

Final: 2016/ 2020

Review: 2017/2018

Review: 2018/2019



# SETSOTO LOCAL MUNICIPALITY

## INTEGRATED WASTE MANAGEMENT PLAN

# Contents

Contents.....	i
List of Figures .....	v
List of Tables.....	vi
ACRONYMS.....	
<b>INTRODUCTION .....</b>	<b>2</b>
<b>1.1 Methodology .....</b>	<b>2</b>
<b>1.2 Compliance with the Requirements of the Waste Act.....</b>	<b>3</b>
<b>2 LEGISLATIVE REVIEW .....</b>	<b>3</b>
<b>2.1 National Legislation and Policies .....</b>	<b>3</b>
<b>2.1.1 Constitution of South Africa – Act No. 108 of 1996 .....</b>	<b>3</b>
<b>2.1.2 The National Environmental Management: Waste Act (Act No. 59 of 2008) (NEMWA) .....</b>	<b>4</b>
<b>2.1.3 National Waste Management Strategy .....</b>	<b>6</b>
<b>2.1.4 The National Environmental Management Act (107 of 1998).....</b>	<b>7</b>
<b>2.1.5 The National Water Act (Act 36 of 1998).....</b>	<b>8</b>
<b>2.1.6 The National Health Act (Act 61 of 2003) .....</b>	<b>8</b>
<b>2.1.7 The Occupational Health and Safety Act (Act 85 of 1993).....</b>	<b>9</b>
<b>2.1.8 The Local Government: Municipal Structures Act (Act 117 of 1998) .....</b>	<b>9</b>
<b>2.1.9 The Local Government: Municipal Systems Act (Act 32 of 2000).....</b>	<b>9</b>
<b>2.1.10. The Minimum Requirements for Waste Disposal by Landfill .....</b>	<b>10</b>
<b>2.1.11 Free Basic Refuse Removal Policy.....</b>	<b>11</b>
<b>3. Developmental Profile .....</b>	<b>12</b>
<b>3.1. Demographic Profile.....</b>	<b>12</b>
<b>3.1.1. Marquard.....</b>	<b>14</b>
<b>3.1.2. Clocolan .....</b>	<b>14</b>
<b>3.1.3. Senekal.....</b>	<b>14</b>
<b>3.1.4. Ficksburg.....</b>	<b>15</b>
<b>3.2. Economy Development .....</b>	<b>16</b>
<b>3.3. Basic Services.....</b>	<b>16</b>

3.3.1. Health Services .....	16
4. Status Quo .....	17
4.1. Department Structure .....	17
<b>Division: Solid Waste Management</b> .....	19
4.2 Population and Income .....	20
4.3 Waste Service and Equipment .....	22
4.4 Industrial and Medical Waste .....	24
4.5. Waste Generation .....	24
4.6. Waste Facilities and Disposal Sites .....	25
4.6.1. Marquard.....	25
4.6.2. Clocolan .....	27
4.6.3. Senekal.....	30
4.6.4. Ficksburg.....	32
4.7. Waste Avoidance, Minimisation and Recycling .....	34
4.8. Illegal Dumping and Disposal.....	35
4.9. Finance arrangements.....	36
5. Status Quo Summary.....	37
5.1. Collection and Transportation .....	37
5.2. Waste Treatment .....	37
5.3. Waste Information .....	37
5.4. Institutional Arrangements.....	38
5.5. Monitoring and Compliance .....	38
6. IDENTIFICATION AND PRIORITIZATION OF NEEDS .....	38
6.1. Heath and Environmental Impacts of Poor Waste Management .....	38
7. THEORETICAL WASTE GENERATION VOLUMES.....	40
7.1. Population .....	40
7.2. Household contributions to the waste stream .....	40
7.3. Conclusion .....	41
8. STRATEGIC PLANNING .....	42

<b>8.1. National Waste Management Strategy Guidelines</b> .....	42
<b>8.1.2. Goals and Objectives According to NWMS</b> .....	43
<b>8.2. Collection and Transportation</b> .....	47
<b>8.2.1 Collection</b> .....	47
<b>8.2.2. Education and Awareness</b> .....	47
<b>8.3. Waste Avoidance, Minimization, Re-use and Recycling</b> .....	47
<b>8.3.1. Recycling</b> .....	47
<b>8.3.2. Separation at Source</b> .....	47
<b>8.3.3. Landfill Recovery</b> .....	48
<b>8.4. Waste Disposal</b> .....	48
<b>8.4.1. Permitting and Legal Operation</b> .....	48
<b>8.4.2. Waste Incineration</b> .....	50
<b>8.4.3. Waste Disposal Vehicles</b> .....	51
<b>8.4.4. Landfill Disposal Tariffs</b> .....	51
<b>8.5. Waste Information</b> .....	51
<b>8.5.1. South African Waste Information System</b> .....	51
<b>8.5.2. Waste Collection Vehicle Information</b> .....	52
<b>8.5.3. Waste Disposal Information</b> .....	52
<b>8.5.4. Waste Characterisation Information</b> .....	52
<b>8.5.5. Recycling Information</b> .....	52
<b>8.5.6. Waste Transporters</b> .....	52
<b>8.6. Institutional Arrangements</b> .....	52
<b>8.6.1. Waste Management Officers</b> .....	53
<b>8.6.2. Enforcement Structures</b> .....	53
<b>8.6.3. Waste Management By-Laws</b> .....	53
<b>8.7. Financial Arrangements</b> .....	54
<b>8.7.1. Separate Budgets</b> .....	54
<b>8.7.2. Service Cost Recovery</b> .....	54
<b>8.7.3. Cost Reflective Tariffs</b> .....	54

<b>8.7.4. Municipal vs Outsourcing</b> .....	54
<b>8.8. Monitoring and Compliance</b> .....	54
<b>9. ACTION PLANNING</b> .....	56
<b>10. IMPLEMENTATION PLAN</b> .....	57
<b>10.1 Monitoring plan</b> .....	57
<b>10.2 Timeframes for Implementation</b> .....	58
<b>11. Conclusion</b> .....	59
<b>12. References</b> .....	60

## List of Figures

Figure 1: Map of Setsoto LM: Source (Rural Development & Land Reform).....	13
Figure 2: Divisional Structure for Solid Waste Management .....	19
Figure 3: Waste Management Hierarchy .....	43

## List of Tables

Table 1: Projected Population as per IDP .....	20
Table 2: Estimates for populations (Community Survey, 2007) .....	21
Table 3: Waste Removal Services in Setsoto LM (2013/14; 2014/15;2015/16) .....	21
Table 4: Number of Households and Business sites where collection takes place .....	22
Table 5: Setsoto LM Waste Equipment.....	23
Table 6: Annual Collection Volumes for Setsoto LM.....	24
Table 7: Marquard Landfill Site Summary.....	26
Table 8: Clocolan landfill Site Summary.....	27
Table 9: Senekal Landfill Site Summary .....	31
Table 10: Ficksburg Landfill Site Summary.....	33
Table 11: Waste Avoidance, Minimization and Recycling Objectives in terms of NWMS: Source (TMDM, IWMP 2011) .....	34
Table 13: Waste Composition .....	41
Table 14: Operating Requirements for Small Landfill Sites .....	49
Table 15: Monitoring and Compliance Objectives as per NWMS.....	54
Table 16: Implementation Plan.....	58

## ACRONYMS

AIDS – Acquired Immune Deficiency Syndrome

ARV – Antiretroviral

CC – Climate Change

DPSS – Development Planning and Social security

ECA – Environmental Conservation Act

EIA – Environmental Impact Assessment

EMI – Environmental Management Inspectors

EMS – Emergency Medical Services

ES – Engineering Services

FBRRP – Free Basic Refuse Removal Policy

GHG – Greenhouse Gas

GW – Global Warming

HIV – Human Immune-deficiency Virus

IDP – Integrated Development Plan

IWMP – Integrated Waste Management Plan

MEC – Member of the Executive Council

MIG – Municipal Infrastructure Grant

MSA – Municipal Systems Act

MSW – Municipal Solid Waste

NEMA – National Environmental Management act

NEMAQA – National Environmental Management: Air Quality Act

NEMBA – National Environmental Management: Biodiversity Act

NEMPAA – National Environmental Management: Protected Areas Act

NEMWA – National Environmental Management: Waste Act

NHA – National Health Act

NWMS – National Waste Management Strategy

OHSA – Occupational Health and Safety Act

OPMRP – Office Paper Minimization and Recycling Policy

SAWIC – South African Waste Information Centre

SAWIS – South African Waste Information System

SLM – Setsoto Local Municipality

WMO – Waste Management Officer

# INTRODUCTION

An Integrated Waste Management Plan (IWMP) is a legal document that is the requirement in terms of the National Environmental Management: Waste Act (NEMWA), Act No. 59 of 2008. It outlines how to manage waste generated within municipalities.

Section 11(4) specifically stipulates that municipalities must submit their IWMPs to the relevant Provincial MEC for Environment for approval and also to include this plan in the municipal Integrated Development Plan (IDP) as contemplated in chapter 5 of Municipal Systems Act. The study aims are therefore summarised as follows:

- Give effect, in respect of waste management, to Chapter 3 of the National Environmental Management Act;
- Give effect to the objects of the above-mentioned Act;
- Identify and address the negative impact of poor waste management practices on health and the environment;
- Provide the implementation of waste minimisation, re-use, recycling and recovery targets and initiatives;
- Address the delivery of waste management services to residential premises;
- Implement the country's obligations in respect of any relevant International agreements;
- Give effect to best environmental practice in respect of waste management;
- The IWMP is valid for five years, which in this case is from 2015 to 2020. Once this period has elapsed, the IWMP should be reviewed together with its strategies and actions plans. However, the plan can be amended or reviewed every year as the IDP is reviewed.

## 1.1 Methodology

The methodology followed in compiling this IWMP was as follows:

Status Quo – entails evaluation of existing legislation, policies and waste information gathered from all four towns of Setsoto local municipalities. This section of the report will further focus on existing municipal operations, demographic information, institutional arrangements, financial arrangements and waste facilities. An important part of the Status Quo phase is an estimate of the waste volumes generated in this study area. This has been done using population, income and literature derived waste generation rates and compared to available municipal data.

Strategic Planning–this entails developing a strategic plan to achieve the aim of sound waste management practice. This includes a discussion of the alternatives and scenarios to address the gaps and needs identified in the previous phase; The Strategic Planning section leads into the action planning section which follows and provides more detailed planning for district waste management.

Action planning – this uses the outputs from the Strategic Planning section and presents projects that should be implemented in order to achieve the goals of the IWMP.

Development of a framework for implementation - the implementation plan stage of the report establishes the timeframes that need to be adhered to ensure that the IWMP is implemented.

## **1.2 Compliance with the Requirements of the Waste Act**

Section 12 of the National Environmental Management: Waste Act specifies the contents of a waste management plan.

## **2 LEGISLATIVE REVIEW**

Waste management planning has to be contextualised within the framework of national and provincial government legislation and policy. This legislation and policy is supplemented by district and local municipal by-laws. Below follows a brief summary of the legislative framework and its implications thereof on waste management and waste management planning.

Waste management is covered by the National Environmental Management Waste Act (NEMWA) at national level in South Africa and other legislation mentioned below supplements this legislation. Other legislation covered in this summary either has a direct impact on waste management operations and planning or has an impact on municipal financing and planning as it relates to waste management.

This section has been compiled with the understanding that the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs requires a concise summary of the main points of each piece of legislation, rather than an exhaustive listing of the requirements of the legislation. It is incumbent upon the reader to fully familiarise herself with the legislation itself to gain full understanding of the legal requirements.

### **2.1 National Legislation and Policies**

#### **2.1.1 Constitution of South Africa – Act No. 108 of 1996**

The South African Constitution, 1996 (Act No. 108 of 1996) is the supreme law of the country. All laws, including environmental Waste Management Planning must comply with the Constitution.

Section 24 of the Constitution stipulates that everyone in South Africa has the right to an environment that is not harmful to their health or wellbeing, while ensuring the protection of the environment through reasonable legislation.

Local government is responsible for the compliance and implementation of all legislation related to this act, at a level appropriate to it. This can be achieved by

- Complying with legislation specifically referencing local government responsibilities.
- Supporting other levels of government and institutions to comply with legislation
- Ensuring that local government actions are always conducted in an environmentally sound and sustainable way.
- Ensuring that financial and administrative resources are available for the above
- Promulgating relevant by-laws in line with other legislation

According to the Constitution, responsibility for waste management functions is to be decentralized to the lowest possible level of government. Local Government is therefore assigned the responsibility for refuse removal, refuse dumps and solid waste disposal. Provincial Government has the exclusive responsibility to ensure that local government carries out these functions effectively.

The basic power for the promulgation of by-laws at local government level derives from the Constitution.

The Constitution makes provision for financial, civil and criminal liability against local government, particularly in matters related to the closure and rehabilitation of dumps and remediation of contaminated land for urban development.

### **2.1.2 The National Environmental Management: Waste Act (Act No. 59 of 2008) (NEMWA)**

The NEMWA is the first specific law for waste management in South African. It was promulgated in 2008 and into effect in 2009. It provides requirements for all spheres of government and private sectors.

The NEMWA gives effect to the National Waste Management Strategy (NWMS), which is the guiding document for the implementation of conditions of the act.

It provides for the regulation of waste management in order to protect health and the environment by providing reasonable measures to prevent pollution and ecological degradation and for securing ecologically sustainable development; to provide national norms and standards to regulate the management of waste by all spheres of government; to provide specific waste management measures; to provide the permitting and control of waste management activities; to provide the remediation of contaminated land; to provide the national waste information system; and to provide for compliance and enforcement. The following table lists the sections of the Act that are applicable to the local governments.

NEMWA distinguishes between activities that must be exercised by municipalities and activities that may be implemented by municipalities. Of the activities that must be implemented, the following are specified:

- Adhering to all national and provincial norms and standards;
- Integrating its waste management plans with its integrated development plans;

- Ensuring access for all to such services;
- Providing such services at an affordable price, in line with its tariff policy;
- Ensuring sustainable services through effective and efficient management; and
- Keeping separate financial statements including a balance sheet of the services provided.

NEMWA establishes a list of waste management activities that may have a negative impact on the environment. These activities require a waste management licence. The act also lays down the licensing procedures. The following activities are included in the list of activities that require a waste management licence: storage of wastes, sorting and recovery of wastes, waste treatment, disposal of wastes, and disposal of animal wastes.

The establishment of the national and provincial waste information systems is required in terms of the NEMWA; as is the requirement that waste management service providers, such as municipalities, report to the system.

In addition to the above, NEMWA requires the municipalities to appointment Waste Management Officers who will deal with all issues relating to waste management.

The Act does not specify timeframes for implementation or monitoring of compliance and should therefore be implemented at the discretion of the NWMS, where applicable.

NEMWA has provides principles that need to be help in addressing waste issues in the municipalities. These principles include:

Waste Prevention and Minimisation – as far as possible waste should be prevented in the first place. Implementation of this aspect depends to a large extent on the approval of the new national waste management strategy, the passing of enabling legislation and commitment from industry bodies.

- Waste Collection and Transportation – Once the waste has been generated, efficient collection procedures should be established and control over this transportation of waste ensured;
- Waste Recycling – wherever possible waste should be re-used and recycled. This reduces the volumes of waste going to landfill and reduces the waste of natural resources;
- Waste Treatment Facilities – this include the treatment of waste prior to final disposal. The aim of waste treatment is to reduce the volumes of waste going to landfill and to make the waste less harmful to the environment. Particular areas of focus include health care waste and tyres;

- Waste Disposal Facilities – this aspect covers the final disposal of waste. The aim is to ensure that waste is finally disposed of in an acceptable manner with the minimum of nuisance during disposal with as low an impact upon the receiving environment as possible. This includes the reduction of health risks;
- Information Requirements – in order to plan for future waste types and volumes, it is necessary to collect sufficient information, with sufficient accuracy, to enable this planning. Having the necessary equipment and procedures in place to gather this information is one of the first steps towards achieving accurate planning outcomes;
- Institutional Arrangements - Waste management is a local government responsibility and, as such, should be managed and controlled in a manner that ensures optimal economic and environment outcomes. Any institutional arrangements to enhance this goal are to be encouraged;
- Financial Arrangements – Waste management should be economically viable. Without this essential viability, waste management will depend upon subsidies for its effectiveness. These act as a tax upon sources of the subsidy. Waste management is a local government function and should be controlled and paid for by the residents of local government; and
- Monitoring and Compliance Arrangements – without overseeing of waste management, it is likely not to adhere to both legal standards and to acceptable norms and standards. It is also likely to rise in cost and reduce its overall efficiency. None of these outcomes is desirable and a monitoring and compliance enforcement aspect should be built into all waste management programmes.

### **2.1.3 National Waste Management Strategy**

The National Waste Management Strategy was promulgated in November 2011. The purpose of this document is to achieve the objectives set out in NEMWA.

The main purpose of the NWMS is to give effect to the objects of the NEMWA. These objectives are to protect health, well-being and the environment through sound waste management and application of the waste management hierarchy. The NWMS seeks to ensure that responsibilities for waste management are properly distributed. It is concerned with the management of waste according high level goals for waste management in South Africa.

The legacy of inadequate waste services, poorly planned and maintained waste management infrastructure, and limited regulation of waste management as stipulated in the strategy, are threatening the health and wellbeing of everyone in the country. Addressing these negative environmental and social consequences, advances people's constitutional right to a clean

and healthy environment. The NWMS aims to redress the past imbalances in waste management. For example, waste licensing will not permit landfill sites within a particular radius of a human settlement.

The goals set out in the NWMS will filter down to local government structures who will be responsible for the implementation of most goals. The NWMS binds all organs of states in all spheres of government and all persons applicable.

In terms of the NWMS, local government is responsible for cleansing, refuse removal, refuse dumps and solid waste disposal. Norms and standards should be developed for these to be in line with the national standards.

A series of high level goals has been set for national waste management operations.

Goals are established in the areas of waste collection and extension of service provision, re-use and recycling, disposal and rehabilitation of waste sites. Goals are also established in the area of waste management process; these include goals in areas such as: IWMP development and integration, financial management, monitoring of performance and awareness and advocacy of waste management requirements.

Along with service standards, local government is responsible for the appointment of a Waste Management Officer (WMO) who should be responsible for the regulatory aspects of the waste management function of each municipality. The NWMS, along with the NEMWA requires the composition of Integrated Waste Management Plans (IWMPs) at all levels of government. Contents of IWMPs are prescribed in NEMWA.

#### **2.1.4 The National Environmental Management Act (107 of 1998)**

The National Environmental Management Act (NEMA) is the principal act for the environmental management and relates to all matters of the environment, including waste management.

NEMA prescribes certain listed activities that require authorisation from provincial or national departments. The activities listed in terms of NEMA correspond with all the activities listed in Specific Environmental Management Acts which include NEMWA.

Two processes for environmental authorisation have been allowed for in the form of a Basic Assessment or full Scoping and EIA. Although these processes require the same level of knowledge prior to authorisation, the former process is associated with less controversial projects with a lower potential of environmental impacts.

The listed activities that require environmental authorisations includes many waste management activities and a Waste Management Officer should take careful note of these requirements.

There is a substantial degree of overlap between these activities and the activities in the NEMWA. When such overlap occur, each facility may require two permits, one stemming from each piece of legislation. However, the process to achieve both authorisations is essentially the same and national and provincial governments strive to reduce any duplication of effort when applying for permits for waste management activities.

### **2.1.5 The National Water Act (Act 36 of 1998)**

The National Water Act (NWA) was the regulating law, along with NEMA, for the control of waste management activities prior to the development of NEMWA. NWA is responsible for protecting South Africa's water resources and pollution prevention of water resources.

Water uses, as defined in NWA, include discharge of waste or water containing waste into a water resource, disposing of waste in a manner that is detrimental to a water resource or disposing of water containing waste.

If these activities are triggered, the activity should be registered or licensed by the Department of Water Affairs and will be subject to a Water Authorisation of Water Use Licence process.

### **2.1.6 The National Health Act (Act 61 of 2003)**

The National Health Act (NHA) is concerned with the promotion of health of the inhabitants of South Africa and ensuring the provision of municipal health services.

Municipal Health Services include waste management and environmental pollution control. Nuisance factors resulting from waste such as odours are addressed in Section One of the Act. The aim is to maintain sites associated with odour emissions so that they are non-offensive.

Specified actions to be taken by local government are contained in Section 20(1) of the Act and are listed below:

- (a) To maintain its district always in a hygienic and clean condition;
- (b) To prevent the occurrence within its district of any nuisance; any unhygienic condition; any offensive condition; or any other condition which will or could be harmful or dangerous to the health of any person within its district or the district of any other local authority; and
- (c) To prevent the pollution of any water intended for the use of inhabitants.

These requirements are taken account of in the standards required for waste facilities in the NEMWA and NWMS. The provisions of this Act have been included since many municipal enforcement actions are based upon the requirements of the NHA.

### **2.1.7 The Occupational Health and Safety Act (Act 85 of 1993)**

The Occupational Health and Safety Act (OHSA) provides for the health and safety of persons at work and the protection of persons, other than persons at work, against hazards to health and safety arising out of or in connection with the activities of persons at work.

A number of regulations promulgated under the Act are important with respect to the management of hazardous substances (and therefore) hazardous wastes, including Hazardous Chemical Substances Regulations, Asbestos Regulations and Lead Regulations.

A summary of this Act is included to make waste managers aware of their health and safety responsibilities with regard to their employees and to the standards that are required to be adopted at all waste management facilities under their control. This includes waste disposal sites where waste pickers are active.

### **2.1.8 The Local Government: Municipal Structures Act (Act 117 of 1998)**

The Local Government Municipal Structures Act provides for the establishment of the various levels of government and an indication of the powers of functions of each level.

In terms of this Act, district municipalities are responsible for the development of an

Integrated Development Plan as well as a framework for integrated development plans of all municipalities within their jurisdictions.

In addition to this, the Act provides for the establishment, operation and control of solid waste disposal sites, bulk waste transfer facilities and waste disposal facilities for more than one local municipality in the district. This condition complies with the requirement stated in the NWMS for the establishment and management of regional waste disposal sites.

Cooperation between district and local municipalities are discussed in Section 88 of the Act. This allows for support of the financial, administrative and technical support between the district municipality and their local municipalities, as well as between local municipalities in the same district; if sufficient capacity exists.

### **2.1.9 The Local Government: Municipal Systems Act (Act 32 of 2000)**

This Act sets out the framework for planning processes and is concerned with the provision of services in a sustainable manner while promoting a healthy and safe environment for all.

The Act provides the enabling framework for planning processes. It also ensures environmentally sustainable service delivery by including the following definition in Chapter 1, with respect to the provision of a municipal service in a manner aimed at ensuring that:

“(a) the risk of harm to the environment and to human health and safety is minimised to the extent reasonably possible under the circumstances;

(b) the potential benefits to the environment and to human health and safety are maximized to the extent reasonably possible under the circumstances; and

(c) legislation intended to protect the environment and human health and safety is complied with”.

Section Four of the Act confirms the right and the duty of Council to:

*“ensure the provision of municipal services to all residents and communities in a financially and environmentally sustainable manner; and promote a healthy and safe environment in the Municipality”.*

The process to facilitate development at a local level is referred to as Integrated Development Planning (IDP). Chapter 5 of the Act provides for IDPs with Part 2 detailing the core components of IDPs. IWMPs should be integrated into IDPs.

Section 78 assessments must be undertaken by a Municipality in terms of Section 78 of the Municipal Systems Act 2000 and Section 11 of the Municipal Systems Amendment Act 2003 whenever a municipality decides on a service delivery mechanism or whenever a municipality reviews a service delivery mechanism. There is no discretion in this regard – it is legal requirement. The content, process and format of the study are prescribed in the legislation. Section 78 assessments apply particularly when the municipality is considering outsourcing any aspect of waste management service provision.

#### **2.1.10. The Minimum Requirements for Waste Disposal by Landfill**

This Document was developed in 1998 in terms of legislation that regulated waste management at the time. The objective of this document was to take pro-active steps in preventing the degradation of water quality and the environment and to improve the standard of waste disposal in South Africa.

This Document deals with issues of non-permitted sites, operation of permitted sites according to permit conditions, new landfills and closure.

The purpose of this Document is the set out minimum procedures, actions and information required from an applicant during the permitting process; provide a point of departure against which environmentally acceptable waste disposal practices can

be distinguished from environmentally unacceptable waste disposal activities and to provide the applicable standards or specifications that must be followed in the absence of any valid motivation to the contrary.

The Minimum Requirements remain the foundation of waste disposal engineering and waste managers should be aware of the requirements of the document when considering any aspect of waste disposal.

#### **2.1.11 Free Basic Refuse Removal Policy**

The Free Basic Service Delivery document released by DEA in April 2009, states that the principle of service provision for all rests on the idea of government funding capital infrastructure while users pay for operation and maintenance. A large percentage of South Africa's population does however not earn a sufficient income to pay for this service.

The concept of registration of indigents was therefore adopted. In order to register as indigent, a person must:

- Earn an income of less than two old age pensions;
- Be a citizen or have a recognised temporary residence; and
- Special provision is made for child headed households; and
- Proof of residence in a municipal area must be provided.

Service delivery standards have been compiled at three levels, basic, intermediate and full service:

- Basic – A communal landfill is offered that is operated by a service provider or contractor. Residents are responsible for own transportation to communal landfills;
- Intermediate – Waste is collected in skips by a service provider or contractor.
- Residents are responsible for taking waste to skips prior to collection;
- Full – A service provider or contractor collects waste from the curb of each household. Recyclables and residue waste are separated and collected.

The responsibility of each district in terms of this Document is listed below:

- District Municipalities to make Local Municipalities aware of the existence of the National Policy on Free Basic Refuse Removal (FBRR) service and the National Domestic Waste Collection Standards. This should be done with the view of explaining the Local Municipalities' mandate; and
- Provide District Municipality-wide guidelines on developing FBRR service policies and Domestic Collection Standards and where necessary render technical assistance to local municipalities with limited capacity.

Local municipalities have, in terms of this Document, the responsibility to:

- Suggest Municipal FBRR Service policies (where appropriate) or integrate these into existing Indigent Policies as additions. This results from the fact that the existing Municipal Indigent Policies do not address the issue of refuse removal adequately;
- Identify and select deserving indigent households for FBRR service in their jurisdictions;
- Raise awareness on the existence of a FBRR service policy;
- Set appropriate criteria and mechanisms for identifying the indigent household for the purposes of the FBRR service policy;
- Establish proper risk management programme in order to minimise fraudulent activities during the implementation of the FBRR service policy in their jurisdictions; and
- Regularly update its FBRR service indigent household database.

The FBRR policy is an opportunity for the municipality to fund the provision of services to indigent households through the recouping of costs via the indigent register. This places emphasis on the municipality developing and maintaining an accurate and up to date indigent register.

### **3. Developmental Profile**

#### **3.1. Demographic Profile**

Setsoto Local Municipality is situated in the eastern Free State province within the regional boundaries of the Thabo Mofutsanyane District Municipality. Setsoto is a municipality FS194 and was established in terms of Section 14 of the Local Government: Municipal Structures Act, Act No.117 of 1998 and was published in Provincial Gazette No. 184 dated 28 September 2000. Setsoto Local Municipality is a Category B municipality with a collective executive system combined with a ward participatory system as contemplated in Section 3(b) of the Determination of Types of Municipality Act, 2000 (Act No 1 of 2000).

The area of the local municipality measures about 5948.35 km<sup>2</sup> in extent. It consists of four major urban areas namely Ficksburg, Senekal, Marquard and Clocolan, as well as their surrounding rural areas namely Meqheleng, Matwabeng, Moëmaneng and Hlohlolwane. Ficksburg is the administrative head office of Setsoto local municipality. The following figure is the map of Setsoto LM:

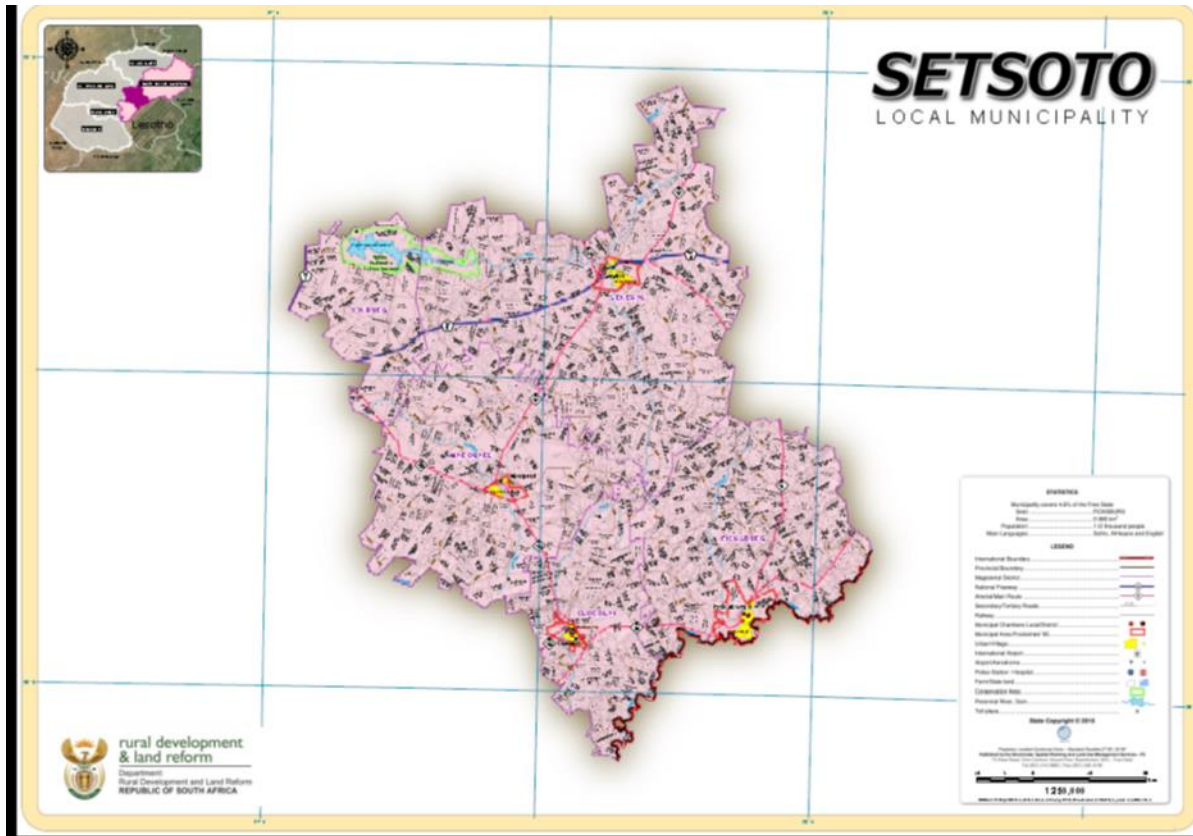


Figure 1: Map of Setsoto LM: Source (Rural Development & Land Reform)

The Municipality is strategically located within the N1 to the South West, the R26 to the South, N5 through the Municipality and the Caledon River to the South. The municipality is surrounded by the following local municipalities as its borders- Mantsopa Local Municipality to the West, Masilonyana Local Municipality to the North-West, Dihlabeng Local Municipality to the East and Leribe Council to the South in the Mountain Kingdom of Lesotho.

The municipality comprises of 18 wards as demarcated by Municipal Demarcation Board of South Africa

Setsoto is approximately 60% urbanized. According to Census 2011, Setsoto Local Municipality has a population of 112,597. Out of this population 92, 3% are black African, 5, 7% are white, with the remaining 2% made up by other population groups.

Central Statistical Services figure suggest the population has decreased from 109 000 to 102 000 between 2001 and 2007 and DWAF's figures and the 2011 Census suggest it had increased to 113 000 by 2011. The main reason for this growth is given as due to Ficksburg' s proximity to Lesotho.

The following towns make up the Municipality:

### **3.1.1. Marquard**

The town of Marquard was established on the farm Varschfontein. It was on a Thursday, 25 May 1905 when the first of 125 plots were sold at better prices than those initially realised in the surrounding towns. This was the only proof of the necessity for a town in this area, but also that land here was considered valuable even in those times.

Ds J. J. T Marquard wrote a letter to Parliament recommending that a town should be situated on the farm Varschfontein. The letter apparently had great influence and out of gratitude the Town Commission decided to name the town after him.

### **3.1.2. Clocolan**

Clocolan, established in 1906, is a small town in the Free State Province of South Africa. The Basotho called the place Hlohlolwane. The whites mispronounced the name and called it Clocolan. The town is located West of Prynne's Berg along the Maloti Route, twenty kilometres for the Caledon River and some hundred and sixty six kilometres North-East of Bloemfontein

Laid out on a farm Harold and Rienzi in 1906, it became a municipality on 18 July 1910. The name is a Sesotho name derived from Hlohlolwane, meaning stand up and fight, which refers to altercation between two black tribes many years ago. In approximately 1800, the Bakwena Chief Motebang lived in the Northern part of Clocolan (then Betang) on the farm Nebo, near the Zulu clan, the Baphuthi. Motebang invited Baphuthi after a successful harvest, to help him and his people to corn-stalk the baskets.

An argument erupted in the midst of craze, an aged Motebang charged at one of the Baphuthi's, but he tripped over a basket and tumbled to the ground. An all-out ruction broke loose. During the row, a slogan was chanted Hlohla-u-loane or Hlohlolwane, meaning get/stand up and fight or "staan op en veg". The township of Hlohlolwane is a logical result of Clocolan's establishment and both towns have experienced growth over ensuing years.

### **3.1.3. Senekal**

It is situated on the N5 on the banks of the Sand River in the Eastern part of the Free State Province in South Africa. Senekal was named after Commandant F P Senekal; it lays West of Winburg and Bethlehem to the East. Its township is known as Matwabeng which the fastest growing township in the municipality.

The magnificent Dutch Reformed Mother Church rests in the middle of the town and is "protected" by fascinating prehistoric tree trunks, which were discovered in the area. Senekal, with its enviable climate, clean and fresh air, atmospheric scenery and star-studded nights is an agricultural community and is rich in history.

Place of interest in Senekal includes Arizona game Reserve, Biddulphs Mountain Resort and Willem Pretorius Game Reserve, though in Matjhabeng local Municipality, falls under Setsoto Local Municipality boundaries.

#### **3.1.4. Ficksburg**

Situated at the foot of the 1 750-metre-high Imperani Mountain in the Free State Province of South Africa. The town was founded by General Johan Fick in 1867, who won the territory in the Basotho Wars. He laid out many erven and plots that could be bought at a reasonable price. The town was later proclaimed a municipality in 1891. The last governor –General of the Union of South and the first State president of South Africa, Charles Roberts Swart was imprisoned here by the British in 1941 and released one day before his scheduled execution.

Ficksburg, after Bethlehem, found in our sister municipality Dihlabeng, is the Head Office of the municipality and the second busiest and important town in the Eastern Free State. It is an important agricultural area where crops like corn, maize and asparagus are grown. The most important part of the annual crop is the harvesting of the cherries on the numerous farms surrounding the town.

The cherries are harvested from October to December and annually in November the Cherry Jazz and Cherry Festivals are held. The festivals stretch over two weeks, the Jazz the weekend preceding the three days of the cherry festival in the next week and have grown to attract up 100 000 people.

Ficksburg is known as "The Gateway to the Mountain Kingdom of Lesotho" is an enclave country in the Eastern part of South Africa and boasts a large cosmopolitan population. From Ficksburg you can depart to Katse Dam in Lesotho. This dam is important to South Africa, because it annually provides hundreds of millions of litres of water to the industrial and commercial Gauteng Province, and in recent years even to Setsoto Local Municipality due to shortage of water in Clocolan, Marquard and Senekal.

The dam is also very popular very scenic area situated 3000 metres high up the Maluti Mountains of Lesotho and very popular for boating and fishing and is visited by thousands of tourists who pass through Ficksburg on their way to Lesotho every year.

### **3.2. Economy Development**

The economy of Setsoto Municipality rests on the twin pillars of tourism and agriculture and the necessary support sectors for these economic drivers such as manufacturing. At one level the municipality's relative isolation from large main centers means that there will be more demand for higher order services than would be the case if a large metropolitan area were nearby. However, these roles can be improved and consolidated.

This can be improved by firstly protecting agricultural resources and strongly managing them. This is likely to require an integrated approach from municipal officials and the Department of Agriculture.

Secondly, roads must be upgraded, particularly those that link the border settlement corridor to the inland areas from Marquard and Rosendal.

Thirdly, the settlements need to be well managed with respect to crime, dirt and urban quality. The appearance of heritage buildings and other building fronting onto important roads must be improved and promoted. These measures will help to ensure that the towns are as appealing as possible to visitors, potential new permanent residents and locals.

### **3.3. Basic Services**

Setsoto as a local municipality has a competency of providing basic services to its communities.

#### **3.3.1. Health Services**

The municipality has three hospitals, one in each town except in Marquard, there are thirteen clinics spread all over the four towns of the municipality. The challenges are with the rural/farming areas that are in need of mobile facilities, as most of these people travel more than five kilometers to reach a clinic.

Poor conditions of roads also contribute to these situations as some of the areas are inaccessible. The shortage of staff at the clinics also plays a role in our incapacity to provide sustainable health services to our communities. Doctors are also not available full time at the clinics as they only visit on certain days.

Most of the people infected with HIV/AIDS put a strain on the health system within our municipal area, and our locality with Lesotho also aggravates the situation as more Lesotho citizens' uses facilities that are in our area for their health. There are only two ARV Assessment and Treatment sites in the municipality, the one is situated in Marquard and the other in Ficksburg.

In addition to the quantitative standards, other demand drives, which have impact on the provision of clinics, include the Department of Health's regulations, the medical expenditure of households and existing clinics in the area. The facility at the rural service center should be a Primary Health Care Centre; a mobile clinic could be operated from here to the outlying areas.

Emergency Medical Services (EMS) is under the control of the Free State Provincial Government Department of Health, this services is under capacitated in terms of human resources and equipment. Below tables gives an overview of the current situation with regard the service facilities.

## **4. Status Quo**

The following information has been gathered and covers aspects such as institutional structure; population estimates; the nature and extent of waste service provision; the current equipment used in waste management, an overview of industrial and medical waste management; waste generation at a town level; details on the waste facilities; existing recycling or re-use initiatives; the status of illegal dumping of waste as well as the financial status of waste management in Setsoto local municipality.

### **4.1. Department Structure**

Waste management in Setsoto LM forms part of the Directorate Development Planning & Social Security. This Directorate deals with Waste Management; Parks, Sport, Recreation and Cemetery; Disaster management; Security Services and Properties; Public Safety; and Local Economic Development and Tourism Development.

At present a Waste Manager is managing the waste section and each town in Setsoto has a Supervisor: Waste Management to supervise the rendering of the waste management service in each town, however in Ficksburg two (2) Supervisors were appointed to assist with the rendering of the service in the Meqheleng Area due to its size.

Of the positions available in this municipality, several vacant posts are currently unattended due to resignations and death. The vacant positions at present that are critical to ensure service delivery are:

- The position of the Operator for the Front- End Loader, as this vehicle is crucial in maintaining the landfill sites in Setsoto and also crucial in removing corner dumping in the townships.
- The positions of Heavy Vehicle Drivers to ensure that adequate number of drivers are available to be able to render a service on a consistent basis.

- The positions of physically able General Workers in the teams for the collection of refuse. If there is not an adequate number of physically able General Workers in a team, the team would not be able to service the area intended to leaving a backlog.

Furthermore several positions are currently occupied by individuals who are physically unable to conduct the waste collection task. This is due to injuries, disabilities and age.

Below a table indicating the personnel compliment with vacancies:

**Employees: Waste Management Division**

<b>Job Level</b>	<b>Number of posts</b>	<b>Number of Employees</b>	<b>Vacancies (Fulltime Equivalents) No</b>	<b>Vacancies (as a % of total posts) %</b>
0-3	1	1	0	0%
4-6	5	5	0	0%
7-9	15	7	5	53%
10-12	4	4	0	0%
13-15	60	39	21	35%
16-17	931	22	9	29%
<b>Total</b>	<b>116</b>	<b>78</b>	<b>38</b>	<b>33%</b>

Setsoto LM has a designated Waste management officer as required by NEMWA, and quarterly reports are submitted to the Department of Environmental Affairs.

Below is the Waste Management Divisional structure:

# Division: Solid Waste Management

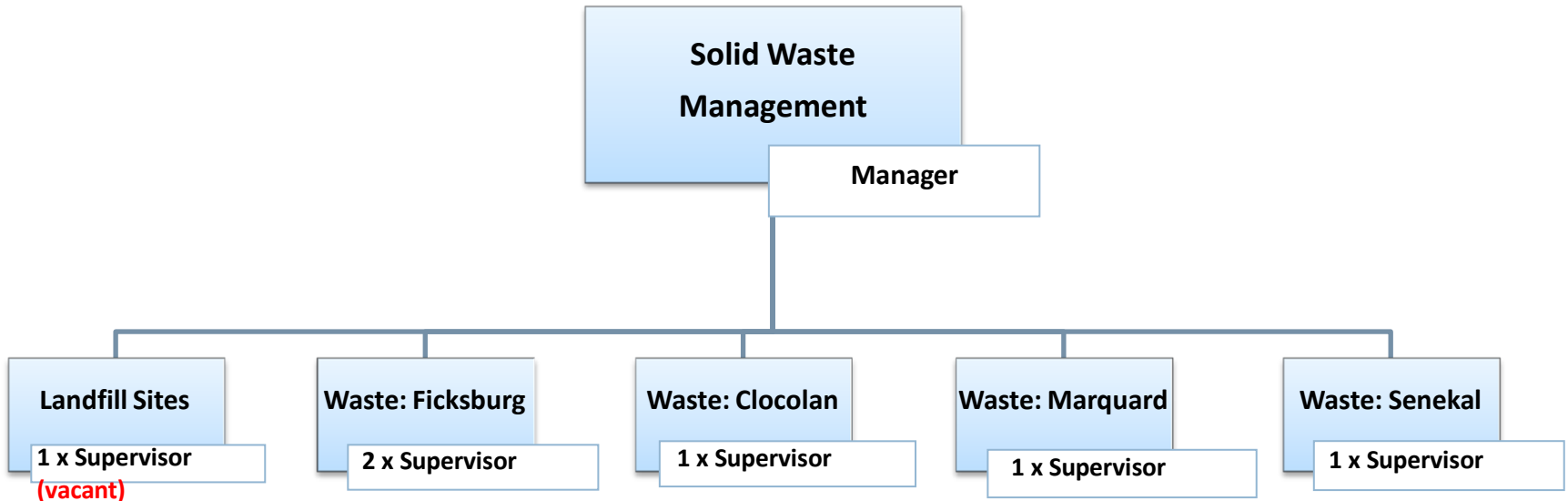


Figure 2: Divisional Structure for Solid Waste Management

Setsotho LM identified waste management as the third key priority in its IDP.

The following are the objectives of the Waste Management Division:

- The collection and disposal of refuse in terms of applicable legislation.
- The cleaning of the central business areas on a daily basis.
- The encouragement of recycling projects.
- The cleaning of vacant stands and open public areas of corner dumping.
- The maintenance of the landfill sites in terms of the license conditions.
- The construction of new landfill sites in Clocolan and Marquard, and rehabilitation of the old landfill sites in Clocolan and Marquard.

The Waste Management By-laws for Setsotho was promulgated in the Provincial Gazette of 13 July 2012 in accordance with Section 13 (a) of the Local Government: Municipal Systems Act, 2000.

#### 4.2 Population and Income

The Table below is a summary of the population figures per settlement of Setsotho LM in 2001. The rural population constitutes 29% of the total population if only Setsotho Rural is calculated. However, the urban/rural composition represented in

Table 2 of this report is slightly higher at 34% due to the exclusion of certain sub places that are urban areas. Meqheleng, a settlement of Ficksburg represents the highest urban population figure of Setsotho LM and constitutes approximately 21% of the total population.

Table 1: Projected Population as per IDP

Local Municipality	Settlements	Population 2001	Population Estimates 2007	Population Estimates 2011	Population Estimates 2015	Population Estimates 2016
Senekal	Senekal	3 330	2 774	2 456	3466	2 109
	Matwabeng	19 222	16 011	14 175	22077	12 172
Marquard	Marquard	1 023	852	754	1033	648
	Moemaneng	12 075	10 058	8 904	14469	7 647
Clocolan	Clocolan	1 369	1 140	1 010	1349	867
	Hlohlolwane	15 274	12 723	11 263	16523	9 672
Ficksburg	Ficksburg	8 311	6 923	6 129	5400	5 263

	Meqheleng	25 901	21 575	19 100	35064	16 402
	Caledon Park	1 251	1 042	923	784	792
Setsoto Rural	Setsoto	35 438	29 519	26 133	12704	22 441
<b>TOTAL</b>		<b>123 194</b>	<b>102 617</b>	<b>90 846</b>	<b>112869</b>	<b>78 013</b>

The reported population of Setsoto LM in 2001 was 123 194. This decreased to 102 826 in 2007 (Community Survey, 2007). The number of households decreased by approximately 3 000 in the same period.

Table 2: Estimates for populations (Community Survey, 2007)

	2001	2007	2011	2016	2018
Persons	123 194	102 826	112 597	112597	117364
Households	32 746	29 828	33 687	34687	37388

An annual increase of 9.5% has therefore been determined from 2007 to 2011 for Setsoto LM.

The percentage collection of domestic refuse in terms of the National Domestic Refuse Collection Standards increased from 52% domestic refuse collected in 2001 to an average of 94% collection during the last three (3) financial years, indicating an increase of 78% over this period. The waste removal services are presented in table 4 below.

Table 3: Waste Removal Services in Setsoto LM (2013/14; 2014/15; 2015/16)

Description	2013/14	2014/15	2015/16	2016/2017	2017/2018
% of Refuse removal– once a week	65	80	93	92	91
% of Refuse removal– less often	35	20	7	8	9
Total	100	100	100	100	100

Due to the high unemployment rate of 35.7% (2011), it has a major effect of income to the municipality.

The total number of registered indigent households in Setsoto decreased from 19 711 in 2012 to 3843 in 2015, but the registrations increased 6833 in 2016/2017. The registration of indigent households for 2018/2019 financial year amounted to 4502. This has a major effect on the amount available to render a refuse collection service.

### 4.3 Waste Service and Equipment

This municipality provides a service to 100% of the established township areas.

These areas include the towns of Marquard, Clocolan, Senekal, Ficksburg and the Townships (Moemaneng, Hlohlolwane, Matwabeng and Meqheleng) adjoining these towns. The total number of households serviced is determined at approximately 34 687, as reported by the Setsoto LM IDP. The table below indicates the service areas and points.

*Table 4: Number of Households and Business sites where collection takes place*

Service Areas	Number of Service Sites	* Number of services from July 2018
Residential	34 687	37388
CBD	674 *	674
Industrial		

- \* According to a Community Survey 2016 results the number of households are 37 388
- The number of 715 business sites has been changed to 674 business sites as indicated in the Valuation roll dated 31/06/2016.

However, there is no waste collection service rendered to rural areas, which constituted approximately 34% of the total population.

Currently waste disposal facilities are available in all four towns of Setsoto LM. They are all licensed but only two (Ficksburg and Senekal) have been properly constructed while the other two (Clocolan and Marquard) are not yet constructed. The Clocolan landfill site will be developed in 2018/20 financial year. No dedicated vehicles and equipment are available to maintain these landfills, resulting in poor maintenance of the landfills. With the available vehicle and equipment the four (4) landfill sites are maintained, but these vehicle and equipment are mostly used to remove corner dumping in the townships. The maintenance of the landfill sites were mostly done on Saturday's, but due to the curbing of overtime this function was ceased over weekends.

Since July 2018 the Front-End Loader placed in Ficksburg is maintaining the landfill sites in Clocolan, Marquard and Senekal on a quarterly basis. The District Environmental Health Department issued notices regarding the conditions on all the landfill sites in Setsoto.

During 2014 two (2) Refuse Mobile Compactors were sold, and the remaining refuse mobile compactor broke down. To replace these vehicles two (2) REL of 20m<sup>3</sup> were hired in to assist in Ficksburg/ Meqheleng, and another REL of 20m<sup>3</sup> was hired in to assist at Marquard and the other units.

This action resulted in a 78% increase in the collection of domestic refuse. With the assistance of these three (3) hired vehicles, waste removal service is rendered once a week at each household.

The hiring of these mobile compactors were however very costly at about R450 000.00 per month, and during the 2016/2017 financial year two (2) Refuse Mobile Compactors of 20<sup>3</sup> were procured and delivered early in 2017/2018 financial year. Two (2) of the hired trucks were phased out with one (1) truck still helping due to non-availability of refuse collection vehicles in all the units. This last REL of 20 m<sup>3</sup> has been phased out at the end of April 2018.

There is no standby vehicles available and in the case of mechanical problems a backlog is created in the areas where a refuse collection service must be rendered. In the past this challenge was solved with working after hours or over weekends, but due to the curbing of overtime no collection of domestic refuse is done after working hours anymore.

A service is rendered once a week to all businesses, and at least three times a week to businesses with perishable waste. Waste generated at the abattoir in Ficksburg is removed on a daily basis.

The central business areas (CBD's) in Ficksburg and Senekal are cleaned seven (7) days a week, and six (6) days a week in Clocolan and

In Table 6 below all the equipment available in the four towns of Setsoto is indicated with the age and condition of each vehicle.

Table 5: Setsoto LM Waste Equipment

Number	Description	Capacity	Age	Comments
2	Rear End Loader	12m <sup>3</sup>	>13 years	Both are breaking down on a regular basis, sometimes out of service for more than 2 months at a time.
2	Rear End Loader	20m <sup>3</sup>	<2 year	New and in good condition.
5	Tractor	-	>30 years	Only one (1) tractor operational at times. As indicated the trailers are old and in need of replacement
5	Trailers	3.5 – 5 tons	>30 years	As indicated the trailers are old and in need of replacement.
2	Front End Loader	-	>4 years >19 years	The REL in Senekal is out of service on a regular basis
2	Tipper Truck	6m <sup>3</sup>	>4 years >13 Years	The one (1) tipper truck pounded since October 2016

1	Tipper Truck	10m <sup>3</sup>	<2 years	
0	Mobile Compactors	20 m <sup>3</sup>	Hired	Phased out at end of April 2018.

The equipment and vehicles available for operation of the landfill sites in all the units are included in the abovementioned list, namely the two front end loaders and the two (2) tippers. Please note that the tipper in Senekal is pounded since October 2016.

These vehicles and equipment are not dedicated to the landfill sites as they must assist with the cleaning of public open areas in the townships which is basically a full time job, and loading material on a regular basis for the Engineering Services.

Waste receptacles are generally 85 litre refuse bags but containers are not specified for any area and waste is accepted in any container.

Waste management services offered by this municipality are currently considered acceptable and no changes in the waste management system are expected.

#### 4.4 Industrial and Medical Waste

Industrial sites are present in all four towns of Setsoto LM. These sites are serviced once a week and more often in instances where a need has been identified. A private recycler recycles carton boxes from industrial and CBD areas and this reduces the amount of waste to landfill. Other waste generated includes general waste, packaging material, perishables and carcasses from the abattoir in Ficksburg.

Large portions of industrial land have not been developed and industrial activities are restricted to grain silos, food processing plants, wholesale warehouses and panel beaters.

No medical waste is accepted on landfills. Medical waste is generated by three hospitals, 12 clinics and five mobile clinics in Setsoto LM. Medical waste is collected and disposed of by Compass.

A concern is the large number of used nappies being dumped illegally on public open areas.

#### 4.5. Waste Generation

The Table 7 below is a summary of the waste data submitted to South African Waste Centre (SAWIC). The information is based on the density in relation to tonnages.

*Table 6: Annual Collection Volumes for Setsoto LM*

Unit	Tons
Ficksburg	10 027
Megheleng	
Senekal	3 622

Matwabeng	
Clocolan	2 096
Hlohlowane	1 405
Marquard	7 95
Moemaneng	1 025
Corner dumping	1 354
Total	20 324

The data submitted to SAWIC for the 2015/2016 financial year was audited by officials from SAWIC, and the abovementioned information was corrected. Changes was made to the tons removed during the Friday Mayoral Cleaning Campaign.

The total waste volume disposed by the municipality is approximately 20 324 tons per annum.

#### **4.6. Waste Facilities and Disposal Sites**

Waste facilities in Setsoto LM include four landfill sites in the towns of Senekal, Marquard, Clocolan and Ficksburg.

The abovementioned landfill sites are licensed and the old landfill sites were issued with closure licenses. The landfill sites in Ficksburg and Senekal were developed during 2013/2014 with funding from MIG, and projects are registered with MIG to develop the landfill sites in Clocolan and Marquard during the 2018/2019 financial year.

Setsoto LM is experiencing great difficulties in managing these sites due to lack of equipment. Conditions had however improved in Ficksburg and Senekal.

##### **4.6.1. Marquard**

The Marquard landfill is situated to the south west of the town. This landfill is in close proximity to settlements and is accessed via gravel road. No signs exist to indicate the location of the landfill site. The site is fenced in as part of the cemetery, and disposal is not controlled properly. The inclusion of the landfill site within the area of the cemetery is unsightly during burials at the cemetery.

The main access roads to both sites are in poor condition. Sites have no form of access control and therefore no records with respect to the waste disposed of on site would be available.

The end-tipping method of operation is used, although in general, disposal operations within the disposal sites boundaries are poorly controlled. The waste disposed of is not covered. Both waste areas being utilized are associated with water bodies which are now either within close proximity to the waste disposal area, or the waste is actually within the water body itself.

Table 7: Marquard Landfill Site Summary

Waste Facilities and Disposal Sites					
<b>Name of disposal site</b>	Marquard Landfill				
<b>Geographic location of landfill</b>	S: 28° 40' 53.7" E: 27° 24' 47.7"				
<b>Licensed?</b>	YES	X	NO		Closure for the old site has be proposed and the new site will be developed
<b>Class</b>	G.S.B.				
<b>Design disposal volume</b>	N/A				
<b>Remaining site life (Yrs)</b>	Three (3) years (November 2021 when the licence for the new site and the closure of the existing site expire)				
<b>Annual disposal volume (ton)</b>	2 200				
<b>Equipment on site</b>	None				
<b>Access control</b>	YES		NO	X	
<b>Disposal tariffs</b>	Included in the tariff for refuse removal as approved by Council on a yearly basis.				
<b>Onsite salvaging</b>	YES		NO	X	
<b>Waste reclamation</b>	Yes				
<b>Method of land filling (e.g. trench system)</b>	End tipping				
<b>How is drainage Controlled?</b>	Uncontrolled				
<b>Does adequate signage and proper access roads exist?</b>	None				
<b>Is this a co-disposal facility? If YES, explain</b>	No.				
<b>What management measures are applied for nuisance factors?</b>	Covering of waste as per availability of equipment				
<b>How is leachate and gas</b>	No management measures				
Waste Facilities and Disposal Sites					

<b>Managed?</b>	Managed poorly due to non-availability of vehicles & equipment				
<b>Rehabilitation</b>	No rehabilitation measures				
<b>Final cover</b>	None				
<b>Expansion or closure plans</b>	Yes, project registered with MIG				
<b>Is hazardous waste accepted?</b>	YES		NO	X	

#### 4.6.2. Clocolan

The Clocolan landfill site is located in a disused gravel pit to the west of town. The site is accessed via tar road and no signage is present to indicate the direction to landfill. This site is adequately situated away from any residential areas.

This landfill site receives general domestic waste. The domestic waste disposed of includes a great deal of paper.

Site access at the moment is not controlled i.e. no fencing or gates. There is no supporting infrastructure from an administrative perspective. R703 route is used for access to the area where waste is being randomly disposed.

There is no support machinery on site to assist with construction of any form of waste cell or simple waste disposal.

The development of landfill site for this area is still in the process. Tenders were advertised for the appointment of a Consultant Engineer to manage the process of developing the landfill site in Clocolan. The project to develop the landfill site will commence during the beginning of 2018/2019 financial year.

Table 8: Clocolan landfill Site Summary

Waste Facilities and Disposal Sites					
<b>Name of disposal site</b>	Clocolan Landfill				
Waste Facilities and Disposal Sites					
<b>Geographic location of landfill</b>	S: 28° 54' 31.6" E: 27° 32' 17.0"				
<b>Licensed?</b>	YES	X	NO		
<b>Class</b>	G.S.B.				
<b>Design disposal volume</b>	N/A				
<b>Remaining site life (Yrs)</b>	Three (3) years (November 2021 when the licence for the new site and the closure of the existing site expire)				
<b>Annual disposal volume</b>					

(Ton)	3 501			
Equipment on site	None			
Access control	YES		NO	X Fencing
Disposal tariffs	Included in the tariff for the refuse removal as approved by Council on a yearly basis.			
Onsite salvaging	YES		NO	X
Waste reclamation	Waste pickers on site but no formal waste reclamation			
Method of land filling (e.g. trench system)	No apparent land filling method			
How is drainage controlled?	Uncontrolled			
Does adequate signage and proper access roads exist?	No			
Is this a co-disposal facility? If YES, explain	No. This facility developed as communal dump site and is expected to only accept general waste but since there isn't any access control, co-disposal is possible.			
What management measures are applied for nuisance factors?	None			
How is leachate and gas managed?	No management measures			
Rehabilitation	No rehabilitation measures			
Final cover	No covering			
<b>Waste Facilities and Disposal Sites</b>				
Expansion or closure plans	Project is registered at MIG for closure of this site and development of a new site.			
Is hazardous waste accepted?	YES		NO	X The likelihood of hazardous waste is low

Below a copy of the Amendment for a Waste License dated 9 November 2018:



**destea**

department of  
economic, small business development,  
tourism and environmental affairs  
FREE STATE PROVINCE

DESTEA Ref. No.: WML/EIA/01/2012(i)  
Enquiries: T. Sefuli  
Tel: 051- 400 4785  
E-mail: [sefulit@destea.gov.za](mailto:sefulit@destea.gov.za)

Mr. T. Hugo  
ENVIROMATRIX Environmental Management Services  
P.O. Box 2580  
Bethlehem  
9700

Cell: 082 070 0736  
E-mail: [info@ematrix.co.za](mailto:info@ematrix.co.za)

**Per e-mail**

Dear Mr. Hugo

**RE: APPLICATION FOR AMENDMENT OF A WASTE MANAGEMENT LICENCE FOR THE PROPOSED ESTABLISHMENT OF A SOLID WASTE DISPOSAL SITE IN CLOCOLAN, SETSOTO LOCAL MUNICIPALITY**

The Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA) hereby acknowledges receipt of your application to amend the Waste Management Licence issued on 11<sup>th</sup> July 2013.

The Department has reviewed your application and hereby grants you the amendment of the Waste Management License (reference number: WML/EIA/01/2012(i)) as per Regulation 30(2) of GNR 982, 2014 EIA Regulations, as amended.

The amendment of the Waste Management License is as follows:

- **The validity of the Waste Management License (WML/EIA/02/2012(i)) is extended for a period of three (3) years from the date of signature of this letter.**

This letter is an Addendum to the existing Waste Management License WML/EIA/01/2012(i), issued on 11<sup>th</sup> July 2013. The conditions stipulated in that Waste Management License are still applicable and must be fully adhered to.

Regards,

Dr. M. Nokwequ  
**Acting HOD: DESTEA**

Date:

Sub-Directorate: Waste Management & Pollution Control

Private Bag X 20801  
Bloemfontein  
9300

113 St Andrew Street  
Bloemfontein  
9301

Tel: +27 (0)51 400 4781  
Fax: +27 (0)51 400 4842  
E-mail: [sellom@destea.fs.gov.za](mailto:sellom@destea.fs.gov.za)

[www.edtea.fs.gov.za](http://www.edtea.fs.gov.za)



**destea**

department of  
economic, small business development,  
tourism and environmental affairs  
FREE STATE PROVINCE

DESTEA Ref. No.: WML/EIA/01/2012(ii)  
Enquiries: T. Sefuli  
Tel: 051- 400 4785  
E-mail: [sefulit@destea.gov.za](mailto:sefulit@destea.gov.za)

Mr. T. Hugo  
ENVIROMATRIX Environmental Management Services  
P.O. Box 2580  
Bethlehem  
9700

Cell: 082 070 0736  
E-mail: [info@ematrix.co.za](mailto:info@ematrix.co.za)

**Per e-mail**

Dear Mr. Hugo

**RE: APPLICATION FOR AMENDMENT OF A WASTE MANAGEMENT LICENCE FOR THE CLOSURE AND REHABILITATION OF A SOLID WASTE DISPOSAL SITE IN CLOCOLAN, SETSOTO LOCAL MUNICIPALITY**

The Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEA) hereby acknowledges receipt of your application to amend the Waste Management Licence issued on the 11<sup>th</sup> July 2013.

The Department has reviewed your application and hereby grants the amendment of the Waste Management License (reference number: WML/EIA/01/2012(ii)) as per Regulation 30(2) of GNR 982, 2014 EIA Regulations, as amended.

The amendment of the Waste Management License is as follows:

- **The validity of the Waste Management License (WML/EIA/02/2012(ii)) is extended for a period of three (3) years from the date of signature of this letter.**

This letter is an Addendum to the existing Waste Management License WML/EIA/01/2012(ii), issued on the 11<sup>th</sup> July 2013. The conditions stipulated in that Waste Management License are still applicable and must be fully adhered to.

Regards,

  
\_\_\_\_\_  
Dr. M. Mokwedi  
**Acting HOD; DESTEA**  
Date: 9/11/18

**Sub-Directorate: Waste Management & Pollution Control**

Private Bag X 20801  
Bloemfontein  
9300

113 St Andrew Street  
Bloemfontein  
9301

Tel: +27 (0)51 400 4781  
Fax: +27 (0)51 400 4842  
E-mail: [sellom@destea.fs.gov.za](mailto:sellom@destea.fs.gov.za)

[www.edtea.fs.gov.za](http://www.edtea.fs.gov.za)

### 4.6.3. Senekal

The Senekal landfill site is situated east of the industrial area of Senekal. The site is accessed via gravel road and no signs exist.

A new landfill site was developed during 2013/2014 and is situated next to the old landfill area. During development of the site putrefied tree forest was discovered and handled by the Environmental Practitioner in terms of the applicable legislation. The sides of the cells were rather raised as to dig into the putrefied trees.

Site receives general domestic waste, light industrial waste and building rubble.

The main access road to the site is in a reasonable condition. The site is fenced and regular waste burning occurs on site due to arson by waste pickers.

Employees are controlling entrance and disposal at the site, and data is collected from all waste disposed at the site to be submitted to the South African Waste Information Centre (SAWIC).

Table 9: Senekal Landfill Site Summary

Waste Facilities and Disposal Sites					
<b>Name of disposal site</b>	Senekal Landfill				
<b>Geographic location of</b>	S: 28° 19' 35.5"				
Waste Facilities and Disposal Sites					
<b>landfill</b>	E: 27° 38' 27.3"				
<b>Licensed?</b>	YES	X	NO		2014
<b>Class</b>	G:S:B-				
<b>Design disposal volume</b>	Unknown				
<b>Remaining site life (Yrs)</b>	17 years ( 2035)				
<b>Annual disposal volume (Ton)</b>	3 622				
<b>Equipment on site</b>	None				
<b>Access control</b>	YES	X	NO		
<b>Disposal tariffs</b>	Included in the tariff for refuse removal as approved by Council on a yearly basis.				
<b>Onsite salvaging</b>	YES	X	NO		

<b>Waste reclamation</b>	Waste pickers on site.				
<b>Method of land filling (e.g. trench system)</b>	Cell System				
<b>How is drainage controlled?</b>	Drainage in all cells is draining into a leachate pond.				
<b>Does adequate signage and proper access roads exist?</b>	Yes				
<b>Is this a co-disposal facility? If YES, explain</b>	No				
<b>What management measures are applied for nuisance factors?</b>	None				
	Because of equipment not operational, wind blows papers & plastics over a large area.				
<b>How is leachate and gas managed?</b>	Through a drainage system.				
<b>Rehabilitation</b>	Yes				
<b>Final cover</b>	Yes				
<b>Expansion or closure plans</b>	New site developed during 2013/2014 and old site is closed during 2013/2014				
<b>Is hazardous waste</b>	YES		NO	X	The likelihood of hazardous waste is very low
<b>Waste Facilities and Disposal Sites</b>					
<b>accepted</b>					

#### 4.6.4. Ficksburg

The Ficksburg landfill site was developed during 2013/2014 financial year. This site is permitted and operated in terms of license conditions. The site is located to the south of Ficksburg. Access to the site is via tar road and signage is present at the entrance of the site.

The main access road to the site is in good condition. The site has signage at the entrance. The site is fenced. There are two site offices and a weigh pad on site. An employee is controlling entrance and disposal at the site, and data is collected from

all waste disposed at the site to be submitted to the South African Waste Information Centre (SAWIC).

Cover material is available on site. Vehicles and equipment are available at this site, but not dedicated to the landfill site in Ficksburg as they must assist with the cleaning of public open areas in all four (4) the townships, and loading material on a regular basis for the Engineering Services.

Table 10: Ficksburg Landfill Site Summary

Waste Facilities and Disposal Sites					
<b>Name of disposal site</b>	Ficksburg Landfill				
<b>Geographic location of landfill</b>	S: 28° 54' 38.0" E: 27° 52' 36.8"				
<b>Licensed?</b>	YES	X	NO		
<b>Class</b>	G.S.B.				
<b>Design disposal volume</b>	N/A				
<b>Remaining site life (Yrs)</b>	17 Years (2035)				
<b>Annual disposal volume (TON)</b>	10 027*				
<b>Equipment on site</b>	Front end loader and tipper truck				
<b>Access control</b>	YES	X	NO		Fencing, guardhouse
<b>Disposal tariffs</b>	Included in the refuse removal tariff as approved by council on a yearly basis.				
<b>Onsite salvaging</b>	YES	X	NO		
<b>Waste reclamation</b>	Waste pickers on site but no formal waste reclamation				
<b>Method of land filling (e.g. trench system)</b>	Cell system.				
<b>How is drainage controlled?</b>	Through drainage pipes to a leachate pond				
<b>Does adequate signage and proper access roads exist?</b>	Yes				
<b>Is this a co-disposal facility? If YES, explain</b>	Yes				
	Waste covering				

<b>What management measures are applied for nuisance factors?</b>					
<b>How is leachate and gas managed?</b>	Drainage system to a leachate pond				
<b>Rehabilitation</b>	Waste covering				
<b>Waste Facilities and Disposal Sites</b>					
<b>Final cover</b>	Soil				
<b>Expansion or closure plans</b>	No				
<b>Is hazardous waste accepted?</b>	YES		NO	X	The likelihood of hazardous waste is low

\* Annual disposal volume corrected as indicated under Waste Information.

#### 4.7. Waste Avoidance, Minimisation and Recycling

Recycling is not formally done in Setsoto LM. However there are two Recycling Centres in Ficksburg and two in Senekal.

The municipality have developed a draft Office Paper Minimization and Recycling Policy which is going to bind all officials of Setsoto LM to minimize the use of paper and recycle any recyclable waste in the offices.

There is currently a recycling project led by the LED department of Setsoto LM at the Senekal Landfill. This programme is however not successful and private recyclers are responsible for recycling of carton boxes in all four areas of Setsoto LM.

To minimise the waste going to the landfill sites, Setsoto LM is considering to implement the Waste to Energy project. Waste to Energy is an environmentally sound project that provides municipalities with reliable electricity generation and sustainable disposal of post-recycling Municipal Solid Waste (MSW). It helps reduce the greenhouse gas emissions which contribute to Global Warming (GW) and Climate Change (CC).

It also help in reducing consumption of diesel fuel used by trucks to and from the landfill sites and by the equipment used to bury MSW in landfill sites which as well generate environmental impacts such as air emissions.

The objectives of waste avoidance, minimisation and recycling for the municipality are listed in the Table below.

Table 11: Waste Avoidance, Minimization and Recycling Objectives in terms of NWMS: Source (TMDM, IWMP 2011)

Strategic Planning Category	Applicable NWMS Objectives
	Grow the contribution of the waste sector to GDP

Waste Avoidance, Minimization, Re-Use and Recycling	Increase number of jobs within waste services, recycling and recovery sectors
	Promote SMMEs in waste sector
	Increase reuse and recycling rates of products
	Reduce the percentage (%) of recyclable material to landfill
	Encourage the establishment of Material Recovery Facilities (MRFs)
	Stabilise quantity of waste disposed to landfill then reduce this volume
<b>Strategic Planning Category</b>	<b>Applicable NWMS Objectives</b>
	Ensure the diversion of certain waste tyres from landfill

#### 4.8. Illegal Dumping and Disposal

Illegal dumping is a recognised problem globally. It has resulted in increased costs associated with clearing and cleaning efforts (Ball, 2014).

Illegal disposal is considered as a major concern in Setsoto LM. This is restricted to corner dumping.

Waste that is disposed of is mainly garden and domestic waste. Illegally disposed waste is cleaned by the municipality as often as they can when vehicles are available. Vehicles are old and unreliable and therefore inadequate to perform the task. A major problem is the disposal of nappies next to roads and on public open areas.

The municipality has developed cleaning campaign program to ensure that all illegally dumped areas are cleaned. However this is subject to financial support.

The statistics for 2017/2018 for the removal of corner dumping amount to the following tonnage:

Month	Tonnage removed
July 2017	77.50
August 2017	31.75
September 2017	27.50

October 2017	21.25
November 2017	9.00
December 2017	0.00
January 2018	81.00
February 2018	285.00
March 2018	95.00
April 2018	87.50
May 2018	202.5
June 2018	302.75
<b>TOTAL</b>	<b>1 220.75</b>

#### 4.9. Finance arrangements

Setsoto LM makes provision for Waste Management services in the annual budget. During 2016/2017 the actual operational cost to render waste collection service amounted to R40 000 000.00. An amount of R1 500 000.00 was in the budget for Capital expenditure, but procurement has been done for two (2) new Refuse mobile compactors for delivery early in 2017/28 financial year.

The collection of revenue amounted to R 52 000 000.00 that included an amount of R19 053 000.00 for Equitable shares. Setsoto LM has therefore have a recovery rate of approximately 49%.

The registered consumers for waste removal amounts to 26 932 for households and businesses.

Table 12: Refuse Collection Charges in Setsoto LM (Excluding VAT)

		2016/2017 (R)	2017/2018 (R)	2018/2019 (R)
Household	Township	96.70	102.89	113.18
	Town	96.70	102.89	113.18
Business	Town & township factor value of at least 2 services	96.00	102.14	112.36
	Tuckshop	96.70	102.89	113.18
Provincial & government buildings		257.32	273.79	301.17
Garden refuse (container or trailer rental)		168.37	179.15	197.06
Building rubble per 8 ton load		1607.18	1767.90	1944.69
Cleaning of sites ( vacant sites only)(per 100 m <sup>2</sup> or part thereof)		803.59	883.95	972.35
Removal of trade refuse (per 85 Lt container)		137.76	146.58	161.23

Removal of perishable foodstuffs		306.13	336.74	370.41
Removal of carcass	292.22	321.44	353.58	388.94
	146.11	176.79	176.79	194.47

## 5. Status Quo Summary

### 5.1. Collection and Transportation

Waste collection is a local municipality competency and is therefore conducted by Setsoto LM. A waste removal service is offered to 100% of the established township areas, but due to unreliable vehicles an average of 94% rate is reached over a three (3) year period. The municipality is collecting refuse from every household in all towns except in rural areas and farms of the municipality.

Every household and business are rendered a refuse collection service once a week. In the Central Business Development (CBD) the cleaning of litter from pavements and streets is rendered seven (7) days a week. Certain businesses with perishable waste are serviced at least three (3) times a week, or on a daily basis with prior arrangement.

Domestic and business waste in refuse bags are placed for kerbside collection once a week in the towns, but in the townships there are no prescribed waste receptacles. This causes unnecessary delays during collection since waste is often in containers that are too big that should either be taken apart or too small so it takes a long time to collect all the containers.

The budget for the procurement of 85 litre plastic containers was approved during 2015/2016, and when these containers are procured, such would be placed at each household in Setsoto. This project is planned for implementation over a three (3) year period from 2015/2016 financial year, but due to financial constraints this project was postponed to a later date.

### 5.2. Waste Treatment

There are no waste treatment facilities in any of the four towns of Setsoto LM. Waste generated in Setsoto LM is generated in small volumes over widespread areas. The waste generated would therefore not be sufficient to justify any waste treatment facilities. Ficksburg is the largest waste generator in Setsoto LM. Tyres are the most treatable waste of a general waste stream and can be problematic in landfill sites due to fire hazards and decomposing abilities.

### 5.3. Waste Information

Setsoto LM has registered with the Waste Information System to report monthly on the estimated volumes of waste disposed in its landfill sites. Waste volumes accepted at landfill sites are available for Ficksburg and Senekal landfills sites due to the onsite representative recording waste volumes.

Ficksburg landfill has a weigh pad installed that is not currently in use. Due to vandalism this weigh pad has been removed from the landfill site.

Waste data from these landfill sites are recorded and submitted to South African Waste Information Centre (SAWIC). Setsoto LM started submitting waste data in

September 2014. During 2017 the data of the Ficksburg landfill site was audited by officials from the South African Waste Information Centre in Pretoria.

#### **5.4. Institutional Arrangements**

The new positions as approved in the organogram has not been filled, and due to personnel leaving the service on account of death, pension or other the vacancy rate for Waste Management in Setsoto Municipality is above thirty percent (>30%) having a major impact on the planning and implementation of the collection of household and business waste, maintenance of the landfill sites and the Friday Mayoral Cleaning Campaigns.

A general occurrence in the municipality is vacant positions in the general workers' category. This is generally ascribed to deaths, retirements and resignations.

Another factor raised is the capability of workers. The workers who are unable to conduct the physically demanding job of waste collection and/or landfill management due to age or injuries. The positions that are filled but do not ensure delivery of an efficient service.

#### **5.5. Monitoring and Compliance**

There is a checklist drafted by Department of Environmental Affairs in terms of the Waste Act. This checklist is designed in order to identify areas where municipalities require assistance from DEA in order to meet their legal mandate with regards to complying with the Waste Act.

An audit of the data collected for the periods 2015 and 2016 at the landfill site in Ficksburg and submitted to the South African Waste Information Centre (SAWIC) was done by the officials from SAWIC.

### **6. IDENTIFICATION AND PRIORITIZATION OF NEEDS**

The Status Quo analysis has highlighted the status of waste management in Setsoto LM. In many cases, waste management is not as effective as it could be, and in these cases there are clear needs that should be addressed. Once these needs have been addressed, it follows that overall waste management will improve, benefiting all the residents and businesses within the local boundaries.

#### **6.1. Health and Environmental Impacts of Poor Waste Management**

The impacts of poor waste management on human health and the environment are well-known and documented. A summary of these impacts is provided in this section.

Waste disposal is often a neglected area in many developing countries, and improper waste management lead to a major environmental health hazard. Increasing quantities of waste and its changing composition are some of the major challenges facing local governments.

Waste management was initiated due to its impacts on human health. As human settlements densified, health impacts from waste increased and it became necessary to manage them. Waste, left unprocessed or made inert, attracts insects and rodents, which in turn cause stomach parasites to develop in human beings. This leads to diseases such as intestinal disease.

Hazardous wastes, such as health care wastes and industrial wastes can contain chemicals causing cancer. Typical hazardous waste include medical waste, mine dumps, agricultural pesticides, etc.

Proper solid waste disposal is an important component of environmental sanitation and sustainability. Apart from the related health risks of poor waste management, creating a sustainable environment and improving waste management offers opportunities for economic growth and health improvements.

Waste quantities are increasing at an alarming rate. Currently the world population of 7.3 billion generates MSW of approximately 1.3 billion tonnes annually and it is expected to increase to approximately 2.2 billion by 2025 (Waste Generation, 2012).

The situation is worsened by the inability of many local governments to process these large quantities of waste, in part due to the lack of facilities for safe disposal, and/ or the lack of proper equipment to maintain these sites in terms of the license conditions.

This leads to uncontrolled dumping and illegal dumpsites. Additional risks can occur from direct contact with toxins from poorly managed wastes, including batteries and vehicle tyres.

Poorly managed waste poses a great risk to the health and well-being of communities, especially those living next to the dumping sites. This kind of waste can cause pollution (Soil, Air, Water, etc.) which will then cause ecological degradation and diseases that will affect people as well as animals (Kafando P, 2013).

Environmental threats by Waste include contamination of ground water and surface water by leachate from landfill sites and any dumping sites. The threats also include burning of waste that is not properly collected and disposed. Burned waste contributes to atmospheric pollution and greenhouse gas emissions (Waste Generation, 2012).

Local municipalities in South Africa are responsible for services on waste removal. The public/ communities need to meet the municipality half way in taking the responsibility for the cleanliness of their towns and making sure that waste is disposed in a correct manner. The cooperation of the community is essential in delivering a refuse collection service, if not placing refuse out for removal each week, it leads to illegal dumping on the nearby open public areas. It is recognised that illegal and uncontrolled dumping of waste is almost unavoidable. Waste creates problems in a number of ways:

- It is aesthetically unattractive and impacts on tourism by creating unsightly regions in South Africa's scenic landscape.
- It pollutes air, soil, rivers and precious groundwater.
- It creates major health hazards to humans, particularly in areas where large amounts of waste are dumped and not cleaned up, e.g. in informal settlements.

One of other problems that the municipalities are facing, is the leachate production. Most of the landfill sites don't have leachate ponds/dams, where leachate is disposed. When leachate is not managed properly, it will end up contaminating ground water and vegetation which will in turn affect the human health.

Direct exposure to waste landfills, in the case of waste Reclaimers including children is likely to show a decline in health.

## **7. THEORETICAL WASTE GENERATION VOLUMES**

Although waste generation per area depends on various factors such as population size, commercial sources of the area, seasonality and cultural aspects, it has been established that income levels are the greatest determinant in waste generation rates.

Income levels have therefore been used as opposing variables in this model. Income groups were classified as low, medium and high income groups.

Waste generation of various industries has also been taken into account, since the contribution of waste generated by these sectors cannot be ignored.

### **7.1. Population**

Population data was used from Census 2011 data, conducted by the National Census Bureau and Statistics South Africa, to determine the latest formally determined population figures. A community survey was conducted by Statistics SA in 2007. The Community Survey is measured in terms of number of persons and/or number of households. The extent of the Community Survey covers the persons and households that were sampled within all different enumeration areas as demarcated in the 2011 Census, excluding those classified as institutions and recreational areas. In order to have new estimates, the past censuses are considered as the best available sources of data that give information at lower geographical level.

Population growth rates were determined for each local municipality by comparing information presented in the Community Survey of 2007 with Census 2011 data. Growth rate of Setsoto LM is -0.9%.

### **7.2. Household contributions to the waste stream**

Waste generation rates are influenced by income levels that are directly proportional to the amount of waste generated by a particular individual.

Garden waste is by far the largest component of the waste stream in terms of weight, comprising approximately 26% of the total waste stream. This can be ascribed to the time of the collection of the sample. This study was conducted in November 2010, which is the start of the summer and the rainy season. It can therefore be expected that garden waste volumes would be higher than a sample taken during winter. However, garden waste takes up valuable airspace and should rather be diverted away from the general waste stream.

Paper collected from the waste stream varied between 20% and 25% and plastic was approximately 15%. Plastics have not been sorted into recyclable and non-recyclable plastic but are a collection of all plastics in the waste stream. The recyclable component may therefore be less than reported above.

Metal is the smallest component and includes cold drink cans. This percentage varies from 2.7% to 5.2% of the total waste stream.

Disposable diapers are not recyclable but is considered a hazardous waste which should ideally be diverted away from the general domestic waste stream. However, policies have not yet been drafted on National level to advice on the management of disposable diapers. The following table shows the waste composition for Setsoto LM.

*Table 12: Waste Composition*

Component	Kg	% of Total
Paper	56.92	20
Plastic	37.37	15
Metal	9.54	3
Disposable Nappies	8.72	2
Glass	24.6	8
Garden	64.59	26
Other	48.71	26
TOTAL	250.45	100%

### 7.3. Conclusion

This section reveals the potential recyclables. The sorting categories included paper, plastic, metal, glass and garden waste. The results that were derived from the waste classification reveals that as much as 81% of the waste stream could be recycled.

When considering recycling possibilities the following should be kept in mind:

- Of the material separated in the above exercise, not all material will be recyclable. Paper should be clean and dry while not all plastics are recyclable.
- Although percentages are high it does not mean sufficient material will be gathered to justify the financial expenses such as transport costs. Recycling should not be done with the aim of generating profits. However, if a recycling project is outsourced to the community; sufficient revenue should be gained to sustain the effort.
- The sample area is small and not representative of the entire municipality. For representative results of the municipality, more samples from various areas should be taken over a longer period. This will reveal the changes in collection areas and seasonal changes.

The waste characterisation clearly demonstrates that the majority of the waste transport costs incurred by the municipality are into transporting wastes that should not be transported, or disposed of, in landfills. Waste diversion strategies should be implemented to ensure that increasing percentages of the garden waste and paper

and plastic do not reach the waste compactors, where sufficient waste is available to justify recycling projects, according to the above conditions.

## **8. STRATEGIC PLANNING**

The aim of strategic waste planning is to develop and establish waste management objectives that should be adhered to by the municipality. Strategic waste planning is developed taking into account the NEMWA as well as the National Waste Management Strategy, published in June 2010.

The waste management categories, for which strategic planning and action planning takes place for this IWMP, are related to the waste management structure in the municipality. These categories are as follows:

- Collection and Transportation;
- Waste Avoidance, Minimization, Re-Use and Recycling;
- Waste Treatment;
- Waste Disposal;
- Waste Information;
- Institutional Arrangements;
- Financial Arrangements; and
- Monitoring and Compliance.

### **8.1. National Waste Management Strategy Guidelines**

The National Waste Management Strategy provides the framework for the strategic waste planning for the municipalities. The goals and objectives for waste management are contained in the NWMS. The tables contained in this section contains a translation of the objectives into the various strategic planning categories that are used in this IWMP. These objectives will then be used in each of the planning categories to inform the strategic planning and thus the action plan for Setsoto local municipality.

There are eight goals in the NWMS with targets associated with the goals. All the goals are applicable to all municipalities.

The objectives function to support the implementation of the waste hierarchy. The waste hierarchy is a triangle shaped value chain of waste interventions, and is shown below.

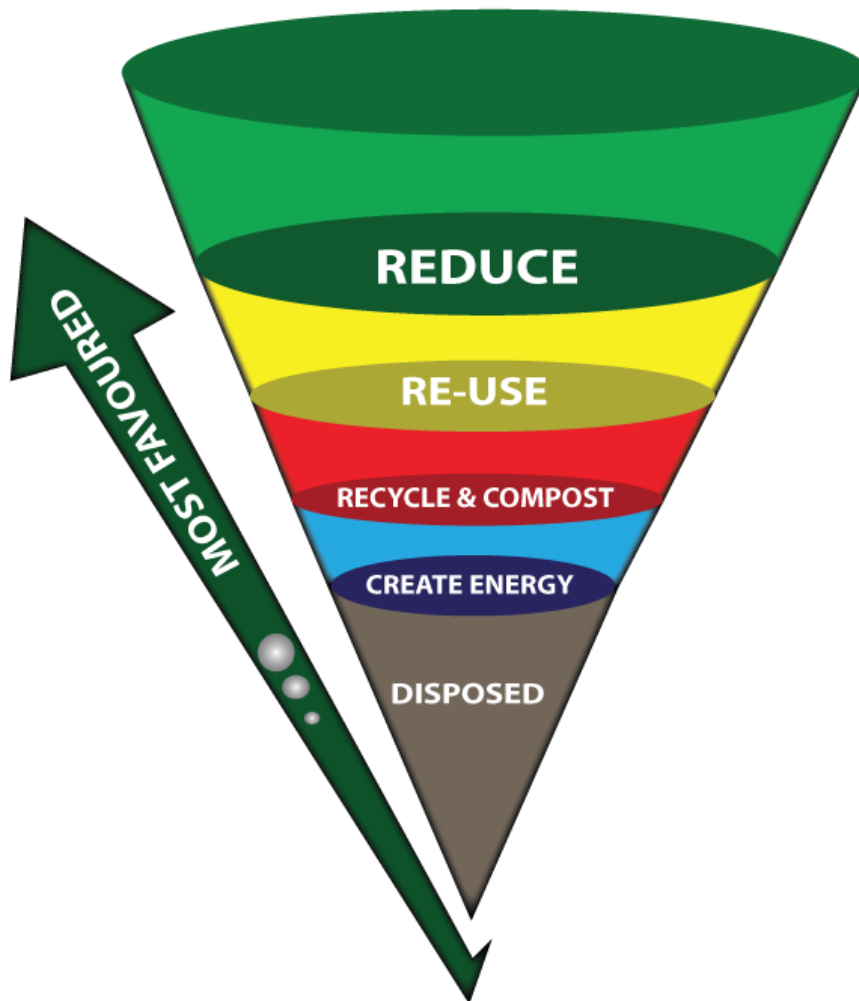


Figure 3: Waste Management Hierarchy

The first step in the value chain is to avoid waste generation and reduce waste production. Once waste has been generated, efforts should be focused on recovery, re-use and recycling. Once all of the recyclable and re-usable waste is recovered from the waste stream, waste should be treated. Once the remaining waste has been treated it should be disposed of. Once disposal has been completed, the effects of waste disposal and pollution should be remediated.

### 8.1.2. Goals and Objectives According to NWMS

According to NWMS every municipality has to develop goals and objectives to ensure that an environmental and social service is rendered at a reasonable price for the community.

An implementation plan has to be developed that will set clear goals to ensure that the issues identified are addressed. Objectives will then have to be identified in order to ensure that the set goals are achieved on time. Objectives have to be in line with applicable environmental legislation, principles, and best practice that have been adopted nationally and internationally.

Baseline Goals and Objectives are listed below and will be finalised after the public consultation process has been completed. These Goals and Objectives will also be made available to the stakeholders for their comments and inputs.

<b>Goal 1: Promote recycling and recovery of waste</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
To establish a formal partnership with buyback centres at strategic locations	25% of recyclable waste that is diverted to the landfill sites for re-use, recycling or recovery.	Initiating separation at source programmes.	2017/2020

<b>Goal 2: Ensure the effective and efficient delivery of waste services</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
To improve access to basic services by removal of solid waste	100% of urban households must have access to adequate levels of waste collection services.	Collecting refuse once a week at households and business sites	Continuous
	All of waste disposal sites must be developed and comply with license conditions	Develop Clocolan Landfill site	2018/2020

<b>Goal 3: Ensure that legislative tools are developed to deliver on the Waste Act and other applicable legislation</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
Compliance with National Environmental Management Waste Act.	Increase the legislative tools that will assist to deliver on Waste Act.	Development and implement Waste management Policies	2017/2019

<b>Goal 4: Sound budgeting and financing of waste management services</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
To draft an affordable Operational and Capital Budget	Conduct full-cost accounting for waste services and implement cost reflective tariffs.	Budget for waste Management activities	Continuous

<b>Goal 5: Ensure the safe and proper disposal of waste</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
To assess disposal of waste	Conduct an assessment of all contaminated sites (public open spaces & parks) reported.	Develop a register for recording the reported contaminated sites.	Continuous
	Develop remediation programmes for contaminated sites.	Conducting Cleaning Campaigns to remediate contaminated areas	Continuous

<b>Goal 6: Education and awareness</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
To develop a strategy that will encourage community participation in waste related issues such as separation at source, waste minimisation,	Initiate methods to encourage the community participation within waste management	Conduct local education and awareness campaigns	Continuous

recycling and cooperating with refuse collection service.			
Make the communities aware of the negative impact of illegal dumping and provide them with adequate facilities or services to reduce the need for illegal dumping;	Ensure that 50 % of schools implement waste management programmes.	Introduce Separation at source programme at schools	2017/2020
Establish community based environmental programmes that involve the community in awareness and clean-up campaigns	To allow community to have a say and take charge of the waste management issues.	Establishment of the Environmental Forum	2017/2020

<b>Goal 7: Compliance and enforcement</b>			
<b>Objectives</b>	<b>Targets</b>	<b>Activities</b>	<b>Timeframe</b>
To ensure compliance in the NEMWA and By-laws	Enforcement actions against non-compliant activities.	Law enforcement Officers (Peace Officers) to enforce the National Environmental Management Waste Act and Municipal By-laws.	Continuous

## **8.2. Collection and Transportation**

The objective of collection and transportation is to provide a universal collection in an affordable, sustainable and efficient manner for all the residents of the municipality.

### **8.2.1 Collection**

The equipment available for providing waste collection services is generally not effective. The vehicles are old and in poor condition and regular breakdowns hinder the efficiency of this service. In addition, vehicle fleets should match the waste collection needs of the municipalities.

Waste compactor trucks are most suitable for weekly kerbside collection.

Tractor and trailer combinations should be used in small service areas where the disposal facility is closer than five kilometres. The use of tractor and trailer combinations facilitates the involvement of SMMEs in waste collection services.

Factors that influence the actual collection capacity required include: the relationship between population and waste generation (which is related to income distribution), degree of urbanisation; settlement types and distribution; population density and service access.

### **8.2.2. Education and Awareness**

Community involvement, education and awareness on waste management (Reduce, Reuse and Recycling) and information on general waste management are important aspects that should be implemented by municipalities. Awareness on Free Basic Refuse Removal Policy (FRRP) should also be conducted to inform communities on how FRRP is working and whom does it include.

Waste Management division is responsible for public education and awareness that is conducted by the employees, subject to the provision of the resources needed to do awareness.

The awareness is conducted to school learners and general members of the communities in Setsoto LM. Cleaning campaign programmes for areas affected by illegal dumping are conducted forming part of awareness to the community.

## **8.3. Waste Avoidance, Minimization, Re-use and Recycling**

### **8.3.1. Recycling**

There are currently five formal privately owned recycling centres in Setsoto Local Municipality. They are in Senekal and Ficksburg. There are no initiated recycling programme from the municipality.

Some of the waste pickers in Setsoto was trained during the 2016/2017 financial year as arranged by the Department of Environmental Affairs, and a workshop was conducted for private entrepreneurs that are buying recyclable material from the reclaimers during the 2017/2018 financial year.

### **8.3.2. Separation at Source**

According to the National Domestic Waste Collection Standards, metropolitan centres and secondary cities should implement separation-at-source structures. The

NWMS states that all local municipalities should strive to implement such structures and provide guidelines to these structures regarding types of waste, the sorting of the waste appropriate containers and removal schedules for each type of waste. Recyclable waste such as paper should be dry and separated into the different grades of paper in order to increase recyclable yield. Separation-at-source gives a big motivation to clean paper recovery.

Since Setsoto LM does not qualify as secondary cities, separation at source should be held over until other critical waste management objectives have been achieved.

The municipality is in the process of introducing separation at source programme for schools and Office Paper minimization and Recycling Policy (which will then make the municipal officials to separate the office paper before disposing it anywhere). The owners of the Buyback centres in Setsoto are encouraged to collect recyclable material at source, and it takes a large quantity of material out of the waste stream for collection by the municipality to dispose at the landfill sites.

### **8.3.3. Landfill Recovery**

Recovery on landfill sites should be encouraged and formalised. The conditions under which waste pickers work are poor and each municipality should take steps to control waste picker activity.

Controls should be instituted by allowing only registered waste pickers on landfill sites and providing each waste picker with personal protective equipment. On small landfills, disposal practices should be changed to allow more systematic recyclable retrieval. Each landfill should have a covered recycling shed, where recyclables are stored prior to collection. Local Municipalities, along with District Municipal support should arrange for regular private sector recyclables collection from every landfill regardless of volume.

## **8.4. Waste Disposal**

The long-term objective of waste disposal strategic planning is to ensure that all waste reaches final disposal and is disposed of in waste facilities that are operated and managed in terms of the Minimum Requirements for Waste Disposal and in terms of Environmental Law.

### **8.4.1. Permitting and Legal Operation**

The first short-term goal for Setsoto LM is to develop remaining landfill sites which are for Marquard and Clocolan. Aligned with this goal is the need to operate landfills in line with the license conditions. This licensing process should be carried out even if a landfill is planned for closure. The closure process will include obtaining a licence and then closing the site.

The landfills in Setsoto LM have been classified into size categories provided in the Minimum Standards for Waste Disposal by Landfill.

The size category for each site links to the required state of the landfill in the Minimum Requirements for Waste Disposal by landfill. The small landfills have the following minimum requirements:

Table 13: Operating Requirements for Small Landfill Sites

<b>Minimum Requirement</b>
<b>1. Signposting</b>
<b>2. Waste Acceptance Procedure</b>
<b>3. Fencing</b>
<b>4. Control of vehicle access</b>
<b>5. Operating Plan</b>
<b>6. Site Office</b>
<b>7. Adequate plant and equipment</b>
<b>8. Designated responsible person</b>
<b>9. Sufficient qualified staff</b>
<b>10. Compaction of Waste</b>
<b>11. Daily Cover</b>
<b>12. Two week's cell or trench capacity</b>
<b>13. Protection of un-safe excavations</b>
<b>14. One week's wet cell capacity</b>
<b>Minimum Requirement</b>
<b>15. Immediate covering of putrescible</b>
<b>16. Three day's stockpile of cover</b>
<b>17. Final cover</b>
<b>18. Reclamation formalised in operating plan</b>
<b>19. Registration of Reclaimers</b>
<b>20. Protective clothing</b>
<b>21. Control of nuisances</b>
<b>22. Draining away water from the waste</b>
<b>23. Leachate contained</b>

<b>24. Storm water diversion measures</b>
<b>25. 500mm freeboard for diversion and impoundments</b>
<b>26. Grading cover to avoid ponding</b>
<b>27. General site maintenance</b>
<b>28. Sporadic leachate reporting</b>
<b>29. Rehabilitation and vegetation</b>

Waste Managers should ensure that these sites are compliant in every respect to the above list.

The site selection for medium and small landfills, is for sites where a significant leachate is produced. Although it is unlikely that any of the sites would produce significant leachate, the control measures are more severe. Another reason for better leachate control is to manage the hazardous domestic waste received on all landfill sites. These wastes may cause environmental degradation if leachate is not controlled. An example of a domestic hazardous waste is disposable nappies.

The most basic requirements are for a landfill to have a responsible person, at managerial level, appointed to oversee every landfill and that the Manager Waste Management planned an operational and capital budget for every landfill. This will ensure that there are both the personnel and equipment at every landfill to ensure that it is managed in terms of license conditions, or in terms of the requirements of the Minimum Requirements of Waste Disposal by Landfill.

#### **8.4.2. Waste Incineration**

Incineration of waste is a practice that requires stringent air quality controls and controls over the waste to be incinerated. It requires permitting through the Environmental Impact Assessment (EIA), National Environmental Management Air Quality Act (NEMAQA) and NEMWA and is generally permissible only for large volumes of hazardous waste.

Given the above, and the presence on many landfills of incineration drums, it is the policy of this IWMP that no wastes be incinerated in Setsoto LM. The nearest waste incineration is the Gauteng Province, therefore all hazardous waste must be transported to those licensed incinerator.

The following measures should be taken for waste that requires incineration:

- Discussions with the waste generator on disposal options;
- Categorisation of the waste; and

- If the waste is hazardous, it should be disposed of at the nearest hazardous site (which is in Gauteng) and municipality should verify disposal through the inspection of disposal receipts; and
- Controls over the gates at landfills to ensure that hazardous wastes do not enter the site.

#### **8.4.3. Waste Disposal Vehicles**

Waste disposal vehicles are required in all towns of Setsoto LM. The following vehicle categories are needed and the number of each vehicle required should be determined through a detailed needs assessment:

1. Landfill compacting/earthmoving vehicles – for the larger sites a landfill compactor is required. For smaller sites a TLB would be sufficient. TLBs could be shared between sites where volumes are low;
2. Tipper trucks to move cover material. These trucks would be dedicated to the landfill in the case of larger landfills, trucks could be shared between smaller landfills where volumes are low
3. Transport vehicles – to transport waste from the households to the landfill.
4. Bull dozer – For compaction of waste in the cells
5. Excavator – Moving and loading covering material

#### **8.4.4. Landfill Disposal Tariffs**

The existing Council approved tariff includes collection and disposal of waste, the cleaning of the central business areas on a daily basis as well as partial cleaning of public open areas of illegal dumping.

#### **8.5. Waste Information**

Waste information of all types is lacking in the municipality. A focus upon accurate waste information will allow better planning in waste management. It will also allow performance-monitoring of all waste functions including collection and transport, waste disposal and recovery efforts.

##### **8.5.1. South African Waste Information System**

In terms of the Second Waste Information Regulations, all local municipalities need to register their waste activities within 90 days of promulgation, and commence reporting on quantities of waste disposed.

Registration consists of filling in a form available from [www.sawic.org.za](http://www.sawic.org.za) and submitting it to national DEA. A certificate of registration will then be issued. Reporting will consist of submitting waste data electronically to the South African Waste Information System (SAWIS) database. This information may need to be verified by a third party, at the municipality's cost, should the figures be deemed to be inaccurate. The LM has access to all public domain information on the SAWIS database, and all its own information.

At present the Ficksburg and Senekal landfill sites are registered and information on both landfill sites are submitted to SAWIS on a monthly basis.

### **8.5.2. Waste Collection Vehicle Information**

Information is also required on the movements of the vehicle fleet, the volumes collected and the collection locations. This information will provide information on the coverage of the waste service and provide details on waste disposal per household. It will also allow Waste Managers to track deviations which may be early indicators of service delivery failure.

In addition, operational costs for each of the vehicles should be known and tracked. Systems should be put in place to ensure that this information is gathered routinely and that the information is synthesised for management use.

### **8.5.3. Waste Disposal Information**

In line with the requirements of the South African Waste Information System and in order to measure the objective of reducing waste volumes going to landfill, an urgent goal is to log each vehicle visiting the landfills and thus estimate the volumes of waste that have been disposed of on a daily basis. It is important to have all installed weighbridges operational.

### **8.5.4. Waste Characterisation Information**

A goal is to conduct waste audit in the municipality every quarter, or whenever necessary. This will improve the state of knowledge about the volumes of waste being generated, the volumes of recyclables and the types of waste being disposed of. It will allow the effectiveness of garden waste diversion measures to be quantified as well as the success of recycling programmes.

### **8.5.5. Recycling Information**

There is very little information regarding recycling in Setsoto LM. The recyclers that are active in the municipality are not visible and no monitoring of their operations is carried out. Recyclers should be required to register with the municipality and have their premises inspected regularly.

### **8.5.6. Waste Transporters**

Waste transporters represent a potential risk to the environment in the municipality. Systems should be put in place to ensure that transporters who move through each town of Setsoto LM are registered with the municipality. This applies especially to hazardous waste transporters, primarily those transporting medical waste.

## **8.6. Institutional Arrangements**

Institutional arrangements refer to strategic objectives that cover the waste departments that are carrying out waste management tasks. This aspect, along with resource availability, is arguably the most important shortfall in waste management and the most attention should be applied to achieve the strategic goals stated below.

The organogram divides the waste management function into collection and disposal. Collection is responsible for all activities involved with bringing waste into waste facilities. Disposal is responsible for ensuring that all waste is disposed of rightfully in terms of environmental legislation. This office is also responsible for capital expansions. The Head of Division must have a sub-division responsible for waste monitoring and auditing, information collection, and enforcement activities. The

Waste Management Officer is responsible for the regulatory function of the NEMWA and reports, coordinates, monitors compliance and carries out stakeholder management.

Human Resource Management within municipal waste management units should ensure that staff is sufficiently trained (Must have refresher courses and attend any relevant courses that will assist in managing waste) and motivated to carry out their work. There should also be active succession planning to ensure that the loss of key officials does not cripple the waste management function in the municipality.

#### **8.6.1. Waste Management Officers (WMO)**

An official in the municipality must be designated as the Waste Management Officer and should be appointed in writing by the Municipal Manager.

WMOs are largely responsible for the regulatory function of waste management. The responsibilities of local WMOs are as follows:

- Stakeholder management in relation to implementation of the Waste Act;
- Liaison with EMI compliance monitoring activities in the municipality;
- Planning and reporting cycles with Municipal and local IWMP;
- Capacity building in relation to Waste Act implementation; and
- Monitoring adherence to norms and standards in the delivery of waste services.

The WMOs should form part of District and Provincial Waste Management Forum which co-ordinates the activities of the local municipal WMOs.

#### **8.6.2. Enforcement Structures**

The officials within the Waste Section should also be trained to be Peace Officers for enforcement of Waste Management laws. These Peace Officers should work with the district and provincial Environmental Management Inspectors. The peace officers together with the inspectors should react to possible contraventions of the Act and local by-laws by investigating each incident and either issuing pre-directives, directives or fines or referring the matter to the local judicial system for action.

Enforcement actions should be targeted at residents and private business and industry.

The Customer Care Section can be used to give a mechanism for the general public to report complaints. This Complaints line should be advertised in general media and a register should be kept of complaints and responses to it.

Members of the municipal councils should be addressed with regards to waste management, its scope, standard norms and practices and modes of financing. In order to impart this information effectively it should be done in a series of workshops.

#### **8.6.3. Waste Management By-Laws**

The municipality has Waste Management By-laws developed and promulgated in 2012.

## 8.7. Financial Arrangements

Waste division has a separate budget for waste management activities.

### 8.7.1. Separate Budgets

It is essential that the Waste Division has a budget that is separate from all the other service provision departments. The budget should item capital and operational costs and it should show income allocations from the residential and commercial rates base, from the Municipal Infrastructure Grant and the income derived from the Equitable Share Grant from National Treasury.

Financial planning should be done well in advance to ensure that budget is available when needed. Sourcing of funding can take up to three years and should therefore be taken into account when doing activities that are capital intensive.

### 8.7.2. Service Cost Recovery

Additional income can be achieved either by increasing the number of people who pay for waste management or by increasing the tariff for existing users.

The Free Basic Refuse Removal Policy allows municipalities to provide services to registered indigent households and to recover the costs for this service provision from National Treasury. Cost recovery is currently set at R800 per household to provide a service. All municipalities should implement indigent register policies and recover the costs of service provision to indigent households through this mechanism.

### 8.7.3. Cost Reflective Tariffs

Tariffs for waste removal should be reflected on the costs of providing the service. The costs of providing the service are not reflected in the tariffs and there is a need for tariff increases.

### 8.7.4. Municipal vs Outsourcing

Outsourcing in the sense of vehicle lease agreements and landfill contractors is generally more expensive than providing a similar service and/or equipment by the municipality. Leasing should therefore be considered an option only if this service can be provided at a cost similar or lower than the municipality can effect.

## 8.8. Monitoring and Compliance

Monitoring and compliance of the waste management function in the municipality encompasses several aspects.

The objectives of the monitoring and compliance arrangements are listed in the Table below.

Table 14: Monitoring and Compliance Objectives as per NWMS

Strategic Category	Planning	Applicable NWMS Objectives
		To protect the health and wellbeing of people by providing an affordable waste collection service

Monitoring and Compliance	Increase number of jobs within waste services, recycling and recovery sectors
<b>Strategic Category</b>	<b>Planning Applicable NWMS Objectives</b>
	Promote SMMEs in waste sector
	Discourage waste generation through cost reflective and volume based tariffs
	Reduce the percentage (%) of recyclable material to landfill
	Facilitate the provision of at least a basic level of waste service to all
	Implement free basic refuse removal policy for indigent households
	Stabilise quantity of waste disposed to landfill then reduce this volume
	Improve landfill management to comply with legislation

The first objective is to ensure that waste management services are being effectively delivered throughout the municipality. Monitoring and compliance actions that should be undertaken in this regard are the establishment of a Complaints Hotline or municipal customer Care line for use by the public and the recording of public complaints' in a complaints register. This Hotline should be advertised so that the public is aware of the service.

Monitoring should also be carried out against targets for waste management that are established through the increased information flows. Such data includes waste volumes being generated, waste types, the volumes of waste disposal, the locations of disposal, production rates for collection crews, recycling volumes for possible garden centres and other recycling facilities, employment figures, involvement of SMMEs, and per kilometre vehicle costs. These and other suitable measures should be used by the Head of Waste Department to adjust service delivery mechanisms.

The Head of the Waste Department will then use public complaints and monitoring reports to make adjustments to the operations of the waste management service.

Annual audits of service delivery should be carried out. Audits will involve the Waste Management Officer auditing the entire service against agreed benchmarks and reporting on the results. The results of the audits should be used to make adjustments to the service.

It is important to monitor that waste management in the municipality is being delivered cost-effectively. This is to be done through the development of financial measures covering all facets of waste management. These measures should be used by the Head of Waste Department to adjust service delivery to ensure cost effective delivery. The Provincial Waste Forum should be used to share cost related information with regards to the costs of different aspects of the service. This is to ensure that the municipality's waste management costs do not increase beyond what is being reflected for similar municipalities.

Enforcement is necessary to ensure public compliance with waste management bylaws and other environmental laws. For this purpose it is suggested that local Environmental Management Inspectors be trained to carry out law enforcement. Enforcement should be carried out amongst generators (both residential and business) as well as with transporters, recyclers and disposers. Associated to this action, there is a need to raise awareness amongst local magistrates regarding the seriousness of waste management contraventions. This will ensure a higher conviction rate and thus a higher level of compliance by the public.

The information gathered above and the municipality-wide waste transporter and recycler database should be used to check on the activities of large generators and disposers. In particular, the sources of the wastes and their final disposal should be checked. Disposal should be legal and verification of this should be obtained.

## **9. ACTION PLANNING**

The aim of the action planning is to present a series of actions that municipalities should take to ensure that waste management provision is in line with best practice and meets current legal requirements.

Action planning in the municipality provides a municipal level plan that addresses the most important actions that should be carried out, firstly to correct the most serious service delivery shortfalls and secondly, towards improving the current level of service deliver to move the municipality towards compliance with the latest waste policy and regulations.

The action plan is divided into the follow:

- Waste Management Category – the functional areas of waste management;
- Objective – the desired result envisaged by the IWMP;
- Action – this section provides guidance on how to achieve the objective;
- Indicator – this is the unit of measure that will confirm success or otherwise in achieving the action plan;
- Timeframe – an indication of the urgency of the project in order to give the waste manager a priority list for the action planning; and
- Budget – an estimate of the budget required for objective. This is provided for guidance purposes and should be confirmed during implementation planning.

The responsibility for achieving all of the goals rests with the Waste Manager in the local municipality.

The action planning is described using timeframes for implementation: short-term objectives that should be achieved within 1 to 2 years of the IWMP planning horizon; medium-term objectives should be achieved between 3 and 4 years, and long-term objectives should be achieved within 5 years of the planning horizon of the IWMP. Urgent objectives are those that should be achieved within the first 3 months of the IWMP, whilst visionary objectives are those that should be achieved once all of the other objectives set in the IWMP have been met.

## **10. IMPLEMENTATION PLAN**

The implementation plan is the timeline for the Action Plans listed in the previous section

The long-term goal is to ensure that waste management in Setsoto complies with all legislative requirements. This is with respect to disposal, collection, treatment, recovery and the financial arrangements.

A further aspect of the long-term goal is to ensure that the waste management services in Setsoto is benchmarked against similar municipalities countrywide.

It is important, when implementing the IWMP, that compliance with waste management legislation is maintained. This applies to new projects where Environmental Impact Assessments, Water Use Licenses and Waste Licenses will be required. These permissions take varying periods of time to obtain, and should be factored into project planning and monitoring.

If the plan is to be successfully implemented, responsible stakeholders will need to carefully plan for success. This includes aspects such as ongoing monitoring, public participation processes, meeting target dates, financial planning, legislation and policy compliance, the undertaking of feasibility studies and education and awareness both in the public domain and within local authorities.

### **10.1 Monitoring plan**

Monitoring of an implementation programme allows the municipality to ensure that the IWMP is implemented within the designated timeframes. Monitoring should also be flexible enough to allow for changing conditions and to adapt to these changing conditions. An effective monitoring plan is necessary to provide information against which the IWMP implementation is measured. If performance falls behind the implementation plan, corrective measures should be taken to ensure that the implementation plan is brought back in-line with expectations.

When monitoring, key performance measures are measured against a benchmark to provide an objective understanding of the progress made in implementing the IWMP. Establishment of the benchmark is an important first task when starting the monitoring process. The benchmark should be taken as the results of the first inventory of the key performance indicators. Subsequent inventories can then be presented as a percentage of the initial inventory, thus giving an accurate indication of progress.

Prior to the regular meetings of municipal waste management, each of the key performance measures should be enumerated. The results should be presented in a tabular form to management for review against pre-established goals.

Annual review of these performance measures will ensure that the IWMP is successfully implemented.

## 10.2 Timeframes for Implementation

Table 15: Implementation Plan

GOAL	TARGET	2017	2018	2019	2020	2021	
Waste Collection	100% collection rate of refuse						
	Integrated Waste Removal into municipal indigent policies						
	100% awareness of FBRR						
	Procurement of sufficient purpose build vehicles to ensure collection of universal service						
	Existing vehicle operational availability to be increased						
	Procurement of receptacles to ensure universal use of uniform refuse receptacles						
	Monitoring and tracing collection vehicles						
	Database of all waste transporters						
	Effective cleaning of littering in central business area						
	Effective cleaning and management of illegal dumping in townships						
	Waste Avoidance, minimization and recycling	Buy back centre in Ficksburg					
Involvement of SMME's in waste recovery							
Separation at source							
Registered and formalized waste picking on landfills							
Awareness to the public							
Waste Disposal	Operation in terms of the license conditions						
	Development and closure of landfill sites as per license conditions						
	No medical/ abattoir waste at any municipal landfill sites						
Waste information	Updated database of waste collection data						
	Updated database of waste disposal data						
	Conduct bi-annual waste sampling						
	Register with SAWIS when recycling reaches 10 t/month						
	Develop recycler database						
	Institutional arrangements	Management of waste by Waste Manager					
		Improved enforcement					
Improve feedback from public							
Financial arrangements	Adequate budget for ongoing Operational and Capital needs						

	Full cost accounting for Waste Management					
	Increase Waste Management revenues					
Monitoring and Compliance.0	Monitor Customer Care complaints					
	Monitor operational measures					
	Monitor financial measures					
	Audit of waste function against IWMP					
	Corrective measures from the annual waste audit					
	Monitor waste transporter and recycler database					

## 11. Conclusion

Setsoto does not have a 100% service area due to various inefficiencies and cost constraints. The causes of these inefficiencies and cost constraints should be addressed.

Little effort is made to reduce or recycle waste in the municipality. Recycling centres are available at some landfills but these are not being utilised. There is however a need for recycling stations where the large numbers of waste pickers on landfill sites are taken into consideration;

Marquard and Clocolan Waste Disposal Facilities are generally in a poor condition. Ficksburg and Senekal landfill sites are managed in accordance with its license conditions even though they face a problem of being managed properly due to lack of equipment. Landfill equipment is a major constraint on all landfill sites;

In Marquard and Clocolan there are no record-keeping or information on waste that goes to landfills. This occurs because these disposal facilities are not yet constructed/ developed. This is a matter of concern because proper landfill-planning cannot be conducted without an indication of waste volumes. A record-keeping system is therefore needed. This does not necessarily require major management input but could be initiated by recording of waste disposal by waste collectors.

Relationships between Setsoto and other nearby local municipalities could be improved to assist in dealing with issues fast and effectively. It is therefore suggested that waste-related discussions amongst municipal representatives become an agenda item on the Provincial Waste Forum.

Financial viability should be investigated in providing efficient waste management services to the municipality. Current financial arrangements make the waste management function unsustainable, even when taking into account operational costs. Financial assistance might be required to increase and improve the vehicle and equipment fleet of each town.

## 12. References

Ball, L. (2014). *The locality and impact of illegal dumpsites in Grahamstown*.

DEA. (2011). *National Waste Management Strategy*. Pretoria.

Kafando P, S. B. (2013). Environmental Impacts of Waste Management Deficiencies and Health Issues: A Case Study of Kaya, Burkina Faso. *Journal of Environmental Protection*, 1080-1087.

Waste Generation. (2012). In H. D.-T. P, *WHAT A WASTE: A Global Review of Solid Waste Management* (pp. 8-12). Washington DC: World Bank.

### **All Acts**