DRAFT INTEGRATED WASTE MANAGEMENT PLAN (IWMP)

MOHOKARE LOCAL MUNICIPALITY
2012

ACKNOWLEDGEMENTS

The Municipality (Mohokare) thanks, individuals and organizations contributed generously of their time and expertise in the development of Xhariep District IWMP and in particular officials at Local and District level on waste management services on the efforts made to come with the credible document from which the district included all its locals

The District Municipality, would like to thank the Free State provincial department of Economic Development, Tourism and Environmental Affairs (DETEA) for their guidance and direction in making it a point that Xhariep District has its own Plan encompassing local Municipalities plan.

INTEGRATED WASTE MANAGEMENT PLAN

MOHOKARE LOCAL MUNICIPALITY

FINAL

This IWMP has been based on data sets and information obtained from each of its towns and the IDP document, researched data, and other sources relevant up to 2011. Attempts have been made to update data, where this cannot be applicable; the cut-off date selected was end of March 2012.

Suggested citation for book

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ACRONYMS and ABBREVIATIONS

ASP	African Stockpile Project
DPLG	Department of Provincial and Local Government
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
ECAA	Environmental Conservation Amendment Act (Act No. 50 of 2003)
ECA	Environmental Conservation Act (Act No. 73 of 1989)
EMP	Environmental Management Plan
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IP&WM	Integrated Pollution and Waste Management
IWMP	Integrated Waste Management Plan
MIG	Municipal Infrastructure Grant
WC/Z	Waste Clusters/Zones
MoU	Memoranda of Understanding
MR	Minimum Requirements
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NCPC	National Cleaner Production Centre (resident at CSIR)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NWMS	National Waste Management Strategy
SEA	Strategic Environmental Assessment
SOP	Standard Operating Procedure
EPWP	Expanded Public Works Programme
WMP	Waste Management Plan
PPP	Public Private Partnerships
MSP	Municipal Service Partners
CDM	Clean Development Mechanism
ISRDP	Integrated Sustainable Rural Development Program
PC	Project Consolidate
CBPWP	Community Based Public Works Program
LED	Local Economic Development Fund
SALGA	South African Local Government Association
KPA	Key Performance Area

DEFINITIONS

In this document, the following definitions apply, unless the content indicates otherwise:

Basic refuse removal service: means a baseline service level as established under Clause 9.1 of the National Policy on the Provision of Basic Refuse Removal to Indigent Households.

Building rubble: means waste produced during construction, alteration, repair, or demolition of any structure, and includes rubble, earth, rock and wood displaced during such a construction, alteration, repair or demolition.

Collection: means the act of collecting domestic waste at the place of waste generation or storage by an approved service provider or the municipality

Domestic waste: means waste, excluding hazardous waste that emanates from premises that are wholly or mainly for residential, educational health care, sport, or recreational purposes. Domestic waste can be classified into recyclable and also non-recyclable or non-usable waste. Domestic waste for the purposes of the standards does not include commercial and industrial waste, building rubble, and hard or non-compostable waste

Domestic Health Care Waste: means waste generated in a household for medical purposes and includes waste such as syringes unused medicines, and pills, used bandages, etc. that could cause a health hazard when not appropriately disposed off.

Hard or non-compostable garden waste: means branches and tree stumps that needs to be shredded in order to become compostable

Hazardous waste: means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste have a detrimental impact on health and the environment.

Household: means a collection of individuals staying on a distinctive property and/or premises regardless of their relationships to one another

Municipality: means a municipality as defined by the Municipality System Act, 2000 (Act No. 32 of 2000)

Receptacle: is the container designated solely for the purpose of temporary storage of household waste at the household, either provided by the municipality or the household, until such time of collection by the service provider/municipality.

Service Provider: means the provider of the domestic waste collection service, be it the municipality, external entity or community that is contracted by the municipality to render a municipal service.

Standard: For the purpose of this document a list of principles, procedures, processes and benchmarks established for ensuring that domestic waste collection services is fit for its intended purpose and performed in a manner it was intended for. The Standards further define quality and establish safety criteria.

[Source: Domestic Waste Collection Standards, DEA 1 February 2011]

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

The department of Economic Development, Tourism and Environmental Affairs (DETEA) in the Free State Province funded the development of Integrated Waste Management Plan (IWMP) for the District and the Local Municipalities benefitted as they contributed the whole processes undertaken.

1.1 SCOPE OF WORK

The scope of work primarily required the development of a district waste management plan, by aligning all municipal plans and mapping of related priority data. The final plan would be characterized by the following:

- Alignment of municipal waste management plans, if any, to that of the district;
- Identification of strategic and critical situational features through site visits, interviews and research;
- Consolidation of the waste management plans of local municipalities into a district IWMP;
- A district integrated waste management plan with recommendations and implementation strategy and/or project proposals on problem areas identified in the exercise;
- Development of priority based implementation plans using a phased approach;
- The consolidation of sector (sector that generates, manages and/or handle waste) departmental strategies into a district plan.

This IWMP was developed as follows:

1.1.1 A description of the population and development profiles of the area to which the plan relates; the following to be discussed:

- Population growth rates and distribution;
- Income categories;
- Education and age.

1.1.2 An assessment of the quantities and types of waste generated in the area; the following to be discussed:

- Waste generation;
- Waste types and characterization;
- Waste collection services and transport;
- Waste recycling;
- Waste disposal; and
- Waste transfer stations and disposal facility.

1.1.3 Current waste management practices, in particular, the description of waste services provided, or that are available for the collection, recycling, recovery, treatment and disposal of waste;

- Areas that are not currently receiving waste collection services and the number of people affected;
- Description of legal framework that supports waste management in all spheres of government; therefore discussing the following:
  - Current policies supporting waste management;
  - Effects of poor waste management practices, illegal dumping and the environment;
  - Waste and service delivery; and
  - Tariff structures, willingness to pay, indigent households qualifying and registered for municipal support, and cost recovery.

1.1.4 A comprehensive assessment of the capacity of the municipality to deliver waste services.

This assessment includes looking at the following: collection equipment, waste collection contracts awarded, provision of technical assistance, transfer stations, waste recycling facilities, waste disposal activities (permitted) and dumpsites (illegal).

1.1.5 Looking at Organizational Structures

In particular, the local government authority responsible for providing waste service and the number of people assigned within the waste management units in local government.

1.1.6 Capacity building initiatives, including those that promote waste hierarchy principles;

1.1.7 Financial provision for waste services, including looking at other funding options; therefore the following should be discussed:

- Review of tariff structures to ensure self-sufficiency and also making the cost of using the systems as low as possible for the individual user;
- Funding assistance from developmental funding agencies, for example, the National Lottery Distribution Trust Fund (NLDTF), Municipal Infrastructure Grant, Development Bank of South Africa (DBSA), among others;
- Public Private Partnerships;
- Funding of capital projects;
- Tourism Development and cross subsidization; and
- Specific approach to low income areas, for example, implementing free basic waste services and other strategies.

1.1.8 Using data generated in the situational analysis, strategic objectives were developed, focusing on each stage in the waste management hierarchy, namely the following:

- Waste prevention, minimization and recycling;
- Collection and transportation;
- Waste treatment; and
- Waste disposal.

The process of developing the Integrated Waste Management Plan was a consultative and participatory one; stakeholder workshops were held in this regard.

1.2 PROJECT GOALS AND OBJECTIVES

The project goal was to assist the DETEA with the development of a comprehensive and Integrated Waste Management Plan for Mohokare Local Municipality.

1.2.1 Objectives of an Integrated Waste Management Plan

The objective of the district IWMP was to direct the district and its constituent Mohokare to synergistically develop appropriate waste management systems and build management capacity in order to maximize efficiency in waste management, minimize environmental impacts and associated financial costs within the district. The implementation of the plan should lead to healthier and cleaner environment able to sustain an improved quality of life for all.

1.2.2 Approach

The guidelines articulated in the Starter Document for Integrated Waste Management Planning in South Africa, Draft National Waste Management Strategy (DEA, 2010) was used as a tool to illustrate and discuss the waste hierarchy objectives, namely, the following:

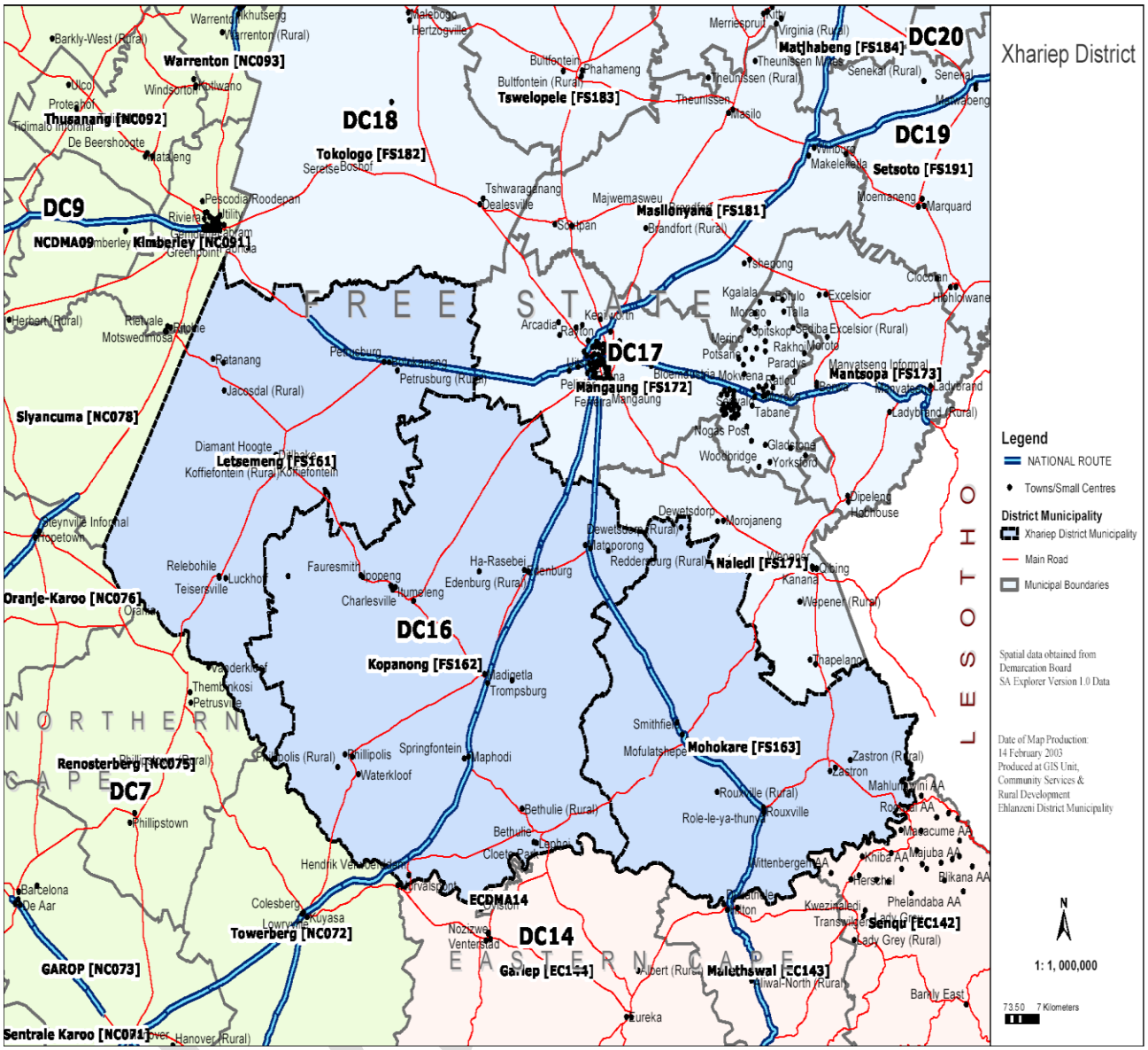
- To implement waste avoidance and prevention strategies;
- Recover waste of which generation cannot be avoided; and
- Practice safe disposal of waste that cannot be recovered.

The IWMP sets targets for waste minimization and milestones to be achieved. It also sets out the review and subsequent reporting processes as articulated in the NEM: Waste Act, 2008. The IWMP of Mohokare Local Municipality would be submitted to the DETEA for approval and be incorporated into the District and our IDP as a sector plan.

Table 1.1: Towns of Mohokare Local Municipality

LOCAL MUNICIPALITY	ASSOCIATED TOWNS
Mohokare	Smithfield, Zastron and Rouxville

The position and boundaries of Mohokare Local Municipality are presented below in Map 1.1.



Map 1.1: Boundaries of the Xhariep District Municipality and Mohokare

1.4 PROJECT PHASES

The IWMP is structured into 5 (five) phases which are intrinsically linked to each other. These phases are described below.

Phase 1: Inception Phase
Phase 2: Status quo Analysis
Phase 3: Gaps Analysis and Needs Assessment
Phase 4: Scenario Setting and Alternatives to Current Waste Management Practices
Phase 5: IWMP Framework for Implementation Strategy and Action Plan

1.4.1 PHASE 1: INCEPTION PHASE

This phase involved initial project planning activities and schedule of meetings and workshops. Project Implementation Report was done and submitted through the District to DETEA as an output after discussions.

1.4.2 PHASE 2: STATUS QUO ANALYSIS

The status quo report provides a comprehensive situation assessment and analysis of waste management systems and implementation capacity in the local municipalities. This is the critical step for understanding the current status for waste management planning in the district. A full analysis of approaches and challenges currently utilized by individual towns towards fulfilling their role in waste collection services was reported. The municipality status quo analysis report is therefore a consolidation of the analysis of all status quo data sets from respective towns with reference to their waste management plan.

For all the towns, data on the following was documented:

a. Description of the population and development profiles of the area to which the plan related, i.e.

- Population distribution;
- Income categories;
- Education and age.

b. The quantities and types of waste that are generated in the area. The following was discussed:

- Waste generation rates;
- Waste types and characterization;

c. Current waste management practices, in particular, the description of waste services that are currently provided, or that are available for the collection, recycling, recovery, treatment and disposal of waste;

d. Areas that are not currently receiving waste collection services and the number of people affected;
e. Description of the legal framework that supports waste management in all spheres of government.

f. A comprehensive assessment of the capacity of the local municipalities to deliver waste services, including facilities, i.e. collection equipment, waste collection contracts awarded, provision of technical assistance, transfer stations, waste recycling facilities, waste disposal activities (permitted) and dumpsites (illegal).

g. Organizational structure, in particular, the number of people assigned within the waste management and skills base to deliver waste services efficiently.

h. Capacity building initiatives, including those that promotes waste hierarchy principles.
i. Finances allocated for waste services, including various funding options. The following was discussed:

- Review of tariff structures to ensure self-sufficiency and also making the cost of using the systems as low as possible for the individual user;
- Funding assistance from developmental funding agencies, e.g. Development Bank of South Africa (DBSA), amongst others;
- Public Private Partnerships;
- Specific approach to low income areas, for example, implementing free basic waste services and other strategies.

Using data generated in the situational analysis, strategic objectives were developed, focusing on each stage in the waste management hierarchy, namely the following:

- *Waste prevention, minimisation and recycling*
- *Collection and transportation*
- *Waste treatment*
- *Waste disposal*

A workshop to discuss a draft Status Quo Report was held with stakeholders at District level. This meeting validated all information that constituted the waste status quo as this was the basis for decision-making for the next phases of the project.

1.4.3 Phase 3: Gaps Analysis and Needs Assessment

Information generated and collected in Phase 2: Status Quo Analysis was utilized in identifying gaps in information and capacity in providing waste management services; this phase allowed for assessment of needs from which goals and objectives to meet those needs were developed.

This phase allows for further evaluation of existing capacity of the district municipality and its local municipalities to provide waste services within the set standards and best practices. Current waste collection and transport strategies, waste treatment and disposal strategies, were under scrutiny, including costs of existing processes, tariff structure and recovery.

1.4.4 Phase 4: Scenario Setting and Alternatives to Current Waste Management Practices

The Phase on Goals and Objectives primarily required that information generated and collected during the Gap Analysis and Needs Assessment phase be utilized in identifying goals and objectives of the IWMP. From each gap identified, a goal was formulated to close the gaps and fill the needs assessed. With each goal, a cost-benefit analysis and the economic feasibility of implementing each goal was determined.

Various plans that were proposed as solutions to implement the goals were evaluated accordingly for appropriate decision-making when found to be feasible and making a good business case for implementation in the short-, medium- and long-term.

Alternative scenarios to the current waste management practices were described, analysed and evaluated with respect to the following:

- Technical feasibility;
- Socio-economical implications;
- Environmental implications; and
- Financial implications and viability.

The prioritization process provided the basis for determining the preferred scenarios and options for achieving these goals and objectives.

1.4.5 Phase 5: IWMP Framework for Implementation Strategy and Action Plan

In order to achieve the goals articulated in previous chapters, various plans were identified to give effect to the IWMP.

1.5 ASSUMPTIONS AND LIMITATIONS

1.5.1 Assumptions

- Information presented in this document was assumed to be accurate, e.g. information from Statistics South Africa (Stats SA), on the strength and presumed credibility of the source.

- Information documented in reports received from the officials of local government, e.g. IDP documents, is assumed to be valid and authentic as presented in the report.

- Any changes in statistical data are not materially different from what was last recorded by Stats SA.

- The data of Stats SA is valid and is reliable for projecting developments, e.g. population numbers.

1.5.2 LIMITATIONS

- Not all data received can be authenticated because of the logistical difficulties, e.g. population census which was conducted in 2001 and the Community Census that was conducted in 2007 has its own inherent limitations (Stats SA 2001, CS 2007).

- **1.5.2.1** Only data from official, legal and approved sources was used in the report.

- **1.5.2.2** No waste audit was ever conducted by our Municipality and recycling data cited by all towns is estimated based on population income per capita. In the absence of accurate or verifiable data, e.g. waste tonnages sent to waste disposal sites, estimates were prudently calculated.

CHAPTER 2: LEGAL FRAMEWORK

2.1 Waste Management

Waste management responsibilities span all spheres of government; the national government departments, including sector departments like Health, Minerals Resources, Water Affairs, Agriculture and Fisheries, Energy, provincial departments, district and local municipalities. There is no single law that governs waste management, but various policies, acts, regulations, by-laws, guidelines and strategy documents. Annexure 1 lists a summary of all legal instruments relevant to waste management.

The list shows the fragmented nature of waste management administration, including enforcement, compliance and monitoring. The advent of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008), consolidates all waste management objectives and coordinates administration throughout all spheres of government. It also gives effect to the obligations of industry towards waste through the development of industry waste management plans and extended producer responsibility.

The waste hierarchy model proposed in the National Waste Management Strategy (NWMS) forms the guiding principle to integrated waste management, hence it is used as a basis to develop the district Integrated Waste Management Plan (IWMP).

2.2 The Constitution of South Africa

The Constitution of the Republic of South Africa ensures the fundamental rights of the citizens of South Africa. A number of sections of the constitution have a direct bearing on the development of waste facilities and the protection of the environment as illustrated in the sections below.

2.2.1 Section 24: Environment

Section 24 of the Constitution caused a paradigm shift towards a new environmental policy for South Africa. An important element of the Constitution, namely to protect the human rights, is related to the need for a sustainable use of the country's limited natural resources, the promotion of conservation and the prevention of pollution and economic degradation.

- Section 24 (a) provides everyone the right to an environment that is not harmful to their health or wellbeing.

- Section 24 (b) provides everyone the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures.

2.2.2 Section 32: Access to information

Section 32 (a) of the Constitution entitles every person access to any information held by the State. Sub-section (b) also entitles every person to information that is held by another person and that is required for the exercise or protection of any rights.

2.2.3 Section 33: Just administration action

This right entails that:

- Everyone has the right to administrative action that is lawful, reasonable, and procedurally fair and
- Everyone whose rights have been adversely affected by administrative action has the right to be given reasons in writing.

2.2.4 Section 38: Right to Involvement

Right to involvement provides the "right to get involved" to any member of public. This means that a member of public has the right to take appropriate action to prevent environmental damage. This may include taking action against the responsible authority for failing to perform its duties in preventing environmental damage.

2.2.5 Section 41: Co-operative Governance and Intergovernmental Relations

These principles are repeated in two other acts, i.e. the National Environmental Management Act 1998 and the National Water Act 1998. These acts, particularly the NEMA, enshrine the same principles, i.e. the guarantee of a healthy environment, the right to information and seeking comments of the general public.

Hence, the principles behind the aforementioned sections of the Constitution must be acknowledged and complied with upon consideration of a waste site authorization.

2.3 WASTE POLICY

*2.3.1 Integrated Pollution and Waste Management (*IP&WM*)*

The White paper on Integrated Pollution and Waste Management outlines government new thinking in relation to pollution and waste management. The White Paper on Integrated Pollution and Waste Management for South Africa serves the following purposes:

2.3.1.1 To inform the public of government strategic goals and supporting objectives, and how the government intends to achieve them.

2.3.1.2 To inform government agencies and state organs of these strategic goals and supporting objectives and their roles in achieving them.

2.3.2 Strategic goals and objectives supporting the waste policy

2.3.2.1 Goal 1: Effective Institutional Framework and Legislation

"To create, develop, implement, maintain and continuously improve an effective, adequately resourced and harmonised institutional framework and integrated legislative system and to build institutional capacity."

Objectives

- To establish mechanisms to give effect of the institutional arrangements for all spheres of government;
- To conduct an audit and review of existing skills, capacities, functions and the deployment of resources in the national Departments of Environmental Affairs and of the Water Affairs, and realign them towards implementing IP&WM policy.

2.3.2.2 Goal 2: Pollution Prevention, Waste Minimisation, Impact Management and Remediation

"To promote holistic and integrated pollution and waste management through pollution prevention, minimisation at source, impact management and remediation."

Objectives

- To manage, prevent, reduce and control soil pollution problems arising from a range of other sources, e.g. waste treatment and disposal, and from the metal and mining industries.
- Pollution and waste avoidance, prevention and minimisation to be achieved by:

  - Adhering to mechanisms that ensure appropriate design parameters, optimising operating procedures and good housekeeping for all waste generating processes.

  - Identifying mechanism such as risk assessment for forecasting potential situation in which accidents and spills can cause unscheduled waste emissions, whether be it at facility or during transportation.

- Resource recovery, recycling and reuse mechanisms, i.e.

  - Reduction in the waste stream by ensuring an economic environment which favours recycled materials.

  - Extraction and utilisation of landfill gas.

- Waste collection, treatment and processing mechanisms

  - Ensuring that waste is appropriately treated and processed prior to disposal in accordance with the relevant regulations, standards, laws and guidelines.

- Rendering harmless any pollutants which may be released during waste treatment processes.

- Ensuring that all South Africans have adequate and sufficient refuse collection services.

- Final waste disposal mechanisms

  - Timely identification, investigation and development of environmentally and socially acceptable waste disposal facilities, in a manner, which promotes the regionalisation or sharing of waste disposal sites to reduce their number and costs.

  - Developing, operating and/or closing all other waste disposal facilities including tailings dams, metallurgical slag dumps, whether proposed, existing or closed, in terms of appropriate guidelines and pollution control legislation.

  - Phasing out salvaging on landfills completely.

- Pollution remediation mechanisms

  - It would be required that where the environment has been impaired by accidental, insidious or intentional pollution or unacceptable waste management practices, it must be remediated by the party accountable and returned as close as possible to its original state.

2.3.2.3 Goal 3: Holistic and Integrated Planning

"To develop mechanisms to ensure that integrated pollution and waste management considerations are effectively integrated into the development of government policies, strategies and programmes, all spatial and economic development planning processes, and all economic activities."

Objectives

- To incorporate integrated environmental management principles and methodologies in spatial development planning, as it affects integrated pollution and waste management.

- To make timely and appropriate provision for adequate waste disposal facilities.

- To develop management instruments and mechanisms for integrating pollution and waste management concerns in development planning and land allocation.

- To develop agreed and appropriate indicators to measure performance for inclusion in EIPs and EMPs as provided for in the NEMA.

2.3.2.4 Goal 4: Participation and partnerships in integrated pollution and waste management governance

"To establish mechanisms and processes to ensure effective public participation in integrated pollution and waste management governance."

Objectives

- To ensure that communication strategies in all spheres of government address public participation needs.
- To allocate government resources (financial and human) to build institutional capacity in national, provincial and local government spheres for effective management of public participation in integrated pollution and waste management governance.
- To encourage strategic alliance between government and interested and affected parties to ensure integrated pollution and waste management and achieve sustainable development.

2.3.2.5 Goal 5: Empowerment and education in integrated pollution and waste management

"To promote the education and empowerment of South Africa's people to increase their awareness of and concern for pollution and waste issues, and assist in developing the knowledge, skills, values and commitment necessary to achieve integrated pollution and waste management".

Objectives

- To integrate pollution and waste management education in all education programmes at all levels, in all curricula and disciplines of formal and non-formal education in the national qualification framework.
- To ensure that integrated pollution and waste management education programmes and projects foster a clear understanding of interrelationships between pollution and waste, and of the economic, social, cultural, environmental and political issues in local, regional, national and global spheres.
- To develop a culture of discouraging pollution and waste generation among all South Africans.
- To assist Small, Micro and Medium-Enterprises (SMME) in developing appropriate integrated pollution and waste management procedures.
- To encourage and support the involvement of women, youth, workers, the unemployed, the disabled, traditional healers, the elderly, non-governmental organizations and other special interest groups in the design, planning, and implementation of integrated pollution and waste management education and capacity-building programmes and projects.

- To initiate awareness campaigns for integrated waste management planning, together with the provincial environmental departments. The campaigns would be implemented by local government for general waste, and the provincial environmental departments for hazardous and industrial waste.

2.3.2.6 Goal 6: Information Management

"To develop and maintain databases and information management systems to provide accessible information to interested and affected parties that will support effective integrated pollution and waste management."

Objectives

- To establish effective and efficient information system, including the development of appropriate pollution indicators to ensure informed decision-making, measure progress in policy implementation and enable public participation in the governance of integrated pollution and waste management.

- To strengthen and build capacity of government to collect, analyse, and use relevant information and knowledge for integrated pollution and waste management from all sources.

- To develop a register of pollution and waste releases and transfers from point of generation and diffuse sources.

- To develop a register for all waste handlers.

2.3.2.7 Goal 7: International Cooperation

"To develop mechanisms to deal effectively and in the national interest with international issues affecting pollution and waste."

Objectives

- To cooperate internationally on common pollution and waste management concerns, giving priority to the Southern African region.

A National Waste Management Strategy (NWMS), which forms the basis for translating the goals and objectives of the policy into practice, has been developed, together with short-term (five-year) priority Action Plans for the following key elements of the strategy:

- Integrated Waste Management Planning
- Waste information systems
- General waste collection
- Waste recycling and minimisation
- Waste treatment and disposal
- Capacity Building, Education, Awareness and Communication

While the Department of Environmental Affairs (DEA) is the lead agent for the environment, the Department of Water Affairs is the lead agent for water, responsible for managing water quality and quantity. The Department of Environmental Affairs provides leadership and guidance to enable other national departments, provincial environmental departments and municipalities to meet their executive obligation in respect of environment, including integrated pollution and waste management.

The responsibilities of the local government (Municipalities) are to provide waste management services and management of waste disposal facilities in line with the National Domestic Waste Collection Standards (2011).

Specific functions to be carried out by municipalities include:

- Compiling and implementing general waste management plans, with assistance from provincial government and other developmental agencies, where applicable;
- Implementing public awareness campaigns on the implementation of the IWMP;
- Collecting data for the Waste Information Systems;
- Providing general waste collection services and managing waste disposal facilities within their area of jurisdiction;
- Implementing and enforcing appropriate waste minimisation and recycling initiatives, such as promoting the development of voluntary partnership with industry;
- Education and awareness campaigns for communities on sorting waste at source, waste minimization (including the establishment of waste minimization clubs), recycling, and negative effects of illegal disposal of waste;
- Where possible, regional planning, establishment and management of landfill sites, especially for regionally based general waste landfills.

2.4 NATIONAL ACTS

2.4.1 National Environmental Management Act (NEMA), No. 107.1998

The National Environmental Management principles applicable to this document include the following:

2.4.1.1 Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.

2.4.1.2 Development must be socially, environmentally and economically sustainable.

2.4.1.3 Sustainable development requires the consideration of all relevant factors, including the following:

a. That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimised and remedied.

b. That pollution and degradation of the environment are avoided, or where they cannot be altogether avoided, are minimised and remedied.

c. That waste generation is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.

d. That the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied.

e. That the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resources.

f. That the development, use and exploitation of renewable resources and the ecosystems that they are part of do not exceed the level beyond which their integrity is jeopardised.

g. That a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and

h. That negative impacts on the environment and the people's environmental rights are anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

2.4.1.4 Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental options.

2.4.1.5 Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

2.4.1.6 Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access for categories of people who are disadvantaged by unfair discrimination.

2.4.1.7 Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

2.4.1.8 The participation of all interested and affected parties in environmental governance must be promoted and people must have the opportunity to develop the understanding, skills and

capacity necessary for achieving equitable and effective participation. Participation by vulnerable and disadvantaged persons must be ensured.

2.4.1.9 Decisions must take into account the interest, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including, scientific, indigenous and ordinary knowledge.

2.4.1.10 Community well being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and through other appropriate means.

2.4.1.11 The social, economic and environmental impacts of activities, including disadvantages and benefits must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessments.

2.4.1.12 The right of workers to be informed of dangers and to refuse work that is harmful to human health or the environment must be respected and protected.

2.4.1.13 Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

2.4.1.14 There must be inter-governmental co-ordination and harmonisation of policies, legislation and actions relating to environment.

2.4.1.15 Actual or potential conflicts of interest between organs of the state should be resolved through conflict resolution procedures.

2.4.1.16 Global and international responsibilities relating to the environment must be discharged with due consideration of national interest.

2.4.1.17 The environment is held in public trust for the people. The beneficial use of environmental resources must serve the public interest and the environment must be protected as people's common heritage.

2.4.2 National Environmental Management: Protected Areas Act 57 of 2003 and Protected Areas Amendment Act 31 of 2004 regulations.

NEM: PAA stipulates the following requirements for the formulation of management plans and the management of protected areas:

2.4.2.1 Preparation of Management Plan

Section 39

1. The Minister or the MEC may make an assignment in terms of section 38(1) or (2) only with the concurrence of the prospective management authority.
2. The management authority assigned in terms of section 38(1) or (2) must, within 12 months of the assignment, submit a management plan for the protected area to the Minister or the MEC for approval.
3. When preparing a management plan for a protected area, the management authority concerned must consult municipalities, other organs of state, local communities and other affected parties which have an interest in the area.
4. A management plan must take into account any applicable aspects of the integrated development plan of the municipality in which the protected area is situated.

2.4.2.2 Management Plan

Section 41

1. The object of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of this Act and for the purpose it was declared.
2. A management plan must contain at least –
    a. the terms and conditions of any applicable biodiversity management plan;
    b. a co-ordinated policy framework;
    c. such planning measures, controls and performance criteria as may be prescribed;
    d. a programme for the implementation of the plan and its costing;
    e. procedures for public participation, including participation by the owner (if applicable), any local community or other interested party;
    f. where appropriate, the implementation of community-based natural resource management; and
    g. a zoning of the area indicating what activities may take place in different sections of the area, and the conservation objectives of those sections.
3. A management plan may also contain-
    a. development of economic opportunities within and adjacent to the protected area in terms of the integrated development plan framework;
    b. development of local management capacity and knowledge exchange;
    c. financial and other support to ensure effective administration and implementation of the co-management agreement; and
    d. any other relevant matter.

4. Management plans may include subsidiary plans, and the Minister or MEC may approve the management plan or any subsidiary plan in whole or in part.

2.4.2.3 Co-management of Protected Areas

Section 42

1. *(a)* The management authority may enter into an agreement with another organs of state, a local community, an individual or other party for-
   - the co-management of the area by the parties; or
   - the regulation of human activities that affect the environment in the area.

   (b) The co-management contemplated in paragraph *(a)* may not lead to fragmentation or duplication of management functions.

2. A co-management agreement may provide for-

   (a) the delegation of powers by the management authority to the other party to the agreement;

   (b) the apportionment of any income generated from the management of the protected area or any other form of benefit sharing between the parties;

   (c) the use of biological resources in the area;

   (d) access to the area;

   (e) occupation of the protected area or portions thereof;

   (f) development of economic opportunities within and adjacent to the protected area;

   (g) development of local management capacity and knowledge exchange;

   (h) financial and other support to ensure effective administration and implementation of the co- management agreement; and

   (i) any other relevant matter.

3. A co-management agreement must-

   (a) provide for the harmonisation and integration of the management of cultural heritage resources in the protected area by the management authority; and

   (b) be consistent with the other provisions of this Act.

4. The Minister or the MEC, as the case may be, may cancel a co-management agreement after giving reasonable notice to the parties if the agreement is not effective or is inhibiting the attainment of any of the management objectives of the protected area.

5. Where the Minister or MEC in terms of subsection (4) cancels a co-management agreement forming a material term of an agreement contemplated in section 23(3) or 28(3), the withdrawal of the declaration of the protected area or exclusion contemplated in section 24(2) or 29, respectively, apply.

2.4.3 National Environmental Management: Biodiversity Act 10 of 2004 and Regulations.

This Act has specific provisions relating to World Heritage Sites (WHS) and other protected areas and need to be adhered to. It provides for the development of Biodiversity Management Plans. Therefore, harmonization of management plans should be undertaken to align various planning instruments.

For example, the Local Government develop IDP and SDF which should be aligned with the IMP and provision made for the protection of the area surrounding the WHS and the larger area of the impact structure should be zoned as a conservation area.

The plan should ensure that no activities such as mining, conventional residential development, industrial development and similar activities which can have a negative impact on the larger structure of the WHS should be allowed.

2.4.3.1 Biodiversity Management Plans

Section 43

1. Any person, organization or organ of state desiring to contribute to biodiversity management may submit to the Minister for his or her approval a draft management plan for-

(a) an ecosystem-

(i) listed in terms of section 52; or

(ii) which is not listed in terms of section 52 but which does warrant special conservation attention;

(b) an indigenous species-

(i) listed in terms of section 56 or 44 No. 26436 Government Gazette, 7 June 2004 Act No. 10, 2004 National Environmental Management: Biodiversity Act, 2004.

(ii) which is not listed in terms of section 56 but which does warrant special attention;

(c) a migratory species to give effect to the Republic's obligations in terms of a conservation attention; or international agreement binding on the Republic.

2. Before approving a draft biodiversity management plan, the Minister must identify a suitable person, organization or organ of state which is willing to be responsible for the implementation of the plan.
3. The Minister must-

   (a) publish by notice in the Government Gazette a biodiversity management plan approved;

   (b) determine the manner of implementation of the plan; and

   (c) assign responsibility for the implementation of the plan to the person in terms of subsection (1); organisation or organ of state identified in terms of subsection (2).

2.4.4 National Water Act 1998, (Act 36 of 1998)

The National Water Act 1998 or NWA (Act No. 36 of 1998) was put in place to regulate the use of water resources. The NWA is a companion act to NEMA and dovetails with the principles contained within NEMA. As with NEMA, the NWA gives effect to Section 24 and 27 of the Constitution, which guarantees the right to all people of healthy and safe environment, but with particular emphasis on water usage and protection.

Furthermore, the NWA identifies 11 consumptive and non-consumptive water uses, which must be authorized under a tiered authorization system, which include Scheduled uses, General Authorization, or Licenses. Non-consumptive uses include waste disposal.

In particular, Section 21(g) of the Act requires licensing where waste is disposed "in a manner which may not detrimentally impact on water resources". A disposal site requires licensing in terms of the NEM: Waste Act, administered by the Department of Environmental Affairs.

2.4.5 Development Facilitation Act, 1995

The Development Facilitation Act (DFA) was passed to achieve three key objectives:

1. To provide a coherent policy framework for land development, land registration and land planning in South Africa according to certain general principles;

2. To expedite and facilitate approval of land development applications; and

3. To overhaul the existing planning and land development framework in South Africa.

The DFA provides for the formulation of "land development objectives" for all local authority structures throughout South Africa with a view to integrated planning at local government level, setting goals and priorities in respect of service delivery and development projects, realigning resources (both human and financial) to adequately deal with such priorities and develop a spatial framework to illustrate the policies and project guidelines of the local authority for the future.

The DFA creates the framework within which a registered owner of land may approach the provincial authorities for permission to use land for a pre-identified development purpose, generally in line with the Land Development Objectives set for the relevant area. In general, the DFA provides that no authority may approve an application for land development that is deemed to be inconsistent with the provisions of the statutory Land Development Objectives applicable to such area.

2.4.6 National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA)

The main objective of the Act is to ensure minimal negative impact to the environment through reduced generation and management of waste in an environmentally friendly manner. As such, the key words in the Act are to avoid, reduce, prevent, manage and comply. The development of the IWMP is now a legal requirement in terms of the NEM: Waste Act of 2008, as depicted in section 11- 4–(a)

1) A holder of waste must, within the holder's power, take all reasonable measures to-

(a) avoid the generation of waste and where such generation cannot be avoided to minimize the toxicity and volumes of waste that are generated;

(b) reduce, re-use, recycle and recover waste;

(c) where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;

(d) manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;

(e) prevent any employee or any person under his or her supervision from contravening this Act; and

(f) prevent the waste from being used for an unauthorized purpose.

(2) Any person who sells a product that may be used by the public and that is likely to result in the generation of hazardous waste must take reasonable steps to inform the public of the impact of that waste on health and the environment.

(3) The measures contemplated in this section may include measures to-

(a) investigate, assess and evaluate the impact of the waste in question on health or the environment;

(b) cease, modify or control any act or process causing the pollution, environmental degradation or harm to health;

(c) comply with any norm or standard or prescribed management practice;

(d) eliminate any source of pollution or environmental degradation; and

(e) remedy the effects of the pollution or environmental degradation.

Chapter 3 of the NEM: Waste Act states the importance of developing an IWMP and further outlines the contents of the IWMP.

2.4.7 Regulations In Terms of NEM: Waste Act, 2008 (Act 59 0f 2008)

As part of achieving the objectives of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), the Department of Environmental Affairs (DEA) has prepared the following:

- First Draft National Waste Management Strategy (published on 08 June 2010 in the Government Gazette No. 33277);
- Draft guiding document on the preparation of the Industry Waste Management Plans (published on 11 June 2010 in the Government Gazette No. 33264).
- Regulations, standards and guidelines are described below:

Regulations drafted in terms of NEM: WA

There are several regulations related to the Act that are currently being drafted:

- National Waste Classification and Management Regulations, in terms of section 69(1) of the Waste Act (Draft May 2010)
- National standard for Leach Tests and Screening Values for Risk Profiling of Waste, in terms of section 7(1)(a) of the Waste Act (Draft May 2010)
- National standard for Disposal of Waste to Landfill, in terms of section 7(1)(c) of the Waste Act (Draft May 2010)
- National Waste Information Regulations, 2010
- Guideline for the designation of Waste Management Officers (WMOs) as provided for in section 10 of the National Environmental Management: Waste Act (Act No. 59 of 2008)
- Draft Waste Classification and Management Regulations

http://www.sawic.org.za/documents/820.pdf

- Draft Standards for the Disposal of Waste to Landfill

http://www.sawic.org.za/documents/817.pdf

- Draft Standards for the Assessment of Waste for Landfill Disposal

http://www.sawic.org.za/documents/818.pdf

2.4.8 The National Waste Management Strategy (NWMS), 1st Draft of 2010

The National Waste Management Strategy (NWMS), which was developed by the National Departments of Environmental Affairs & Tourism (DEAT), and Water Affairs & Forestry (DWAF) in 2000, requires local authorities to develop their own Integrated Waste Management Plans (IWMPs) for general waste in accordance with the national guidelines set in the NWMS. A first Draft of the second generation NWMS was subsequently published by the Department of Environmental Affairs in March 2010 in line with NEMWA.

The NWMS requires that NWMS principles are integrated in the development of Integrated Waste Management Plans in accordance with the National guideline. The NEM: Waste Act legally establishes the NWMS, and the first draft has been published for comments (DEA, 2010).

2.5 LOCAL GOVERNMENT LEGISLATION

2.5.1 The Municipal System Act, 2000 (Act 32 of 2000)

All municipalities must draft integrated development plans (IDP's) in terms of the Municipal System Act, 2000. An IDP is a comprehensive strategic plan for the development of the municipality and includes a strategic assessment of the environmental impact of the spatial development framework of the municipality. The resultant integrated environmental programme must be aligned and in accordance with provincial and national plans, policies and strategies.

NEMWA articulates that the Integrated Waste Management Plans must be included in the IDP document as a sector plan.

2.6 NATIONAL REGULATIONS

2.6.1 The EIA Regulations

One of the objectives of the ECA is to control activities that are likely to have a detrimental effect on the environment. In order to provide for thorough and uniform control of the environmental impacts of development projects, legislation for compulsory Environmental Impact Assessment (EIA) was published in terms of section 21, 22, and 26 of the Environment Conservation Act (the EIA Regulation).

The EIA regulations have, *inter alia*, the following objectives:

- To ensure that the environmental effects of activities are taken into consideration before decisions in this regard are taken.
- To promote sustainable development, thereby achieving and maintaining an environment that is not harmful to people's health or well-being.

- To ensure that social and economic interests are taken into account before an activity is authorised.

- To regulate the process and reports required to enable the Minister or the designated competent authority to make informed decision on the activities.

Any waste disposal site to be established under the NEM: Waste Act requires an environmental impact assessment. The responsibility for administration of requirements for EIA is delegated to provincial departments.

2.7 NATIONAL GUIDELINES

2.7.1 GUIDELINES FOR INTEGRATED WASTE MANAGEMENT PLANS

Integrated Waste Management Planning is a basic requirement for all waste management activities in terms of the National Waste Management Strategy (NWMS). Recently it has been obligated by the NEM: Waste Act (2008) and is the cornerstone of all waste management activities.

a. Objectives

These guidelines are aimed at assisting waste management officials in all spheres of government to perform their planning duties and to compile comprehensive Integrated Waste Management Plans (IWMP). Following the promulgation of the Municipal Systems Act, No 32 of 2000, all municipal officials are obliged to participate in performance assessment; and the compilation of well defined and comprehensive IWMPs will provide a sound base for the assessment of the performance of the waste section.

The guidelines have been written to follow the waste handling process in accordance with the waste hierarchy. Manipulation of the waste hierarchy to incorporate specific South African conditions is addressed. This implies that waste management officials should include all aspects of the waste hierarchy in their planning efforts. These guidelines provide a background for the compilation of IWMP.

b. Minimum Requirements for Waste Disposal by Landfill – DWAF: Second Edition 1998

The *Minimum Requirements for Waste Disposal by Landfill* forms part of the Department of Water Affairs and Forestry's Waste Management Series. This series establishes a reference framework of standards for waste management in South Africa.

The objective of setting Minimum Requirements is to take pro-active steps to prevent the degradation of water quality and environment, and to improve the standard of waste disposal in South Africa. To ensure practical and affordable environmental protection, graded requirements are applied to different classes of landfill. The landfill class is determined from the waste type, size of operation, and potential for leachate generation.

There is an important relationship between all aspects of the landfill development process. Good landfill site selection provides for simple cost-effective design, which, provided the site preparation is correctly carried out, provides for good landfill operation. This in turn ensures the environmental acceptability of the landfill. Environmental acceptability, in its turn, often relates directly to public acceptability. Minimum requirements are therefore set for all technical aspects of landfill development, operations and closure. They are also set for involving Interested and Affected Parties (IAPs) in determining site feasibility and end user requirements.

The Permit Holder is primarily and ultimately accountable for the landfill and any effects it may have on the receiving environment. However, the Permit Holder may appoint a Responsible Person, for example, a consultant or operator, to ensure that the appropriate Minimum Requirements are applied throughout the development, operation and closure of the landfill.

2.7.2 OTHER GUIDELINES

2.7.2.1 The White Paper on Municipal Services Partnerships (MSPs)

According to the Constitution, the executive and legislative authority of a municipality is vested in its municipal council. The Constitution gives municipal councils the obligation to ensure that municipal services are delivered to its municipality in a sustainable way. This is a daunting challenge, as the demand for basic services continues to outpace available government finances.

The White Paper on Local Government recommends that municipalities look for innovative ways of providing and accelerating the delivery of municipal services. The Municipal Services Partnership (MSP) Policy aims to provide clear framework within which to leverage and marshal the resources of public institutions, CBOs, NGOs and the private sector towards meeting the country's overall development objectives. The MSP Policy is derived from the principles of *Batho Pele* (People First). It actively promotes the ethos of participation by consumers and other stakeholders throughout the process of determining and implementing service delivery options. The MSP Policy also endorses universal access to basic services, the progressive improvement in service standards, and openness and transparency in the processes used for selecting service providers.

2.7.2.2 Objectives of the MSP Policy

The objective of the MSP Policy is to ensure that MSPs are applied in a manner that supports the Constitutional obligation of the municipalities and the Constitutional rights of communities.

a. The MSP Policy creates a more conducive environment for MSPs arrangements by addressing the gaps and constrains that presently limit the use of MSPs. This will make MSPs viable and functional service delivery options and will thereby help municipalities to plan, finance and accelerate the delivery of municipal services.

b. Municipalities will also be assisted in establishing systems to monitor the performance of service providers to ensure that they perform according to expectations and report on this to their communities.

c. The MSP Policy supports and encourages better information flows, value for money, avenues for citizen's redress and, importantly, courtesy in service delivery.

2.7.2.3 Typical MSP arrangements

2.7.2.3.1 ***Service contract*****:** The service provider receives a fee from the council to manage a particular aspect of a municipal service. Service contracts are usually short-term (one to three years). Examples include repair and maintenance or billing and collection functions. Evidence suggests that this type of arrangement is a starting point for involving CBOs and NGOs in municipal services provision with the other arrangements being considered as capacity and experience are developed over time.

2.7.2.3.2 ***Management contract*****:** The service provider is responsible for the overall management of all aspects of a municipal service, but without the responsibility to finance the operating, maintenance, repair, or capital costs of the service. Management contracts are typically for three to five years. Management contracts typically specify the payment of a fixed fee plus a variable component which is payable when the contractor meets or exceeds specified performance targets. The service provider normally does not assume the risk for collecting tariffs from residents; however, high collection rates could be a trigger for incentive payments to the service provider.

2.7.2.3.3 ***Lease*****:** The service provider is responsible for the overall management of all aspects of a municipal service, and the council's operating assets are leased to the service provider. The service provider is responsible for operating, maintenance and repairing of those assets. In some cases, the service provider may be responsible for collecting tariffs from residents and assume the related collection risk. The service provider pays the council rent for the facilities, which may include a component that varies with revenues. Generally, the service provider is not responsible for new capital investments or for replacement of leased assets. Leases are typically eight to fifteen years.

2.7.2.3.4 ***Build/Operate/Transfer (BOT)*****:** The service provider undertakes to design, build, manage, operate, maintain and repair, at its own expense, a facility to be used for delivery of a municipal service. The council becomes the owner of the facility at the end of the contract. BOTs may be used to develop new facilities, or expand existing ones. A BOT typically requires the council to pay the service provider a fee (which may include performance incentive) for the services provided, leaving responsibility for tariff collection with the council.

2.7.2.3.5 ***Concession:*** The service provider undertakes the management, operating, repair, maintenance, replacement, design, construction, and financing of a municipal service facility or system. The service provider often assumes responsibility for managing, operating, repairing and maintenance of related existing facilities.

The service provider collects and retains all service tariffs, assumes the collection risk, and pays the council a concession fee (sometimes includes a component that varies with revenue). The municipality still remains the owner of any existing facility operated by the concessionaire, and the ownership of any new facility constructed by the concessionaire is transferred to the municipality at the end of the concession period.

2.7.2.4 Objectives of the Municipal Service Partnerships

2.7.2.4.1 If they are well structured and properly implemented, MSP arrangements can lead to significant improvements in the efficiency of service delivery i.e. significantly more services can be delivered while still remaining within the council's overall budget limits.

2.7.2.4.2 MSPs permit municipal councils to reduce their expenses for equipment rentals, lease costs, initial purchase costs and technology licensing arrangements.

2.7.2.4.3 Over time, municipalities can save on the capital costs of infrastructure expansion and technology upgrades.

2.7.2.4.4 By linking the provision of municipal services to a definitive contractual arrangement, municipal councils are also able to know their cost in advance and therefore are in a better position to prepare their budgets and plans.

2.7.2.4.5 By requiring a number of potential service providers to bid for the provision of municipal services, municipal councils can gain from the benefits of competition.

CHAPTER 3: STATUS QUO ANALYSIS

3.1 INTRODUCTION

Mohokare Local Municipality is the area covering three towns; namely, Smithfield, Rouxville and Zastron over a total area of 34,131.55km^2. With the latest demarcation plans, the head office of Mohokare Local Municipality is situated in Zastron. The municipality is situated on the south end of the Free State province and its boundaries are Naledi, Kopanong and Maletswai Municipality and Lesotho.

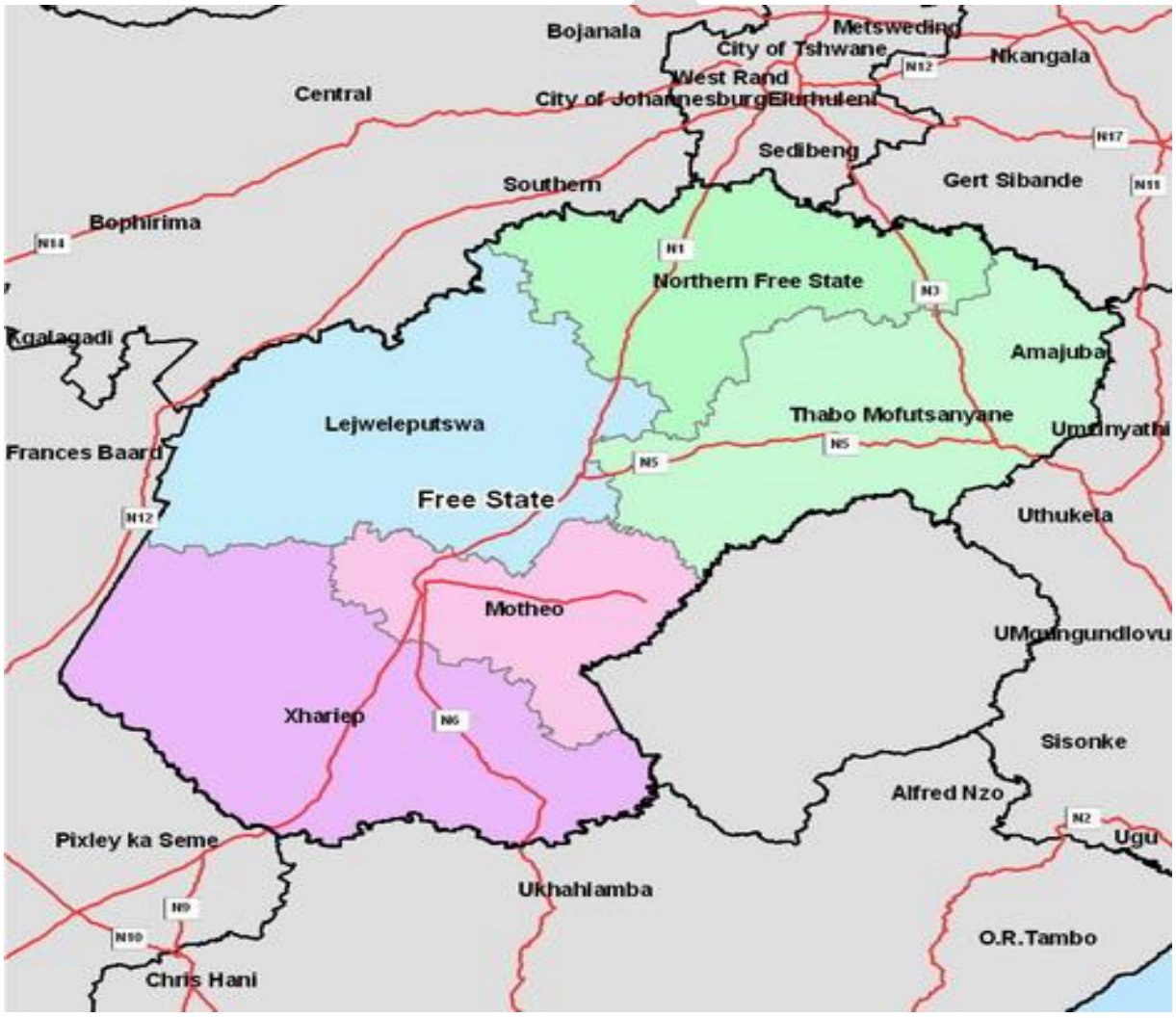


Fig 3.1: Map of Free State Province showing district boundaries

The economic driver of Mohokare Local Municipality, as per the Gross Domestic Product released by Free State government, is Agriculture followed by government (see table 3.1). The community of Xhariep ventures beyond the borders of the district for most of the commercial and economic issues.

Table 3.1: Sectoral Contribution to Gross Domestic Product in Xhariep District Municipality

GGP Sector	**Amount in ('000 Rands)**
Agriculture	212 383.00
Mining and quarrying	37 572.25
Manufacturing	2 517.15
Electricity, gas and water supply	9 316.00
Construction	952.05
Wholesale and retail trade	74 369.45
Transport	38 891.00
Financial services, insurance, real estate and business services	91 998.90
Community	6 433.55
General Government	95 597.35
Other industries	21 526.05

Source: www.fs.gov.za

The purpose of developing IWMP for Mohokare Local Municipality is to establish coherent and integrated waste management strategies and implementation plans consistent with the needs and future developments in the area. This plan will assist the municipality in optimising on resources and establishing a sustainable, informative and efficiently managed operation in managing waste.

The IWMP will direct the municipality to develop appropriate waste management systems and build management capacity in order to maximize efficiency in waste management, minimize environmental impacts and associated financial costs. The implementation of the plan will lead to a healthier and cleaner environment that is able to sustain an improved quality of life for all.

The IWMP should be used as a tool to implement the waste hierarchy objectives, namely, the following:

- To implement waste avoidance and prevention strategies;
- Recover waste of which generation cannot be avoided; and
- Practice safe disposal of waste that cannot be recovered.

The towns that constitute Mohokare Local Municipality are Smithfield, Rouxville and Zastron. These associated towns are listed below (Table 3.2). The IWMP sets targets for waste minimization and milestones to be achieved. It also sets out the review and subsequent reporting process as articulated in the NEM: Waste Act. The IWMP of Mohokare Local Municipality will be submitted to the DETEA for approval and will be incorporated into the IDP as a sector plan.

Table 3.2: Local Towns that constitutes the Municipality

TOWNS	ASSOCIATED LOCATIONS AND SETTLEMENTS
Smithfield	Mofulatshepe & Rietpoort,
Rouxville	Roleleathunya & Uitkoms
Zastron	Matlakeng & Kappiedorp

3.2 Geographical Area

Mohokare Local Municipality is situated in the Xhariep District Municipality, and it measures 8 748, 53 km^2 and comprises of the three main areas Zastron, Rouxville, Smithfield and the surrounding farm areas. The new ward demarcation has allocated 6 wards to Mohokare, where there was previously only 5 wards.

Source: State of the Environment Report (2008)

Fig. 3.2: Xhariep District Municipality Map

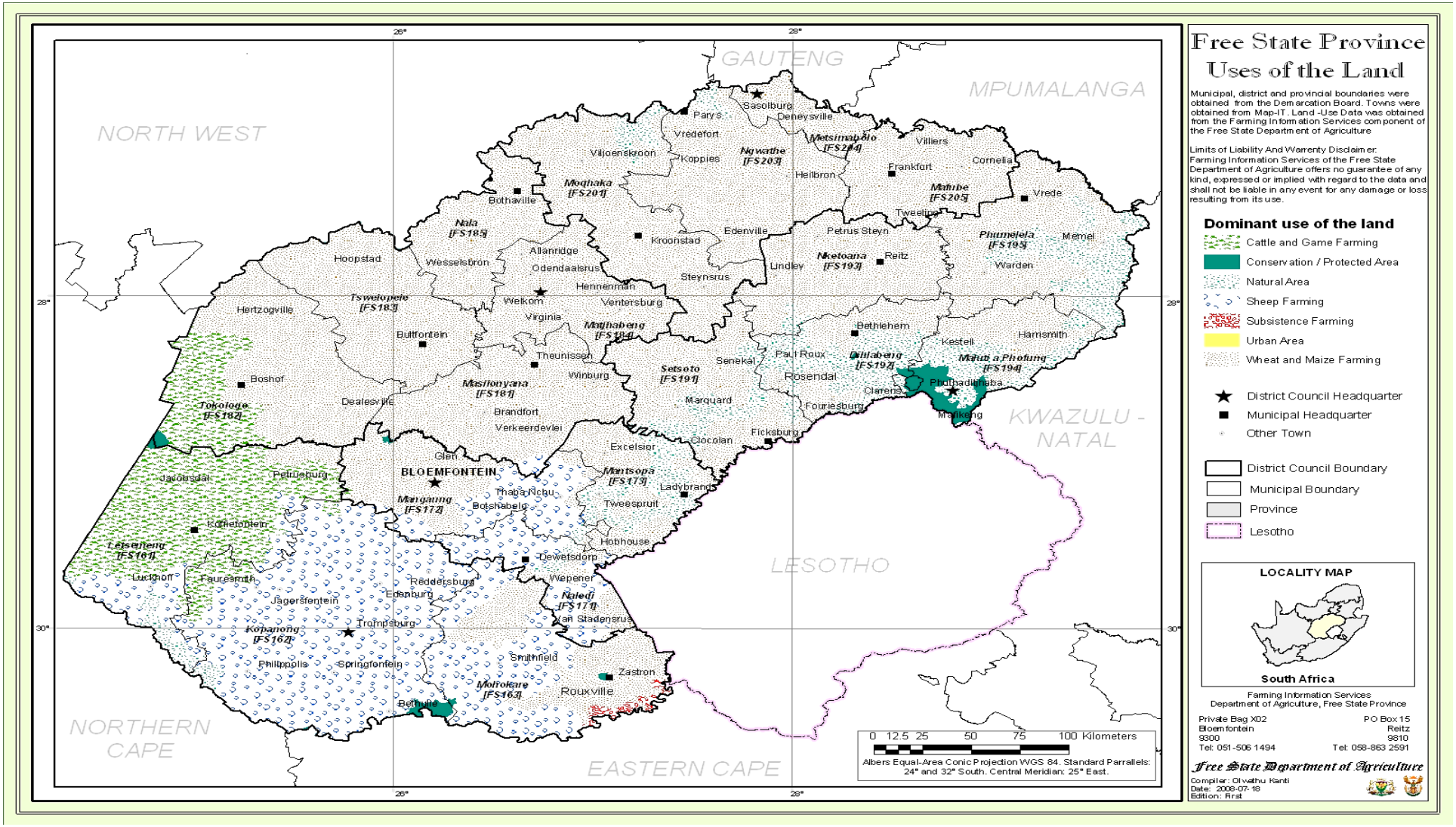


Figure 3.3: Free State Land Use Map, showing District Borders including Naledi LM on the north of Mohokare LM.

3.3 Topography

Topography is intrinsically linked to all aspects of land use planning such as demarcations for residential use, industrial use, including location of landfill sites and establishment of collection routes. The study area includes all 3 local towns under Mohokare Local Municipality.

3.4 Socio-economic Environment

The management of general waste is the competency of the local municipality. This is one of the services that are not easy to charge for, and municipalities generally experience difficulties of cost recovery in executing this responsibility. The match between the financial strength of the local municipality and the income levels of its communities is necessary to understand the feasibility of providing the service. This situation should be understood on the background that local municipalities primarily rely on residential and commercial communities for cash generation.

It is generally accepted that, though not scientifically proven, the less commercialised local municipalities will invariably be poorer and less resourced including inability to attract human capital. Notwithstanding, the government established a number of programmes and systems which the poorer municipalities can leverage for financial sustainability of developmental programmes in their areas.

3.5 Commercial Environment

The commercial activity in Mohokare Local Municipality in the main is agriculture and mining.

a. ***Agriculture:*** Xhariep is the only district in the Free State whose export activity is dominated by the agricultural sector. The farm produce in this district include maize, potatoes, grapes and ground nuts. Live stock farming includes cattle, sheep and ostrich.

3.5.1 Potential Economic Opportunities

The Mohokare Local Municipality is classified as a 'low capacity area' in the National Development Spatial Programme. Hence this area should benefit from the National and Provincial economic development initiatives. Tremendous economic potential in tourism related activities is noted in the areas around the Montague Dam and the Chalets. Evidently, the economic potential of the area is still to be realised with more strategic approaches towards development initiatives.

3.6 Social Environment

a. Residential

On average, fifty percent of the households in this Municipality are fully paid off and this portion has shown a significant increase between the periods 2001 and 2007 (Table 3.3). This situation augurs well for high disposable income within the community and can boost the economy of this area. The houses rented also show some increase which could be attributed to inflow of people. The potential cause of this inflow is job opportunities.

The number of households, the layout of the residential area in terms of streets and access areas, directly impacts on the provision of various services to the residents. These numbers also impact on the levies or recoverable costs available to the municipality.

Housing is one of the basic human needs with a profound impact on the health, welfare, social attitudes and economic productivity of the individual. It is also one of the best indicators of a person's standard of living and of his or her place in society. This is a critical factor to be considered in formulating waste management strategies as this impact on the types and quantities of future waste.

Despite a significant increase of formal houses, there is an increase of informal settlements and this be related to the increase in population numbers and insufficient allocation of residential sites to the increasing population.

Table 3.3: Percentage distribution of households by tenure status and local municipality: Census 2001 and Census 2007

Municipality	Census 2001					Census 2007					
	Owned and fully paid off	Owned but not paid off yet	Rented	Occupied rent free	Total	Owned and fully paid off	Owned but not yet paid off	Rented	Owned rent free	Other	Total
FS 163 Mohokare	44.7	8.8	13.2	33.8	100	47.3	2.4	18.4	31.6	0.0	100

Source: Community Survey, 2007 Basic Results: Municipalities

Table 3.4: Percentage of households living in formal and informal dwellings in Mohokare: (Census 2001 and Census 2007)

Name of Municipality	Formal		Informal	
	Census 2001	Census 2007	Census 2001*	Census 2007
FS163: Mohokare Local Municipality	77,9	69,7	17,5	29,2

Source: Community Survey, 2007 Basic Results: Municipalities

a. Water and Sanitation

The percentage of piped water for households has reduced slightly between year 2001 and 2007. During the same period the provision of piped water inside dwellings almost doubled through the district (Table 3.5). The difference could be indicative of the progress in providing water inside dwellings whilst there could be an increase in the number of new settlements which are not yet provided with water.

Table 3.5: Percentage of households having access to piped water by municipality: (Census 2001 and Census 2007)

Municipality	*Census 2001*					Census 2007			
	Piped water inside dwelling	*Piped water inside yard*	*Piped (tap) water to community stand: distance < 200m from Dwelling*	*Piped (tap) water to community stand: distance > 200m from Dwelling*	*Total piped water*	Piped water inside the dwelling	Piped water inside the yard	Piped water from access point outside the yard	Total piped water
FS163: Mohokare	*16,5*	*63,0*	*10,3*	*8,2*	*97,9*	20,0	68,8	4,7	93,5

Source: Community Survey, 2007 Basic Results: Municipalities

Consistent with the dynamics of the Free State province, a fairly high percentage of the community is still not provided with flushing toilets. Generally the number of households without toilets has reduced with a significant increase in bucket toilets (Table 3.6). This could be indicative of the economic profile of the district being dominated by lower side of the Living Standard Measures (LSM).

Table 3.6: Percentage of households using pit latrine, bucket and no toilet facility by municipality: Census 2001 and Census 2007

Municipalities	Pit Latrine		Bucket Toilet		No toilet	
	CS 2001	CS 2007	CS 2001	CS 2007	CS 2001	CS 2007
FS163: Mohokare	13,0	4,9	11,6	22,5	17,8	11,7

Source: Community Survey, 2007 Basic Results: Municipalities

b. Health

Provision of health services is a basic human right entrenched within our constitution in South Africa. The provision of these services is the competency of both the province and the municipalities. The health care structures available in the Mohokare Local Municipality are hospitals, clinics (including mobile units) and Primary Health Care centres (Table 3.7). The types and numbers of health care facilities directly influences the types and amounts of medical waste generated. Therefore it is imperative that all spheres of government share information through the Waste Information System in order to plan and execute best available technologies for health care waste management and protect human lives and the environment from harmful effects of this waste stream.

Table 3.7: Medical facilities of each town

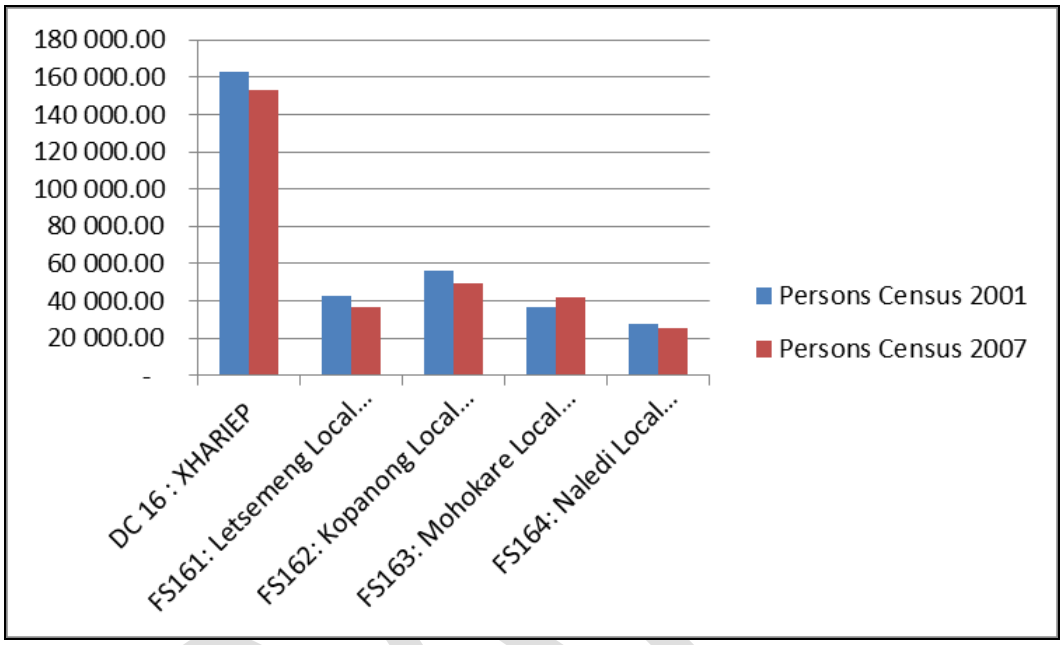
Name of Town	Name of facility
Smithfield	• Smithfield PHC Mobile • Stoffel Coetzee Hospital • Thembalethu Clinic
Rouxville	• Winnie Mandela Clinic • Rouxville PHC Mobile
Zastron	• Embekweni Hospital • Zastron PHC Boesmanskop • Zastron PHC Mobile • Zastron Matlakeng Clinic

Source: List of Medical facilities (DETEA, 2009)

3.7 Demographics

3.7.1 Population and Growth Estimates

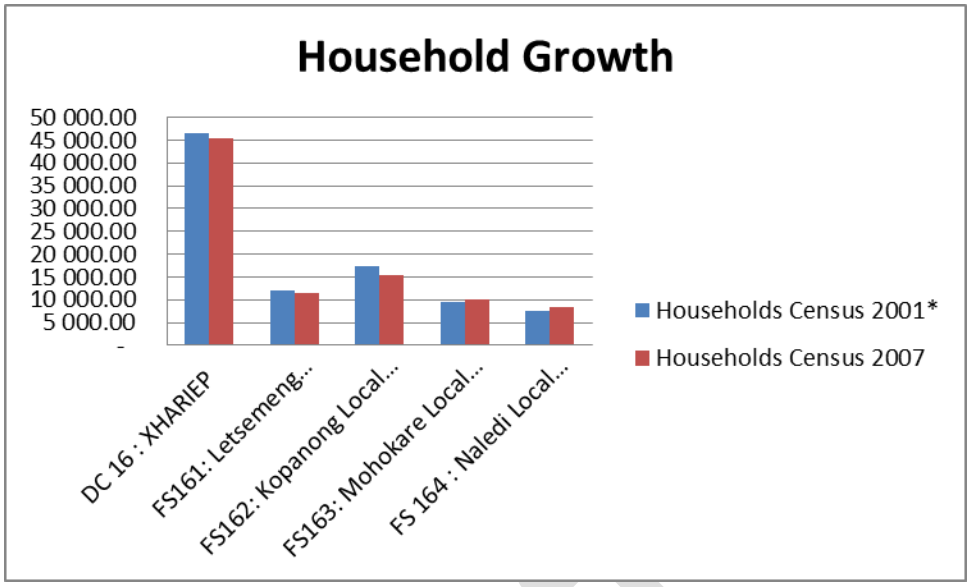
The Census reports show a decline in the total population numbers of Mohokare Local of Municipalities within the District.



Data Source: Community Survey, 2007 Basic Results: Municipalities

Fig. 3.3: Population Growth in Mohokare Local Municipality

The population growth trends are also consistent with growth in households [Fig 3.4]. The question is whether the Mohokare Local Municipality economic developments as currently prevailing will cause a continued and sustained decline or an increase in population numbers? Considering the general international and South African trends of population increases, it is prudent to assume that the population of Mohokare Local Municipality will increase. The assumed increase could be actualised by the increased national and provincial development initiatives which will increase retention and attraction of populations to areas such as Xhariep as job opportunities arise.



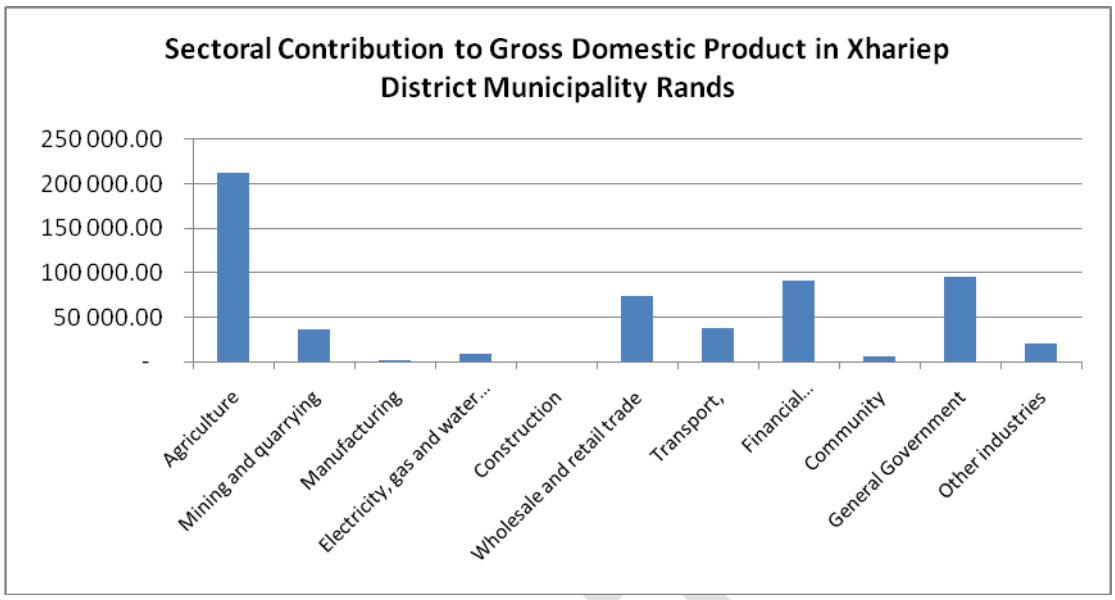
Data Source: Community Survey, 2007 Basic Results: Municipalities

Fig 3.4: Household Growth Rate in Mohokare Local Municipality

3.7.2 Socio-economic Factors, Income, Education and Age

Mohokare Local Municipality is relatively rural and non-industrialised. The economic opportunities are mainly within the tourism sector enhanced by the Gariep Dam. The National Development Spatial Programme classified Mohokare Local Municipality as a 'low capacity area', thus this area is well positioned to benefit from National and Provincial economic development initiatives.

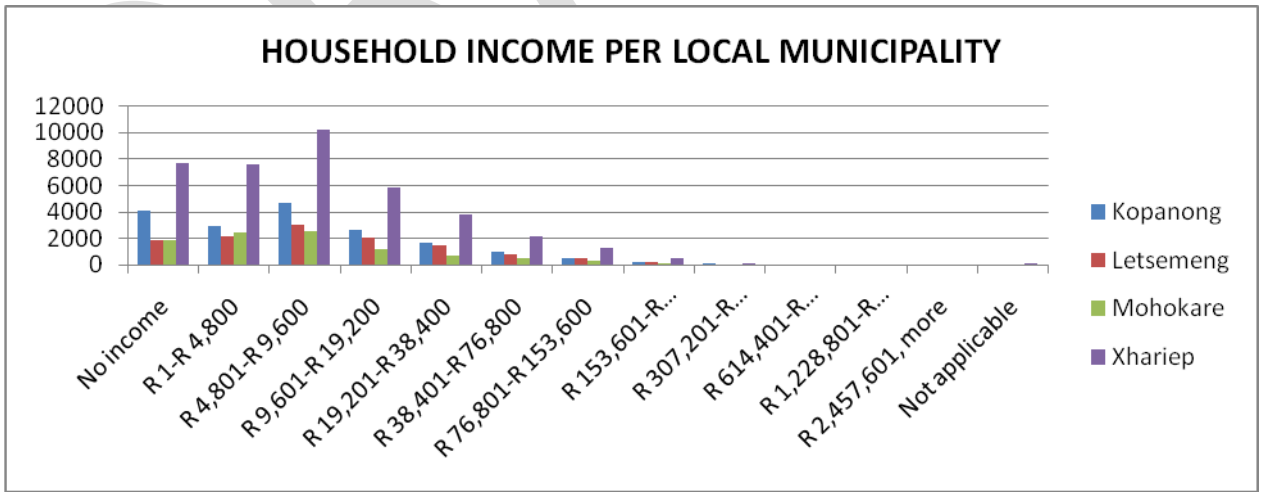
The commercial activity of the area is intrinsically linked to the education level of the community. Industrialised economies generally boasts of the majority of highly skilled and/or educated workers, whilst economies such as agriculture and mining are generally dominated by low skills, illiterate to low level education and experts at the helm.



Data Source: www.fs.gov.za

Fig 3.5: Sectoral Contribution to Gross Domestic Product in Xhariep DM (Rands)

The main economic driver in Mohokare Local Municipality is the agricultural sector followed by government and the financial sector. The agricultural sector is traditionally a big employer offering relatively meagre salaries. This situation could explain the earning trends prevailing in the Mohokare Local Municipality whereby the majority of the employed earns below R 9,600.00 per annum [Fig 3.6].



Data Source: StatsSA (2001)

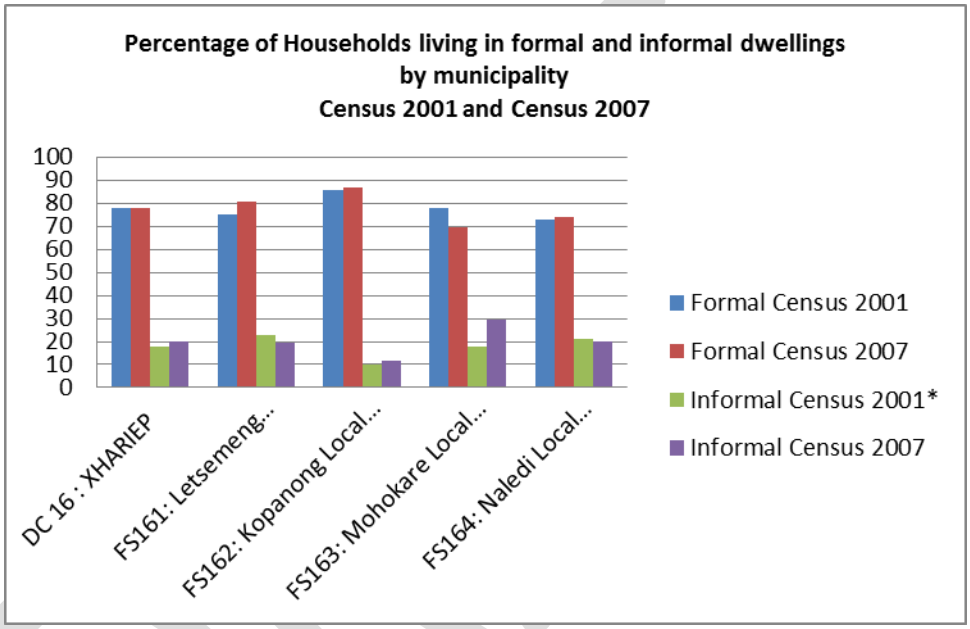
Fig 3.6: Household Income per Local Municipality

The income profile of Mohokare Local Municipality shows the majority of people to be earning between R 4,801.00 and R 9,600.00 and below. The main contributor to this income is Kopanong Local Municipality.

Generally, Kopanong Local Municipality contributes more of the income earners in all categories, followed by Letsemeng then Mohokare. The lower income group (No income to R38 400 per annum) was constituted by 90% of the population of Naledi LM (Census 2001).

The total number of registered indigent households in Naledi LM was 3 508. This figure represented approximately 42% of the total population.

The income of households is a critical factor in determining the lifestyles of the population, which will also determine the type and amount of waste generated by the population. The higher the income, the more formalised the dwellings would be, and the more inorganic waste to be generated by the community.



Data Source: Community Survey, 2007 Basic Results: Municipalities

Fig 3.7: Percentage Households Living in Formal and Informal Dwellings

Consistent with the income profiles of the local municipalities, Kopanong and Letsemeng local municipalities showed slight increases in formal dwellings with slight decreases in informal dwellings. Mohokare local municipality show a significant decrease in formal dwellings, and also a significant increase in informal dwellings.

3.7.3 Waste Management

The data regarding the type of waste, amounts generated and disposal methods, was not available in municipality documents. The officials confirmed that there was no system or process to capture the data related to waste generation and disposal. This situation is mainly due to lack of efficient management of waste within the district. At the most, the municipalities had information about the facilities they avail for the communities in terms of collection and disposal. Most of the information provided was estimates and assumptions some of which were agreeably inaccurate.

To enable planning we therefore applied some of the scientific strategies to guide and make projections which would be reviewed consistently as validated data or information becomes available.

Currently a full waste removal service is not rendered to the rural areas which constitute approximately 33% of the total population.

3.7.4 Waste Generation

No formal waste recording system exists in all municipalities within Xhariep DM; the only reference data was supplied by the 2001 Census and 2007 Community Survey. The generation of waste was scientifically estimated to be between 0,2 and 0,7 kg per capita per day. The waste generation is generally lower within the indigent and poorer population and higher within an affluent population. The community of the district of Xhariep is more on the lower income scales hence their waste generation rate was estimated to be on the lower side of the scale. An average of 0,5 kg per capita per day is estimated for the Mohokare Local Municipality.

There are other means of recording waste generation in the absence of a fully functional Waste Information System, for example, by calculating the trips each tractor of a specific carrying capacity (m^3, compacted or non-compacted waste) makes to the landfill, some waste disposal estimates can be made.

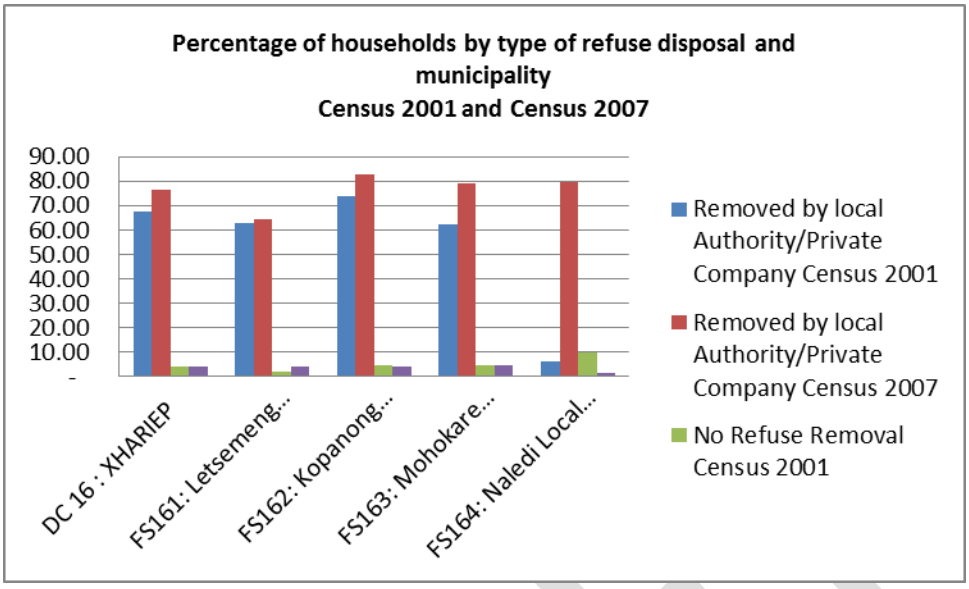
Table 3.8: Waste Generation Rates per Population in Local Municipalities within Xhariep

MUNICIPALITIES	Population numbers	Waste Generation Rate
	Census 2007	kg per day
DC 16 : XHARIEP	**153 068.00**	**88 099.58**
FS161: Letsemeng Local Municipality	36 337.00	18 168.50
FS162: Kopanong Local Municipality	49 422.00	24 711.00
FS163: Mohokare Local Municipality	41 867.00	20 933.50
FS164: Naledi Local Municipality	25 442	24286.08

Source: Community Survey, 2007 Basic Results: Municipalities

These estimates are to be used as reference for projections to year 2012 and 2015.

3.7.5 Waste Collection and Removal Strategies



Data Source: Community Survey, 2007 Basic Results: Municipalities

Fig 3.8: Percentage of Households by type of refuse disposal and municipality

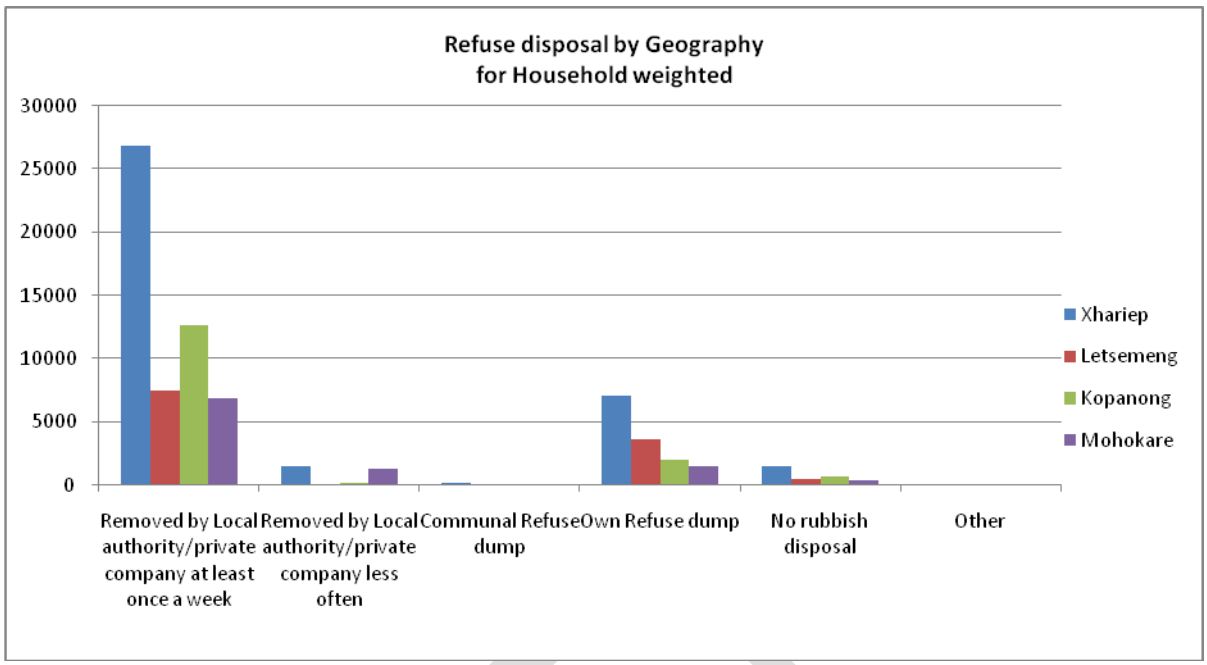
The officials of all local municipalities asserted that waste removal services were provided for all communities. To the contrary, according to Census 2007, whilst the removal of waste by either the local municipality or private company increased significantly since Census 2001, there were still communities not receiving waste removal services [Fig 3.8]. This discrepancy could be imputed to the fact that waste removal as per Community Survey meaning door-to-door services, whilst municipality officials refer to removal of waste from the areas where it could be found, and not necessarily provision of door-to-door services.

3.7.6 Waste Recycling Strategies

Recycling of waste is sparsely happening in the Mohokare Local Municipality. This sector can be improved through support initiatives by the Municipality, sector departments and private institutions.

3.7.7 Waste Disposal Strategies and Facilities

The communities dispose waste in a variety of ways which the municipality may not necessarily have the intelligence to detect. A fair proportion of the community own dump sites. These dump sites are a major concern for the local municipalities. The municipality has no knowledge or information about the waste disposed in these dumping sites, and whether the disposal sites could be in areas whereby the ecosystem is not affected. However, it is commendable that a significant percentage of the community receives waste removal services at least once a week [Fig. 3.9].



Data Source: Community Survey, 2007 Basic Results: Municipalities (Data for Naledi Local Municipality was not available)

Fig. 3.9: Refuse Disposal by Geography for Household Weighted

3.7.8 Management of Hazardous Waste

Management of Hazardous waste is the competency of the province.

3.7.9 Healthcare Waste

The management of healthcare waste, particularly from the healthcare centres, is outsourced to EnviroServe. This company has disposal facilities located on a landfill site in Bloemfontein. The health care waste from other sources such private doctors and mortuaries cannot be accounted for.

3.7.10 Agricultural Waste

No local municipality provides any special services to the farming areas. The farmers generally dispose the waste they generated in backyard pits; the methods and site management is not monitored by the municipality.

3.7.12 Household Hazardous Waste

The households put all waste together irrespective of its type. The fate of the waste is dependent on the disposal method available to the household. Despite some households not receiving collection of waste regularly, most of the waste is taken to the landfill sites through systems and operations provided by the local municipalities.

3.7.13 Commercial and Industrial Waste

The tendency is to mix all waste together. Some waste is collected by contracted waste collectors whilst some may be dropped off at the landfill site. Considering that the

economic activity within Mohokare Local Municipality is less industrialised, the amount of waste from the commercial and industrial sectors is minimal.

3.8 Management, Operations and Systems for Waste Management

In general, the competencies of waste management in the municipalities are entrusted in either the community services or technical divisions of the institution. The provision of efficient waste management services requires infrastructure, e.g. properly designed landfill sites, proper roads for access to households and areas were waste is generated. This component is the most financially demanding component of the service. Experience and technical expertise is the other critical requirement for efficient provision of waste management services.

During the year 2010 the Environmental Health Practitioners from the local municipalities were transferred to the Xhariep District Municipality. This action created a further gap within the already weak waste management teams of local municipalities. The Community Services Directorate of the Municipality is responsible for the management of all waste management activities within the jurisdiction of the municipality. This department takes full responsibility for the operation, management and delivery of this service.

3.8.1 Infrastructure for Disposal of Waste

In South Africa it is common for waste generation, i.e. type and quantities, not to be reported. In terms of the Waste Act (2008) it is a legal requirement to report on the waste generated in terms of quantities, transportation from source, recycling, treatment and disposal at landfill sites. This legal requirement has necessitated the registration of landfill sites with the Waste Information System (WIS) of the Department of Environmental Affairs.

The generation of waste and the type seem directly linked to economic activity and lifestyles of the population. There are indications, though not scientifically tested, that as income increases there is an increase in waste generated, and it is mainly the 'non-degradable' or inorganic type. Also, production of industrial waste will also increase with increase in economic development in the area.

The importance of proper management of landfill sites is evident in the light of the benefits inherent in the system. The more commercialised areas tend to produce more waste than the less commercialised, and hazardous waste would increase in industrialised communities. Waste is generated from households, institutions, industries and commercial businesses on a regular basis.

A registered landfill site should meet certain minimum requirements, e.g. weigh bridge, signage, access control, administration office, site management, to be functional as an efficient site. Provision of appropriate equipment and skilled landfill site staff will

ensure that the best available technology (BAT) and the best environmental practices (BEP) are applied and the use of resources would be maximised.

Table 3.9: Mohokare Local Municipality: Equipment and Landfill Management

Town	Population	Equipment	Landfills	Incinerators	Landfill Access	Management
Smithfield	5478	1x Bell Tractor 1x Tipper Trailer	Permitted	None	- Partly fenced - Has Access gate - Roads usable - No signage	- No Administration - End tipping disposal - No waste cover - No Recycling
Zastron	12442	1x Compactor truck 1x Tractor 1x Tipper Trailer	Not Permitted	None	- Not fenced - Roads usable - No signage	- No Administration - Bulldozer used at least twice a week - End tipping disposal - No waste cover - No Recycling
Matlakeng	12442	1x Compactor truck 1x Tractor 1x Tipper Trailer	Permitted	None	-Not fenced - Road unusable -No signage	- No Administration - End tipping disposal - Waste partly covered - No Recycling
Rouxville	6495	1x Bell Tractor 1x Tipper Trailer	Permitted	None	- Partly fenced - Has Access gate - Roads usable - No signage	- No Administration - End tipping disposal - Waste partly covered - No Recycling

3.8.2 Current Disposal Practices

Disposal practices are determined by the type of waste, proximity or access to a legal or illegal disposal site, as well as the means of transportation. There is need for clarity between the different sectors regarding acceptable or legal disposal practices. For example, agricultural sector would either bury or incinerate a carcass, and environmental sector would be concerned about possible contamination of the underground water or have issue with the gas emission during incineration.

Nevertheless, Mohokare Local Municipality, which is largely rural, collects residential households waste and is transported by municipal trucks to landfill sites.

There is no major recycling or salvaging activity taking place at the sites. At the time of the audit, cattle were grazing in the landfill area and waste was being burned.

3.8.2.1 Disposal of General Waste

Landfill sites in Mohokare Local Municipality were not regulated and lack the administrative fundamentals pertinent for waste disposal. All waste was mixed together from source to disposal site without being sorted. In Mohokare Local Municipality general waste was either burned or buried in pits on the site of the waste generator, e.g. home or farm.

At the landfill sites waste was burnt following its disposal into trenches; daily soil covering was not implemented. It is important to compact and bury the waste to avoid secondary pollution of the environment, prevent birds and rat infestation and also to reduce volumes of disposed waste through compaction. The landfill sites were not completely fenced; as a result, secondary pollution of the environment was exacerbated through wind blowing of waste on open landfills.

3.8.2.2 Disposal of Hazardous Waste

Currently the Mohokare Local Municipality does not have industries which could potentially be creating concern about hazardous waste; hence hazardous waste may not be seen as a priority for the municipality. For the municipality, it has been reported that disposable diapers, domestic hazardous waste, are a source of concern on landfill sites. Disposal of carcasses was restricted to occasional domestic animals.

The disposal of hazardous waste was to a large extent a specialised process which would invariably be contracted out to private companies. It is also important to ensure that the waste is well sorted to avoid burning of waste that should not be burnt, e.g. aerosol sprays. Where no sorting of household hazardous waste, the mixing of hazardous waste with general waste resulted in hazardous waste being managed as though it was all general waste.

3.8.2.3 Disposal of Health Care Waste

Health care waste is generated mainly by hospitals, health care centres and clinics. Amongst the waste you also find sharp objects such as needles and razors. Medical waste was collected by Compass Waste Services, the medical waste company contracted and operational in the Free State Province. Collection occurs every Wednesday. Collection is from the three clinics in the municipality's jurisdiction.

It has been reported that disposable diapers, a domestic hazardous waste, are a source of concern on landfill sites. Disposal of carcasses is restricted to occasional domestic animals.

3.9 Record-keeping of Waste Information

In recent years, waste management, gas emissions and pollution of the environment have become very topical in Green Politics. Legislations and guideline listed below were developed by the South African government and its sectoral departments to provide guidance in the overall management of waste in the country.

- National Water Act (Act 36 of 1998)
- The National Environmental Management Act (Act 107 of 1998)
- Municipal Structures Act (Act 117 of 1998)
- Municipal Systems Act (Act 32 of 2000)
- Mineral and Petroleum Resources Development Act (Act 28 of 2002)
- Air Quality Act (Act 39 of 2004)
- National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
- National Waste Management Strategy (NWMS), 2011
- Waste Information Regulations (2011)

Through these guidelines it is envisaged that the country will develop better infrastructure and management strategies to manage waste generation.

The Mohokare Local Municipality do not have any form of data generation or record keeping for waste generated. The officials make estimates of what could be generated, and decisions are invariably based on this relatively inaccurate and insufficient information.

3.10 Institutional Capacity

3.10.1 Personnel

The Xhariep District Municipality employed 3 Environmental Health Practitioners and allocated each to focus on a local municipality. These 3 employees work very closely

with their manager, and this approach has begun to effect the consolidation of information flow within the district.

The local municipalities have no dedicated personnel for issues related to waste management, particularly activities related to the IWMP. The officials delegated to the workshops on IWMP are mainly junior personnel with no authority to take decisions on the activities to be included in the IWMP. In some situations the delegates are officials informed about the workshop a day or two before, no documentation provided, but simply requested to attend on behalf of the department. Some of the officials attending workshops have no clue about the role of their respective departments in the management of waste.

It is therefore recommended that staffs attending these workshops are thoroughly briefed so that they can actively participate and make valuable inputs that would benefit their municipalities.

The waste management services were dealt with under departments such as local economic development, community service, technical services, etc. Considering that waste management is not the core service of these departments, it is understandable why resources allocated for waste management are less than appropriate. It is thus important to identify the resource requirements, matching required skills with functions and responsibilities, for efficient management of waste in the district, and respond to these requirements appropriately.

3.10.2 Organisational Relations

Relations between municipalities: All facilities for waste management are owned by local municipalities. Each local municipality works independent of the other local municipalities within the district.

Each local municipality has developed an Integrated Development Plan (IDP). The IDP should include the IWMP articulating the integration of strategies and activities of various departments and sectors in waste management. The Mohokare Local Municipality has not as yet developed an IWMPs hence the various departments have not as yet realised their roles in the delivery of waste services and the requirements of the Waste Act.

3.11 Emerging Waste Issues

Following the World Summit on Sustainable Development in Johannesburg in 2002, South Africa initiated energy saving programs to conserve non-renewable resources such as coal from which electricity is generated. One of the programs initiated, among others, involves the use of energy saving fluorescent bulbs which use less energy. Also, a lot of education and awareness has been raised about using fluorescent bulbs which reduce energy consumption. The Department of Energy and Eskom supported this initiative by providing free bulbs to households. While this is seen as a strategy for

reducing energy consumption and saving non-renewable coal supplies, fluorescent bulbs will increase mercury-containing waste hazardous streams within general waste collected from households.

Municipality and the Department of Energy will have to jointly encourage waste separation of this hazardous waste stream before waste collection. The impacts of this waste stream in landfill waste are huge, both for humans and the environment, especially contamination of groundwater. Furthermore, as part of extended producer responsibility (section 18 of NEM: Waste Act, 2008), manufacturers and retailers can be partners in take-back programs of such products. Eskom has already initiated take-back programmes; outlets like Pick 'n Pay and more garages have made provision for separate bins for disposal of fluorescent bulbs, paper, batteries, etc.

Another waste stream that is a concern is electronic/electrical waste. This includes mobile phones, computers, fridges, hairdryers, etc. While it is unclear as to what proportion of commercial waste consists of electronic waste (e-waste), this type of waste is disposed of at landfill sites or communal dumpsites. The amount of e-waste collected and recycled within the municipalities of Mohokare Local Municipality is unknown.

CHAPTER 4: GAP ANALYSIS AND NEEDS ASSESSMENT

4.1 Objectives of This Phase

Following the development of the Status Quo Report, a consultative workshop was held where stakeholders from Mohokare Local Municipality discussed the Status Quo Analysis Report and identified the following issues as gaps needing further assessment and strategic goals to close them.

The goals and objectives of this phase are the following:

- To identify and analyse the gaps, deficiencies and requirements relating to implementing waste management hierarchy
- To rank and prioritize the identified needs and Requirements for further strategies to be developed and implemented as part of the IWMP.

To accomplish an IWMP acceptable and executable by the Mohokare Local Municipality the following process was followed:

- An analysis to quantify and qualify the capacity of the district to render integrated waste management services.
- A workshop was held to ensure that consensus was reached on the prioritization of needs, also soliciting further inputs to improve the final output of this phase.

When the Status Quo Analysis Report was developed, strategic data that was collected clearly defined and depicted challenges faced by the district in making informed decisions on viable options for waste management systems to be implemented.

Focus group meetings were conducted to fill information gaps and identify opportunities for implementation of best waste management options.

This phase allowed for further evaluation of existing capacity of the district municipality and its local municipalities to provide waste services in line with nationally and internationally set standards and best practices. Current waste management strategies, i.e. collection, transport , treatment, disposal, costs, tariff setting and recovery, were evaluated and critiqued with reference to best practices, as well as capacity and priorities of Mohokare Local Municipality.

4.2 Registration of Landfill Sites

Stakeholders identified the need to have landfill sites duly authorized and managed efficiently, also complying with permit conditions and legal frameworks that support sustainable integrated waste management.

The Mohokare Local Municipality as part of the overall governance of the country have an obligation to support all national and provincial targets and declarations relevant to the environment. Therefore there is a need for the province to set targets for waste

minimisation and other related actions and also definite dates for achievement of these targets. For example, specific targets for waste reduction could include a target for zero garden waste at the landfill by a specific date.

Sections on waste minimization and cleaner production in the NEMWA has described some measures for reducing waste going to landfills, therefore assisting all role players to meet national targets of zero waste to landfill by 2020.

Programmes and provisions for the prevention of waste, separation of waste, in particular, at source, waste minimisation; green procurement, cleaner production, and waste exchange must be encouraged and implemented at local level.

4.2.1 Some of the Prescribed Standards for Landfill Management include:

- Provision of sufficient and properly trained staff.
- Ensure compliance to Occupational Health and Safety Act.
- Keep records of waste quantities and activities within the site.
- Provide equipments required for undertaking disposal activities, e.g. weigh bridges.
- Report and repair defects when necessary.
- Ensure availability of daily cover material at all times.
- Co-ordinate the recycling activities and maintain structured disposal systems.

Transfer stations are valuable for waste sorting. All recyclables may be sorted from the waste hence ensuring that whatever is sent to the landfill is appropriate and necessary for disposal. The transfer station also assists in managing and diverting harvesters away from the landfill. The other advantage with these facilities is that they can be close to residential areas hence illegal dumping may be minimised. The compactors will also be efficiently used as they may move only between the transfer station and the landfill.

GOAL 1: To duly authorize landfills those currently receiving waste.

4.3 Authentic Data

There was a general concern that data generated in IDP document and local municipality IWMP was not accurate. This stems from the premise that there is no systematic waste data capture, data management and reporting of such data for planning purposes. For years, waste data has been estimated, hence scepticism of any data that is presented.

The need to collect waste data, analyse and use it for planning was essential and was seen as one of the priorities of the district.

Stakeholders at the workshop on the Status Quo Analysis Report strongly argued for authentic data, with some local municipalities saying that data presented in IDP and IWMP documents were inaccurate. It is therefore important that waste data is

accurately captured from municipalities, verified and accepted as reflecting the baseline on the ground.

With the advent of the Waste Information System, relevant waste datasets will be collected and reported through the system for planning purposes and also for interventions such as remediation of contaminated sites.

The NEM: Waste Act advocates for the registration of waste generators, transporters and disposers, including licensing of waste handling facilities. This obligation dictates increased data collection and capture for accurate waste management planning and for implementation of IWMP. Issues of non-compliance and enforcement with the new law can be easily identified during annual audits to enable appropriate remedial or punitive actions.

GOAL 2: To collect, collate, verify and report on waste data for planning purposes.

4.4 Facilities for Disposal of Hazardous Waste

Economic development, especially in commercial and industrial sectors, concomitantly increases the number and variety of waste streams generated, including hazardous wastes. Whilst hazardous waste is the competency of the province, some of the hazardous waste, e.g. from households (e.g. fluorescent bulbs), agro-industries (e.g. pesticides), health care facilities, mines, and various industries end at general landfill sites.

There are no authorized facilities for hazardous waste disposal. Therefore, such waste, when generated, is either illegally dumped in general waste disposal facilities or transported to other provinces for treatment and disposal. Therefore the province loses the opportunity to develop the expertise to handle hazardous waste and revenue that may accrue for the management of hazardous waste.

4.5 Education of the Community

The advent of the NEMWA has emphasized waste hierarchy principles as a paradigm shift to current waste management. Communities must be educated on separating the waste at source, identifying the different waste streams and encouraged to minimize waste generation whilst promoting recycling, reuse and recovery of materials wherever possible, and ultimately disposing all materials that can no longer be used.

Awareness-raising and education are an integral part to a successful waste management process. Communication on the implementation of the IWMP and its implication to behavioural change, especially changing behaviour relating to burning and burying of waste as a waste minimization strategy, has to be strengthened. The public should get the opportunity to participate in the planning and their subsequent involvement in the rendering of waste services. The public is further engaged in determining the best options for waste removal, discussions on affordability of waste services and encouraging their willingness to pay for services.

Activities associated with this goal include the following:

- Raising awareness on the waste hierarchy principles and the need to minimize waste;
- Promoting sorting of waste at source for recycling and recovery purposes;
- Highlighting negative impacts associated with backyard pit burning and finding sustainable alternatives to this practice; and
- Encouraging collective responsibility for waste collection and cost recovery.

GOAL 3: To raise awareness and educate communities on the waste hierarchy concepts.

4.6 Occupational Health and Safety Act Considerations

Issues of occupational health and safety were identified for staff handling waste as their core responsibility and also for reclaimers who separate waste streams and are involved in waste recycling initiatives. The use of personal protective clothing and equipment (PPE) and training was essential to protect workers and reduce liability that may arise when workers present with injury or ill health.

Environmental health issues should also be considered for reclaimers, especially when their formalization to cooperatives or other legal entities are completed.

GOAL 4: To give due consideration to occupational and environmental health issues for workers and reclaimers.

4.7 Management of Abattoir Waste

Stakeholders indicated that abattoir waste was not properly handled and disposed. It was also pointed out that certain permits have to be obtained by municipalities to handle and dispose of abattoir waste at general landfill sites due to the inherent threat to contaminate groundwater. Disposal of animal carcasses was also under spotlight in the same way that abattoir waste is currently handled.

GOAL 5: To manage abattoir waste efficiently.

4.8 Monitoring of Landfill Sites

It was recognized that landfill sites are not efficiently and effectively operated, hence the need to put in place monitoring mechanisms where routine audits are done and performance of these sites are assessed. This can only be done for authorized sites that have permit conditions and specific activities to be undertaken and adhered to. Periodical groundwater monitoring is important for assessment of any pollution that may seep from the landfill site.

GOAL 6: To monitor landfill sites in accordance to set standards and permit conditions.

4.9 Compliance and Enforcement (also Training of Officials)

Municipalities within the district have to train their officials on the legal requirements relating to waste management so that they can recognize non-compliance, build their capacity to enforce by-laws and other regulations, record non-compliance incidences and punish offenders. It was therefore recognized that the very by-laws and Waste Act may be source of training material for staff to build the body of knowledge around compliance and enforcement.

GOAL 7: To comply with and enforce by-laws, regulations and other legal prescripts that relate to waste management.

4.10 Finances (Waste Collection Levy Allocation)

Financial resources to operate and sustain an effective and efficient waste collection and disposal services are limited; poor planning leads to funds allocated for waste management shifted to other programmes. It should also be noted that waste management and environmental issues in general are not given priority; therefore there is unrealistically low financial allocation for waste management. Poor revenue collection systems, communities' willingness to pay for services rendered and unemployment exacerbate the problem.

Landfills do not charge for disposal because they don't have weighbridges to measure waste received for disposal. The municipality has to find other revenue streams to sustain escalating waste disposal costs. The waste collection service costs should be recouped from the beneficiaries whilst also considering the necessary exemption of indigents.

Appropriate equipment is required for the overall management of waste including at the transfer station and landfill. The equipment is fairly expensive and the maintenance may just be as well. The efficient management of waste is also important to encourage the community to pay for the services as well as being able to provide the service to commercial and industrial sites which would inevitably have done that on their own. Some of the equipment needed include weighbridges, bulldozers, compacters, radio-activity detectors, communication devices (walkie-talkie) etc.

This capital outlay may require some financing which could be repaid through cost recovery from the community.

GOAL 8: To be financially self-sustained as a municipality in order to manage waste efficiently.

4.11 Incinerate versus Landfill

For most waste streams, disposal at the landfill is the most appropriate and cost-effective method needed to manage certain types of non-reusable, non-recyclable materials, as well as the residues generated by composting and incineration, but other wastes such as health care waste have to be incinerated. Incinerators are necessary for disposing of hazardous waste. The incineration as a treatment process does not, however, generate reusable or recyclable materials which could be resold due to high operation temperatures; however it offers the benefit of reducing hazardous waste volumes and energy recovery.

The management of incinerators is also important and should be assigned to trained officials. Some health care facilities have incinerators which are operated at low temperatures and below set standards. These incinerators if allowed to operate will have to be upgraded; air pollution control systems should be installed in order to meet the air quality standards and reduce emission of toxic chemicals and gases to the atmosphere.

Legal requirements for waste incineration are very stringent; therefore this method, while it is effective, it would be costly to install, for example, air pollution control (APC) systems; therefore the costs would be passed on to waste generators. This may explain why landfills in the Mohokare Local Municipality have incinerators which are not operational. Some municipalities in the country have established ambitious landfill diversion goals, along with financial assistance programs that support alternative management projects.

GOAL 9: To explore other waste treatment and disposal technologies other than landfill, such as incineration.

4.12 Co-operative Governance involving Environmental Monitoring Inspectorate (EMI)

Stakeholders recognized the need to work with other spheres of government to strengthen the municipal enforcement capacity and improve compliance. Incidences of gross violation of legal requirement, for example, illegal dumping and burial of hazardous waste could be jointly handled with the national enforcement unit, the 'Green Scorpions' and provincial enforcement departments.

GOAL 10: To strengthen relations and cooperation with the Green Scorpions in order to improve enforcement of by-laws and other legal requirements.

4.13 Intergovernmental Relations (IGR)

The municipality recognizes the need to forge stronger relations with sector departments and other spheres of government to improve waste management. Improved relations with departments such as Health, Agriculture, Environment, Housing, Water Affairs and others was cited as an important element to assist municipalities to perform effectively and in a coordinated manner.

GOAL 11: To forge stronger working relations with sector departments and other spheres of government to improve waste management in the municipality.

4.14 Proper Communication between Sector Departments

Sector departments involved in any aspect of waste management have to be involved with municipalities in developing effective waste management programmes since some of them generate waste that has to be handled and managed by municipalities. Communication was seen as an essential tool to reach consensus on most issues of common interest. By identifying roles and responsibilities of each sector department will ensure that there are no overlaps and that nothing falls within the cracks.

GOAL 12: To foster proper communication between sector departments with clear description of roles and responsibilities of all parties involved.

4.15 OTHER GOALS NOT LISTED IN THE WORKSHOP BUT IMPLIED THROUGH DISCUSSIONS

Although the following goals were not mentioned as priority goals, they should be included in the final IWMP because of their importance:

4.15.1 Expansion of Waste Collection Services

The Mohokare Local Municipality asserts that waste collection services are provided for communities. Further deliberations with the officials revealed that clearing of waste wherever it may be found, is considered as provision of services. Evidently not all communities are provided with the minimum acceptable service level such as weekly door-to-door collections hence the tendency to dump.

Activities associated with this goal include the following:

- Establishment of collection routes and collection networks;
- Investment in waste collection equipment and/or outsourcing options;
- Formulation of tariff structure and cost recovery strategies;
- Public participation to encourage willingness to pay for services; and
- Encourage waste minimization initiatives.

The Mohokare Local Municipality recognizes the need to expand waste collection services as a matter of priority as formal, informal and illegal settlements increase exponentially. This comes with the need to increase collection route networks and improve roads infrastructure to support this expansion. The municipality accepts this as a priority hence the IWMP will therefore include the establishment of efficient collection networks and road infrastructure in consultation with other sector departments, such as the Department of Transport and the Department of Public Works as part of the planning.

The most efficient waste collection vehicles are compactors and are very expensive. Due to the high cost of waste collection vehicles it is important to optimise the system and strive for maximum capacity loads when round collections are completed.

The following elements should be considered:

- Waste composition, volumes and specific requirements for collection of waste;
- Waste collection plan that includes areas to be serviced, frequency of service and collection points to be covered, street cleansing and kerb collection;
- Collection at high density areas which have more waste quantities to be disposed;
- Distances to the nearest transfer stations or landfill sites, including the carrying capacity of these facilities; and
- Road infrastructure and type of vehicle to be used.

Where collection services are provided, data on collection frequencies for different waste streams and the places where the waste is collected must be captured as per guidelines cited in The National Standard for the Collection of General Waste by DEA as a guideline.

4.15.2 Promoting Recycling Initiatives (Management of Landfill Harvesters)

Recycling activities include collection of data on types of waste streams recycled, amounts of waste recycled as percentage of total waste generated, pre-treatment, storage and sale of recyclables. Issues relating to incentives and markets for recyclables are key drivers to encourage more recycling at local level.

Access to the landfill should be restricted to officials and people who are delivering waste to the site. Harvesters should not be allowed on the site, hence all sorting of waste should be done at a transfer station.

However, if harvesters are already on site strategies for ultimately having them off site should be carefully managed in the light of the income generated from material recovered from the landfill.

4.15.3 Strengthening Institutional and Organizational Capacity

Human resources are the backbone of service delivery. Without adequate and appropriately trained human resources the service may not meet the stringent standards and requirements set nationally and provincially. A basic requirement is the appointment of a Waste Officer who is solely responsible for all waste related issues. Skilled people are required for support and overall management of the service delivery.

As one of the goals identified, departments that deal with waste management within the local and district municipalities should be adequately staffed with skilled personnel in order to deliver an efficient waste management service.

4.15.4 By-law Development and Enforcement Capacity

Every municipality should enforce the Waste Act and any other environmental by-laws. The municipality should develop appropriate waste management policies, regulations and by-laws that support environmentally sound waste management principles. For example, municipalities should put in place by-laws on waste collection that takes into consideration minimum standards for waste collection. This will assist in performance assessment of waste collection services and also in enforcement of standards for service delivery.

Of equal importance are by-laws that give support the Waste Management Bill and the implementation of the IWMP. Standards for operating transfer stations, recycling facilities and buy back centres should be established in line with sound environmental management principles.

4.15.5 Regionalization of Disposal Facilities

In the midst of scarce financial resources the services can be improved by co-operative working amongst the municipalities. This strategy could include regionalization of waste management, e.g. a common landfill based on feasibility and logistics such as access and proximity.

Factors that support the establishment of a regional facility include the following:

- The shortest distance from the targeted collection points and the regional facility.
- Cooperation between the municipalities and their willingness to financially sustain the facility.
- Technical feasibility, least environmental and social impacts.

Regionalization of landfill sites was not feasible for Letsemeng, Mohokare, and Kopanong local municipalities due to large distances that could be travelled. However, for the Naledi Local Municipality, the only landfill that could remain open was the Wepener landfill. Van Stadensrus and Dewetsdorp landfills should be closed and transfer stations erected at those locations respectively. Waste should be transported to the Wepener landfill site, a maximum of 39 kilometres away which was within accepted level. Resources (human, financial and technical) can be maximised to attain efficiency of performance.

4.15.6 Establishment of a Composting Facility

The public is encouraged to sort waste at source, separating organic waste for composting, removing recyclable waste for reuse and recycling, and waste that is destined for disposal at landfill site.

A composting program should be part of a community's comprehensive approach to solid waste management. As decision makers evaluate their options for managing solid waste, many will look to composting as an attractive and viable option for handling a portion of organic waste stream.

Composting programs can be designed to handle gardening waste (for example, leaves, grass clippings, brush, and tree cuttings) or organic waste and the compostable portion of a mixed solid waste stream (for example, food scraps, scrap paper products, and other decomposable organics). These materials are the feedstock for the composting process. Composting programs also have been designed for sewage biosolids, agricultural residues and livestock manures, food processing by-products, and forest industry by-products.

Some facilities compost general waste with sewage biosolids, which is a form of co-composting. Co-composting will also assist in managing the sludge from the sewerage. Considering the feasibility of the composting facility, an industry could be established from this waste. The amounts of waste generated, the potential compost to be produced, the quality of the final product and its fit for use have to be considered.

Marketing plays a critical role in any composting operation. It is important to identify end users for the compost product early in the planning stages of a compost facility. Consistent and predictable product quality is a key factor affecting the marketability of compost.

CHAPTER 5: SCENARIOS AND ALTERNATIVES TO CURRENT WASTE MANAGEMENT PRACTICES

5.1 OBJECTIVES OF THIS PHASE

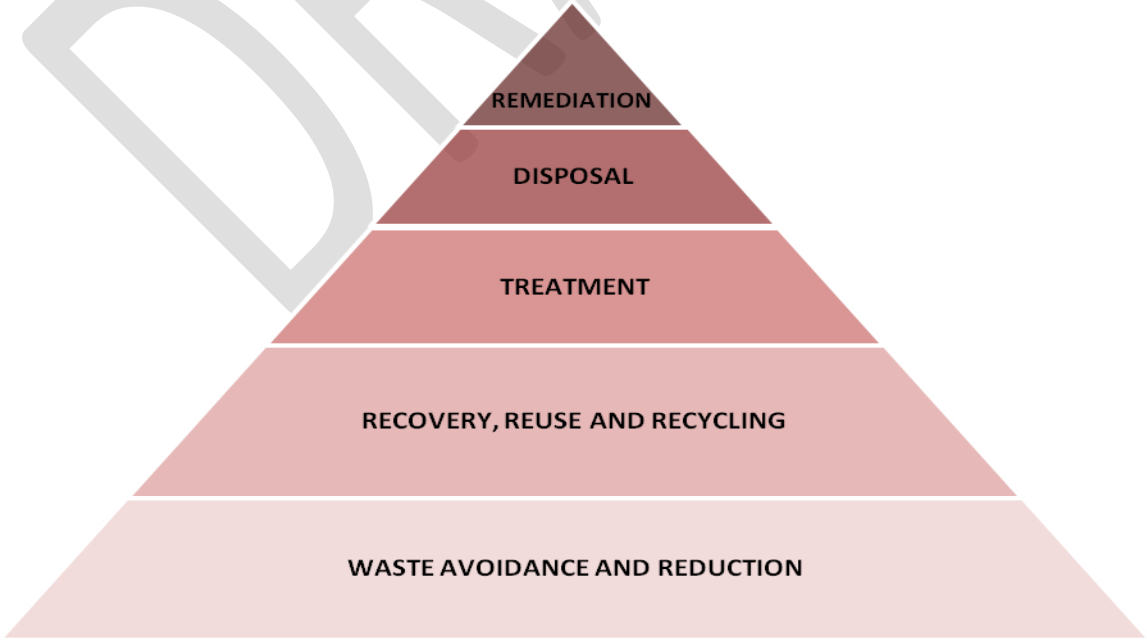
Following the identification of gaps and their analyses, strategic goals were formulated to close the gaps and fill the needs assessed. With each goal, a cost-benefit analysis and the economic feasibility of implementing each goal was determined.

Various plans that were proposed as solutions to implement the goals were evaluated accordingly for appropriate decision-making when found to be feasible and making a good business case for implementation in the short-, medium- and long-term.

Alternative scenarios to the current waste management practices in Mohokare Local Municipality were described, analysed and evaluated with respect to the following:

- Technical feasibility;
- Socio-economical implications;
- Environmental implications; and
- Financial implications and viability.

The prioritization process provides the basis for determining the plans and options for action in the final IWMP. Furthermore, the ability of the district to implement the recommended strategy, i.e. Waste Hierarchy (see below), is being assessed.



(Source: DEA, 2010)

Figure 5: ***Steps in Waste Hierarchy***

The baseline scenario and alternative scenario are elaborated hereunder.

Baseline Scenario: The status quo, referred herein as Baseline Scenario, reflects the current quality of waste management service. This is the reference point to identify what, if necessary, needs to be done in order that the service provided is in line with the constitution as well as the legislated requirements for service provision and protection of the environment.

Alternative Scenario: This scenario is conceptualised with reference to the baseline scenario. It ensures adaptation to legislative requirements as well as improving service delivery to the communities.

5.2 The Baseline Scenario

The Baseline Scenario is the prevailing waste management scenario in the Mohokare Local Municipality, and this scenario is the reference point for the actions to be implemented for compliance with integrated waste management principles and the waste hierarchy concept. This scenario was juxtaposed with the alternative scenario to identify gaps, and feasibility of adapting towards requirements of an IWMP. This scenario is characterised as follows:

5.2.1 Technical Feasibility

a. Equipment

Available waste collection equipment includes tractors, trailers and compactors and compactor trucks. Letsemeng Local Municipality has 2 compactor trucks and Mohokare Local Municipality has one for collection of waste. An official from Letsemeng Local Municipality reported that they have 4 compactor trucks, and 2 compactors have not been allocated a landfill site yet. Naledi municipality had five tractor and trailer. Of all municipalities in the district, Dewetsdorp was the only one that had access to one hydraulic lift trailer for waste disposal. All other trailers are open sided with a capacity of 4 – 6 tons. It also had a rudimentary incinerator that was not functional.

Summary:

- At least a tractor and trailer is allocated for every landfill site.
- Only the landfill sites in Rouxville and Zastron have access to a bulldozer for burial of waste.
- None of the landfill sites has weigh bridges.

b. Waste Management

- On average, 19.9% of the population of Mohokare Local Municipality are either under-serviced or not receiving waste management services at all.
- The legal framework, e.g. by-laws, for enforcing co-operation from the community is not in place.
- Minimum collection of recyclables is widespread. The opportunity for job creation in this sector has been identified

- Data capturing is not put into practice at any of the landfills throughout the district.
- Waste generated is neither characterised nor differentiated.
- Medical waste was transported by Compass waste Services to Bloemfontein where it would be incinerated at their facility.

5.2.2 Socio-economic Status

a. Infrastructure

- The landfill sites are either partially fenced or not fenced at all. There are no gates at landfills and all do not have weigh bridges.
- The roads are generally usable though problems ensue during rainy days.

b. Community Participation

- In Smithfield, Rouxville and Zastron some community members are involved in small scale recycling.
- Community is not paying for the waste collection services.
- The majority of the population are on the lower end of the Living Standard Measure (LSM).

5.2.3 Environmental Status

- Landfill sites are left open with no burying of waste.
- Occasional waste burning occurs as a waste management option.
- Waste is blown back into community.
- There is no information regarding the Environmental Impact Assessments.

5.2.4 The Waste Hierarchy

Most of the recommended steps in the waste hierarchy are not put into practice.

- The waste generated is characterised by various waste streams, including recyclables, organic and inorganic material. This resulting in large volumes of material being transported to landfills. The district and local municipalities have no programmes of educating the communities on their roles in the overall management of waste.

- The amount of waste generated or taken to the landfill is not known. This situation presents challenges in establishing a baseline for evaluating the impact of any efforts directed at implementing the waste reduction goals.

- The collection of waste is erratic resulting in other waste generators resorting to burning or burial of waste at their places of residence or work.

- The transportation of waste is also hampered by poor road conditions especially after rainy days. Other than in Letsemeng Local Municipality, most areas rely on open trailers pulled by tractors for collection.

- Authorised landfills are not adhering to their permit conditions. There are no weigh bridges, and all waste types including health care waste reaches the site. Waste harvesters are operational at most landfills, and burning of waste happens frequently.

- Contrary to permit conditions of landfills, retrieval of recyclables is done at landfill sites. The district has no formal recycling facilities hence recycling activity is scanty and erratic. The community still mix waste and all waste reaches the landfill.

This is very much end-of-pipe solution which is neither efficient nor encouraged by the new strategies and legislation on waste management.

5.3 Alternative Scenario

This scenario introduces the life cycle approach to waste management. It is guided by National Waste Management Strategy as well as the Waste Hierarchy concept. This scenario intends to establish waste minimisation and sorting programmes to reduce waste that ultimately reaches an authorised landfill. This scenario is characterised as follows:

5.3.1 Waste Avoidance and Reduction

Waste generated should be sorted at point of generation. An effort should be made to effect paradigm shift within the communities. Waste generators should be duly informed of the strategies and by-laws governing waste management. This step should be supported with provision of waste receptacles such as bins, plastic bags and skips as determined by the needs of each waste generator. By-laws should also be implemented to penalise those who detract from newly established norms. A tariff structure should be developed for all services rendered along the value chain to ensure that the strategies are financially sustainable.

The district should develop a Waste Collection Plan in line with set National Domestic Waste Collection Standards (2011). This step will ensure that the district is able to provide set standards of service to the communities. Evidently, financial resources are required as the plan dictates additional human and technical resources. Accurate data on types and amounts of waste collected should be reported to the Waste Information System. This data is critical for planning and allocation of resources to ensure sustainable waste collection services.

5.3.2 Recovery, Reuse and Recycling

Recyclable materials should be handled at dedicated sites, such as buy back centres or Material Recovery Facilities (MRF), where they are processed according to prescribed protocols set by markets, baled and stored temporarily before transportation to markets. This step will discourage waste harvesters from going to landfills as almost nothing of value to them will enter the landfill. This will make the restriction of entry to the landfill easy to implement.

5.3.3 Treatment

Organic waste, e.g. trees, vegetables, fruits, peels, etc. should be channelled towards composting facilities. Communities may also be trained to retain organic material and produce compost for their gardens. The recyclables and reusables should be separated from the waste that is to be sent to the landfill. The landfill site should clearly indicate what type of waste is permitted on the site, and personnel on site should monitor adherence to restrictions.

5.3.4 Organizational and Institutional Issues

The Mohokare Local Municipality is evidently under staffed. The officials cited this weakness as a barrier to efficient administration of waste services. Human resources are the backbone of service delivery. Without adequate and appropriately trained human resources the service does not meet the stringent standards and requirements set nationally and provincially. Within the framework of existing skills development legislation every municipality should have a skills development plan. To ensure the completeness of the IWMP, a skills development plan of the district and local municipalities should include the training and development of all employees in the waste services.

The plan must indicate the type of training planned, when the training would take place, and who would be trained through the Workplace Skills Plan (WSP). Provision should also be made for training officials for the implementation of the IWMP at district and municipality levels. While each municipality has its own unique IWMP, the district office should drive the process in order to have a coordinated and integrated process that feeds to the district plan.

The implementation of an IWMP requires proper institutional arrangements with trained knowledgeable personnel. The waste management section will have its own team for waste management to effectively executive implementation of the IWMP.

5.3.5 Financial Issues

The annual budget of the municipality will allocate funds for waste management and other environmental issues. The inherent benefits of efficient waste management, namely, prevention of air, land and water pollution, potential improvement of tourism due to the increased aesthetic value, etc., including the legislative requirements, requires that the waste management should be amongst the priorities in budget allocation.

The implementation of the IWMP is inherently resourceful in terms of finance. The establishment of a landfill site requires enormous capitalisation and maintenance costs. However, with systems such as weigh bridges in place, by-laws implemented, and the 'pay as you throw' concept and polluter pays principles would be easy to implement. In addition, funds for developing infrastructure to support implementation of waste

management goals would be sourced from the Municipal Infrastructure Grant, (MIG), and the Development Bank of South Africa (DBSA), and the Treasury.

The identification, rating, categorisation and analysis of the strategic goals and objectives are primarily informed by the following legal framework:

1. The legislated requirement to adhere to the waste management hierarchy
2. The National Environmental Management: Waste Act (2008)
3. The district IWMP should be implemented in 2015
4. The Constitution of South Africa

Rating of issues pertinent to the management of waste was done as per the following categorisation.

KEY TO THE TABLE 5.1

Level of Priority

Very High [VH], High [H], Medium [M], Low [L] or Very low [VL]

Feasibility

Considering the available resources and local priorities can this need be addressed

Very High [VH], High [H], Medium [M], Low [L] or Very low [VL]

Implementation Period Target **– How soon can the Need be implemented**

Short-Term : Within the next 2 years [S]

Medium-Term : Within 3 to 6 years [M]

Long-Term : After 6 years [L]

Comments

What are the thoughts of officials about this Need?

What hurdles, minimum requirements, protocols, etc. should be managed to ensure implementation of the Need, e.g. finance, budget, IDP, etc.

What needs to be done to enable the implementation of the required action.

Table 5.1: Rating of Issues Pertinent to Waste Management

GOAL	CRITICAL	Level of Priority	Implementation [Target Period]	FEASIBILITY	COMMENTS
1.Authentic Data	Y	L	M	M	Disagreement with published statistics.
2.Facilities for disposal of hazardous waste	Y	M	L	L	Provincial Competency - Could Delay
3.Education of the community	Y	H	S	Immediate	Very critical to ensure compliance and cooperation for levy collection
4. Occupation and Health Safety Act.	Na	VH	S	S	Breach of Compliance due to delays in provision of safety gear. Some safety gear not appropriate
5.Management of abattoir waste	Na	H	M	S	The abattoir owner should be made to account for his waste. Inspections and information regarding this waste need better management
6.Monitoring of Landfill sites	Y	VH	S	M	Additional funds should be availed to ensure landfills are efficiently equipped and skilled personnel deployed
7.Compliance and enforcement (also Training of officials)	Y	M	S	S	By-laws should be finalised and the community be educated
8.Finances	Y	VH	S	S	The current sources of finances are not enough for required improvements of the waste management system.
9.Co-operative governance	N	L	M	S	More interaction is needed with other stakeholders with

GOAL	CRITICAL	Level of Priority	Implementation [Target Period]	FEASIBILITY	COMMENTS
involving EMI					complementary skills and resources.
10.Incinerate vs. landfill	N	L	M	M	Efficient disposal or elimination of waste is critical, also taking into consideration the intention to have zero waste to landfills by 2020.
11.Intergovernmental relations (IGR)	Y	VH	S	S	Co-ordination of strategies and resources is critical for avoiding waste and duplication.
12.Expansion of waste services and cost recovery	Y	VH	S	S	The community should be engaged in the process of improving the waste management service to ensure understanding of the rationale for decisions such as the Levy charged.
13.Landfill licensing and compliance	Y	VH	S	S	The landfill sites with licenses should be revamped in line with requirements. Those not authorised should be considered for closure
14.Promoting recycling initiatives	N	M	M	S	The waste generated should be analysed to assess the potential for various recycling industries, and private companies should be encouraged to facilitate development of these industries.
15.Hazardous waste management	Na	H	M	M	The Provincial government should be alerted to challenges relating to this type of waste.
16.Strengthening organizational capacity	Y	VH	S	M	There is need for capacity building. The government has established schemes such as MIG to assist in funding activities that will contribute towards improvement of service delivery.
17.Risk assessment, monitoring and	N	M	S	S	Skill and technical expertise should be identified to assist with

GOAL	CRITICAL	Level of Priority	Implementation [Target Period]	FEASIBILITY	COMMENTS
remediation					this process. This evidently requires additional funding.
18.Waste harvesters	N	L	L	S	Formalisation and assistance for waste harvesters should be instituted as a component of the strategy to reduce waste destined for the landfill.
19.Transfer Stations	N	VL	M	M	Establishment of transfer stations should be considered as a process for reducing waste to landfill sites.
20.Funding and Equipment Acquisition	N	L	M	M	Resources should be dedicated to accessing funds availed through various schemes.
21.Composting site	N	VL	L	M	The amount of organic waste should be assessed for possible establishment of a composting site.

Table 5.2: Recommendations

IDENTIFIED GOAL	SUGGESTED ACTION
1.Authentic Data	The statistical data used for planning should be standardised through use of the same source by all managers and implementers.
2.Facilities for disposal of hazardous waste	The province should be approached regarding the disposal of hazardous waste in the district since this is the competency of the province. Better coordinating strategies with local and district municipalities is required.
3.Education of the community	The community should be made aware of all the changes to be implemented regarding the overall management of waste in their areas. The need for change in behaviour as well as the decision to implement all applicable by-laws.
4. Occupation and Health Safety Act.	Everybody dealing with waste should be made aware of all the regulations regarding health and safety. The information should also emphasise the need to supply and use safety ware at all times.
5.Management of abattoir waste	The abattoir waste should not be allowed on the landfill site. An alternative should be sought with the abattoir owners in considering the appropriate alternative mechanisms. Inspections should yield data on offenders and also form a basis for improved management systems.
6.Monitoring of Landfill sites	A management team should be stationed at the landfill site to ensure that only waste destined for the site is allowed, and all appropriate data is captured, e.g. weight.

IDENTIFIED GOAL	SUGGESTED ACTION
7.Compliance and enforcement (also Training of officials)	All stakeholders must be engaged in the new mindset of waste management, and all regulations, NEM: Waste Act 2008, by-laws, should be enforced.
8.Finances	The strategies implemented for waste management should be cost-effective and sustainable. Funding institutions, e.g. DBSA should be approached
9.Co-operative governance involving EMI	EMI should be involved in monitoring and surveillance compliance with the law is upheld.
10.Incinerate vs. landfill	The feasibility of incinerators on landfill sites should be done. Alternatives such as autoclaving should be considered; principles of using the best available technology (BAT) and best environmental practices (BEP) including sustainable development principles should be considered.
11. Intergovernmental Relations(IGR)	All stakeholders, particularly government departments, should understand and synergise their efforts in the management of waste to ensure optimum results are obtained with the resources available.
12.Expansion of waste services and cost recovery	A levy should be charged for waste management services whilst making provision for indigents and the unemployed.
13.Landfill licensing and compliance	Landfills should be licensed. This action will assist in ensuring that appropriate sites are used for landfills. Some of the landfill sites should be assessed for possible closure.

IDENTIFIED GOAL	SUGGESTED ACTION
14.Promoting recycling initiatives	Communities should be trained on the processes and benefits of recycling. It is noted that the community of Trompsburg has shown interest in this industry, and private companies may be approached to determine the feasibility of industries for recyclables.
15.Hazardous waste management	The provincial government should be alerted of the need to avail this facility.
16.Strengthening organizational capacity	Additional personnel are required to implement the strategies and activities required for improving the management of waste in the district. This action will require training of personnel, as well as additional funding.
17.Risk assessment, monitoring and remediation	Continuous monitoring of all processes implemented in improving the management of waste in the district should be effected. This is critical in the light of efforts to improve the economy of the district as more waste, especially industrial, would be generated.
18.Waste harvesters	With recycling opportunities eminent, the increase in waste harvesters is expected, and efforts should be made to ensure the landfills are not invaded by encouraging sorting waste at source and diverting waste to transfer stations for further sorting.
19.Transfer Stations	Transfer stations should be established to ensure that only waste that can no longer be reused or recycled can be taken to the landfill site for disposal.
20.Funding and Equipment Acquisition	Additional appropriate equipment is required for the overall management of waste.

IDENTIFIED GOAL	SUGGESTED ACTION
21.Composting site	From the transfer station organic material for composting could be separated and channelled to a place where composting is initiated. The compost could be commercialised, or availed to the local municipalities for their recreational parks.

Table 5.3: Comparison of Baseline Scenario with Recommended Scenario

CORE ELEMENTS OF WASTE MANAGEMENT SYSTEM				IWM STRATEGY ELEMENTS	
	Collection	**Transport**	**Disposal**	**Recycling**	**Treatment**
Baseline Scenario	Inadequate and erratic coverage of services to households; Number of households serviced unknown; Few collection points; Waste generation data not collected	Collection by trucks, trailers, REL compactor truck (in some municipalities) in formal settlements, donkey carts in rural areas; Poor road infrastructure; Amount of waste transported unknown	Illegal dumping; Burning of waste in backyard pits Few permitted landfill sites; Permitted sites not properly managed, No hazardous waste disposal site; Amount of waste disposed at landfill unknown	No sorting of waste at source; Few and unsustainable recycling initiatives; Recycling at landfill sites; No markets for recyclables; Amount of waste recycled unknown	No composting of organic wastes Ineffective health care waste incineration; Operating placenta pits; Waste data not collected
Alternative Scenario	Waste collection plan developed and implemented Expanded services provided to each household; Increased number of collection points; Waste data collected Efficient and financially sustained waste collection service; Periodic collection of household hazardous waste; WIS is operational	Collection by trucks, trailers, REL compaction vehicles in formal settlements, donkey carts and hand-pulled carts in rural areas; Waste data collected Efficient collection by trucks and compactors, long-haul vehicles; donkey carts and hand-pulled carts for rural areas; WIS is operational	Some illegal dumpsites closed and rehabilitated; More transfer stations and landfills established; Increased number of permitted landfill sites; Composting sites established; Waste data collected Less waste disposed; Permitted transfer stations and landfills; Regional sites Hazardous waste site established; WIS is operational	Sorting recyclables at source; More recycling initiatives supported; Waste exchange programs initiated; Increased markets for recyclables ; Waste data collected More material recovery and increased incentives; Waste exchange system operational; More recycling initiatives supported. WIS is operational	Increased composting of organic wastes; Efficient health care waste management systems established; Waste data collected Composting, and biological treatment; Efficient incinerator operations; Hazardous waste treatment initiated; WIS is operational

5.4 Comparison of Scenarios

The implementation of IWMP demands high investments particularly in Landfill construction and maintenance, access roads construction and maintenance, as well as transportation. Notwithstanding, many government institutions and programmes are available to facilitate financing, and implementation of this plan can be done over a period of 3-5years.

5.5 Benefits of the Alternative Scenario

Primarily, the rationale for the Waste Act 2008 supersedes all issues related to waste management. It is important to realise this is an ACT of parliament and it is criminal to breach. Also, it should be realised that South Africa participates in the global efforts to minimise waste and environmental pollutions, hence treaties and agreements reached at International level will impact on the overall management of waste in the district and country as a whole.

5.5.1 Socio-economic benefits

- Waste collection services are the constitutional rights of the communities; hence it is important for Mohokare Local Municipality to ensure that these services are availed to the communities. The lack of the service risks dumping in the open areas, including along the water streams, creating hazard for the eco-system. The landfill sites should be on appropriate sites, properly structured and managed to facilitate proper burying. This will also assist in ensuring the landfill life span is maximised, and pollution is avoided.
- It is imperative that economic activity increase for improvement of the lives of the communities in Mohokare Local Municipality. Concomitant with improvement in economic activity is the increase in generation of various types of waste which may require various forms of disposal mechanisms. It is thus crucial to establish appropriate systems to manage waste to ensure that waste generated by the various forms of economic activity would be efficiently managed.
- The waste management strategy as articulated in the Waste Hierarchy provides a range of opportunities for creation of employment or simply generation of income. Activities such as sorting of waste, composting and recycling are immediate benefits which the district can benefit from.

5.5.2 Capital injection

The upgrading of the waste management service in Mohokare Local Municipality requires acquisition of equipment, e.g. compactors, scales, etc., as well as improvement of roads and landfill sites. On a short and medium term, these activities will create a number of job opportunities for both skilled and unskilled people. This achievement will create opportunities for accessing finance from government incentive schemes.

5.5.3 Sources of Finance

Financial resources for implementing the alternative scenario can be sourced from the following:

5.5.3.1 Municipal Budgeting System

Annual budget planning processes at municipality allocates funds for waste collection and other environmental health issues. In the past, the provision of waste services was not a priority; however, in recent times it is recognized that improved waste management prevents air, land and water pollution, reduces the risk of exposure to pollution, improves the health status of communities and increases the aesthetic value of towns making them attractive as business and holiday destinations.

5.5.3.2 Cost Recovery from Collection of Rates

As more households are provided with waste collection services, municipalities can recoup costs by charging tariffs for these services. The challenge is the willingness of communities to pay for the services, high unemployment rate which renders some households indigent and thus not worth considering for charging levy. Municipalities have limited resources for implementing even basic services leading to under-servicing and abandonment of activities and projects if they are not supplemented.

5.5.3.3 Municipal Infrastructure Grant (MIG)

Funds for developing infrastructure to support implementation of waste management goals can be sourced from the Municipal Infrastructure Grant. A waste collection plan should identify collection routes and road networks necessary for efficient and cost-effective waste collection services, and apply for funding through the MIG. Where nearest access roads are not navigable, alternatives have to be sought and new road infrastructure may be required and funded.

5.5.3.4 Disposal Site Management and "Pay as You Throw"

Landfill design and construction requires huge capital investments and annual maintenance fees. However, the landfills operated currently do not have the capacity to charge disposal fees and recoup development costs. Lack of the necessary infrastructure such as weighbridges makes it impossible to estimate waste received by landfills, hence the application of "pay as you throw' concept and polluter pays principle is not feasible. Higher disposal fees may be charged for hazardous wastes. Municipalities must therefore ensure that newly established facilities have all the necessary infrastructure, equipment and skilled personnel to manage and operate landfill sites.

5.5.3.5 Intergovernmental Cooperation and Support

Judging from the status quo report and the current report, it is very clear that municipalities need to cooperate with other spheres of government to meet integrated waste management goals. Through the facilitation of the provincial department (DETEA) and municipal clusters, hazardous waste such as health care waste, mining waste, agricultural and veterinary waste, can be managed in a sustainable manner, with all sector departments focusing on the solutions to pollution posed by these various waste.

5.5.3.6 Bilateral Agreements

Bilateral agreements between South Africa and developed countries like Denmark (through DANIDA), United States of America (through USAID), European Commission and others, have funding for building capacity for specific environmental management projects. Municipalities and the province may source funding directly or through DEAT, Department of Foreign Affairs or other relevant sector departments. Other bilateral agreements are signed directly with provinces or individual municipalities and should be leveraged.

5.5.3.7 Development Bank of South Africa

The Development Bank of South Africa (DBSA) has funds dedicated to address the developmental affairs of each province. Provincial departments are assisted on a needs basis, based on the type of project and whether it meets the requirement of their funding criteria. Funding of municipality projects from the DBSA is sometimes direct funding.

5.5.3.8 Buyisa e-Bag for Recycling Projects

This organization was established in support of the plastic bag regulation as a section 21 company. Its purpose is to fund plastic recycling projects. Pilot projects at municipal and provincial level may be funded based on the project proposal if it meets the requirements of the funders.

5.5.3.9 Alternative Technologies

Composting is seen as a labour-intensive process that has huge land requirements. However, composting of waste organic products, garden cuttings produces a saleable product which can be used by city parks, golf courses and organic farmers. Therefore a refuse transfer station is recommended and can be self-sustaining.

5.5.3.10 Clean Development Mechanism

Also, landfills release methane (landfill gas) which can be tapped and electricity can be generated and sold to the national grid at Eskom or used to run municipal facilities. This can be linked to the Clean Development Mechanism (CDM) and carbon credits, which are projects facilitated by the department of Energy.

Through Climate Change Mitigation Strategies, municipalities should develop landfill infrastructure to enable harvesting of landfill gas (methane), a potent greenhouse gas which can be used as direct fuel, converted to electricity to run landfill facility, or to flare and earn carbon credits (revenue) under CDM.

CHAPTER 6: FRAMEWORK FOR IWMP IMPLEMENTATION

6.1 INTRODUCTION

Critical to the accomplishment of IWMP is the partnership between government, the various industries and the community. Therefore, all these stakeholders should be informed of the process to be implemented as well as what their roles would be.

The following framework is informed by the goals developed to address the gaps and needs identified in the earlier phases. The framework therefore lists actions and strategies suggested for the Mohokare Local Municipality in adapting its waste management operations in line with the IWMP as articulated within the South African context.

It is noted that the facilities for disposal of waste, e.g. landfill sites, are the competency of the local municipalities. The role of the district could be the overseeing and facilitation of appropriate and recommended strategies for the district IWMP.

6.2 Goal A: Expanding Waste Service Delivery and Cost Recovery

Action: Waste collection services should be provided to all communities.

a. The district must establish a database of generators of waste, as well as developing the intelligence of waste generated. This database will assist in developing ideas about routes, equipment and frequency of collection.
b. The affordability profiles of the community should be assessed to assist in determining cost recovery strategies. Whilst indigents may not be charged any levies, it is still necessary to educate about the need to pay for the services. Considering the type of waste from indigents is mainly organic, the encouragement for composting will reduce amount of waste to be collected from their areas.
c. Development of roads would be necessary to reach most of the un-serviced areas especially within the informal settlements. To expedite servicing of most of the communities, transfer stations should be established nearby roads or routes that are easily navigable.
d. The industries should be assisted with collection, or allowed to deliver to selected sites, e.g. transfer stations, whereby levies could be charged in relation to the overall cost of the disposal. Considering that the industries in Mohokare Local Municipality are in the main agriculture and mining, it is prudent to allow own deliveries.
e. The Department of Transport and the Department of Public Works must be engaged to assist with the construction of roads, with priority given to strategic routes as identified for the improvement of waste collection.

6.3 Goal B: Licensing of Landfills

Action: All sites to be used as landfills should comply with all legislative requirements whilst also were incorporating provisions of the NEMWA as regards measures for reducing waste going to landfills, therefore assisting all role players to meet national targets of zero waste to landfill by 2020.

a. The officials within the Mohokare Local Municipality assert that landfills are not licensed. Presently, the district has more landfills than is necessary, hence some have to be closed. An Environmental Impact Assessment should be instituted for all sites currently used as landfills in order to establish which sites would be allowed as landfills.
b. The necessary infrastructure for a legally permissible landfill, e.g. weigh bridges, gates, and fencing, should be budgeted for whilst investigating which sites would be used as landfills in the future. Amongst those sites found legally appropriate for licensing, assessment and identification of strategically efficient sites would be done.
c. Personnel should be trained for management of landfill sites.

6.4 Goal C: Promotion of Recycling

Action: Feasibility of establishing recycling industries is critical in determining whether recycling is an option for the district.

a. Presently, on a very small scale, some entrepreneurs collect recyclables for delivery to neighbouring districts. It is possible for recycling companies to establish collection points or plants in the vicinity of waste collection sites. The district must actively pursue these companies with the view to encourage them to do feasibility studies for such industries.
b. Communities should be encouraged to separate waste at generation points. The individuals collecting waste should actually refuse to collect waste that is not appropriately separated. Incentives should be considered for co-operating communities.

6.5 Goal D: Facilities for Hazardous Waste Disposal

Action: The provincial government should be lobbied to establish disposal sites for hazardous waste because the disposal of hazardous waste is the competency of the province.

a. A database of hazardous waste produced within the district should be created. This database should specify the generators, the type and rates. This information should then be used to lobby the province to take action in terms of establishing the facility for disposal of the hazardous waste.
b. The current practices of disposal should be recorded to keep track of practices within the district. This will assist in protecting the ecosystem through prohibition of methods which threaten the ecosystem.
c. The local development initiatives should be assessed to understand the potential waste streams and practices in the future.

6.6 Goal E: Organisational Capacity Building

Action: The improvement of service for the community will necessitate acquisition of appropriate skills as well as additional manpower to ensure adherence to standards recommended by both national and provincial departments. The recommendations below assume an individual employee equivalent to 8 man hours per day.

a. *Administration*: 1 Manager based at the district office, and 3 Health Care Officers for each local municipality. The Health Care Officers should visit sites and stakeholders regularly to ensure that all legislative requirements are adhered to.
b. *Landfill* : Each site should have at least 3 people
   - Data Capturer: to capture data on weight, type, etc.
   - An individual for supervision of points of dropping waste
   - The operator of the burying equipment, etc.
c. *Collection*: The individuals responsible should be well informed in terms of the overall strategy, and should understand how to handle different types of waste.

6.7 Goal F: Development and Enforcement of By-Laws

Action: NEM: Waste Act, 2008 (Act 59 of 2008) is an act of parliament and all sectors of government should abide by it. To ensure that this act is complied with, the Mohokare Local Municipality should

a. Develop Waste Management By-Laws in line with the NEM: Waste Act, 2008 (Act 59 of 2008);
b. Implement waste management strategies at district level in line with the National Waste Management Strategy (NWMS);
c. Implement Intergovernmental Relations to improve relations and co-operation between governments in the implementation of the IWMP.
d. Develop a Waste Management Disaster Management Plan and supportive contingencies; and
e. Strengthen cooperation with enforcement agencies such as the South African Police Service (SAPS) and Environmental Management Inspectorate (EMI or Green Scorpions), Environmental Health Inspectors etc.

6.8 Goal G: Education and Awareness

Action: The new requirements for IWMP demands a paradigm shift amongst all stakeholders. The government officials and the community of waste generators should understand the new national and global requirements, and also understand the responsibility each stakeholder has. The following activities should be implemented.

a. Raising awareness on the waste hierarchy principles and the need to minimize waste.
b. Promoting sorting of waste at source for recycling and recovery purposes.
c. Highlighting negative impacts associated with backyard pit burning and finding sustainable alternatives to this practice.
d. Encouraging collective responsibility for waste collection and cost recovery.
e. Make stakeholders aware of the laws governing the management of waste as well as penalties to be imposed.

6.9 Goal H: Regionalization and Optimization of Waste Management

Action: Establish common goals and objectives amongst all the local municipalities with the view to leverage the available resources.

a. Letsemeng Local Municipality has 4 compactor trucks. Each compactor truck must work 1 day a week per associated town within the district. This allocation would be feasible with the establishment of cooperation amongst the local municipalities.
b. Based on the Environmental Impact Assessment, landfill sites found to be appropriate should also be assessed on their position for efficient use of resources such as compactors trucks.
c. Where feasible, a regional landfill site should be established and shared amongst adjacent municipalities to maximize resources and reduce environmental damage.

6.10 Goal I: Risk Assessment and Monitoring

Action: As per the NEM: Waste Management Bill (2008), it is important to capture data on waste generators, transporters and disposers to enable accurate planning and implementation of waste management. Figure 6.1 shows the cycle of activities necessary for risk assessment and monitoring. The district should thus:

a. Create datasets of generators, transporters and disposers of waste within the district.
b. Update and audit these datasets on an annual basis.

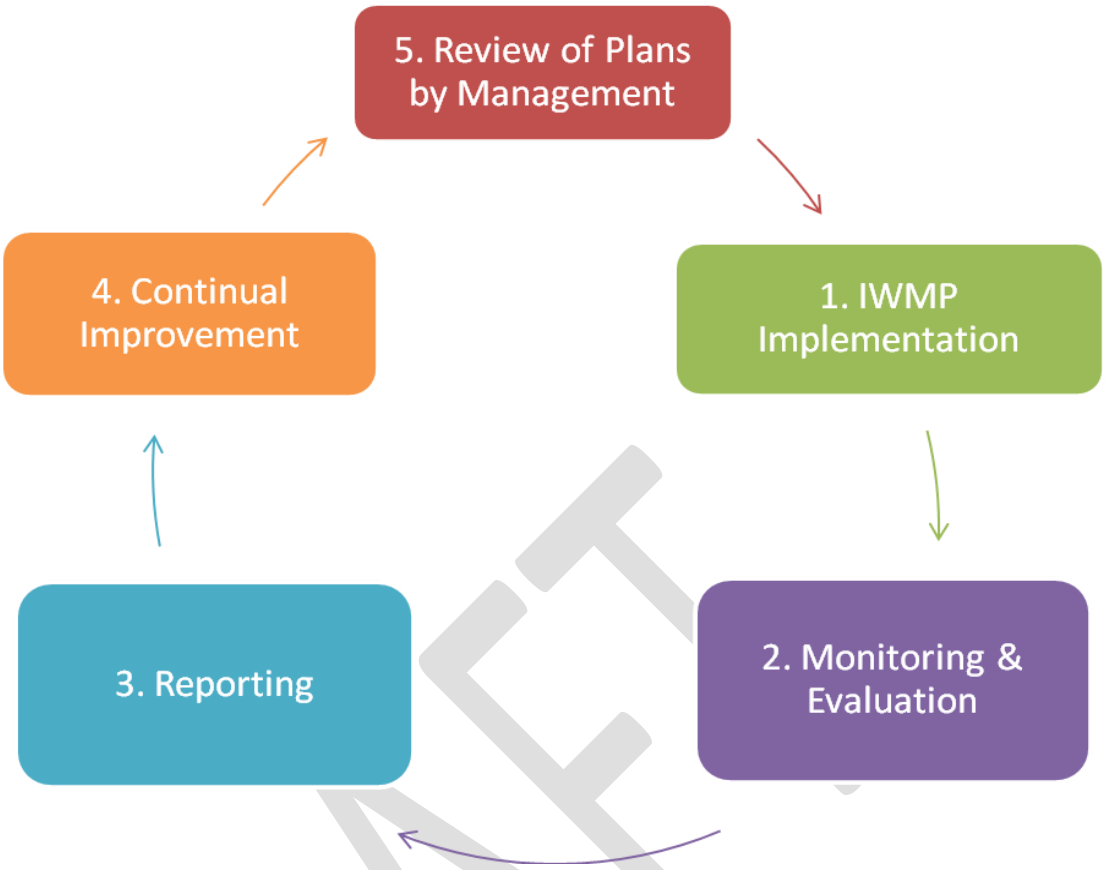


Figure 6.1: Monitoring, Evaluation and Continual improvement of IWMP components

6.11 Goal J: Co-operation with Waste Harvesters

Action: Waste harvesters play an important role in recovering usable material from the waste destined for the landfill site. However, waste harvesters should not be allowed onto the landfill site. The district should

a. Enforce no entry at landfill sites except for government officials and people delivering waste.
b. Establish transfer stations to minimise attraction of waste harvesters to the landfill site.
c. Develop strategies to restrict access to landfill sites by waste harvesters.

6.12 Goal K: Funding and Equipment Acquisition

Action: The district should ensure that the waste taken to the landfill site is compacted, and is buried. The district should acquire

a. Radio-activity detectors, weigh bridges, bulldozers, etc. for each landfill and transfer station
b. The money generated through payment for the services should be allocated solely to waste management services

c. Institutions such as the Development Bank of South Africa (DBSA) have special funds for assisting municipalities with development of infrastructure. The Mohokare Local Municipality should leverage these services in developing capacity to implement IWMP.

6.13 Goal L: Composting Facility

Action: Composting is a potential industry considering the farming area within the district. The district should

a. Encourage communities to produce compost from their organic waste, and use it for their own gardens or commercialise
b. Organic material retrieved at transfer stations should be channelled to a place where it would be used for production of compost at commercial scales
c. The sludge from the sewerage should also be availed for production of compost

6.14 Goal M: Acquisition and Licensing of Incinerators

Action: Incinerators are necessary for disposal of both healthcare and hazardous waste. Generally, additional fees are charged for the use of the incinerator. This is an additional source of income which should be leveraged to generate additional income which should be invested in waste management services. It is important to

a. Repair and/or replace the available incinerators at landfill sites and make them compliant with all the laws;
b. Encourage health and hazardous waste generators not to bring waste to the local general landfill sites but to dedicated hazardous waste facilities.

CHAPTER 7: CONCLUSION

7.1 Concluding Remarks

Whilst the implementation of the IWMP is supported by an Act of Parliament as well as the Constitution of South Africa, the success is directly linked to the priorities of the government and resources allocated for their implementation. For this reason, the strategy to implement IWMP should take cognisance of these priorities, and identify leverage points within the system.

IWMP implementation requires significant financial resources which the district cannot readily provide. It is noted that service delivery has become a point of contention amongst the political leaders and citizens. Notwithstanding, pertinent issues such as job creation, infrastructure development and roads construction, economic development and health can be leveraged to access funds. This strategy requires intergovernmental relations within the district to be strengthened.

The state of waste management services within the Mohokare Local Municipality can be summarised as follows:

i. The infrastructure is not appropriately managed to ensure efficiency and compliance with all regulatory requirements.

ii. Administration and Management personnel allocated to waste management services are not enough (numbers) and require specialised skills to implement all required strategies.

iii. Generally the district does not comply with most regulations governing the management of waste, and lacks the competency to ensure adherence to legislations, including by-laws.

To ensure that the district is able to comply with regulations and is able to implement the IWMP successfully, the following action plan is recommended:

7.2 Immediate Actions

7.2.1 Integration of Strategies and Resources

Mohokare Local Municipality should take the lead in facilitating the integration of strategies and resources of the local municipalities in the management of waste. The prevailing relationship whereby Environmental Health Practitioners working with local municipalities are in the employ of the Mohokare Local Municipality augurs well for intensification of closer working relations, communication and sharing of information.

At a workshop held for all stakeholders to develop a common understanding regarding the national strategy and objectives on waste management, there was consensus on the need to integrate efforts of all relevant sector departments, e.g. community service, infrastructure, finance, etc., in terms of their roles and required contribution to implement the IWMP and improve communication amongst them.

7.2.2 Optimisation of Resources

i. Landfills

Facilities such as landfill sites are in over supply, albeit all being unlicensed. Each local municipality should identify the landfill sites that are strategic for servicing the community, and enter into agreements with the municipality that owns it. All landfill sites identified as strategic for disposal of waste should be reconstructed and properly equipped in line with license requirements. The landfill sites that are not licensed and/or having remaining life span of less than 5 years should be closed. Below is the recommended action for the landfill sites:

Municipality	Disposal Site	Status	Classification	Recommended Action
Mohokare Municipality	Smithfield	Operational	G.C.B	License
	Rouxville	Operational	G.C.B	License
	Zastron	Operational	G.C.B	Close
	Matlakeng	Operational	G.C.B	Close

ii. Equipment

Mohokare Local Municipality does not have adequate equipment to management waste as per the Constitutional Mandate. With the facilitation of the district, compactor trucks not in use should be availed for the other municipalities within the district.

iii. Financial Support

The Mohokare Local Municipality should subsidise the costs of implementing the IWMP. The municipality should improve the institutional capacity by assisting with employment costs or may employ officials who will work specifically on waste and maters incidental thereto.

Sources of funds from government institutions such as Development Bank of South Africa, Municipal Infrastructure Grant, etc. should be leveraged. This should include government incentive schemes for job creation.

iv. Characterisation of Waste Generated

The district should deploy officials to oversee landfill sites, as well as visit waste generators, to record information on the types of waste generated in the district, quantities, disposal methods and future trends. This action is particularly important for understanding future waste trends in the district, financial support required from district and resource allocation for process monitoring and evaluation.

v. Education

The stakeholders should be informed of the implementation of the IWMP, and the role and contribution expected from them. In view of the need for a paradigm shift in terms of many issues related to waste management, continuous engagement would be essential for success. It is critical to enlighten the community about the Waste Hierarchy principles, and also monitor performance against such.

7.3 Medium Term Actions

At this stage it is expected that the district will have identified additional landfills that can be closed, and resources would be redistributed in line with demands. More information would be available for the stakeholders to realign their strategies and plans.

i. Landfills

The data on waste generation and types was analysed. This data could assist to assess progress towards the objectives of no waste to landfills by 2020. Landfills that can be closed should be identified and process should begin. A concept of 1 landfill site per local municipality area should be piloted.

ii. Waste Hierarchy

Considering that the community has been well informed of the overall strategy and objectives of the district IWMP, the waste hierarchy principles should be enforced. Waste generated per source/generator should be closely monitored. Whilst encouraging waste reduction, investigations should be done in situations where reduction is not effected.

iii. The By-laws

The by-laws on waste management should be developed and enforced. All role players in the enforcement of the law, including EMI (Green Scorpions), should be engaged in this process.

7.4 Long-term Plans

The long-term goal of No Waste to landfills by year 2020 is a critical strategy determinant at this stage. The ground work is done earlier through implementation of the Waste Hierarchy, the National Waste Management Strategy, application of by-laws, etc. The performance against set goals should be adjusted in line with deliverables for year 2020. Strategies should be reviewed with the intention to put impetus to the

national effort in reaching the year 2020 objectives. The successful implementation of these strategies will definitely reduce amount of material that may have to be disposed.

The landfill sites produce methane gas which can be used for electricity production. The feasibility of this potential should be explored at this stage in preparation for future harvesting. The closure of landfills makes some employment positions redundant. However, the extension to electricity production will create a new industry which will present new job opportunities.

The development of the Mohokare Local Municipal IWMP sets the pace for setting targets for project implementation, human, technical and financial resource allocation, monitoring and evaluation, and overall improvement of waste service delivery.

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