CHALLENGES IN THE DELIVERY OF WATER SERVICES IN SEKHUKHUNE DISTRICT MUNICIPALITY: A CASE OF MAKHUDUTHAMGA LOCAL MUNICIPALITY

by

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DECLARATION

I, Percy Kapudi Moagi, declare that the mini-dissertation entitled *"Challenges in the water service delivery in the municipality of Makhuduthamaga in Sekhukhune District, Limpopo province"* for the Master's degree in Development Planning and Management is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references, and that this work has not been submitted before for any other degree at any other institution.

…… ……..

Mr Percy Kapudi Moagi **Date**

DEDICATION

This Mini Dissertation is dedicated to the following people who have contributed a lot to my academic life:

- My late father, Mputana Moagi, who brought me to this planet earth
- My mother, Modipadi Ngwanahlako Moagi, for raising me up and nurturing me to date.
- My wife, Olva Mina Moagi, and kids for their assistance and tolerance when I was busy studying ,
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ABTSTRACT

The provision of basic water services delivery to all South African citizens is one of the huge challenges for the local government and it is at the coalface of service delivery. The objective of the study was to determine the factors that influence water service delivery challenges in the local municipality of Makhuduthamaga, in Sekhukhune District Municipality. The statement of the problem, therefore, provided the foundation within which the aims of the study are explained. The significance of this research cannot be over-emphasised, especially against the backdrop that local government is the third sphere of government and is in the front line of service delivery.

This study aimed at investigating the water service delivery challenges in the municipality of Makhuduthamaga in Sekhukhune District, Limpopo province. This research was necessitated by the lack of water in Makhuduthamaga Local Municipality. It is evident that there are several challenges in the delivery of water services in the local sphere, however, for the sake of this research only one municipality was selected as a case study. The study employed a qualitative case study research design to collect data from participants who were selected through a purposive sampling technique. The study participants included the local community representatives and the municipal officials responsible for water services in the municipality and the water resources available in the locality such as the Vergelegen, Nkadimeng and De Hoop dams.

The finding shows that the available water sources are not adequate to cater for all the residents of the municipality; hence this affects the water delivery efforts of the municipality significantly. As a result, local residents have expressed their dissatisfaction through violent service delivery protests in different wards of the municipality. The study further reveals that the municipality has been facing serious water services challenges over several years. The issue emanates from the water sources which are dried up, illegal connections, incomplete projects by contractors, financial constraints, and poor maintenance planning. The main challenge here is the lack of water sources, poor maintenance, lack of skills and expertise from the employees in the water department, insufficient budget to relieve the water crisis in the municipality and the district at large. The municipality has implemented all the interventions, such as public participation to

encourage communities to use water sparingly, to pay for services of the municipality for the sake of revenue enhancement and have drilled more boreholes to augment the water services to the communities.

This study recommends that the municipality should prioritise their budgeting and align this to the community needs, hiring the correct personnel with relevant skills and expertise in the water related function. Also, the municipality needs to work on the turnaround time for the maintenance of pump stations and fixing of leaking water pipes. They should penalise all the illegally connected households so that they can curb all the recurring illegal connections. The other issue is to improve communications with the communities with relevant stakeholders to ensure that everyone is informed in case of water cuts due to maintenance or cleaning of water reservoirs.

ABBREVIATIONS AND ACRONYMS

IDPs –Integrated Development Plans

MLM- Makhuduthamaga Local Municipality

DWS- Department of Water and Sanitation

WSA- Water Service Act

NDP- National Development Plan

LG- Local Government

ANC-African National Congress

AG-Auditor General

SDGs-Sustainable Development Goals

WSMP-Water Services Master Plan

SDM-Sekhukhune District Municipality

Stats SA-Statistics South Africa

GIS- Government Information System

CoGTA -Co-operative Governance and Traditional Affairs

GPS-Global Positioning System

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CHAPTER 1: OVERVIEW OF THE STUDY

1.1 INTRODUCTION

According to Oumar and Tewari (2013), the provision of quality and sufficient potable water services will remain a major international problem in the 21st century. Du Plessis argued that South Africa is a water scarce country and the demand of water is fast approaching the levels of supply. South Africa is an arid to semi-arid region. Du Plessis (2014) indicates that 21% of the country receives an average rainfall of less than 200mm per year with 44% receiving 200-500mm. This rainfall equates to only 60% of the world average. The rainfall pattern has changed to the disadvantage of both plants and animals. The South African Constitution enjoins municipalities to provide basic services (The Constitution, 1996). Local government is the sphere of government closest to the people, they are elected by the citizens to represent them and are responsible to ensure that services are delivered to the communities. Often the municipalities face challenges from internal weaknesses to external threats that affect and influence their performance.

South Africa's historical path and water scarcity compound water related challenges for sustainable development. Water Services Act, 1997 (Act 108 of 1997) defines basic water supply as the minimum standards of water supply services of a sufficient water quality and quantity to household.

Despite the completion of the De Hoop dam which augmented the Vergelegen dam and Flag Boshielo dam in the municipality, the provision of water services remains the challenge in the municipal area of Makhuduthamaga. The protests that have taken place in different parts of the municipality indicate poor state of municipal service (Van der Walt, 2014). Municipalities are characterized by capacity challenges namely, inadequate skill and personnel, financial constraints and strangulation by many legislations. Employment of staff and inappropriate Politico-administrative interface are some of the factors influencing service provision.

1.2 STATEMENT OF THE PROBLEM

Makhuduthamaga local municipality residents experienced water service delivery challenges since ever since the advent of democracy. They rely on water ponds or wells,

rainfall and water streams to get potable water. The Municipality itself is not a Water service authority is not a water authority challenges According to the National Development Plan (NDP), all South African will realize healthy dignified lives by 2030 through provision of sufficient safe water and sanitation. The legislative frame work underpinning the responsibility to ensure access to water supply and sanitation services is contained in the following legislations, namely, the National Water Policy, the National Water Act (Act 36 of 1998) and the Water Services Act (Act 108 of 1997)

Management and use of water in South Africa is critical because of water scarce of the country. There is a growing concern over the potential impact of water-related risks, some of which are predicted to increase in future as a result of the impact of climate change on the water resources. South Africa and other with riparian states must manage water resources through trans-boundary agreements and protocols. The agreements and protocols must amongst others ensure strengthening and existing water monitoring networks and exchange of data and information.

Makhuduthamaga Local Municipality is not a water authority, but water service provider and the challenges of water provisioning remains high because the communities of Makhuduthamaga are not satisfied about the water provisioning. Post 1994, the government has and still puts service delivery improvements on the agenda. During the crucial 2016 local government election campaigns, the ruling African National Congress presented its visions and policies to create democratic, modern and peaceful municipalities by the advancement of social, cultural, economic and infrastructure developments (ANC manifesto, 2016).

The leadership of the party has also promised to develop a robust programme to implement radical reforms in the municipalities to ensure that the desired developments can take place during the coming five years of their term of office to fulfil their grand visions. However, if we cast our cool and sceptical eyes over the achievements of the last fifteen years of local government, the Auditor-General’s reports continue to depict poor state of governance and service delivery governance, in particular. Failure to provide minimum water services is a problem due to poor or lack of water service delivery that diminishes the public value dimension, lack of water service delivery delegitimises

mandated institutions and renders them ineffective, and lack of water service delivery incites community or social instability and reduces voter participation.

The provision of adequate clean water to the communities remains the challenge as a result of old municipal infrastructure, poor monitoring, burst pipes and copper theft. The *Sekhukhune Times* newspaper of 27th May 2017, reported on the issue of water cut offs due to cable theft in and around Makhuduthamaga Municipality. The cable was stolen at the Riverside water purification plant and that affected water provisioning in the whole area of Makhuduthamaga Municipality. Hoffman, Kamera and Nkadimeng (2013) reported on the water supply challenges in local government and that little is known concerning research done about the challenges in the delivery of water services in Makhuduthamaga Local Municipality. The 2016 community survey by Statistics South Africa found that majority household perceived lack safe reliable water supply as the biggest challenge.

1.3 AIM OF THE STUDY

The main aim of the study is to investigate the challenges experienced in the provisioning of water service in Makhuduthamaga Municipality, Limpopo Province.

1.4 RESEARCH OBJECTIVES

The objectives of the study are to:

- Determine the water service delivery challenges in the local municipality.
- Assess the satisfaction of the community on the municipal water service delivery.
- Make recommendations to improve the state of water service delivery in the local municipality.

1.5 RESEARCH QUESTIONS

The study is guided by the following research questions:

- What are the water service delivery challenges in the municipality?
- What is the extent of satisfaction of the community on the municipal water service delivery?
- What possible measures should be in place to improve the state of water service delivery?

1.6 SIGNIFICANCE OF THE STUDY

There exist gaps in the public discourse on the factors that influence water service delivery challenges in the municipal area of Makhuduthamaga Municipality and such a gap warrants a generation of knowledge in the field of developmental studies. Bruton, Ireland and Ketchen (2012) argue that when a topic is very important but has attracted relatively little scholarly attention, profound opportunities exist for organisational scholars to build new evidence in the management science with specific mention in the chapter on developmental studies.

This study further provides the municipality or water service institution with valuable research-based evidence about the factors that influence water service delivery challenges in the specific are of Makhuduthamaga and the mechanisms to off-set those challenges. The study also provides the policy makers and public management scholars with valuable information for consideration in the development of policies that regulate the provision of water services in South Africa.

The Sekhukhune District Municipality Annual report, 2014, confirms that the municipality experiences some technical challenges with regard to water supply. Household relying on potable water supply are highly affected by highly sporadic water supply compared to house hold depending on water from natural resources.A study by Dungamaro (2009) found that when potable water service is available, the natural resource is neglected and this becomes unsafe for human consumption. The communities of Makhuduthamaga often rely on buying or collecting from the natural resources, such as rivers and streams.

1.7 DEFINITION OF CONCEPTS

Community- Vander Walt, Venter and Van Niekerk, 2007 define as a social group of members residing in a specific locality, sharing government, and often have a common cultural and historical heritage.

Service delivery- according to Van der Waldt et al. (2007), service delivery is the provision of public goods.

Local government- is the sphere of government that exist closest to the people.

1.8 STRUCTURE OF THE REPORT

The mini-dissertation consists of five chapters. These include:

Chapter 1: Overview of the Study

This chapter covers the introduction, background of the study, relevance of the study, motivation, justification of the study, definition of concepts and division of the study.

Chapter 2: Literature Review

This chapter focuses on the review of the previous research studies or relevant information which discusses the assessment of water services in local government. Literature includes journal articles, newspapers and books addressing the water service delivery challenges.

Chapter 3: Research Design

This chapter presents the nature of the study, research design, population and location of the study, sampling procedure, data collection methods and instrument, pilot testing, ethical consideration and data analysis.

Chapter 4: Findings and Interpretation of Data

The chapter presents study data collected by the researcher and focuses on the presentation of the study findings.

Chapter 5: Summary, Recommendations and Conclusion

This chapter is about the summary of study findings, recommendations, and the conclusion of the study.

CHAPTER 2 LITERATURE REVIEW

2.1 INTRODUCTION

According to Howard & Bartman, 2013, there is no guidance regarding the quantity of water required to promote good health as espoused by the World Health Organisation. World health Organisation did not provide In line with this, the previous chapter provided a detailed discussion on the overview of the study by outlining the research background, problem statement and purpose of the study. This chapter emphasises the review of relevant literature to assess what research has been undertaken about the study, to identify any knowledge gaps and the development of new information and trends in the study field. Finally, based on the review, the researcher explains how the investigation is expected to contribute to knowledge on the challenges in the delivery of water services in the Makhuduthamaga Local Municipality.

Van Ginkel et al., 2001et al, argued that provision of safe drinking water depends onavailabity of fresh water resources. Rural people depend on unsafe water collected from rivers, ponds and wells which is more often unsafe is more often of poor quality and unhealthy (Obi et al., 2002. According Wester, 2003, Water authorities are enjoined to treat water before supplying it to household. According to Ohlsson, 1995) and (Turton & Haasbroek, 2001)argued that social and technical resources must be given necessary consideration in treating the available water. The capability of a society depends on a high degree of human ingenuity and ability to adapt strategies and tactics that will help to promote more effective and efficient use of water (Ashton et al., 2001). According to van Ginkel, 2011, water storage facilities are built to satisfy the need of growing population. According to Countinho (2009), change in food consumption and growth in population leads to increases in the water demands. Warnera (2003) indicates that through the use of stakeholder engagement practices equitable water distribution in communities can be well managed management.

2.2 LEGAL AND POLICY MANDATE

2.2.1 Sustainable Development Goal (SDGs) No 6: Clean Water and Sanitation

More than 40% of people around the world are affected by water scarcity. Due to climate change this figure is expected to increase (United Nation, 2015).Since 1990 2.1 billion

people have gained access to improved water sanitation. Despite this improvement supply of safe drinking water is a major problem affecting every continent. Dwindling supplies of safe drinking water is a major problem impacting every continent. In 2011, 41 countries experienced water stress. (United nation,2015).Ten of them are close to depleting their supply of renewable fresh water and must find alternative means to supply potable water. This trends are exacerbated by increasing drought and dissertification. It is projected that by 2050, one in four people are likely to be affected by water shortages. Increasing drought and desertification is already exacerbating these trends. By 2050, it is projected that at least one in four people are likely to be affected by recurring water shortages. Investment in infrastructure are necessary for provision of water by 2030.Ensuring universal access to safe and affordable drinking water by 2030 requires investment in adequate infrastructure, provide sanitation facilities and encourage hygiene at every level. To mitigate water scarcity water-related ecosystems must be protected and restored (United Nations, 2015).

2.2.2 Global experience

Water is a basic human need. Despite being a human need it is scarce. According to the World Health Organisation inadequate access to water affect human survival and may lead to death. According The World Health Organisation, 700 million people lack improved sources of drinking water. Half of those people live in sub-Saharan Africa.

According to Oumar and Tewari (2013), the provision of sufficient drinking water and sanitation services will remain a major international problem in the 21st century. South Africa is a water scarce country and demand for water is fast approaching the levels of supply. According to Dye (2013), the lack of water source and also unreliable rainfall patterns will have a negative impact to those who are in charge of ensuring water provisioning.

Water challenges in Asia

Water is the most important natural resource required for economic development. Safe and clean water is the basic need for humankind and for rational use. In general, the global crisis is majorly related to decrease in the availability of water quality due to irrational use by human population, not only for freshwater accessibility but water quality

is also affected due to various natural degradation and anthropogenic activities subjected to frequent floods, drought and uneven rainfall patterns, dumping of effluent from industries, untreated sewages waste bodies, (Abbaspour 2011; Mukherjee et al. 2020).

The South East of Asia such as Myanmar, Laos, Cambodia, Malaysia and others rely on Mekong and Salween rivers for water. And as a result, this region is faced with population growth along with Urbanisation. The World bank report stated that in Indonesia , around 80% population is unable to access safe water and in Jakarta, 4,5 million of population have facilities of piped water and 35% of the population use water from artesian wells, 15% consume bottled water and 8% of the population is still dependent on rain water(Arshad, 2016).

Water crisis in Kenya

There are about 40 million people living in Kenya, of which about 17 million (43 percent) do not have access to clean water. For decades, water scarcity has been a major issue in Kenya, caused mainly by years of recurrent droughts, poor management of water supply, contamination of the available water, and a sharp increase in water demand resulting from relatively high population growth. The lack of rainfall affects also the ability to acquire food and has led to eruptions of violence in Kenya. In many areas, the shortage of water in Kenya has been amplified by the government's lack of investment in water, especially in rural areas.

Most of the urban poor Kenyans only have access to polluted water, which has caused cholera epidemics and multiple other diseases that affect health and livelihoods. Despite the critical shortage of clean water in Kenya's urban slums, there also is a large rural to urban discrepancy in access to clean water in Kenya. According to the World Bank (2010), slightly less than half of the rural population has access to water, as opposed to the urban population where 85 percent have access to safe water. Due to continued population growth, it has been estimated that by the year 2025, Kenya's per capita water availability will be 235 cubic meters per year, about two-thirds less than the current 650 cubic meters.

Kenya has been hit hard by floods and drought. Some areas have experienced long rains that have caused the floods during March to May rainy season. Some challenges are

caused by poor water supply from the water authorities through poor policies and poor management of water supply.

2.2.3 Constitution of the Republic of South Africa, Act 108 (1996)

The Constitution of the Republic of South Africa guarantees its citizens the right of access to water in terms of section 27(1) (b). This is a fundamental right and has to be realised by those legally mandated to provide such service. Section 27(2) of the Constitution of the Republic states that it is the responsibility of the State to make it a point that the laws are compatible to force those who are empowered to make decisions that will benefit the citizens. People must have be provided with clean and potable water within their communities.

The above means that government, and parliament, in particular, has to put in place laws that provide measures and mechanisms to ensure the right is enjoyed by the citizens, however such legislation is to be within the available resources. Basically, the Constitution recognises the limited resources of the government compared to the unlimited rights of the societies. This therefore means that in implementing the above rights, government must utilise the available resources which, according to the researcher, remain limited. The Constitution does not provide or empower the service providers to go the extra mile in realising this noble right.

Having recognised the limited nature of the resources against the unlimited demand of the society, the researcher is confronted with the need to establish if other mechanisms can be sourced by those mandated to realise these fundamental rights. Having acknowledged the limited nature of the resources to realise these basic human rights, the Constitution went further to provide that such rights should be realised progressively. Progressive realisation of these rights means that the implementation of the rights can or should be done in steps or in phases. This addresses the matter of priority. These progressive realisations of the rights has, for many years, been rejected by many societies for among others, the priority lists have been tampered with, the ever growing informal settlements and inconsistent planning on the part of government.

The researcher has to establish if there are any other mechanism of service delivery that can off-set the progressive service delivery model. Section 151(1) of the Constitution of

the Republic provides for the establishment of local spheres of government and section 152(1) (b) provides that the objectives of the same local sphere is to ensure the provision of services to the communities in a sustainable manner.

This provision makes clear that local government is mandated to provide water services to the communities in a sustainable manner to realise the fundamental right of access to water. This mandate calls for sustainability in the provision of such a service. Sustainability means that the service provided must be continuous. The current community demonstrations raise the question which the researcher has to investigate and establish whether there is water service delivery, and if so, whether such is sustainable and to further establish if there is a correlation between the community unrest and the water service provision.

2.2.4 White paper on local government (9 March 1998)

Pursuant to section 27(2) of the Constitution of the Republic of South Africa, and section 151 which calls for the establishment of the local sphere of government, the white paper on local government was established with the intention to establish the kind of local government needed to realise the object of the Constitution in terms of section 152(b).

Section 4 of the White Paper on Local Government calls for a local government which is developmental in nature. Section B(1) of the White Paper on Local Government defines developmental local government as a local government that ensures towards working with citizens and groups within the community to find sustainable ways to meet their social, economic and material needs and to improve the quality of their livelihoods of the people.

This section concerns various related concepts worth noting. In defining developmental local government, the white paper provides that the envisaged local government must provide services, working together with the communities and other groups. This basically means that the developmental local government will engage the communities on the services to be provided and how that service is to be provided.

Clearly if municipalities are working with communities on service delivery issues, the risks of social or community unrest is minimised. The current community unrest in the

Makhuduthamaga area warrants the researcher to establish if this element has been overlooked.

Again, the white paper calls for the services provided to the communities to improve the quality of the lives of the societies. This clearly means that immediately after the provision of the service, the lives of the communities touched should change and change for the better. If water infrastructure has been deployed to the community and the community unrest persists, citing water related grievances, then the researcher needs to establish if such delivery has not impacted on the lives of the societies.

The other concept that keeps persisting is the concept of sustainability. The White Paper concurs with the Constitution that the provision of water services must be sustainable. Sustainability relates to the uninterrupted provision of services. The current discourse necessitates the researcher to assess the challenges in municipal water service delivery.

2.2.5 Water Services Act 108 (1997)

The Water Services Act was enacted in 1997 to give effect to section 27 of the Constitution and give water services institutions the powers to realise the act in terms of section 3(2) of the act (Constitution of the Republic of South Africa, 1997). The main objective of the Act is to provide for the right of access to basic water supply and basic sanitation in terms of section 2(a) of the Water Services Act. The other objective is the setting on the national norms and standards for tariffs in respect of water services.

The norms and standards provide clear measures of what minimum standard should the basic provision meet and the tariffs addresses the payment of the services provided. In trying to determine the challenges facing the provision of water services, the researcher needs to determine if the minimum services standards and norms have been adhered to and also whether the provided services are paid for.

The determination of tariffs is an attempt to ensure that the water services are provided in the most sustainable manner. The standardisation of the tariffs ensures a balance between the service provider and the consumer. Section 2(c) of the Water Services Act provides that the object of the act is for the preparation and adoption of water services development plans by water services authorities. This section recognises the fact that

development is also guided. This is to further ensure that water services authorities co-ordinate their activities within the confines of the plans and avoid thumb sucking and trial and error methods of service delivery.

Again, the plan is to defeat the old models of service deployment where priority lists were undermined, etc. In determining the challenges faced by the water services sector, the researcher should also determine if the responsible water service authority indeed has the water services developmental plan, if yes, whether it is credible. Credibility refers to a state where the plan satisfies the developmental agenda in terms of the white paper on local government.

Section 5 of the Water Services Act, 107 of 1997 enjoins Water Service Authorities must meet the water services requirements of its consumers. If the water services must meet the requirements of it consumers is must then prioritise the provision of basic water supply and sanitation to consumers (Water Services Act, 1997).

This section considers the provided minimum norms and standards in the provision of the water services. Again, the section recognises that resources are limited and further acknowledges the provision of the Constitution which provides that government must do within its available resources. However, cognisance should be made that the act does not provide that people should not have water but says minimum standard must be met. The researcher therefore has to determine whether the municipality or water service provider adheres to the above prescript. In doing this, the researcher need to establish whether the community outcry is a demand for basic water, as prescribed by the law, or is another form of water services provision.

2.2.6 Water Service Master Plan (2014)

Section 2 of the Water Services Act makes provision that the water services authorities must develop a water service master plan. In May 2014, the Greater Sekhukhune Municipality developed and adopted the water services master plan. A Water Services Master Plan (WSMP) depicts the engineering and technical networks and aligns the systems, schemes and associated infrastructure, comprising the entire water supply network, which is consistent with the strategic direction of SDM which accords with the

strategic direction of the Department of Water Affairs (Sekhukhune District Municipality, 2014).

Accordingly, the document is a bulk water services master plan, which is the cornerstone of a WSMP, and therefore identifies bulk water services infrastructure requirements, although all supporting information is based on requirements up to reticulation level (Sekhukhune District Municipality, 2014). It informs the status of services and forms the basis of planning for the delivery of services for the present and the future, as well as supporting the economic growth and future development (Sekhukhune District Municipality, 2014). The Bulk Water Services Master Plan ('the Plan') links water resources with water services planning to ensure that water is sourced, treated, and distributed as efficiently as possible. With regular updating, it remains an important reference plan for future water services infrastructure development planning (Sekhukhune District Municipality, 2014).

Critical to the document is its alignment to legislation, and that its developmental process be done in the spirit of co-operative governance and chapter four of municipal systems act which deals with public participation is taken into account. The document also deals with key elements of water services provision. That is, it deals with the sourcing or water, treating of water and distribution of water to the end users or consumers.

This document encompasses all the five local municipalities within the district, however the focus here is in the area of Makhuduthamaga municipality. The document acknowledges that Sekhukhune and in particular, Makhuduthamaga Local Municipality is an area characterised by high mountains and a notable high-altitude plateau (known as the Nebo plateau), with lush valleys and meandering rivers on lower altitudes (Sekhukhune District Municipality, 2014). The Nebo plateau is characterised by granite intrusions, with selected ground water resources located infrequently in selected locations. Boreholes provide a large proportion of the water resources for local use, including natural springs (Sekhukhune District Municipality, 2014).

The document further acknowledges that a substantial and particularly unique challenge that confronts service delivery in the Sekhukhune area is that in general, the population and development growth points are not in the same locations as local water sources,

necessitating significant planning and technical consideration to ensure the availability of adequate bulk raw water supply across the area.

The document highlighted the need for the capturing of the infrastructure on GIS to keep track of them. As a current need, it is necessary to update the as-built reticulation information on the GIS of Sekhukhune DM and to identify outstanding infrastructure that needs to be completed. Some bulk information was received from various services providers, but reticulation information may not even exist, or is not readily available (Sekhukhune District Municipality, 2014).

This process is fundamental in thr sense that it will help management keep track of the infrastructure. This plan was adopted in 2014 and the researcher therefore will have to establish if the municipality has its entire infrastructure with specific reference to the Makhuduthamaga area in the GPS and whether such can be traced with ease. This is done to ensure that the lines between planning and execution are clearly spelt out.

The document appreciates that the provision of sanitation in Sekhukhune also faces considerable challenges at present. Only 22% of Sekhukhune households receive basic or higher levels of sanitation services. The biggest percentage of sanitation backlog is found in rural areas and is seating at 78 (Sekhukhune District Municipality, 2014).

At the current pace of delivery, the SDM will not be able to meet South Africa's national targets set for the eradication of sanitation backlogs (Sekhukhune District Municipality, 2014). It is necessary to note that there is a slight difference between the StatsSA information on the sanitation backlog mentioned above and the WSDP information. The SDM as the WSA (water services authority) to ascertain the accuracy of the information.

The above statistical report concerns the district municipality and does not demonstrate the municipal areas within the district. With the Makhuduthamaga area declared as 100% rural and facing huge service delivery backlogs, zooming into this report, we might see shocking revelations.

The plan argued that the topography of the Sekhukhune district, along with the socio-demographic characteristics and economic trends, places tremendous strain on its water resources. Specific spatial challenges that add to the conundrum, and if resolved, could

reduce the pressure on the water service delivery planning and implementation, include (Sekhukhune District Municipality, 2008):

i. Varying tribal and other land use management systems and practices are a challenge;
ii. Current land ownership deters potential investors;
iii. Competing land claims in the area threaten to destabilise future development and undermine effective recovery of services delivery expenditure;
iv. Competing (social, economic, etc.) demands for land use may cause additional social tensions in the future; and
v. Non-recovery of costs of a large percentage of service delivered is prevalent in local municipalities, and where recovery takes place, the funds are not ring-fenced to be channeled back into water services.

Against the above background, the WSMP envisaged an important element in the development of an accurate SDM Bulk Water Services Master Plan which was to undertake an analysis to reconcile the population estimates for 2011 held by the Department of Water Affairs (DWA) and the results of StatsSA's Census 2011. This analysis allowed the project team to estimate the additional water provision that is required for project population growth rates for settlements up to 2035, which includes water that must be available for visitors to the various areas. This is an essential analysis that informs all successful water services planning processes.

The plan captured the population estimate growth per local municipality and the following is noted for our study area of Makhuduthamaga. Average household sizes range from 3.8 persons per household in growth points, to 4.5 persons per household in local service points (Sekhukhune District Municipality, 2014). The average household size, according to StatsSA, for this municipality was 4.14 in 2011. When compared with the standard household size of 4.8 persons that was used by DWA to estimate the municipal population, it is clear that the total population of 2011 will be smaller, based on revised household numbers (Sekhukhune District Municipality, 2014).

A 4% adjustment was then made to all settlements to provide for migratory visitors, resulting in a planning population of 287 790 for 2011. No additional provision was made

for business visits or for tourism, because this municipality has no towns (Sekhukhune District Municipality, 2014).

According to Statistics South Africa, the population of Makhuduthamaga LM has been growing at less than 0.5% per year over the past decade, from 262 907 in 2001 to 274 308 in 2011. This suggests that outward migration from Makhuduthamaga is significant. One of the primary destinations for residents from this area is that it is likely that they will re-settle in Tubatse LM (Sekhukhune District Municipality, 2014).

The projected planning population is 293 561 people in 2015 and 332 060 in 2035. This increase is below the natural population growth rate and accounts for continued out-migration. With regard to the remaining population, a gradual shift is likely to occur away from small, scattered settlements towards Jane Furse, and the other municipal growth points (Sekhukhune District Municipality, 2014).

In acknowledging the challenges, the district municipality has adopted the following strategy which is to be included in this Bulk WSMP that consists of the development of a comprehensive water management strategy. This involves but is not limited to principles of:

i. Serve the unserved first (implement projects that provide water services to communities with no services);
ii. Upgrade other existing but still inadequate services (for example, bring water closer for those households currently farther than 200 m from a tap); and
iii. Enable households that require a pressured house connection to do so via the correct SDM policies by providing a metered connection option where users can pay for any usage above the Free Basic Water allocation (25l/c/d). This will allow those people with the financial resources to upgrade to a higher service level on the condition that their connection is metered, and they pay for all use above the Free Basic Allocation. This is especially critical since in many areas, there is currently inadequate or no water services cost recovery.

The above activities or plans were adopted in 2014 and the researcher needs to establish how far these have been implemented and to what extent this has brought changes to

the societies. Again, the researcher needs to determine if the unrest could have been avoided should the plan have been implemented earlier. The purpose of the document is to establish factors affecting the provision of water services in the municipal area of Makhuduthamaga.

2.2.7 Makhuduthamaga Local Municipality Annual report 2014

The Makhuduthamaga Local Municipality Annual report confirms that the municipality is a water service provider and Sekhukhune District Municipality is a water service authority and it has jurisdiction over Makhuduthamaga. The annual report also relates that Makhuduthamaga has many water supply challenges to its residents and for some reason, this is because of the water operational challenges that even go beyond some months and the people resort to some form of violence to get the attention of the municipality.

2.3 FACTORS HAMPERING THE PROVISION OF WATER SERVICES IN MANY MUNICIPAL AREAS

Southern Africa has been experiencing, a series of recurrent droughts over the past few decades (Usman & Reason, 2004; Masih et al., 2014), resulting in many rural communities suffering from the impacts of these droughts. Droughts are costly hazards, with severe negative socio-economic impacts. Drought can be defined as a sustained period of deficit in water availability. South Africa was faced with multi year of drought in parts of Northern and Eastern Cape provinces. The two provinces were threatened by total water supply failures and livestock farmers facing financial ruins. In the Eastern Cape a major Dam called Adelaide was at 1% full capacity due to the drought before the Authorities woke up and implement the restrictions on water supply. Even then, there was little they could do because funding was not available to mitigate the water crisis.

In the Northern Cape, the rain starts late and this also impact negatively on the water supply. The drought also hit the province hard. The unreliable water forecast due to the weather climate change that has affected the rainfall pattern. The rising temperatures emptied the dam levels.

Limpopo province was chose a case study because of high levels of inter-annual precipitation variability leading to regular droughts, and its vulnerability with regards to

food and water security (Vincent et al., 2010; Mwenge-Kahinda et al., 2016). It was also chosen because of the varied water uses (domestic and irrigation) and water sources (springs, boreholes, canals, and rivers) in the catchment. A village in Vhembe district (located in the north-east of Limpopo province), Folovhodwe, was selected mainly due to its experience of recurring drought events, and the communal farming and rain-fed agriculture which are major agricultural practices in the district. Majority of the people in this province are unemployed and as a result they prefer or rely on farming to survive. The challenge is the unreliable rainfall patters that were affected by the climate change.

2.3.1 Poor planning and inter-governmental relations

The Auditor General's report of 2009 clearly indicated that many municipalities should engage in Intergovernmental relations to curb some of the water service challenges and backlogs that are already existing. It is upon the Municipality to plan strategically, to translate plans into budgets, to engage civil society effectively in the strategic planning process, and to manage the implementation of strategic plans (Auditor General of South Africa, 2009).

The strategic planning process goes beyond the actual figures and calls for visionary leaders who can plan far beyond what the human eye can see. The lack of strategic planning means that municipality cannot foresee the future growth of its population and the potential demand for more water supply.

The other key element raised by the AG is the issue of meaningful engagement with the civil society (Auditor General of South Africa, 2009). The developmental municipality will always forge links with society, guided by the principle that development is about the people. The current community unrest might also presuppose that indeed there are inadequate or ineffective engagements with society.

These were mainly on non-compliance or lack of adoption or implementation of a performance management systems, quarterly reports not reviewed by the council and inadequate content of the integrated development plan (IDP) (Auditor General of South Africa, 2009).

The State of Local Government report of 2009 by the Department of Co-operative Governance and Traditional Affairs points to political infighting and conflicts between the senior management, councilors, and human resources (CoGTA, 2009).

The Auditor General has also pointed out that where improvements have occurred, this can be attributed to the commitment of leadership and the active role played by the respective mayors. The same Auditor General report of 2009 mentioned that in 13 out of 27 municipalities in Limpopo, their leadership, especially the mayors, have been inadequate in exercising oversight, setting the right tone and acting to mitigate risks (Auditor General of South Africa, 2009).

The report by Maake and Holtzhausen (2015) points to a lack of or poor planning by the municipalities because the conditions of the water schemes were not assessed. The conditional assessment report would have enabled the Department and Water service authroties to solicit funding to upgrade and refurbish water schemes. in that during the transfer of water services from the water affairs to the municipality, there was to be a conditional assessment of the scheme which would lead to both the department and the district municipality approaching the National Treasury for funding of the upgrade and refurbishment programme of the scheme.

The other element is the determination of whether the municipality engaged the society inadequately, as this prompted the services unrest in the Mopani Municipality.

According to the report by Maake and Holtzhausen (2015), the role of political and Administartive leadership was one of the critical factors in successful institutions.

The burning factor in leadership is the oversight role they play in the implementation of the municipal plans. In the Mopani scenario, the report founded that the municipal water reports are no longer submitted to the municipal council on the implementation of credit control and debt collection, whereby even the cut-off list would be attached to the report (Maake & Holtzhausen, 2015). The submission of credit control reports assisted municipal councils to monitor the effectiveness of the credit control policies

Although the report concerns Mopani and the local municipalities, it however serves as an eye opener for the researcher to know what to focus on when it comes to the challenges faced by the municipalities in the provision of water services.

The University of Limpopo published a study by Netshipale (2015) that looked into the provision of water services at the municipality of Mukondeni. The report highlighted the critical factor for consideration during the planning process. The paper speaks of the ever-increasing number of water consumers and the leadership has to take that into consideration when making their strategic plans.

This element of user increase keeps receiving regular attention by many researchers and therefore the current study is to determine if the current community unrest demand for water supply is not as a fact of an increase in the number of water consumers. Again, the researcher needs to determine if the municipal planning is taking consumer increases into consideration when doing their IDP.

Another critical area for consideration which received the attention by the report is the issue of community engagement. This phenomenon is also highlighted as a fundamental necessity in the developmental municipality. Chapter 4 of the Municipal Systems Act deals intensively with the issue of public participation and what it seeks to achieve. The researcher therefore needs to determine if the community engagement is in line with the Municipal Systems Act or whether such process of community engagement is what used to be called cosmetic compliance.

The WSMS recognises that it is imperative that the SDM adopt a robust and proactive approach when planning for sanitation service delivery. Urbanisation trends are already apparent in the area and a growing demand for waterborne sanitation services, necessitated by the densification of housing developments, is a reality which places an even greater strain on precious water resources. Sustainable solutions will require careful, well-informed planning and will require strong management by the SDM (Sekhukhune District Municipality, 2014).

The plan further acknowledges that it is important to recognise that water services must be provided according to planning population estimates, which are inclusive of permanent

residents and visitors. The challenge for planners is to accurately estimate the number of visitors for inclusion in plans (Sekhukhune District Municipality, 2014).

The inaccurate planning for the population estimates will obviously result in either under or over planning of the supply projection.

This scenario is demonstrated in the Department of Water Affairs population estimates and was acknowledged that the DWA population estimate for the District is 30% higher than that of Census 2011 data, mainly because a significantly higher household size of 27% is used. The variance in terms of household size is particularly high in Tubatse LM (44%) and in Fetakgomo LM (25%). The Census's lower household sizes of the two LM's can be explained largely by the high incidence of single-person households of people working in the platinum and chrome mines. Secondly, the household size estimates of the DWA have not been adjusted for the past five years, despite the significant downward trend in the country and in the province during this time (Sekhukhune District Municipality, 2014).

This population estimate enables the planners to have forward planning and to mitigate water demand challenges lying ahead. However, the data for the population growth rate are provided by different institution and they appear to be inconsistent and undermine the inter-governmental relations between the government institutions.

This situation of competing data on the population growth rate clearly indicates that the authorities undermine the requirements of the development of IDPs in terms of the Municipal Systems Act which calls for the planning to be integrated which is also included in the Inter-governmental Relations Framework Act.

It therefore becomes suspicious that the data of the population growth rate housed by the local municipality of Makhuduthamaga has huge potential to vary from the above provided. It is crucial for the researcher to note this discrepancy and to determine if proper planning or synergy is needed to ensure that a well-informed plan is in place.

2.4 INSTITUTIONAL CAPACITY

Cloete and Wissink (2000) define capacity of a public sector as structural, functional, and cultural ability to implement the policy objectives of government.

In determining the institutional capacity of the public sector or the water services authority to be specific, the researcher needs to familiarise him/herself with the following items as identified by Cloete:

2.4.1 Human Resources

i. According to the 2009 Auditor General's report on the municipalities, there have been recorded high vacancy rate and inadequate in-house training particularly in finance and infrastructure.

ii. In December 2009, Parliament approved a municipal turnaround strategy to deal with municipalities in distress. The strategy recognised that a one-size-fits-all strategy is neither realistic not desirable (GoGTA, 2009). This acknowledgement therefore suggests that the worst performing municipalities, particularly those under provincial administration, require institutional capacity support to successfully develop and implement their turnaround strategy (CoGTA, 2009).

iii. While the Auditor General's report clearly captured the fact that many municipalities which use consultants were not filling vacancies and further that the use of consultants could be attributed to either the municipality concerned having vacancies and/or having staff without technical expertise, he could not point out the vacancy rates at the strategic positions and the duration it takes to fill the vacancies.

iv. The researcher is therefore confronted with the challenge to determine whether the municipality has the human capacity or popularly known as the 'warm bodies' at both the strategic and technical level to discharge the constitutional mandate. The researcher further has to determine if the municipality uses the consultants of external service providers to deliver the services.

v. The current literature could not point to issues of staff turnover at the strategic level and whether the municipalities are developing the strategies to retain the knowledge workers.

According to the report by Maake and Holtzhausen (2015), the poor planning has resulting in the municipality of Mopani failing to allocate the financial and human resources to adequately mitigate the challenges of water provision that area.

This report concerns the municipality of Mopani, however it provides an impetus for the researcher to zoom in the area of the study for the proper allocation of the resources to implement the strategic objectives of the municipality.

The Council for Scientific and Industrial Research (CSIR) undertook a study to understand the challenges of water supply in the rural areas in Limpopo province.

The report points to the lack of capacity and skills at municipalities. Specific reference is made to a factor where a borehole had not been functioning for more than two years. In the other areas, there are no operators and municipal officials for operation and maintenance. Another element is that at some point, the operator is not available when the infrastructure is broken (Mothetha, Nkuna, & Mema, 2014).

It is a common knowledge that the majority of Makhuduthamaga municipal area uses boreholes as their water sources. It is also known that many villages share a reservoir. It is again known that there are voluntary operators at the municipal area of Makhuduthamaga.

The above situation prompts the researcher to dig deeper into understanding and making a particular determination on whether the lack of skilled personnel and general human resources incapacity has a tremendous impact or effect on the provision of water services at Makhuduthamaga area.

Netshipale (2015) points to the municipality's incapacity to raise its financial revenue so as to fund the water infrastructure because the users are not willing to pay their rates.

The issue of user pays is a problem for many municipalities in the country. The researcher then needs to determine if the municipal water services are levied and users are paying their dues or are provided with water for free. Again, a determination is to be made as whether the payment or non-payment thereof has an impact on the municipal capacity to provide water services to the community.

The other component mentioned by Netshipale (2015) is the issue of lack of staff in the technical department to discharge the responsibility of water services.

The WSMP also raised the issue of the staff needing re-training to be able to discharge the mandate with resolve. However, the other critical issue raised by the plan is that of the 2040 boreholes that are in use, 1045 have been equipped with hand pumps (51%) (Sekhukhune District Municipality, 2014).This means the hand pumps are labour intensive, and therefore require sufficient human resources.

2.4.2 Poor maintenance and operations.

Mothetha, Nkuna, and Mema (2014) noted the existence of reservoirs, boreholes, pumps and reticulation pipes and street taps. However, most of the infrastructure in the selected project sites was poorly maintained. The maintenance problem ranges from leakages due to damage and aging pipes. In some areas, tap heads were damaged or stolen.

Mothetha, Nkuna, and Mema (2014) claim that the poorly maintained infrastructure affects water supply which will result in water losses. The Infrastructure and Technical team should ensure that operation and maintenance of boreholes be given a priority in the selected areas as boreholes would have a significant reduction in terms of their expected yields.

The researcher will have to undertake a study to understand if the operation and maintenance of the boreholes and other water plants, including the general water infrastructure, has an impact on the provision of water services.

The WSMP noted that their operational staff and supervisors are in need of re-training and incentive-based remuneration (Sekhukhune District Municipality, 2014). They play a vital role in keeping water supplies functional to their surrounding communities. This need for re-training of staff concerns the municipality's capacity to do operations and maintenance. The researcher needs to determine whether the staff for operations and maintenance have the required skill to execute their mandates or not.

As a way forward, the municipality recommends that items such as the evaluation of all existing O&M plans, O&M practices and a review of the capital and refurbishment plans, as well as a review of the maintenance plans will lead to the completion of a five year maintenance plan (Sekhukhune District Municipality, 2014).

The WSMP noted that by far the greatest number of boreholes are not in use (2900 = 59%). They have been abandoned, destroyed or vandalised. The reason for such a high percentage is not clear. The fact that the report or plan could not establish reasons for non-functionality speaks to the question of operation and maintenance. A determination is to be made whether the non-functionality is as a result of broken pumps, stolen or aging pumps. Another factor for consideration under operation and maintenance is contained in the WSMP is often the easiest to solve, but the most challenging, is the issue of on-going operation and maintenance of a well-field. Logistically, it is much easier to manage and maintain a single water source, however the practical reality is that a well-field may extend over a number of kilometres, and include multiple abstraction points. On-going and detailed monitoring is essential as failure of a single well-point may not be readily detected until multiple well-points fail and the water demand is no longer being met.

2.4.3 Poor implementation of water services by-laws

Maake and Holtzhausen (2015) pointed out that in rural areas thereb are no controls in the usage of water despite there being water service by-laws.The other fact is that the water in the rural areas of Mopani is not metered and this makes it difficult to measure, control and conserve the demand for water whether surface or underground.

Makhuduthamaga area is 100% rural, according to Statistics SA and it's features are not immune from the report about Mopani, however there are no publications that could shed light on the matter whether there are water by-laws and if so, to what extent they are implemented.

The water services master plan noted the following that no rural water is metered, billed or revenue collected, including at bulk abstraction points, pumping and distribution. All volumes are estimates. A practical reality is that this practice results in an estimated 100% financial losses in the Flag Boshielo water scheme where no water is metered (Sekhukhune District Municipality, 2014).This situation raised the question whether the municipality has water by-laws and a revenue generation strategy. This clearly means that the municipality is providing free water to all consumers irrespective of their ability to pay or not.

2.4.4 Illegal connections

Maake and Holtzhausen (2015) highlighted the high levels of illegal connections, particularly on the bulk pipeline. The problem with illegal connection on the bulk pipeline is that water will not reach the storage tanks and the reservoir from which they must be distributed to the consumers. Lots of water is lost and unaccounted for in when there are lot of illegal connections.

According to Mothetha, Nkuna, and Mema (2014), the illegal connection affects the pressure of water in the pipeline, either to or from the reservoir as some piped water is lost along the way. It is known that a bulk pipeline from riverside pump station to Jane Furse Hospital was intercepted with illegal connections resulting in the water not reaching the hospital reservoir, prompting the municipality to hire a service provider to deliver portable water to the hospital.

This is but one incident recorded to date and the researcher has to establish whether there are illegal connections not only on the bulk pipelines but also on the distribution pipelines. Netshipale (2015) has also identified what he termed “unauthorised connections”, as becoming increasingly common in South Africa. This refers to unauthorised connections as the illegal connection of water pipes to the distribution pipeline or bulk pipeline.

As this appeared to be the ever-increasing phenomenon, the researcher needs to determine the existence of illegal connections and also to determine potential future connections and their potential impact in the general provision of water services.

2.4.5 Theft, vandalism and ageing of water infrastructure

According to Maake and Holtzhausen (2015), the majority of the water infrastructure of Mopani is aging and their design was that of the colonial government. Their plan did not anticipate the mushrooming of the informal settlements. This implies that the colonial infrastructure has to develop capacity to meet the current demand and this causes a huge challenge in the provision of water services.

Maake and Holtzhausen (2015) further highlighted the fact that the majority of water infrastructure is operating above the design capacity. There is ageing infrastructure and

illegal connections which affect the transportation of water to storage facilities.Bulk pipelines are either very old or highly invested with illegal collections which make it difficult for water to be stored in the reservoirs prior to distribution.

Aging infrastructure is a serious problem with continuous burst pipes and water leakages. Although no study has been commissioned in the area of Makhuduthamaga about the aging infrastructure, the theft of copper cables and vandalism during protests has been widely reported. The researcher therefore needs to determine the life span of the water infrastructure and investigate the maintenance schedules to determine if aging is the problem at Makhuduthamaga.

The WSMP further acknowledged that there are a number of small-scale WTWs that presently serve a substantial population in Sekhukhune. They are without exception in desperate need of upgrading and repair (Sekhukhune District Municipality, 2014).

The plan however, does not mention the repairs and upgrades that are as a result of increased demand of the consumers and/or the aging infrastructure. This requires the researcher to investigate this phenomenon and determine if the implementation was part of the colonial planning or under-estimation of the population growth rate.

The other factor raised by the WSMP is the theft and vandalism as a major problem in SDM and addressed in the Interim Intermediate Water Supply Program (IIWSP) and MWIG allocations are used to replace and repair the infrastructure as identified.

2.4.6 Lack of sources of water

Maake and Holtzhausen (2015) point to the insufficient water sources in the area which contributes immensely to the water shortage in the area. It points to streams, wells, rivers and boreholes as the main water sources in the Mopani area. It is commonly known that even Sekhukhune and Makhuduthamaga area, in particular, have more or less the same water sources. The researcher is therefore left with the option to establish and make a particular determination of the different types of the water sources existing in the area of Makhuduthamaga and whether those water sources are sufficient and develop mechanisms to improve and maintain them for the benefit of the communities.

The completion of the De Hoop dam was to augment the Riverside / Vergelegen Dam and Flag Boshielo Dam in the municipal district of Sekhukhune, in the delivery of water services in the municipal area. In his opening address, former President J. Zuma mentioned that the dam would change the lives of thousands of people in the province, including those living in Ga-Mashabela near Jane Furse, which is the small rural area 80Km south east of the Limpopo legislative capital, Lebowakgomo (Brand South Africa, 2014).

Maake and Holtzhausen (2015) quoted Majuru, et al. (2012), providing that the water supply system must at least have water available every day for the basic needs of households. This statement shares the sentiment with both the Constitution of the Republic of South Africa and the Water Services Act with regard to the provision of basic water services. The researcher is therefore at pains to determine if the water sources at Makhuduthamaga municipal area have water available every day. These findings should also help the researcher to determine if the availability or lack thereof have links with the community unrest.

The WSMP provides that the total existing water use in SDM is 51.9 Ml/day and the average consumption is 46.7 l/c/d which is quite high for an area with a mostly rural population. This basically means that the municipality is consuming more than what it can produce (Sekhukhune District Municipality, 2014). The impact on total water use has not been calculated that may be caused by a possible substantial increase in the numbers of water borne sanitation.

The SDM has about twelve water sources or schemes of which four are within Makhuduthamaga municipal area. These regional water schemes supply about 50% of the total population of Sekhukhune with water, albeit often at an unacceptable level of reliability due to poor or no water demand management. The National Water Resource Strategy 2 (NWRS2 of 2013) emphasises water use efficiency as one of the key strategies necessary to prevent a water crisis (Sekhukhune District Municipality, 2014).

Again, the plan established that the rest of the schemes in Sekhukhune can be regarded as “Stand Alone” schemes supplied from groundwater. The availability of reliable data is sketchy and still requires extensive field work, plus borehole monitoring and testing, to

verify. The level of information gathered so far is not reliable, and makes accurate planning impossible (Sekhukhune District Municipality, 2014).

Further, of the treated water supplied, it is estimated that only some 50% of the quantity produced actually reaches consumers, the balance being lost at various points in the system. Most of the schemes that are operated by SDM do not have bulk meters or retail meters, hence a basic water balance calculation is not done although water balance calculations are done for some schemes that are operated by Lepelle Northern Water (Sekhukhune District Municipality, 2014).

A recent national study completed by the Department of Water Affairs (DWA) has indicated the estimated non-revenue water (NRW) at 50% in Sekhukhune District Municipality (SDM) which represents an estimated volume of 9.5 million cubic metres per annum. DWA reports that the 50% is an estimate (Sekhukhune District Municipality, 2014).

Therefore, the actual NRW may be even higher than the 50% estimated by DWA as little cost recovery is undertaken. Cost recovery only takes place in formal towns like Groblersdal and Marble Hall. The other critical thing the WSMP has raised is that the Preliminary Assessment of the Water Balance undertaken in the Sekhukhune RSIP (2003) indicated that there existed a significant water deficit of approximately 170 million m^3/annum in the Middle Olifants River Catchment. This figure was based on a Low Community Demand Scenario, but took into account the mining and agricultural demand as well as the provision for the Ecological Reserve (Sekhukhune District Municipality, 2014).

Since that time, the situation has deteriorated with additional water stress being exerted on the Olifants River. This situation directly affects the municipal capacity to deliver water services to the communities. What is critical here is that the plan has recognised the rapid population growth rate which raises the demand for water supply, yet the water sources capacity is declining. Obviously, there is a critical challenge in the water provision, and this therefore means that the communities will not stop marching.

The report further highlighted that the critical point in water deficit will be in 2027. The above overall Water Balance, whilst extremely important in giving early warning of an impending water resource crisis, does not reflect accurately conditions which are, and will be, experienced on the specific water supply schemes. In practice, it means that certain schemes affecting certain areas may run into deficits much sooner.

The researcher needs to determine the capacity of the schemes against what the report claims to supply. Again, to also be determined is the water sources within the study area that are also affected by the water deficit as reported, and advise on the mechanisms to be employed to mitigate the situation. Having considered the water deficit from the water sources, particularly the dams, and the ground water also has challenges. Various sources of information on groundwater have been analysed and it is evident from the GRIP, that the groundwater resources are not yielding sufficient water for even basic levels of domestic and institutional water services (Sekhukhune District Municipality, 2014).

According to the WSMP, there are 664 Boreholes equipped with Electric Motors and 183 Boreholes equipped with Diesel Motors. Presumably, some of these boreholes can be regarded as “Production Boreholes” i.e. boreholes with safe yields of 1 l/sec or greater. These should be further tested, monitored and analysed to see to what extent they can be incorporated into a future Bulk Water Supply system.

By far the greatest number of boreholes are those not in use 2900 (59%). They have been abandoned, destroyed or vandalised. The reason for such a high percentage is not clear (Sekhukhune District Municipality, 2014). Of the 2040 boreholes that are in use, 1045 have been equipped with hand pumps (51%).

These latter boreholes will continue to play a role in supplying Free Basic Water and water for stock watering to the communities. They will however not be considered as boreholes that can be integrated into the future water supply scenario. The above figures refer to the general district ground water and the researcher needs to determine the total of boreholes in the study area and further determine whether the available ones are those not working. Further, to determine if the marching communities are the victims of the non-working boreholes.

According to Van Zyl et al (2008), municipalities must provide acceptable standards of services to the communities. Bhagwan et al (2014) argued that the function of Local government is to ensure water security.

2.5 CONCLUSION

This chapter has discussed the legislative foundations within which the local government is found and the challenges that hamper the water provisioning in the local municipality. The literature consulted includes among others, the Constitution, White Paper on Local Government, Water Master Plan, Water Service Act and other relevant pieces of legislation that discusses water services.

The following chapter focuses on the research methodology for the study, analyses the theoretical outlook, the research design, population, study area and sample methods and size.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 INTRODUCTION

The study is a qualitative in nature. Savin-Baden and Major (2013) point out that qualitative method provides a deeper understanding of the subject or phenomenon based on the participants feelings and lived experiences. In this study we going to employ interviews as a form of collecting data and interacting with the participants. The aim would be to get the first hand information and make follow-ups where necessary.

In this Chapter, the research methodology for this study is discussed. Firstly, the choice and the rationale of research is discussed. Secondly, the research design is discussed. Thirdly, study area is described. Fourthly, the population for the study is described. Fifthly, the sampling technique is described. Sixthly, the data collection method are discussed. Seventhly, Data analysis is discussed. Lastly, the ethical consideration is discussed. The next section discusses the choice and rationale of research design.

3.2 CHOICE AND RATIONALE OF RESEARCH DESIGN

This study adopted a qualitative research design. A qualitative study refers to research about people's lives, lived experiences, behaviours, emotions and feelings, as well as about organisational functioning, social movement, cultural phenomena and interactions between nations (Strauss & Corbin, 1998). Qualitative research design allows the researcher to get in-depth data on perspectives of population study (Terre Blanche, Durrheim & Painter, 2011). The approach was used to gather data from community representatives and municipal officials in the local municipality. One-on-one interviews with the participants were focused on perceptions of the water service delivery challenges experienced by the municipal residents. This approach was appropriate for this study and enabled participants to express the challenges of water service delivery. Furthermore, the approach also assisted the researcher to gain an in-depth understanding of the problem under investigation and insight into the water challenges facing the local municipality.

3.3 RESEARCH DESIGN

A research design is a strategic framework that guides the researcher in the research process (Terre Blanche, Durrheim & Painter 2006). Willig (2008) makes a distinction

between the two schools of thoughts within phenemology, which are descriptive phenomology and interpretative phenomology. Research design provides an overall guidance for the collection and analysis of the data of a study (Churchill, 1979). The importance of research design stems from its role as a critical link between the theory and argument that informed the research and the empirical data collected (Nachmias & Nachmias, 2008).

A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process (Bryman & Bell, 2007). It is therefore a blueprint that enables researchers to find answers to the questions being studied for any research project. Along with a clear research plan it provides constraints and ethical issues that a study will inevitably encounter must also take into account (Saunders et al., 2007).

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3.4 THE STUDY AREA

Makhuduthamaga Local Municipality is a rural municipality with 62 councilors, 31 ward councilors and 31 Proportional representatives. It has 31 wards. The Municipality is at the centre of Sekhukhune District Municipality. It is surrounded by three local municipalities, Fetakgomo Tubatse at the eastern side, Elias Motsoaledi on the southern side and Ephraim Mogale on the western side. The Municipality has two economic drivers which are agriculture and tourism. If the area cannot be defined geographically, then the demarcation criteria need to be specified (Makhuduthamaga Local Municipality IDP, 2015/16).

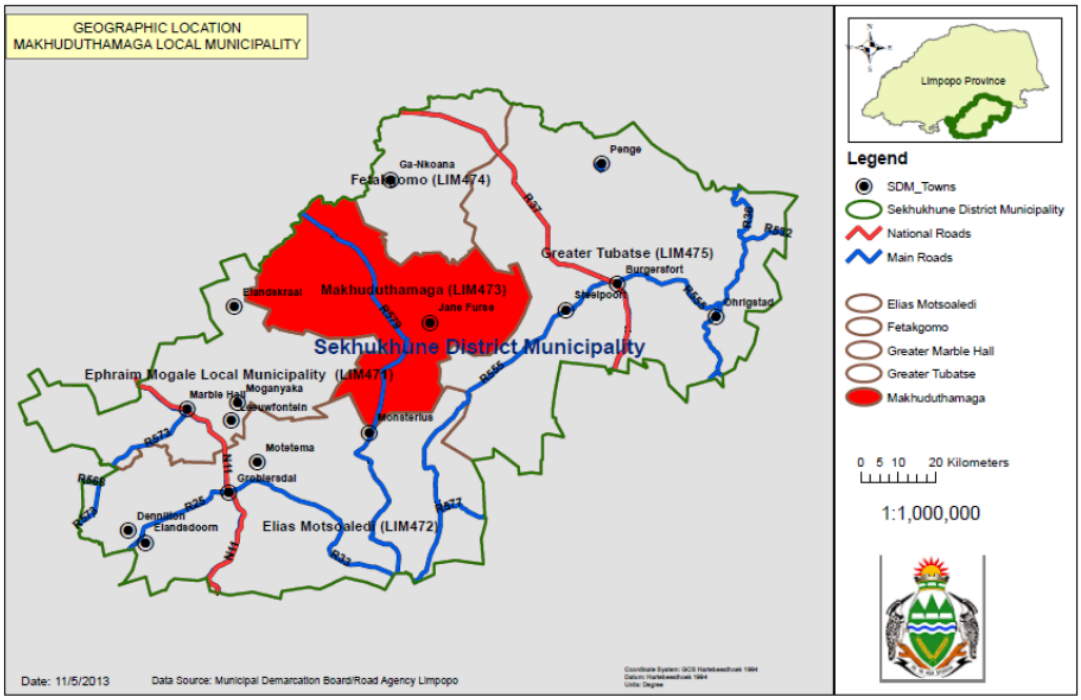

Figure 1: Study area

3.5 POPULATION

Bless, Higson-Smith and Kagee (2009), define a population as a group of people on which the study is focused. The targeted population of the study includes all the municipal officials and ward committee members in the municipality. The municipal officials include technicians, managers and directors responsible for co-ordinating water service delivery from the district and local municipal levels.

3.6 SAMPLING METHOD

Akinsola (2005) defined sampling as the process of selecting representative units of population for study in a research investigation. Akinsola (2005) outlined two categories of sampling designs as follows: non-probability sampling (units are chosen by non-random methods) and probability sampling (characterised by random selection of the study group from the target population). Sampling in qualitative method included non-

probability sampling design. It consists of convenient, quota, purposive, snowball and dimensional samplings.

For the purpose of this study, a non-probability purposive sampling method was used. Purposive sampling is defined as a type of non-probability sampling that is based on the judgement of the researcher and purpose of the study (Rubin & Babbie 1993). The purposive sampling was used to select participants who have adequate knowledge about water service delivery in the municipality. A total of 21 participants which includes 5 (five) officials both from the municipality and the district; 10 ward committee members; 6 Water committee members in the municipality participated in this study.

3.7 DATA COLLECTION METHODS

Kumar, 2005 defines interview as a method of collecting information through interaction between two or more people with a specific purpose in mind. The researcher interacted with participants by conducting individual interviews to acquire firsthand information regarding the challenges of water services in Makhuduthamaga Local Municipality. An interview schedule was used as a method of data collection in this study. The interview is to collect information through different forms of interaction with others and involves any person-to-person interaction between two or more individuals with a specific purpose in mind (Kumar, 2005).

Face-to-face interviews were used because the researcher intended to get in-depth information in a face-to-face situation. He was able to probe for more information. Data was collected from interview guides or interviews using voice recorders. The researcher was able to make follow-up questions and clarify issues on the spot. Additionally, the researcher used the literature review to collect secondary data to cross-examine the findings. Secondary sources include legal documents, formal reports, and published works.

3.8 DATA ANALYSIS

Data analysis involves searching for patterns and recurrent behaviours in the data (Neuman,1997).The researcher in this study followed the thematic analysis method, specifically the steps outlined by Neumann (1997) namely, inducing themes, meaning or classes. from specific instances in a bottom-up approach. This then was followed by coding and putting information into a sequence. The last stage was interpretation and making sense of the data (Neumann, 1997). The central goal of interpretation, according to Terre-Blanche and Durrheim (1999), is to discover regular patterns in the data.

3.9 ETHICAL CONSIDERATION

According to Malocha, 2013, ethical principles provide rules about the conduct of people in the research process. The goal of ethics in research is to ensure that no one suffers adverse consequences as a result of research activities (Cooper & Schindler, 2000). The researcher sought permission from the Municipal manager before entering the research site. The researcher obtained ethical clearance from Turfloop Research Ethics Committee Informed consent and voluntary participation - The researcher explained to all participants the nature and purposes of the study and also emphasised that their participation was voluntary, meaning that at any time if they so wished, they could withdraw. An informed consent form was prepared (and translated if necessary) and participants were asked to sign it in order to confirm willingness to participate in the study and their identities will be concealed.

As the Researcher, I wrote a letter to the Local Municipality to request permission to conduct the research in their locality. The Municipal Manager of Makhuduthamaga Local Municipality granted me a permission to conduct the research because she realized that this research will benefit them in terms of understanding why there are water service challenges in their area.

I have selected the Ward councilors, Officials from the Infrastructure and water services, water committees and Ward committees from different selected wards. The reason for choosing the relevant Officials from Infrastructure and water services is the fact that they are the ones who are dealing with the day to day work of ensuring water supply in the

District. The ward councilors and Ward Committees are the ones that monitor the delivery of water from the respective wards. The Water committees are responsible for reporting any challenge relating to water service provisioning in their respective villages

I discussed with the participants and I explained to them that this exercise is voluntary, harmless and safe. If anyone feels like s/he is no longer wanting to take part, s/he is free to withdraw. I have also briefed them that the information is for academic purpose and it would not be divulged to anyone. Their names would not be published.

The interview records were kept on the recorder and note were taken so that I would be compile the data using both the written and audio recording. The information was kept safe so that they are not leaked to the public domain.

3.10 CONCLUSION

The purpose of the paper was to investigate the challenges in the delivery of water services in Sekhukhune District Municipality, the area of Makhuduthamaga Local Municipality and to propose measures to mitigate the challenges. This chapter has presented a detailed description of the research methodology used for the study. As indicated in the above sections, qualitative data gathering techniques were used in this particular study. The next chapter presents the findings of the study and interpretations in line with the objectives of this research.

CHAPTER 4 DATA PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 INTRODUCTION

This chapter provides the findings and interpretation of data. It addresses the study objectives and the research questions, as outlined in the introductory chapter of this study. The main purpose of the paper was to investigate the challenges in the delivery of water services in Sekhukhune District Municipality, the area of Makhuduthamaga Local Municipality, and propose measures to mitigate the challenges.

The following section presents a brief summary of the respondents' biographic profiles, followed by the discussions on qualitative findings on the challenges related to water service delivery in the municipality. Themes are constructed from semi-structured interviews collected from 21 participants are presented to provide insight about the challenges in the delivery of water services in Sekhukhune District Municipality: a case of Makhuduthamaga Municipality. The findings are proven to be related to the objectives of the research. The last section presents communities' perception on water provision and finally, a concluding remark of this chapter is presented.

4.2 BIOGRAPHICAL PROFILES

4.2.1 Age of the Participants

The age of the participants in this study ranges from the age of 30 to 58 years. The study focused on all age groups of the participants because they are the people who are affected and they use water on a daily basis.

4.2.2 Gender of the participants

It is of the utmost importance to also consider the gender of the participants. In a sample of 21 participants, 10 of them were men and 11 of the participants were females.

4.2.3 Education Level of Participants

The education level of respondents was considered to check which respondents have no formal education, with matricultion and qualifications above the matriculation certificate. In this study, ten (10) participants have post matriculation qualifications, six (9) participants have matriculation certificates and two (2) participants have less than matriculation certificates.

4.3 DETERMINE THE CHALLENGES THAT INFLUENCE WATER SERVICE DELIVERY

4.3.1 Do you receive water on a daily basis?

The White Paper on Local Government of 1998 stipulates that one of the objects of developmental local government is to provide adequate basic services to its residents. The finding from the one-on-one interviews indicates that 80% of the participants say that they are not receiving water on a daily basis and 20% say they receive water but very little because the water supply is only available from the morning and stops in the afternoon. The following are some of the extracts to support the claim in the form of quotations from the participants.

- “No, we don’t get water in my area, we have water difficulties and we only get water from Wells and Streams”. (Ward committee. Date: 16th July 2019)
- “There is no water at all, we are struggling to get water because the Municipality is no longer caring for its people” (Water committee member. 16 July 2019)
- “To be honest, the answer is a No because as the institution we supply water tankers and they are not enough” (Manager: Operation and maintenance.18 July 2019)
- “No, we struggled to get water daily. This is the third month without getting potable water. Our government is too corrupt” (Water committee, 18th July 2019)
- “No we get water only once a week particularly on Wednesday so we are struggling as the community here, you can see some residents are pushing wheel barrows to the nearest well or ponds to get water to drink”(Ward committee, 18 July 2019)

The finding above shows that most of the community members do not have access to adequate water on daily basis. A number of issues has been raised by the respondents and one of the key concern is corruption. The complaint about corruption was in relation to the water tankering trucks that are providing communities with water. It was found that the drivers are selling water to the communities instead of delivering it for free. The issue was reported to the Ward councilor and ultimately to the department and the matter was investigated. The alleged driver who was selling this potable water was reprimanded, given a warning and was shifted from driving the truck and he is currently a Grounds man.

The issue of corruption of Technical department officials was that they are only giving Tenders to their relatives and friends. One tender was put on hold due to the strike caused by other business people who protested about the issue of nepotism and bribery. And again was found that one of the officials hired his relative to one of the water purification plants in Makhuduthamaga Local Municipality. As a results the community took it upon themselves and closed the plant in protest. A report by Corruption Watch (CW) (2020), South Africa Needs Clean Hands, highlights the corruption issues that have plagued municipalities throughout South Africa for almost 10 years, as reflected in the more than 5 000 whistle-blowers that have reported cases of corruption within local government to the organisation since its inception in 2012 until the end of 2020.

4.3.2 Do you pay for municipal services?

The findings from the interviews conducted with the participants indicated that the community of Makhuduthamaga Municipality do not pay municipal services at all because the majority of the residents rely on grants for a living or survival. All the participants indicated that they do not pay for municipal services in their respective interviews. The following are the extracts from the participants:

- “No, we don’t pay any municipal service our area is rural Municipality” (Ward councilor, 20th July 2019)
- “We are not paying for the municipal services because we fall under the category of indigents” (Water committee, 20th July 2019)

- “No one pays for the services, we are a deep rural Municipality with no revenue collections” (Municipal Official, 21 July 2019)
- “We don’t pay for water, why would we pay for something that we don’t get as community” (Ward committee, 21 July 2019)

The findings are in line with Maake (2015) who argues that the provision of not sustainable owing to the ageing infrastructure, inadequate water resources, poor planning, limited capacity in municipalities and the nonpayment of water services by the households. The perceptions of the participants is that Makhuduthamaga is a rural municipality which does not have a means of revenue collection and it depends on revenue allocated from the National and Provincial Treasury departments respectively. Indeed, we can conclude by saying Makhuduthamaga is a municipality which delivers services for its residents free of charge and provides water at a RDP standards. This entails that Makhuduthamaga is a rural municipality and is declared a focal point.

The former president Thabo Mbeki declared Sekhukhune as the focal point for development. After that we saw a massive infrastructure development of a big dam in our area. The De Hoop dam was built after the former Presidents pronouncements and we saw many water plants being built and capacitated. Many water skills related programmes in relation to water were given to local people and many employment opportunities were created for our people. Even though we know that water is a big challenge country wide, at least today as we speak some parts of Malekane, Steelpoort, Masha, Maphopa, Magnetheights villages to some parts of Jane Furse are getting water from the dam. Some other parts of the District will also benefit through boreholes and water tankering as a temporary solution.

Makhuduthamaga municipalities are 100% rural and does not qualify to pay services. In 2001, the former president of the Republic of South Africa indicated that Sekhukhune District and its local municipalities are declared focal points for development and as such, they need to be supported financially to deliver services because they are in the deep rural areas. In the year 2010, the bye-law on water provisioning was drafted in order to allow residents to pay for the services they receive as residents.

The political leadership and the municipal senior managers are not willing to implement the water service bye-law promulgated in 2010. The challenge here is that by laws are crafted and taken to the people to do consult but the problem is that the political leadership and management are not implementing them because they fear that communities will protest. The problem is that our communities are allocated sites or erfs and some of them they have built the houses on the Municipality servitude and this create a problem for the Operation and Maintenance team to perform their duties in the event when there is a pipe leakage or maintenance. The by-law is there but the lack of political will to relocate the people is not there because some of those people who occupied those servitudes are their relatives.

4.3.3 Are the responsible people doing enough to ensure water availability?

The findings from the one–on-one interviews indicates that the responsible people are not doing enough to provide water services in the district. Out of the 21 participants interviewed, 80% of the participants do not trust the personnel providing water services to the municipality and 20% are a bit satisfied in a manner that water is delivered to the municipality. The following are the responses from the participants:

- “No the community is not satisfied because there is a mentality of entitlement from the community where they think they must get water for 24/7 on daily basis” (Municipal Official, 22/07/2019)
- “No I don’t believe they know their job because as you can see now the entire municipality is waterless and our communities are very angry” (Ward councillor, 22nd July 2019)
- “Some personnel are trying their best and the only challenge is the water sources that are running dry week in week out due to unreliable rain water” (Ward councilor, 22 July 2019)
- “The people responsible are not caring for us, look now this is the third month without water supply, the whole of Makhuduthamaga is dry their boreholes are not functioning at all” (Water Committee, 23 July 2019)

As stated above, there are mixed reactions from the participants on the role of personnel who are involved in water provisioning, but the majority of them agree that the personnel

are not doing their work sufficiently. In some areas, the community is complaining about the unavailability of water pump operators in their respective wards. The popular view from the participants is that they are not satisfied with the manner in which some personnel handle water service delivery because it has been a long time that community members have been complaining about water services and there is no progress registered.

The water service master plan was the plan that should be implemented by the personnel dealing with water to ensure that they help to resolve the water crisis in the entire municipality. So instead of aligning their work with the plan they do something else and that is why the community feels that the personnel are not doing as expected.

According to the municipal IDP-Budget plan of 2021/22, water scarcity is a huge developmental challenge within the Sekhukhune District /Makhuduthamaga, and constraints both economic and social activities in the area. The issue is a manifestation of climate variability. However; it is also the result of a number of other factors, which include insufficient and variable rainfall, inequitable water resources management and the absence of drinking water, bulk water and irrigation infrastructure that would aid the distribution of water to rural villages. Water scarcity affects a range of other developmental issues in Makhuduthamaga – municipal service delivery, subsistence farming activities and commercial agriculture

4.3.4 Does the Municipality provide enough water supply to all the villages in Makhuduthamaga villages?

The answers from the participants varies in terms of their numbers and in this case, the high number of participants say the municipality does not provide enough water to the residents and while the minority, which is the smaller number, agree to the fact that the municipality is providing water sufficiently. So, there are two conflicting issues here, but the reality is there is not enough water supply from the municipality to the end users who are the consumers. The following are the extracts from the participants to prove that indeed there is water, or not.

- ‘’no the Municipality does not provide enough water to us, we are struggling to get water because there is no co-ordinated reticulation infrastructure’’ (Water Committee, 23 July 2019)
- “There is enough water we drink water with animals and we fear for contracting bacteria” (Ward Committee, 22 July 2019)
- “the Institution is experiencing some breakdowns in some water pump machines and our personnel is busy working hard to solve the problem’’ (Official, 22 July 2019)
- *“*we can safely say water is a national crisis and as the municipality we know that there is a challenge of water and in case there is cut off or mechanical break-down, we use our water tankers to supply water to the affected areas so that our people do not struggle daily and walk long distances to fetch water”.
- “We drilled boreholes in some areas because we want to augment the little water sources we have in the Municipality” (Official, 23 July 2019)

It is evident that water is a worldwide problem and if not used sparingly, we will not solve it now because the problem of water is the lack of water sources in the municipality. The Integrated Development plan states that all the villages in and around Makhudthamaga should get clean potable water but what we see on the ground differs from the plan. The people on the ground are struggling to get water because even if the Municipality tries to drill water from those areas, you may find that there is not enough water underground.
The Water Master Plan also acknowledges that Sekhukhune and in particular, Makhuduthamaga municipality, is an area characterised by high mountains and a notable high-altitude plateau known as the Nebo plateau, with lush valleys and meandering rivers at lower altitudes. The Nebo Plateau is characterised by granite intrusions, with selected ground water resources located infrequently in selected locations. The IDP-Budget plan 2021/22 of the municipality highlights the problem of water shortage and pointed out various strategic measures to address the problem in the wards of the municipality.

4.3.5 What are the main water problems the municipality is facing in different villages?

The finding from the interviewed participants is that there are a lot of water service delivery challenges in some if not all villages in the municipality. The participants indicated a lot of problems emanated from the personnel, infrastructure and budgetary constraints. Below are some of the things that the participants indicated in their respective places.

- “The Municipality must start to employ young, fresh and skilled officials in water and sanitation department because the current ones are not skilled and too old to drive around and fix water problems in our villages” (Ward councilor 18 July 2019)
- “The issue here is the shoddy incomplete water projects by the contractors” (Water committee member, 18 July 2019)
- “There is lack of maintenance from the municipality, you may find that lot of water is not counted for because of water leakages through old dilapidated infrastructure that need to be replaced” (Official: Operation and maintenance, 18 July 2019).
- “The area has experienced exceedingly hot temperatures in the past weeks, which has resulted in most dams declining” (Official: Operation and maintenance, 18 July 2019)
- “The mushrooming of new settlements that are not planned for also causes a problem in the water provisioning because they tamper with the main line water pipes, do some illegal connections” (Official, 19 July 2019)
- “The reason why some water pump machines are not working, is the issue of theft and vandalism of the infrastructure by our communities” (Water committee, 19 July 2019)
- “The Municipality has promised to put up water tanks supplied by water trucks but deliveries have been erratic” (Ward committee, 19 July 2019)
- “We drink dirty water with the animals. We can’t do anything but to rely on unclear water sources that had led to a rise in diarrhea. Community drinks unclean water with animals” (Water committee, 19th July 2019)

All interviewed including the municipal officials, water committees, ward councillors and ward committees confirm that maintenance, theft, illegal connections and lack of sources of water are the major reasons why the area has this challenge of water provision. Water committee members confirm that there are leaking pipes unattended for unbearable periods of time. Municipal officials confirm that they do not have systems to monitor and detect burst and/or leaking pipes. The perception of the participants in relation to the water problems in Makhuduthamaga is genuine and need to be addressed. Indeed lack of rainfall will result in some dams not having water and this result will have a negative impact on the lives of all the residents.

The Department of Water and Sanitation has issued circulars appealing to water users in the province to continue using water sparingly and to adhere to water restrictions imposed by their respective municipalities. Water is a scarce resource and a catalyst towards economic development and it must therefore be conserved at all times. The picture below is the Municipality Truck water tanker delivering water to the community.

Figure 2: Municipal Water tanker supplying water to the community

The community of Makhuduthamaga is not satisfied with the manner in which they receive water from the municipality. They complain about the poor water services in their area and the poor maintenance of the water service infrastructure in the municipality. The reality is both the municipal officials and the community agree that there are serious challenges of water services due to insufficient water sources that are very dry. The other reason why there is a shortage is because of the budgetary constraints because the municipality is 100% rural and does not collect any revenue. The other reason that was indicated is poor or lack of skills from the personnel in carrying out their day-to-day work. They have also indicated the interference by politicians as one of the issues that derail water service delivery in the Municipality.

To sum up, the perceptions of participants is that there is a lack or shortage of water in the Makhuduthamaga Local Municiplaity in general. The majority of the participants say they do not receive water daily, they only get water once a week and through the intervention of the municipality by water tanker. And in case the water tanker is unavailable, they opt for the streams and wells to get water. In terms of the Integrated Development Plan of the Municipality, water scarcity is an issue of major concern in the district; however, ordinary residents often feel these stresses particularly acutely during times of low rainfall. The delivery of water in the district remains a challenge; however, in the first five years of the SDM's existence, the total number of households without access to clean water has dropped from 36% to 17, and 5%.

The image generated is that the district experiences more below RDP standards services than they do above RDP standards services. The district is faced with a mammoth responsibility of providing water and sanitation to many villages that depended on boreholes and rivers in the past. Many of these boreholes have dried up while river water is not good for human consumption (Sekhukhune District Municipality, IDP 2017/18). As we look at the picture and what the document (IDP) is depicting, it is the true reflection of the situation on the ground because indeed there is not enough water to supply the residents and indeed the outcry of the community is true because they really do not get water on a daily basis.

4.4 Assess the Satisfaction of the Community on the Municipal Water Services

4.4.1 Are you experiencing water cut-offs in the area?

The finding from the interviewed participants reveal that 60% of the participants are experiencing water cut-offs in their respective places and 40% indicate that there is a shortage of water, let alone the cut-off. The following are the responses from the participants interviewed during the face-to-face interviews:

- “yes there is a water cut off in our area especially when the Institution is repairing and maintaining their system and the problem is that the personnel took long time than expected” (Ward committee 20 July 2019)
- “we normally do water cut offs as and when we do replacement of pipes, when the pump machines are broken down and also when there is a leakage that need fixing” (Official, 20 July 2019)
- “I can’t say there is a cut off because we don’t have reticulation here. We only rely on the ponds and borehole that was there already” (Water committee 20 July 2019)
- “sometimes we go for a month without getting water and only get told that they are waiting for a pipe or valve from service provider to be delivered” (Water forum member 20th July 2019)
- “What we do as the official is that we normally issue out notices and media statements to alert the end users about the water cut offs and we also have a turnaround time to resolve each problem or challenge” (Official 20th July 2019)

In summary, the finding highlights that there is a water cut off from the municipality and the participants agree with one voice, that they experience water cut-offs in the municipality and this normally happens when the municipality is fixing some pipes, when they replace pump machines and submersible pumps for the boreholes. The municipality is also aware of some of the water cut-offs and some are just done when there is cable theft in some areas but communiques are issued to the public as and when there is that challenge. In terms of the IDP of the Municipality, the turn-around time for the fixing of minor challenges is three days or less and in some instances, where the breakdown

needs serious reworking, it takes months, but the Municipality has a contingency plan of relieving communities through trucks and water tanks.

4.4.2 Are the communities satisfied with water services delivery?

The participants interviewed are dissatisfied with regard to the water provisioning because both the officials and community members echoed the same sentiments because from where they are seated, there is a general problem of water, both in the municipality and the country. 100% of the participants interviewed agree that water is a problem in Makhuduthamaga Local Municipality and that is the reason they are not satisfied with the water provisioning. The following are the extracts from the participants who were interviewed on a one-on-one basis:

- “argues that hence they have this many schemes of water in the municipality, still there is a shortage of water because the very same schemes are too dry because there is no rain to fill the schemes or dams” (Ward councilor 18 July 2019)
- “Not enough water, there are lots of illegal connections, the established water response team not functional, no equipping of borehole at Madibong village” (Ward Committee, 22 July 2019)
- “the municipality provides water services at Makhuduthamaga Local Municipality area using these schemes and boreholes which are the main sources of water in Makhuduthamaga Municipality and they are not sufficient to cater for all the community of Makhuduthamaga” (Official 23 July 2019)

So the feeling is that all participants (Officials and ward councillors, ward committees) acknowledge this national crisis and their wish is to see the municipality exploring all the avenues of the water schemes around the area of Makhuduthamaga to provide them with water. Therefore, there is a need to unlock the De Hoop dam water and commission the bulk pipeline from Ga-Malekane to the Jane Furse Megalitre reservoir. In terms of the municipal bye-law, it is spelt out categorically that no one must tamper with the municipal connection pipeline and it is very clear that any tampering or vandalism must be reported to the law enforcement agency or regulation officer. So, it is very important that these illegal connections that are hampering water provisioning should be known and be cut because they are wasting a lot of water and too much water is unaccounted for.

4.5 Suggestion by participants on how to improve water services delivery

4.5.1 What should be done to improve water service?

In this section, respondents were asked to share their views on the strategies and approaches which can be followed to improve the water service delivery in Makhuduthamaga local municipality. In 2006, the district municipality commissioned a study into the water table in all its municipal areas, including the Nebo Plateau. The study revealed that the district municipality has no reliable water supply underground. Despite all these findings, the municipality continues to rely on boreholes as one of its water sources. The majority of water pumps from these boreholes are damaged because they cannot pump sufficient water from underground.

De Hoop Dam is one of the interventions that was built to relieve the entire Sekhukhune District Municipality, including Makhuduthamaga Municipality. When the former president launch the project in March 2014, he confirmed that 80% of the water from the dam would be used for mining and agriculture. Of the remaing 20%, 10% would be used by the Capricorn district municipality. The remaining 10% would be shared among the Sekhukhune residents through Laballelo and Lepelle northern water with 5% share each. The future plan is to connect the De Hoop dam into the grid to complement the existing water sources.

The Department of Water and Sanitation is responsible for the operation and maintenance of Dam and to ensure that water reaches the communities around the Dam on water provisioning. The challenge now is that the purification plant that was built to purify the water there is too small to provide the villages with potable water. And the other issue is the Eskom transformer that is forever not functioning. There is a need to increase the Water purification plant to allow more water to be purified and be supplied to the nearby villages. Sekhukhune District Municipality as the water authority should ensure that reticulation of water pipes are properly placed and connected to reach all the villages that are having water problems. Both Department of Water and Sanitation and Sekhukhune District Municipality should allocate more budget for water provisioning and increasing the capacity of the Malekane Water purification plant and for reticulation.

The findings from interviews highlights that the municipality should prioritise areas such as budget constraints, increasing the capacity of dams and reservoirs, skill the personnel, improve the monitoring system, unlock De Hoop dam water to feed the people.

- “the major challenge for water service authorities is not lack or shortage of funds, but rather lack of capacity to manage the utilization of the available funds” (Ward Councillor, 23 July 2019)
- “Improve the level of communication between relevant stakeholders or authorities, this include Makhuduthamaga Municipality, Lepelle Northern Water and community” (Water Committee 20 July 2019)
- “The Municipality must hire qualified personnel that will make it simply to accelerate service delivery in the area of Makhuduthamaga” (Water forum member, 22 July 2019)
- “The institution must create a war room on service delivery and meet every week to track challenges and those that are doable should be fixed immediately to avoid community protest” (Ward committee, 22 July 2019)
- “the municipality should install telemetric to detect water loss or leakages as and when there is a breakdown or leakages on the reticulation system” (Official 23 July 2019)
- “We must encourage the people to pay for the services they receive from the Municipality so that the institution can improve on revenue collection that will in turn assist for sustainable services” (Ward committee, 22 July 2019)

On 29 September 2010, the Sekhukhune District Municipality had its water and sanitation bye-law gazetted in the provincial gazette extraordinary, no 1844. Section 88(1) of the bye-law provides that water service provided for by the municipality must be paid for by the consumer at the prescribed fees for the particular category of the service provided, notwithstanding the fact that Makhuduthamaga Local Municipality households can be defined as poor/indigent - where the total income is below R1, 500 per month. At present, approximately 79% of the households in Makhuduthamaga Municipality fall into this

category. These are the households to which Free Basic Water (FBW) must be supplied and to whom the Equitable Share subsidy applies.

Makhuduthamaga Local Municipality is a rural municipality and the majority of the residents depend on grants for survival. It has many indigents. The people rely on government services that they receive for free and they do not having water meter that are connected to the household. They receive water from the communal stand as per the RDP standard. The municipal officials confirm that Makhuduthamaga municipal area is 100% rural, dominated by indigent beneficiaries. The Sekhukhune District Municipality has the following water sources or schemes:

- Boreholes that were drilled by the municipality to augment the schemes
- De Hoop Dam is the recent built dam which can bring the relief to the struggling water supply in the entire district including water supply in the Makhuduthamaga local Municipality"

4.5.2 Legalise the Illegal connections

Both the municipal officials and community members acknowledge that there are illegal connections in the area that hamper water supply and the only solution that they can do is to legalise these and put meters into every household that has connected illegally and make them pay for the water.

The municipality is not doing enough in terms of water provisioning and this has caused the community to organise themselves and connect themselves with pipes from the main water pipeline to their households. The ward councilor of ward 19 confirmed that their main challenge is the illegal connections that are taking place in the ward. The more the water is connected illegally, the less water will reach other parts of the municipality. This has a negative impact on other villages to receive enough water because more water is lost and unaccounted for. Some villagers get alternative sources of water from the streams and valleys. One participant indicated that:

- "Mashabela, Machacha, Mohelere and Phushulang (ward 24) we not getting water as expected. We rely on a Pond and sometimes water from the rain."

Figure 3: Community Members connecting water illegally from the main pipe

4.5.3 Maintenance of Old and Dilapidated Infrastructure

All interviewed, including the municipal officials, confirm that the maintenance of the current infrastructure is a major reason why the area has this challenge of water provision. Water committee members confirm that there are leaking pipes unattended for long periods of time. Municipal officials confirm that they do not have systems to monitor and detect burst and/or leaking pipes. The municipal officials further confirm that they only rely on the water committee structures in the affected ward and only then can they respond.

The other reason cited by municipal officials is that the municipality has inadequate operators and in this regard, they rely on the services of volunteers in the community whose service is unreliable for they do not receive any payment. Again, the volunteers have no skill to plan the operation.

The municipal officials also attributed poor maintenance as a result of budgetary constraints since Sekhukhune as a rural district municipality receive 100% of its budget from national treasury through grants. The municipality need to have oversight on all the existing and old infrastructure and put enough into the budget to fix them and replace the old broken pipes with the new pipes that will keep the infrastructure in good condition and save a lot of water. We need to upgrade our systems to be in line with the current technological epoch. One participant indicated that they needed to do total overhaul of the old pipes from the reticulation and put new ones that will save them lot of water. Some Participants highlighted that there is a need to hire additional staff, particularly those who have technical skills to assist in the delivery of water services and bring about solutions to the crisis.

4.5.4 Enforcing the Municipal Bye-laws

On 29 September 2010, the Sekhukhune District Municipality had its water and sanitation by-law gazetted in the provincial gazette extraordinary, no 1844. Section 88(1) of the bye-law provides that water service provided for by the municipality must be paid for by the consumer at the prescribed fees for the particular category of the service provided**.** The ward committee members interviewed argued that the municipality has no water use by-laws and as such, they are not paying for the use of the water supplied. The municipal officials confirm that Makhuduthamaga municipal area is 100% rural dominated by indigent beneficiaries. Water is provided on the RDP standard. The following picture depicts the municipal officials for operation and maintenance fixing the pipe.

Figure 4 Municipal officials doing maintenance of the old pipes

4.5.5 Strengthening the Monitoring System

Both the community and municipal officials agree that there is a lack of monitoring of water projects, and this has cost the municipality a lot of money to pay for services or projects that are not of high quality. One of the senior managers confessed that there is poor monitoring of projects because they do not have enough personnel or project managers that can do the project monitoring from its inception phases. The contractors do as they please because they have noticed that we do not have personnel. One of the participants indicated that the problem is caused by old and dilapidated infrastructure in some of the water sources or schemes, for instance, the pump station is not functioning properly.

4.5.6 Improving Project Management

This is one of the 25 Megalitre water project reservoirs that has not been completed. The reservoir was constructed in Madibong village ward 19, of Makhuduthamaga local

municipality, it was meant to store water from the De hoop Dam. The reservoir will then supply the Nebo plateau area which covers the whole of Nebo and Hlogotlou areas. The picture below was taken during the field observation at Madibong village, Jane Furse.

Figure 5: Megalitre reservoir at Jane Furse

Only municipal officials confirm that there are thefts of cables and pump machines at most pump stations. Again, they confirm that some infrastructure is vandalised during community protests. One of the participants said that some water pipes in the area were clearly broken and water from the sump above ground appears contaminated and the residents have described it as muddy with floating particles of dirt visible. The other participant said what is happening here is terrible, you can't even wash your white clothes because when you wash them they come out brown. And again we drink dirty water with the animals. We can't do anything but to rely on unclear water sources that led to a rise in diarrhea.

Despite all the challenges mentioned above, the municipality is making serious strides to ensure that the water service delivery challenges are resolved in the near future. The following are the municipality's interventions to curb the water services challenges
The Sekhukhune District has prepared a Water Services Development Plan (WSDP) that was adopted in 2005 and updated annually. The WSDP is currently being implemented and will be reviewed on a yearly basis. The District has also finalised its section 78 process and is presently implementing the outcomes of that exercise.

The raising of Flag Boshielo Dam by five meters has been completed by the Department of Water and Sanitation. The De Hoop Dam has also been completed to increase the District's capacity to provide water to its communities. These two dams will improve the state of water provision in the District and these will eventually increase tourism and other development opportunities in the area. The District has developed a Community Water Supplies Master Plan. This enables the District and its implementing agents to achieve its WSDP objectives. The intention is also to investigate alternative technical options for supplying specific areas with water, and to ensure co-ordination and implementation of water supply infrastructure. Early findings of these studies reveal that groundwater is a major water resource for most Sekhukhune households – and will continue to do so in the future. The following water sources are found in SDM - ground water, wells, rivers, pools, dams, e.g. Flag Boshielo.

Significant budget is needed to assist the municipality of Makhuduthamaga to increase capacity of the existing schemes because indeed the capacity is too small to cater for all the villages in that municipality. And again, more boreholes are needed in areas where water is not available at all. The municipality must make communities pay for the use of water and it is the responsibility of the municipality to put the systems in place and start billing the beneficiaries. Firstly, they must enforce or make people aware that they will start paying for the water service they receive. Some participants indicated that they are willing to pay for rates and taxes provided that the municipality can promise them that they will provide water on a daily basis. Others stated that:

- "Lack of funding of other projects is common problem" (Ward councilor, 23 July 2019)

- “I think we don’t have enough resources to make ends meet and we try to use our experiences to let things happens” (Official, 23 July 2019)
- “Sometimes people misunderstand issues, they see the output that we had and they think if they manage to do 1,2,3 then they can still manage without no staff, whenever that is not the case, so the thing of staffing need to be looked at (Manager, 23 July 2019)

The bye-law on water is very clear that any person using water should pay a certain amount of money to help the municipality on the cost recovery measure so that the municipality can supply a sustainable service without interruptions.

4.5.7 Improving the Communication

All the participants mentioned the lack of communication as a problem that caused the community unrest.

- “communication is terrible in our municipality, no updates, no information sharing” (Official 24th July 2019)
- “I think communication is terrible amongst all of us” (Ward committee 23 July 2019).

Communication is the life blood of every organization; without it the organisation’s objectives will not succeed. The management and staff should strive to communicate with the communities to keep the residents informed about the new developments.

4.6. Conclusion

This chapter focused extensively on the discussions, presentation of data and interpretation of findings. The discussion and presentation of data was guided by the data collection instruments aligned to research objectives in chapter 1. Generally, there were issues of insufficient water, theft of infrastructure, poor operational and non-implementation of the water service bye-laws, among others. The next chapter presents the summary, recommendations and conclusion based on the findings and interpretations of the qualitative data.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

The previous chapter dealt with the analysis of data collected during the research study. This chapter presents the summary, the conclusions and recommendations for further research in the delivery of water services. The primary objective of the study was to determine the factors that influence water service delivery challenges in Makhuduthamaga Local Municipality, Sekhukhune District Municipality, Limpopo Province. The study has revealed that indeed there are several operational challenges in the locality of Makhuduthamaga and people buy water, and some rely solely on the boreholes, rivers, and streams for survival. The secondary objective was to assess the satisfaction of the community on the municipal water services delivery; the third objective was to make recommendations to improve the state of water service delivery in Makhuduthamaga Local Municipality.

The study covered the following research questions:

- ✓ What are the factors that influence water service delivery challenges in Makhuduthamaga Local Municipality?
- ✓ What is the extent of satisfaction of the community on the municipal water service delivery?
- ✓ What possible measures should be put in place to improve the state of water service delivery in the municipality?

Water sources in Makhuduthamaga Municipality that are providing water

- ✓ De Hoop dam
- ✓ Vergelegen Dam
- ✓ Flag Boshielo
- ✓ Boreholes
- ✓ Nkadimeng dam
- ✓ Marishane water scheme

The content of this chapter summarises the main study findings and the extent to which it has answered the research questions. From those findings, some conclusions and recommendations for action are made.

5.2 SUMMARY OF CHAPTERS

5.2.1 Chapter 1 Introduction, Background of the study

The introduction of the topic was introduced and the background of the water service delivery challenges well-articulated. We all know that water is a basic need and it is a limited resource around the world, as South Africa is part of the world, it is not immune from suffering the lack of the very same resource that the world population is facing on a daily basis. So, the study focused on the Makhuduthamaga Local Municipality, Sekhukhune District Municipality, Limpopo Province, South Africa. It was discovered that Makhuduthamaga Local Municipality is experiencing water services delivery challenges and as such, there was a need to research the issue at hand and provide recommendations and solutions that will help the Municipality to overcome this predicament. And even some documents such as IDPs and annual reports confirmed that the Municipality has serious shortages of water despite the water schemes that are there to supply water.

5.2.2 Literature review

Relevant scholarly works, textbooks, and journal articles on water service delivery in the local sphere of Government were scrutinised for additional knowledge and insight and to put more impetus into the research study. Some literature was read and reviewed and international scenarios were examined through the United Nations reports and conferences, National laws and policies were also reviewed; lastly the local policies and laws that govern the local government and water policies were visited and they confirm that indeed, water is a scarce resource that needs to be saved and used sparingly. The United Nations international conference on the Environment and Development in 1992 adopted a programme of action to provide the poor with access to fresh water and sanitation for sustainable living. And again the United nation Sustainable Development Goals No. 6 echoed these sentiments by saying we should provide safe and clean water to every household and a universal access to potable water and sanitation by the year 2030.

5.2.3 Research Methodology

The research method used was a Qualitative one as it yields a mass of material, easy retrieval for later detailed analysis was done. The researcher used field notes, transcriptions and audio recordings. Notes were made in the field based on the conversation and observed information. These notes were typed and stored directly after each interview and observation sessions. In addition, notes on the non-verbal cues and physical circumstances were written down during the interviews. The field notes formed the core of the audit trail and helped to ensure data generation and analysis (Schwandt, 2007).

5.2.4 Chapter 4 Data Analysis and interpretation and presentation of findings

Data was analysed through a qualitative procedure and the use of steps helped to analyse the data (Creswell, 1998) - it includes:

a) Collecting and managing data

- The individual interview was conducted in English and the vernacular
- The researcher took notes and used a voice recorder
- The researcher transcribed the inerviews personally

The researcher read and classified the data through coding and categorisation of themes. The codes originate from the research literature, previous studies, and interview schedule (Gibbs, 2007). The data was interpreted, and the findings were presented using texts and textual quotes which consists of ideas and words from the participants.

5.3 SUMMARY OF THE KEY FINDINGS

5.3.1 To determine the factors that influence water service delivery in the local municipality

The findings are that the community is not receiving water every day, as expected, while some villages get water once a week and others get water on a rotational basis. The sporadic water supply has a far more severe effect on poor households. The community often rely on the water from the rivers and streams because the municipality is not providing this. The community does not have water connected to their households and they only rely on the stand pipes erected 200 metres away from their households because the municipality is applying an RDP standard in terms of the White Paper on Water and

Sanitation Supply that says the basic water supply is a minimum of 25 litres per person per day or 6000 litres per household of eight people per month within a maximum distance of 200m from the dwellings. Poor monitoring of infrastructure by the municipality hampers the delivery of a water supply. Lack of maintenance is also an issue that needs to be addressed by the municipality. The other factor is the lack of water sources and unreliable rainfall. There is a lack of skilled personnel to fix water crises in the municipality and communication is very poor.

5.3.2 To assess the satisfaction of the community on the municipal services delivery

The community of Makhuduthamaga is experiencing water cut-offs from the municipality when there are issues or challenges of stolen cables, water leakages and also technical problems from the plants and water treatment works. The community is dissatisfied about the water cut-off that take a long time before water is restored. The turn-around time for a water cut-off is not known to the community and this makes the community restless and they end up marching to the municipal offices to demand water.

Both the community and the residents have a common outcry about the illegal connections in their area. They cause a lot of water loss and some reservoirs cannot be filled due to this challenge. The community is complaining about the laziness of some officials and some personnel are not skilled to do the work efficiently. Maintenance of infrastructure is a serious challenge that needs to be looked into. In 2008, the South African government started the Blue Drop project to address the problem of monitoring and reporting on water service quality.

5.3.3 To make recommendations to improve the state of water services delivery in the local municipality

The municipality should prioritise their budgeting of projects and align them according to the needs of the communities; this will help reduce the community protests. The municipality also needs to hire the correct personnel with relevant water skills to deliver the services to the people. It is also important for the municipality to improve their turnaround time as and when there are breakdowns in the infrastructure. Participants

have advised that the municipality should improve the communication channels between them and the municipality by establishing water management committees within the different areas to support the operations. The municipality should also look to address the water infrastructure theft by hiring security personnel to safeguard the property.

The findings from the interviews and the literature indicate that the water services challenge in Makhuduthamaga Local Municipality is caused by the lack of water sources in the municipality, sporadic water supply to the communities and this angers the communities that then resort to some form of violence to get the attention of the officials. The technical challenges on the side of the officials and lack of necessary skills in the field of water also exacerbate the situation.

5.4 CONCLUSION

The findings from the interview and the literature review indicate that the following are some factors that led to service delivery challenges in Makhuduthamaga Municipality that were discovered during the research study: This answered the research question 1, what are the factors that influences water service delivery in Makhuduthamaga Local Municipality?

- Water service authority

The study has found that Makhuduthamaga is neither a Water Service authority nor Water services Provider. These functions were assigned to Sekhukhune District Municipality by the Department of Water and Sanitation (Makhuduthamaga Integrated Development plan, 2017/18). The Municipality has failed to deliver the water services to the local municipality and this is the reason why some communities of Makhuduthamaga are not receiving water because the district is focusing on all the local Municipalities under its jurisdiction. The water service delivery operations are problematic and water services delivery is sporadic and unreliable.

- Illegal connections

The challenges faced by the Municipality and the Department of Water and Sanitation are the illegally connections that are done by the communities in the quest to get water in

their yards. Gallons of water are unaccounted for because some are lost due to the illegally connected pipes that are forever leaking.

- Theft and vandalism

Some water pump machines do not operate because copper cables are stolen by thugs and during the community protest, some infrastructure has been vandalised by angry mobs. The municipality and community are well aware that there is a tendency to violence and they damage and destroy property as and when they need other services.

- Corruption by municipal officials

Sekhukhune Times on 19 September 2019 reported two things which are important for this study.

One: they reported that the communities at Makhuduthamaga are vandalising water infrastructure in their demand for water.

Two: the Sekhukhune Municipal Manager was put on special leave for allegations of fraud in the awarding of water and sanitation tender projects.

Participants allege that there is corruption taking place in the municipality and that is why they are not receiving enough services from the municipality and that is the cause of other projects not being completed by the contractors.

- Inconsistent water supply

The inconsistent water supply is as a result of the sporadic mushrooming of new settlements that are built in areas demarcated for development. This has made the communities dissatisfied.

The study dealt with research question 2, “What is the extent of satisfaction of community in the municipal water service delivery?’’ The study found out that the community is dissatisfied in the manner that the municipality is providing water to them. They have indicated that the turn-around time for maintenance is very worrying and poor. The personnel are not equal to the task of providing water services and this causes a lot of frustration in the community. Project monitoring is very poor; that is why some projects are incomplete and no one has been taken to task and no consequence management has been done to employees. Community members are dissatisfied in terms of communication with the municipality.

The study has achieved its intended purpose as it has addressed the main problem which was to investigate water service delivery challenges in the area of Makhuduthamaga Municipality. The study has proven that indeed there is a lack of water in the area of Makhuduthamaga Local Municipality. It has been indicated that the entire area is dry and does not have water sources that have enough water to cater for the community of Makhuduthamaga Local Municipality. The following should be done to minimise water service delivery challenges as per the interviews with the participants; the participants indicated that the municipality should address the water infrastructure theft and curb all the existing illegal connections in the households. They further indicated that there is a need to reskill all the personnel so that they become more efficient and relevant to the changing technological advances. Participants also indicated that communication is the life blood of every organisation and it should be effective and reliable.

5.5 RECOMMENDATIONS

The Municipality has established a war room to deal with all the challenges that face the institution and they meet every week to trace and resolve all the water related matters such as monitoring, maintenance and operations. The institution has a fully-fledged infrastructure, they have improved the response time for any water breakdown situation. They need to upgrade the water treatment work technologies with advanced machinery. The last objective of the study was to make recommendations and strategies for ensuring the effective and efficient water service delivery in the communities of Makhuduthamaga Local Municipality.

The study proposes the following as strategies and recommendations as coming out of the research participants. The need to strengthen operations of the maintenance of water infrastructure thereby ensuring that the communities obtain water on a regular basis. Focused attention should be placed on ensuring that the municipality attracts skills, especially in the Department of Infrastructure and Water Services. Improving revenue generation initiatives by focusing on identified pilot sites especially areas where water is being reticulated on a daily basis should be undertaken.

Contractual relationships with Lepelle Northern Water to ensure that the big schemes such as De Hoop, Flag Boshielo, Mooihoek, Moutse Bulk and Nkadimeng that will be part of the contract can be operated effectively and efficiently should be established.

The municipality should procure many water tankers to add to the existing ones because water tankers have been seen as the most favourable alternative to supply water. The future plan is to connect the De Hoop dam into the grid to complement the existing water sources. The institution must address the infrastructure theft, conduct an infrastructure audit to inform the basis for investment in the municipality. Key to that is to refurbish existing infrastructure to reduce water loss. Again, the Municipality should invest in the operations and management system to prolong the life of the infrastructure. It is also imperative that the municipality should invest in the development of boreholes and other groundwater sources to cater to the communities of Makhuduthamaga municipality. The need for public education or awareness for water conservation and management, especially at household level, is necessary to make recipients aware that they should use water sparingly. There is also a need for regular monitoring of water source quality and sources in the entire municipality. The institution should do regular maintenance of water supply systems, including metering equipment to reduce the level of unaccounted water.

The municipal administration should also invest in water harvesting technologies and facilities such as water conservation techniques, borehole drilling and other water infrastructure consistent with climate change. This will allow the municipality to address the adverse impacts of climate change and related water shortages.

5.6 Limitations and Areas for further study

The research was limited to the Municipality of Makhudtuthamaga Local Municipality, not the entire Sekhukhune District municipality and the research method used was only a qualitative research method. Research method may be understood to constitute one of the central pillars of the research methodology. The choice of an appropriate method was important to the success of the research. Bryman (2004) defines a research method as a technique for collecting data. The study adopted and used a qualitative research method.

Collodel, De Beer and Kotze (2012) describe the qualitative approach evolved as recognition of the uniqueness and meaningfulness of human behaviour grew. The emphasis of this approach was on people and their constant interaction to make sense to their own world. The research participants in this approach take the centre stage of the research and determine the research.

Whereas the research primary objective was to investigate the water service delivery challenges in the local Municipality of Makhuduthamaga Local Municipality, the following fields, or areas of study, are recommended for further research because they could not be covered by this study:

- There is a need for local municipalities to be given powers and authority to manage water services.
- The improvement of potable water to reach Blue drop status
- The future researchers can focus on mixed method or both Qualitative and Quantitative studies

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APPENDIX A: SEMI-STRUCTURED INTERVIEW SCHEDULE FOR PARTICIPANTS

A. Biographical information

1. Age :
2. Gender:
3. Educational Level:

B. Water service delivery challenges?

4. Do you receive water on daily basis?
5. Do you pay municipal services? .
6. Do you have yard connections in your area**?**
7. How many litres of water do you get per week?
8. Any communal standpipes next to households?
9. Are you a resident of Makhuduthamaga Local Municipality? How long have you staying in this municipality?
10. Who is responsible for water services delivery in Makhuduthamaga Local Municipality?
11. Are the responsible people doing enough to ensure water availability?
12. Does the municipality provide enough water supply to all the villages in Makhuduthamaga?.
13. What are the main water problems the Municipality is facing in different villages?
14. Satisfaction of Community on water services
15. Are you experiencing water cut off in the area?
16. How is the water cut off addressed?
17. Are the community members satisfied about water services delivery?
18. What can be done to improve water service delivery in the Municipality?
19. What should be done to improve water services in Makhuduthamaga Municipality?
20. Are there water committee forums in the area and what is their role?

APPENDIX B

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TURFLOOP RESEARCH ETHICS COMMITTEE

ETHICS CLEARANCE CERTIFICATE

MEETING:	4 July 2019
PROJECT NUMBER:	TREC/132/2019: PG
PROJECT:	
Title:	Challenges in The Delivery of Water Services in Sekhukhune District Municipality: A Case of Makhuduthamga Local Municipality.
Researcher:	PK Moagi
Supervisor:	Dr AA Asha
Co-Supervisor/s:	N/A
School:	Economics and Management
Degree:	Master of Development in Planning and Management

PROF P MASOKO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

Note:

i) **This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.**

ii) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.**

iii) **PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.**

Finding solutions for Africa

APPENDIX C: LETTER OF PERMISSION TO CONDUCT THE STUDY

PO BOX 255

Jane Furse

1085

The Municipal Manager

Makhuduthamaga Local Municipality

Private bag x 8611

Jane Furse

1085

Dear Sir/ Madam

SUBJECT: REQUEST FOR CONDUCTING RESEARCH AT MAKHUDUTHAMAGA MUNICIPALITY

My name is Moagi Percy Kapudi, I am a resident of Dichoeung village, and I am currently working at the Sekhukhune District Municipality as an Events Management Officer.

I am currently furthering my studies and registered for a Master of Development Planning and Management Studies in 2017 with the University of Limpopo. My student number is **201735076.**

The topic for my research is based on the "*Challenges in the delivery of water services: A case study of Makhuduthamaga Local Municipality, Limpopo province*". As a resident of Makhuduthamaga Local Municipality, I have seen it fitting to investigate the causes of water services challenges in the area. Water shortage is a serious challenge in the municipality.

Your positive response will be appreciated

My Contact numbers are: **082 2577 856 / 072181 5590**

Yours faithfully

Mr Moagi PK **Date:**

APPENDIX D: LETTER FROM LANGUAGE EDITOR

CONFIRMATION OF PROOFREADING

This serves to confirm that I have proofread this research report and have made the necessary corrections and emendations:

CHALLENGES IN THE DELIVERY OF WATER SERVICES IN SEKHUKHUNE DISTRICT MUNICIPALITY: A CASE OF MAKHUDUTHAMGA LOCAL MUNICIPALITY

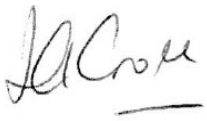
by

PERCY KAPUDI MOAGI

I have been proofreading articles, Honours, Masters and Doctoral dissertations, research reports and theses for the past 16+ years for, *inter alia*, the following institutions: University of the Witwatersrand; GIBS; University of Cape Town; Milpark; Mancosa; University of Kwazulu-Natal; University of Johannesburg; Unisa; Tshwane University of Technology; University of Limpopo; Stellenbosch; Henley Business School, and, more recently, the Da Vinci Institute.

I have also undertaken proofreading for publishers, such as Oxford University Press and Juta & Company, companies, institutions and non-governmental organisations.

I have a major in English, and excellent knowledge of Afrikaans.



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Date: 14th August 2020