



**The effect of water scarcity on health and development: The case
of Lomanyaneng and
Majemantsho villages in Ngaka Modiri Molema District, North
West**

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Development by Coursework and Research Report**

By

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March, 2017

DECLARATION

I, Nonkululeko Felicia Lolwana hereby declare that this research report is my own work and that it has not previously been submitted for any degree at this or any other university.

.....

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.....

Date

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LORD, YOU ARE WORTHY TO BE PRAISED! NDIYABULELA THIXO-BAWO!

ABSTRACT

Water is one of the key and most fundamental and indispensable natural resource. Without it nothing on the universe will function. Water scarcity is a global reality threatening economic and societal development. The purpose of this study was to explore the perceptions and experiences of community members in Lomanyaneng and Majemantsho villages in the Ngaka Modiri Molema District about water scarcity and its effect on health and development. A qualitative research approach and a case study design were employed during the study. Purposive sampling was used to select participants. The study comprised of thirteen participants: ten community members (five participants from each village; both male and female), the municipality manager (particularly from water and sanitation sector) and two ward councilors (one per ward: Lomanyaneng ward 5 and Majemantsho ward 21). A semi structured interview schedule was used during the in-depth interviews with the municipality manager and two ward councilors, and a focus group guide was used to facilitate the focus group discussions with participants from the two villages. The interviews and the two focus groups were voice recorded during the process of data collection. The collected data was transcribed and analyzed through thematic content analysis.

Key findings revealed that water scarcity have detrimental effects on the health and development of the communities in Lomanyaneng and Majemantsho villages. The Ngaka Modiri Molema District water service delivery was perceived as very poor and is attributed to poor planning, poor water supply, and poor water infrastructure. Recommendations made were the need; to increase communal taps, need for drainage system to recycle water, needs assessment for identification of needs, proper planning and outreach programmes to disseminate knowledge on how to conserve and use water, and constant monitoring of Jojo tanks and inspection of drinking water.

Keywords

Water scarcity, Health, Social Development, Water services, Service delivery, Community participation.

LIST OF ACRONYMS

DWAF- Department of Water Affairs and Forestry

DWAE- Department of Water and Environmental Affairs

HIV/AIDS- Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome

IDP- Integrated Development Plan

NDWA- National Department of Water Affairs

NENA- Near East and North Africa

NMMDM- Ngaka Modiri Molema District Municipality

RDP- Reconstruction Development Plan

RSA- Republic of South Africa

Stats SA- Statistics South Africa

SALGA- South African Local Government Association

UN- United Nations

UNDP- United Nations Development Programme

UNICEF- United Nations International Children's Emergency Fund

WHO- World Health Organization

WRC- Water Research Commission

WSAs- Water Service Authorities

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CHAPTER ONE: INTRODUCTION.

1. INTRODUCTION

Water is a vital resource for survival and to secure good health, thus the availability and access to fresh water are indicators of social development and economic growth. This chapter explains the research problem and rationale underpinning the study, the research questions, research objectives, clarification of concepts as well as the structure of the rest of the research report.

1.1 STATEMENT OF THE PROBLEM AND RATIONALE FOR THE STUDY

Water is declared a universal need and everybody is entitled to access to water. However, despite the achievements of post-apartheid South African government such as broadening water access services to those historically disadvantaged communities, there are still many people lacking access to adequate and safe drinking water in the country (Seekings, 2010). South Africa also experiences less rainfall seeing that it is a semi- arid country and this contributes to the shortages of water which results in the battle of most communities to access drinking water (Mulamattathil, 2014). On the contrary, Blignaut & Van Heerden, (2009) postulate that inasmuch as water supply in South Africa is negatively impacted by climate change, however, it is limited and unequally distributed. Thus (Seekings, 2010) opine that the limited water supply mostly favours the urban population which often have adequate water supply as oppose to the marginalized rural communities.

Research has shown that water distribution is becoming a pressing issue especially in developing areas without sufficient resources to maintain proper water supply infrastructure(United Nations, 2011). Thus President Zuma in his 2010 state of the Nation address stated that South Africa “is not a water-rich country” (Zuma, 2010, p.12). According to the project report reviewed by the Water Research Commission about the South African’s perceptions of their municipal water and sanitation services, 60% of North West Province (NWP) consumers stated that they have experienced water problems at minimum once a month or more often (Slabbert, 2016). With regards to the consumer’s perceptions and experiences about the quality of drinking water, NWP and Mpumalanga had the lowest confidence in their drinking water. Furthermore, both the aforementioned provinces have the least reliable water supply as well as the most negative perceptions of water and sanitation (Slabbert, 2016).

The North West Province (NWP) is made up of four Districts, namely; Ngaka Modiri Molema (NMMD) which is central, Dr. Ruth Mompati, Bojanala Platinum and Dr. Kenneth Kaunda. NMMD comprises of five local municipalities; Mahikeng, Ratlou, Ramotshere Moiloa, Ditsobotla, and Tswaing. Mahikeng is a capital city of the North West Province under the authority of Mahikeng local municipality. According to Frith (2011), the number of population in this local municipality is 291 527 with 84 239 households. In terms of drinking water supplies, the city utilizes both dam water and groundwater. Some areas of this district receive a mixture of both water types when others receive one or the other (Mulamattathil, 2014).

In 2010, 60% of the houses in the NMMD had no access to adequate and healthy sanitation facilities, 36% of the household had no direct access to water facilities, and a 22% of the household had to walk long distances to get water facilities (Ngaka Modiri Molema District Municipality- IDP, 2012-2016). Although 33.3% households have access to piped water in their dwelling, there are 31 villages without access to water supply facilities or experiencing bulk water shortages and have been offered about 233 tanker services as water supply assurance (Ngaka Modiri Molema District Municipality, 2012-2016).

However, most of the community members are still using pit toilets which can be hazardous and contaminate the air and their drinking water since they depend on groundwater. Water has proven to be the main challenge the district has been faced with and it remains an ongoing challenge, thus the district is declared water stressed District Municipality (IDP Review, 2014/15). The residents of Ngaka Modiri Molema District are experiencing water shortages and in some areas, residents experience water cut-offs when others can spend a day or two without water in their homes (Ngaka Modiri Molema District Municipality, 2014-2015). Generally, there is insufficient surface water in the area and rural water supply is heavily reliant on ground water sources (Ngaka Modiri Molema District Municipality, 2014-2015).

Lomanyaneng and Majemantsho villages are located in Mahikeng local municipality within the province of North West (Ngaka Modiri Molema District Municipality, 2014-2015). The villages in this local municipality are classified into wards under the leadership of a chief and the supervision of ward councilors. The demarcation between these two villages is the (main) road whereby Lomanyaneng falls under ward 5 and Majemantsho under ward 21.

The population of Lomanyaneng village is 14 479 people consisting of 3 885 households and 48.8% of those households are headed by females (Frith, 2011). Out of the total number of the Mahikeng local municipality's households, 12, 4% dwellings of this village have piped water inside and 6, 4% flushing toilets connected to sewerage (Frith, 2011). Of the population, 5, 2% have Higher Education and 17, 7% have no income, and the dependency ratio of this population is 55, 6% (Frith, 2011).

As for Majemantsho village, there are 8424 people with 2 345 households of which 51, 8% is female headed (Frith, 2011). In this village, 8, 3 % have piped water 5, 3 % flushing toilets (Frith, 2011). Only 5, 9% of this population obtained Higher Education and 18, 2% have no income and the dependency ratio of this population is 57, 2% (Frith, 2011).

The Ngaka Modiri Molema District Municipality communities have a problem of water delivery. Lomanyaneng and Majemantsho villages in particular, are faced with a problem of water supply whereby communities can sometimes go a day or more without water or if there is water, the pressure will be very low. The municipality installed taps in the village's streets but most of those taps are not operational due to lack of maintenance thus they were vandalized. The reason being the distribution of water to these taps is infrequent, sometimes only once or twice a month. Thus some of the villagers paid the municipality to have water installed in their dwellings yet the pipes to their dwellings are connected to the same pipes on the streets. This also affects them when there is no water or the water pressure is low. Since a lot of taps are vandalized, the municipality supplied the communities with green tankers known as JoJo tanks in replacement of those taps. These JoJo tankers are placed in various places (somewhere in the corner of someone's yard) and the municipality only pours water in those tankers without them being cleaned or changed. Also, these tankers are not monitored and/or secured, therefore, anything dirty (e.g. used condoms) can be thrown inside those unmonitored tankers which can pose health hazards to the community.

To access water from these taps (both on the street and in dwellings) one must load money into a card which is sold by the municipality. The problem is, people's cards are loaded but there is no water. Alternatively, the villagers depend on water supply from privately owned boreholes but also at a cost. Thus the communities are experiencing different challenges in relation to accessing water.

Despite the fact that many studies on water scarcity have been conducted, none has explored the perceptions and experiences of the NMMD villages about the effect of water scarcity on their health and development, in particular, the communities of Lomanyaneng and Majemantsho. Therefore, the reasons for doing this study are threefold. Firstly, the researcher wished to gain insight into why the Ngaka Modiri Molema District Municipality's service delivery is poor despite the fact that it is a constitutionally mandated key obligation to provide access to adequate water and sanitation services to the communities. Secondly, it was hoped to establish whether the community members are participating in the planning process (consulted with, involved in decision-making) by the municipality or ward councilors when they are constructing projects for service delivery. Lastly, the researcher wanted to explore whether community members are generally informed about how the Ngaka Modiri Molema District Municipality operates. It was hoped that the finding of this study might contribute to the limited body of knowledge about the specific challenge regarding water and the risks in terms of health and development in these two villages. It is likely that the outcomes and the recommendations will inform some decision-making in relation to water and help the Ngaka Modiri Molema District Municipality design strategies to provide efficient sustainable water services to the communities under its jurisdiction.

1.2 RESEARCH QUESTIONS

The following questions steered the research:

- 1.2.1 How does water scarcity have an effect on the development and health of the communities of the Ngaka Modiri Molema District in North West Province?
- 1.2.2 How does the Ngaka Modiri Molema District Municipality water and sanitation management deal with this problem?
- 1.2.3 What is the community's involvement in decision-making about water service delivery?

1.3 RESEARCH AIMS AND OBJECTIVES

According to (Babbie, & Mouton, 2009), research objectives are the tasks the researcher intends to undertake in order to accomplish the main aims of the research. Following are the two primary aims of the study as well as the four objectives of this research:

1.3.1 Primary Aims

1. To explore the perceptions of water scarcity as well as the experiences of the community members in Lomanyaneng and Majemantsho villages in the NMMD about the effects of water scarcity on their health and development.
2. To gain a better understanding of the challenges experienced by the municipality in relation to water supply.

1.3.2 Secondary Objectives

The study was based on the following objectives:

- a) To explore the participants' perceptions about the effects of water scarcity in Lomanyaneng and Majemantsho villages.
- b) To ascertain how villagers perceive the water supply and deal with constraints caused by water supply.
- c) To establish constraints faced by the Ngaka Modiri Molema District Municipality in providing water services to the community of Lomanyaneng and Majemantsho.
- d) To discover the level of involvement of the community in decision-making about water service delivery in Lomanyaneng and Majemantsho villages.

1.4 BRIEF OVERVIEW OF THE RESEARCH DESIGN AND METHODOLOGY

The study employed a qualitative research approach and a case study design. Purposive sampling was used to select thirteen participants. These participants comprised of the municipal manager (MM) of the NMMD Municipality, two ward councilors and ten community members from Lomanyaneng and Majemantsho villages (5 from each village). A semi-structured interview schedule was used during the in-depth interviews with the municipality and ward councilors, and a focus group guide used to facilitate the focus group discussions with participants from the two villages. Both interviews and focus group discussions were voice recorded during the data collection. The collected data was transcribed and analyzed through thematic content analysis.

1.5 CLARIFICATION OF CONCEPTS

The following concepts are defined in accordance with the context of the study

1.5.1 Municipality:

It is a geographic area of which is defined as the municipal area in terms of the Municipal Demarcation Act (1998) (Act 27 of 1998), Section 73 (2) (a) of the Local Government.

1.5.2 Ward:

It is a geographic area into which a municipality is divided and represented by a councilor (Local Government, 1998).

1.5.3 Ward councilor:

According to the RSA Municipal Services Act, 32, (2000), a Councilor is defined as an elected person to present the Ward on a council. Therefore, the ward councilor is the chairperson of the ward committee. Ward councilors are seen as the government tool to reach the lowest community as allotted by the government to bring development and service delivery to the communities. Moreover, ward councilor's duties have to adhere to the Principles of Batho-Pele (RSA Municipal Services Act, 32, 2000).

1.5.4 Integrated Development Plan (IDP):

The IDP is a process through which the municipality must prepare a strategic development plan (for short, medium and long term) over a period of 5 years with input from communities. It is a broad plan for each municipality giving an overall framework for development (RSA Municipal Services Act, 32, 2000).

1.6 STRUCTURE OF THE RESEARCH REPORT

This report consists of the following five chapters:

1.6.1 Chapter one: Introduction

The first chapter forms the basis for this report where the research problem is defined; the significance and motivation for doing the study; the questions about the research; the aims and objectives, clarification of concepts also outlined as part of this chapter.

1.6.2 Chapter two: Literature Review and Theoretical Framework

This chapter focuses on the review of the literature regarding this study whereby the discussion includes: water scarcity globally and in South Africa; the effect of water scarcity on health and development.

1.6.3 Chapter three: Methodology

This chapter presents the research design and methodology, study population, sample and sampling, research instrument, methods of data collection and analysis, ethical consideration.

1.6.4 Chapter four: Presentation and Discussion of Findings

This chapter will present and discuss the findings that emerged from the study.

1.6.5 Chapter five: Conclusion and Recommendations

This chapter is the last section which concludes the research report. It describes the main findings, conclusions and makes recommendations in terms of the aims and objectives of the study in order to enhance quality water supply and service delivery to the communities of the villages aforementioned.

1.7 CONCLUSION

The first chapter introduced the study and provided background to the study and the significance of the study. The research problem was outlined by giving the objectives and aims of the study as well as the clarification of concepts. The study also provided a brief overview of the research design and methodology and concluded by providing the structure of the research report. The following chapter will present the literature review regarding water scarcity and its effect on health and development, as well as policies and legislations in relation to water supply. Also, it will provide theoretical framework pertaining to water scarcity and its effect.

CHAPTER TWO: LITERATURE REVIEW

2. INTRODUCTION

This chapter provides an overview about water scarcity globally and in South Africa. Policies and legislations pertaining to water supply are described. The relationship between water health and development is explained. The review goes beyond the search for information and includes the identification and articulation of the relationship between the literature and one's field of research. Literature review also operates as a sounding board to compare the findings in one's own study with those in similar studies.

2.1 THE OVERALL VIEW OF WATER SCARCITY

Water scarcity is a relative concept which can occur at a level of supply and of demand (United Nations, 2011). However, due to various factors contributing to water scarcity, it can vary from country to country and from region to region. Generally, water scarcity is defined at a point at which the aggregate impact of all users interrupts the supply or quality of water under existing institutional arrangements to the extent that the demand by all sectors, as well as the environment cannot be satisfied at all (UN World Water Assessment Programme, 2015). Water scarcity is caused by unfavourable environmental conditions. Furthermore, water scarcity can either be physical or economical (Rijsberman, 2006). As mentioned in the study conducted by Tabane, (2016) physical water scarcity can be a natural course such as drought or it may also be instigated by anthropogenic activities, i.e. pollution of water from the acid drained by mines. Thus physical water scarcity can be referred to as a situation where natural water resources are unable to meet a region's demand (Tabane, 2016). Whereas economic water scarcity is the consequences of economic difficulties impeding effective water supply (Machete, 2011). Some of the factors that heighten water scarcity are; population growth, lack of water resources, climate change, rapid economic development and the most contributing factor to this is unequal water distribution in society (Falkenmark, 1989). Research shows that in some developing countries water can be physically available yet economically scarce (Tabane, 2016). Thus in countries where economic scarcity of water is rife, they experience poor water service delivery (UN-Water, 2006). Notwithstanding the above, one can assume that water scarcity in the NMMD Municipality is caused by both physical and economic water scarcity.

2.2 WATER SCARCITY GLOBALLY

According to the United Nations (United Nations, 2011), water scarcity is a global phenomenon depicting that every continent is already affected. About 1.2 billion people reside in areas of physical scarcity of water (United Nations, 2011). However, 1.6 billion people are faced with the economic water scarcity (United Nations, 2011). According to (Oki & Kanae, 2006, as cited in Tabane, 2016) is highlighted that globally about 2.5% of the fresh water available is appropriate for human consumption. Albeit the world is covered with 70% of water and there are plenty of water resources, however, not all of that water is suitable for use because it is mostly saline ocean water and freshwater only 1%. There is an abundance of research that indicates the year 2025 is an estimated year when water scarcity can possibly impact from the global viewpoint if there are no proper strategies taken (Falkenmark, 1989). Globally, water usage continues to grow and studies show that this is due to population increase universally (United Nations, 2011). As a result, the United Nations estimated that by 2025 about 1.8 billion people will experience absolute water scarcity and 2/3 of the world will be living under water-stressed conditions and this will mostly affect the developing countries (United Nations, 2011). Studies have shown that when there is population growth, the average amount of renewal freshwater available per person begins to lessen (Machete, 2011). Thus, (Kummu, Ward, de Moel, & Varis, 2010) denotes that freshwater is unevenly spread around the world. The majority of countries in the Near East and North Africa (NENA) suffers from acute water scarcity, countries such as Pakistan, Mexico, China, India and South Africa (United Nations, 2011).

2.3 WATER SCARCITY IN SOUTH AFRICA

South Africa is ranked amongst the twenty most scarce water countries globally because of its known low and unpredictable annual rainfall patterns (United Nations, 2011). In South Africa, water is becoming a crucial scarce resource mainly because it is needed for survival of all households and industries need water and electricity for the survival (The Water Wheel, 2016). One can argue that water is vital in preserving life and essential to economic growth and social development as well as for environmental sustainability (The Water Wheel, 2016).

In South Africa, the total surface water available averages about 49 200 million cubic meters annually and it is indicated that about 4 800 million cubic meters originate from Lesotho yearly (DWA, 2010). Thus water scarcity is seen as a great threat as its scarcity instigates other

scarcities such as that of food, human health and sustainable livelihoods (World Health Organization, 2011). South Africa is a water scarce country whereby the demand in other cities already exceeds the supply (The Water Wheel, 2016). Thus it is estimated that by 2025, in South Africa water demand will exceed the availability of economically usable fresh water based on recent usage trends (Department of Water Affairs, 2010). Water is generally a scarce resource in the North West Province of South Africa as well.

Furthermore, the quality of water is also weakening and thus municipalities are not able to sustain wastewater infrastructure and aging water due to the personnel who have no skills (The Water Wheel, 2016). This is because South Africa's water sector faces numerous challenges such as water deficits in an increasing number of water management areas, water pollution and decreasing water quality affecting not only net availability of water but also negatively affects human health, ageing water and wastewater infrastructure, a severe lack of skilled human resources, impact of climate change on water resources, the illegal use of water and the inappropriate use of funds by different spheres of local government (The Water Wheel, 2016). According to Mulamattathil (2014), water as a scarce resource should be protected because of the increasing demand on drinking water, for industrial purposes and irrigation.

Based on a water supply and/or demand, the scenario by the Department of Water & Environmental Affairs (DWAE) showed that by 2025 shortages of water will become rampant 'if appropriate attention is not given to providing more water and managing demand' (The Water Wheel, 2016). South Africa's water quality is said to have deteriorated and the practicality side of it is the bacterial contamination arising not only from poor maintenance of sanitation facilities but also from the livestock defecation inflowing the rivers and streams which if untreated can impact on the health of citizens (The Water Wheel, 2016). Understanding the role the water plays within the lives of communities is very important. Thus it is imperative that attention is aimed at understanding and gaining knowledge of how water scarcity affects the health and development of the society, particularly Lomanyaneng and Majemantsho communities in Ngaka Modiri Molema District.

However, before discussing how water scarcity affects the health and development of the previously communities, is equally important to look at political factors as it also has an impact on water scarcity in South Africa. Moreover, matters concerning the management and allocation

of resources are an essential part of politics. Having said that, the Unrepresented Nations and People's Organizations (UNPO) also emphasised the importance of water within a social and political context by stating in their statement in 2010 that " Human rights coil around water, and one facilitates the other" (UNPO, 2010, p.3). In a study conducted by Jankielsohn (2012) about "Defining Hydropolitics: The politics of water in South Africa", it is highlighted that water like most other scarce natural resources is a growing source of political debate and conflict. Studies show that in South Africa, the current management of water resources is hastily becoming serious political and environmental issues (Jankielsohn, 2012). Thus it can be argued that conflict and political tumult over water is already a reality, predominantly due to failing and/or poor service delivery to many communities of municipalities. However, water related political issues go beyond the subject of service delivery. Literature reveals that as water scarcity rise, the political conversations concerning water related issues will as well go up (Jankielsohn, 2012). The abovementioned shows that there is growing political crisis on the subject of natural resources, in particular water resource management. Inasmuch as water is central to politics at local government level, it is thus frequently being rapidly increased into other spheres such as provincial, national as well as the international politics (Tempelhoff, 2011). Thus Jankielsohn (2012) denote that recently, water is a source of conflict, competition and more of violence in South Africa.

2.4 WATER SCARCITY AND HEALTH

Water is essential for proper sanitation and hygiene which are necessary for human beings health. Thus, water has many functions in the body and for what has been excreted through urine and sweat production, the body relies on the consumption of water to replace what is lost. A variety of communicable diseases in humans is caused by consumption of polluted water (WHO, 2012). Therefore, these diseases turn to produce a population that is unhealthy and unable to work in order to contribute to their development. Provision of clean, portable water greatly enhances the health of a community's status (WHO, 2012). Hunter, MacDonald, & Carter, (2010) indicates that water scarcity is rising globally. Thus, (Motoshita, Itsubo, & Inaba, 2011) emphasizes that water scarcity in various parts of the world results in insufficient access to safe drinking water and this can lead to the spread of infectious diseases by means of fecal contamination of drinking water; water-borne diseases such as typhoid and salmonellosis. Water-borne diseases are caused by pathogens that live in water that humans drink, and the examples

would be bacteria, protozoa, parasites and viruses (WHO/UNICEF, 2014). A lot of these diseases cause gastrointestinal problems like diarrhea. This shows that when the quantity and quality of water consumed are not enough, this poses health risks to people (Hannemann, 2015). Mor & Griffith (2011) highlight that the poor quality of water together with a lack of basic sanitation are the factor in the spreading of diarrhea which is the second biggest contributor to the disease burden in developing countries. Inadequate water in the body may lead to dehydration and this can be a deadly situation (Hannemann, 2015). Dehydration causes various symptoms like; dim vision, muscle spasms, delirium and clumsiness (Kleiner, 1999 as cited in Hannemann, 2015).

Thus WHO (2014) argue that if water is scarce or is of poor quality, it will not only harm individual's health but also impedes individual and community resilience as well lessens their capacity to build effective resistance against various health hazards.

Moreover, inasmuch as water is important for the proper functioning of the human body, its stressed importance is not only to be considered with how much (quantity) water one consumes, however, the quality is of importance as well (World Health Organization, 2011). According to Elliott (2011), water importance in the maintenance of human survival may be measured by the fact that 1.4 million children die annually due to diarrhea. Furthermore, one in five children born in developing countries will not reach their 5th birthday due to contaminated water (Elliott, 2011).

In South Africa, 30% of children's death is due to poor water and sanitation conditions (WHO, 2012). Water shortage may lead to malnutrition and thus may severely be dangerous to children and people living with HIV/AIDS (WHO/UNICEF, 2014). Water scarcity not only weakens the person's health and well-being but also fails the State's capability to deliver services to the affected population (Manamela, 2010). One can argue that water scarcity is seen more severe when it undermines the societal capacity to adapt. Water and sanitation are core to public health and a lot of diseases prevalent throughout the country are generally related to inadequate drinking water supply, poor sanitation conditions as well as limited health education (WHO, 2014).

2.5 WATER SCARCITY AND DEVELOPMENT

Water has various roles wherein one of those is to support the development that will bring about economic growth. Development surpasses economic growth as it also necessitates the improvement of the economic, social and human aspects of people. In order to promote development, it can be argued that people who are affected must be given priority. Hence, according to the (Department of rural development and Land Reform, 2012, p.1), the purpose of development is “not dependent on increased income but subject to increase all human choices regarding access to basic needs and sustainable livelihood”. Various scholars have shown that there is the interrelationship between water availability and development (Matshe, Moya-Maposa, & Zikhali, 2013). In a research conducted by Pretorius (2012), it is highlighted that the Minister of Water Affairs stated that water is a strategic resource not only giving life but is also a mechanism for development, thus it is a must to be at the core of all development plans. The Minister further stated that water availability and management must strongly be an aspect in the development strategies of all sectors (Buyelwa, 2009, as cited in Pretorius, 2012). Matshe et al., (2013) stated that “in the case of South Africa, an evaluation of policy and planning framework indicated that although a basic framework for the basic productive use existed in the country, it was not sufficiently comprehensive or explicit to implement facilitation”.

In South Africa’s rural households, water is not only used for household consumption, alternatively it is also used for productive attainment such as livestock production, bricklaying projects, survival of farming (Manamela, 2010). Water shortages in South Africa impact on crop yields, community livelihoods and thus have an effect on health and social relations as well on development (Mukheibir, 2010). According to Machete (2011), sufficient water plays an important role in the survival of the aforementioned projects. Also, it shows how domestic water is not only used for domestic purpose but for income generating activities as well. An example of income generating activities are hairdressers, car washes, street food vendors and backyard gardening. This can improve the community’s development and change the residents’ lives by creating jobs for the jobless and needy.

Owing to the fact that South Africa is a semi-arid region having a mean annual precipitation lower than the global average. Thus Krishnaraj (2011) states that water scarcity also has a negative influence on economic, educational and developmental activities such as agriculture,

mining, food production, etc. This means that water scarcity restricts productivity of agriculture and, to some degree, industries, thus weakening economic growth potential. For example, in South Africa livestock contributes significantly to food security. According to (Thornton, 2010; Scollan, Moran, Kim, Thomas, & EAAP, 2010) is indicated that livestock account for 33% to 40 % of the worlds' agricultural GDP. Statistics in 2010 indicated that there were; 13.6 million beef cattle, 1.4 million dairy cattle, 24.6 million sheep, 7.0 million goats, 3 million game species-farmed, 1.1 million pigs, 113 million broilers, and 1.6 million ostriches (Scholtz & Palmer, 2013). Furthermore, it is indicated that the gross value of livestock products increased by 185% from 1995 and 2000 to 2006 and 2010 (Swanepoel, Stroebel, & Moyo, 2010) This shows the worth and how water scarcity affects the livestock sector. Also, this is the indication that about 70% of agricultural land in South Africa can be used only by livestock (Scholtz & Palmer, 2013). One can argue that this sector has always been a main employer, however, it is highlighted that the rate of employment has gradually declined since the year 2000 due to drought. Thus this is a primary constraint to development specifically when the country has already run out of surplus water (Turton, 2008).

The economy of the country will hugely be impacted by this phenomenon; in particular, the mining and the power industry such as Eskom (Wassung, 2010), and these are also the most important contributors to the South African economy. Contrary to the aforesaid, it can be argued that water as a scarce resource is unevenly distributed geographically and socio-politically thus it can be a limiting factor in terms of economic growth and social development. However, the Development Bank of South Africa emphasized that the development must be energy and water efficient (Development Bank of South Africa, 2015). Water shortages as well contribute to poverty and cause social hardship which may impede on development (Mwinzi, 2014).

In a research conducted by (Sebola, 2000, as cited in Machete 2012) water scarcity negatively impacted the village of Taaiboschgroet on projects of gardening and brick-making. This is because these kinds of projects demand a lot of water for survival. Also, the backyard vegetable gardens project that some families depend on for survival to reduce poverty are highly affected by water scarcity. This shows how domestic water the development rate is likely to be low in some activities based on water supply for productivity.

Many companies when making a decision about where to make an investment or locate facilities, they consider water resources and give preference to areas where water risks are the lowest. The reason for such a decision is that businesses do not want to run a risk of lack of water availability or supply which may interrupt with the growth and workforce of the business. Thus the lack of infrastructure pertaining to water and sanitation have detrimental effects on the economic growth where is needed most (Chuene, 2012). Also, water scarcity connotes risks for a community's long-term capabilities as well have negative impacts on their competitiveness. This may impact their ability for growth with regards to job creation.

2.6. LEGISLATION AND POLICIES PERTAINING TO WATER

In South Africa, the water services sector is divided into three spheres: 1. National Department of Water Affairs which is the sector leader and a setter of policy. 2. Water Boards; with the primary role to provide bulk water but can also provide operation and retail services through a service level agreement with a municipality (Water Service Authority). 3. Municipalities' role is to provide water services to all stakeholders within their area of jurisdiction. The Constitution also plays a vital role as it ensures the right to adequate water, healthy environment, health services. Sections 24 and 27 of the Bill of Rights in the Constitution specific rights ensures access to sufficient water, an environment not harmful to health and well-being and the protection of the environment from degradation (Republic of South Africa Constitution, 1996).

Based on the White Paper on National Water Resources Policy there was a need of an effort to rectify the corrupt development of water policy and law where the majority of the people in the country experienced unjustifiable inequality in access to water resources (Department of Water Affairs and Forestry, 1997).

2.6.1. National Department of Water Affairs (NDWA)

This Department of Water Affairs is mainly accountable for the formulation and implementation of policy governing water services at a national level. As indicated in the National Water Act No. 36 of 1997, the roles of National Department of Water Affairs with regard to water function comprise the licensing of municipalities to become water service authorities.

2.6.2. Municipalities (The Municipal System Act No. 32 of 2000)

Municipalities are also referred to as local government and are empowered to progressively strengthen local communities, socially and economically in ensuring universal access to services that are affordable (RSA Municipal Services Act, 32, 2000). The Municipal System Act was formulated to guide municipalities in terms of a system that they need to put in place to be in a position to provide services adequately (RSA Municipal Services Act, 32, 2000). This includes community participation and cooperative governance as key in the service delivery process of municipality.

Beneath the Water Services Act 108 (Department of Water Affairs and Forestry, 1997), all water services authorities are responsible for providing water service to communities and businesses within their jurisdiction. They are also obligated to adopt the Integrated Development Plan (IDP) that will enable them to assess the level of development especially in those municipalities who do not have access to the basic needs (Municipal Services Act, 2000). The municipalities are compelled through proper mechanisms and procedures to involve the local communities in the development, implementation and review of the performance of municipalities (Municipal System Act, 2000). According to the Water Service Act (108 of 1997) as Water Service Authority, a local municipality can designate the private sector to supply water and sanitation to the local community (WRC, 2012). Reasons for engaging private sector are, to provide better service standards and the need to overcome water provisioning backlog which may put more burden on the staff of the local authority (WRC, 2012). Municipalities as water service providers are expected to prepare Water Service Plan Development to guarantee efficient and effective affordable, sustainable economic livelihoods and economic development (Department of Water Affairs and Forestry, 1997).

Based on the aforementioned Municipality Act, it can be argued that one of the things that will enable a municipality to respond to the needs of its people is working closely with its community. This implies that functioning of local municipalities so that they can actively influence decisions that will affect them. This view is stated in the RSA Municipal Services Act, 32, (2000) which calls for government that will respond to the needs of the people and hence the development-approach.

2.6.3 *Batho-Pele principles*

Batho-pele, a Sotho translation which means “People First” was adopted in 1997 as a framework to establish a new service delivery ethic in relation to the nation’s constitutional principles which promote the efficient economic and effective use of public resources in a manner that is development- oriented and responsive to the needs of people (Department of Public Service and Administration, 1997). It is an initiative to get public servants to be service accustomed, strive for excellence in service delivery and to commit to continuous service delivery improvement. Furthermore, Batho Pele is a simple and transparent principle allowing citizens to hold public servants responsible for the level of services they deliver. Batho Pele is a way of delivering services by putting citizens at the core of public service planning and operations. Owing to the fact that the principles were developed to serve as acceptable policy and framework about service delivery, the principles are as follows: consultation, setting service standards, increasing access, ensuring courtesy, providing information, openness and transparency, redress.

To discuss a few of the aforementioned principles:

- i. ***Consultation:*** this principle requires that citizens should be consulted about the level and quality of the public services they receive and wherever possible should be given a choice about the services that are offered. In the “White Paper” of Local Government, it is emphasized that municipalities have an obligation to involve local citizens in municipal matters such as planning and policy making and in development programmes.
- ii. ***Service standards:*** citizens have to be told what level and quality of public services they will receive so that they are aware of what to expect.
- iii. ***Information:*** citizens should be given full, accurate information about the public services they entitled to receive. It is vital for public officials to ensure that the citizens of local community they serve they get relevant information regarding the services rendered at all time.
- iv. ***Openness and transparency:*** citizens should be told how national and provincial departments are run, how much they cost and who is in charge. This implies that the municipality must be transparent to the local community they serve and that the community has the right to know activities of their municipality.

2.7. THEORETICAL FRAMEWORKS

Theoretical framework is important for any scientific research. Theories help explain why things happen the way they do (Cloete, Wissink., & Coning, 2006). Systems theory and community participation model shall be outlined to provide a lens through which this study can be understood.

2.7.1. General Systems Theory

General systems theory attempts to integrate frameworks from a diverse range of disciplines. It applies concepts such as structure, boundary, inputs and outputs, to describe and explain the functioning of systems (Zastrow & Kirst-Ashman, 2010). Systems theory aims to achieve a holistic and integrative exploration of events and phenomena (Zastrow & Kirst-Ashman, 2010).

A variation of general systems theory is the ecosystems theory, which postulates that psychological processes are the manifestations of complex interactions between interpersonal, cultural, legal, economic, organizational and political forces (Zastrow & Kirst-Ashman, 2010). According to (Potgieter, 1998) general systems theory enlightens that all systems (micro, macro, meso and exo) are interrelated and interconnected. The functioning of these individual systems is equally important as they all impact the equilibrium of the whole. With regards to this study, the different systems (municipality stakeholder; municipal manager and ward councilors) as well as the community are systems operating at different context. For instance, the weakness or inefficiency of the municipality to supply the communities with water drastically have effect on their health and development and thus impact on systems within and around the community.

Systems theory has been criticized firstly, for not adequately addressing social and power inequalities for their causes (Zastrow & Kirst-Ashman, 2010). Secondly, systems theory at best describes and explains the problems within systems but does not adequately provide solutions to address these (Zastrow & Kirst-Ashman, 2010)

However, there are two main strengths of systems theory, firstly; it allows for a holistic understanding of the interactions between the individual and greater systemic influences, allowing for flexibility in terms of intervention (Zastrow & Kirst-Ashman, 2010). Secondly, systems theory embraces equifinality, allowing intervention targeted at multiple levels (Zastrow & Kirst-Ashman, 2010). That is to say, effective change in one subpart of the system has

implications for the functioning of the greater system. Since the study is interested in the perceptions and experiences of communities of the aforementioned villages, it therefore coincides with the assumption of systems theory which states that psychological processes are manifestation of complex interactions. Thus, systems theory is relevant to this research as it helps in understanding the relationship between the internal psychological process of relevant persons, and external organizational, legal and political forces as well as the communication between all the systems. Furthermore, this theoretical perspective assist this research in exploring and understanding the different systems involved in the supply and delivery of water guiding the researcher in exploring how the various dynamics of each system; the Ngaka Modiri Molema District municipality, the ward councilors and the community members of ward 5 and 21 interact in pursuit of effective water service delivery and participation in decision-making. Therefore, the systems theory helps to provide an overview on how the community's perceptions and experiences can be influenced by the municipality's service delivery.

2.7.2. Community Participation Model

Community participation is an approach rooted in social development and can be traced to diverse cultures across the world (Mohan, 2006). It is central to a right-based approach as they are grounded on common principles and goals (Kotze, 1997). Community participation is associated with empowerment and has respect for and the use of local knowledge (Reid, 2000). As a result, community participation has various definitions. Swanepoel & De Beer (2006), connotes community participation as a process to give communities an opportunity to determine their own destination, in terms of their needs and resources. This means a provision at grass-root level with abilities which could enable them negotiate development delivery systems and be able to take informed decisions in terms of their development needs and priorities (Theron, 2005). This may include people articulating their opinions about the decisions they may disagree with and living with the outcomes of their choices. Thus Lombard (1992) contends that the purpose of community participation is to create opportunities for the community to take part in planning and policy-making, allocation and distribution of resources and the management of services.

Community participation implies consultation and working with not for people (Theron, 2005). This means people will participate and contribute meaningfully to something they feel part of, identify with and associate with their effort. Ife (2002) highlights that community participation in

the development perspective, is an active process whereby beneficiaries influence the direction and implementation of development projects rather than only receive a share of project benefit.

Participation can be viewed as a means for persuading decisions that have an effect on people's lives. Furthermore, it can be seen as a tool for transporting power to the powerless (Meyer & Theron, 2000). Participation is a process enabling grass-root mobilization, which in turn, empowers the vulnerable (Njoh, 2002). In Bridgen's theoretical context, community participation is seen as an instrumental process in which communities influence and become legitimate partners in development initiatives or mobilize for resources (Bridgen, 2004). Swanepoel & De Beer (2006), highlight participation is "a process through which stakeholders influence and share control over development initiatives, and the decisions and resources which affect them".

For the purpose of this research study, this approach is important in influencing community involvement in and over the local decision making process which will reinforce the control of the marginalized over resources. This means, the approach helps shape what can be achieved and how to communicate with local people. Therefore, community participation should not be limited or be limiting as it ought to look into how communities get involved with matters that affects them. Through participation, communities can therefore identify their felt needs which should be met and addressed aptly.

2.8. *CONCLUSION*

From the literature reviewed, it is apparent that water scarcity can affect health and development. This chapter provided overall view of water scarcity globally and in South Africa. Furthermore, policies and legislation pertaining to water supply were discussed as well as the water relationship with health and development. The theoretical framework pertinent to the study was also discussed. The following chapter is going to discuss the research methodology, illustrating how the research was conducted.

CHAPTER THREE:

RESEARCH METHODOLOGY

3. INTRODUCTION

This chapter provides an account of the research process employed to conduct the research study. The research strategy and design, the description of the study population, sample and sampling procedure, research instrumentation utilized methods of data collection and the method and process of data analysis are described.

3.1. RESEARCH STRATEGY AND DESIGN

3.1.1. Research Strategy

A qualitative approach was employed for this study. This approach was chosen for three reasons. Firstly, a qualitative approach is determined by the objectives of the research under study (Denzin & Lincoln, 2011). The central aim of this study was to explore the perceptions and experiences about water scarcity in Lomanyaneng and Majemantsho villages. This included the viewpoint of ordinary people (community members), government officials (the municipality manager and ward councilors). Therefore, the perceptions and experiences of the participants were valued as worthy of exploration. Qualitative research method allows for further exploration and one of the vital characteristics of this approach is the notion of giving voice to the participants and taking into account their experiences of the social context under which the phenomenon is studied (De Vos, Delpont, Fouché, & Strydom, 2011). Secondly, the approach was chosen because it offers the probability of a comprehensive description and richer explanation of complicated problems. Thirdly, qualitative research is about the interpretation of the world of people.

3.1.2 Interpretive paradigm

The Interpretivism concept is central to qualitative research, which refers to the “ways in which individuals interpret their social world” (Bryman, 2015a). Interpretivists believe that reality is the mind of the people and is socially constructed through interaction and as a result its interpretation is based on the definition people attach to the phenomenon in the social context (Denzin & Lincoln, 2011). In this study interpretivism may appear in different ways, for instance, the way in which the municipal stakeholders (ward councilors and municipal manager)

and community members view the problem under study might be different and they are likely to act according to their own interpretation of events. Thus the role of the researcher within this paradigm is to strive to understand participant's perceptions about the situation and this can only be achieved through asking open ended question and probing which enables them to present their views. In the interpretivist paradigm, methods of data collection that are the most common are interviews and observations (Punch, 2013). According to Terre-Blanche et al., (2006, p. 274) "the interpretive paradigm entails taking people's subjective experiences seriously as the core of what is real for them (ontology), try to make sense of their experiences by interacting with them and carefully listen to what they present (epistemology), also make use of qualitative research instrumentation to collect and analyze data (methodology)". Thus, a qualitative approach rooted in the interpretivism paradigm was employed in this study.

3.1.3 Research Design

According to Mouton, (2001) research design "is a plan of blueprint of how one intends conducting a research." The research design employed for the study was a single case study in particular, which means it is not a comparative study of cases (Yin, 2003). A case study is appropriate in qualitative research due to its ability to allow exploration and understanding of complex issues (Cresswell, 2009). Furthermore, it enables a researcher to look at the data within a specific context. (Merriam, 1998, p.21) argues that "A qualitative case study is an intensive, holistic description and analysis of a single instance, phenomenon or social unit". The fundamental nature of case studies helps explain the process and outcomes of a phenomenon through complete observation, reconstruction and analysis of the case under exploration (Yin, 2013). However, according to Gray (2008) a case study has the following limitations; this method is not always accepted as reliable, objective and legitimate. Furthermore, the notions of generalizability and transferability are essential. This refers to the extent to which the findings of the study may be appropriate in a context different from the one in which the study was conducted.

Both of these concepts are suitable in this study because inasmuch as most of the communities in the NMMD are faced with the phenomenon under study, however, the data collected cannot be attributed and be used for other wards in this municipality. Also, a case study normally comprises of small number of participants of which the research findings cannot be generalized

from one particular condition to the other. Similarly, this study comprised of a small cohort of participants. It is also argued that this type of method can be time consuming whereby the researcher may obtain more information covering themes irrelevant to the study (Gray, 2008). Since the research comprised of ward councilors and the manager of the municipality, it therefore necessitated the researcher to first request permission from the office of the Ngaka Modiri Molema District municipality.

3.2. POPULATION, SAMPLE AND SAMPLING PROCEDURES

3.2.1. Population

According to Mouton (2001), a population is a collection of objects, events, or individuals having some common characteristics that the researcher is interested in studying. In qualitative strategies, researchers are searching for small groups of people who have experienced the research topic.

For the purpose of this research, the research population was drawn from the residents of the two villages; Lomanyaneng and Majemantsho under the jurisdiction of Ngaka Modiri Molema District Municipality which comprises of 38 wards. Therefore, the study targeted the residents of two wards only (ward 5; Lomanyaneng village and ward 21; Majemantsho village), ward councilors as well as the municipality manager.

3.2.2. Sample and Sampling procedures

According to Mouton (2001) a sample is defined as individuals who participate in the study and it is from them that data is collected. A sample of this study comprised of 13 participants in total, 10 participants from both wards and two ward councilors responsible for both Lomanyaneng and Majemantsho villages, and the municipality manager. The reason why the researcher used a small sample is due to the fact that, in qualitative research one cannot engage in extensive examination of all the factors as it would necessitate energy and extensive costs. In selecting ten members (five participants from each ward) whose experiences and viewpoints were studied and thus contributed to gain more knowledge, and three key informants (2 ward councilors and the manager of NMMD Municipality) who have an insight into the research topic, purposive sampling was employed. Purposive sampling is the type of non-probability sampling which according to (De Vos et al., 2011) may be used to specifically select participants based on certain criterion in an attempt to best facilitate the purpose of a research study. It can be argued that in

purposive sampling a researcher's selection of a sample tries to make the sample representative, depending on his/her opinion or purpose and thus making the representation subjective (Mouton, 2001). The inclusion criterion for participation was that participants were expected to be the permanent residents of the two villages from the age of 18 years and above (both male and female). The inclusion criterion for municipality officials is that they should be from water supply and sanitation sector. However, the municipality manager was relevant as the NMMD Municipality is a category C municipality and a Water Service Authority (WSA).

The participants were informed about the study in various ways. For both the municipality manager and ward councilors, the researcher wrote a letter to the municipality manager requesting permission to conduct a research. Upon approval of the request, arrangements were made to conduct interviews with the aforementioned participants at their convenient time and place. Since the researcher lives close by the police station, community library, schools and the clinic she distributed invitation letters to all aforementioned areas to invite members of the community to participate in the study. The letters included the aim of the study and highlighted that participation was voluntary.

3.3. RESEARCH INSTRUMENTATION

The research instrumentation that was used to interview the key informants for this study is a semi-structured interview schedule. Semi-structured interviews contain a series of open ended questions (Greeff, 2011). The open ended questions in the interview schedule guided the interview process. Copies of these tools are set put in Appendix E and F. However, the interviewer as the initiator of interview is the main instrument of the study and should be very skillful in interviewing. Also, the types of questions guided by the good interviewing skills are significant to facilitate the collection of relevant information during the study.

According to Greeff (2011), there are number of advantages and disadvantages of employing interviews. To mention a few, the use of semi-structured interview schedule is that, it contains of open-ended questions which allows the researcher to ask follow up questions and provide interviewees with plenty opportunity to express their feelings in their own words (De Vos et al., 2011). Furthermore, interviews enable the interviewee to ask questions in clarifying what was unclear to them. The disadvantage of using interviews is that it can be time consuming, and participants can give socially desirable answers in the face of the researcher. In order for the

researcher to achieve the research goal, the researcher must use probes which assist to keep the discussion on track and make participants expand on their responses.

Focus groups are a qualitative data collection method (Kruger & Casey, 2015), the data is descriptive and cannot be numerically measured. However, a focus group guide as an instrument is a series of questions and prompts for the facilitator to use (Barbour, 2008). This means that a focus group guide serves as a ‘road map’ and/or ‘memory aid’ for the facilitator. Based on literature, it is suggested that the composition of participants in the focus group discussion should consider how people relate to the research topic, socio-economic status, common experiences and characteristics (homogeneity) of the group (Wellington & Szczerbinski, 2007). A focus group of this study comprised of ten community members from the two villages aforementioned, and the instrument utilized was a focus group guide. Kruger & Casey (2015, p. 5) have defined focus group as a “carefully planned series of discussions designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment”. Barbour (2008), defined focus group as a group of interacting individual who have the same characteristics or common interest, gathered together by the facilitator who utilizes the group and its interaction as a way to attain information about a specific or focused issue. In general, the use of this instrument by the facilitator when asking questions of the group allows time for the participants to respond to each other’s commentary. The aforementioned featured the type of focus group in this study.

The advantages of employing this instrumentation are twofold; firstly, the group dynamics can provide useful information that individual data or other data collection would make it difficult to provide (Barbour, 2008). Secondly, also, it is useful in gaining insight into a topic that may be difficult to explore or gather data through means of data collection. The disadvantage among others is that discussion can be dominated or deviated by a few individuals (Kruger & Casey, 2015). Also, data analysis is time consuming and thus necessitates to be well planned in advance (Barbour, 2008).

3.3.1. Pre-testing the Research Instrumentation

Before commencing with data collection, it is important to firstly pre-test the research instrument. This will assist the researcher in determining the potential flaws that may be involved in data collection involving the discussion in terms of time, the length of interviews and

focus group discussion guide. Yin (2013) stated that, piloting the study or pre-testing the research instrument offers the researcher opportunity to refine data collection plans, as well as the type and content of the questions used to collect data before the actual data collection takes place. According to (Turner, 2010), pilot test involves participants who have similar characteristics or interests as those who will take part in the study.

For this study, having two villages, pre-testing was conducted with a selection of two community members (one from each village), a 24 years old male from ward 21 and a 35 year old female from ward 5. Yin (2013) stated that, piloting the study or pre-testing the research instrument offers the researcher opportunity to refine data collection plans, as well as the type and content of the questions used to collect data before the actual data collection takes place. In the pre-test (particularly focus group discussions) both participants had no difficulties in understanding the questions and language used. Since the pre-test were for the same tool thus the duration of interview per participant took approximately 50 minutes. Inasmuch as both individuals met the selection criteria, however, were excluded from participating in the final study.

3.4. METHOD OF DATA COLLECTION

Data collection is referred to as the process of gathering the information needed to address a research problem (Babbie & Mouton, 2010). In a case study, data normally comprises of observations, audio tapes, interviews, visual materials, documentations, etc. Prior to data collection, all participants were issued participation information sheets that explained the purpose and procedures of the study. This enabled participants to give their written informed consent for both their participation based on ethical requirement. Both copies of the Participation Information Sheet (see Appendices A and B) and Consent Forms appear as (Appendices C and D).

In order to address the aim and objectives of this study, in-depth interviews and focus group discussions were adopted as a method of data collection (See Appendices E, F and G). Both methods of data collection were conducted in the comfort of participants. With regards to focus group discussions, the researcher sought permission from the school governing body in the nearby school (Boitshoko Secondary School) to use one of the classrooms for two different days after school hours. Whereas the venue for both ward councilors and the municipal manager differed from that of focus group. Ward councilors were interviewed at the Lomanyaneng

Community library with the permission of the library manager as well as that of ward councilors. The municipal manager was interviewed at his office after working hours. The duration for interviews took 45 minutes and for focus group lasted for approximately 1hour. Observations were used for both in-depth interviews and focus group discussions as they are important in the generation of an intensive in-depth examination of a case (Bryman, 2008). For the purpose of this study, observations helped the researcher to understand and interpret the findings from the focus group discussions in relation to how participants cope with the water problem. The advantage of observation is that it enables researchers to observe the behaviour as it happens when individuals speak and/or act (Bryman, 2008). That being said, field notes were taken to make sure that the important information is recalled.

The researcher started the process of data collection by conducting focus group discussion with the first group (ward 5) which comprised of 5 participants; 3 males and 2 females, and second group of ward 21 consisted of 2 males and 3 females. Separating the two groups allowed for in-depth discussion. The interviews for ward councilors were conducted between 9 and 10 in the morning based on the time schedule given by the library manager and for focus group were between 3 and 5 in the afternoon as per agreement with the school principal and the school governing body. However, the focus group discussions with participants from ward 21 were not conducted at school due to heavy rains experienced by the Ngaka Modiri Molema District. The focus group discussions took place at one of the participant's house with the agreement from all participants due to the fact that it was flooded and the participant who hosted the group couldn't leave her sick parent and two children age 4 and 7 unattended. The group discussion was not disturbed as the children and the parent were asleep on account of weather, and the house was big and spacious.

Permission to voice record the interviews was sought from participants (see Appendices E). The reason for using a voice recorder is that, it allows the researcher to record all the information gathered throughout the verbatim interviews with all key informants and focus group (De Vos et al., 2011). Owing to the fact that Setswana is the dominating language in the province, the participants were interviewed in the language of their preference since the researcher is multi-lingual. However, both Setswana and English were employed simultaneously throughout the

focus group discussions and with the ward councilor of ward 21. The ward councilor for ward 5 was comfortable speaking isiXhosa and the researcher mixed it with English during interviews.

3.5. TRUSTWORTHINESS OF THE STUDY

Owing to the fact that qualitative research design with interpretive paradigm is normally criticized for being “fiction not science”, therefore data verification is when the researcher seeks to verify (confirm/validate) the findings of the research study (Denzil & Lincoln, 2011). In a research, trustworthiness is used to evaluate how reliable the results are. This means that trustworthiness is a way in which the researcher demonstrates that the four strategies are evident in the research they conducting. However, there are ways in which qualitative research can be verified. Lincoln & Guba (2000) specified four strategies for ensuring trustworthiness in qualitative research, i.e. credibility, transferability, confirmability, and dependability. These four criteria will be interlinked to ensure that the findings of the study are trustworthy. In order to boost the trustworthiness of the data collection (Creswell, 2014) suggests that researchers should find ways to deal with biases in handling data. Various scholars (Creswell, 2014; De Wet & Erasmus, 2005) argue that researchers bring into the study their cultural beliefs and multiple social values which may affect one’s verdict of social problems.

Credibility refers to the compatibility between the respondent’s construction of reality and the actual realities attributed to them (Babbie & Mouton, 2009). In ensuring credibility, after the interviews with ward councilors and focus group discussions participants were given a summary of what the researcher understood from it. The researcher further used debriefing to ensure credibility.

According to Babbie & Mouton (2009), confirmability is an inquiry of whether the findings answer the questions presented or reflects the researcher’s biases. As the resident of the Lomanyaneng village also experiencing problem under study, I may unconsciously be unaware of my biases towards the outcomes of the study. However, to avoid that and guaranteeing confirmability, I worked closely with my supervisor (as the internal examiner from the beginning to the end of the study) to ensure transparency and whether data provided is correct, and that all the interviews were recorded, translated and transcribed. Therefore, all the data relating to the research; from interviews to focus group discussions, recordings and translated transcripts are kept safe in order to be confirmed by the other person who would wish to do so.

As the research instrument, I laid aside my prejudices and biases and allowed participants to express themselves in the language they were comfortable speaking during interviews and focus group discussions.

Dependability refers to the extent of accurateness with which the researcher reports the findings of research (De Vos, 2005). This was ensured through the standard of which the research is conducted, analyzed and presented which strictly accord the research design and method chosen for the study. As explained earlier that to guard against the researcher's biases, this study provides findings reflecting the participant's perceptions and experiences rather than the researcher's opinions (Shenton, 2004).

Transferability refers to the extent to which the research findings can be transferred to other contexts (Lincoln & Guba, 2000). However, since data was collected from a small sample thus it cannot be transferable. Moreover, data collected from this research sample was based on their perceptions and experiences which might not have the same outcomes if it were to be conducted on a different group from other municipalities.

3.6. METHOD OF DATA ANALYSIS

According to Creswell (2013), data analysis is whereby the researcher sort the information gathered into categories in order to get answers to the research question. In other words, by analyzing data the researcher summarizes data so that it is easily understood to provide answers to the original questions. The transcripts of interviews and focus group were analyzed by the use of thematic analysis. Thematic analysis is a method for identifying, reporting and analyzing themes (patterns) within data (Boyatzis, 1998). Furthermore, thematic analysis minimally organizes and transcribes data in rich detail and interprets various aspects of the research topic (Boyatzis, 1998). However, the data gathered from focus group was transcribed verbatim in Setswana and translated into English.

Tesch's (1990) framework of themes, categories, and subcategories can be used to discuss the findings of the study. The reason for choosing this data analysis procedure for the study is that it provides a logical process to analyze complex information from focus group and interviews. In Tesch's data analysis procedure, there's a causal layered analysis to analyze findings. Thus Inayatullah (1998) postulates that causal layered analysis analyses the meaning behind what

participants are saying. The following steps followed to analyze data of this study are an adaptation of Tesch (1990) as cited in De Vos (1998):

- a) All interviews conducted were transcribed and analysed by transcript.
- b) During the analysis, the researcher labelled the various texts in relation to the focus group discussion guide of the study.
- c) The text was coded according to main themes and categories.
- d) The researcher refined the coding to arrive at a framework that made sense of the data.
- e) The researcher wrote up her findings using the coding framework as a guideline.
- f) The actual quotes were used to illustrate themes and categories and linked these to the literature.
- g) Researcher's critical commentary was added to the discussion.

3.7. RESEARCH ETHICS

Schurink (2005, p. 43) suggests that “Ethical issues are the concerns and dilemmas that arise over the proper way to execute research, more specifically not to create harmful conditions for the subjects of inquiry, humans, in the research process.” However, being very much aware of this responsibility to be sensitive and respectful of the research participants and their basic human rights, and fully support the Ethical Code of the University of Witwatersrand. Above all, the researcher ensured that the aim and objectives of the study and the procedures every participant has to follow before taking part were thoroughly explained. Efforts were made to guarantee the following throughout this study:

3.7.1. Voluntary Participation

This means that no participant should be forced to participate, the participation should be voluntary (De Vos, 2011). To ensure this, participants were informed that participating in the study was voluntary and that should they for some reason wanted to withdraw from the study, they will have the right to do so at any time. Also, this kind of information was noted on the consent forms and the participant information sheets (find this information on appendices A & B and C &D).

3.7.2. *Informed Consent*

Informed consent is important to any research project as it is a process in which participant/s agree to participate in a research project after being fully informed about its procedures, benefits, and risks (Cozby, 2009). This means that informed consent should be based on an understanding that participation is voluntary. With that being said, permission for participants to take part in the research should be obtained. For this study, the researcher ensured that every participant firstly read and understood the participant information sheet and consent forms before completing and signing. They were then informed that their participation is voluntary, therefore, they could choose to participate or not and that they had the right to withdraw their participation in the study at any time without any penalty. Thus permission from the research participants to participate in this research was obtained.

3.7.3. *Anonymity and Confidentiality*

De Vos et al., (2011) described privacy as a way of keeping to oneself which is not wished-for others to know and/or observe. Normally, the researcher will keep the files with information away (by locking them in a drawer) not to be accessed by anyone except the researcher (Cozby, 2009). In this study, the researcher carried the responsibility to ensure participants that even though they had provided their real names on the forms when data analyzed and findings published they would remain anonymous. Moreover, their privacy would be respected at all times and that everything they shared would be treated as confidential. All work with their information was locked in a password-protected computer screen and they were identified by pseudonyms.

3.7.4. *Avoidance of Harm*

This means protecting participants from all types of harm such as emotional, psychological and physical (De Vos et al., 2011). For this study, participants were told that they could refrain from talking about things they did not want to discuss. The research was carried out to best suit the interest of participants so they should not feel as being coerced. In minimizing the possibility of harm to participants, the researcher explained that they were not tested with right or wrong answers and no one would be judged for his or her contribution. For this research, none of the participants presented emotional harm whatsoever.

3.7.5. *Debriefing of participants*

De Vos et al., (2011) posit that debriefing of participants allows a time for them to share how they have experienced the interview session while addressing some of their questions or concerns. This component helps reduce the potential harm or psychological distress they might have experienced due to their participation in the study. For the purpose of this study, the researcher ensured that at the end of the interview and focus group discussions participants had a chance to reflect on their experience of the research.

3.8. **PERMISSION OBTAINED TO CONDUCT THE STUDY**

Permission to conduct research was sought from the Ngaka Modiri Molema District Municipality (see Appendices H). Ethics clearance for this study was also obtained from the Departmental Human Research Ethics Committee of the University of Witwatersrand (Protocol number: SW/2/16/10/16) (see Appendices I).

3.9. **ANTICIPATED LIMITATIONS OF THE STUDY**

As indicated by De Vos et al., (2011), every study has its limitations. These scholars advised that the researcher has to be aware of all potential limitations. This research has inherent limitations which will be outlined and discussed and how they have been accounted for; the research method, sampling, data analysis, researcher, time frame and logistics.

➤ **Qualitative method**

This design has its biases linked to subjectivity, thus Griffin, (1986), argues that this method disables the researcher to be totally objective regardless of the rigorous effort. The author further asserts that the paradigm obscures the impact of the valuable theoretical and political preferences the researcher could have in the subject matter. Moreover, the qualitative paradigm does not allow for generalisation of the findings. However, the nature of the study was exploratory and thus called for a subjective qualitative approach. Also, the purpose of this research report was not to generalise the findings which emanate from the research study as in qualitative method but to contextualise the findings.

➤ **Sampling**

Non-probability sampling which according to De Vos et al., (2011) has a limitation whereby each unit in a sampling frame does not have an equal chance of being selected for a particular

study, was also a limitations of this study. In particular, purposive sampling may be biased. Most participants dropped closer to the time of focus group discussions as they asked the researcher if after interviews their water problem will be solved. Others as anticipated that they would not want to participate due to the lack of trust of the government, they made it clear that they are tired of empty promises. As above-mentioned that the researcher contacted recruited participants, she managed to recruit more in case others dropped and made it clear to participants that the study is purely academic and not in favour of any political affiliation. Furthermore, even though confidentiality was assured and that there were no right or wrong answers, some participants may have provided socially desirable responses. Another limitation is interrelated to the fact that of the ten focus group participants, most of the themes were voiced by five participants and the other half of the group would nod to what they say which would impact the findings if the researcher was not observant.

➤ **Data analysis**

Within qualitative data analysis, researchers can be biased when analyzing findings. Additionally, in this study the researcher noticed that Tesch's (1990) data analysis procedure could be time consuming and exhausting. However, the aforesaid did not materialize through careful supervision.

➤ **Researcher**

Inasmuch as the researcher has engaged with research and the ethical guidelines in the past (4th year BSWK undergraduate), conducting a research employing qualitative method was the researcher's first attempt as she has undertaken a quantitative approach previously. However, as alluded to earlier most of the limitations in this study were addressed through careful supervision. Also, there has been discussion and advice given during workshop organized by the faculty department pertaining to the research content.

3.10. REFLEXIVITY

It is a concept whereby qualitative researchers can validate their research practice (De Vos, et al., 2011). It is perceived as an integral process in qualitative research whereby the researcher continuously reflects on how their own actions, values and perceptions impact upon the research setting and can affect data collection and data analysis (Gilbert & Sliep, 2009). As the researcher

is the primary instrument of data collection and data analysis, reflexivity is considered vital (Merriam, 1998).

Being part of the study, I am not divorcing myself from the phenomenon under study as I am a resident of Lomanyaneng village who's also affected by the problem under study. I therefore also had perceptions about water service delivery in our ward, however, I addressed that by acknowledging them before meeting with the participants since my personal feelings and experiences might influence the study to promote objectivity. Inasmuch as the researcher was excited about conducting the study, however, she was very nervous about the whole research process. This nervousness was provoked by the delay from the municipality's side to respond to the researcher's request to conduct the study.

3.11. CONCLUSION

This chapter provided a detailed description of the research design methodology. Research strategy and design, population, sample and sampling procedures, research instrumentation, method of data collection and analysis were clarified. Consideration of ethical issues was done to ensure quality of this research. Presentation and discussion of the findings of data analysis will be discussed in the next chapter.

CHAPTER FOUR:

PRESENTATION AND DISCUSSION OF FINDINGS

4. INTRODUCTION

In this chapter the profile of the participants of the research study is described. In addition, the themes that emerged from the analyzed data and the findings will be presented and discussed. The findings are considered in relation to the aims and objectives of the study. The following seven themes identified: perceptions about water service delivery, views on the reasons for water shortages, experiences about the quality of drinking water, challenges experienced due to water scarcity, ways of communicating challenges with municipality, level of participation experienced by community members and ideas to address the challenges.

4.1. PROFILE OF PARTICIPANTS

Table 4.1.1: Profile of the participants (N=13)

Demographic Factor	Sub- Category	No
Status	Community members	10
	Ward councilors	2
	Municipality officials	1
Gender	Community members	
	Male	5
	Female	5
	Ward councilors	
	Male	1
	Female	1
	Municipal officials	
Male	1	

Table 4.1.1 represents the demographic profile of participants. Of the 10 community member participants, 5 were male and 5 were female. There were three key informants participating,

namely, the two ward councilors and the municipality official. Of the three, two were male and one female. All of them could speak Setswana as is the dominant language in the Ngaka Modiri Molema District; they represented a mix of languages, namely; Southern Sotho, isiXhosa and Setswana. The researcher could speak and understand the language participants felt most comfortable speaking, thus there was no need for an interpreter during interviews and focus group discussions.

4.2. ***THEMES THAT EMERGED FROM FOCUS GROUP DISCUSSIONS AND INTERVIEWS***

The table below will demonstrate themes, categories and sub-categories explored in the presentation supported by direct quotes.

Table 4.2.1: **Table of themes that emanated from Focus Group Discussions and Interviews**

Themes	Categories	Quotations
Perceptions about water service delivery	CATEGORY: 1. Poor service delivery	<i>“Water service delivery in our ward is very poor, it is very, very low” “Water service delivery in recent years becomes very poor”</i>
	Sub-Categories: i. Reliability of service	<i>“...we paid money to have water installed in our yards by the municipality but we have not had water for a long time...so I don’t know whether the help...is the government (municipality) or them (ward councilors) failing us because it has been a very long...long time we have not had water.”</i>
	ii. Maintenance (Repairs)	<i>“So my plea to the municipality is for them...to fix other pumps, change the taps so we can get water from the pumps”</i>
	iii. Communication (Customer service)	<i>“Our government fails us but what hurts mostly and is a shock is people in the suburbs are informed in time when their water is going to be cut off” “The channel of communication from us does not seem to reach the relevant person thus they end not having the right answers”</i>
Views about reasons for water shortage	CATEGORIES: 1) Drought	<i>“It has not been raining that’s why water scarcity has been a problem. “We have had drought...even though we still have drought in South Africa...”</i>
	2) Local population growth	<i>“Ever since I grew up here...but it is a growing problem because Majemantsho village is expanding as there are new stands for that reason the noise of water shortages increases...mmm.”</i>
	3) Water usage	<i>“...cause you’ll find that I am going to fill up about 3 containers (20/25 liters) with water enough to do my laundry and shortly thereafter throwing out that water on a bare ground you see...then subsequent to this activity I would wash dishes and throw out that water in the same pattern. At least if there were drains and pipes, the same water could be recycled for re-use...”</i>
	4) Water infrastructure	<i>“...there is no infrastructure of...there is no infrastructure here in Majemantsho...”</i>

	5) Lack of planning	<i>"Their systems fail along the way...They fail to plan"</i>
Experiences of drinking water quality	<u>CATEGORIES:</u> 1. Lack of drinking water	<i>"There's nothing you can do without water; you can't cook, bath, so you're forced to cook with this dirty water and bath children, even at school they drink the very same water"</i>
	<u>Sub-categories:</u>	
	Taste & Odour	<i>"Sometimes you'll find this water smelling; smelling bad odour and tasting mud"</i> <i>"They only bring water with low quality"</i>
	Water appearance	<i>"And it is always not clean, even the one installed in our yards because it stays long the pipes not functioning so the colour will just tell it's not right"</i>
	2. Sickness & Deaths	<i>"Water is very important...it is the first important thing in our lives, yes, and even sickness...you can be sick due to water shortages"</i>
	<u>Sub-categories:</u>	
	Sanitation	<i>"...in this village by the way most of us are not using flushing toilets"</i>
	Diarrhoea	<i>"...runs our tummies as well as that of our children."</i>
	Nutrition	<i>"We are advised to eat healthy food but still...is the same if you have healthy food but supplied with dirty water because you are going to get sick of stomach cramps."</i>
Challenges experienced due to water scarcity	<u>CATEGORIES:</u> 1. Projects	<i>"Production come to stand still...people could make bricks ...so if there is no water what would you do...this means everything comes to stand still."</i>
	2. Small businesses	<i>"...It has been difficult to grow those businesses...even car wash businesses...all the youth's businesses have not been progressive."</i>
	3. Recreation	<i>"You cannot do anything...like panting grass...like...flowers one would not be able to water them...basically there is nothing you can plant in your yard...it is just plain yards."</i>
	4. Financial constraints	<i>"...and if you do not have money it is problematic..."</i> <i>"Here in Lomanyaneng... ours is to always have money so we can give this water people something"</i>
Ways of communicating challenges with municipality	<u>CATEGORIES:</u> 1. Vandalism	<i>"In some instances the community vandalizes those tanks and taps as a way of passing through the message to the municipality or government"</i>

	2. Protests	<i>“Municipality seems to like it when there are protests, seeing fire and when their cars are blocked entrance...”</i>
Level of participation experienced by communities	<u>CATEGORIES:</u> 1. Community meetings and	<i>“We are too much involved particularly with anything to do with water. There is a community meeting...we have community meetings in which every time we meet we discuss about those shortages of water...”</i>
	2. IDP meetings	<i>“In most cases during the year there are meetings that we attend- the IDP meetings. These meetings are normally comprised of about 3 to 4 wards...it is where we take our complaints. But these complaints we raise them every year ever since the new government...each year we have the same complaints but there is no difference. They keep promising us that it will be fine but nothing happens”</i>
Suggestions to address challenges (NMMDM)	<u>CATEGORIES:</u> 1. Need for increase of communal taps	<i>“I think if they can increase the taps on the streets because I took note that they are few that is why we are unable to get water...”</i>
	2. Need for drainage systems (drainage system in each household to recycle water)	<i>“They could just make a big drain or house to house drains to drain out used water, clean it and gets back to us through big pipes like I said in the beginning that water should be recycled”</i>
	3. Need for inspection (constant monitoring of Jojo tanks and water)	<i>“Get the inspector who will go around the village checking whether the water and tankers are clean and whether the water has been tested”</i>
	4. Need for assessment & Consultation (to identify community needs)	<i>“Like this tankering system...we do not know who agreed to it...we do not know how it came about...if ever they consulted...”</i>
	5. Need for proper planning	<i>“...that is proper planning...so, planning is a very key thing in terms of addressing the people’s challenges”.</i>
	6. Need for outreach programmes	<i>“...outreach programmes focused on enlightening people about saving water and using water sparingly...”</i>

4.3. DISCUSSION OF FINDINGS ACCORDING TO THE THEMES

During the analysis of data, seven main themes have been identified. These were; community perceptions about water service delivery, community views about reasons for water shortage, community experiences of drinking water quality, community experiences regarding challenges of water scarcity, community way of bringing their challenges to the authorities' attention, community level of involvement in decision making as well as the suggestions or recommendations to the Ngaka Modiri Molema District Municipality (NMMDM). As illustrated in the above table, under each theme there are one or more categories and only a category for theme one has sub-categories. Following is the analysis of the aforementioned themes and its categories supported by direct quotes from participants and literature to support or contradict where applicable.

4.3.1. Theme 1: Community perceptions about water service delivery

In the analysis of the data relevant to the first theme, one category; poor service delivery and three sub-categories: reliability of service, maintenance (repairs), and communication (customer service), were identified. These will be discussed individually in the next section:

Category 1: Poor service delivery

A theme that emerged from the analysis of responses and was mentioned by two participants and a ward councilor was the notion of poor service delivery. This response was simply captured in the following quotes:

“Here in ward 5 we have a very huge water problem...eeh...there is no water. This is to say that water service delivery in our ward is very poor; it is very, very low. Even now there is no water at all especially in these tanks the government has provided, they are very few and cannot cover the village as a whole, thank you.” [P3- FG1]

[Clearing throat]...“ehh...our water delivery service in recent years has become very poor because in the past years they could maintain us with water but now they cannot maintain us with water. We are given tanks...they bring us water by lorries...the one (water) that is available we pay high prices for it; there’s no free water in our ward, so we are not able to reach a lot of things that we could in the past years.”[P2- FG1]

These above quotes are in accord with one of the ward councilors' response when asked about his experience with the municipality once he has reported the water related problem. He revealed that there are challenges they (ward councilors) encounter by the municipality regarding service delivery although he was not comfortable to reveal more than what he had said. The researcher's observation in this regard is that audio-record in as much as on the one hand it helps in recording each and every word uttered, on the other it is a limitation as other participants may not be comfortable sharing information. Following is the ward councilor's direct quote:

"I can say to you that the challenges we encounter by the municipality are...are...those...that...I am not feeling comfortable to answer them...But...there are challenges based on service delivery to people." [WC2]

"When I report...we might take that because we have pressure from the community and take it that they do not want to assist you, but they also have their challenges...mhhm..." [WC1]

For the above category, three sub-categories; reliability of service, maintenance and communication emerged and were identified with respect to the perceptions of ward councilors regarding how long the two villages have been experiencing water shortages. All the participants' comments in this regard are represented in the following quotes:

Sub-category 1: Reliability of service

"...we paid money to have water installed in our yards by the municipality but we have not had water for a long time...so I don't know whether the help...is the government (municipality) or them (ward councilors) failing us because it has been a very long...long time we have not had water." [P1- FG2]

"We have water problem here in ward 5, even the one [water] in our yards gets switched off for a very long time. We stay a very long time without water; we can stay a very long time..." [P1-FG1]

"Ehh...this side water is the only thing that gives us problem...water this side is the one that gives us problem, is the only thing that we really need because without water there is nothing we can do...yes." [P5- FG2]

“Mhm...hey it is long...this thing is too long. It seems as is about...I don’t know...before I became a ward councilor...about five years [inaudible] we having water problem.” [WC1]

“Let me say this mama...mmm...Majemantsho...Majemantsho has since experienced the problem of water [Pause] since I grew up here. Majemantsho has experienced this problem of water ever since, it is not something new. Ever since I grew up here but it is a growing problem because Majemantsho is expanding, so there are new stands [plots] the noise around water shortages carries on”[WC1]

Sub-category 2: Maintenance (repairs)

“Eeh...I am saying we are struggling with water here...So my plea to the municipality is for them to pull up their socks regarding water...they must fix other pumps, change taps so we can get water from the pumps.” [P4-FG1]

Sub-category 3: Communication (customer service)

“Our government fails us and what hurts mostly and amazing is; people in the suburbs are informed in time when their water is going to be cut off...” [P3-FG1]

“The channel of communication from us does not seem to reach the relevant person that is why they end up not having the right answers.” [P2-FG1]

The findings of this study reveals the municipality’s poor service delivery regardless of what (Boshoff & Mazibuko, 2008) highlighted about municipalities that they are the key role players in service delivery as they are selected by the national government to address the service delivery challenge. It is evident that municipalities often fail to meet the community expectations, particularly in providing basic service delivery such as water, electricity and toilets (Shaidi, 2013).

Also, the findings concur with those of the study conducted in the Gauteng province which investigated customer’s expectations and perceptions of the quality of municipal service delivered by a South African municipality. The results of that study indicated customer discontent of municipal service delivery in all five dimensions of service quality such as; tangibility, reliability, responsiveness, assurance and empathy (Moletsane, de Klerk, & Bevan-Dye, 2014). However, the customers were mostly not satisfied in aspects of reliability, empathy

and assurance. Similarly, studies by (Naidoo, 2011; Naidoo & Thani, 2011) revealed that above two decades post- apartheid more than 50% of communities particularly rural communities do not receive satisfactory public service delivery. Thus, various scholars argue that in spite of the few efforts, service delivery in South Africa remains a challenge (Holtzhausen & Naidoo, 2011; Naidoo, 2011). Also, the perceptions of participants regarding poor service delivery are consistent with the findings by Public Service Accountability Monitor (PSAM) of the United Nations (2011) that South Africa communities experience poor service delivery at local government, the municipalities in particular.

4.3.2. Theme 2: Community views about reasons for water shortages

Under this theme there were varying views regarding reasons for water shortages and thus the significant categories identified were drought, local population growth, water usage, water infrastructure and lack of planning.

Category 1: Drought

Two participants' responses coincided with that of the municipal manager:

“Eeh...I think that in our ward this is not the councilor’s problem...We have long had issues with water and due to no rainfall water scarcity has been on an increase....Now...it seems things will get better as the rain has started falling . I think it will be better...[Pause]...yes, because of the rain, we have had drought...even though we still have drought in South Africa but it seems the situation...will get better.” [P4-FG2]

“...So, for now we are not certain as to whether it was he through whom we got this water or perhaps was it due to rainfalls? One can argue that it is because of this rain as we have currently been experiencing heavy rains and the land is wet, so if it becomes dry again it means we are going to face challenges with water...” [P1, FG2]

The following comment was from the municipal manager when he was asked about his view regarding water shortage challenges the communities are faced with in both wards:

[Pause] “...umhh...As you are aware that the serious challenges in terms of drought situation that basically affected our dams, reservoirs, affected our underground sources which led to over utilization of the underground sources which in turn disable some of the sources...” [MM]

“In my view water shortage is caused by drought and then those...because...if ever there is drought therefore the percentage [pressure] of pushing water drops...Actually water neh...the way they explained this to me, our site Lomanyaneng is the poorest ward where we struggle with water a lot because it seems to be up therefore water does not have that power which has dropped because of draught but they have built us a reservoir on that side of ward 21but it is not yet functional” [WC2]

These findings concur with Sigenu (2006) that water scarcity results from environmental causes often phrased as natural causes like drought.

Category 2: Local population growth

“...In most instances, due to growing populations, you will find that ...the streets...in about 4 streets...there will be many houses dependent on one tank supply which lasts us for how many days?...it only lasts us about 2 to 3 days. This leads to continuous fights over water among people of the same community. This means they fail us...the councilor fails us on the issue of water supply. This is how I see the shortage of water is here. [P1, FG2]

“Ever since I grew up here...but it is a growing problem because Majemantsho village is expanding as there are new stands for that reason the noise of water shortages increases...mmm.”[WC1]

Inasmuch as the above were seen as the reasons for water shortages, in contrast to that, two participants and the Ward Councilor (WC1) had different views. For them reasons for water shortage are under categories 3, 4, 5 and 6:

Category 3: Water usage

“Ehh...actually in my view, I don’t think water scarcity is caused by “daai dings” (those things; drought). My view on water shortage is, you will find that the municipality does not get enough water to be purified and get it back to the people. You see if these municipal supplied water tanks could be moved...cause you’ll find that I am going to fill up about 3 containers (20/25 liters) with water enough to do my laundry and shortly thereafter throwing out that water on a bare ground you see...then subsequent to this activity I would wash dishes and throw out that water in

the same pattern. At least if there were drains and pipes, the same water could be recycled for re-use...” [P1-FG2]

Category 4: Water infrastructure

“Yes...in...ehh...the past the shortages were as a result of inadequacy ...in the supply of what they referred as ...ehh...pressure pump. In my previous attempts to understand core reasons for water shortages from the responsible stakeholders, the answer was that pressure pumps were procured, and once they were installed we would then start getting water. I presume this is why you see now there is water...as you see there is plenty of water again. These pressure pumps have been bought...eeh...yes that’s why there’s water in our ward, yes so the trucks that had been delivering water for us seem to have stopped, we will no longer see them because there is now water.”[P5, FG2]

“The cause of...of why this village is having challenges of water I can say to you it is because there is no infrastructure of...there is no infrastructure here in Majemantsho. Even if there is, but it is just a quarter of it here in ward 21 and in that quarter...the way we engaged with government, they said there is [Pause]...there is pressure needed so that people in ward 21 could end up getting water...so those are the answers we get from the expertise that there is shortage of pressure to push water for water to be able to reach residents” [WC1]

The findings of this study coincides with the Report by the Department of Human Settlement on the Status of sanitation services in South Africa (Department of Human Settlement, 2012) that one of the main contributors to the terrifying state of existing infrastructure is the under-capacity of water service authorities to plan, implement and effectively manage the infrastructure.

Category 5: Lack of planning

“The municipality does not have a plan on how they can make us pay for services, they made us cards to buy water but there is no place where we can go load them. It is difficult for me to use the tap I paid for to be installed, it is in my yard but I cannot use it. Their systems fail along the way, they fail to plan ahead. I guess they have not even planned for five years to come in case the drought continues...it seems they only plan for today just like they provided us with tanks to drink that dirty water” [P2- FG2]

This above comment resonates with the municipal managers' response when he was asked what are the challenges that the Ngaka Modiri Molema District Municipality are experiencing in terms of rendering proper service to the people of Lomanyaneng and Majemantsho; his direct quote:

“Umhhh...I think one of the key challenges is lack of adequate planning. You know I always say by now we would have had a major pipeline that comes from a major dam that could have been done ten years ago, you know...and the lack of planning...uhmm...fosters to getting involved in short term interventions like water tinkering. To transport a litre of water is more expensive than buying a liter of water which definitely would run the municipality into financial challenges...ehhh...as you are aware that the municipality had been under Section 139 basically because it faces the financial crises and what are the key drivers of those crises; basic service delivery and poor planning” [MM]

Adequate planning is a crucial step to be undertaken for the success of effective and efficient service delivery. In this study, it is indicated that lack of planning is one of the factors hindering water service delivery. This accords the Department of Human Settlement report on the Status of sanitation services (Department of Human Settlement, 2012) that the water service authorities have no or less capacity to plan effectively.

4.3.3. Theme 3: Experiences of drinking water quality

Under this theme all participants indicated that the most challenges they experienced was lack of drinking, bathing, washing and cooking water. About two categories were identified in this theme; Lack of safe drinking water, and sickness and deaths. The sub-categories for the first theme are: taste and odour, and water appearance. For the second category, three sub-categories were identified: sanitation, diarrhea and nutrition. Following are participants' quotes as others responded through gesture (like nodding, thumbs up) that were observed during focus group discussions.

Category 1: Lack of safe drinking water

“There is nothing you can do without water, you cannot cook, bath...so you are forced to cook with this dirty water...bath children and they drink this very same water at school.”[P4-FG1]

[Clearing her throat] “...since I have a livestock, to be honest, this has been a double-fold challenge because [Interruptions by the researcher asking the participant to raise her voice] at

home we must use water and the livestock also needed water, so we have been struggling a lot with our livestock having no water, which led to death and other animals becoming skinny as they could not survive the conditions.” [P1-FG2]

The participants’ responses resonate with literature indicating that the lack of access to adequate safe drinking water supply results to death and illness particularly in children (Machete, 2011).

The following quotes from the municipality when responding to both questions about his view of water shortages affecting the communities as well as his thoughts about the consequences of lack of proper water and sanitation services were:

“The consequences of that would have a number of folds...There may be health hazards that could break out because human would not have enough water to actually sanitize the human being [inaudible]...”

And

“We basically know that water is a basic right...ehh...having inadequate water basically for health reasons like to wash your body, to cook, to grow your vegetables and so forth...ehh...that is the basic impact that the people would experience. You know people would not be able to do what they would normally do from the health point of view. They would not be able to provide themselves especially your small household garden. People would not be able to sanitize...so those are some of the impacts...things that would affect the communities.”

Sub-category 1: Taste and Odour

“Sometimes you will find this water smelling...smelling mud or smelling bad odour...to be honest the community drinks dirt...And it runs our tummy” [P3-FG5]

“Our government does not look at the quality of water they delivering for us; they only bring water with low quality which will result to different health hazards in future because we only drinking water we are not sure who tests it and where it comes from. We are not informed with water quality, they only looking at delivering us water we do not know where it comes from.” [P2-FG1]

When the ward councilor was asked how in his view water scarcity affects health of the communities. He responded by saying that:

“I can say [clearing throat]...it (water scarcity) mostly affects residents’ health in a way that there is no one who is sure whether residents drink clean water and...children or youth can end up throwing things inside those tanks because here in ward 21 we mostly live on tankering water...Even though they clean those tankers and put chemicals inside to clean water, but at some point residents complain that they cannot drink that water because it is not good for their health.”[WC1]

Sub-category 2: Water appearance (Colour)

“Eish...there is a problem with water because the water they supply us with runs our tummies and that of our children because it is always not clean. Even that is installed in our yards because of the pipes that are not functioning; they got corrosive so the colour is not satisfactory... It tells that the water is not right.”[P1-FG1]

These responses resonate with the Botshelo water report (2012) where they often received consumers’ verbal complaints concerning water quality problem in Mafikeng area with regards to the taste and smell in the finished water. Similarly, the Department of Water Affairs and Forestry had issued the public warning that they should not drink tap water without an appropriate care (DWAF, My Water, 2012).

Category 2: Sickness and Deaths

“I will say...umhh...eish the scarcity of water; we have been really struggling a lot. You know even when you had to do washing you’ll think twice or three times. So...water shortage is very huge and there’s nothing you can do without water. Water is very important...it is the first important thing in our lives, yes, and even sickness...you can be sick due to water shortages. So, this is what we have been going through. We have experienced deaths, people dying because of water thirst plus the heat we’ve also been experiencing.”[P4-FG2]

“Even in the hospitals, water shortage has been very high because there has not been enough to bath and cook for patients and for them just to drink or drink their medication. So it has not been right, it affected hospitals, schools...children at schools have not been given water in a right way.”[P1-FG2]

There are three sub-categories that emerged from this theme; diarrhea, sanitation and nutrition.

Sub-category 1: Sanitation

“...in this village by the way most of us are not using flushing toilets” [P4-FG2]

Sub-category 2: Diarrhea

“...and it runs our tummies...” [P3-FG1]

“...runs our tummies as well as that of our children.” [P1-FG1]

These findings concur with the following; Mor and Griffiths (2011) highlight that the poor quality of water together with a lack of basic sanitation is a factor in the spreading of diarrhea which is the second most contributor to the disease burden in developing countries.

Sub-category 3: Nutrition

“...so you are forced to cook with this dirty water...” [P4-FG1]

“We are advised to eat healthy food but still...it is still the same if you have healthy food but supplied with dirty water because you are going to get sick of stomach cramps.” [P3-FG1]

4.3.4. Theme 4: Challenges experienced due to water scarcity

From this theme four categories; projects, small businesses, recreation and financial constraints emerged. Under these categories sub-categories that emerged for projects are: vegetable gardening, livestock, brick making and for small businesses: car wash, recreation: grass, flowers.

Category 1: Projects

“...even if you would want to grow spinach and sell or breed chicken...you cannot because there will not be water, so it is the biggest challenge.”

“...no one wants livestock farming because they are scared animals will die and it becomes difficult when there is lack of water...” [P5-FG1]

“Production come to stand still...people could make bricks ...so if there is no water what would you do...this means everything comes to stand still.” [P2-FG2]

“Projects end up not going anywhere...our economy is not growing because if there is no water no project will prosper.” [P2-FG1]

Category 2: Small businesses

“...It has been difficult to grow those businesses...even car wash businesses...all the youth’s businesses have not been progressive.” [P1-FG1]

Category 3: Recreation

“You cannot do anything...like panting grass...like...flowers one would not be able to water them...basically there is nothing you can plant in your yard...it is just plain yards.” [P3-FG2]

The above quotations imply that the participant considers water as an important tool for socio-economic development. The findings of this study concur with (Machete, 2011) that the economic development process generally depends on the performance of water sector. Thus the United Nations Development Plan (UNDP) emphasized that the human life is shaped by access to safe water and sanitation and is key to development (UNDP, 2010).

Category 4: Financial constraints (Buying water)

This category was mentioned in many instances by participants that they had experienced water shortages in a very long time and it impacted them financially as well, as they had to always have money to buy water. This is how they explained:

“... We pay high prices for it...there is no free water in our ward...So they end up bringing sub-contractors to sell us water...These lorries came when the demand of water was already too high...when they fill up your own JoJo tank they charge R250...there is no free water from our government” [P2-FG2]

“Like now, it has been days we do not have water in our village...and if you do not have money it is problematic...They differ with prices but changing between R2 and R5 although you are not limited as you may bring many containers as you wish as long as each is going to be paid for...It is not that they are looking at money, it is because they use that money to buy electricity so they can pump us water.” [P3-FG1]

“In Lomanyaneng-ward 5, these people sell us water so ours is to always have money so we can give them something.” [P4-FG1]

This is comparable to the study by Rugemalila (2009) who indicated that many households in Temeke municipality had to get water from wells owned by individuals and kiosks, and they paid for each bucket they filled with water. In another study by Humphreys (1995) water vendors and neighbours connected to DAWSCO taps were the main water supply to households in the city of Dar es Salaam. It was observed that water vendors used handcarts and truck tankers to distribute water to households, and the street water vendors bought water from truck tankers services and reservoirs. They sold 20 litres containers to households at R300. This findings are similar to this study and the researcher observe that when the municipality as the water authority fails to supply the community with water, they are left with no option but to look for an alternative way of obtaining water although it impacts on their budget.

4.3.5. Theme 5: Ways of communicating challenges with municipality

The categories that were identified under this theme were vandalism and protests. About four participants mentioned this and their responses were supported by those of both the municipal manager and the ward councilor for ward 5. The ward councilor indicated that in most cases they are threatened by the community members.

Category 1: Vandalism

The participant indicated that communities normally make themselves heard by destroying the resources they supplied with to provide them with water and in many occurrences that happens when they find those resources dry (no water coming out from tanks and/or taps). However, he pointed out a valid point that it is not the right way of passing through the message to the municipality. Furthermore, he said it is presumably the quickest way to get rapid response and service delivery. Following is the direct quote:

“In some instances, the community vandalizes those tanks and taps as a way of passing the message through to the municipality or government...Though by so doing the community destroys their own property...but this is how the community tries to pass the message and show that water is such a need to them. Most of the time you will find that when those tanks are being vandalized they would be already empty or the taps dried out, thanks.” [P5- FG2]

The above quote is supported by the ward councilors’ when she responded to the question about how water scarcity affects the development in her ward;

She said: [Taking a deep breath]...*It...is...affecting the community because...most of the time they cannot stand this thing of water and they are therefore giving threats... [Silence]... 'ja...and 'ja'...sometimes they are...even threatening the councilors neh...The community is threatening the councilors because they cannot stand this...[Pause]...this thing of water because it has been growing...growing.*"[WC1]

Category 2: Protests

"The municipality seems to like it when there are protests; seeing fire and when their cars are blocked entrance is then that they will deliver."[P4-FG1]

"...At the end they will blame the people of ward 5 and say they like "toyi-toyi" (protest) though they are the ones who fail us."[P3-FG1]

"The communities will be unhappy...ehh...ehh...they will make various presentations. I think Majemantsho have shown it once by having a march...ehh..." [MM]

The findings of this study indicate that in most cases poor service delivery leads to protests as the way to express community concern of lack of service delivery. This finding concurs with Tapela (2013) that lack of service delivery in which one of the elements is water spark protests. Monashane (2011) demonstrated that between 2004 and 2011 there has been remarkable increase of local protests in South Africa where in a period of six months from the beginning of the year to June in 2009 about 26 service delivery protests were recorded in the country (Parliament of RSA, 2009).

4.3.6. Theme 6: Level of participation experienced by the communities

The participants' responses showed that they are participating in the meetings called by their ward committees and/or ward councilors as well as the IDP meeting. However, in my observations there were those participants who did not even want to respond as their non-verbal cues indicated that they see no reason why they should ever attend those meetings. Also, even the ones who participated in all meetings stated that they have attended all the meetings and were promised that all of their needs would be met but there are no changes thus far. In contrast, one of the participants turned to differ with all others. There were about two categories; community meetings and IDP meetings that correspond with the municipal manger and ward councilors' responses. The two categories of the theme pertaining to the level of community participation are

in line with responses of participants in a study conducted by Tshabalal () when he also wanted to understand community's participation in the IDP; ward committees and meetings were their mechanisms of participation.

Category 1: Community meetings

One of the participants said they are much involved because they also need water and asked how people would be helped if they do not get involved or do not take any means. The following quote ascertain her response:

"We are too much involved particularly with anything to do with water. There is a community meeting...we have community meetings in which every time we meet we discuss about those shortages of water and always looking forth to someone who may come up with better ideas of how it could be done for water to be available which also helps the councilor what option 2 could be if things don't go well from the municipality side, you understand...yes." [P4-FG2]

"In most cases during the year, there are meetings we attend, the IDP meetings. These meetings are normally comprised of about 3 to 4 wards and it is where we take our complaints but we raise these complaints every year ever since in this new government...each year we have the same complaints but there is no difference. It seems as if we are deserted and forgotten and that is fine." [P3-FG1]

Both the municipal manager and ward councilor's responses were similar when asked how they go about engaging the community members:

"The members of community engage through the ward participation systems, through their ward councilors...uhh...the...I also engage through the water forums that are been established to address and find interventions for water challenges...you know advising people in terms of saving water and so forth...and...from time to time the communities are also addressed to the interventions of traditional leaders...Ehh...we do also give an ear to a number of community groupings that purportedly comes here to say they representing communities...so...when time is available we do give them the ear." [MM]

"I have a schedule for my meetings with the community but then I have a ward committee of 10 members that helps me... 'Ja' ...From the ten committee members nine is from the community and

one from...ehh...[mta-clicking the tongue]... 'ubukhosi'(meaning chieftaincy), and the remaining nine members include both the disabled and...[Pause]...elderly person... 'ja' because the community is about disability, youth and ...elderly people...so that is why I have to mix my ward committee." [WC1]

However, this ward councilor revealed that inasmuch as the community is really participating whenever she calls meetings (urgent meeting and her monthly meetings) she had not seen nor heard them making decisions pertaining to their needs such as roads, house, toilets as well as water. The reasons she gave based on her judgment were they (ward councilors and their committees) are still waiting for a feedback of the IDP meeting that they had in October where the community raised their needs. So, immediately after the release of the budget by the Mayor's office for all the 35 wards they will then go back to the community to discuss about issues that were raised as to what needs to be prioritized. She said it is then that she will be able to observe their participation in decision-making.

"...because they have not yet taken decisions. I have not heard or seen them making decisions regarding what they raised as their (community) needs...We are just waiting for the budget assessment...we are waiting to be called by the Mayor's office and then hear how the budgets are for all 35 wards; hear how much budget each ward is allocated then go back to the community to discuss our issues...Yes." [WC1]

Category 2: Integrated Development Planning (IDP) meetings

The municipality manager response was as follows:

"Umhhh...planning does not take place in isolation...whenever we do our Integrated Development Planning (IDP)...ehh... there is public participation through the board systems. So, the community is given an opportunity to input into integrated planning of the municipality. Therefore, participation of the community is one critical aspect that the municipality takes into consideration." [MM]

The response by the municipal manager only indicates that the community is given the opportunity to participate through IDP in order to have input into the municipality's integrated planning. However, he did not respond to the question as to how he sees the community's participation in decision-making. The lack of response to the question could be attributed to the

researcher's inopportunity to probe due to the limited time (10-15 minutes) she was given by the municipal manager. However, the researcher speculate that the problem with community participation in the IDP (as is the main way of making community part of decision-making and/or participate) might be the failure of the municipality to include inputs from community members into the final IDP.

"In decision-making they are energetic and participate in meetings, they are people attending to meetings...even in decisions...like I said IDP is formed by the community." [WC2]

It further appears from this study that one participant have a differing view regarding the level of involvement and/or participation. He agreed that the community is involved in many different ways, for example; the Department of Water and Sanitation doing campaigns at schools to make learners aware about water shortage and involve learners through a competition of writing about how to save water. But he feels that this way of involvement in participation excludes people who are really using a lot of water at home like parents or anyone who is taking care of the family regardless of age. He further argued that these people would be helpful by giving ideas on how much water they consume (in terms of use and need) and how it could be saved and its purification. The participant was concerned with the fact that they are not given the opportunity in that regard and also not given platform to say what they are experiencing. Furthermore, he conveyed his concern that the municipality only works with what they think the community is experiencing and thus he indicated that the community is not sure who agreed to the tankering system because the municipality could have just fixed the pumps that some were vandalized but some left broken and leaking. Therefore, the researcher observed that the participant raised the issue of the municipality's lack of consultation and feasible studies regarding needs assessment. Following are his direct quotes:

"I can say that the community is involved in many ways, for example; the Department of Water and Sanitation involve community members in schools through their campaign to make people aware about the water problem...but this only goes to schools involving learners alerting them on how to save water...they make them enter competitions which gives them bursaries to study further about how to save water...But they do not go to people who are really using water like parents or elders in the communities, involve them by getting their ideas of how water can be saved or purified...So what I see is that we are really not given the opportunity to say what we

are experiencing, they only do with what they think we are experiencing...So, if they can rather involve the people who know about water problem in our ward and ask them how it can be saved and how they can be involved in both the processes of securing and purifying our water... ”

And

“They (municipality) should stop always worrying thinking for us not knowing what they think will be a solution to our problems. For instance, we do not know who agreed to this tankering system, we do not even know how that came about because we were never gathered and asked if we all agree to it...at first we had pumps so they could have just fixed those old ones if ever they needed machine replacement...I do not see any involvement of parents...they only involve children through those competition...Parents are not given even about 20 questionnaires about water problem as to how could this be solved...It seems as everyone comes with his pipeline and if it is not working, it gets dropped along the way,” [P2-FG2]

The researcher has observed that the above responses from participants particularly the focus groups indicates that inasmuch as they attend meetings; ward committee and IDP meetings, however, participation is still very low because some are or has lost hope when others are still hoping for the best. The findings accord with Banda (2011), that regardless of all the expected benefits of participation in water supply and sanitation (i.e. when local people are aware of existence projects of water and sanitation, and have the capacity to participate in these projects, when there are systems through which they can participate in these projects, as well as when there are incentives) the level of participation by the local people was still very low generally in Zambia, particularly the Chongwe district.

4.3.7. Theme 7: Suggestions to address challenges (NMMDM)

Under this theme six categories emerged; need for increase of communal taps, need for drainage system, need for inspection, need for assessment and consultation, need for proper planning, and need for outreach programmes.

Category 1: Need for increase of communal taps

“I think if they can increase the taps on the streets because noticed that they are few thus we are unable to get water. There is a few people in our section with pumps in their yards...so those who do not have will have access if each street corner have a tap, and that can make things

easier for people rather than a person coming far from our street to draw water...this will also prevent congestion and enable us all to have access equally.”[P1-W21]

Category 2: Need for drainage systems

“At least if there were drains and pipes, the same water could be drained and recycled.”[P2-W21]

Category 3: Need for inspection (constant monitoring of Jojo tanks and water inspection)

“Get the inspector who will go around the village checking whether the water and Jojo tanks are clean and whether the water has been tested” [P2-W5]

Category 4: Need for needs assessment and consultation (to identify community’s needs)

“Like this tinkering system...we do not know who agreed to it...we do not even know how that came about...if ever the consulted...” [P2-W5]

Based on the above quotation by the participant, it is imperative to always make needs assessment whenever one wants to come up with a solution to a problem, particularly that of communities. This connotes with (DeSilets, 2006) that mostly when there is a problem, there is a tendency of wanting to come with a solution to the problem without firstly defining its core root. Thus, Henderson and Bialeschki (2010) propose that needs assessment is important as it provides those intending to bring about change a systematic set of procedures to set priorities and make decisions with regards to allocation of resources towards the problem identified.

Category 5: Need for proper planning

“...that is proper planning...so, planning is a very key thing in terms of addressing the people’s challenges.” [MM]

This recommendations concurs with the conclusion arising from the Report on the Status of sanitation services in South Africa (2012) that there is a need for improved service delivery planning at national, provincial and local levels with the development of sanitation master plans, capital and finance plans as part of the Integrated Development Plan (IDP) process and aligned to municipal Comprehensive Infrastructure Plan (CIP). Furthermore, it was also indicated in the recommendation of the study that key requirements to improve the quality of sanitation provision

in South Africa is through support for basic service delivery planning in municipalities where backlogs are most acute through sector-based service delivery management structures.

Category 6: Need for outreach programmes

The municipal manager indicated that there is a need for outreach programmes that will help inform people about saving water and to use it carefully:

“The third one could be more based on outreach programmes that are focused on enlightening people about saving water and using water sparingly...so this is the critical thing because water remains the scarce resource in the country.”[MM]

This suggestion resonates with that of the focus group participant who is willing to be taught how to save clean water and use it cautiously.

“I think that there is still time to can be taught by the municipality and those who supply is with water as to how I can save water...to give me knowledge about water”[P2-W5]

4.4 CONCLUSION

This chapter provided the presentation and discussion of the findings that derived from the study. The perceptions of the community about water service delivery were discussed. Also, recommendations to the Ngaka Modiri Molema District Municipality (NMMDM) were explicated. In the following chapter, a summary of main findings, conclusion and recommendations are going to be presented and discussed

CHAPTER FIVE:

MAIN FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

This chapter concludes the research report. The researcher summarised the findings based on the objectives as well as the recommendations from participants. This was followed by conclusion and finally recommendations for further research were motivated.

5.2. RESEARCH PURPOSE AND OBJECTIVES

The research study explored the perceptions of the municipal manager, ward councilors and community of both Lomanyaneng and Majemantsho villages about water scarcity, as well as the experiences of these communities about the phenomenon and its effect on their health and development. The purpose of the study was achieved through the view of the following four objectives:

1. To explore the participants' perceptions about the effects of water scarcity in Lomanyaneng and Majemantsho villages.
2. To ascertain how villagers perceive the water supply and the way they deal with constraints caused by water supply
3. To establish constraints faced by the NMMD municipality in providing water services to the community of Lomanyaneng and
4. To discover the level of involvement of the communities in decision-making about water service delivery in Lomanyaneng and Majemantsho villages

5.3. SUMMARY OF THE MAIN FINDINGS

5.3.1. Participants' perceptions about the effects of water scarcity in Lomanyaneng and Majemantsho villages

The communities shared their disappointment on the NMMD Municipality regarding water supply. Participants indicated that water scarcity affected their ability to do things to develop themselves. They revealed that lack of water delay them to make small businesses and back yard gardens, because most of the jobs they could create is reliant on water. They further said not only water shortage impinge on their development but if the quality too is poor, businesses like street food vendors cannot flourish as that will affect the customers' health.

The findings of this study indicated that lack of quality drinking water affects participants' health because of poor sanitation. Participants also revealed that they always have runny tummies together with their children because they do not sanitize their hands as they should due to having less or no water. Furthermore, they indicated that poor water quality affects their nutrition because they are forced to cook with 'unsafe' water.

The South African Local Government (municipality) is responsible for the provision and delivery of relevant services inclusive of access to potable water, sustainable electricity supply, proper sanitation and regular waste removals amongst others (Madumo, 2012). Thus it is regarded a sphere that plays a vital role in the constant development of the livelihood of the local communities (Madumo, 2014). The above findings depicts that recurrent water shortages can have detrimental effects at all levels based on the systems theory, but for the purpose of the study it has impacted mostly the micro-level (individual), meso-level (family), and exo-level (community). One can say that water scarcity has implications for health status of the communities understudy. Studies have shown that lack of clean drinking water and improved sanitation results to misery, hardship and delays the development of people intended for (Herison et al., 2008). Therefore, with provision of clean drinking water and improved sanitation the rate of illnesses will drop off, more children will attend school and absenteeism decrease, lessening children malnutrition (WHO, 2012).

Through the findings of the study, it shows that all the people of the aforesaid areas are unable to maintain hygiene. At the micro-level, individuals (child/adult) will have to skip classes or not

go to work due to lack of water when not supplied water into the Jo-Jo tankers provided by the municipality. At meso-level, families of the sick member will have to either skip or take leave in order to take care for that person. However, not only individuals, families and communities are affected by water scarcity but also other systems (like schools, clinics, hospital, library, police station) in these communities where water is used/needed for the effective operation are also affected. It can be argued that limited access to water hinders the maintenance of proper hygiene and sanitation in these communities' households (WHO, 2012).

Thus Van Donk et al., (2008) highlighted that municipalities need to consider the detrimental effect of hierarchical, top-down prescriptive systems that maintain blue-print type of thinking and planning. One of the most vital and key ways of accomplishing meaningful and positive participation is to make sure that community participation takes place within a reputable constitutional and legislative framework promoting community participation in local government (Tshabalala & Lombard, 2009).

Arguably, even though community participation is central to IDP, however, it still shows that the marginalized and poor community groups still have far less influence on policy and making decisions on what they feel is of their needs (Tshabalala, 2008). In this regard, when community is not consulted the resources may be controlled by the elites (Tshabalala, 2008). Thus it was imperative for the researcher to understand if communities understudy are involved and part of decision-making, as well understand whether the NMMD Municipality communicates and consult with its citizens.

5.3.2. How villagers perceive the water supply and the way they deal with constraints caused by water supply

The research validated that water service delivery at Lomanyaneng and Majemantsho villages is a serious problem. The villagers are totally not satisfied and the project (water tankering- Jojo) that was meant to mitigate the problem of water in these villages left villagers frustrated. The communities no more have trust and respect for the municipality because they feel failed by the municipality, who failed to address the needs of the community. Community members showed dissatisfaction about water supply through tankering systems (JoJo). They indicated that the supply of water into those tankers has been unreliable as the tanks will stand dry. A further dissatisfaction about Jojo tanks in the villages was that no one cleans them and they stressed that

they drink dirty water because of its bad smelling odor and awful taste. Although the communities were not boastful about the measures they take when their voices are not heard, they indicated that the only way they make themselves heard and/or make the municipality speed up the services is through protests and by vandalizing the only resources they have.

Lack of access to clean drinking water (water supply) constrains people's daily activities and impact on their health and wellbeing (Muller, 2011). Thus, according to the systems theory, a change in one of the systems results in a change in the others (James & Gilliland, 2005). As discussed earlier, local government has the obligatory mandate to provide basic needs of the community. Development projects akin to water resource programmes obstruct the life of local people both directly and indirectly given that they live with water resource and they are the main users of such resources (FAO, 2010). Thus municipal communities should be placed first particularly in development projects aiming to improve and change their livelihood. However, De Visser (2010) indicates that often municipalities are concerned with regional and at times national politics rather than what concerns the community (community distress). Whilst on the other hand, Sebugwago (2013) declared that South African municipalities are faced with mass protests, demonstrations and petitions because of lack of service delivery, which indicates the municipal governments' failure to take action regarding community challenges. Service delivery protests have become a norm since 2010 thus according to Community protests in South Africa is highlighted that the exacerbating factors in service delivery is lack of accountability and absence of the true public participation (Karamoko, 2011).

Community participation or involvement is very essential as development is not about delivery of goods/services to an inactive community, but is about active involvement and enhancing empowerment (Mokiwa, 2015). Reid (2000) emphasised that community participation is a principle so important that it has made active citizen involvement in all facets of strategic plan, development and implementation.

5.3.3. Constraints faced by the NMMD municipality in providing water services to the community of Lomanyaneng and Majemantsho.

The findings of this study revealed that water service delivery of the Ngaka Modiri Molema District Municipality is very poor regarding water supply. The ward councilors had also revealed that there are challenges they encounter when reporting about water delivery service for these

villages. In addition to what the ward councilors said, the municipal manager indicated that the communities are not supplied water based on RDP standard. Hence the water is being tankered to the communities and he justified that by saying it is purely because of inadequate planning besides the conditions of climate change, i.e. drought that has left the reservoirs dry. Furthermore, it was indicated that there is no infrastructure hence the communities do not have access to adequate, safe drinking water. Also, the municipal manager indicated that the other constraint is the financial crisis the municipality is faced with which he attributed to poor planning.

Regarding constraints the municipality is faced with, this can be attributed to the challenges South African municipalities are facing, such as insufficient budget, capacity and equipment (Godfrey & Oelofse, 2008). Municipalities need stable funding to provide quality service to their communities. This means, they need apt income to perform their function. Madzivhandila and Asha (2012) highlighted that service delivery challenges faced by South African municipalities could be addressed only if clear strategies are devised to strengthen community. Studies have shown that without the availability of appropriate resource, planning for water services will not take place (Majikijela, 2007). The majority of municipalities are found incapable to draw-up an IDP and they frequently use it as their wish list of what they would like to achieve but cannot within their budgets (Mbelengwa, 2016). Also, municipalities as a state organ are significantly eligible for constructing developmental goals based on either short term, medium and/or long term goals (Nzimwake, 2012).

With regards to a system in relation to its environment, the NMMD Municipality is a community system and the functioning of the two depends on the interaction with each other to complete the system as a whole (Kist-Ashman, 2010). It is argued that the whole cannot be complete without the existence and participation of each of the components, hence a “relationship amongst them” (Ambrosino, Hefferman, Schuttleworth & Ambrosino, 2005, p.50). The implication of feedback with regards to communities is that, they must be informed on how their supplies are managed as they expect better services. Also, they should participate in development processes and make decisions that will affect them (Thwala, 2009).

Pieterse (2000, p.18) connotes that the “sum total and quality of these relations is at the core of understanding participatory governance”. Thus in order for the community to participate, they

need to obtain information about how municipalities work, how decisions are made, accuracy of information is important, as well as the structures of the municipalities (Tau, 2013). Inasmuch as there are systems and structures put in place to promote community participation, the efficacy of community participation within the context of South Africa in municipal 'affairs' is lacking due to the fact that residents are not aware of their rights and duties as citizens of the municipality (Masango, 2009).

5.3.4. The level of involvement of the communities in decision-making about water service delivery in Lomanyaneng and Majemantsho villages

It was at the centre of this study to discover the element of involvement/participation of the aforesaid communities in decision-making within the local government (municipality) about water service delivery. The findings revealed that communities are involved only through meetings called by the ward committees, ward councilors and/or IDP meeting; however, it was observed that there is less participation and no decision-making by villagers. The less participation of community is because of the lack of trust in the municipality as they feel they always raise their concerns and needs in these meetings but nothing is done.

Community involvement must be based in communities having similar common interests and goals (Mbelengwa, 2016). Moreover, the involvement of communities in the matters of government particularly municipalities ensure that their voices are heard (Tau, 2013). As a result, the involvement of communities in the municipality matters has become a requirement for effectual operation of the local government sphere. Thus, in the new democratic South Africa communities are key stakeholders of municipalities. Patterson (2008) indicates that participation of communities play a fundamental role in making sure that the development mandate of the local government is fulfilled and that, such participation could as well make sure that the citizenry of municipalities develop trust and sense of belonging to their own development plans. Thus it can be argued that one of the things that will make possible for the municipality to respond to the needs of its citizenry is working closely to them (Mbelengwa, 2016). Vivier and Wentzel (2013) also indicated that interest in community involvement is at times persuaded by the quality of service delivered when at times is reliant of perceptions of quality of service delivery.

Madumo (2011) opine that once people have been consulted and involved in decision-making, this makes the implementation process a lot easier. Therefore, it is municipalities' responsibility to guide and provide sufficient information to communities to ensure that their decision-making is informed. However, this does not imply that the community should dictate to the municipality; instead it should be a mutual process of collaboration. Looking at community participation from the point of human nature, one can argue that involving people in decision-making, planning, implementation and evaluation on various development programmes that affect their lives is one of the basic and fundamental human rights (Thwala, 2009). Thus people themselves should be the drivers in guaranteeing that the process of their participation does not become dominated or limited by any groups, i.e. political party, ward committees, ward councilors, etc.

Community participation theory suggests that, the community members are capable to make suitable decision/s as they know what is good for them (Reid, 2000). Thus community participation is central to building an empowered community (Midgley, 2000). However, participation is not only required for empowerment programs but is a requisite for community development (Midgley, 2000). It can be concluded that community participation necessitates collaboration from both the community and the municipality (Van Rooyen, 2003).

According to Mokiwa (2015), studies on community development have shown that communities with high level of participation when applying for funding are more likely to receive it as opposed to communities with less participation. Moreover, participating communities often achieve citizen satisfaction with their community (Mokiwa, 2015).

However, community participation in a democratic society is both important and problematic. As a result, if community members become distrustful of the structure of the system and its process; that affects the relationship between local government and citizens (Dalton, 2004 as cited in Madumo, 2011). But at times community input is required in various meetings only to have it ignored. Thus Tshabalala (2008) asserts that community participation should not be seen as a process that 'rubber stamps' prearranged plans or simply ends up as an information providing session to developers. This scholar states that community participation should be in the interest of the community so to advance them.

Inasmuch as much as the municipalities are obligated to involve communities in their affairs, the community as well must be willing and able to be involved, have the interest and time for

participation. This means, community members must also be responsible for the quality of their participation. Various scholars has shown that communities are extraordinarily different and not often united (Houston et al., 2000). This is in line with Tony & Farrington (1995, cited in Tshabalala, 2006) who indicated that the community diversity might make it difficult for mutual agreement on common aspirations and that have the probability of becoming a stumbling block for the development. For example, regarding IDP development plan, some might see it necessary when others think is unnecessary and this will delay the process as is not accepted by all community members. This in turn, leaves the municipality with the responsibility of structuring participation in ways that will promote massive participation rather than that of the few wanting to personally gain from the process (Mbelengwa, 2016).

5.4. RECOMMENDATIONS TO THE NMMDM REGARDING WATER SUPPLY

In order for the Ngaka Modiri Molema District Municipality to overcome problems related to water scarcity, there are few recommendations from participants regarding water supply and service delivery. Participants suggested that the municipality should increase communal water taps in each street corner as that will prevent overcrowding and queuing for one tap, also it will make access of water easier for those far from the central tap.

They also suggested the need for drainage systems in order to recycle the water but since they do not have resources to accommodate this, they suggested two thing; the municipality to make each household a drain or just one big drainage for the entire village. Participants felt that it could be better this way as the water they throw on the plain ground after washing their clothes, dishes as well as bathing is a waste and thus it may be re-used. Moreover, they indicated that a constant monitoring of the Jojo tanks be carried out for good quality of water, and their drinking water should be inspected before it can be delivered. The communities also suggested that the municipality should consult with them in terms of what their needs are (needs assessment and consultation). Thus they suggested that before the planning and implementation of any projects for the community, the municipality should consult with them and do needs assessment to identify what is mostly needed as they are the people in need. This means the decision should be made by the community as opposed to the municipal manager or ward councilors; also, this implies the municipality to prioritize effective water delivery. Proper planning was also suggested for the municipality by both the community members as well as the municipal manger.

This was valued as the key element for effective and sustainable service delivery. Also, the need for outreach programmes in order to disseminate knowledge about water conservation and better ways for water consumption was recommended for the community by both community members and the municipality.

5.5. CONCLUSION

This chapter has given a brief summary of the discussion in chapter 4 and the recommendations for Ngaka Modiri Molema District Municipality. As the central aim of the study was to explore the perceptions about water scarcity, however, the researcher specifically looked at the experiences of the community members of both Lomanyaneng and Majemantsho villages about the effects of water scarcity on their health and development.

Post-apartheid, service delivery is still one of many challenges most South African municipalities are facing and the NMMD municipality in particular. This shows that municipalities are still struggling to strategise around fulfilling their obligation to deliver quality services to their communities. Although the municipality tried to mitigate the problem of water in Lomanyaneng and Majemantsho villages, however, it is concluded that communities' perceptions about water service delivery of the Ngaka Modiri Molema District Municipality is very poor. The evidence for such is when communities go for days even for months without water in the Jo-jo tanks they were provided with. This then proves that the municipality is not reliable. Since South African municipalities are mandated to improve the welfare of the communities under their jurisdiction and be aware of their expectations and views of quality service delivery, recommendations were thus given for the municipality's consideration to improve the quality of service delivery in these two villages. In conclusion, the findings of this study emphasise the importance of effective cooperation between the supplier (municipality) and the users (communities) of the services entrenched in the Batho- Pele principle.

5.6. FUTURE RESEARCH

The researcher hopes the findings help the municipality mitigate the problem. Since the research was conducted at only two wards; Lomanyaneng-ward 5 and Majemantsho-ward 21 in the Ngaka Modiri Molemma District Municipality, it is proposed that similar study be carried out in other wards of this municipality to explore the problem further and include water usage of each

household. This might help the municipality understand how much water is used and enable the municipality with programmes of water conservation.

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APPENDICES:**Appendix A:****The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Participation Information Sheet (Community members)**

Good day,

My name is Nonkululeko Lolwana and I am a post graduate student registered for the degree MA in Social Development at the University of the Witwatersrand. As part of the requirements for the degree, I am conducting research into the *Perceptions and experiences of the communities of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District in the North West Province in order to uncover the extent of water scarcity and the influence thereof on their health and development*. It is hoped that this information may enhance the stakeholders of Mahikeng Local Municipality (water supply and sanitation sector) understanding of the experiences of the communities in this situation will help give you an opportunity to voice your views.

I therefore wish to invite you to participate in my study. Your participation is entirely voluntary and refusal to participate will not be held against you in any way. If you agree to take part, I shall arrange a focus group discussion at a time and place that is suitable for you. The focus group discussion will last approximately one hour. You may withdraw from the study at any time and you may also refuse to answer any questions that you feel uncomfortable with answering.

With your permission, the interview will be tape-recorded. No one other than my supervisor and examiners will have access to the tapes. The tapes, focus group discussion notes and transcripts will be kept for two years following any publications or for six years if no publications emanate from the study. Please note that because it is a focus group discussion, confidentiality cannot be guaranteed; however, be assured no identifying information will be included in the final research report.

Please feel free to ask any questions regarding my study. I shall answer them to the best of my ability. I may be contacted on cell no. 083 485 9557, and email address nkuli.lolwana@gmail.com or my supervisor, Dr. Edmarie Pretorius, Tel + 27 11 7174476, and email address Edmarie.Pretorius@wits.ac.za. If you have any concerns about the way the research was conducted you can contact the Human Research Ethics Committee (Non-Medical) Contact Details: Chairperson:

Jasper.Knight@wits.ac.za or the Administrator: Mrs. Lucille Mooragan Tel 011 717 1408 or Lucille.Mooragan@wits.ac.za

Should you wish to receive a summary of the results of the study; an abstract will be made available on request.

Thank you for taking the time to consider participating in the study

Yours sincerely

Nonkululeko Lolwana

Appendix B:**The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Participation Information Sheet (Municipality officials: Municipal Manager and Ward councilors)**

Good day,

My name is Nonkululeko Lolwana and I am a post graduate student registered for the degree MA in Social Development at the University of the Witwatersrand. As part of the requirements for the degree, I am conducting research into the *Perceptions and experiences of the communities of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District in the North West Province in order to uncover the extent of water scarcity and the influence thereof on their health and development*. It is hoped that this information may enhance the stakeholders of Mahikeng Local Municipality's (water supply and sanitation sector) understanding of the experiences of the communities in this situation will assist you in opportunity planning and decision-making.

I therefore wish to invite you to participate in my study. Your participation is entirely voluntary and refusal to participate will not be held against you in any way. If you agree to take part, I shall arrange to interview you at a time and place that is suitable for you. The interview will last approximately one hour. You may withdraw from the study at any time and you may also refuse to answer any questions that you feel uncomfortable with answering.

With your permission, the interview will be tape-recorded. No one other than my supervisor and examiners will have access to the tapes. The tapes and interview schedules will be kept for two years following any publications or for six years if no publications emanate from the study. Please be assured that your name and personal details will be kept confidential and no identifying information will be included in the final research report.

Please feel free to ask any questions regarding my study. I shall answer them to the best of my ability. I may be contacted on cell no. 083 485 9557, and email address nkuli.lolwana@gmail.com or my supervisor, Dr. Edmarie Pretorius, Tel + 27 11 7174476, and email address Edmarie.Pretorius@wits.ac.za. If you have any concerns about the way the research was conducted you can contact the Human Research Ethics Committee (Non-Medical) Contact Details: Chairperson:

Jasper.Knight@wits.ac.za or the Administrator: Mrs. Lucille Mooragan Tel 011 717 1408 or Lucille.Mooragan@wits.ac.za

Should you wish to receive a summary of the results of the study; an abstract will be made available on request.

Thank you for taking the time to consider participating in the study

Yours sincerely

Nonkululeko Lolwana

Appendix C:**The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Consent Form for participation in the study**

I hereby consent to participate in the study. The purpose and procedures of the study have been explained to me.

I understand that:

- My participation in this study is voluntary and I may withdraw from this study without being disadvantaged in a way
- I may choose not to answer any specific questions if I do not wish to do so.
- There are no foreseeable benefits or particular risks associated with participation in this study.
- My identity will be kept strictly confidential, and any information that may identify me, will be removed from the interview transcript.
- A copy of my interview script/ the focus group discussion transcript without any identifying information will be stored permanently in a cupboard and may be used for future research.
- I understand that my responses will be used in the write up of a Masters Research Report and may also be presented in conferences, book chapters, journal articles or books.

Name of Participant: _____

Date: _____

Signature: _____

Appendix D**The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Consent form for Audio-Taping of the interview for the study**

I hereby consent to tape-recording of the interview.

I understand that:

- The recording will be stored in a secure location (a locked cupboard or password-protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me will be removed.
- When the data analysis and write-up of the research study is complete, the audio-recording of the interview will be kept for two years following any publications or for six years if no publications emanate from the study.
- The transcript with all identifying information directly linked to me removed, will be stored permanently and may be used for future research.
- Direct quotes from my interview/ interview group discussions without any information that could identify me may be cited in the research report or other write-ups of the research.

Name: _____

Date: _____

Signature: _____

Appendix E:**The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Semi-structured Interview Schedule for Ward Councilors**

1. How long have Lomanyaneng/Majemantsho been experiencing water shortages?
2. In your view, what are the causes of water shortage in this village of your ward?
3. How do you think water scarcity is affecting the development and health of the people of Lomanyaneng/Majemantsho?
4. In your capacity, what are you doing to address the challenges residence of Lomanyaneng/Majemantsho are facing in relation to water shortages?
5. What is your experience with the municipality once you have reported a water related problem?
6. How do you perceive the role of a Councilor in service delivery?
7. How do you go about to engage the community members in your ward?
8. How do you see the participation of the public in decision-making?

Appendix F:**The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Semi-structured Interview Schedule for Municipality Manager**


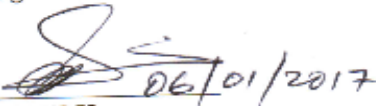
1. What are your views regarding water shortage challenges the communities are faced with in Ngaka Modiri Molema District Municipality, particularly ward 5 and ward 21?
2. What do you think are the consequences of lack of proper water and sanitation services?
3. How do you think water shortage is affecting the development and health of the people of Lomanyaneng and Majemantsho?
4. What are the challenges the NMMD Municipality are experiencing in terms of rendering proper service to the people of Lomanyaneng and Majemantsho?
5. How do you see the participation of the public in decision-making?
6. How do you go about to engage the community members in Lomanyaneng and Majemantsho
7. What do you see as solutions to the water shortage problems the communities of Lomanyaneng and Majemantsho are experiencing?
8. How do you perceive the role of the municipality in addressing the water shortage in Lomanyaneng and Majemantsho?

Appendix G:**The effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho villages in Ngaka Modiri Molema District, North West Province****Focus Group Discussion Guide with community members:**

1. Share your views about water service delivery in your ward?
2. What are your views about the reasons for water shortages in your ward?
3. What are the challenges you are experiencing regarding water scarcity?
4. In which ways do the challenges you are experiencing with water influence your health?
5. How is water scarcity affecting the development of your community?
6. How do you go about bringing the challenges you are experiencing to the attention of the ward councilor or municipality?
7. What are your experiences when you engage with the ward councilor or municipality officials?
8. What is the extent and nature of your involvement and/or participation regarding the challenges the communities are faced with, water scarcity in particular?
9. What suggestions do you have to address the challenges with water you are experiencing in your community

Appendices H:

Permission letter from NMMDM

 <p>NGAKA MODIRI MOLEMA DISTRICT MUNICIPALITY</p>	<h1>NGAKA MODIRI MOLEMA DISTRICT MUNICIPALITY</h1>
<p>Chr. Garrington Str and 1st Avenue, Industrial Site, Mahikeng, 2745 Tel: (018) 381 9400 Fax: (018) 381 4300 Private Bag X2167, Mahikeng, 2745 www.nmmdm.gov.za</p>	
<h2>OFFICE OF THE MUNICIPAL MANAGER</h2>	
Ref. Ms B Mahape	Tel: 018 3819 400/ 422
<p>Ms Nonkululeko Lolwana House No. 10210 Lomanyaneng Village Mahikeng 2745</p>	
Dear Madam	
RE: REQUEST TO CONDUCT RESEARCH	
<p>This communicate serves to accept your request to conduct your research project on the effect of water scarcity on health and development: the case of Lomanyaneng and Majemantsho village in the Ngaka Modiri Molema District Municipality for your Master in the Field of Social Development.</p>	
<p>We believe that the research undertaken will benefit not only the institution, but the country at large.</p>	
<p>We will appreciate a copy of your research document.</p>	
Regards,	
 <p>J BRANDER ACTING MUNICIPAL MANAGER</p>	
<p>"Leaders in integrated municipal governance"</p>	

Appendices I:

Ethics Clearance Certificate

**DEPARTMENTAL HUMAN RESEARCH ETHICS COMMITTEE (SOCIAL WORK) CLEARANCE CERTIFICATE****PROTOCOL NUMBER:** SW/2/16/10/16**PROJECT TITLE:** The effect of water scarcity on health and development: The case of Lomanyaneng and Majemantsho Villages in Ngaka Modiri Molema District North West Province**RESEARCHER/S:** Ms Nonkululeko Lolwana (1513682)**SCHOOL/DEPARTMENT:** SHCD Social Work**DATE CONSIDERED:** 14 October 2016**DECISION OF THE COMMITTEE:** Approved**EXPIRY DATE:** 28 February 2018**DATE:** 9/01/17 **CHAIRPERSON:** K. Pretorius**Cc: Supervisor:** Dr Edmarie Pretorius**DECLARATION OF RESEARCHER(S)**

To be completed in **DUPLICATE** and **ONE COPY** returned to the Administrative Assistant, Room 8, Department of Social Work, Umthombo Building Basement.

I/We fully understand the conditions under which I am/we are authorised to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the committee. For Masters and PhD an annual progress report is required.


SIGNATURE

17/01/2017
DATE

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES