

**The causes and impact of water shortage on the households of Ga-Kgapane
Township in the Limpopo Province**

By

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DECLARATION

I declare that “The causes and impact of water shortage on the households of Ga-Kgapane Township in the Limpopo Province” mini-dissertation hereby submitted to the University of Limpopo, for the degree of Master of Development has not previously been submitted by me for a degree at this or any other university; that is my work in design and execution and that all material contained herein has been duly acknowledged.

Signature

Date

Mr. _____

Student Number: _____

DEDICATION

This research is dedicated to my parents Bethuel and Maggie Machethe; my wife Mmapitsi and our twin girls Boitumelo and Lebogang Machethe.

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Firstly, I want to thank Jehovah the almighty God, who gave me wisdom and courage to persevere when I thought and felt that giving up was the best way.

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Those whom I may have omitted, it was never intentional!

ABSTRACT

Water shortage is a global problem. While other people in some parts of the world maybe enjoying enough supply of water others are faced with water shortage. South Africa is not an exception in this regard because some do not have access to water but rely on distance conveyance. Government is under constitutional obligation to supply this basic social and economic service. This study, therefore, aimed at investigating the causes of water shortage and the impact thereof on the household of Ga-Kgapane Township in Limpopo Province. This township falls under Greater Letaba Municipality in Modjadjiskloof. The data collected from four sections/localities of this Township showed that the area has a serious problem of water shortage. The lack of water according to the findings negatively affects the livelihoods and development of the people of Ga-Kgapane Township.

LIST OF TABLES

Table 4.1	p36
Table 4.2	p36
Table 4.3	p37
Table 4.4	p37

APPENDIX

Structured interview questionnaire

pages 55 - 58

Table of contents

Item Description	Page
Declaration	i
Dedication	ii
Acknowledgements	iii
Abstract	iv
List of Tables	v
Appendix	vi
CHAPTER 1: BACKGROUND OF THE STUDY	
1.1. Introduction/ background	1
1.2. Statement of the problem	2
1.3. Aim of the study	2
1.4. Objectives	3
1.5. Research Questions	3
1.6. Literature Review	3
1.6.1 Scarcity of water	3
1.6.2 Problems and effects of shortage of water supply	4
1.7. Definition of concepts	5
1.7.1. Water shortage	5
1.7.2. Impact	5
1.8. Research design	6
1.9. Choice and rationale of design	6
1.10. Research Methodology	6

1.10.1. Study Area	7
1.10.2. Population	7
1.10.3. Sample size and Selection Method	7
1.10.4. Data Collection methods	8
1.10.4.1 Structured interview questionnaire	8
1.10.4.2 Documentation	8
1.10.5. Data analysis Methods	8
1.11. Significance of the study	9
1.12. Ethical considerations	9
1.13. Outline of Research Report	10
1.14. Conclusion	11

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction	12
2.2. Legislations governing water provision in South Africa	13
2.2.1. The constitution of the Republic of South Africa, 1996	13
2.2.2. The Water Services Act 108, of 1997	14
2.2.3. The White Paper on Water Supply and Sanitation Policy	15
2.3 The state of water scarcity in South Africa	17
2.4. The causes of water shortage in South Africa	18
2.4.1. Natural Causes	18
2.4.1.1. Drought	18

2.4.1.2. Climate Change	19
2.4.1.3. Surface Runoff	20
2.4.1.4. Earthquake	20
2.4.1.5. Evaporation and Transpiration	20
2.4.2 Human causes	21
2.4.2.1. Disparity in water supply	21
2.4.2.2. Illegal tap connections	22
2.4.2.3. Urbanization and population growth	22
2.4.2.4. Contamination of existing water sources	23
2.4.2.5. Leaking water pipes	23
2.5. Impact of water shortage	24
2.5.1. The impact on community livelihood and projects	24
2.5.2. The impact on crop yields.	25
2.5.3. The impact on health and social relations	26
2.5.4. The impact on development	26
2.6. Measures for saving water	27
2.6.1. Surface water capture and storage	27
2.6.2. Ground water exploitation	27
2.6.3. Long distance conveyance	27
2.6.4. Desalination and pollution control	28
2.6.5. Households usage control	28
2.7. CONCLUSION	28

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction	30
3.2. Research design	30
3.3. Research methodology	30
3.3.1. Study Area	31
3.3.2. Population	31
3.3.3. Sample size and selection method	31
3.3.4. Data Collection methods	32
3.3.4.1. Structured interview questionnaire	32
3.3.4.2. Documentation	32
3.5. Data analysis Methods	32
3.6 Significance of the study	33
3.7 Ethical considerations	33
3.8. Conclusion	33

CHAPTER 4: RESEARCH FINDINGS, ANALYSIS AND INTERPRETATION

OF DATA

4.1. Introduction	35
4.2. Research findings and analysis	35

4.2.1. Biographical information	35
4.2.2. The extent of water supply in the township	38
4.2.2.1. Access to adequate water	38
4.2.2.2. The frequency of water supply	38
4.2.2.3. Provision of water	39
4.2.2.4. Current water supply compared to previous years	39
4.2.3. The problem of water provision	39
4.2.3.1. When the water problem started	40
4.2.3.2. How the community realized	40
4.2.3.3. Previous communiqués from the local authority	40
4.2.3.4. Current communiqués from the local authority	41
4.2.4. Causes and impact	41
4.2.4.1. Causes of water shortage	41
4.2.4.2. The negative impact on development	42
4.2.4.3. What is negatively impacted by lack of water in the area	42
4.2.5. Measures of alleviating water problem in the area	43
4.2.5.1. Sorting out the problem	43
4.2.5.2. Measures for solving water problem	43

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1. Introduction	45
5.2. Conclusion	45
5.3. Recommendations	47

5.3.1. The extent of water supply in the township	47
5.3.2. The problem of water provision in the area	47
5.3.3. Causes and impact of water shortage	48
5.3.4. Measures to alleviate the problem	48
6. References	50

CHAPTER 1: BACKGROUND OF THE STUDY

1.1. Introduction/ background

Water is a basic need that must be provided to all the citizens and this is an obligation on the side of the government according to the Constitution of the Republic of South Africa, of 1996. According to this constitution, people must have access to a certain quantity of water per day and the water must be free from contamination. Insufficient water in the body may lead to dehydration and this kind of situation may be deadly. All the above facts necessitate effective service delivery from the Municipality to the communities under its jurisdiction. Greater Letaba Municipality also, has a responsibility to supply water to the communities under its jurisdiction including Ga-Kgapane Township, which is the focus of this study.

Amponsah (2005), in the dissertation about Local Economic Development projects in the Lehurutse District of Northwest Province, also highlights that water plays a pivotal role in the success of LED projects. The findings of the study revealed that the life span of projects depend on availability of water for success. This means that for as much as the life span of a project depends on water, households deserve the first priority on the side of the municipality on provision of this basic need.

The water shortage, referred to in this study, is crucial for basic household needs such as washing, cooking, drinking and sewerage system. The households in this Township solely depend on the Greater Letaba Municipality for basic services such as water supply. The source of this water is Makgoebaskloof Dam. Between 2004 and 2007 this water used to reach all the households in Ga-Kgapane through pipes to the taps in their yards. However, currently many people are seen carrying water containers up and down drawing water from other sections in the township, neighboring towns or villages such as Mmamphakhathi

and Bodupe. This situation depicts an inadequate supply of water in the township, which prompted the researcher to investigate the impact of water shortage in the Ga-Kgapane Township.

To sum up, Section 27(1) (a) of the Constitution of the Republic of South Africa, of 1996 states that: everyone has the right to sufficient food and water. This act gives effect to the White Paper on Transforming Public Service Delivery which came from the Department of Public Service and Administration on 18 September, 1997. This White Paper states unequivocally that service delivery is obligatory at all levels of government including local municipalities. However, the people of Ga-Kgapane Township still experience water shortages, thus the researcher intends to explore the causes and impact of water shortage on the members of these households.

1.2. Statement of the problem

According to Stone (2009:46) in South Africa, water like everywhere in the world, is becoming both a scarce and a crucial resource; particularly because both people and industries need water and electricity for survival. Ga-Kgapane Township is not an exception, as many households do not receive a regular supply of water. The problem is escalating at an alarming rate as the number of households in the township increases rapidly. These developments therefore, call for an investigation of the causes and impact of water shortage on the members of the households in the township.

1.3. Aim of the study

The aim of this study is to investigate the causes and impact of water shortage on the households of Ga-Kgapane Township in the Limpopo Province.

1.4. Objectives

The objectives that this study aims to achieve are the following:

- To determine accessibility of water service to the households in the township.
- To compare the current water supply trends with the previous four years in the township.
- To establish what measures should be put in place to alleviate the problem.

1.5. Research Questions

- What are the perspective of the respondents on the causes and impact of the water shortage in the Ga-Kgapane Township?
- To what extent is the water supply service accessible to all the households of Ga-Kgapane?
- How are the current water supply trends as compared to the previous four years?
- What measures should be put in place to alleviate the problem of water shortage in Ga-Kgapane Township?

1.6. Literature Review

This section is discussing scarcity of water in South Africa and the world at large. The discussion is based on previous research and literature.

1.6.1 Scarcity of water

In South Africa, water like everywhere else in the world is becoming a scarce resource and a crucial one; particularly because both people and industries need water and electricity for their survival. However, often moving water over long

distances from dams or rivers to sustain industries and people living in towns and cities is no easy task, due to the fact that such dams are not conveniently located (Stone 2009: 46-53).

The article further looks at projects such as the VRESAP Boshkop project site that have been put in place to alleviate the water shortage problem. This is a crucial project that is aimed at ensuring that Sasol and Eskom's water needs are provided for, for the subsequent 25 years. However, this research has conceptual limitations as its focus is mainly on Eskom and Sasol who are service providers and not directly on individuals. Hence the researcher chose to investigate the causes and impact of water shortage on the members of the Ga-Kgapane Township in the Limpopo province.

The research conducted by Mainganye, (2006) discovered that, there was a disparity in the way the villages received water. The supply was interrupted in some villages whereas in other villages there were no interruptions. Similarly, the researcher in this study aims to establish the causes and impact of water shortage in Ga-Kgapane Township, in the Limpopo Province.

1.6.2 Problems and effects of shortage of water supply

Van Vuuren (2009:31) looks at the current state of affairs and provides some suggestions on what the business community and industry can collectively do to alleviate the problem of water shortage.

Among the issues he mentions around the water problem, are the decreasing quality of water, water scarcity, dysfunctional municipal water infrastructures that have resulted in the potential water crisis widely publicized in the media. Generally, the South African water sector faces numerous challenges such as increased water deficits, water pollution and decreasing water quality that not only affect availability of water but impact negatively on human health, ageing

water and wastewater infrastructure; a severe lack of skilled human resources; the impact of climate change on water resources; the illegal use of water; and the inappropriate use of funds by different spheres of local government (van Vuuren 2009: 31-33).

This study is crucial as it looks at the State of Water in South Africa as a whole. This will help to inform the researcher on the topic, help him to build a base for discussion and ultimately promote expansion on the topic. In this way the researcher will be able to limit the discussion as the research topic focuses on “The causes and impact of water shortage on the households of Ga-Kgapane Township in the Limpopo Province”

1.7. Definition of concepts

1.7.1. Water shortage

In terms of UN- Water, (2006), water shortage is a situation whereby water sources becomes inadequate for the community due to climate change, population growth or other factors that may lead to scarcity of water for consumption. This situation may lead to insufficient water for family consumption.

1.7.2. Impact

In the Oxford Advanced learner’s dictionary, (2005) the word impact is defined as the effect something has on somebody or something. This word is used quite often in this research referring to how water shortage affect the community.

1.8. RESEARCH DESIGN

This section discusses the research design and research methodology. The study will follow a qualitative research design. This research will take a form of a case study focusing on Ga-Kgapane Township. The research will use structured interview questionnaire for data collection.

1.9. Choice and rationale of design

Research design is a plan or a blueprint used when one intends to conduct research (Babbie & Mouton, 2001:55). For the purpose of this study, a qualitative design and a case study method will be used. This study will to a large extent use qualitative approach, due to the fact that primary data will be collected from the key informants with regard to water supply in Ga-Kgapane. The primary data will be collected through open ended questionnaires and in-depth interviews in order to allow for more probing by the researcher and the respondents to freely express their opinions. Qualitative approach will be more useful in order to arrive at in-depth information from the research population.

1.10. Research Methodology

This section is presenting, the study area, population, sample size and selection method and structured interview questionnaire. All these elements will be unpacked in order to show how the methodology for this study will take place. The study will use interview technique to solicit information, and therefore the research methodology will purely be qualitative.

1.10.1. Study Area

Ga-Kgapane Township is located in the Greater Letaba Municipality which falls under Mopani District Municipality. It is situated between Tzaneen and Modjadjiskloof. There are five schools, a multi-purpose centre, churches, government offices and also a police station in this township. The Township comprises the following 17 sections namely; Mapolankeng, Losmycherry, Tsamahansi, Kgaphamadi, Maphodiseng, Park Town, Mzimhlophe, Mesophotamia, Meloding, New Town, Menenburg, Extension Five, Masakhaneng, Testing, Meshasheng, Home 2000, Tenthawu. The households can be estimated at 3800 according to information from the Greater Letaba Municipality.

1.10.2. Population

Bless, Higson-Smith and Kagee (2006:98) define population as the entire set of objects or people, which is the focus of the research and about which the researcher wants to determine some characteristics. According to information from Greater Letaba Municipality, Ga-Kgapane Township has a population of about 17480 people. The population for this study will therefore comprise both male and female members of the households of Ga-Kgapane Township. These are the people with first hand information with regard to how the water shortage is affecting their own lives. They are the key informants who may provide answers to the research questions.

1.10.3. Sample size and selection method

A sample is a small portion of the total set of objects, events or persons that together comprise the subject for the study De Vos, Fouche, and Delport, (2002:1999.) For the purpose of this study, 40 households will be sampled from four sections of Ga-Kgapane Township. The names of these sections are;

Mapolankeng, Tsamahansi, Losmycherie and Mesopotamia. These households will be selected through non-probability sampling and purposive sampling method will be used.

1.10.4. Data Collection methods

10.4.1. Structured interview questionnaire

This study will use structured interview questionnaires to allow for in-depth probing of the respondents. The study will entail face to face interviews in order for the researcher to arrive at qualitative primary information.

10.4.2. Documentations

Secondary data will be collected through journals, academic books, government legislations and other recent materials.

1.10.5. Data analysis Methods

Qualitative data analysis methods will be used because the study deals mainly with qualitative data. Because quantitative methods will also be used, thus the study uses triangulation. The variables that denote themes will be clustered together and those that denote the numbers will be put together. The frequency of water supply for example, everyday, once per week / month/ year is quantitative. The feelings of the households about service delivery are qualitative. Tables, histograms, bar charts, and computer system will be used to analyse the data generated.

1.11. Significance of the study

Water is critical in sustaining life, crucial to economic growth, social development as well as environmental sustainability (The Water Wheel, 2009:31-33). Therefore, the problem of water shortage is not just a local, provincial, or national phenomenon but a global issue that affects individuals, industries as well as the economies at large. Hence, this study is significant since it seeks to address the impact of water shortage on the households of Ga-Kgapane Township. The findings may be useful to the Greater Letaba Municipality in making informed decisions related to water supply in the future. The study may also help to contribute to the already existing body of knowledge as well as help to inform policy makers in government.

1.12. Ethical considerations

This study will ensure that participants operate from an informed consent. Respondents will be told the truth about the intention of the study and not be deceived. Participation will be on voluntary basis so that they may pull out anytime they wish. There will be no violation of privacy and respondents will be assured of their anonymity. This means that even if they were supposed to fill their names on the questionnaires, these names were not going to be published. Respondents will be assured that the information they provide will be treated confidentially.

1.13. Outline of Research Report

The chapter outline structure is as follows:

1.13.1. Chapter 1

This Chapter will deal with the study background, which entails introduction, significance of the study, statement of the problem and motivation for the study. Also in chapter one, the study aim, research questions and definition of concepts will be dealt with.

1.13.2. Chapter 2

This part of the study will entail the review of literature sources related to causes and impact of water scarcity. These sources will include government documents, internet, journals, previous research, and books. The purpose of the literature is to review information on what other scholars did before with the same subject.

1.13.3 . Chapter 3

This chapter will present research the design and methodology which includes; the area of study, study population, sample size and sampling method. It is this part of the study that will detail the above processes.

1.13.4 . Chapter 4

This chapter will present the findings of this investigation. It is also in this chapter that, analysis of data will be done. Lastly, the data collected, will be interpreted in this part of the study.

1.13.5. Chapter 5

This will be the final chapter of this research in which the recommendations and conclusion will be discussed. The recommendation and conclusions will be based on the objectives of the study.

1.14. Conclusion

This chapter presented the research design for this study and showed that a qualitative research design will be followed. The reason for taking this approach is that, the study seeks to collect qualitative data from the key informants on the issue of water shortage and its impact in Ga-Kgapane Township. The qualitative approach is chosen so that the researcher will be able to arrive at qualitative results. Also presented was, research methodology. The discussion of research methodology entailed the study area, population, and sample size and selection method. The data collection method was also presented as well as data analysis methods. The significance of the study was also explained and showed water as a crucial commodity for life, economic growth and social development. Also discussed in this chapter were, ethical considerations as well as the outline of this research.

In the chapter that follows the study will focus on literature review. Literature review provides the theoretical framework of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In this chapter, literature sources related to causes and impact of water scarcity will be reviewed and these will come from government documents, internet, journals, previous research, and books. The purpose of this will be to link theory to both research problem and objectives of the study.

Water is said to be an indispensable commodity and life would be impossible without it. People can live for a few days without water (Nealer, 2009:74). For the household, a day would be terribly difficult without this life enabling commodity, for example, people couldn't brush their teeth or wash themselves.

The human water requirements are far more than it can be expected. In fact water comprises fifty to seventy percent of the adult weight. Water is not only for food, it is a chemically defined molecule which constitutes a core nutrient essential for health and survival of the human beings. The human body has no provision for water shortages as can only be highly compromised without water (Wenhold and Faber, 2009: 61). It is clear from the above information that water is an indispensable commodity for human beings. How would the situation be if there was no water in the households? Everything would be dirty in the house and drinks will be no more. This would be a situation were it won't be possible for one to prepare ones' best meal (Explore More: Water Quality 2004:2).

Based on the information above this chapter will focus on the following aspects in relation to water related management in South Africa, namely; the legislations governing water provision in South Africa, the causes of water scarcity and the impact of water scarcity in affected households. The measures to deal with or reduce water scarcity will also be discussed in this chapter.

2.2. LEGISLATIONS GOVERNING WATER PROVISION IN SOUTH AFRICA

There are basically three legislations governing water provision in South Africa, namely, the Constitution of the Republic of South Africa, 1996, the Water Services Act, 108 of 1997 and the White Paper on Water Supply and Sanitation Policy, 1994.

2.2.1. The Constitution of the Republic of South Africa, 1996

Chapter two of the Constitution of South Africa, 1996 comprises the bill of rights which is the cornerstone of democracy in South Africa. Section 7(2) of this constitution states clearly that; the state must respect, promote and fulfill the rights of people as listed in the bill of rights. The right to equality is also enshrined in this constitution. According to section 9(1), (2), (3), (4) of this constitution, no person shall be unfairly discriminated against on the grounds of; for example, gender, sex, ethnic group or social origin, language... and everyone is equal before the law. Section ten provides for the right to human dignity. The right to health care, food, water and social security is also protected in this constitution. Section 27(1) (b) unequivocally states that; everyone has the right to access to sufficient food and water. Subsection two of this section states categorically clear that; the state has full responsibility to see to it that these rights are realized progressively.

Section 74 (2) (c) of the Municipal Systems Act, 32 of 2000, as amended, requires municipality to provide basic services through a variety of steps. The tariffs for example, cover only operating and maintenance costs and subsidizing the poor households. A follow-up to the above section is the Free Basic Water Policy which was introduced in South Africa by the year 2000. In terms of the free basic water policy the households are entitled to six thousand litres of water per month and these amounts to twenty-five litres per person per day for a family of eight. (Hall, Leatt and Monson 2006:58). This provision targeted the poor people;

however, it is difficult for government to control this policy as even people who did not qualify wanted to benefit. Municipalities control this provision by having indigent policy in place for people who qualify to fill the necessary form in order for them to get a rebate.

2.2.2. The Water Services Act 108, of 1997

The water services Act 108, of 1997 provides for the rights of access to basic water and sanitation. The establishment of Water boards and water services committees are also provided for in this Act. The rights to access to basic water supply and basic sanitation that will ensure the environment that is not harmful to society must be realized. In terms of section 3(1) of the Water Services Act, 1997, everyone has the right to accesses to basic water supply and sanitation. Subsections 2, 3 of this section maintain that every water services institution must take reasonable measures to realize these rights. Every water authority must in its water services development plan, provide for measures to realize this right. The provision of water must be fair and equitable to the members of the public.

Section 4 (1) (2) of the Water Services Act 108, of 1997, provides that water services must be provided in line with terms and conditions set by the water services provider. These conditions must be accessible to the public. Subsection (2) (C) provides for the conditions for payment, tariffs and the circumstances under which water services may be limited or discontinued must be made public to the citizens. The water boards and the water services authorities as well as their jurisdictions are well explained in the above Act. The Water Services Act 108, of 1997, states that “every water services authority has a duty to all consumers” to provide water which is free from contamination. These water services authorities include; the national, provincial and the local government. However, according to the Water Services Act, 108 of 1997, the onus is with the

local government to provide water to the communities within its jurisdiction (Louw 2003:107).

2.2.3. The White Paper on Water Supply and Sanitation Policy

This White Paper was introduced by the then minister of Water Affairs and Forestry in the Republic of South Africa, Prof Kader Asmal, MP. This White Paper was introduced due to the fact that water and sanitation were central to the RDP process. It was discovered that more than 12 million people did not have access to basic water and sanitation. On July 1, 1994 a new department came into existence. This new department was called; the Department of Water Affairs and Forestry. Before the birth of this department, South Africa was divided into eleven different homelands and TBVC states, six self governing territories and the dominant RSA territory, governed by the tri-cameral parliament. The issue of water supply was supposed to be addressed immediately after jobs and housing.

The Republic of South Africa unfortunately did not have equity in water supply; this led to the introduction of the White Paper on Water Supply and Sanitation. By the end of the nineteenth century there was still a serious inequality of water supply in South Africa. Piped water distribution for example, was between 95.4 and 100% for the Indians, whites and coloured. Only 43.3% of the black community received piped water to their houses. Most of the water in South Africa during this period was for white commercial agriculture, however, section C of the of the Water and Sanitation Policy shows that basic services including provision of water are a human right. In terms of the constitution of South Africa, 1996 all the citizens irrespective of colour are equal before the law. Due to the above fact; everyone is entitled to free basic water supply (White Paper on Water Supply and Sanitation Policy, 1994:3, 4)

Basic water provision in line with the governments' Reconstruction and Development Programme; was to cover every citizen irrespective of colour. In

terms of the White Paper on Water Supply and Sanitation Policy (1994:14, 15) the free basic water supply is defined as; 25 litres per person per day. This is considered to be the minimum required for direct consumption, for the preparation of food and for personal hygiene. The cartage should be the minimum of 200m and the distance may be reduced in a steep terrain. The availability of water from the outlet should not be less than 10 litres per minute. The user of the water services must pay for this service. The South African government also undertook to subsidize the poor communities which were not able to pay for themselves. The confusion that may arise from the information about water subsidies by government may be that; even people who do not qualify for these subsidies may stop paying. These may become a burden to the department. This white paper also provides for the role of water boards as; acting of agents of DWAF at regional level. The functions entrusted to the water boards are; the development of water supply and sanitation services at regional level. The local water committees are supporting the local democracy (The White Paper On Water Supply and Sanitation Policy, 1994:24).

The function of the national government is to ensure that, what happens at grassroots level meets the standard. In short the function of central government is monitoring, performance auditing and regulating functions. Another key function that is provided for in this white paper is, involvement of women in all statutory bodies, in the water sector including local water committees. It is in this white paper that the management of drought and other disasters is highlighted. The irrigation boards are also regulated by this white paper. This is due to the fact that the early history of water development in South Africa was focused on irrigation and enormous public resources were allocated to the development of water resources for the owners of suitable agricultural land. These owners of land constituted a very small proportion of the population (The White Paper on Water Supply and Sanitation Policy, 1994:9, 10).

To sum up, this white paper encourages development that is demand driven and community based. When coming to water supply and sanitation, the role of central government is to manage the nations' water resources, to ensure that all the citizens have access to basic services including water. Monitoring and auditing are still within the jurisdiction of national government. Provincial government develops local government and local government implements. The water boards may also provide services direct to the consumers in the absence of local government. To achieve the goals of this white paper, a joint venture of government, private sector, NGOs and the communities is encouraged (The White Paper on Water Supply and Sanitation Policy, 1994:10).

2.3 THE STATE OF WATER SCARCITY IN SOUTH AFRICA

In South Africa, water like every where else in the world is becoming a scarce resource and a crucial one; particularly because both people and industries need water and electricity for their survival. However, often moving water over long distances from dams or rivers to sustain industries and people living in towns and cities is no easy task, due to the fact that such dams are not conveniently located (Stone 2009: 46-53). In the same breath, van Vuuren (2009:31) looks at the current state of affairs and provides some suggestions on what the business community and industry can collectively do to alleviate the problem of water shortage. Water problems in South Africa, are the decreasing quality of water, water scarcity, dysfunctional municipal water infrastructures that have resulted in the potential water crisis widely publicized in the media. Generally, the South African water sector faces numerous challenges such as increased water deficits, water pollution and decreasing water quality that not only affect availability of water but impact negatively on human health, ageing water and wastewater infrastructure; a severe lack of skilled human resources; the impact of climate change on water resources; the illegal use of water; and the inappropriate use of funds by different spheres of local government (van Vuuren 2009: 31-33). This article further looks at projects such as; the VRESAP Boshkop

project site that has been put in place to alleviate the water the shortage problem. South Africa is a water scarce country with demand already exceeding supply in certain cities. The water quality is also deteriorating; municipalities are unable to maintain ageing water and waste water infrastructure due lack of personnel with skills (The Water Wheel, 2009:33).

2.4. THE CAUSES OF WATER SHORTAGE IN SOUTH AFRICA

The following sections will be looking at the causes and impact of water shortage which constitute the focus of this study. The cause of water scarcity in each and every area is varied. In other areas the causes may be natural, while in other areas they may be human made. Research conducted in the field of water management has demonstrated that the causes are both human and natural. This section therefore, looks at both the natural and human made causes of water scarcity in terms of literature review.

2.4.1. Natural Causes

The following are in terms of literature reviewed the natural causes of water scarcity in most areas, namely, drought, climate change, surface runoff, earth quake as well as evaporation and transpiration.

2.4.1.1. Drought

Draught can be defined as a prolonged period of unusually dry weather in an area; low rainfall leads to low water in aquifers and the pattern may lead to water shortages even for the households. Southeast England for example, experienced shortages of water since 2004. The water levels in several catchments drop due to rainfall that is below average (Fabriz 2008-2009:6). A balance must be maintained between the water supplied and the surface run-off to replace it. When there is a dry winter the expected excess of water does not occur, and

results with reservoirs not adequately filled at the beginning of summer. Water shortage results under these circumstances even when summer is not excessively dry (Fabriz 2008-2009:2).

2.4.1.2. Climate Change

According to Zhang (2007: 2), climate change is the cause of change in the distribution of world s' water. This conclusion boils down to the fact that water availability is also dependant on climatic conditions. Scarcity of water for domestic use may further be linked to low flow periods during summer. High temperatures during these period call for more water for agricultural purposes (Middelkoop, Daamen, Gellens, Grabs, Kwadijk, Lang, Parmet, Schadler, Schula and Wike, 2001:123).

From this article, it is salient that scarcity of water may also be linked to the rising heat or hot temperatures. The above findings resulted from a project on assessment of the impact of climate change on the river flow conditions. Common knowledge may support the above information as most people possibly know that the water sources dry up after a prolonged period of less or no rainfall combined with a lot of heat. Water shortage for household use will obviously lack unless there are other interventions.

Similarly, Eriksen, O'brien and Rosentrater (2008:7) concur that, the increasing droughts in Southern African dry land will further increase due to high temperatures and decreased rainfall. According to Van Rooyen, Van Niekerk and Versfeld (2009:7) the planning of water resources need to be done considering many factors including rainfall and run off. This article shows that climate change adds to water supply uncertainties.

2.4.1.3. Surface Runoff

Uitto and Biswas (2000:205) theorized that, surface runoff is also a cause for drinkable water shortage. This is due to the fact that, flood carries different objects from the ground into the drinkable water sources. The rivers, fountains and dams that normally provide water to the households may be rendered undrinkable during heavy floods and also for some days or weeks after the flood. At times, a river which may be a sole source of clean water for the community may also become a source for flood. This may lead to a situation whereby the community is left without water for household use (Uitto and Biswas, 2000:205).

Similarly, Twort, Ratnayaka and Brandt (2008:84) agree that, the peak runoffs are difficult to estimate as a result of the damage occasioned by the debris and sediment brought down by the floods. These objects render the water unusable for some household activities including drinking. Runoff has according to Wallace (2000:105) been shown to be a major loss of water. When rainfall is high and infiltration rate is low because of steep slopes runoff becomes high and a high quantity of water is lost.

2.4.1.4. Earthquake

Earthquakes may cause water shortage in that, they may destroy a variety of infrastructures including those of water supply. The water service may be destroyed for days, weeks, months or even for longer periods depending on the seriousness of the damage (Uitto and Biswas, 2000:203).

2.4.1.5. Evaporation and Transpiration

Evaporation is the key part of hydrological cycle as seventy five percent of the annual precipitation returns to the atmosphere due to evaporation and transpiration(Twort, Ratnayaka and Brandt 2000:73). According to this source a

lot of water goes back to the atmosphere as a result of 'evapotranspiration' which is a combination of the two processes, namely, evaporation and transpiration. It is difficult to measure the loss of water through these processes with certainty. Through these processes water is lost from any open water source, e.g. dams, reservoirs, rivers and the vegetation (Twort, Ratnayaka and Brandt 2000:73).

2.4.2 Human causes

According to literature reviewed, the following human causes to water scarcity will be discussed, namely, disparity in water supply, illegal tap connections, urbanization and population growth, contamination of existing water sources and leaking pipes.

2.4.2.1. Disparity in water supply

Research conducted by Mainganye (2006) discovered that, there was a disparity in the way the villages received water. villages where as, in other villages there The findings of this study show that there was uninterrupted water supply in some villages whereas on the other hand there were interruptions in some places. The disparity of water supply in the same municipality district (Vhembe) might have also suggested lack of commitment from government officials in the Municipality in question. The fact that water scarcity may result from unequal distribution among the residents is also supported by The White Paper on Water Supply and Sanitation Policy, 1994:3, 4. The introduction of the white paper on water provision was as a result of unequal sharing of this resource. For example, South Africa experienced disparities in water distribution towards the end of the 19th century. On the one hand, the whites, Indians, and the coloureds were receiving between 95 and 100% of piped water to their houses whereas 57.7% of the black community did not have piped water to their houses on the other (The White Paper on Water Supply and sanitation Policy 1994: 3, 4).

2.4.2.2. Illegal tap connections

Research conducted by Sebola (2000) in his masters dissertation titled, “The water supply schemes, scarcity and development projects. A case of Taaiboschgroet, Northern Province” discovered that, illegal tap connections also contributed to water scarcity. The Taaiboschgroet community had a gardening project and a brick making project. The two projects obviously needed water in order for them to be sustainable. However, due to illegal connections the two projects which provided food and employment for the Taaiboschgroet community collapsed. Illegal water connections had perilous consequences to this community.

2.4.2.3. Urbanization and population growth

Though some causes of water scarcity are natural, others are caused by human interventions. Our physical environment can be modified by human behaviour in such a way that useful water becomes scarce. Water scarcity can be caused by human behaviour, for example, the amount of water that is deemed enough at present, can be scarce at some time in the future due to growth in population and incomes. The world population is growing at an alarming rate, in 2020 it is projected to be at 7.9 billion, 50% more than in 1990 (FAO, NYP: 2). This study plays a pivotal role as it focuses on the global urbanization and population growth as contributors to water scarcity.

Similarly, the UN general secretary Ban Ki-moon, in his message on world water day 22 March 2007 said, “the state of the world waters remains fragile”. Mr. Ban Ki-moon is also on record as saying, “available supplies are under great duress as a result of high population growth, (Zhang, NYP: 1).

2.4.2.4. Contamination of existing water sources

Normal water supplies can be polluted by a variety of sources, for example, industrial effluent; agro-chemical run-off fields; the causal disposal of human excreta and also poorly treated sewage from municipal works, all these may result with insufficient safe/clean water for domestic use (FAO, NYP:3)

Similarly, Magadza (2000:203) states that, “unsanitary environments will increase the risk of fly borne diseases, such as...enteritis and cholera. The outbreak of cholera that happened in East Africa and Mozambique underscore the need for adequate sanitation. Pollution is one of the causes of water scarcity. According to Giupponi, Jakeman, Kassenbeg and Hare (2006:31, 32), the use of agricultural fertilizers and pesticides results in water pollution. This is a problem in both developed and developing countries like South Africa.

2.4.2.5. Leaking water pipes

Water is often moved through pipes for longer distances. This is due to the fact that dams are not always conveniently located. In these instances, pipes may start leaking due to age and this will lead to insufficient water reaching the desired destination. This situation calls for strategies to detect leakages or complete replacement of the leaking pipes (Hunaidi and Wang 2006:451). The information above study means that, even for the current study, leakages may be another avenue to be visited by the researcher when trying to find answers to the problem of water shortage in Ga-Kgapane Township.

2.5. IMPACT OF WATER SHORTAGE

In this section, the impact of water scarcity on; community livelihood, crop yields, health and social relations will be presented. The impact of water scarcity on development will also be discussed. All the above aspects will be discussed according to the reviewed literature.

2.5.1. The impact on community livelihood and projects

Research conducted by Sebola (2000) in his masters dissertation titled, “The water supply schemes, scarcity and development projects. A case of Taaibosch groet, Northern Province” discovered that; water scarcity in the Taaiboschgroet village impacted negatively on both the gardening and the brick making projects. It is common knowledge that projects such as gardening and brick making demand a lot of water for survival. This projects that provided employment for some people in the Taaiboschgroet village collapsed because of water scarcity. The collapse resulted to unemployment for the people who earned a living from these projects. The livelihood of the community in this village was negatively affected due to water scarcity.

This study may even probe the existence of local economic development projects that some households may be depending on for a living. These may include even the backyard vegetable gardens that some families might have been dependant on before the problem of water scarcity. It is commonly known that backyard gardens may reduce poverty to a certain degree. Scarcity of water may result with a predicament situation for the community at large.

“The predicament of water scarcity limits public health, industry and agriculture” (Challenge 20/20, NYP: 7). According to this source, people need water for a variety of reasons and this leads to scarcity of water. To mention a few, daily consumption by the households, agriculture and industries, all these projects

demand water. And for this reason water scarcity will lead to poor socio-economic status of the communities and job losses due to poor agricultural and industrial production. Water scarcity may damage economies by diminishing production in both the agricultural and the industrial sectors. Ultimately job losses will lead to poverty which has a negative impact on the society. Drinking unhealthy water due to scarcity leads to health and social problems.

2.5.2. The impact on crop yields.

Scarcity of water may also lead to fewer crops, a situation that has a negative impact on the communities. Put simply, there will be hunger (Challenge 20/20, NYP: 6) Shortages of rainfall have resulted in the decrease of crop production. The use of manure does not help the crops if there is no water to decompose such. The negative impact of water shortage may lead to poverty. For example, in Pakistan, there was a reduction of yields for wheat during 2002-2003; this was due to water shortage. The wheat target lowered from 22million tons to 19 million. The Pakistan textile manufacturing had to import cotton during that season. The results of yields reduction will be poverty and retrenchments (Problems of Pakistan, 2010:2).

Similarly, Nazare, Mdluli, Babugura and Banda (2005: 20) agree that, shortage of water can cause diseases, mortality and also hunger. Plants animals and human beings are negatively affected by the shortage of water. Also in terms of the above source shortage of water directly affects the livelihoods in many ways; people may be left with nothing to eat because, maize and other crops will perish as a result of scarcity of water.

2.5.3. The impact on health and social relations

In South Africa, thirty percent children deaths are as a result of poor water and sanitation conditions. Apart from health problems, peoples especially women and children compromise their social time looking for water when it is not available in or near their homes (Hall, Leatt and Monson 2006:58). Women and children forfeit quality time as a family with their fathers /husbands due to the fact that they will be looking for water elsewhere. Safe and clean water promote a healthy living environment for human beings. Lack of water may lead to malnutrition and may be severely dangerous to children and people living with HIV and AIDS (Wenhold and Faber, 2009:61-63). This article further shows that diseases like diarrhea, gastrointestinal motility contributing to diarrhea, may result with due to shortages of water. According to the above article, improved water quality is a panacea for many bacterial or viral infections. Water conflicts may result when communities are sharing this very limited resource (UN-Water 2007:12).

2.5.4. The impact on development

Water scarcity is also a hindrance to a variety of development projects such as; road construction, bridges, complexes etc. Sufficient water plays a pivotal role for the survival of these projects (SAPA, 2010:2). The minister of water affairs Buyelwa sonjica said, "Limpopo is one of the most poorly developed provinces when it comes to water infrastructure. The minister is also on record as saying "shortage of water is fast becoming a restraint on development. According to Blignaut and Van Heerden (2009:2) water shortages may impede economic growth.

2.6. MEASURES FOR SAVING WATER

According to literature reviewed, there are various ways/ measures for controlling water loss, the ones that will be discussed in this section are; surface water capture and storage, ground water exploitation, long distance conveyance, desalination and pollution control as well as households' usage control.

2.6.1. Surface water capture and storage

Surface water runoffs may be moderated by erecting structures to dam or river diverts and store water in a natural lake or reservoirs. Also reducing river discharge into the sea to zero is abhorrent to the environmentalists (Fao, NYP: 7). Though the overflow of water during rainy seasons may be captured into dams or reservoirs, these have to be balanced against the value of storing water from year to year as insurance against drought. This means that there should be budgets for taking care of these resources or for payment of personnel taking care of them.

2.6.2. Ground water exploitation

Ground water may be another avenue to be visited in order to supplement the rivers. The aquifers may be artificially recharged by irrigation schemes and leakages from conveyance channels. This may help over exploitation of ground water, even though the recharging is often unplanned (FAO, NYP: 7).

2.6.3. Long distance conveyance

Many cities, towns and villages are located far away from the river basins and they draw water through transfers from other areas (FAO, NYP: 7). Long distance conveyance of water may be inevitable but, it is also expensive as it may involve many miles or kilometres from the city of origin. The cost of pumping

involves very long pipelines and often entails conflicts with the city of origin (FAO, NYP: 7).

2.6.4. Desalination and pollution control

Affluent communities in dry regions may have no other alternative but to treat salty water and make it drinkable and also usable for other household activities (FAO, NYP: 8). There are various technologies which may be used in this regard; power stations, waste heat from smelters and many others. Desalination is largely used in Middle Eastern oil producing countries (FAO, NYP: 8).

2.6.5. Households usage control

There are many ways for saving water in the house; for example, people may use a bowl for cleaning vegetables instead of a running tap. Washing machine may only be used when there is a full load and also leaking taps should be fixed to curb the water loss. Cars should be washed with a bucket instead of a hose pipe (Fabrizi 1998-2009:9). The grass or lawn should be allowed to grow a little longer during dry periods. Households should know that there is no need to water well established shrubs and trees. Collecting rain water for watering gardens and using watering cans instead of a hose is suggested (Fabrizi 1998-2009:10). Water companies may impose a ban on domestic use of hosepipes and sprinklers. The cleaning of cars by hosepipes and also the cleaning of exterior of buildings other than windows may also be restricted (Fabrizi 1998-2009:8)

2.7. CONCLUSION

Various sources used in this section showed that water is an indispensable commodity that people may not do without. For example, according to Nealer (2009:74) water is said to be an indispensable commodity which life would be impossible without. Various legislations that govern water supply were

discussed in the previous sections of this chapter. For example, section 27 (1) of the constitution of South Africa, 1996 was highlighted. This section Provides for access of people to sufficient food and water. The Water Services Act clearly showed that people have the right to access to clean water. The White paper on Water Supply and Sanitation Policy also discussed in this chapter; showed that, in South Africa, there was a disparity in water provision to the communities. Before 1994 certain races had a privilege of piped water to their houses whereas others races were denied this right.

This chapter also showed that water is becoming scarce in South Africa and the world at large. Both natural and unnatural causes of water scarcity were discussed based on a variety of sources. The natural causes such as climate change and drought were discussed. The unnatural or human causes such as illegal tap connections, disparity in water supply, urbanization and population growth as well as leaking pipes were discussed. The impact of water shortage on community livelihood and projects, crop yields, health and social relations and also the impact on development, were discussed according to literature reviewed. Finally, measures for alleviation or reduction of the problem of water scarcity were discussed. These included; surface water capture and storage, ground water exploitation, long distance conveyance, desalination and pollution control as well as households usage control.

In the chapter that follows the study will look at the research methodology and design. The purpose of the chapter is to justify the purpose for selecting particular research methodology, their designs, sampling and how ethical conduct of the research was ensured.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This chapter presents research design and methodology which were followed to collect data. The study followed a qualitative research design. In discussing this chapter, the following items will receive attention, research design and research methodology.

3.2. Research design

Research design is a plan or a blueprint used when one intends to conduct research (Babbie & Mouton, 2001:55). This study followed a qualitative design. The qualitative approach was used for the purpose of gathering qualitative data from the key informants with regard to water supply in Ga-Kgapane. The primary data was collected through structured interviews and respondents were asked the same set of questions throughout the interview sessions.

3.3. Research methodology

This section is presenting, the study area, population, sample size and selection method and structured interview questionnaire. All these elements will be unpacked in order to show how the methodology for this study took place. The study followed qualitative research design in the sense that structured interviews were conducted face to face with the selected respondents at Ga-Kgapane Township. The respondents were selected from four sections of this township namely; Tsamahansi, Mapolankeng, Losmycherry and Mesopothamia.

3.3.1. Study Area

Ga-Kgapane Township is located in the Greater Letaba Municipality which falls under Mopani District Municipality. It is situated between Tzaneen and Modjadjiskloof. There are five schools, a multi-purpose centre, churches, government offices and also a police station in this township. The Township comprises the following 17 sections: Mapolankeng, Losmycherry, Tsamahansi, Kgaphamadi, Maphodiseng, Park Town, Mzimhlophe, Mesopotamia, Meloding, New Town, Menenburg, Extension Five, Masakhaneng, Testing, Meshasheng, Home 2000, and Tenthawu. The households can be estimated at 3800 according to information from the Greater Letaba Municipality.

3.3.2. Population

Bless, Higson-Smith and Kagee (2006:98) define population as the entire set of objects or people, which is the focus of the research and about which the researcher wants to determine some characteristics. According to information from Greater Letaba Municipality, Ga-Kgapane Township has a population of about 17480 people. The population for this study comprised both male and female members of the households of Ga-Kgapane Township. These were the people with first hand information with regard to how the water shortage affects their own lives. They are the key informants who provided answers to the research questions.

3.3.3. Sample size and selection method

A sample is a small portion of the total set of objects, events or persons that together comprise the subject for the study (De Vos, Fouche, and Delpont, 2002:1999). For the purpose of this study, 40 households were sampled from four sections/localities of the township. The names of these sections are Mapolankeng, Losmycherie, Tsamahansi and Mesopotamia and ten houses

were visited from each section. These households were selected through non-probability sampling and the method for selection was purposive. Purposive sampling is good in the sense that it is representative of the members of the local communities. The researcher carefully selected relevant people in the identified local areas to provide information.

3.3.4. Data Collection methods

The following data collection methods were used, namely structured interview questionnaire and documentation.

3.3.4.1. Structured interview questionnaires

This study used structured interview questionnaires to allow for in-depth probing of the respondents. These were face to face interviews where the researcher was able to arrive at qualitative primary information.

3.3.4.2. Documentation

The study used government documents, professional journals and books to collect secondary data related to water provision, shortage and the impact of the shortage on people.

3.5. Data analysis Methods

Qualitative data analysis methods will be used because the study deals mainly with qualitative data. The variables that denote themes will be clustered together and those that denote the numbers will be put together. The frequency of water supply for example, everyday, once per week / month/ year is quantitative. The feelings of the households about service delivery are qualitative. Tables will be used for analyzing the data generated.

3.6 Significance of the study

Water is critical in sustaining life, crucial to economic growth, social development as well as environmental sustainability (The Water Wheel, 2009:31-33). Therefore, the problem of water shortage is not just a local, provincial, or national phenomenon but a global issue that affects individuals, industries as well as the economies at large. Hence, this study was significant since it sought to address the causes of water shortage and the impact thereof on the households of Ga-Kgapane Township. The findings may be useful to the Greater Letaba Municipality in making informed decisions related to water supply in future. The study may also help contribute to the already existing body of knowledge as well as help to inform policy makers in government.

3.7 Ethical considerations

This study ensured that participants operated from an informed consent. Respondents were told the truth about the intention of the study and were not deceived. They were informed that they participate on voluntary basis and that they may pull out anytime they wish. There was no violation of privacy and respondents were assured of their anonymity. This means that even if they were to fill their names on the questionnaires, these names would not be published. Data collected from the respondents, for example, biographical information, is treated confidentially.

3.8. Conclusion

This chapter presented the research design and methodology that was followed to get responses from the field. The chapter showed that a qualitative design was chosen in order to allow for in depth probing of the respondents. The section that dealt with research methodology explained, among the others; the study area;

the population; sample size and selection method; data collection method and data analysis. Significance of the study as well as the ethics of research were also discussed in this chapter.

The next chapter will deal with the research findings and analysis. The research investigated the causes and impact of water shortage on the households at Ga-Kgapane Township.

CHAPTER 4: RESEARCH FINDINGS, ANALYSIS AND INTERPRETATION OF DATA

4.1. Introduction

This chapter is discussing what was found during the data collection process. In discussing what was discovered, first and foremost will be to unpack the structured interview questionnaire which was used for data collection. The questionnaire probed, inter alia, biographical information of respondents; the extent of water supply in the township; the problem of water provision in the area; causes and impact of water shortage the area as well as measures to alleviate the water problem in the area. The responses to the questionnaire will also be analyzed and interpreted in this section.

4.2. Research findings and analysis

The structured interview questionnaire was divided into five sections; those five sections probed the following aspects, namely, (i) biographical information (ii) the problem of water provision (iii) the extent of water supply in the area of research (iv) the causes and impact (v) measures for alleviating the problem.

4.2.1. Biographical information.

In the biographical information, the structured interview questionnaire probed the following information, namely, gender of the respondents, age group of the respondents, educational level of the respondents and the local area.

4.2.1.1. Gender of the respondents

In terms of gender the following information came out:

Table 4.1: Gender of the respondents

MALE	FEMALE
23	17

The above table shows that; according to finding, the number of male respondents who were found at home was twenty three while their female counter parts were seventeen. The general opinion is that women are usually above men in number. Especially at working days most men are normally at work while their wives are taking care of their homes. This data was collected by the time when there was a public service strike; this could be the reason for many men to be at home.

4.2.1.2. Age group of the respondents

The age group information came out as follows:

Table 4. 2: Age groups

1	2	3
15-25yrs	26-35yrs	36yrs+
11	10	19

The results as depicted on the above table; show that three sets of age groups were took part in the study. In terms of the findings, the respondents from fifteen

to twenty five years were eleven, those between twenty six and thirty five years and took part in the study were ten. The adults from thirty six years and above were nineteen. This part as well, shows that a reasonable number of the working group was at home when data was collected.

4.2.1.3. Educational level

The interview results are indicated as follows.

Table 4.3 Educational level of respondents

1	2	3
Grade 1-7	Grade8-12	Diploma/degree
04	28	8

In terms of the interview conducted with the respondents, results indicate that few respondents were of Grade 1-7, while majority have a qualification of Grade 8-12, while a substantial number (8) of the respondents have either a degree or diploma. The highest response rate of Grade 8-12 indicates that the respondents have a proper knowledge of water issues.

4.2.1.4. Locality

In this instance the interview results proved as follows:

Table 4.4 Locality of the respondents

Mapolankeng	Tsamahansi	Losmycherie	Mesopotamia
10	10	10	10

In terms of the findings, the sample for this research comprised ten respondents from each of the four sections/ localities. The names of the four sections as shown on the above table are; Tsamahansi, Mapolankeng, losmycherry and

Mesopotamia. The respondents were selected from four different localities of Ga-Kgapane Township to ensure valid results.

4.2.2. The extent of water supply in the township

The extent of water supply in the township was probed through four questions, namely; access to adequate water supply; the frequency of water supply; whether the water supply is adequate for the community and the current water supply compared to the previous years.

4.2.2.1. Access to adequate water.

On the question which prompted the respondents' opinions on whether they are accessing adequate water supply or not. Almost all respondents responded with a "NO" answer and only two respondents answered with a "YES" answer. The findings show clearly that Ga-kgapane township is not accessing adequate water supply.

4.2.2.2. The frequency of water supply.

To the question of the frequency of water supply, twenty one respondents were found to be accessing water only once or twice per week. Two respondents said, they receive water only once per month while six people said they access no water at all and one of them said, they have no access but receive a little water during rainy seasons. Eight people responded to be receiving water daily but at awkward times, for example, when they are at work or at school. The frequency of water supply is not regular as most people access water only once per week, once per month and others don't have access to water at all.

4.2.2.3. Provision of water.

To the question on whether the water provision was adequate for their respective community; 39 respondents answered with a “NO” answer while only one answered “YES”. Some cited the reasons such as; when there is water in one section there is nothing in other sections or they meet people complaining about water on daily basis. One person responded that, some sections are the hardest hit as they don’t get even a drop but collect from other sections. Generally, the water which is currently provided is not adequate for this township.

4.2.2.4. Current water supply compared to previous years

The questionnaire had a question which prompted the opinions of the respondents on the current water supply compared to the supply over the previous years. Thirty nine respondents answered with a “YES” meaning that; the current water supply is worse as compared to the previous years. They also pointed that, previously, there was water everyday for the whole day. The findings show that the current water supply trend is worse compared to the previous years.

4.2.3. The problem of water provision.

This section analyses the aspect of the questionnaire that dealt with; the problem of water provision in the respective localities of the respondents. The first element of this section probed the respondents as to when they started experiencing the problem of water shortage. This section will show how the respondents were probed on how it came to their attention that, there is water problem. This section will also present the aspect of the questionnaire that probed the respondents as to whether they ever received a communiqué before explaining the water problem. Lastly, in this section, the aspect of the

questionnaire that inquires whether people are currently receiving communiqués promising to be addressing the problem will be discussed.

4.2.3.1. When the water problem started

When respondents were asked as to when they started experiencing the problem of water shortage, some said “five years and above”, some said “one to four years” others said “less than a year” and the last group said, “not sure”. The findings show that this area has been experiencing water problems for a long time as some experienced this problem for up to ten years.

4.2.3.2. How the community realized

How did it come to the attention of the community that there is a water problem? This question was asked on section 3.2, of the research questionnaire. The answer to this question by most respondents was; no water from the taps or we saw people carrying water containers. Many people said that they just realized interrupted water supply from their taps, also many respondents said that they saw low pressure from their taps and the last group said that it was discussed in community meetings. This aspect as well, shows that there is a communication breakdown between the authorities and the residents of this township. One other point to consider from the findings is that, there are few individuals who responded that the problem was discussed in community meetings. This shows a possibility that; most people in this township do not attend community meetings.

4.2.3.3. Previous communiqués from the local authority.

Most respondents said that they never received any communiqué from the local authority when section 3.2 of the questionnaire was asked. Some in this category said that, they only saw Officials changing water metres to regulate the pressure. A few respondents answered “YES” to this question and said that they were told

by councilors in community meetings that, there were broken pipes. Generally, the people in this township did not receive letters concerning the water problem. However, few people were addressed about this problem in the community meetings. This also confirms that majority of people do not attend community meetings.

4.2.3.4. Current communiqués from the local authority

Section 3.4 of the questionnaire checked whether the community is currently receiving communiqués from the local water authority. Almost all the respondents answered with a “NO” and some of them said that they only receive bills for services. Also in this regard, few respondents answered “YES”, they were informed in community meetings. The findings confirm that the people in Ga-Kgapane Township are not receiving communiqués informing them about the water. However, most respondents admit that they receive only service bills.

4.2.4. Causes and impact

This section presents the crucial part of the interview questionnaire; as depicted by the above sub-heading, causes of water shortage and the impact thereof on the households. This aspect may be called the cornerstone of this investigation. This section discusses what was in section 4, of the structured interview questionnaire. This part of the questionnaire entailed elements such as; causes of water shortage; whether the water shortage impacts negatively on development or not. Lastly, what is impacted by the lack of water in the area.

4.2.4.1. Causes of water shortage

What causes water shortage in your area? This was section 4.1 of the structured interview questionnaire. Respondents came up with an assortment of possible

causes of water shortage in the area. Some respondents are on record as saying, population growth coupled with water infrastructure that stays the same. Broken pipes, less rain, unfair distribution of water to various sections of the township, municipality trying to save water, maybe it is because we don't pay and favouritism in the way water is distributed. All these were the inputs that almost all respondents brought to the interviewer. However, this is in exception of one respondent who said that there is no water shortage.

4.2.4.2. The negative impact on development

The question probed the respondents on the question whether water shortage has a negative impact on development or not. Almost all the respondents answered with a "YES" to section 4.2, of the questionnaire, however, this excludes one respondent who gave a "NO" answer. The findings show that lack of water has a very negative impact on development as almost all the respondents said that lack of water is impacting negatively development.

4.2.4.3. What is negatively impacted by lack of water in the area.

The above statement, when added a question mark at the end; is a question which was on section 4.3, of the questionnaire. What is negatively impacted by lack of water in your area? Some responded that the sewerage system does not function well without adequate water. Some respondents said that lack of water negatively affect cooking; bathing; washing; flushing toilets. Some respondents said that there is poverty because they no longer have vegetable gardens but only resort to buying which negatively affects family budgets. Other respondents are on record as saying, "a lot of petrol is spent looking for water and also, there are diseases due to lack of clean water. One respondent however, is seeing this problem of water shortage as an opportunity because he makes money out of selling water. The responses to this aspect of the research questionnaire show

that; the community is faced with an assortment of challenges due to lack of water.

4.2.5. Measures of alleviating water problem in the area.

This section presents the last aspect of the questionnaire, namely, measures for alleviating water problem in the area. This covered a question on whether the respondents were of the opinion that the problem can be sorted out soon. Finally, how the problem can be solved was probed.

4.2.5.1. Sorting out the problem

Section 5.1 of the questionnaire sought the opinion of the respondents on whether the problem can be sorted out soon. Some respondents answered with a “NO” and some with a yes and there were also those who said they don’t know or they are not sure. Some people lost hope that the water problem will ever be solved while others have a hope that the problem may be sorted out if the Municipality can involve the community.

4.2.5.2. Measures for solving water problem.

The last question on the questionnaire challenged respondents in coming up with possible solutions to this problem. The respondents in this regard came with an assortment of measures such as; bringing new machinery and pipes to draw water, water tanks and bore holes; usage of other dams to augment the current one, equal distribution of water, minimizing watering of lawns and the Municipality must solve the problem. Other respondents brought to the table suggestions such as; Municipality must involve the affected people, car washes and household water tanks (jojós) must be banned and municipality should allocate enough budgets to the water infrastructure. The last category of respondents came with more radical approaches such as; the community should

organize a toyi-toyi, government should fire the current water officials and replace them with the currently unemployed.

In the chapter that follows, the conclusion of this research will be presented. This will entail a summary of all the chapters of this research including the current one. The chapter will bring this investigation to conclusion. Also in this chapter, the recommendations based on the findings will be presented.

CHAPTER 5: CONCLUSION AND RECOMMEDATIONS

5.1. Introduction

This section presents the conclusion and recommendations of the study. The section presents the recommendations of this investigation; the recommendations will deal with all aspects of the questionnaire that is; the extent of water supply, the problem of water provision in the area, causes and impact as well as measures to alleviate the water problem.

5.2. Conclusion

In achieving the objectives of this study, this research developed the following five chapters.

Chapter 1

This Chapter discussed the introduction as well as the background of the whole study. The presentation included; significance of the study, statement of the problem and motivation for the study. Also in chapter one, the study aim which is; to investigate the causes and impact of water shortages on the households Ga-Kgapane township was discussed. The research questions which are linked to the objectives were also presented. The definition of concepts was dealt with in this part of the study.

Chapter 2

In this part of the study literature sources related to causes and impact of water scarcity were reviewed. These sources included government documents, internet, journals, previous research, and academic books. The purpose of the literature was to review information on what other scholars did before with the

same subject. In this chapter, the natural causes as well as artificial causes of water shortage were discussed according to these sources. The natural causes such as; drought, climate change and also surface runoffs were discussed according to literature. The impact of water shortage of water shortage on for example, the livelihoods, and development and crop yields was discussed. Lastly, this chapter showed the possible ways for alleviating water shortage.

Chapter 3

This study followed a qualitative research design; the selection of the respondents for the structured interviews was done through a purposive sampling. The researcher used the population of Ga-Kgapane Township. Four sections, namely, Mapolankeng, Tsamahansi, lossmycherie and Mesopotamia, the respondents were probed through a structured interview questionnaires. This questionnaire had section related to the research question. Forty respondents from the above sections of this township were interviewed.

Chapter 4

This chapter presented the findings of this investigation. It is also in this chapter that, the data collected was analyzed based on the questionnaire. The findings proved that indeed there has been a serious problem of water shortage in this town for more than five years ago. The findings further show that the problem of water shortage impact negatively on the lives of the community in Ga-kgapane Township.

Chapter 5

This chapter brings this investigation to the end. The conclusion and recommendations are discussed in this chapter based on the objectives of the findings of the investigation. Based on the findings, this chapter concludes that

there is a serious problem of water shortage in Ga-Kgapane Township. This part of the chapter is followed by the recommendations which will show that, the local authority in this area should act towards alleviation of the problem.

5.3. Recommendations

Water provision has been a thorny issue in Ga-Kgapane township for a period of not less than five years. The community in this township is faced with a serious problem of dry taps in their households. This section will therefore, based on the findings from the data collected recommend some actions to be considered in order to correct the current imbalances. The researcher will therefore use inputs from the research questionnaires used for collecting data.

5.3.1. The extent of water supply in the township

When the respondents were probed on this aspect, most people said that the township does not access enough water, however, there are disparities in the way various sections access water. Some access a little water whereas some don't get even a drop. Based on the above findings, the Local authority should make it a point that; there is equal distribution even though there is a water shortage. Also to be considered is the fact that in the previous years, there was adequate supply of water. The recommendation is that, the local authority should investigate the main cause of current water shortage as, according to the findings there was no problem before. The fact that almost all the respondents said that water supply in Ga-kgapane Township is not adequate for the community, is enough to prompt the Local Government to take action.

5.3.2. The problem of water provision in the area.

The findings show that some households started experiencing water shortage about ten years ago. The findings further show that; in this aspect, the local

authority hardly sends communiqués informing households about the water problem. The recommendation based on the findings is that; Greater Letaba Municipality should communicate with the households about this water problem. Also recommended is that the community should attend and raise issues like this in community meetings.

5.3.3. Causes and impact of water shortage

This section of the questionnaire dealt with aspects such as; the causes of water shortage in the area; how the shortage of water impacts on the development of the area as well as the question on what is negatively affected by the lack of water. The findings reveal quite a number of possible causes of water shortage such as; population growth, unfair distribution of water to various sections of the township; illegal tap connections; water infrastructure should be amplified or replaced and water consuming projects next to the dam. These findings are crucial to the current water shortage problem. The Local Authority should therefore, involve the community when tackling this problem.

The aspect; what is impacted negatively by the lack of water was also probed and the findings showed that the community is sitting with many challenges of which some of them are life threatening. For example, the respondents alluded to; stinking toilets; diseases from drinking dirty water, buying water, lack of water for cooking, bathing and washing. Some respondents mentioned problems such as; wasting petrol looking for water, buying water, poverty because they no longer have vegetable gardens. This is a crises situation that requires speedy action from the local authority in the township.

5.3.4. Measures to alleviate the problem

The findings on this question showed that the affected community has possible solutions for alleviating the water shortage. The respondents in this regard came

with an assortment of measures such as; bringing new machinery and pipes to draw water, water tanks and bore holes; usage of other dams to augment the current one, equal distribution of water, minimizing watering of lawns and the municipality must solve the problem. Other respondents brought to the table suggestions such as; Municipality must involve the affected people, car washes household water tanks (jojos) must be banned and municipality should allocate enough budgets to the water infrastructure. The last category of respondents came with more radical approaches such as; the community should strike, government should fire the current water officials and replace them with the unemployed.

Based on the above findings, the recommendation is that the local authority in Ga-kgapane Township should be in consultation with the community. The consultative forums will help the local authority when prioritizing community needs.

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Appendix A

STRUCTURED INTERVIEW QUESTIONNAIRE

1. Biographical information of respondents.

1.1. Gender:

M	F
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1.2. Age:

1	2	3
15-25	26-35	36+

1.3. Education:

1	2	3
Grade 1-7	Grade 8-12	Diploma/Degree

1.4. Locality:

1	2	3	4
Mapolankeng	Losmycherie	Tshamahansi	Mesopotamia

2. The extent of water supply in the township.

2.1. Are you of the opinion that your area is accessing adequate water supply?

.....

2.2. What is the frequency of water supply in your area?

.....

.....
2.3. Is the provision of water in your area adequate for the community?

.....
.....

2.4. Are you of the opinion that the current water supply in your area is worse compared to the previous years?

.....

3. The problem of water provision in your area.

3.1. When did your area start experiencing water shortage?

.....

3.2. How did it come to the attention of the community that there is water problem?

.....
.....

3.3. Was there any communiqué from the local water authority or the municipality about the water crisis?

.....
.....

3.4. Are there current communiqués about the way water crisis is being addressed in your area?

.....

4. Causes and impact.

4.1. What are the causes of water shortage in your area?

.....

.....

4.2. Does the shortage of water in your area impact negatively in the development of your area?.....

.....

4.3. What is negatively impacted by the lack of water in your area?

.....

.....

5. Measures of alleviating water problem in your area.

5.1. Are you of the opinion that the problem can be sorted out soon?

.....

.....

5.2. How do you think the problem of water can be solved in your area?

.....

.....

.....

.....

Thank you for taking part.