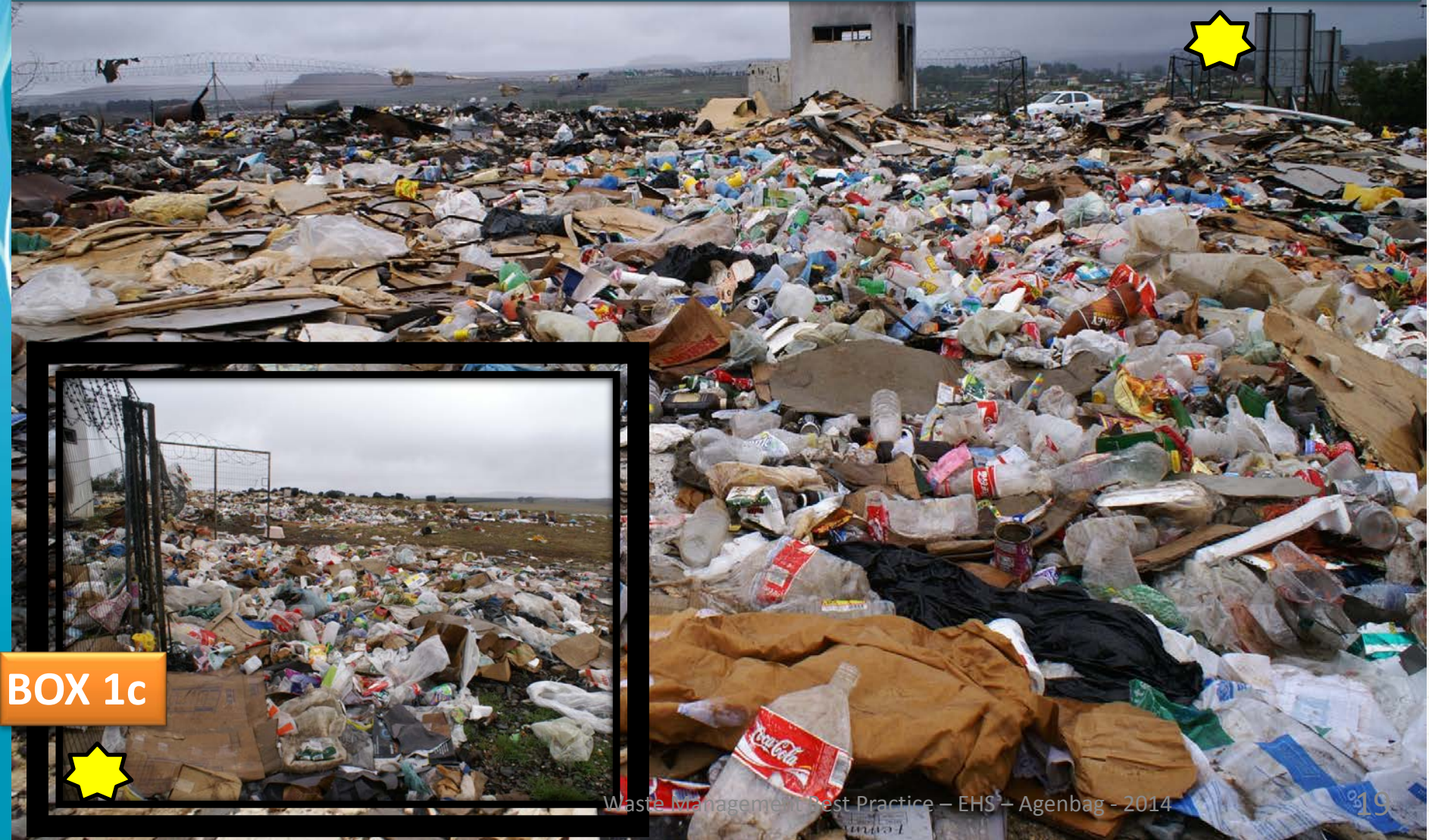


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- **EPWP (Extended Public Works Program) job creation projects - recycling without facilities and a market.**
- **SUSTAINABILITY - solutions for waste challenges and job opportunities?**
- **Lack of integration of government programmes to address and support it's own targets and challenges.**

LANDFILL SITE CONDITION: lack of management and control – weekly monitoring by M/EHS changed conditions, but no external support from Department of Environmental Affairs – reactive management approach lack integration of multi-level governance affecting sustainability and urgency to address these challenges..



Municipal workers offloading waste in non demarcated area on landfill site



MHS monitor and compliance enforce waste management and pollution control functions

Lack of proper waste management practices



Pro-active RODENT CONTROL –
Keep your area clean!

Re-active RODENT CONTROL –
fumigation (poisoning)



RAT INFESTATION

RAT BITES – admission to health facilities –
preventive health measures – address waste
challenges at source



BOX 2: CASE STUDY - Rat infestation, lack appropriate waste management results in patients admitted to health facilities

- Influx of people in city resulted in extensive informal housing development with resultant lack of sufficient basic services, amongst others, lack of sanitation and waste collection facilities, irregular removal and built up of waste in the community.
- Result:
 - Bad odours
 - Conducive rodent breeding environment with sufficient food – Rat infestation!
 - Fly breeding
 - Unsightly / Eyesore
 - Hiding place for thieves / murderers
 - Community unrest due to poor basic municipal services
- Patients (mainly children and elderly) admitted to health facilities presented with rat bites.
- Burden on the economy and health system
- Rodent control programmes have to be instituted by the municipality and community members to get them under control.
- Organophosphate and other vector control poisons result in illnesses and deaths.

BOX 3: Scope of the profession of environmental health ^[16]

- Ensuring proper refuse storage, collection, transportation, transfer and processing, materials recovery, and final disposal;
- Ensuring proper management of liquid waste including sewage and industrial effluents;
- Ensuring the proper storage, treatment, collection, transportation, handling and disposal of medical waste and hazardous waste;
- Sampling and analysing any waste or waste product such as sewage or refuse;
- Investigating and inspecting any activity relating to the waste stream or any product resulting therefrom;
- Advocating proper sanitation;
- Controlling the handling and disposal of diseased animal tissue;
- Ensuring safe usage of treated sewage sludge and ensuring that reclaimed waste is safe for health;
- Ensuring waste management including auditing of waste management systems and adherence to the 'cradle-to-grave' approach.

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