A critical analysis of the integrated waste management plans of local municipalities within Fezile Dabi district municipality

LM Molaba

orcid.org 0000-0002-5462-6653

Mini-dissertation submitted in partial fulfilment of the requirements for the degree *Master in Environmental Management with Waste Management* at the North-West University

Supervisor: Dr. C Roos

Co-supervisor: Mr. RC Alberts

Graduation May 2019

29379644

PREFACE

I would like to thank my Lord and Saviour for the grace to be a part of this world. A special thanks to my mother Mookgo Masilo for her continued motivation, inspiration and being a living example to always strive and cherish education in order to transform my life.

To my husband (Tshepo), thank you for your continued availability and support when I needed to be away and invest time in my studies. A special word of thanks to my sons, Katleho and Neo, for being the driving force behind every decision I take.

Lastly, my sincerest gratitude to my supervisor, Dr Claudine Roos for your supervision, guidance, mentorship towards my studies and in preparation for my mini dissertation. The contribution you have made will never be forgotten.

ABSTRACT

The promulgation of the National Environmental Management Waste Act (59 of 2008) (NEMWA) gave rise to the first South African Act, which specifically regulates waste management. Section 11 of this Act requires that all spheres of government, including local government prepare integrated waste management plans (IWMPs). The purpose of the IWMP is to address waste management matters at every sphere of government, using one strategic document. The development of the IWMP includes a consultative process with stakeholders in terms of Section 11 7(b) and public participation in terms of the Chapter 4 of the Municipal Systems Act. Following the development of the IWMP in line with Chapter 4 of the Municipal Systems Act, 2000, the IWMP has to be submitted to the council (in the case of local municipalities) for endorsement. The endorsement of the IWMP by its council is to ensure that the plan is integrated into the Integrated Development Plan (IDP) of the municipality. The significance of integration of the two plans is to ensure and secure budget for the IWMP to be implemented.

A concern raised is that IWMPs are often prepared as part of adherence to legislative requirements, but the intended impact in addressing the waste services and waste management issues at the municipalities is often negligible. The aim of this research was to critically analyse the content of the IWMPs of the local municipalities within the Fezile Dabi District Municipality. The analyses focused on the content of the IWMPs, the progress made with implementing the waste management plans, and the alignment of the IWMPs goals to those of the national waste management strategy (NWMS). Data of the study was collected through utilising of the content review checklist which was developed with reference to Chapter 12 of NEMWA. Questionnaires were developed with reference to the steps to be followed when developing the IWMPs. Significant to the study was to incorporate the involvement of those within the waste management department and their knowledge on the IWMP document and its implementation. The collected data will attempt to identify constraints or limitations experienced at local municipalities, with the aim of making recommendations to address the issues currently faced by the local municipalities concerned. Data collected will be analysed through utilising of graphs and tables.

Key words: Local government, local municipality, integrated waste management plan, integrated development plan, waste services, waste management.

LIST OF ACRONYMS AND ABBREVIATIONS

COGTA	Cooperative Governance and Traditional Affairs
DC	District Council
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DESTEA	Department of Economic, Small Business Development, Tourism and Environmental Affairs)
DIWMP	District Integrated Waste Management Plan
EMI	Environmental Management Inspector
EPA	Environmental Protection Authority
IDP	Integrated Development Plan
IMSWM	Integrated Municipal Solid Waste Management
IndWMP	Industry Waste Management Plan
ISW	Integrated Solid Waste
ISWM	Integrated Waste Solid Waste Management
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan
KPI	Key Performance Indicator
LGSETA	Local Government Sector Education and Training Authority
LM	Local Municipality
MFMA	Municipal Finance Management Act 56 of 2003
MIG	Municipal Infrastructure Grant
MSA	Municipal Systems Act 32 of 2000

MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
NEMA	National Environmental Management Act 107 of 1998
NEMWA	National Environmental Management Waste Act 59 of 2008
NEMWAA	National Environmental Management Waste Amendment Act 26 of 2014
NGOs	Non-governmental organisations
NWMS	National Waste Management Strategy
PPP	Public private partnership
SA	South Africa
SAWIS	South African Waste Information System
SDBIP	Service delivery and budget implementation plan
UNEP	United Nations Environmental Programme
WM	Waste Management

LIST OF DEFINITIONS

Waste

Means any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 of the Act and includes residue deposits and residue stockpiles (South Africa, 2014: section 1).

Waste management activity

Means any activity listed in Schedule 1 of the NEMWA, or as published by notice in the *Gazette* in terms of Section 19 of the Act. These activities include but not limited to the importation and exportation of waste and the activity that can result in the handling of waste by applying any of the steps in the waste management hierarchy (South Africa, 2008: Section 1).

Waste management services

These are services that include waste collection, treatment, recycling and disposal services (South Africa, 2008: Section 1).

Integrated waste management plan

Means a plan prepared in terms of Section 12 (South Africa, 2008: Section 1).

Integrated waste management (IWM)

Integrated Waste Management is defined as a comprehensive and integrated system intended at avoiding and minimisation of the impacts of waste on the environment through management of all waste streams and by handling waste through a cradle-to-grave approach (DEA, 2012e).

Integrated Development Plan (IDP)

Integrated development plan is a 5 year strategic plan that local municipalities are required to compile in order to determine the municipality's developmental needs (Department of Provincial and Local Government: 2000).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1. INTRODUCTION AND PROBLEM STATEMENT

1.1 Introduction

The volumes of solid waste, especially in urban areas, is increasing as a result of complex factors which include, amongst others, urbanisation, industrial expansion, and technological advances in the manufacturing of renewable and non-renewable resources (Periathamby, *et al.,* 1999). The increasing volumes of general waste may put public health and the environment in jeopardy, because disposal methods have not kept pace with the accumulation of solid waste. Municipal solid waste constitutes one of the crucial services that must be provided by the municipalities to its residents (Mohee & Simelane, 2015, Bhada-Tata, 2012) and the correct legislation, governance structures and processes are central to its success.

The development of waste management legislation has followed different paths around the world, depending on the countries' respective legal systems (Johnson, 2008). The development of waste-related legislation can be traced back to the 13th century in the United Kingdom with its focus being on landfilling and the progression to research and develop new waste disposal technologies (Lanza, 1982). However, in the 1990s in the United Kingdom, escalating public interest in sustainable development and unease about environmental degradation, combined with new treaties and powers for the European Commission, led to significant and wide-ranging changes to environmental and waste legislation, which saw the birth of regulating waste according to the waste hierarchy (Lanza, 1982).

Governments around the globe now pursue integrated solid waste management planning which offers opportunities to suggest and implement a combination of waste minimising technologies. Although it had taken developing countries longer to realise the need for a transition from conventional waste management, the planning for and application of sustainable methods, integrated waste management approaches have become a requirement (Nkala, 2012).

According to Wilson *et al.,* (2013), the term *integrated* has been linked with solid waste management since the late 1970s and became the primary term by the mid-2000s, as articulated by its broad usage amongst researchers and appeared in the names of emerging waste research centres.

In South Africa, the first generation IWMPs were incepted in 1999, according to the NWMS, with only some municipalities and provinces voluntarily developing IWMPs as a means of managing their waste (DEA, 2012e:15). The development of IWMPs is not unique to South Africa, and the manner of development is identical globally, with the United Nations Environmental Programme (UNEP), and the International Solid Waste Association viewing it rather as a sustainable approach of managing solid waste (UNEP, 2009). The IWMP is attributed to the environmental impact assessment (EIA) report of

which its purpose is to help authorities make informed decisions taking all aspects of the public and the environment (UNEP, 2002). Research into the quality of EIA reports revealed that aspects that makes a report to be of good quality, is the one that includes baseline studies (situational analysis in IWMP), identification of impacts, assessment of impacts significance (desired end state), consideration of alternatives (setting of alternatives), mitigation of impacts, public participation and monitoring and report (Kruger and Chapman, 2005).

The promulgation of the National Environmental Management Act (NEMWA) in 2008 made the development of IWMPs mandatory to all spheres of government, which saw compliance slightly improved with the second-generation IWMPs (South Africa, 2008: Section 11). According to a report on the local government budgets and expenditure review in 2011 by the Department of Treasury, the then Department of Environmental Affairs and Tourism[1] (DEAT) reported that, in 2009, 177 municipalities had submitted their IWMPs. This meant that only 75 per cent of municipalities were compliant with legislative requirements related to the submission of IWMPs. It was discovered that the quality of the plans varied considerably across municipalities, and reflected the lack of clarity on what constituted an IWMP (Treasury, 2011). With the development of guidelines for the preparation of IWMPs in 2012, the Department of Environmental Affairs (DEA) intended to standardise the development process and address the contents and quality of the plans submitted. In addition to the requirements of the guidelines, municipalities also have to focus on the implementation of the IWMPs, which is dependent upon infrastructure, budgetary and human capital requirements (Sango, *et al.,* 2016).

1.2 Problem Statement

Solid waste management and service delivery can make significant contributions by addressing all three aspects of the triple bottom line interpretation of sustainability through public health, environmental sustainability and economic development including poverty reduction (Wilson, *et al.,* 2013). In South Africa, municipalities are under pressure to divert waste from landfill sites, deliver waste services, and implement alternative waste handling methods that are outlined in the waste management hierarchy (Sango *et al*., 2014).

In order to give effect to the provision of solid waste services, Section 11 of the NEMWA (2008) as amended mandates local government to prepare IWMPs.

An IWMP is a five-year plan that projects the integrated waste management planning needs of a municipality. The aim of such a plan is to achieve the objectives of the NWMS and to ensure that the recommended steps of the waste hierarchy are implemented throughout the waste life-cycle (DEA, 2012b:18). The IWMP is further used to allow municipalities to set out priorities and objectives in respect

[1] Now the Department of Environmental Affairs (DEA)

to waste management. These include, amongst others, the establishment of targets for the collection, minimisation, re-use and recycling of waste (South Africa, 2008: Section 12 (1) (d) (e)). It is also significant that the IDP cycle is aligned with the IWMP cycle, to foster amalgamation within the municipality for budget and financial allocation. Sango, *et al*., 2016 reiterates that many municipalities are still burdened with the preparation and execution of different waste management options.

The development of the first and second-generation IWMPs has helped with the way that municipalities view waste, however, IWMPs contained limited detail on how the plan would be implemented (Sango *et al.,* 2016). It is envisaged that the third generation IWMPs will have a much deliberate emphasise on the execution of the plans, in order to address any omissions identified from the previously developed IWMPs (Sango *et al*., 2016).

Fezile Dabi District Municipality has, through cooperative governance, funded the preparation of IWMPs for the local municipalities within its jurisdiction. The IWMPs were prepared in 2014 and are up for review in five years' time (2019). The aim of this research was to determine whether the prepared IWMPs had been compiled in accordance with the requirements in NEMWA, whether they are used to address waste management issues at the local municipalities, and whether the IWMPs have influenced waste management activities at a municipal level.

Only limited studies that specifically focus on the content of IWMPs have been done in South Africa (Alberts, 2014; Sango *et al*., 2014), and no such research has been done for the Fezile Dabi District Municipality.

1.3 Research aim and questions

In view of the problem statement provided, the aim of the study was to critically analyse the IWMPs of local municipalities located within the Fezile Dabi District Municipality.

The specific research questions included:

1. What is the quality of the IWMPs of local municipalities within Fezile Dabi District Municipality?
2. Do the IWMP goals give effect to the goals and objectives of the NWMS?
3. How far have the IWMPs been implemented by the local municipalities?
4. What are the existing challenges/constraints at the local municipalities affecting the implementation of the IWMPs?

1.4 Conclusion

Against the background given it can be seen that waste management has transitioned in the years, with perspectives changing from just regulation landfilling but rather managing waste in an integrated and holistic manner. The transition of waste to be managed sustainably gave rise to integrated waste management which saw South Africa regulating the need for integrated waste management to take place at all spheres of government. The following chapter will therefore explore background associated with integrated waste management planning and different practices and progression around the world.

CHAPTER 2. LITERATURE REVIEW

Chapter one of the study gave background on waste from requiring it to be regulated, sustainably managed and through to the preparation of the integrated waste management plans. This chapter will attempt to link the aim of the study with available literature on the subject. The literature review will explore international and African approaches as limited studies have been done on the subject matter in South Africa.

2.1 Overview of waste management

The management of municipal solid waste (MSW) is a global challenge which includes both developing and developed countries. It has been recorded that the quantities of municipal solid waste in developing countries is largely uncollected, and even when collected they are just transported to the dumpsite without consideration of the waste hierarchy, hence the need to introduce integrated waste management planning (Olukanni & Oresanya, 2017). According to (Geng *et. al., 2007*), integrated solid waste management is an approach that can be used to develop a sustainable solid waste management system that is environmentally effective, economically affordable and socially accepted for a particular region and its individual circumstances. It is thus imperative that integrated solid waste management practices be explored and linked to the current practices in South Africa.

2.1.1 Integrated waste management internationally

Integrated waste management (IWM) has been accepted as a sustainable approach to solid waste management around both developing and developed countries. The waste management system in London is designed in a manner that waste generated in the city is handled and disposed of appropriately (Asase, *et al.,* 2009). The sustainability of the waste management in London is attributed to the continuous improvement strategy framework. The strategic framework is based on the principles of IWM with a strong social and political will (Asase, *et al.,* 2009). According to Stanford (2002), the continuous improvement strategy is a framework that acknowledges integrated waste management as a significant environmental service in the community as it contributes to the protection of human health and the environment. The study by (Asase, *et al.,* 2009), on municipal solid waste management (MSWM) in London, identifies that the preparation of a strategic document, such as an integrated solid waste management plan (IWMP) must be drawn taking into consideration the following factors:

- Good system management

The city of London exhibits good system management by adoption of the continuous improvement strategy. The strategy defines long and short term goals utilised for evaluating the systems performance both environmentally and economically. Short term systems goals include minimising the burden on both

the environment and taxpayers whilst maximising opportunities for new business (Asase, *et al.,* 2009). This system is further designed to annually monitor the overall systems environmental parameters and costs, feedback from the systems users and to evaluate the new potential management components.

- Control and handling of waste generated

The city of London utilises a range of collection and treatment methods aimed at ensuring that the entire waste generated is accounted for. The bylaw for Waste and Resource Material Collection for the city holds the municipal authority and the citizen accountable for handling of the waste generated (Asase, *et al.,* 2009).

- Consideration of critical mass for system design

McDougall *et al.,* 2001, emphasises that the scarcity of land for developing landfills and strict environmental regulations drove developed countries to develop integrated waste management systems with the goal of reducing the amount of waste going to landfills. The concentration of the city of London has been on waste reduction, through developing diversion programs that have been implemented in the city.

- Environmentally effective system

A unique feature in the city of London's waste management system is the use of computer model to measure the environmental performance of the total municipal waste management system. The model named "integrated waste management model" was developed by corporations supporting recycling and the environment and plastic industry council indicating the significance of stakeholder involvement in the IWMP (Asase, *et al.,* 2009).

- Economically affordable system

The waste management system in London is funded through different systems including the general property taxes where the community contributes to waste management. Inclusive in the economic system are recycling revenue and yard garbage bin rentals (Asase, *et al.,* 2009).

- Socially acceptable strategies

The system in London is dependent on support from its citizens, which includes public opinion on proposed strategies. This is evident by the document ''road map to maximise waste diversion in London" (City of London, 2007) that the citizen's views are required and utilised in implementing waste management plans for the city (Asase, *et al.,* 2009).

- Enactment and enforcement of legislation

The national, provincial and municipal legislation in place provide support for the waste management system in the city. However in the city of London, provincial government provides regulations and policies for waste management. Key provincial legislation include the 3Rs Regulations (under the Environmental Protection Act) and the Waste Diversion Act. Local legislation such as city bylaws, makes it possible for consultation with citizens, through accessibility in order to hold citizens accountable for the non-compliance (Asase, *et al.,* 2009).

Having considered the key components in the city of London that makes up and IWM system it can be acknowledged that there is no single approach to waste management that can make a sustainable approach.

Developing countries like China, on the other hand still face municipal solid waste management (MSWM) challenges as the total amount of waste has also increased drastically. One of the core challenges extends to limited resources. Basic technologies for treatment and disposal and deficient enforcement of relevant regulations is a concern (Chen, *et al.,* 2010).

It is acknowledged that regulations and policies are important tools to MSWM. In China the Law of "Prevention of Environmental Pollution caused by Solid Waste" is the main legislation in Waste. The law stipulates responsibilities for waste supervision and administration on pollution control, and relevant legal measures. One of the key principles of this law is the polluter pays principles which assigns responsibilities on consumption and disposal of goods as a foundation for integrated waste management system (Chen, *et al.,* 2010). The "National Eleventh Five-Year Plan on Urban Environment and Sanitation", requested that all provincial governments to prepare their own plans and integrate them into their economic development plans (Chen, *et al.,* 2010). The purpose of the plan is to promote waste minimisation and separation. Furthermore waste management in China is funded by both government and private sectors who looks on big projects such as incineration projects, However since China's MSW is a concern and has attracted global attention funding is also sourced from international agencies such as the World Bank.

Similarly to the developed countries, integrated waste management in China is sought as a method of multiple collaboration amongst all stakeholders. A framework for IWM requires recognition of major concerns of all stakeholders within the system as well as related conditions. Regulatory and financial aspects of the MSWM are necessary for addressing and achieving a more integrated municipal solid waste management (IMSWM) as they involve, a system status, for the better investigating and monitoring of the waste management system, coordination of stakeholders and building of partnership and the link between the environment and systems (Chen, *et al.,* 2010).

Having looked at MSWM and IWM systems it can be seen that the practice is similar for developed and developing countries whereby regulations and policies, public participation, partnership and handling of waste according to the waste hierarchy are key elements.

2.1.2 Integrated waste management in the African continent

The solid waste management in developing countries is still at the same level as in the late 70's, mainly as a result of lacking approach in formulating the required methodology (Chang & Feyyisa n.d.). In developing countries especially those in Africa they view integrated solid waste management (ISWM) as a means of sustainability, but principles and norms peculiar to that particular nation or continents are left unconsidered by experts and decision makers when dealing with project management (Chang & Feyyisa, n.d). In Kenya there is no statute or national organisation formulated to regulate waste management (Chang & Feyyisa n.d). The policies, laws and organisations relevant to solid waste exists under different acts including Environmental Management and Co-ordination Act 1999.

Funding for solid waste management is not done at the national level, but the city finances are received from general reserve from taxes mostly rates related to land and resident's service fee charges. Inclusive the solid waste of Kenya is not sorted prior to collection.

Mozambique "Maputo city", on the other hand its waste management is one of the most serious challenges in the city (Tvedten and Candiracci, 2014:2). The problems associated with solid waste management (SWM) practices involves financial problems and poor planning (Sallwey *et al.,* 2017). Elements of IWM include legislation in a form of the Environmental Act (law 20/97); Solid Waste Management Regulations (Decree 13/2006) and policy of guidance on sustainable waste management. The municipality is the implementing and enforcing body. However according to (Tvedten and Candiracci, 2014) although waste management legislation and policy are in place implementation remains a challenge.

Similar to developed countries education and awareness is important when implementing integrated approach to solid waste management. This is evident where solid waste management activities are happening in the city of Maputo whilst small cities receive minimum or no services at all (Sallwey *et al.,* 2017). This is attributed to inconsistent collection, transportation and disposal of waste. Therefore the concept of IWM as an approach to solid waste challenges is not adequately realised in Maputo as challenges are overwhelming than solutions themselves. Tvedten and Candiracci (2014) concludes that waste management legislation and policy are in place however, implementation remains the milestone hindering achievement in the African continent.

2.1.3 Challenges with integrated waste management in developing countries

Having looked at solid waste management practices international and in Africa it can be seen that although other countries like China are developing countries there is a vast difference than those in the African continent. This is attributed to the fact that in China solid waste management is funded by government, private sector and most importantly international agencies, whereas is different in Africa. Asase *et al.,* 2009 reiterates the challenges in the African continent as being due to:

- Inadequate funding for capital investment on the waste management service delivery;
- Inadequate equipment holding culminating and limited coverage of waste services;
- Inadequate bylaws and lack of enforcement on the available ones;
- Inadequate revenue mobilisation to finance costs;
- Bad attitude of residents;
- Poor infrastructure which impacts on service delivery.

In conclusion, it can be seen that developed countries have advanced in the manner in which solid waste is managed. Furthermore municipal solid waste management in developing countries is still associated with inadequate service coverage, operational inefficiencies of services, limited utilisation of recycling activities, inadequate management of hazardous waste and inadequate landfill disposal. According to Asase *et al.,* 2009 the largest impediments to efficient and environmentally sound handling of MSWM are managerial, rather than technical. Therefore it remains to be seen in the study if South Africa as one of the developing countries have advanced as there is an existing model of IWM planning.

2.2 Integrated waste management in South Africa

Solid waste management in South Africa has been based on the principles of the waste management hierarchy which means that strives towards an improved, equitable and sustainable waste management regime is of significance (Oelofse and Godfrey, 2017). The IWM approach in South Africa has both its benefits and challenges.

2.2.1 Purpose

The broader purpose of the IWMP as a primary instrument is to give effect to the National Waste Management Strategy (NWMS) and allows for the provision of sustainable and affordable services. Section 11 of the National Environmental Management Waste Act (NEMWA) 2008 as amended require

that IWMPs be developed and be incorporated into the province's IWMP. The purpose of the IWMP is therefore to:

- Give effect to the objectives of the NEMWA;
- Optimise the waste management hierarchy in handling waste;
- Address non- compliances in the spheres of government, especially the local municipality;
- Improves the sustainability of waste management practices;
- Give effect to the goals and objectives of the national waste management strategy;
- Streamline waste resources through integration of the IWMP into the IDP; and
- Provide for waste management through municipal annual reporting (DEA, 2012e:9)

The IWMPs aims that through the waste hierarchy implementation different waste treatment methods are employed. However the realisation of IWMP can be attained through awareness and education, as poor waste management practices are due to behaviour and the lack of awareness of individuals.

However, according to Sango *et al.* (2014), several challenges exist regarding the development and implementation of IWMPs, such as:

- The lack of accuracy, or absence of waste information reporting.

The lack (or inaccuracy) of waste information reporting will affect the data on waste generated, waste characterisation and costs associated with waste handling. Inaccuracy will affect planning for the proper technology to be utilised when handling waste;

- Institutional arrangements, such as:
    - Waste management departments falling within other departments, which affects the prioritisation of waste related issues;
    - Restricted resources (whether staff, required skills, monetary, machinery, etc.) that contribute negatively on the integrated waste management services, procurement and financial processes;
    - Improper implementation of IWMPs and budget allocation; and
    - Inadequate account on the implementation of the integrated waste management plans (Sango *et al.,* 2016).

Although there are challenges relating to the preparation and implementation of IWMPs, there are many benefits associated with the process of integrating waste management activities with other municipal processes, which include:

- ***Health benefits:*** IWMP development and implementation may improve air quality (reduction of waste burning from illegal dumping) and water quality (management of leachate from landfills or illegal dumping);

- ***Environmental benefits:*** Mitigation of possible emissions of climate pollutants (methane that is largely produced from waste storage/disposal);

- ***Economic benefits:*** Implementation of the IWMP will reduce costs through introduction of waste minimisation and encouraging recycling, which is essential for job creation.

- ***Social benefits:*** The integration of waste management services assists in improving quality of life, especially of the informal recycling sector (Sango *et al.,* 2016).

2.3 Governance of waste management in South Africa

The Constitution of South Africa (Act 108 of 1996) differentiates between the roles and mandates of national, provincial and local government[2], which are said to be distinctive, interdependent and interrelated. Section 152 of the Constitution (1996) explains the objectives of local municipalities, which include:

- To provide for democratic and responsible local municipalities;

- To provide sustainable resources to the local communities;

- To provide social and economic progression;

- To provide a safe and healthy environment; and

- To ensure community and community-based organisations' involvement in matters of local government (South Africa 1996: Section 152).

Schedule 5, Part B of the Constitution, specifically designates *refuse removal, refuse dumps and solid waste disposal* as a local (that is, local and metropolitan municipalities) function.

[2] Within the context of the Constitution, local municipalities include district, metropolitan and local municipalities (Chapter 7).

According to Section 154 of the Constitution, national and provincial government must reinforce and heighten the ability of municipalities to administer their own affairs and to exercise their powers and to perform their functions. However, the powers at local government level are split between district and local municipalities. The district municipalities must ensure holistic, tenable and just social and economic development in its jurisdiction. The roles of the district municipalities include:

- Ensuring the integrated development planning for the entire district;
- Building capacity for local municipalities to execute their functions;
- Perform local municipalities' powers where competency is lacking; and
- Ensure and uphold the unbiased allocation of resources.

The local municipality's powers to execute the legislative authority is vested in its council. Those powers are exercised in accordance with Section 11(3) of the Municipal Systems Act 2000 and include:

- The implementation of policies, plans, programmes and strategies within the area of jurisdiction;
- The provision of basic municipal services to communities;
- The monitoring of the effectiveness of services, policies and plans;
- Passing of by-laws and taking decision on matters of local government;
- The preparation, approval and implementation of its budget; and
- The establishment of an implementation performance management system.

Furthermore, within the Municipal Systems Act, 2000, Section 23 requires municipal planning to be developmentally orientated. This translates to the municipality adopting one strategic document, which is an IDP, according to which the municipal affairs will be conducted. The significance of this strategic plan is to align the resources and capacity of the municipality with the implementation of the municipal function (South Africa, 2000: Section 23).

In South Africa, the waste management function is not operated in silos. There are several government departments that provide regulatory and supportive functions to ensure the implementation of the NEMWA. Afrika (2010), in her research on the role of district municipalities in waste management in South Africa, presents an overview of other departments directly associated with waste management planning (refer to Table 2-1).

Table 2-1. Government departments involved in integrated waste management support and regulation

Department	Area of responsibility	Description
Department of Cooperative Governance	Planning of waste services, delivery and infrastructure	Promotes cooperative governance by fostering development of IWMPs and to have them integrated in the IDPs. Facilitate MIG funds and their accessibility for development and upgrading of municipal landfill sites.
National Treasury	Regulation of fiscal and funding mechanisms	Promotes integrity of funds and their transfers from province and locals. Implement tax measures that support the goals and objectives of the NWMS. Allocates budget for waste management functions at national level.
Department of International Relations	Fostering of international agreements	Multilateral Environmental Agreements.
Department of Water Affairs	Water quality and licensing	Issues waste disposal licenses through partnership with DEA.
Department of Health	Health care risk waste	Manages health care risk waste and advises DEA and provincial departments on the appropriate standards and measures for the sector.
Department of Environmental Affairs	Formulates legislation	Responsible for environmental management matters in the country including the implementation and enforcement of policies and legislation, issue waste management authorisations, directives and agreements. Provides cooperative governance and support to other spheres of governance.

According to Sango *et al.,* 2014, there are multiple levels of planning and decision-making within every municipality that need to be considered in order to implement a successful waste management approach. Most important in the decision-making process is the alignment of the strategic plans, namely the IWMP and the IDP.

2.4 Legislative framework for integrated waste management planning in South Africa

This section provides an overview of the legal framework applicable to waste management planning in South Africa. The intent is not to provide a full account of all waste-related legislation, but rather to provide context to the legal framework governing integrated waste management planning.

2.4.1 The Constitution of the Republic of South Africa Act 108 of 1996

The Constitution is the supreme law in South Africa and serves as the foundation within which South Africa's environmental legislation must operate. The Constitution allocates authority for environmental governance to different levels of government, as explained earlier. The clearest directive for environmental governance in the South African context is found in Section 24 of the Constitution - the intention of which is to ensure that legislative measures are employed so that all people:

- Are provided with an environment that is clean, for their health and wellbeing;
- Have that environment protected from pollution and ecological degradation, for the current and future generations, and
- Promotes conservation measures to protect natural resources in an effort to sustain economic and social development.

Different aspects are defined within the Constitution; Chapter 7, Section 152 and Schedule 4B and 5B are sections that focus on local government. Section 153 assigns developmental duties for municipalities, which must structure and manage its administration, financing and planning for social and economic development. Furthermore, Section 154 refers to municipalities in the context of cooperative government. This implies that national and provincial governments, by legislative and other measures, must support and strengthen the capacity of municipalities for them to manage and perform their own affairs and functions (South Africa, 1996).

2.4.2 National Environmental Management Act 107 of 1998

The NEMA views the environment as an area of simultaneous national and provincial legislative competence, where all spheres of government and all organs of State must function as a collective for the best environmental outcome. The Act aims to coordinate activities to minimise environmental impacts, hence the principles embedded in Section 2, which promote sustainable development, also required in terms of integrated waste management planning (South Africa, 1998: Section 2).

2.4.3 National Environmental Management Waste Act 59 of 2008

The NEMWA is a specific environmental-management Act promulgated under NEMA, to regulate and control waste management in South Africa. The objectives of NEMWA are aligned to the waste management hierarchy.

Chapter 3, Section 11 of this Act deals with institutional matters whereby all the spheres of government are instructed to prepare integrated waste management plans. These IWMPs include a comprehensive approach drawn from the situational analysis of a particular area, systems and policies in place, and the implementation and monitoring of the plans. Section 12 of the Act details the contents that make up an IWMP, whilst Section 13 deals with reporting mechanisms post-implementation of the plan.

Section 11 (4) (a)(ii) requires that the plans developed must be integrated into the municipality's IDP to enable implementation (South Africa, 2008: Section 11).

2.4.4 National Waste Management Strategy (NWMS)

According to Section 3 of NEMWA (2008) as amended, in order to address the growing waste concerns facing South Africa, DEA published the National Waste Management Strategy (NWMS) in 2012. The purpose of the NWMS is to achieve the objectives of the NEMWA. The objectives of NEMWA are structured around the steps in the waste management hierarchy, which informs waste management in South Africa. The NWMS also makes provision for eight distinctive goals accompanied by targets which were set to be met by the year 2016 (DEA, 2012b). The goals of the strategy are pivotal, as they dictate the direction of waste management in the country.

Table 2-2. Goals of the National Waste Management Strategy

Goals	Description	Targets (2016)
Goal 1	Promote waste minimization, reuse, recycling and recovery of waste.	25% of recyclables diverted from landfill sites for re-use, recycling or recovery. Metropolitan municipalities, secondary cities and large towns to initiate separation-at source programmes. Achieve waste reduction and recycling targets set in IndWMPs.
Goal 2	Ensure the effective and efficient delivery of waste services	95% of urban households and 75% of rural households have adequate level of waste collection services. 80% of waste disposal sites to have permits.
Goal 3	Grow the contribution of the waste	69 000 new jobs created in the waste

Goals	Description	Targets (2016)
	sector to the green economy.	sector. 2 600 additional SMEs and cooperatives participating in waste service delivery and recycling.
Goal 4	Ensure that people are aware of the impact of waste on their health, well-being and the environment.	80% of municipalities running local awareness campaigns. 80% of schools implementing waste-awareness programmes.
Goal 5	Achieve integrated waste management planning.	All municipalities have integrated their integrated waste management plans (IWMPs) with their integrated development plans (IDPs) and have met the targets set in their IWMPs. All waste management facilities required to report to the South African Waste Information System (SAWIS) and have waste quantification systems that report information to the waste information system.
Goal 6	Ensure sound budgeting and financial management for waste services.	All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost-reflective tariffs.
Goal 7	Provide measures to remediate contaminated land.	Assessment complete for 80% of sites reported to the contaminated land register. Remediation plans approved for 50% of confirmed contaminated sites.
Goal 8	Establish effective compliance with and enforcement of the Waste Act.	50% increase in the number of successful enforcement actions against non-compliant activities. 800 EMIs appointed in the three spheres.

The NWMS is important in informing the direction of waste management planning at all spheres of government. Therefore, within the provincial IWMP, province must incorporate the NWMS goals, which will be filtered down to municipalities. The province must further ensure that, within its IWMP, enabling tools of enforcement are incorporated in their objectives. These are provincial standards which speak directly to those of national government, but may be more stringent. The standards must be utilised in giving direction to waste management in that province (South Africa, 2008: Section 8 (3) (b)). A district integrated waste management framework should reflect the situation per respective local municipality in its area. Part of the focus of the District Integrated Waste Management Plan (DIWMP) is to prioritise and enable the goals of the strategy and to provide for more centralised waste management approaches.

Pivotal to all the processes in developing IWMPs is the principle of cooperative governance that should exist at all spheres of government.

2.4.5 Municipal System Act 32 of 2000

The purpose of the Act is to provide for the fundamental concept, structure and systems that are necessary to ensure that municipalities move with acceleration towards social and economic sustainability of local communities. The Act also advocates for the provision of affordable services for all, and encouraging consultation and community participation. Section 25 of the Act further requires that each municipal council must adopt a single, inclusive and strategic plan for the development of the municipality (the IDP). All sectorial plans, including the IWMP, must be included in the IDP to assist with budget allocation. (South Africa, 2000).

2.4.6 Municipal Finance Management Act 56 of 2003

The provisions of the MFMA must be complied with if the municipality decides to outsource waste service functions. In the context of this research, that could include the development of the IWMP, which is outsourced to consultants. The purpose of the Act is to secure sound and sustainable management of financial affairs within the municipality (South Africa, 2003).

2.4.7 National Norms and Standards

Norms and standards provide regulatory standards for the purpose of managing waste at every stage of the waste life-cycle. Municipalities are expected to execute their authority by providing waste management services, which is alluded to in Section 9 of the NEMWA. The provision of services by the municipalities must, however, not be in conflict with the stipulations provided in the norms and standards set by province or national departments (South Africa, 2008: section (7)). An example of those norms and standards include the national domestic waste collection standards. The standards provide for all activities associated with waste collection, vehicles used for waste collection or any recycling or drop-off centres. The inclusion of standards within the IWMP will be essential in ensuring that service delivery is effectively provided in line with Goal 1 of the NWMS (South Africa, 2008: section 7).

2.4.8 The National Policy for provision of basic refuse removal services to indigent households GN 413 of 2011

One of the policies that will ensure that the situational analysis provides for those without access to waste collection services is the *National Policy for provision of basic refuse removal services to indigent households*. This is because, although indigent households are exempted from paying for waste services, they must be provided as a part of the requirements of the policy (DEA, 2011c).

2.4.9 Guidelines for development of integrated waste management plans

The guidelines for the development of integrated waste management plans (IWMP) is a regulatory tool that has been written to translate the requirements of Section 11 and Section 12 of the NEMWA into a practical guideline. The purpose of the document is to contextualise and standardise the documents prepared by municipalities, and to align the waste management process according to the waste management hierarchy. The document addresses identified gaps in the first-generation IWMP, ensuring the quality of the plan for effective implementation. The guidelines have a set of procedural steps that must be followed to ensure that matters are addressed in an integrated manner. These include the situational analysis, the desired end state, the formulation of goals and objectives and (the critical part of the process) the implementation (DEA, 2012e).

2.5 Integrated waste management planning process in South Africa

According to NEMWA's guidelines, an IWMP must include the following processes (Figure 2-1):

- Establishing the situational analysis;
- Setting the desired end state;
- Identify, evaluate and select methods and approaches for achieving the desired end state;
- Implementing the integrated waste management plan; and
- Evaluation and review of the plan against objectives set.

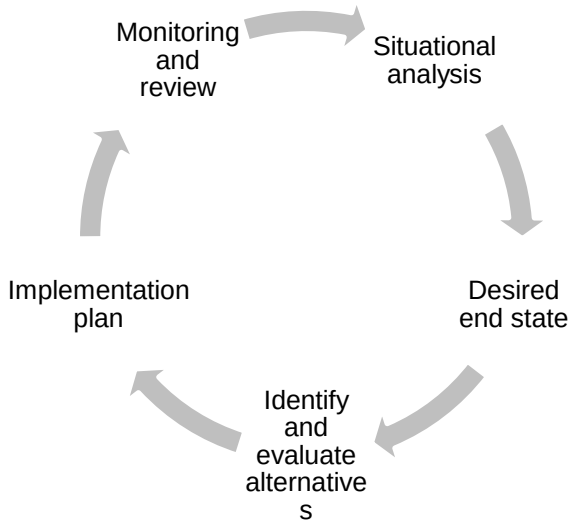

Figure 2-1. The IWMP planning process

A stage prior to establishing the situation analysis includes a process that provides a thorough description of the geographical area. This stage involves an area description in square meters, the towns which forms the municipality, the wards within the municipality, infrastructure services and socio-economic status. The status should explain whether the area is a rural/urban area, the levels of unemployment, and the residents' means of income generation.

2.5.1 The situational analysis

The basis of the situational analysis is to analyse and quantify solid waste management practices within a particular municipality's boundary (DEA, 2012e:15). The situational analysis looks at the delivery of waste services, number of residents per municipality including those without waste collection services, demographic profile and socio-economic composition (South Africa: 2008 section 12). However Oelofse and Godfrey (2017) maintenance that solid waste management practices are still not improved as the amount of waste still landfilled is greater than that diverted which only amounts to the 10% of waste generated.

2.5.2 Desired end state

The second step in the development of an IWMP is for the municipality to outline the desired end state as far as waste management is concerned. The desired end state should be formulated based on, the findings of the situational analysis, the financial status in the municipality and institutional capacity of the local municipality. The strategic goals must be based on the relevant legislation, policies and the waste management hierarchy. Diversion of waste from landfilling must be promoted when formulating the goals to be achieved. Goals must be realistic from immediate through to long term goals. The municipality must be particularly explicit on what must be achieved and how will it be achieved (DEA, 2012e:50).

2.5.3 Identify, evaluate and select alternatives

The third step in the development of an IWMP is to identify, evaluate and select alternative methods and approaches for achieving the desired end state. Within this stage the municipality must exercise external engagements when requiring to achieve the targets and goals set. Municipalities are also expected to consider critically all the law and policy requirements to be met, and given its available capacity and resources, to make decisions regarding the categorisation of goals as either short, medium or long term (DEA, 2012e: 64-65).

In this process, it is important that the municipality indicates the best possible approach towards achieving the goals and targets, by weighing the costs versus the benefits. It should also assess the effects of the municipality failing to take steps towards reaching the IWMP goals (Alberts, 2014). Public engagement is imperative and issues raised by the stakeholders must be responded to by the

municipality. Awareness programs are significant for bringing the stakeholder on par with the development, content and implementation of their IWMPs (DEA, 2012e: 64-65). The stakeholders must be engaged through various forums, which includes but is not limited to ward committee and waste management meetings, meetings of interested and affected parties, and publication of IWMP information in the local media. (Zotos , *et al.,* 2009) reiterates that for implementing the MSW management options, local municipality's should also be capable of co-operating with several governmental or non-governmental schemes and systems of public and private sector (DEA, 2012e: 64).

It was also investigated as part of the research whether implementation of the IWMP is monitored annually by the municipality's Director of the Waste Department, as required by Section 46 of the Municipal Systems Act. In terms of Section 13(3) of NEMWA, the municipality must report on the following during the reporting period:

2.5.4 Implementation of the IWMP

The implementation plan is the summary of the IWMP and is crucial in the development process of the IWMP. The implementation plan needs to have goals, objectives and targets for implementation. One of the main research questions of this study relates to whether the IWMP had been implemented or not, and focuses on the progress with implementations, with reasons for instance where it has not been implemented. The questionnaires (of this study) asked whether the employees within the municipality were aware of the objectives and goals formulated, and whether there are legislative tools that will enhance compliance. Enabling instruments for the implementation of the IWMP should be provided for, which consists of formation of partnerships, economic instruments, legislative instruments and a financial plan (DEA, 2012e: 65).

2.5.5 Approval, monitoring and review of the IWMP

The final step in the process of developing an IWMP is the approval, monitoring and review of the IWMP against the goals that have been set. Chapter 3 Section 11 4(a)(ii) of NEMWA (2008) as amended requires that the approved IWMP be integrated into the IDP of the municipality as stipulated in Chapter 5 of the Municipal Systems Act for approval by council. The purpose is to ensure that the goals and targets are prioritised by council and therefore implemented through ensuring waste management services are aligned with other essential services through:

- A monitoring and review framework by which the plan will be monitored, by identification of targets, tasks, roles and responsibilities in order to foster implementation (DEA, 2012e:83);

- Strategic-issues process whereby delivery on goals and objectives are measured with regard to attaining the short, medium and long-term goals;

- Performance of the municipality in relation to the entire IWMP; and
- Public accountability - essential for ensuring that stakeholders are kept up to date on the development of the plan.

2.5.6 Review of the IWMP

Lastly, the review of the IWMP is the final stage post implementation, with the objective to ensure that the IWMP process was successful (DEA, 2012e: 84).

The study focused on the quality of the developed IWMP, and their implementation. Having looked at the available literature on IWMP, the following chapter will investigate methods that will assist with drawing findings and conclusions to the study.

CHAPTER 3. METHODOLOGY

3.1 Introduction

Chapter 2 discussed the integrated waste management planning, with reference to international, continental and national practices. The literature provided in Chapter 2 gives an outline of the factors that impact on the quality of integrated waste management planning. This chapter will then incorporate the following: research methodology, research design, data collection techniques and how data will be analysed.

Purposeful sampling is widely used in qualitative research for the identification and selection of information-rich cases related to the study interest (Palinkas, *et al.,* 2015). In order to conclude on the quality of integrated waste management plans of local municipalities within the Fezile Dabi District Municipality the researcher uses the qualitative research approach. However triangulation was also utilised in the study. Triangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of the phenomena (Patton, 1999). Triangulation also has been viewed as a qualitative research strategy to test validity through the convergence of information from different sources.

3.2 Research design

The purpose of the research design is to ensure that the evidence obtained enables the researcher to effectively address the research problems logically and as unambiguously as possible (De Vaus, 2006). This phenomena translates to the steps taken in the collection of the data. Babbie and Mouton (2001), defines research design as an action plan that includes techniques that will be employed in executing the research. Therefore research designs are formulated from the research questions.

Ethnographic design was used for collecting some of the data of the study. Ethnography is a type of qualitative research that gathers observations, interviews and documentary data to produce detailed and comprehensive accounts of different phenomena (Reeves *et al.,* 2013). The researcher collected data through document analysis and interviews from officials within the waste management department's at all four local municipalities in the district. However the qualitative requirements of dependability, requirements and comfortability were taken into account.

3.3 Research Methodology

This section will describe the methodology utilised to execute the study. As indicated by Babbie and Mouton (2001:647) research methodology highlights the methods and tools that are used during the

research process which is mostly ascertained by the nature of the study, hence the qualitative research approach.

3.3.1 Qualitative Approach

The utilisation of the chosen approach was so that the researcher could be seasoned to collect data through interviews and content analysis. Qualitative research provides avenues that can lead to the discovery of the deeper levels of meaning and understanding of the participants (Babbie and Mouton, 2001). However because of its subjective nature qualitative research method relies heavily on texts and discussion of the participants under study (Babbie and Mouton, 2001). A qualitative research method would usually involve a small number of participants in the research process, as it requires an in-depth gathering of information (Hofstee, 2006). Limitation to the approach are acknowledged which includes its inability to utilise enormous sample representatives.

Purposeful sampling was undertaken by the researcher as it allowed the researcher to produce knowledge relevant to the study. According to (Palinkas, *et al.,* 2015) purposeful sampling is widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest. This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest, hence those selected are from supervisory through to management level within waste management department at four local municipalities. Those purposefully selected were interviewed as a way of collecting data.

3.3.2 Qualitative data techniques

Three qualitative techniques were utilised in the study and they included:

- Interviews (semi-structured questionnaires)
- Content analysis
- Observations

According to (Greeff, 2000) interviews are considered to be the most important tool in qualitative research. Permission was requested from the municipal managers of all respective municipalities for the selected group to form part of the study. Interviews were therefore conducted after permission was granted by the municipal manager's office. The researcher used interviews because they provided direct engagement with those selected to participate in the study. Semi-structured questionnaires involved a series of open-ended questions based on the topic areas the researcher wanted to cover. Interviews afforded the researcher the opportunity to understand the knowledge of the participants as far as IWMPs were concerned.

A summary of the responsibilities of the participants includes the following:

- Director: Responsible for planning, preparing and implementing waste management strategies. Manage budget and ensure that waste disposal activities comply with environmental legislation. Lastly reports on the waste management strategies implemented;
- Solid waste manager/ assistant manager: Manages and oversees the implementation of strategies. Responsible for developing updates on waste policies and procedures.
- Environmental Officer: The job title includes organising and managing of waste collection and disposal. Advise the solid waste manager on matters affecting compliance to legislation;
- Supervisor: Supervise waste collection, transportation and disposal. Assigns daily work to the general workers. Reports directly to the manager on any challenges and successes of the daily routine.

3.4 Preparation of the checklist

Patton (2002) describes content analysis as a reduction and sense making effort that takes volumes of qualitative material and attempt to identify core consistencies. In an attempt to analyse the content of the IWMPs, three review documents were utilised.

- IWMP document review checklists

The checklist was developed with reference to Section (12) of NEMWA, 2008 as amended and the guidelines for the development of integrated waste management plans 2012. The checklists were developed to review all four IWMPs of the local municipalities under the Fezile Dabi District Municipality. The purpose of the review was to assess the content of the IWMPs, which will determine if the IWMPs developed were aligned with requirements of the NEMWA.

- IWMP goals versus the goals of the National Waste Management Strategy checklist

Secondly, a document was developed to compare the goals formulated in each of the IWMPs to the eight goals of the NWMS. The purpose of utilising the document was to evaluate if the goals set by the municipality speak to those of the NMWS, as it is a requirement that IWMPs must include the goals of the NWMS and municipalities need to implement them (DEA: 2012b).

- Document to assess the synergy of the situational analysis and the goals formulated

A third document was used to evaluate whether the findings of the situational analysis of waste management within the municipality were given priority when the goals of the IWMPs were formulated.

3.5 Preparations of the questionnaires

The development of the questionnaires was done with refers to the guidelines for the preparation of integrated waste management plans as developed by the Department of Environmental Affairs (DEA). As highlighted that purposeful sampling was utilised, the questionnaires were distributed and the table below depicts the responses. Explanatory responses were utilised, as the researcher required in depth understanding of the IWMP process at the local municipalities. Table 3-1 provides an overview of the questionnaires that were handed out to officials per municipality, as well as the response rate per designation.

Table 3-1. Questionnaire response rate of this study

Name of Municipality	Questionnaire per designation		Response per designation
Mafube LM	Director	1	1
	Environmental Manager: Waste	1	1
	Environmental officer	1	1
	Supervisors	4	4
Metsimaholo LM	Acting Director	1	1
	Manager: Solid Waste	1	1
	Assistant Manager: Solid Waste	1	0
	Supervisors	7	2
Moqhaka LM	Director	1	0
	Manager: Solid Waste	1	1
	Supervisors	7	5
Ngwathe LM	Director	1	0
	Manager: Solid waste	1	0
	Supervisor	4	3
Total		32	20

The questions were divided into sections, which were structured in the following manner:

Section A: General understating of the IWMP;

Section B: Development of the IWMP;

Section C: Objectives and targets of the IWMP; and

Section D: The IWMP and municipal governance process.

In the sections, a thorough understanding was required and questions included whether those in the waste management department had read the IWMP, their involvement in the planning process, endorsement and integration of the plans, and challenges experienced with implementing the plans. Chapter 4 elaborates on the questions asked in the questionnaire and the results.

3.6 Overview of the study area

Fezile Dabi District Municipality it is one of the districts in the Free State province. The seat of the district municipality is Sasolburg and the district code is DC20. The district comprises of four local municipalities and 15 towns as indicated below:

- Moqhaka Local Municipality: The biggest municipality in the district with a population of approximately 160,532. The towns in Moqhaka includes; Kroonstad, Viljoenskroon, Steynsrus and Vierfontein;

- Metsimaholo Local Municipality: The second largest municipality, and a hub of economic opportunity in the district with a population of approximately 149 108. The towns in Metsimaholo includes; Sasolburg, Deneysville and Oranjeville;

- Ngwathe Local Municipality: The tourist destination of the district with a population of 120 520. The towns in Ngwathe include Parys, Vredefort, Koppies and Heilbron and

- Mafube Local Municipality: The smallest agricultural hub of the district with a population of 57 876. The towns includes Frankfort, Villiers, Tweeling and Cornelia.

The municipalities operate independently but receive support from the District when necessary as intended by the Municipal Structures Act, 1998. With that being said, the district municipality provided support to the local municipalities in its jurisdiction by sourcing and funding the integrated waste management planning process, hence only one service provider was utilised. Should the local municipalities have funded the process themselves, different service providers would have been utilised (South Africa, 1998).

Figure 3-1. Map of Fezile Dabi District Municipality, its four local municipalities, as well towns within the respective local municipalities.

According to the Municipal Structures Act, 1998 all municipalities are categorised as category B municipalities. This means that the municipalities' shares municipal executive and legislative authority in its area with a category C municipality within whose area it falls. Category C municipalities on the other hand are district municipalities (Fezile Dabi District Municipality) that has executive and legislative authority in an area that includes more than one municipality (South Africa, 1998).

3.7 Limitations of the study

It was anticipated that the interviews were going to be conducted with at least thirty-two (32) officials within the waste management departments, however, only twenty (20) interviews were conducted. The response rate was low from those at management level, especially directors (out of eight directors and assistant directors only one each responded). The participation of directors in this study was important because it was believed they would be knowledgeable about the IWMPs and the progress of implementation. However it was mainly the supervisors who participated in the research.

Access to the service delivery and budget implementation plan (SDBIP) was not possible, in order to determine the budget allocated to waste management services.

Considering the IWMP implementation progress, no evidence was given - as there were no director performance plans in place. Therefore, the study relied on the responses of those interviews.

3.8 Data Analysis

In this section the researcher discusses the manner in which data will be analysed. The researcher collected data from the interviews through completing of the questionnaires. Data analysis is thought as the process of bringing order and meaning to the collected data (Marshall and Rossman, 1999). The researcher will look at patterns in the responses received. The responses of the questionnaires will be categorised per designation. Charmaz (2006) explains that in coding the interview text, the researcher can identify phenomena and linkages and can group different codes into larger, more meaningful categories. Graphs are a common method to visually illustrate relationships in the data. The purpose of a graph is to present data that are too numerous or complicated to be described adequately in the text (Surg, 2014). Graphs will be utilised to present data from interviews, using different colour coding to depict the responses as categorised per designation. The colour coding of the graphs depicts the difference between green (compliance) and red (non-compliance). Tables will also be used where narrative interpretation was necessary to present the data.

CHAPTER 4. RESULTS AND DISCUSSION

4.1 Introduction

The results of the questionnaires on IWMPs, and document analysis, are presented in this chapter. The results are presented in response to the research questions of the study i.e. from question 1 until question 4. The research questions were as follows:

1. What is the quality of the IWMPs of local municipalities within Fezile Dabi District Municipality?
2. Do the IWMP goals give effect to the goals and objectives of the National Waste Management Strategy?
3. How far have the IWMPs been implemented by the local municipalities?
4. What are the existing challenges/constraints at the local municipalities affecting the implementation of the IWMPs?

4.2 Results of document review checklists

This section summarises the results of the document review checklists, which were used to critically analyse the content of the IWMPs. The content analysis also included the evaluation of the goals and objectives against the NWMS, and the *status quo* of each municipality.

4.2.1 Results of the IWMP content analysis checklist

Through utilising the content analysis checklist, non-compliances in relation to the requirements of Section 12 of NEMWA were identified as outlined in Table 4-1.

Table 4-1. Findings of the IWMP content analysis

<table>
<tr><th>Item</th><th>Municipality</th><th>Comment</th></tr>
<tr><td colspan="3">Section A: Geographical description</td></tr>
<tr><td colspan="3">All of the IWMPs define the geographical area of the municipality were the IWMP is based.</td></tr>
<tr><td colspan="3">Section B: Situational Analysis</td></tr>
<tr><td rowspan="4">Waste quantities and types</td><td>Mafube LM</td><td rowspan="3">Defines general waste types and quantities, but excludes any other waste types.</td></tr>
<tr><td>Metsimaholo LM</td></tr>
<tr><td>Moqhaka LM</td></tr>
<tr><td>Ngwathe LM</td><td>Does not mention any waste quantities and types.</td></tr>
</table>

Item	Municipality	Comment
Number of illegal dumping activities	Mafube LM	None of the four IWMPs mentions any illegal dumping's identified. This is rather inaccurate as within any residential surrounding illegal dumping are prone to emerge. Furthermore within the goals of all the IWMP's, illegal dumping management is prioritised but no mention of the problem is identified.
	Metsimaholo LM	
	Moqhaka LM	
	Ngwathe LM	
Number of people without waste collection services	Mafube LM	The IWMPs fails to identify people without waste collection services are required in NEMWA, 2008: s (12) (1) (a) (iv)).
	Metsimaholo LM	
	Moqhaka LM	
	Ngwathe LM	
Organisational structure	Mafube LM	IWMP makes mention of a few people within the waste services department.
	Metsimaholo LM	No indication of organisational structure.
	Moqhaka LM	IWMP makes mention of a few people within the waste services department.
	Ngwathe LM	No indication of organisational structure.
Operational income in waste management	Mafube LM	IWMPs for Mafube, Moqhaka and Metsimaholo LMs indicate budget utilised to render some of the waste services, but nothing on the comprehensive income for waste.
	Moqhaka LM	
	Metsimaholo LM	
	Ngwathe LM	IWMP does not mention anything on income received or utilised for rendering waste services.
Section C		
Waste targets, goals and objectives	Mafube LM	All of the IWMPs have goals, targets and objectives set, as required by s(12)(d)(e). Part of the waste hierarchy was taken into account when objectives were formulated, however, the waste treatment tier of the hierarchy was not considered.
	Metsimaholo LM	
	Moqhaka LM	
	Ngwathe LM	

Item	Municipality	Comment
Section D		
Financial resources	Mafube LM	The IWMPs of all the municipalities does not mention any financial avenues to be exhausted in order to ensure that the IWMPs are implemented**.**
	Metsimaholo LM	
	Moqhaka LM	
	Ngwathe LM	

4.2.2 Alignment of the IWMP goals and the NWMS

In order to establish the quality of the IWMPs, it was crucial to determine whether the goals of the IWMPs are aligned with those of the NWMS. Within the reviewed IWMPs, a gap was identified whereby some of the goals of the strategy were never incorporated into the four reviewed IWMPs.

Table 4-2. IWMP goals alignment with the NWMS goals

Goals	Description	Targets (2016)	Alignment of IWMPs with the goals
Goal 1	Promote waste minimization, reuse, recycling and recovery of waste	25% of recyclables diverted from landfill sites for re-use, recycling or recovery.	The municipalities have aligned their IWMPs with Goal 1, some strategies included waste minimisation strategies, such as: Launching of two bag system for separation at source. Engaging with local companies that can collect recycled waste.
Goal 2	Ensure the effective and efficient delivery of waste services	95 % of urban households and 75 % of rural households have adequate level of waste collection services. 80% of waste disposal sites to have permits	As all IWMPs do not mention those without waste services. No priority is given in ensuring effective delivery of services.
Goal 3	Grow the contribution of the waste sector to the green economy.	69 000 new jobs created in the waste sector 2 600 additional SMEs and cooperatives participating in waste service delivery and recycling	Goal 3 was mostly provided for in the form of waste minimisation initiatives, such as forming of cooperatives that concentrate on recycling within the municipality.
Goal 4	Ensure that people are aware of the impact of waste on their health, well-being and the environment.	80% of municipalities running local awareness campaigns 80% of schools implementing waste	Goal 4 was mostly provided for in the form of information management, where objectives included the development of a comprehensive awareness

Goals	Description	Targets (2016)	Alignment of IWMPs with the goals
		awareness programs.	program and education for the municipality
Goal 5	Achieve integrated waste management planning.	All municipalities have integrated their integrated waste management plans (IWMPs) with their integrated development plans (IDPs) and have met the targets set in their IWMPs. All waste management facilities required to report to the South African Waste Information System (SAWIS) and have waste quantification systems that report information to the Waste Information System (WIS).	All LMs have developed their IWMP in 2014, but no municipalities have integrated those into the IDP. Objectives included the development of a WIS for all the sites including the transfer station. Procure mobile weigh bridges.
Goal 6	Ensure sound budgeting and financial management for waste services.	All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs.	None of the IWMPs make mention of any income versus cost required for waste services, therefore no objective is formulated to ensure adequate budgeting for waste services.
Goal 7	Provide measures to remediate contaminated land.	Assessment complete for 80% of sites reported to the contaminated land register. Remediation plans approved for 50% of confirmed contaminated sites.	None of the IWMPs make provision for the goal, although it is required that municipalities must keep a register of these at their disposal.
Goal 8	Establish effective compliance with and enforcement of the Waste Act.	50% increase in the number of successful enforcement actions against non-compliant activities. 800 EMIs appointed in the three spheres	None of the IWMPs make provision for Goal 8.

It can be seen from Table 4-2 that not all of the goals of the NWMS are given effect to in the IWMPs of municipalities. This can be attributed to the poor quality of work done in the situational analysis. As the findings are from the content analysis exercise, it can be concluded that the goals were either not prioritised by the municipalities, or the IWMP process was incoherently developed. This meant that the process to link objectives to gaps was not followed correctly (by the municipality or appointed

consultant). Furthermore, it can also be said that the non-inclusion of the mentioned goals had no bearing on whether the local municipalities were in a position to implement them or not. As the goals of the NWMS are applicable to all spheres of government, their exclusion indicates that the municipalities did not adhere to the contents of Chapter 3 of NEMWA.

4.2.3 Identified priorities versus the IWMP objectives and goals formulated

A third document was utilised in order to determine whether the priorities identified within the situational analysis phase forms part of the IWMPs' goals and objectives for the respective municipalities.

The intriguing element identified when reviewing the IWMPs is that, since the documents were formulated by one service provider, the priorities and IWMP objectives formulated for the four different municipalities were the same - even though the *status quo* and gaps identified for the four municipalities differed. The utilisation of one service provider was because the service to develop IWMPs were sourced by the district municipality and not the local municipalities themselves. Table 4-3 plots the priorities identified by the municipalities and the IWMP goals and objectives formulated, as a means to check the synergy between the two elements.

Table 4-3. Situational analysis of the municipalities and goals formulated in the IWMP

Priority for the municipality based on the situational analysis	IWMP goals and objectives	Does the IWMP objective and goals address the priorities identified?	Name of Municipality
Waste generation composition	No objective formulated	No	All
Estimated waste quantities for general waste	Objective: Information management and disposal	Yes	All
Collection and transfer	Objective: Waste collection infrastructure	Yes	All
Waste collection itinerary per service area	No objective formulated	No	All
Waste receptacles	Objective: waste collection infrastructure	Yes	All
Personnel for waste management	Objective: Institutional capacity and human resources	Yes	All
Equipment for waste management	Objective: Waste collection infrastructure	Yes	All
Waste minimisation initiatives	Objective: Waste minimisation strategy	Yes	All

Priority for the municipality based on the situational analysis	IWMP goals and objectives	Does the IWMP objective and goals address the priorities identified?	Name of Municipality
Treatment and disposal	Objective: Disposal infrastructure	Yes	All
Implemented or funded projects	No	No	All
Waste management policy and strategic planning	No	No	All
Institutional challenges	Objective: Institutional capacity and human resource	Yes	All
	Management of illegal activities	No	All
Private sector participation	No objective formulated	No	All

Table 4-3 indicates that there was generally a limited link between the priorities identified by the municipalities and the objectives formulated. It can be seen that six out of thirteen priorities identified had no objectives formulated in order to address the particular priority. Secondly, there is an objective that has been formulated which does not address any priority or identified gap. Although the objective makes sense, or gives effect to the goals of the NWMS, its inclusion is questioned since no gap or priority will be addressed by its inclusion in the IWMP.

4.3 Questionnaire interpretation

This section of the study interprets the responses from interviews conducted with waste management officials.

4.3.1 Demography of respondents

Figure 4-1 provides an outline of respondents who participated in the study. The majority of responses came from the supervisors, followed by senior personnel - respectively they represent fourteen (70%) and six (30%) of the entire twenty respondents. Out of the four municipalities, only two (Mafube LM and Metsimaholo LM) were represented by senior personnel who participated in the study. Mafube LM had the highest number of responses given, being seven (35%) of the twenty respondents. Responses from Ngwathe LM are only represented by supervisors.

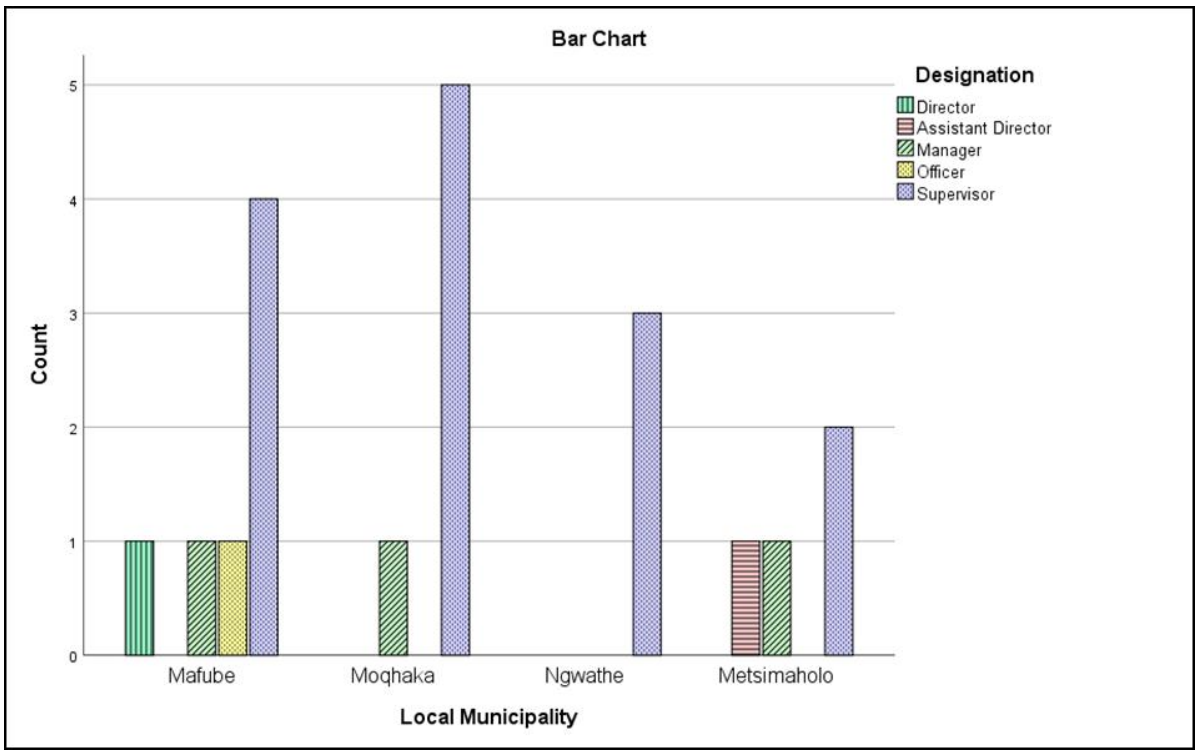

Figure 4-1. Demography of the respondents

The sections below answer research questions (3) and (4) of the study, which are:

(3) How far have the IWMPs been implemented at the local municipalities? and

(4) What are the existing challenges/constraints at local municipalities affecting the implementation of the IWMPs?

The responses will be done per section in order to give meaning to the research questions.

4.4 General understanding of the IWMP- Section A

The first section was meant to investigate the understanding of those within the waste management department as far as IWMPs are concerned. Figure 4-2 categorises the respondents and shows that thirteen (65%) of respondents have an understanding (albeit poor, in certain instances) of what an IWMP is and that seven (35%) indicated that they do not know what an IWMP is.

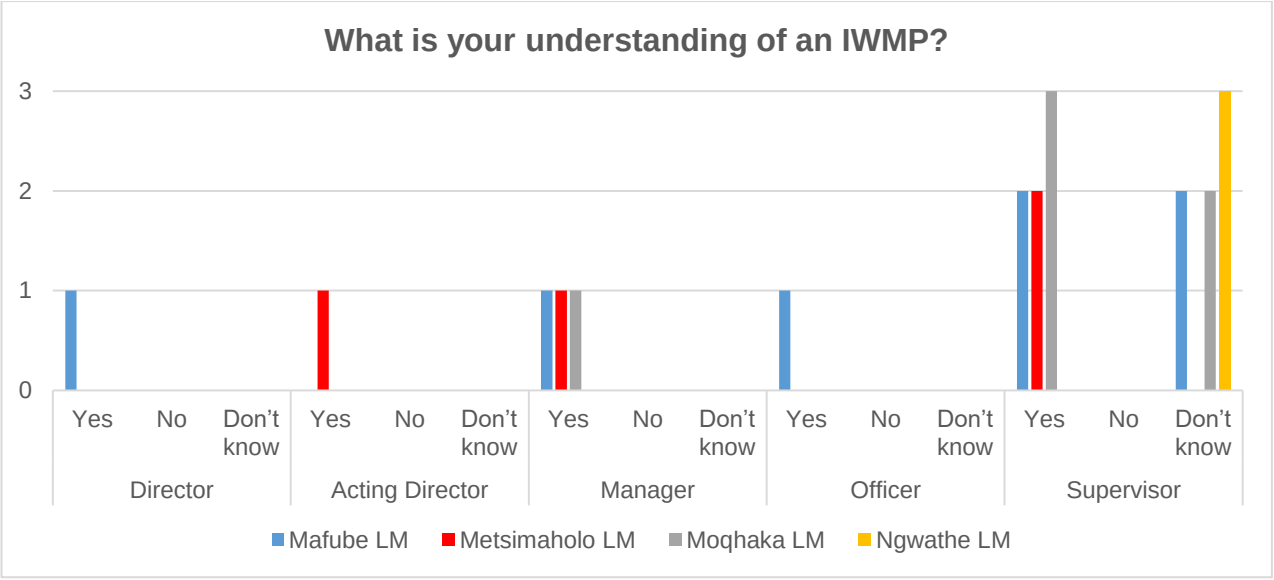

Figure 4-2. Responses on *what is your understanding of an IWMP?*

Table 4-4 lists the comments from the majority of respondents on their understanding of what an IWMP is.

Table 4-4. Responses on the understanding of IWMPs

What is an IWMP?	Response by official	Number of respondents
According to the respondents they defined an IWMP as	**Accurate reflection**	
	A waste plan that is intended to manage waste in municipalities. A document used by the municipality to deliver waste management services effectively to the community. A guideline tool that describes the framework within which waste management is to be carried out. A strategic document that guides the municipality on how to manage waste.	6
	Inaccurate reflection	**Number of respondents**
	The general refuse and the waste minimisation by reducing, recycling and reusing. The collection of waste from community to the waste landfill site The general refuse and the waste recycling The general waste prevention or reducing or minimisation of the waste in all angles.	7

What is an IWMP?	Response by official	Number of respondents
	It is a plan for service delivered by a local municipality in how solid waste is collected and treated on landfill sites, in order to meet government requirements set in the document	
	I do not know	**7**

4.4.1 Reading of the IWMP

The Figure 4-3 depicts that nine (45%) respondents did not have knowledge of their municipality's IWMP (were not sure if they read it or not), while six (30%) of respondents said they had not read the document and five (25%) had read the document. Among the six who indicated that they had not read the IWMP, one respondent said he used personal experience, knowledge and understanding to give feedback on the IWMP.

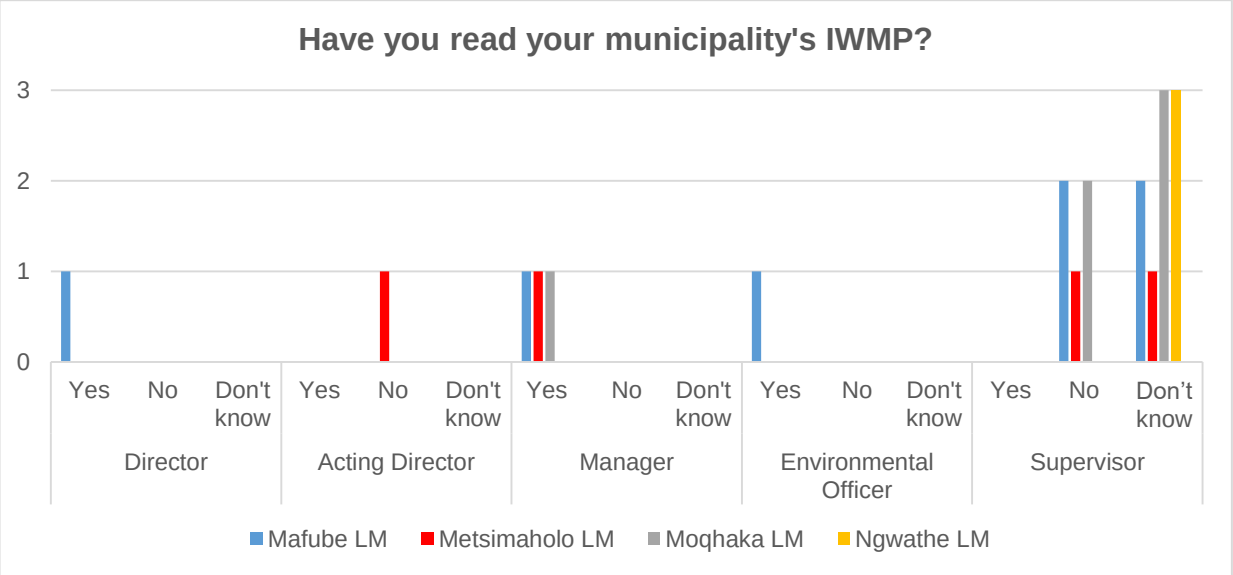

Figure 4-3. Responses on *have you read your municipality's IWMP?*

4.4.2 Intended achievement of the IWMP

Table 4-5 indicates that nine (45%) of the respondents were aware of what is intended to be achieved by the IWMP, while eleven of the respondents (55%) indicated that they did not know the intent of the IWMP.

Table 4-5. What is intended to be achieved by the IWMP?

What is the intent of an IWMP?	Response by official	Number of respondents
According to the respondents, the intent of an IWMP is:	**Accurate reflection**	
	To address waste generation disposal, provide proper financial management and effective service delivery. To integrate waste management into or within municipal services and to respond to increasing levels of waste throughout the municipal area. To identify future waste management challenges and plans. Reduce the impact of waste on social and environmental spheres, minimize systems in terms of usage of infrastructure, labour and equipment's. To promote a green economy, recycling, cleanliness and healthy environment among communities. To maintain zero tolerance for the waste disposal.	5
	Inaccurate reflection	
	To comply with the legislation as set out by government and to address and mitigate challenges posed by workers.	4
	Do not know.	11

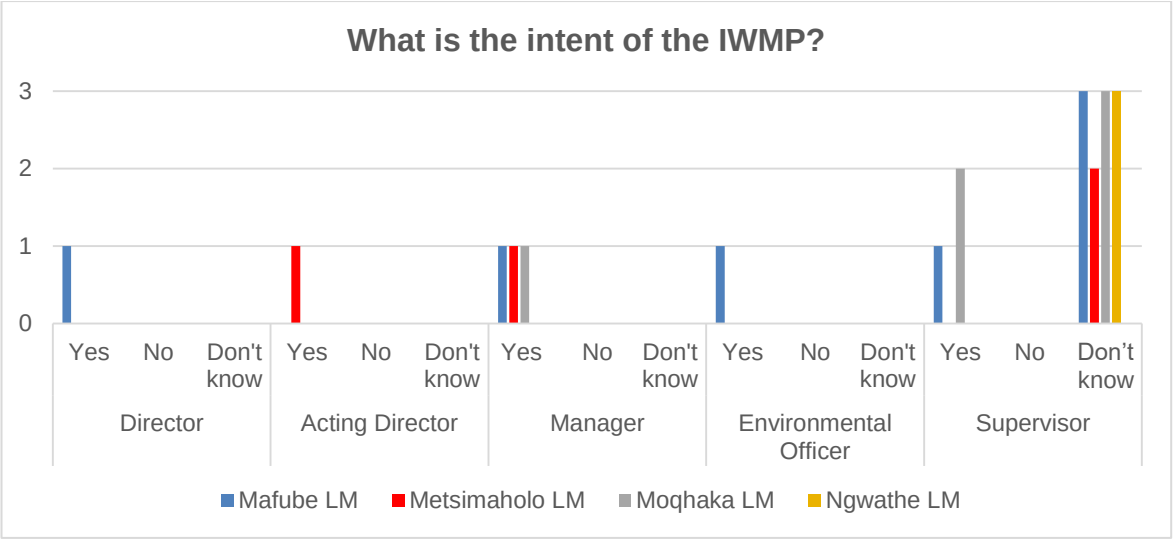

Figure 4-4. Responses on *what is the intent of the IWMP?*

4.4.3 IWMP reflection on waste issues

Inclusive in the questions in Section A of the questionnaire was to find out whether the officials felt that the IWMPs reflected waste issues in the municipality (Figure 4-5). Two respondents (10%) said that the IWMP does not reflect the waste issues in their municipality, and indicated that issues were reflected partially and not comprehensively, as illegal dumps as well as other waste types generated were not taken into consideration. The other six respondents (30%) agreed that the IWMPs did include waste issues, whilst twelve (60%) indicated that they did not know.

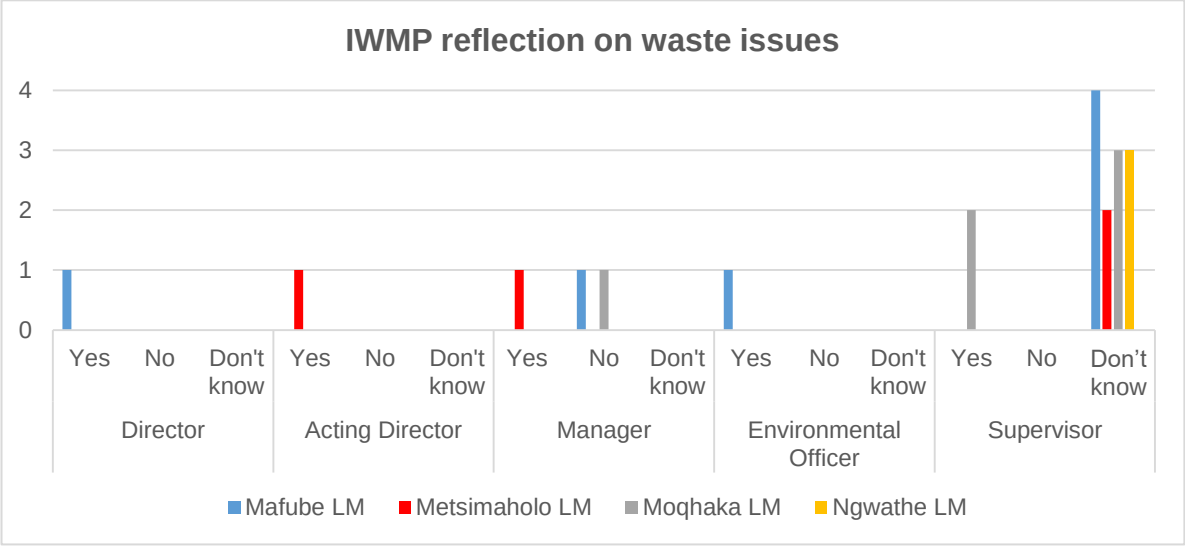

Figure 4-5. Responses on IWMP reflection on waste issues

4.4.4 Utilisation of the IWMP for addressing waste management issues at the municipality

Figure 4-6 reveals that the majority of respondents, fourteen (70%), did not know whether the IWMP document is utilised for addressing waste management issues at their municipality. Four respondents (20%), believed that the IWMP is in fact used to address waste issues at their municipality. Two respondents (10%) indicated that IWMPs are not utilised for addressing waste management issues at their municipality, highlighting the following as challenges:

- Only issues that do not need much budget are addressed;
- That we must identify possible illegal dumping hot spots;
- Developing clean-up and anti-dumping campaigns;
- Possible revision of bylaws as well as collection strategies; and
- The municipality sticks to the plan as far as the budget allows it.

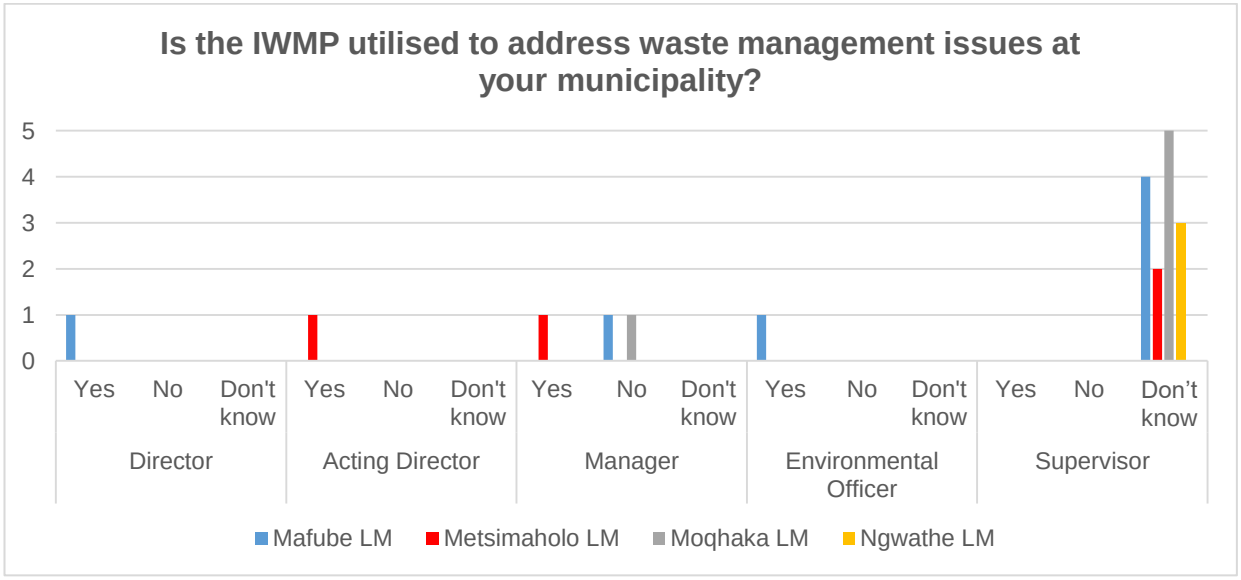

Figure 4-6. **Responses on *is the IWMP document utilised for addressing waste management issues at your municipality?***

4.5 Development of the IWMP- Section B

This section reflects on the waste department officials’ perceptions of the IWMP development process.

4.5.1 Respondents' involvement with the development of the IWMP

Figure 4-7 reveals that five out of the twenty (25%) respondents were involved with the development of the IWMP. Their main roles were as follows:

- To meet with the consultants, to collect information and provide the necessary documents;
- Reviewing the information that was given to the consultants by the municipality; and
- Supplying the consultant with relevant legislation.

Seven (35%) of the respondents said they were not involved and eight (40%) of the respondents did not know.

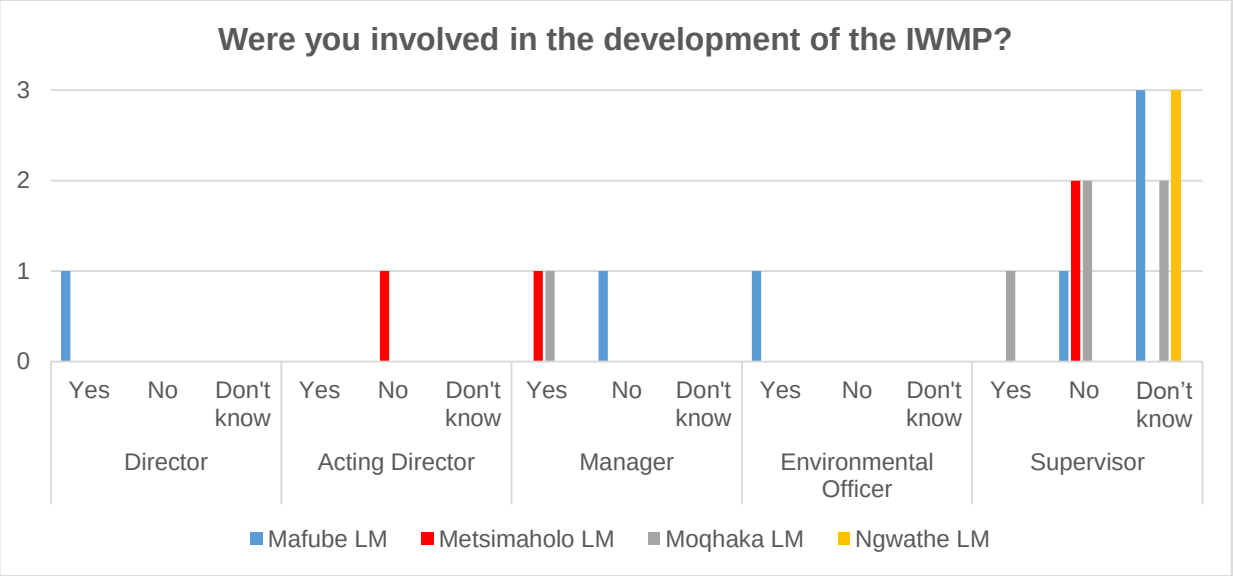

Figure 4-7. Responses on *were you involved with the development of the IWMP?*

4.5.2 Stakeholder involvement with the development of the IWMP

Figure 4-8 shows that the sixteen respondents (80%) did not know whether stakeholders were involved in the development of the IWMP. The two (10%) who said "yes" confirm that the consultants did take stakeholders' input into consideration and made it available to the public for comment and feedback. Two (10%) indicated that they did not believe that stakeholders were involved in the development of IWMPs.

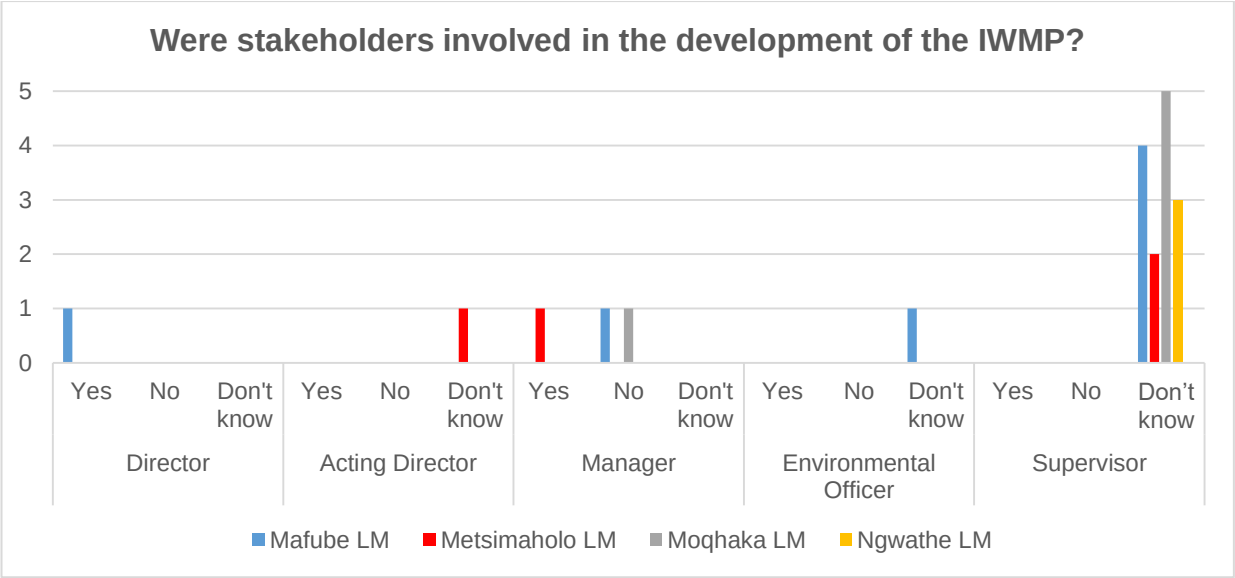

Figure 4-8. Responses on *were stakeholders involved in the development of the IWMP?*

4.5.3 Public Participation

According to Figure 4-9, four (20%) of the respondents said that the IWMP had not undergone the public participation process as mandated, and that the consultant had made a presentation to the local municipality's mayor only. Some IWMPs did not include comments received from the public. Fifteen respondents (75%) did not know whether the process took place or not, while only one respondent (5%) indicated that the IWMP had undergone a public participation process. However, from the IWMPs reviewed, there is no indication or evidence that a public participation process was undertaken at any of the four municipalities as part of the IWMP development process.

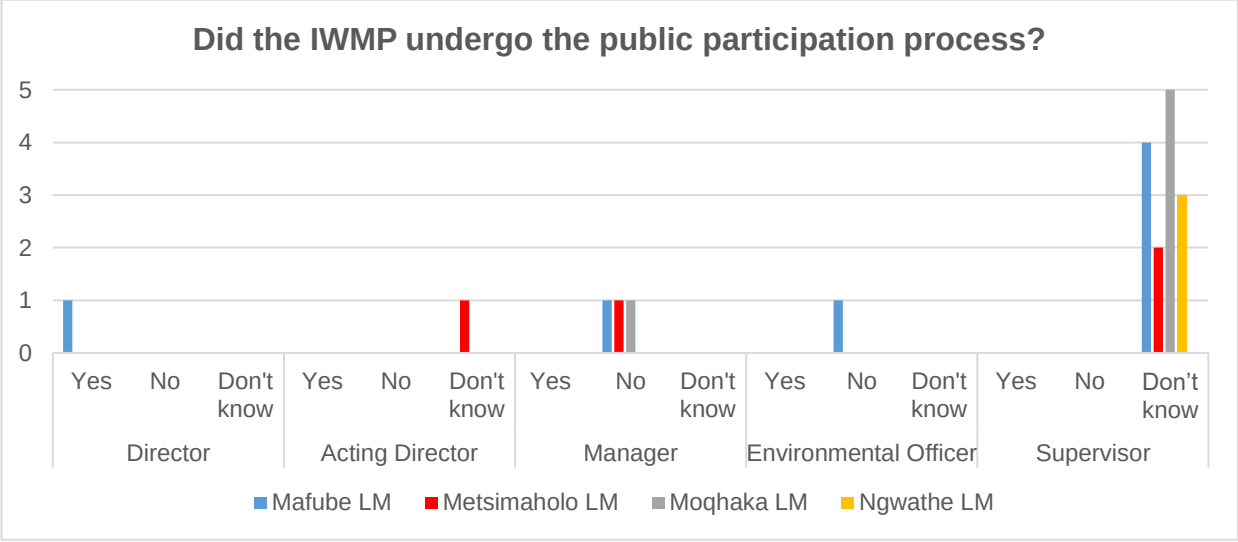

Figure 4-9. Responses on *did the IWMP undergo the public participation process?*

4.5.4 Reporting of the municipalities on the South African Waste Information System

Figure 4-10 depicts that the majority of respondents - fifteen (75 %) – did not know whether their municipality reports onto the South African Waste Information System (SAWIS). Three (15%) of respondents who indicated that their municipalities did not report to SAWIS commented that the figures on waste generated were estimated. Furthermore, they reported that their municipality had not reported to SAWIS for the past six years. The data was estimated according to the number of vehicles that entered the landfill site. Two respondents (10%) indicated that their municipalities do report on the SAWIS. When drawing statistics from SAWIS (2017 data) is was evident that the municipalities did not report into the system, since no waste tonnage reports were available for Fezile Dabi DM.

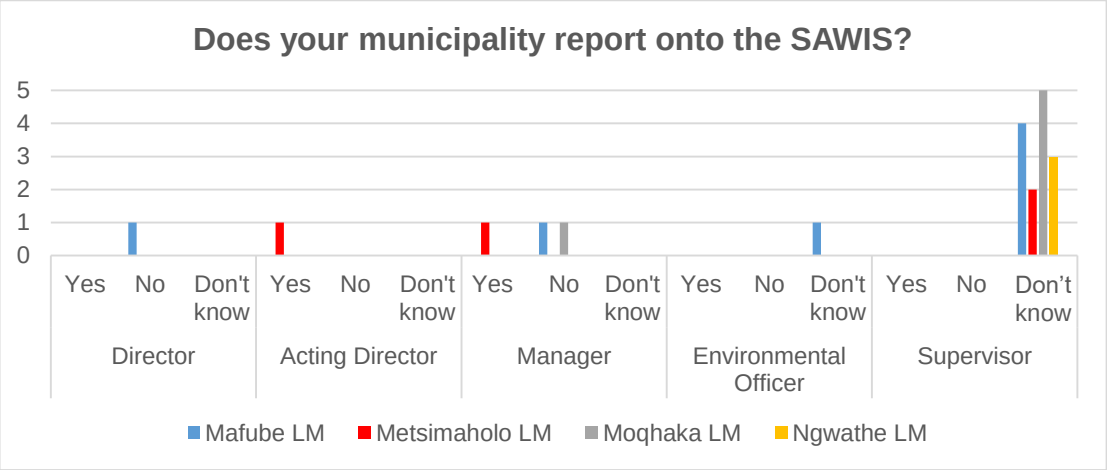

Figure 4-10. Responses on *does the municipality report on the SAWIS?*

4.5.5 Alignment between district and local IWMPs

Figure 4-11 reveals that fourteen (70%) of the respondents do not know whether the contents of the municipality's IWMP are aligned to that of the district municipality. Six respondents (30%) agreed that their municipality's IWMPs were aligned with those of the district municipality and attributed this to the fact that the district municipality assisted with the appointment of consultants and funding the IWMP. This study included an analysis of the district IWMP to confirm alignment of the local municipalities' IWMP, which indicated that the IWMPs of district and local municipalities are not aligned. Moreover, none of those interviewed at the local municipalities, including management, had seen or read the IWMP for the district.

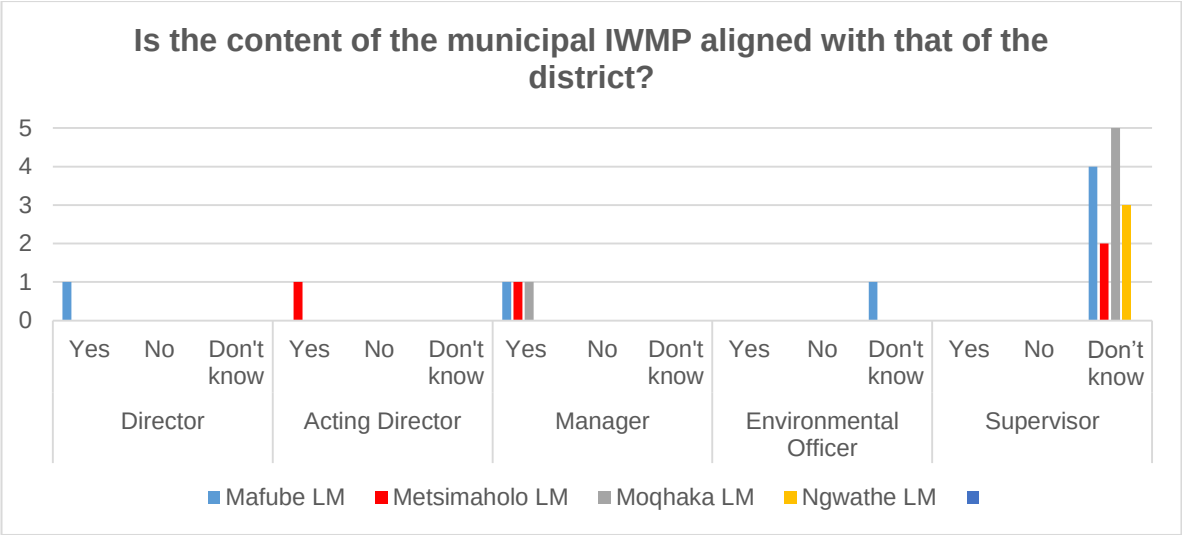

Figure 4-11. **Responses on *is the content of the municipal IWMP aligned with that of the district?***

4.5.6 Submission of the plan to the MEC

Seventeen (85%) of the respondents did not know whether the plan was submitted to the MEC for endorsement, as required by the NEMWA. Only one respondent (5%) confirmed the plan's submission, and indicated that the document was submitted to both DESTEA (Department of economic, small business development, tourism and environmental affairs) and COGTA (cooperative governance and traditional affairs). Two respondents (10%) indicated that the plan was not submitted to the MEC for endorsement (Figure 4-12). There was nothing found on record during the interviews to support the statement by one respondent that the plans were submitted to both COGTA and DESTEA. It can therefore be concluded that the process was not undertaken.

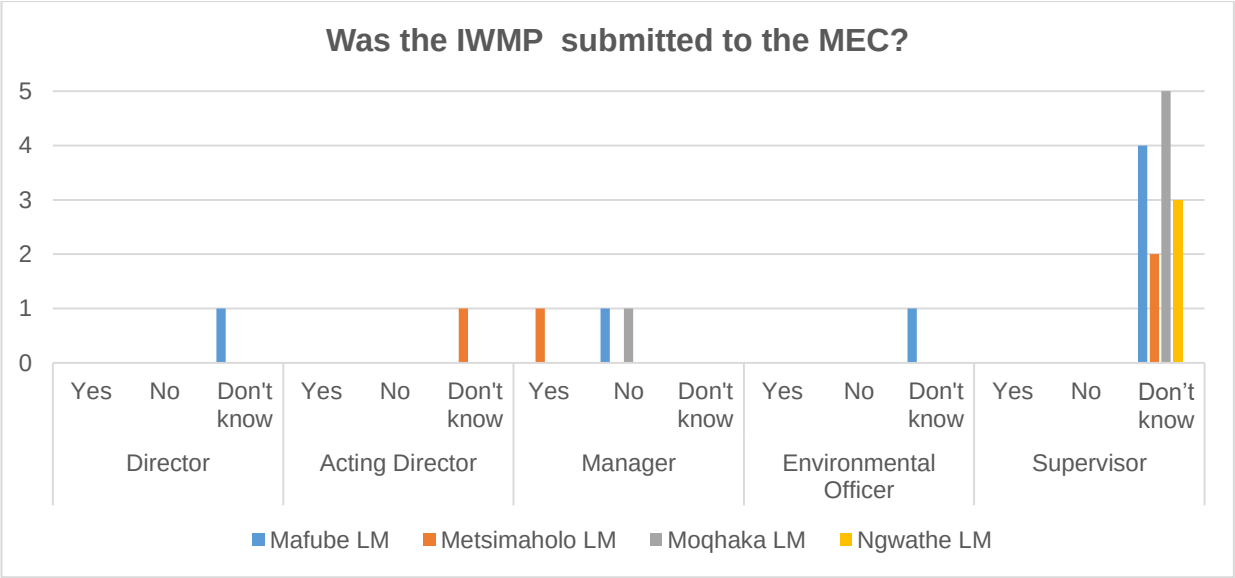

Figure 4-12. Responses on *was the IWMP submitted to the MEC?*

4.6 Objectives and targets of the IWMP- Section C

Section C of the questionnaire reflected on the objectives and targets of the IWMP.

4.6.1 Prioritising of waste management challenges in the IWMPs

Figure 4-13 reveals that thirteen respondents (65%) did not know whether any waste management challenges that needed to be prioritised were identified throughout the IWMP-development process. Only seven (35%) of the respondents agreed to the question, and commented as follows:

- There were challenges identified but they were not prioritised;
- A priority identified was that the staff should be trained on aspects of effective waste management and development of a waste information system;
- Development of a complementary forum with other local municipalities within the district for information sharing and knowledge exchange;
- Development of a comprehensive awareness campaign programme in the municipality is needed for the benefit of the community;
- The recommendations are listed and serve as priority;
- The business and households' waste-collection schedule; and
- The landfill site and the illegal dumping areas were prioritised.

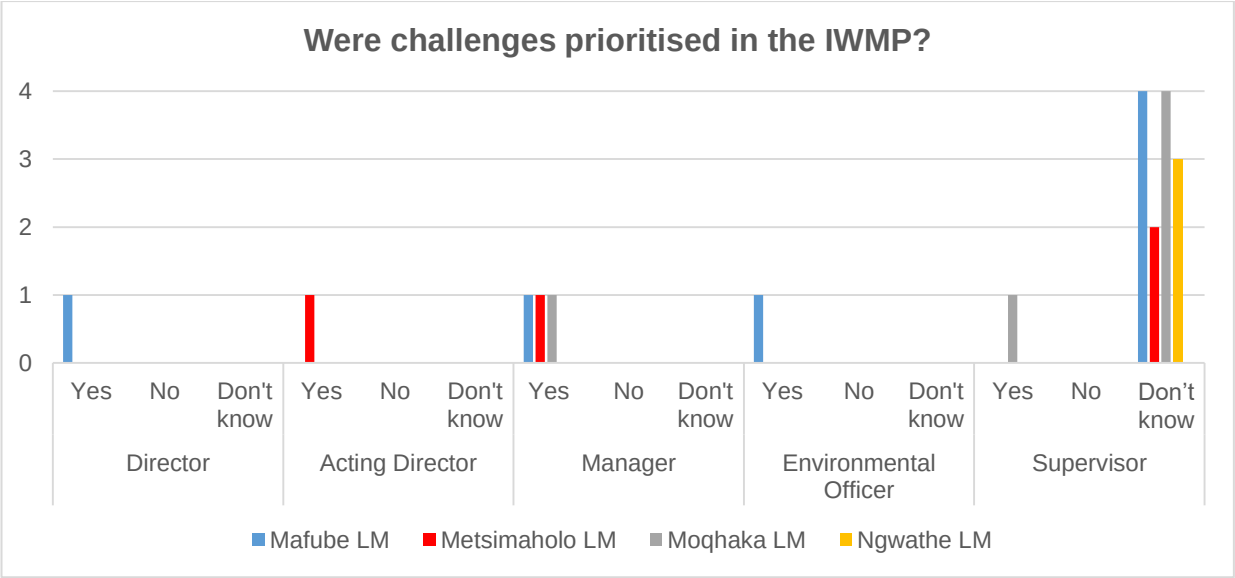

Figure 4-13. Responses on *were challenges prioritised in the IWMP?*

4.6.2 Targets

Figure 4-14 shows that there are two municipalities (Mafube and Metsimaholo) with four respondents (20%) who knew the municipal IWMPs' short-term or long-term targets. Their comments are summarised as follows:

4.6.2.1 Short Term

- Review of the organisational structure, unit function to be filled by competent waste specialist and to undertake enforcement of bylaws;
- Current staff to be trained;
- Tariffs for private disposals should be determined and standardised;
- Ring fence the revenue for waste management in order to re-invest in the function in various ways; and
- Develop awareness and educational programmes.

4.6.2.2 Long term

- Introduce a two-bag (bin) system for all households and businesses in order to improve separation at source; and

- Strengthen participation of private sector companies, whether donor or in transferring skills to the cooperatives.

Sixteen respondents (80%) did not know anything about the formulated goals and objectives.

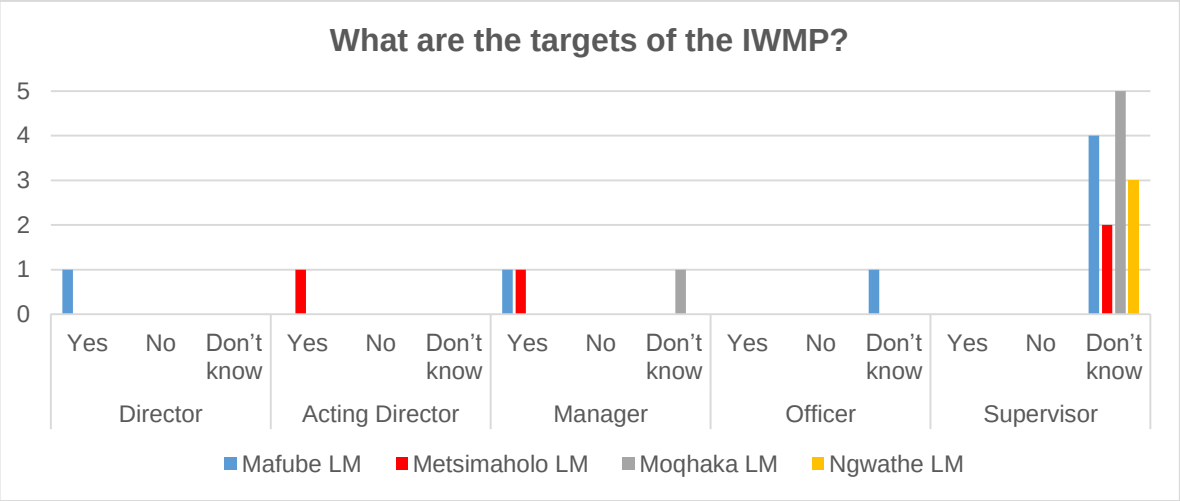

Figure 4-14. Responses on *what are the targets of the IWMP?*

4.6.3 Alignment of targets with the waste management hierarchy and NWMS

The question on the alignment of targets is polysemic as it also responds to question (2) of the research. Although this issue should have been settled in the first section, the question was repeated in the questionnaire to understand the officials' perceptions and understanding.

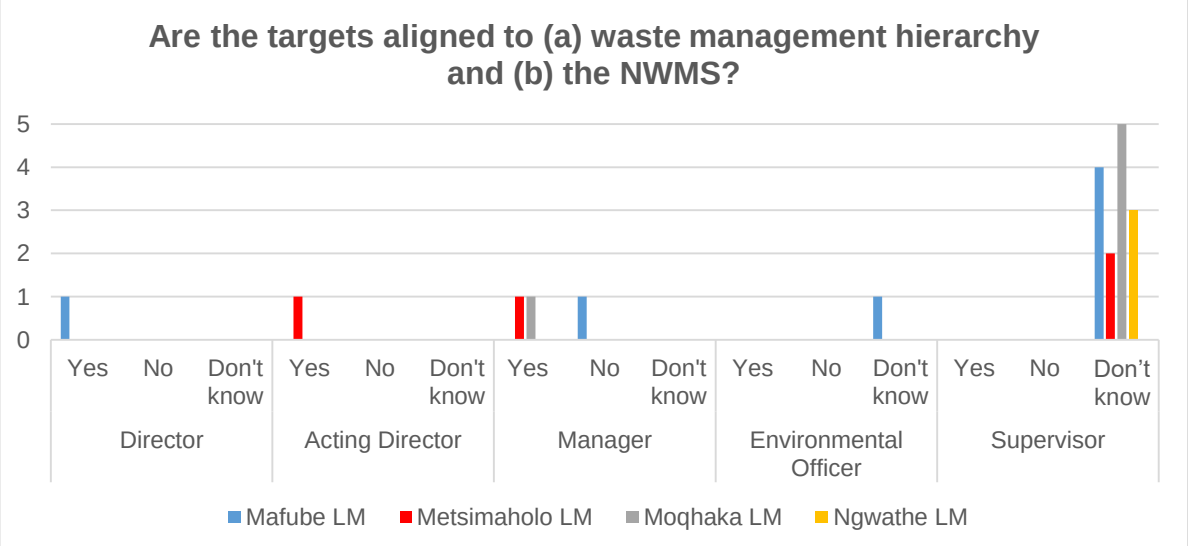

Figure 4-15. Responses on *are the targets aligned to (a) the waste management hierarchy and (b) the NWMS?*

Figure 4-15 shows that four respondents (20%) agree that some of the targets are aligned to the waste management hierarchy and the national waste management strategy. One respondent (5%) disagreed and the majority (75%) of respondents did not know.

4.6.4 Implementation of objectives and targets

The responses received indicate that six (30%) are in agreement that the set objectives and targets were implemented. One (5%) respondent disagreed, and explained that there was no budget for the implementation. The majority - thirteen (65%) – of respondents did not know if the objectives and targets of the IWMP were implemented (Figure 4-16).

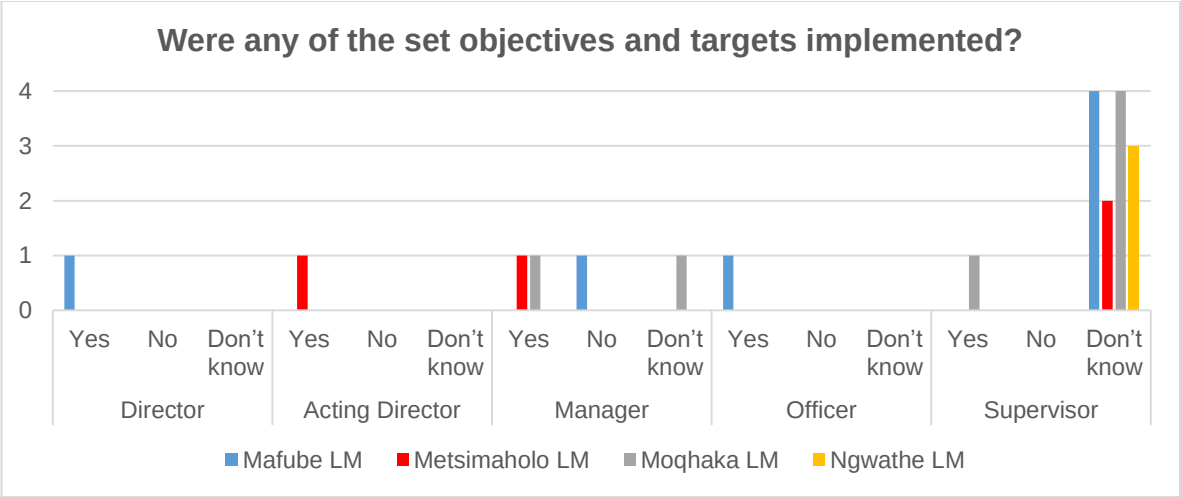

Figure 4-16. Responses on *were any of the set objectives and targets implemented?*

4.6.5 Municipality's plan of action for targets that have not been met

According to Figure 4-17, one respondent (5%) indicated that there was no plan of action because of budget constraints, while five (25%) of the respondents agreed that something must be done, and elaborated on their responses with:

- Funds need to be sourced for the objectives and targets to be implemented;
- The municipality must apply for funding from different sources;
- Engage SETA for training of staff to improve knowledge and in turn change attitudes towards waste; and
- Approach provincial and national government to assist and capacitate staff.

The majority of respondents - fourteen (70%) - did not know whether their municipality has a plan of action to deal with neglected objectives.

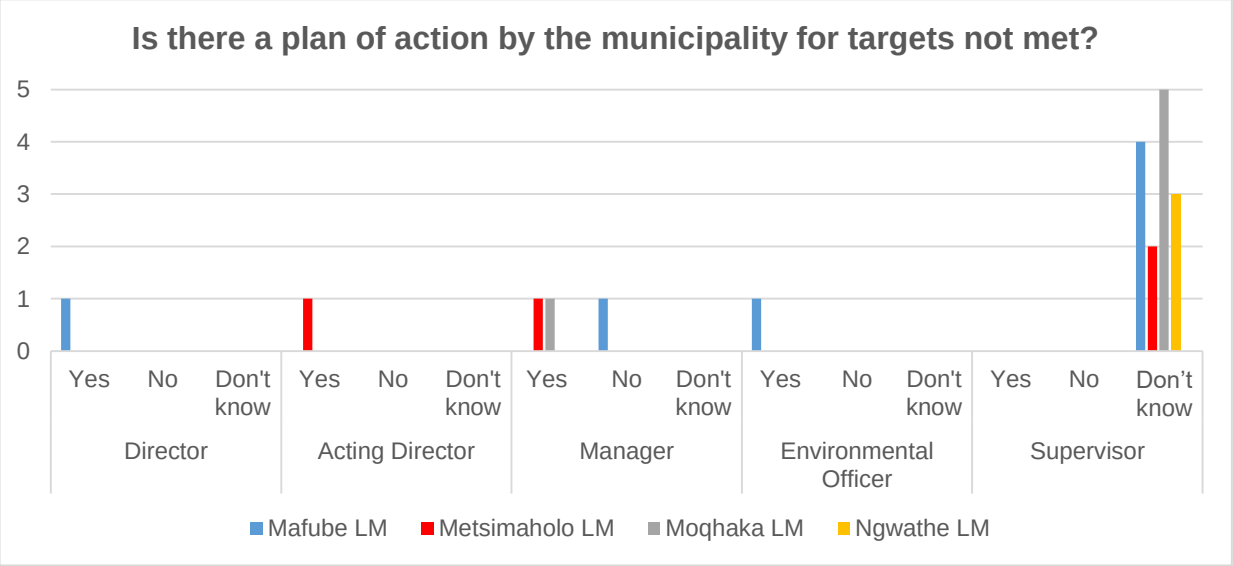

Figure 4-17. Responses on *is there a plan of action by the municipality for targets not met?*

4.7 The IWMP and Municipal governance processes - Section D

This section gives an account of the respondents' perceptions of the governance processes followed as far as the IWMP and other related processes are concerned.

4.7.1 Alignment of IWMP and IDP processes

Figure 4-18 reveals that six (30%) respondents agree that the processes were aligned and commented that the IWMPs were integrated into the IDP but not implemented. One (5%) believed that the processes were not aligned. The majority of respondents - thirteen (65%) - did not know. It was found during the interviews (and during the reviewing of available documentation at the municipalities) that the IDP process at all local municipalities ran from 2013 to 2017, at the time the IWMPs were being developed. Currently reviewed IDPs are valid from 2017 to 2022 and the development of new IWMPs (2019 to 2023) falls outside the IDP process. The processes are then not aligned and therefore can influence the provision of funds for waste management.

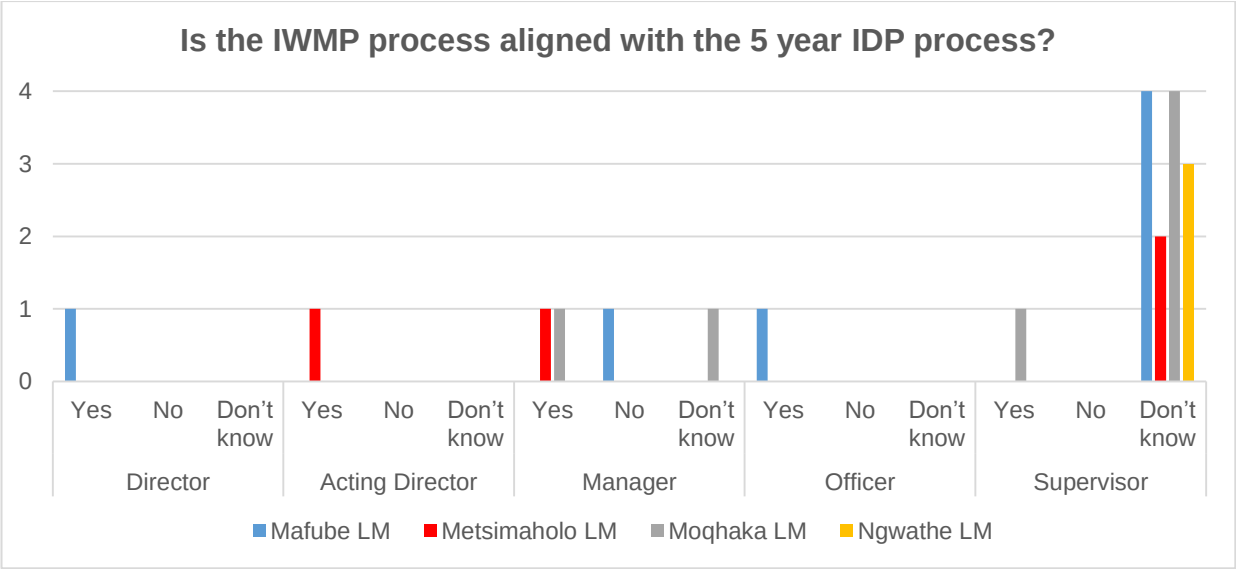

Figure 4-18. Responses on *is the IWMP aligned with the 5-year IDP process?*

4.7.2 Endorsement of the IWMP by council

Figure 4-19 indicates that thirteen respondents (65%) did not know whether the council had endorsed the plan, or not. Only five (25%) agreed that the council endorsed the plan and two (10%) indicated that the plan was not endorsed by council. Supporting documentation viewed during the interviews indicated none of IWMP were endorsed by council, despite the director for Mafube indicating that the endorsement had taken place.

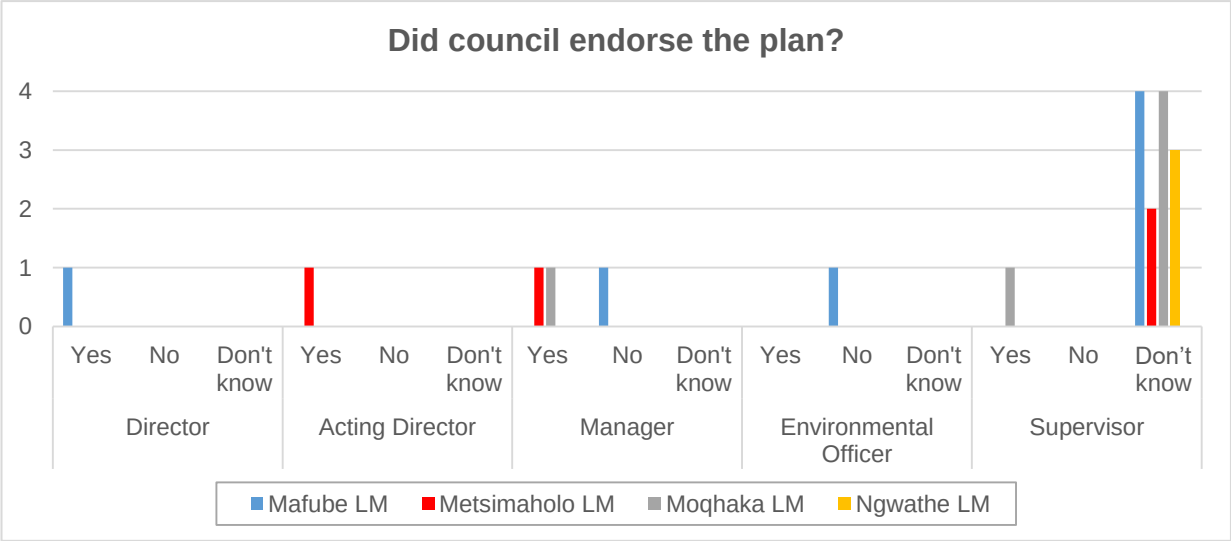

Figure 4-19. Responses on *did council endorse the plan?*

4.7.3 Waste service by-laws

Figure 4-20 below indicates the responses received from the interviewees relating to waste service by-laws. Fifteen (75%) of the respondents did not know whether the municipality had waste service by-laws in place, or people responsible for enforcing them. One respondent from Mafube LM indicated that they do not have waste by-laws. Only four respondents (20%) (two from Moqhaka LM and two from Metsimaholo LM) agreed that their municipalities have waste service by-laws. Although it has been reported as such from the interviews, all the local municipalities do not have by laws promulgated even though generic by-laws developed by COGTA are available for modification.

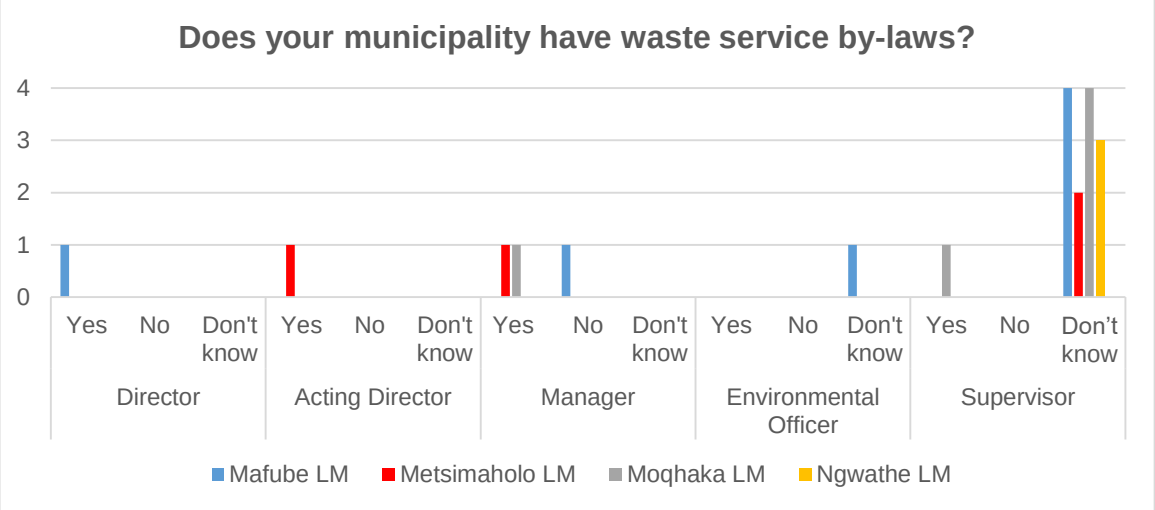

Figure 4-20. Responses on *does your municipality have waste service by-laws?*

Moreover, the challenges posed by waste service by-laws regard enforcement is that, only Metsimaholo LM and Moqhaka LM have law enforcement officers.

4.7.4 Existing forum for IWMP progress discussion

Figure 4-21 indicates that two respondents (10%) indicated that there are no intergovernmental structures (forums) that exist where IWMP progress is discussed prior to annual reporting. On the other hand, three respondents (15%) agreed that the structures exist, while the majority did not know about such intergovernmental structures.

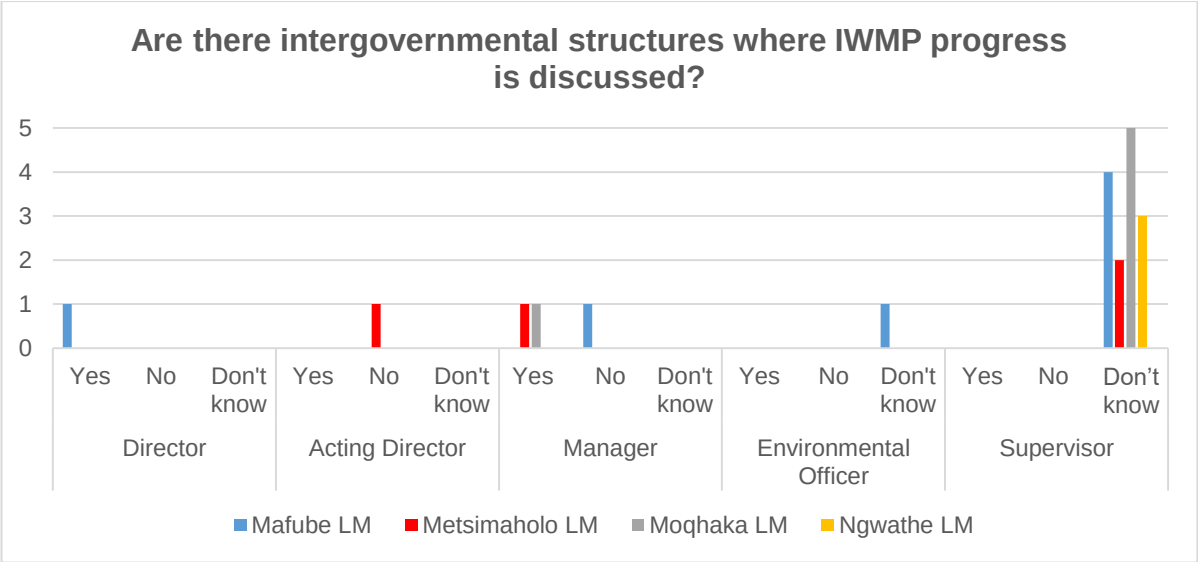

Figure 4-21. Responses on *are there intergovernmental structures where IWMP progress is discussed?*

The responses indicating that there were no intergovernmental structures were incorrect, as minutes from the district waste management officers' forum meetings were observed at three local municipalities, where the progress of the IWMPs' implementation was discussed.

4.7.5 IWMP integration into municipal annual reporting

Figure 4-22 below indicates that three (15%) of those interviewed agreed that the IWMP is integrated into the Director's performance plan and ultimately in the municipal annual performance report. They commented that one of the sector plans requires that performance agreement be developed and implemented, and the KPI is reported every month. Furthermore, the KPI is also discussed at the district waste management forum. However, no evidence was presented on request to substantiate the three responses.

Only one respondent (5%) did not agree, and said that the IWMP was not linked to any reporting process, while sixteen (80%) did not know.

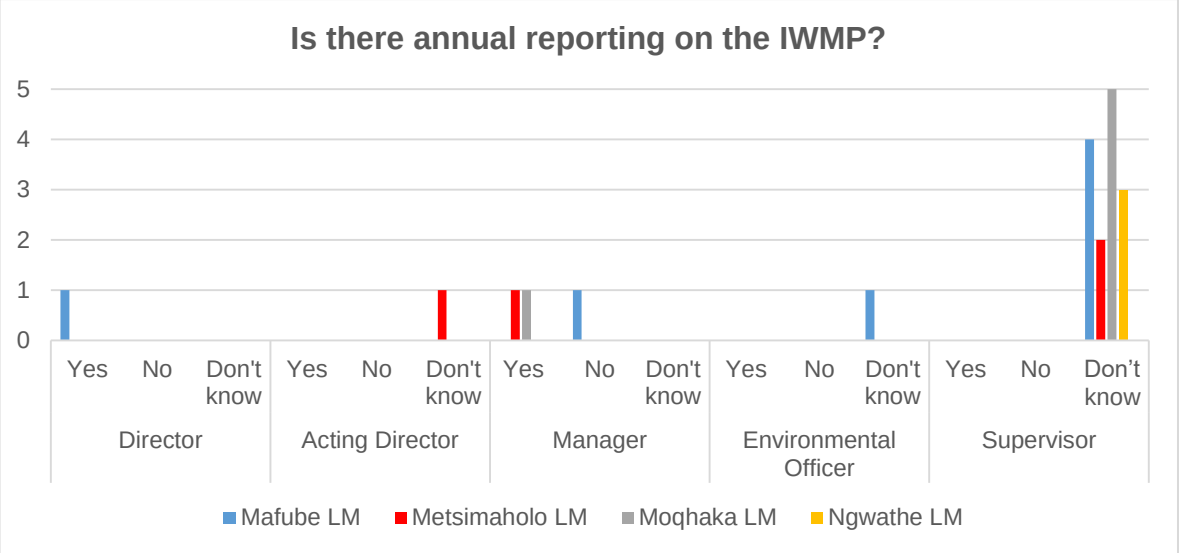

Figure 4-22. Responses on *is there annual reporting on the IWMP?*

4.7.6 Other matters affecting IWMP and its implementation

This section of the study, together with other interpreted questionnaires, will attempt to draw conclusions to the last question of the research - on the existing challenges/constraints affecting IWMP at the local municipalities. The responses were as follows:

- The support by councillors is very poor;
- The plan is in place, but the availability of funds or resources is a major challenge;
- Capacity building of employees is needed;
- Recognition and recruitment of capable and qualified staff in this section is needed;
- Off-sets which are initiative from industries;
- An increase in the population affects IWMP and by-laws. Therefore, by-laws need to be revisited;
- Landfill sites are getting too far (from the sources of waste generation);
- The waste pickers and recyclers do not form cooperatives and operate in isolation; and
- Financial shortcomings.

4.8 Summary of the chapter

The methodology utilised in the research helped to draw conclusions on all of the research questions of the study. With regard to question (1) of the study, on the quality of the IWMPs within the local municipalities, it was found that the IWMPs were of poor quality as they failed to integrate requirements of Section 12 of NEMWA and the guidelines provided by DEA. Non-compliances were especially related to the situational analysis which forms basis of an IWMP. These non-compliances were significant as they influenced the direction of objectives formulated in the IWMPs. In response to question (2), on the alignment of the IWMPs' goals and objectives to that of the NWMS, it was seen that not all goals and objectives of the strategy were considered when formulating those of the IWMPs. This meant that the waste hierarchy was not considered as another solution to waste management.

The use of questionnaires to facilitate interviews was also imperative because it allowed respondents to elaborate on answers. It was, however, identified (when reflecting on the responses) that not all of the answers were accurate, but rather a reflection of the officials' understanding or perception of the IWMP and related processes. This was evident in Section A - with the general understanding of the IWMP and the expected intent of the IWMP, where some answers were more accurate than others. In some instances, such as the public participation process and the submission of the IWMP to the MEC for endorsement, responses have indicated that the processes were undertaken, however, there was no such inclusion in the reviewed IWMPs to support the responses, nor evidence from the LM to substantiate the MEC's endorsement.

Regarding the alignment of the goals and objectives of the IWMP to that of the NWMS, the responses were accurate as they correlate with the findings of the content analysis process, i.e. that not all the IWMPs objectives and goals were aligned to those of the NWMS. One other finding from the questionnaires is that there were contradictions in responses from officials within the same municipality. For instance, in the case of IWMP endorsement, where the Director indicated that the IWMP was endorsed by council but the manager solid waste had the opposite view. However, the truth was that council had never endorsed the IWMP but rather took note thereof. This indicates that awareness is a challenge within the organisational structures of the municipalities themselves. With respect to the findings from the data interpreted, the next chapter will attempt to draw decisive conclusions to the research questions.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

The aim of the study was to critically analyse the IWMPs of local municipalities within Fezile Dabi District Municipality.

The specific research questions included:

1. What is the quality of the IWMPs of local municipalities within Fezile Dabi District Municipality?
2. Do the IWMP goals give effect to the goals and objectives of the *National Waste Management Strategy*?
3. How far have the IWMPs been *implemented* by the local municipalities?
4. What are the existing *challenges/constraints* at the local municipalities affecting the implementation of the IWMPs?

5.1 Quality of IWMPs

In addressing the aim and questions of the research study, it was imperative that the IWMP documents that had been prepared be reviewed for both the content (procedural, according to the requirements of NEMWA) and substantial information ("quality" of information). The findings yield that although the documents were prepared, important omissions existed which had a bearing on the mandatory impact of the integrated waste management plans. This included non-compliance to the requirements of Section 12, which is the content of the IWMP, and Section 13 which is the reporting on the IWMPs' implementation. The exclusion or omission of information, such as waste types and characteristics and number of people without waste collection services, resulted in the IWMPs not being comprehensive. Therefore, the content of the IWMPs was of poor quality, because it failed to include all essential aspects of what Section 12 of NEMWA (2008) required, the waste hierarchy and the guidelines for developing the IWMPs. The quality of the IWMPs also failed to give effect to the good quality reports as attributed on the environmental impact assessment reports, which requires specific steps to be followed for a report to be of good quality.

5.2 Alignment of IWMP goals with goals of the NWMS

In responding to question (2) of the research study, on goals of the developed IWMPs' alignment to those of the NWMS, it was found that four goals were not given effect to, because of their omission in the situational analysis. Goals 2, 6, 7 and 8 of the NWMS were not addressed in any of the IWMPs. As the targets for implementing such goals were set for 2016, this indicates that the NWMS was not considered to be a waste management tool that requires compliance. Although 20% of respondents

agreed that their municipality's objectives and targets were aligned to the NWMS goals, this was not the case. The responses to this question have identified a gap in that there is no knowledge of the content of the IWMPs and the broader waste management legislation. Therefore the IWMPs are not holistic in matters of the NWMS, which presence the poor level of compliance to legislation at local government level.

5.3 Implementation of the IWMP process and plan by municipalities

Question (3) of the research was aimed at investigating whether the IWMPs were implemented or not. Responses indicated that the objectives and goals implemented were those not requiring major financial inputs and those that ensured consistent waste collection. The responses, then, meant that the IWMPs' implementation was below 20% (in terms of progress), as major implementation actions (which included conducting studies for new landfill sites, applying for closure of current landfills, etc.) was not done at the time of the research. Furthermore, the lack of a public participation process indicated that the IWMP was not only developed in isolation at local municipalities, but also failed to include the public who must change their behaviour and practices. Finally, there was no evidence that shows that IWMP implementation progress is reported and monitored. Therefore, cooperative governance itself is failing to a certain extent on compliance.

5.4 Challenges and constraints at local municipalities, related to the IWMPs

To the last question of the study, which was aimed at identifying the challenges or constraints existing at local municipalities, it was found that:

- The greatest challenge was inadequate knowledge amongst waste management officials, especially supervisors, who are the first line in implementation of the IWMPs. Knowledge and information dissemination were identified as major stumbling blocks in implementation, as officials do not know what to implement.

- Budget/financial provision was insufficient because, although IWMP and IDP were integrated in two local municipalities, sufficient budget was not available to render effective waste services and comprehensively implement the IWMPs.

- The failure to monitor implementation, by the provincial DEA, condones poor performance at local government.

Therefore, in order to improve and close the gaps identified on the reviewed IWMPs, it is vital that it be corrected firstly by those who undertake the process, namely, the consultants. Consultants contracted to assist the municipalities in developing the IWMPs must have environmental management background,

especially on waste-related legislation, in order to produce quality plans. The lack of capacity at local municipalities must be addressed through appointing competent people and ensuring continuous skills development through the local government sector education and training authority (LGSETA). Cooperative governance must ensure that all spheres of government provide efficient and effective services. Therefore, provincial departments must monitor local government regarding compliance with waste legislation.

In conclusion, the waste management planning process is still in its early stages at small municipalities and will require strong input, including the appointment of competent consultants to prepare the waste-management plans, competent staff at local municipalities, and financial resources (which also entails political support).

In order to fully expatiate on the findings of this study, possible areas of research may focus on:

- The level of expertise of consultants who formulate the waste management plans;
- The usage of budget allocated for the waste management services, with focus on the implementation of IWMPs; and
- Skills required at local municipalities to ensure improved waste management service rendering, with focus on the IWMP.

The research findings are intended to be used to improve the quality of documents prepared at local municipalities. The research findings will be presented to all local and district municipalities involved in the study in order to correct the areas of non-compliance and improve the quality of the IWMPs that are up for a review in 2019.

BIBLIOGRAPHY

Acts **see** South Africa.

Afrika, M. 2010. Role of district municipalities in waste management in South Africa*.* Pretoria: Council for Scientific and Industrial Research.

Alberts, R. 2014. Municipal solid waste management in the North West Province: Governance strategies to address existing performance gaps and capacity constraints. Potchefstroom: NWU (Dissertation-Masters).

Asase, M., Yanful, E.K, Mensah, M, Stanford, J, & Amponsah, S. 2009. Comparison of municipal solid waste management systems in Cannada and Ghana: A case study of the citties of London, Ontario and Kumasi, Ghana. *Journal for Waste Management:* 2779-2786.

Babbie, E, & Mouton, S. 2001. *The practice of social research*. Cape Town: Oxford university press.

Bhada-Tata, D. H.P. 2012. What a Waste: *A global review of solid waste management.* 15 ed. Washington DC, USA: World Bank.

Charmaz, K. 2006. Constructing grounded theory: A practical guide through qualitative analysis. Sage publications

Chang, S.Y, & Feyyisa, J. L. Alternative Management Strategy of Solid Waste in Developing Countries*. Nairobi Kenya case.* North Carolina: s.n.

Chen, X, Geng, Y, & Fujita, T. 2010. An overview of municipal solid waste management in China. *Waste Management*, 30: 716-724.

Constitution **see** South Africa.

Department of Environmental Affairs and Tourism. 2000. White Paper on Integrated Pollution and Waste Management. (Government notice 227 of 2000*). Government Gazette,* 20978, 17 March.

Department of Provincial and Local Government. 2000. IDP Guide.

Department of Environmental Affairs. 2011a. National Environmental Management: Waste Act (59/2008): National Domestic Waste Collection Standards. (Government notice, 21). *Government Gazette*, 33935, 21 Jan.

Department of Environmental Affairs. 2011b. Policy on Free Basic Refuse Removal. (Government notice no. 413). *Government Gazette*, 34385, 22 Jun.

Department of Environmental Affairs. 2011c. National Policy for the Provision of Basic Refuse Removal Services to Indigent Households. (Government notice no. 413). *Government Gazette*, 34385, 22 Jun.

Department of Environmental Affairs. 2012a. Municipal Waste Sector Plan, (Government notice no. 270 of 2012). *Government Gazette*, 35206, 30 Mar.

Department of Environmental Affairs. 2012b.The National Waste Management Strategy. (Government notice no. 344). *Government Gazette*, 35306, 4 May.

Department of Environmental Affairs. 2012d. The National Waste Information Regulations. (Government notice no. 625). *Government gazette*, 35583, 13 Aug.

Department of Environmental Affairs. 2012e. Guidelines for the development of integrated waste management plans. http://www.environment.gov.za/sites/default/files/legislations/integratedwaste_management_guidelines.pdf [Date accessed: 12 January 2018].

De Vaus, D. A. 2006. *Research design in social research*. London: Sage.

Dos Muchangos, L. S., Tokai, A, & Hanashima, A. 2016. Application of material flow analysis to municipal solid waste in Maputo City, Mozambique. *Waste Management and Research,* 35(3): 253-266.

Ewijk, S. V, & Steggeman, J. A. 2016. Limitations of the waste hierarchy for achieving absolute reductions in material throughput. *Journal of Cleaner Production,* 132: 122-138.

Gharfalkar, M., Court, R., Campbell, C, Ali, Z, & Hillier, G. 2015. Analysis of waste hierarchy in the European waste directive 2008/98/EC. *Waste Management*. 39: 305-313.

Greeff, M. 2002. Information collection: Interviewing. *Research gate.*

Godfrey, L, & Oelofse, S. 2017. Historical review of waste management and recycling in South Africa.

Hofstee, E. 2006. *Constructing a good dissertation*. A practical guide to finishing a Master's, MBA or PhD on schedule.

Johnson, A. 2008. The development of waste management law, Australia: s.n.

Lanza, D. R. 1982. Municipal Solid Waste Regulation: An ineffective solution to a National problem. *Fordham Urban Law Journal,* 10(2): 1-33.

Kruger, E, & Chapman, O. A. 2005. Quality aspects of environemntal assessment reports in the Free state province, South Africa. *South African Geographical Journal*, 87 (1): 52-57.

Marshall, C, & Rossman, G. B. 1999. Designing qualitative research. 3rd edition: Sage publications.

Mohee, R, & Simelane, T. 2015. Future Directions of Municipal Solid Waste Management in Africa. 1st ed. Pretoria: Africa Institute of South Africa.

Mouton, J. 2011. How to succeed in your Master's and Doctoral studies: *A South African guide and resource book.* Pretoria: Van Schaik publishers.

Municipalities of South Africa. Fezile Dabi District Municipality. https://municipalities.co.za/map/107/fezile-dabi-district-municipality. Date accessed: 18 February 2018.

Nkala, Z, C. 2012. An analysis of waste minimisation initiatives in the City of Cape Town, South Africa. University of Stellenbosch. (Dissertation-Masters).

Oelofse, S.H.H, & Godfrey, L. 2008. Defining waste in South Africa: Moving beyond the age of waste. *South Africa Journal of Science* 104 July: 242-244.

Olukanni, D. O, & Oresanya, O. O. 2017. Progression in Waste Management Processes in Lagos State, Nigeria. *International Journal of Engineering Research in Africa*: 11-23.

Palinkas, L, A., Hortwiz., S. M, Green, C. A, Widson, J. P, & Kimberly, N. D. 2015. Purposeful sampling for qualitative data collection and analysos in mixed mtethod implementation research*. Administrative and policy in mental health service research,* 42 (5): 553-544.

Patton, M. 2002. *Qualitative research and evaluation methods*. 3rd. Sage Publications: Thousand Oaks.

Patton, M. 1999. Qualitative evaluation and research methods. *In Designing qualitative studies.* Beverly Hills. California: Sage: 169-186.

Periathamby, A., Khidzir, K, & Homid, F. S. 1999. Evolution of waste in Malaysia impacts and implications of the solid waste. *Solid waste management in Asia and pacific islands,*11: 96-103.

Price, J.L, & Joseph, J.B. 2000. Demand management – a basis for waste policy: a critical review of the applicability of the waste hierarchy in terms of achieving sustainable waste management. *Sustainable Development*, 8:96–105.

Reeves, A. 2013. The Political economy of austerity and health care: Cross- national analysis of expenditure changes in 27 European nations 1995-2011. *Health policy (Amsterdam, Netherland).*

Sango, T., Bassoon, L. & Williams, Q. 2016. *T*owards integrated municipal waste management: Technical guide for technology identification and screening for integrated waste management planning. Cape Town. *The green paper development agency*, p1-7.

Sango, T., Bassoon, S, Bassoon, L, & Munganga, G. 2014. Development of the Waste Economy in the Western Cape: A Decision Support Tool for Integrated Municipal Waste Management. Cape Town. *The Green Cape sector development agency.*

Sallwey, J., Hettiarachchi, H, & Hulsmann, S. 2017. Challenges and opportunities in municipal solid waste management in Mozambique: A review in the light of nexus thinking. *AIMS Environmental Science*, 4(5): 621-639.

South Africa. 1996. Constitution of the Republic of South Africa 1996.

South Africa. 1998a. National Environmental Management Act 107 of 1998.

South Africa. 1998b. Local Government Municipal Structures Act 117 of 1998.

South Africa. 1998c. White Paper on Local Government (Notice 423 of 9 March 1998).

South Africa. 2000. Municipal Systems Act 32 of 2000.

South Africa. 2003. Municipal Finance Management Act 56 of 2003.

South Africa. 2008. National Environmental Management Waste Act 59 of 2008.

Surg, W, J. 2014. The effective use of graphs. Journal of wrist surgery; 3(2): 66-68.

Tchnobanoglous, G. & Kreith, F. 2002. *Handbook on solid waste management,* 2nd ed. California: McGraw Hill.

Treasury (South Africa). 2011. Local Government expenditure review. http://www.treasury.gov.za/publications/igfr/2011/lg/02.%202011%20LGBER%20-% 20% final%20-%2013%20Sept%202011%20(renumbered).pdf. Date assessed 20 September 2018.

Tvedten, I, & Candiracci, S. 2014. “Flooding our eyes with rubbish”: urban waste management in Maputo, Mozambique. *Environment & Urbanization*. www.sagepublications.com. Date of access 11 February 2019.

UNEP (United Nations Environmental Programme) 2009. Developing integrated solid waste management plan training manual. Japan. United Nations Environmental Programme.

United Nations Environmental Programme (UNEP). 2002. Resource Training Manual. http://www.unep.org. Date of access: 18 February 2019.

Wilson, D.C.; Costas, A.V, & Ljiljana, R. 2013. Integrated sustainable waste management in developing countries. Proceedings of the institution of civil engineers*: Waste and Resource Management, (2): 52-68*.

Zotos, G., Karagiannidis, A., Zampetoglou, S, Malamakis, A, Antonopoulos, I, S, Kontogianni S, & Tchobanoglous, G. 2009. Developing a holistic strategy for integrated waste management within municipal planning: Challenges, policies, solutions and perspectives for Hellenic municipalities in the zero-waste, low cost direction. *Waste management, 29*: 1686-1692.

ANNEXURE A. DOCUMENT REVIEW CHECKLISTS

Part 1: Content review checklist

IWMP Content Review Checklists				
Name of Municipality:				
Review Date:				
Section A	**Item**	**Yes**	**No**	**Comments**
1. Description of the document	**1.1** The geographical area where the plan is based is clearly outlined	☐	☐	
Section B	**Item**	**Yes**	**No**	**Comments**
2. Situational Analysis	**2.1** Population described **2.2** Population estimated **2.3** Income and employment profile	☐ ☐ ☐	☐ ☐ ☐	
	2.4 Waste quantities and types	☐	☐	
	2.4.1 Current waste generation rates	☐	☐	
	2.4.2 Future waste generation rates	☐	☐	
	2.4.3 General waste quantities	☐	☐	
	2.4.4 Hazardous waste quantities	☐	☐	
	2.4.5 Medical waste quantities	☐	☐	
	2.4.6 Industrial waste quantities	☐	☐	
	2.4.7 Agricultural waste quantities	☐	☐	
	2.4.8 E-waste quantities	☐	☐	
	2.5 Description of existing waste services, system and strategies	☐	☐	
	2.5.1 Existing waste collection services	☐	☐	
	2.5.2 Existing waste transportation system	☐	☐	
	2.5.3 Existing waste minimization initiatives	☐	☐	

	2.5.4 Existing waste recycling initiatives	☐	☐	
	2.5.5 Existing waste disposal methods	☐	☐	
	2.5.6 Waste information reporting	☐	☐	
	2.6 Number of people without waste collection services	☐	☐	
	2.7 Number of illegal dumping identified	☐	☐	
	2.8 Organisational structure	☐	☐	
	2.9 Maintenance of waste infrastructure	☐	☐	
	2.10 Maintenance of waste equipment	☐	☐	
	2.11 Current waste management financing	☐	☐	
	2.11.1 Operational income in waste management	☐	☐	
	2.11.2 Operational costs in waste management	☐	☐	
Section C	**2.12 Item**	**No**	Yes	Comment
3. Waste targets goals and objectives	**3.1 Waste Targets and objectives**	☐	☐	
	3.1.1 Waste collection	☐	☐	
	3.1.2 Waste minimization	☐	☐	
	3.1.3 Waste recycling			
	3.1.4 Waste treatment	☐	☐	
	3.1.5 New waste disposal facility	☐	☐	
	3.2 Waste management goals	☐	☐	
	3.2.1 Immediate	☐	☐	
	3.2.2 Short term	☐	☐	
	3.2.3 Medium term	☐	☐	
	3.2.4 Long term	☐	☐	
	3.3 Alternatives for waste hierarchy	☐	☐	

	implementation 3.3.1 Socio ecological alternatives 3.3.2 Economic impacts **3.4 Communication** 3.4.1 Stakeholder participation 3.4.2 Awareness Campaigns	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	
Section C	**Item**	**Yes**	**No**	**Comment**
4. Financial Resources	**4.1** Municipal Infrastructure grant **4.2** Own funding **4.3** Expanded public works program **4.4** Other financial mechanisms	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	
Section D	**Item**	**Yes**	**No**	**Comment**
5. IWMP Implementation mechanism	**5.1** Partnerships **5.2** Legal and policy instruments (by-laws) **5.3** Financial provision **5.4** Monitoring and enforcement	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	

Document 2: IWMP goals versus the goals of the national waste management strategy checklist

		Are IWMP goals aligned?		
Goals	**Description**	**Yes**	**No**	**Comments**
Goal 1	Promote waste minimisation, reuse, recycling and recovery of waste			
Goal 2	Ensure the effective and efficient delivery of waste services			
Goal 3	Grow the contribution of the waste sector to the green economy.			
Goal 4	Ensure that people are aware			

	of the impact of waste on their health, well-being and the environment.			
Goal 5	Achieve integrated waste management planning.			
Goal 6	Ensure sound budgeting and financial management for waste services.			
Goal 7	Provide measures to remediate contaminated land.			
Goal 8	Establish effective compliance with and enforcement of the Waste Act.			

Document 3: Synergy of the situational analysis and the goals formulated

Priority for the municipality based on the situational analysis	IWMP goals and objectives	Does the IWMP objective and goals address the priorities identified

ANNEXURE B. QUESTIONNAIRES

Your local municipality has an integrated waste management plan (IWMP). The purpose of the interview is to obtain an in-depth understanding on the integrated waste management plan.

Name of the local municipality:	
Designation within the municipality:	
Date completed:	

SECTION A: GENERAL UNDERSTANDING OF THE IWMP

Questions?

1. What is your understanding of an *integrated waste management plan (IWMP)*?

_____

_____

_____

2. Have you read your municipality's IWMP? If yes, please complete the rest of the questionnaire.

_____

_____

_____

3. In your understanding, what is it intended to be achieved by the IWMP?

_____-

_____

_____

4. Does the IWMP reflect the waste issues in your municipality?

_____

_____

_____

5. Is the IWMP document utilised for addressing waste management issues at your municipality. Kindly elaborate.

_____

_____

_____

SECTION B: DEVELOPMENT OF THE IWMP

1. Were you involved with the development of the IWMP?

Yes		No	

If yes, what was your role in the entire process. If not, why were you not involved.

_____

_____

_____

_____

2. Were stakeholders involved in the development of the IWMP? If they were, were their inputs taken into account?

_____

_____

_____

3. Did the IWMP undergo the public participation process, as mandated? If yes, explain the steps taken to ensure that community comments were incorporated. If no, explain why was the process not undertaken?

_____

_____

_____

4. Part of the information of the IWMP, must be sourced from reporting of waste generated on the South African Waste Information System (SAWIS). Does the municipality report on the system? If not, where did the municipality obtain data/information related to waste generated?

_____

_____

_____

5. Are the contents of your municipality's IWMP aligned to the District Municipality's IWMP?

_____

_____

_____

6. Was the plan submitted to the MEC for endorsement as requested by the Act?

_____

_____

_____

SECTION C: OBJECTIVES AND TARGETS OF THE IWMP

1. Were any waste management challenges identified throughout the IWMP development process that requires prioritisation? If yes, where they prioritised?

_____

_____

_____

2. What are the targets of the IWMP? (short term, medium term and long term)?

_____

_____

_____

3. Are the targets aligned to (a) waste management hierarchy and (b) the national waste management strategy? Elaborate.

_____

_____

_____

4. Were any of the set objectives and targets implemented?

Yes		**No**	

If no, please complete Question 5 below

_____

_____

_____

5. For objectives and targets not met, what has been the municipality's plan of action, to ensure future adherence to the targets?

_____

_____

_____

SECTION D: THE IWMP AND MUNICIPAL GOVERNANCE PROCESSES

1. Is the IWMP process aligned with the 5 year IDP process?

Yes		No	

If yes, was the waste plan integrated into the IDP.

_____

If no, give reasons for the non-integration.

---

2. Did council endorse the plan?

Yes		**No**	

If no, what were the reasons?

_____

_____

3. Does the municipality have waste service bylaws? In your understanding what is the significance bylaws. Who is responsible for its enforcement?

_____

_____

_____

4. Are there intergovernmental structures (forums) that exists where IWMP progress is discussed prior to annual reporting?

_____

_____

_____

5. Is the IWMP integrated into the Director's performance plan and ultimately in the Municipal annual performance report? What does the performance reports indicate? Kindly elaborate.

_____

_____

_____

Please indicate any other matter within the municipality that is affecting the IWMP and the implementation thereof?

_____

_____

_____

ANNEXURE C: PERMISSION TO INTERVIEW STAFF

NWU®
NORTH-WEST UNIVERSITY
NOORDWES-UNIVERSITEIT
YUNIBESITI YA BOKONE-BOPHIRIMA

Internal Box 150, Private Bag X6001, Potchefstroom,
South Africa 2520

Claudine.roos@nwu.ac.za
018 299 4068

To whom it may concern

RESEARCH BY MS. LERATO MOLABA: PERMISSION TO INTERVIEW STAFF

Please note that Ms. Lerato Molaba (student number: 29379644) is registered at the North-West University (Potchefstroom) for a Master's Degree in Environmental Management with specialization in Waste Management. She is conducting research entitled *Critical Analysis of Integrated Waste Management Plans of Local Municipalities within Fezile Dabi District Municipality*.

Part of her research methodology involves interviewing staff members (semi-structured interviews) of the Fezili Dabi District Municipalities and other local municipalities. No personal information of staff members will be divulged in the research.

We would appreciate your co-operation in this regard.

Do not hesitate to contact me, Dr. Claudine Roos at Claudine.roos@nwu.ac.za, should you have any questions or concerns.

Yours sincerely

Dr. Claudine Roos
North-West University
Potchefstroom

End of document