

**WATER ACCESS AND PROVISIONING IN UMZUMBE LOCAL
MUNICIPALITY UNDER THE UGU DISTRICT MUNICIPALITY,
KWAZULU-NATAL.**

BY

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DEDICATION

This research is dedicated to my late parents, Nkosingani Shisa Duma and Bakhombise maMbhemu Duma, who used to say “inja iqeda amanzi ngolimi”, my children, Nomacebo, Lilly, Mzomkhulu, Malusi, Mantwa, Nhlanhla, Magama, Zikhona Xolo and Nqobangesu. I also dedicate this research to my wife, Thembile Rebecca Mbanjwa Duma and Bayephi Doreen Nyathi for their relentless support they have shown to me as they keep on saying that I should not give up when I study, but I should remain dogged.

DECLARATION

I, Clifford Mhlanyukwa Duma, declare that Water Access and Provisioning in Umzumbe Local Municipality within UGu District Municipality is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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ABSTRACT

According to the Constitution, Act No.108 of 1996 of the Republic of South Africa, every person has the right to clean water. The Department of Water Affairs and Forestry's Community Water Supply Programme was established in 1994 to achieve this objective. Access to safe drinking water is the basic need to human life and wellbeing, and is a key to public health issues. The UGu District Municipality is the water distributor to the Umzumbe Local Municipality residents. The study area for this research is the Umzumbe Local Municipality, which is the second largest municipality under the UGu District Municipality. Communities, especially in rural areas under the Umzumbe Local Municipality, are still unable to access adequate safe drinking water which meets the national standards for protecting human health. The main concern of this research was to assess water access and provisioning in the Umzumbe Local Municipality, under the UGu District Municipality. The research assessed the water supply system in the UGu District Municipality by engaging with all the stakeholders involved in water provision to verify their roles in the water supply and development of water service delivery projects. The study was predicated on three theories which were assumed to explain water provisioning. The first theory is the top-down and bottom up approach to service delivery. The second approach is the privatisation concept which is based on neo-liberalism. This explains that buying what could hinder efficient delivery, mostly in poor environments. The final theory of the study deals with project management. This theory asserts that the way a project is packaged and commissioned will have implications in the delivery of services, in this case, water delivery. The research employed mixed a methods research design. The reason for employing both qualitative and quantitative methods is because the research sought to obtain a comprehensive interpretation of the occurrences in the research area. The adoption of qualitative data alone is likely to provide limited vision which would not be sufficient for the research without the inclusion of quantitative data. The population for the research consisted of the Umzumbe Local Municipality residents, both males and females from twenty one years of age, upwards. Seventy participants were chosen for the research. Interview schedules and survey questionnaires were used as data collection instruments.

The findings showed that the UGu District Municipality infrastructure does have some challenges, which come in the form of skills challenges, and capacity challenges. Other challenges that the study identified include inability to access municipality's infrastructure grant (M.I.G) and bulk infrastructure grant (B.I.G). The UGu District Municipality areas that are far inland are likely to have water, and also the problems because of the low capacity of engines that are used to pump water also the problem is exacerbated by power failures. The findings further indicated that unskilled contractors could be the cause of water outage in the Umzumbe Local Municipality. It has been established that contractors who are hired to run projects have a tendency of abandoning projects that have not been completed. The findings presented that the UGu District Municipality does not consider the involvement of community members when they take decisions on project matters. The research established that water tankers do not provide community with adequate water and the utilization of water tankers is an expensive option that can cause community not to be served. The findings also indicated that some of the water infrastructure is old and it can be the cause of water shortage. Lastly, the findings showed that the Umzumbe Local Municipality has low income opportunities, causing its inhabitants to be unable to pay for water services.

On the basis of the findings the study recommends that the UGu District Municipality needs to adhere to the principles of monitoring and evaluation of all activities and projects that relate to water provisioning. At a broader scale the study suggests that further research be done to determine whether the Department of Water and Sanitation can consider the construction of water reservoir in UMzimkhulu River. The reservoir should be linked with the Umgeni Water Board to provide water to communities during water outage.

Key Words: Top-down and Bottom-up approaches, water provisioning, neo-liberalism, privatization, regulation and project management.

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ACRONYMS AND ABBREVIATION

ANC	African National Congress
B.I.G	Bulk infrastructure grants
DoH	Department of Health
D.O.T	Department of Transport
DWA	Department of Water Affairs
HIV	Human Immunodeficiency Virus
HR	Human Resource
IS	Information System
KZN	KwaZulu-Natal
M.I.G	Municipality infrastructure grant
MICOA	Mutual Insurance Company of America
NEPAD	New Partnership for Africa's Development
NFP	Not-for-profit
NGO	Non-governmental organization
OECD	Organization for Economic Co-operation and Development
PERT	Programme Evaluation and Review Technique
PM	Project Management
POV	Public-owned ventures
PRC	People's Republic of China
QDA	Quality Document Analysis
QDGC	Quarter Degree Grid Cell
RSA	Republic of South Africa
RVWRMP	Rural Village Water Resources Management Project
SA	South Africa
SAWS	South African Weather Service
SPSS	Statistical Package for Social Sciences

TB	Tuberculosis
TVET	Technical and Vocational Education and Training
UDM	UGu District Municipality
UNDP	United Nation Development Programme
USEPA	United States Environmental Protection Agency
UWB	Umgeni Water Board
VDC	Village Development Committee
WDR	World Development Report
WHO	World Health Organization
WRMP	Water Resources Management Project
WUC	Water Users Committees
WUMP	Water Use Master Plans

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CHAPTER ONE

Introduction to the study

1.1 Introduction

The study explores water access and provisioning in Umzumbe Local Municipality, under Ugu District Municipality in Kwa-Zulu Natal. The Constitution, Act No.108 of 1996 of the Republic of South Africa, states that all members of the society have the right to clean and safe water. The Department of Water Affairs and Forestry (2004) mentions that the rights to clean and safe drinking water is a basic human need, therefore, a right endorsed in the Republic of South Africa (RSA, 1996). Water that is unclean endangers the social health and physical health of the society and is an injury to human life (World Vision, 2010).

United States Environmental Protection Agency (2013) states that water is an important commodity for human life and all people on the planet depend upon it in order to survive. This chapter discusses the background, theoretical framework, statement of the problem, research question, research sub questions, the purpose of the study, objectives of the study, ethical and safety issues, intended contribution to the body of knowledge, feasibility, intellectual property issues, knowledge dissemination in research, research methodology, research design, data collection methods, targeted population and sampling and study outline.

1.2 Background and context of the study

Water access and provisioning has been a critical challenge since 1994 for many municipalities in South Africa (Schoeman & Mjoli, 2006). This challenge has implications for service delivery. Even though there have been improvements with regards to water provisioning there are some areas that are lagging behind. The study area is one of those areas that have been observed as still having water challenges. The Department of Water Affairs (DWA) (2010) argues that even though infrastructure exists, still there are few people that benefit from the infrastructure, the large number of poor communities does not benefit as it is required by the constitution of the RSA, (Act 108 of 1996) Chapter 2 and section 27.1.

It has been observed that a large number of the community members living in rural areas still experience difficulties when it comes to water supply. People that are getting better water supply are those living in urban areas because they can afford paying for water provisioning (Mahama *et al.*, 2014; Isoke *et al.*, 2014). South Africa is a semi-arid country with an average rainfall of about 450mm (Umzumbe Local Municipality, 2012/2013-2016/2017). The Municipality has an average rainfall that is below the world average of about 860mm yearly. According to Umzumbe Local Municipality (2012/2013-2016/2017) the Republic of South Africa is confronted by three main problems pertaining water, namely, irregular supply and seasonality of rainfall, secondly, moderate low stream movement in tributaries most of the time, that hampers the amount of river flow that can be dependent on for usage; and thirdly, place of urban and industrial developments distant from the country's biggest rivers, that demands important transmissions of water through catchments. It is in view of the above mentioned challenges of water that this study seeks to investigate water provisioning in the Umzumbe Local Municipality, under the UGu District Municipality.

1.3 Statement of the problem

Adequate provision of water and access in Umzumbe Local Municipality, under UGu District Municipality, remains a challenge even though South Africa has reached two decades of democracy (Umzumbe Local Municipality, 2012/2013-2016/2017). This challenge seems to be one of the major causes of service delivery protests which happen all around the country. Water a basic need and a constitutional requirement still remains a challenge in most areas, the Umzumbe Local municipality being one of those areas. Therefore, the study explores water provisioning in the Umzumbe Local Municipality, under UGu District Municipality.

1.4 Research questions

What is the context of water provisioning in the Umzumbe Local Municipality? Also what are the roles of the different players in the provisioning of water in the Umzumbe Local Municipality?

- What framework informs water delivery in the study area?

- What is the socio-economic and spatial distribution of the population of Umzumbe Local Municipality?
- What is the status of water provisioning in the UGu District Municipality?
- What are the roles of the uGu District Municipality and the uMgeni Water Board in the provisioning of water?
- What role does the community play in water provision?
- Are there relevant resources for water provision?
- Is there any legislative framework or policy that guides the Umzumbe Local Municipality in providing basic needs?
- What are the causes of inadequate water access and provisioning in the Umzumbe Local Municipality?

1.5 The purpose of the study

The purpose of the study is to find out, the context of water provisioning in the Umzumbe Local municipality. Also the study aims to find out the roles of different players in the provisioning of water in the study area.

The research hopes to establish the following:

- The framework that informs water delivery in the study area.
- The socio-economic and spatial distribution of the population of Umzumbe Local Municipality.
- The status of water provisioning in the UGu District Municipality
- The roles of the uGu District Municipality and the uMgeni Water Board in water provisioning.
- The role the community plays in water provision.
- If there are relevant resources for water provisioning.
- The causes of inadequate water access and provisioning in Umzumbe Local Municipality.
- To examine the legislative framework that guides the Umzumbe Local Municipality in providing basic needs.

1.6 Intended contribution to the body of knowledge

The study would assist the Umzumbe Local Municipality or any interested Municipality tries to ensure water supply to all members of society living, working and those who are visiting the Municipality's area of jurisdiction. The study would assist the Municipality's area remains economically and financially viable in order to ensure the policies of the national government and basic principles will be adhered to at all costs.

The study is also important because, firstly, it will help in making commendations on how to address challenges of water in the area, secondly, the study will also inform policy on water provisioning, and finally, the study adds to the body of literature. Given that water services are essential for the community and are often affected by significant market failures, the study will assist Umzumbe Local Municipality to establish a system that ensures that water is regulated accordingly.

1.7 Feasibility of study

It would be easy to access the community leaders to participate in the study as they are mostly found in their offices during working hours, so, the appointment would be arranged before time. There is a need for travel grant to ensure that transportation to and from Municipality offices is not a problem, but accommodation while conducting research is available.

1.8 Intellectual property issues

The researcher would ensure that valuable foreground was protected, if applicable. If there was a need for intellectual property issues, all participants in the project would be informed of the free and open source software approach before the project started in order to avoid possible conflicts.

1.9 Knowledge dissemination in research

According to Cobussen (2001) the term dissemination can be described as an outbreak of the fact that the idea of the versions could belong to someone, organized, restricted in the name of some authentic convincing foundation.

Dissemination procedure offers a background for practice-led and academic research into the rotation, supply and spreading of creation as a cultural subject. According to Bishop (2004) distribution as a tool for pleasing modern-day arts practice reveals a serious approach to arts training that is in a method of flowing amongst creation focused, physical economy, a knowledge oriented and the irrelevant economy. In this study knowledge dissemination will be done for the wider community through the media of graduates, publications, conferences and seminars.

1.10 Summary

This chapter has delineated, the background and context of the study, statement of the problem, research question, research sub questions, the purpose of the research, objectives of the study, and intended contribution to the body of knowledge, feasibility, intellectual property issues and knowledge dissemination in research. The next chapter explores concepts that inform the study.

1.11 Outline of the study

The study is organized in six chapters, which are briefly summarized below:

1.11.1 Chapter One: Introduction to the study

The chapter consists of the topic of the study, introduction to concord the research proposal, statement of the problem, sub questions, objectives, purpose of the research, theoretical framework of the study, research design, study outline, time schedule for the proposed proposal and references.

1.11.2 Chapter Two: Theoretical framework of the study

This chapter provides a theoretical framework of the research. Here the chapter provides details of the theory that informs the study.

1.11.3 Chapter Three: Research methodology

The chapter comprises of Research methodology which is a systematic way to solve a problem. It focuses on research design, method of sampling and research instruments will be used in the study. Its aim is to give the work plan of research.

1.11.4 Chapter Four: Description of research site

This chapter provides the details of the study area.

1.11.5 Chapter Five: Results and discussions

This chapter deals with data analysis and write understanding to guide us in making decision, setting and prioritising aims, and observing development. Data is used to define needs, set goals, plan interventions, and evaluate progress.

1.11.6 Chapter Six: Findings and Recommendation

The chapter will consist of the following:

1.11.6.1 Findings

The findings of the study will be based on what has been discovered in chapter five of the study. The findings of this study will be disseminated to participants.

1.11.6.2 Conclusion

The conclusions will be based on the objectives of the study as they are presented in chapter one.

1.11.6.3 Recommendation.

The recommendations will be based on the results and findings of the study.

The following chapter will present theoretical framework of the study which demonstrate theories that explains the bases of the study.

CHAPTER TWO

Theoretical framework of the study

2.1 Introduction

The previous chapter presented an overview of the whole study. Important sections of the chapter included the background and context of the study, statement of the problem, research questions and the organisation of the whole study. This chapter is a review of literature. It presents theory of water provisioning. The literature shows that there are three concepts that explain how water could be provided. The first theory deals with the approaches to resources management, namely, bottom-up and top-down. Interrogation of literature shows that this type of management would have implication in terms of success or failure of provision of public facilities which would include water provisioning. The second theory deals with management of resources within a free market framework. It focuses on the concept of privatization. It is important to unpack this concept because it could have implications on whether people would get water or not. The third and final concept deals with project management. These concepts are discussed in detail below.

2.2 Approaches to resource management: top-down and bottom up approaches

This framework has implication for water provisioning. The discussion will open with top-down approach because it is one of the conventional approaches which have been relied upon in project management.

2.2.1 Top-down approaches to project management

The top-down model has implications for service delivery, water provisioning included. Research shows that a top down approach style of management has an influence in the way services are rendered, be it in the private or public sectors (Watson & Khan, 2009). Implementation in the top-down approach is explained as a policy-centred and rational procedure which starts with authoritative decision by top policy officials.

Implementation in top down approach is grounded on bureaucratic supervision, and compliance is enforced to ensure that all measures are considered throughout the process corresponding with the policy objectives (May & Winter, 2009; Oosterwaal & Torenvlied, 2012). The top-down approach is an interface where participants are viewed as recipients of the outcomes of projects, instead of being project partners in the project design and implementation (Sherman & Ford, 2014). Liu *et al.* (2014) state that top-down approach is classically investigation-led (expert) and always starts with the making of ideas of the trend that will occur in the next time.

Sidor-Rządkowska (2006) contends that top down approach is also known as directive approach, whereby competence implementation is concentrating from the top of the group, and enabled by outside authorities. Koontz and Newig (2014) contend that top-down methodology focuses on higher level managements guiding collective attempts. They further state that top down approach raises recommendations for implementation on expert input, and a centralised decision-making process. Filev (2008) mentions that top-down approach is currently most famous in the modern or present-day project managing. Top down means that every instruction or guidelines; project objectives; any knowledge or information, processes and plans come from the top.

Smith (2008) argues that the top-down approach stems from the rationalist ideology. This is the belief that the best solutions are provided by outside experts with specialist training. Top-down model has a history and is informed by a number of philosophical issues. According to Larrison (1999) the top-down sample involves an important rationalist philosophy and training history. As a result, top-down approach is designed for the utilization of skilful leadership supplied by the outside means which are organizing, implementing and assessing the programme development.

Macdonald (1995) contends that development of community programmes utilizing the top down model typically concentrates on supplying well trained leaders to ensure improvement. When the processes of the societies are led by well-trained leaders, gaining access to services which are provided by the scheme and improvement of the standard of living of the society will be ensured and believed. Reed (2008) mentions that involvement in the top-down approaches used to become results based. This is done in order to toughen programme application by utilizing internal information and means.

It involves the combination of society members and recommended or supreme society leaders who are implementing the operation which then implements the service at an internal sphere. Top down model has been criticised by the highly skilled academics (Tewari & Oumar, 2013). Even though top down approach has been criticised, there are advantages of this approach, which are discussed here below:

2.2.1.1 Advantages of top-down approach

Matland (1995) argues that the top down model is regarded as the beginning point where the authoritative decision is made as the name suggests. Actors are centrally positioned and are seen as the pertinent people creating the desired effect. In this approach the main actors are always seen as people responsible for making and producing valid statutes that can be used in solving current problems and those which might emanate. The top down model is important as it greatly informs regulatory decision making and in the process decreases risks. This approach is also useful as it builds innovation corridors which allow for quick deployment of innovation that is most beneficial (Linkov *et al.*, 2014).

Top management uses the initial operation to make a platform to identify the supervision resolution. The top-down approach could be used to identify and describe comparisons or deviancies between the perfect and everyday practices of implementation (Young, 2013).

The following section discusses the disadvantages of top-down approach.

2.2.1.2 Disadvantages of top-down approach

Disadvantages of the top-down approach have implications for the success of a project. Some of the disadvantages of top-down approach relate to the fact that in a top-down model communication is one way-that is from the top management downwards. In top down model it is the responsibility of the top management only to give directions of the organization (Aven & Renn, 2009). The subordinates only accept what the management has ordered them to do. The subordinates are there to implement what they have been told to do as they have no say in planning and organizing. This would have a tendency of beneficiaries not taking ownership of a particular project.

Agrawal and Gibson (1999) argue that the top down approach devalues the information and knowledge that local communities have built over many years (and in some cases, generations) of living in the local environment.

Everything regarding rulings in the organization is restricted to the top of the organization. Any shortage of knowledge, opinions and decision from the bottom is neglected. Decision making does not consider the local voice. There are no delegations made to include community members in any variation process so that community cannot feel neglected or abandoned. Reserving variation occurrence in the top structure and keeping the change process to the upper level of the group cause scepticism amongst the community members. Confusions always occur because of communication difficulties and insufficient data from the parties involved. In this instance participation of community members in the project is avoided at all costs, thus community resorts to protest, demanding their needs.

Another issue with top-down approach is that in most cases implementation fails because of vagueness of goals; misunderstanding or misinterpretations and unclear lines of responsibility and poor accountability. The end result is the deviations from the mentioned objectives, and lastly, this causes poor performance or resistance on the part of implementers (De Vreese & Verheyen, 2008). Liedl and Regler (2011) argue that in top-down approach those who are politically affiliated assume that they are the owners of the know-how to frame a good law. The importance of those implementing the legislation to the community is not well appreciated as it is supposed to be. Matland (1995) contends that top down approach obviously supports those making decision to be important players in the event of application and no attention is made to the managerial personnel that implement the legal actions.

According to Jansky *et al.* (2005) models of the outcomes of the non-participatory method regarding the management of water resource depend on the major building of enormous water dams so as to provide and irrigate to cover a large number of beneficiaries. However, some governments use this approach to deliberately utilize policies made for water to injure the marginalized communities. Ayers (2010) argues that in the case of top-down methods criticisms for failing to take care of internal happenings and providing the unnecessary interferences take place. The Top-down model is expensive and can be time consuming when it is implemented (Kennedy *et al.*, 2013).

To sum up, the limitations of top-down philosophy are always indicative of leadership that believes that authority and achievement depend on their main group of organization.

2.2.2 Bottom-up approach to project management

The bottom up approach is important for the development of a project. Bottom-up approaches involve a situation where members work together in the planning and application of adaptations (Sherman & Ford, 2014). Referring to the bottom-up approach, the term “implementation” is explained as a method in which policy is formed by street-level bureaucrats making use of their understanding of the difficulties they face or experience on the ground, and how they interact with other harmed individuals (Watson, 2014).

Liu *et al.* (2014) contend that a wide range of variations of bottom-up initiations are done mostly by diverse public members who improve and attempt approaches that are new in order to face problems they are confronted with. Rosinski *et al.* (2014) argue that bottom up approach is also known as participative approach which involves employees’ participation in competence management implementation. According to Smith (2008) bottom up approach is specifically considered the social dimension to decision-making; that technical expertise could be insufficient to generate a thorough understanding of complex, social-ecological problems.

Boully and Maywald (2011) state that bottom up approaches acknowledged that programmes that address environmental impacts will be required to react to the local requirements for each community. According to Larrison (1999) and Midgley (1993) the society improvement theory is taken as the theoretical scheme supporting the bottom-up sample. The specialists are making use of bottom-up approach which has been designed by the society improvement theory to ensure that community members become actively involved in tasks which increase the chances to read.

Specialists possess the intelligence of enabling community to be more knowledgeable and able to accomplish the main goals of community development, thus community can be capacitated. The succeeding section will outline both advantages and disadvantages of bottom-up approaches.

2.2.2.1 Advantages of bottom-up approach

In essence bottom up model is an important catalyst in ensuring the success of a project as people on the ground know everything that affects them. The concept of bottom up gained significance, because it is quite simple and relies on the fact that it ensures how any organization can focus on sustainable competitive advantage while ensuring consumer needs. Bottom up approach is essential, both for individuals and for the industry, as well as achieving the selling organizational objectives. Koontz and Newig (2014) argue that bottom-up approach builds agreements required for improving service delivery capabilities of public administration institutions. Bottom-up approach involves local people and society organizations in decision-making, thus creating more opportunity for the project to be sustainable and this result to the community developing the sense of ownership of the programme.

Rosinski *et al.* (2014) argue that bottom-up approach grew from increasing dissatisfaction with the top-down approach, and provided a mechanism for involvement of local communities in decision-making, drawing on their local experience, knowledge and values. Bottom-up model is always regarded as the standard of knowledge supplied by the experts involving experience provided by members of administration who are responsible for the final independent engine of the improvement in the area of personal accountability (Koontz & Newig, 2014; Eckerberg, *et al.*, 2015).

Fazey *et al.* (2010) and Reed (2008) mention that in bottom-up approach society-based organizations and internal community members responsible for planning and application of the project are always empowered and capacitated to ensure capacity building as the main goal. Bottom up approach empowers local communities, enabling them to “combine and ensure that they work coherently as a team on local based situation to overcome any challenges and to deal with all the issues before them” (Smith, 2008). Bottom-up approach is essential in avoiding bottlenecks. The following are the disadvantages of bottom-up model.

2.2.2.2 Disadvantages of bottom-up approach

Bottom up model does not depend on expert knowledge, as a result, it could become a hindrance if applied where it does not fit.

Bottom up model is also known as collective processes in which structuring results to contracts and commendations. Actors applying such contracts and recommendations do not provide suggestions about what might affect the implementation (Selin & Chavez, 1995). According to Bentrup (2001) the implementation phase in bottom up model includes the work explanation and the importance of task, but even then there is no associate fruitful application by certain issues. Fazey *et al.* (2010) and Lasco *et al.* (2009) argue that a major critique of bottom up methods is that they put obligation of application to familiarise occurrences on the communities but no improvement in the volume and area of authority to make variations.

Sherman and Ford (2014) affirm that bottom-up approach in between both improvement and familiarization works characteristically and discourages reliance on external human resources. The United Nation Development Programme (UNDP) and Ministry for the Coordination of Environmental Affairs (MICOA) (2011) mention that determined actors can be side-lined from bottom-up approaches although more resources are focused to communication, increasing awareness, and project training. Bottom-up methods have been blamed as a shallow concentration that avoids increasing and repetition. Bottom-up approach increases participation of local community members in all phases of community development.

The following section will describe the second framework that explains water provisions relating to privatization. This is important since literature shows that privatisation would be the best approach to water project management.

2.3 Privatization and public management of resources

The discussion progresses into interrogating privatization as a framework in the water delivery.

2.3.1 Privatization as a strategy of management

The concept of privatization is situated within the framework of neoliberalism. Neoliberalism is a model of economic and societal lessons in which the management of economic matters is moved from the public sector to the private sector (McCarthy, 2004). Neoliberalism advocates that the states should decrease the amount by which money is spent in order to ensure that owed money is not greater than money earned in a particular period of time (McCarthy & Prudham, 2004).

It further reduces the level of subsidy, changes tax laws in order to widen the tax basis, shifts static rates, markets to be opened up in order to trade and limits protectionist policies. It recommends privatization of government entrepreneurs, permits private property and considers free trade, a business activity, from rules and control (decontrol). Neoliberalism's rules strive for a laissez-faire situation for economic growth (McAfee, 2003). The laissez-faire theory states that the state should be less involved in free market entrepreneurship, and recommend that more society should be involved in free market system (Mansfield, 2004). The discussion will, however, focus on the concept of privatization and its impact in water delivery. Privatization involves a modification of ownership or a handover of management powers from the public (government) to the private sector (Kjellén, 2006). Privatization also involves organizational alterations, in different forms of commercialization which is about institutional alteration (Bakker, 2005). Privatization involves a situation where public-owned ventures (POV) are traded as private entities (Megginson, 2005).

Privatization and commercialization albeit closely connected should be understood as separate paradigms. Privatization may take place in the absence of full commercialization. Commercialization may occur prior to privatization or when ownership is still kept in the public sector. A distinct example of this is when many publicly owned services in the Organization for Economic Cooperation and Development (OECD) utilize increasing block tariffs and worldwide metering to price water at complete cost (Jones, 1998). Private sector involvement involves the contribution of private companies and private capital, through a range of contractual arrangements to form and control infrastructure on behalf of the state (Bakker, 2003).

Adinda (2008) argues that privatization is a process of altering a public sector business ownership to private sector business ownership. By so doing the state surrenders power of being the owner to the private sector, which becomes the new owner. As a result, the market or firm becomes more business oriented. The private owner has one main goal in the business and that is to maximise profit. Adinda (2008) further defines privatization as a political approach which generates new rules and assigns new roles amongst the state, civil society and the market. He further states that the term “privatization” can be seen in three viewpoints. These are privatization over institutional measures, privatization over functional measures and privatization over proprietorship measures.

Privatization over functional measures is a practice that reduces the participation and regulates state ownership of companies. Privatization over institutional measures is a give and take between total privatization and total state ownership (Laxmi, 2003). According to Laxmi (2003) this viewpoint has four slight differences. The first difference is programme of rivalry: in this case the private sector displays the signs of being interested in the current market, thus reducing the state's monopoly power. The second difference is unbundling: this is a method of generating operational units from a public venture, such as sources of commercial areas. The third difference is corporatization: in this case a company's licence converts to a public co-operative. The last difference is leasing: ownership is kept by the government but the company's facilities are rented to the private sector for use.

The third viewpoint, privatization over proprietorship measures is when proprietorship completely alters, from the public owner to private owner. This involves two ways, which are complete divestments as well as partial divestment. With complete divestment, the state trades the public company to a private firm. In incomplete divestment the state offers the small portions of its amount of shares to a private firm and it proceeds until the owner of the private sector has the mainstream of its amount of shares (Laxmi, 2003).

Privatization is in two types, namely, formal privatization and informal privatization (Morris, 1997). Formal privatization includes agreements or compulsory contracts supported by the law amongst the state and the private sector mediator regarding the scope of work, the role to be played as well as the functions of the private sector actor. Private sector performers included in formal preparations are interested in accountability matters due to the bond between the state and private company. Informal privatization is when a private performer included in preparation has no understanding of inclusion, so this cannot be interested in the achievement of public aims, the use of data with other people and answerable to the state (Morris, 1997).

Privatization is a reaction to the imperfections of the public ownership (Megginson & Netter, 2001). The highly controversial topic on public-private ownership is related to natural monopoly, like water supply (Megginson & Netter, 2001). In 1990s the World Bank became in favour of private sector believing it to be capable of introducing new ideas, having the ability to improve the quality of water provision, thereby permitting the public sector to readdress its finance to combat poverty (Prasad, 2006).

One of the key messages of the World Development Report (1994) is that it emphasized on the private sector inclusion in financing, management, as well as being owners of the development programme in order to guarantee profit in the development programme. By that time the private sector was believed to be the only deliverer which can improve water provisioning without wasting money, generate new ideas and thereby permitting the public sector to readdress its funds to deal with poverty. The World Bank recommended decentralization (World Bank, 2005).

Privatization means the substitution of community service and public organizations with market possibilities (Light, 2001). Privatization has various forms namely; firstly, privatization is not a monolithic concept, but there are about ten various forms involving divestment, and the transmission of government proprietorship to private bodies. In this case permission is given to the private sector to commercialize services or production to the community. Secondly, the involvement of food vouchers and housing, and giving the work of the government whereby the producer of services is taken over by a non-governmental organization (NGO), and intergovernmental agreements whereby a government level buys products from another component (Savas, 2000; Ibitayo, 2006).

Privatization can be perceived as a response to cumulative level of the European Union countries' fiscal incorporation. Privatizations do not entail decontrol, but may be done in many forms (Belke *et al.*, 2007). Privatizations are the component of a practice of being financially liberal in formerly extremely controlled money matters (Obinger & Zohlnhofer, 2004). They further argue that privatization is a response to financial rule (policy) limitations enforced by European combination and normally to the worldwide of economic markets. The word privatization can be utilized to a variety of processes, this involves the real selling of government businesses, renting out of belongings, private funding of schemes, terminating public monopolies, combined public-private projects, and making agreement with the private sector to do work which was formerly delivered by the state (Jomo, 1994).

Scarpaci (1989) theorizes privatization as a move distant from the public range. Privatization is lessened levels of community supply, support and ruling of whether preventive or healing health services will be adequate (Scarpaci, 1989). Privatization term has been scrutinized in different forms since the past three decades.

Privatization is a policy which is attributed to political occurrence instead of an easy change to the external surroundings (Jan & Wang, 2010). The major theory of privatization is to measure the functions of the government services as well as proprietorship of belongings of the government, down ensure that the private sector gains more roles in government delivery of services and ensure that the public sector's role is basically altered (Feigenbaum & Henig, 1994). Although privatization may be in various forms in municipality (for example, managed rivalry, franchise businesses and contracting), it includes transfer of the public good creation to a private sector. In many instances, such transfer, it involves profits. As a result, privatizations are explained theoretically in places where they occur (locational) as the manufacturing is no more placed within the government sector but in the private sector.

The concept of privatization inspires privatization in municipality discussions. The importance of this is held to ensure substantive alterations in the environment inside the creation of public goods and where services occur (Jan & Wang, 2010). Although alterations are multiple and assorted, municipal privatization is a serious discussion which emphasizes on two events, that is managerial or administration and the rivalry practices. The concentration on the managerial practice demonstrates the government-choice conceptual belief that tells the basic of privatization serious discussion (Cooke, 2007).

The state's opinion on privatization is to alleviate fiscal obligations and any function connected with organizing the work of the government and increases the production, advances or makes financial state viable, lessens the magnitude of government and also lessens the availability of the state in the economic system, and makes government responsibilities possible or easier. The philosophy of privatization is based on the idea of supremacy of market forces over organization instructions in controlling financial doings to attain productivity. Privatizations also stimulate production, and introduce fresh energy and enthusiasm to make new things happen or succeed (Barraclough, 2000).

Privatization of the government-owned businesses in economic sectors addresses the economic failures and improves effectiveness and increases growth (Jan & Wang, 2010). Privatization has shown good result as it improves significantly in its services. It is a crucial element of a pro-competitive model to creating social profits. It does not involve politics to the private sector if correctly dealt with.

To ensure the smooth functioning of the business it eradicates all political constraints in order to guarantee rivalry (Kikeri's & Nellis, 2002). Ever since the 1980s privatization is recommended to be involved in the Public Management in public administration because of its powerful policy instrument in supporting the philosophy of the New Right. It can raise the quality of doing well of the business (enterprise). Privatization increases or further improves the quality, value or status of the organization's economy (Don-Yun, 2005; Jan & Wang, 2010).

Privatization is essential in the alterations in market impression as privatization programmes have an effect on emerging relationships of trust market spreads in two ways (Boubakri *et al.*, 2009). Boubakri *et al.* (2009) further mention that the first channel is a direct effect; resulting from the point that privatization continues assisting the state ability to pay the money it owes. Paying off debts will enable the state to be trusted in that it is able to pay back the money it owes and thereafter advance complete macroeconomic and fiscal basics. These result to a good insight of self-governing danger by savers who will need a lesser premium to grasp self-governing relationship of trust. The second channel is an indirect effect, which is not much touchable and makes a point that privatization is a sign of state pledging to market-oriented rules, thus assisting to decrease policy danger.

Where privatization is wide, firm, and applied over share matters on the stock market, the further it delivers a reliable sign to investors. When privatization is applied in this manner, it indicates the pledging of state not to recourse to policy reverses in the future. Savers will, as a result, review their insight of self-governing money owed danger down, thus easing deterioration in transpiring market bond spreads (Boubakri *et al.*, 2009). Privatization in municipal level is supported mostly because it lessens the cost in municipal services delivery (Savas, 2000). Ibitayo (2006) mentions that there are most essential reasons why people are in favour of privatization. These reasons are aspiration to decrease cost, to advance the excellence of the provision and aspiration to restrict state's legal responsibility.

The last reason is to attain important knowledge and expertise that workers do not have (Ibitayo, 2006). A number of huge privatization programmes has taken place during the past years both in first world as well as in the developing world. The major elucidation is always that privatization results to augmented production which is rewarding; this has been underpinned by many scientific writings (Biasis & Protti, 2002). Privatization lessens the political underpin for sharing financial policies amongst the people (Schmidt, 2000).

Privatization decreases observed political danger and raises supply of goods in the market. It also gives the money to the company for it to function, which is stable with a progressive influence on political underpin for market related rules (Perotti & van Oijen, 2001). Privatization enables people to be in charge of themselves through investing in the private markets (Aaron & Reischuer, 2001). By so doing they help people to think judiciously on their own rather than depending on the state for help. This is done without considering discrimination.

Advocates of privatization fully assert that another principal assistance offered or provided by privatization is to increase government investments (Aaron & Reischuer, 2001). Most important, as the government investments accrue, growth degree would also increase tremendously, thus productivity is raised. As a result the economic state of the country would be stable, enabling the government to create employment opportunities. Privatization has proved to be most important as it provides safe and clean water to the community. Due to the provision of safe and clean water child death rate has decreased and also health equality in general has improved. This is common because water associated illness is avoided if safe clean drinking water is provided (World Health Organization, 2000; Galiani *et al.*, 2005).

Privatization of water supply is recommended because it has made improvement in the quality of water and more improvement in water service delivery has been made in urban municipalities. It has also made huge improvement on health results in both rural and urban areas (Patrinos *et al.*, 2009). The supply of water using regulation of the private sector is most important because there is a belief that regulated water provision under private sector guarantees the ability to improve quality provision of water to the community, thus upgrading human health (Galiani *et al.*, 2005).

2.3.2 Problems with privatization

The conversations in support of public ownership rest upon the market failure assumptions. Due to that, governments have reacted to the failure of the market with public ownership. In other words, the state has reacted to market problems with state ownership (Ghimire, 2005).

In fact, public ownership takes place when the private sector fails as a result of market failures and the government desires to modify the market distribution of economic expenses and benefits (Prasad, 2006). According to the World Bank (2005) ensuring that the private sector focuses on the ease of poverty and to plan tariffs in a manner which does not side-line the marginalized has showed to be very difficult to attain in practical terms. World Bank (2005) further affirms that private sector, due to the hard work in water provisioning it may be impossible to get further investment necessary to raise coverage in order to lessen poverty. It has been realized that since the involvement of private sector in water provisioning and sanitation more protests have begun, people show their anger against water and sanitation provisioning. People are mounting pressure on government urging them to refrain from using market powers to community services (Ghimire, 2005).

Private firms dealing with water might not supply an ideal standard of provision as they do not consider the importance of health outsiders (e.g. foreign) included in water entity (Shirley, 2000). As a result, privatizing water provision might have a bad effect on health results. Private sector firms impose service fees, increase amounts and they also put in investments in more profitable regions (Birdsall & Nellis, 2003; Galiani, *et al.*, 2005). In other words, charges put by the private sector are exorbitant in that they side-line the marginalized from water access. In short, private sector may side-line the marginalized by increasing the charges.

Privatization of water supply has caused destructive effect on imbursement for the lesser quintiles and it has a disastrous effect on water access in rural areas (Patrinis *et al.*, 2009). At the end the life of the marginalized gradually becomes poorer as a result of privatization. In order to ensure sustainability in water development, private sector needs to ensure that its programme has no pipe leaks but it is surprising that pipe leakages sometimes become the problem for private sector to function (provide water) as expected (Haughton, 1998). Evaluating privatization's economies is very problematic, techniques of selling and focus proprietorship do not describe all the differences in doing activities and the problem with privatization is that if done wrong everything will go wrong (Kikeri's & Nellis, 2004).

The other problem of privatization in South Africa is that assets sales are not done in a transparent manner (Megginson, 2000). For example, publicizing sales is poorly done in a manner that those who are inside can easily distort transactions to favour them.

Transactions in privatization are exorbitant. The next section will discuss the roles of public sector in development of economies.

2.3.3 Public sector roles

The failure of market mechanisms to ensure growth which is inclusive necessitates that state should intervene in economic life of almost all developing economies (Gupta, 1982). Grout and Stevens (2003) argue that public services are provided in many various forms. This means that a public sector may fund and also deliver a utility itself. In some cases the public sector may be involved in provisioning of a service or support bond with the private sector. At times public sector role might be restricted to controlling private sector supplier. The role played by the public sector is more extensive than that of a private sector.

The reason for government to participate in services provision varies (Grout, 2003). Sometimes in some cases the reasons for government to intervene may be caused by the provision side e.g. technology. The principal government role is to control market failure or do away with the exploitation of market locus. Even if a number of countries privatized these utilities, the utilities are funded by paying separate buyers for the things they elect to use. As a result, there is an essential need for pricing as well as well-organized regulation (Grout & Stevens, 2003).

In other utilities the major reason for government to be involved might depend on the demand side. For example, there are cases whereby it is not feasible to make buyers pay for what they consume, like in the event of non-excludable public goods, e.g. defence and public administration, etc., the state funds the utility on behalf of all those who are serviced. Another example is that the state is responsible for the well-being of all people in the country, so they like to know what is happening in education.

As a result there is a reason for the state to be involved in education and even finance in order to improve quality of education (Grout & Stevens, 2003).

In other words where the delivery of community services done by the public sector has a great change, the government is still responsible for conventional events, e.g. education, social help, and health provision (Ilcan *et al.*, 2003).

Lastly, in health care, although some are privatized, the state intervenes on the demand side, funding health to assist some of its inhabitants (Le Grand, 2002). Companies that are Not-for-profit (NFP) in the United States of America participate in the delivery of public services in the United States of America, more especially in health care and education.

In the United Kingdom companies for Not-for-profit (NFP) are also involved in the provision of community utilities. It is important to note that although these companies are private, the government still participates as the main role player as it funds these companies (NFP) and also controls their events (Francois, 2003). The public sector's inclusion in development projects is challenging as the state is not innovative, and unable to contest in international markets, and prevalent venality (Prasad, 2006). The importance of water supply as a natural monopoly demands the involvement of important outsiders. This view forces public sector involvement into the water entity. This means that private sector in water supply should be restricted (Galiani *et al.*, 2005).

The protocol of distributing resources in international public sector has no assurance in allocating money in lucrative programme. The buying of water to drink from private sellers is exorbitant, as a result, there is no rivalry. The water sector is also characterized by the attendance of significant externalities. The water entity is categorized by attendance of important outsiders. Several water-connected illnesses are transmitted. As a result, outsiders are most needed in the supply of safe clean water to the general population (Abdala & Spiller, 1999). Lastly, the quality of water provision is that society relies on water access. The need for water is completely value unyielding at living stages. Water is also a need to be utilized for things that are not living but for production purpose. The importance of outsiders and rigid thinking require a firm request for the interference of government in the water entity in order to address the people's need (Galiani *et al.*, 2005).

All in all, several studies clearly state that privatization is the main contributor in service delivery, thus it is important to highlight that privatization is most needed and it is the key in water provision. The above discussion has shown that privatization can provide water efficiently. The next concept that will be discussed relates to the role of project management in water delivery.

2.4 The role of project management in water provision

2.4.1 Definition of Project Management and Project life cycle

According to Burke (2010) project management is defined as a unique supervision of planned projects.

Project management is the foundation of organization to guarantee success (Badiru, 2012). He contends that the knowledge alone does not suffice but it should be utilized in order to achieve the objective. Knowledge should be obtained first, thereafter, enthusiasm can follow. As a result, project management enables the knowledge and wish to function successfully. In actual fact, it assists in ensuring that things are well done. Project life cycle is important in establishing and comprehending the full vibrant and lasting time of a project (Hobbs, 2008). The project management life cycle consists of various main phases in the process of defining the concept, planning, advancing and ensuring that the project is functional or making sure that the project is delivering something (Cleland and Ireland, 2012). Project management consists of risks which can be seen varying and even during disagreement situation (Sandoy *et al.*, 2005).

2.4.2 Key issues to be reviewed before project initiation

The main issues include guaranteeing that the individual who is appointed to be the project manager is well qualified and has the expertise for project management. Bradley (2000) mentions the requirements to ensure the project management is successful. These factors include; Skill for project management is essential. Project managers who are not skilled are to be avoided at all cost. Badiru (2012) affirms that it is crucial to emphasize that managers need to be skilled, experienced and good in communicating with others, talented in coordinating various assets and people, able to task people and do monitoring and show willingness and ability to adapt according to circumstances.

According to De Beer and Swanepoel (2000) application of knowledge, skills, tools and techniques to a broad range of activities are the most important requirements that should have been attained so as to qualify for a certain programme. Where there is shortage of expertise, skilled personnel should be out sourced to do the job (Kerzner, 2006). Means are made to make sure that powerful leaders are placed at all key positions of the programme (Zimmerer & Yasin, 1998).

It should be guaranteed that the programme directive is well elucidated and updating should be made where needed without delay. Human and structural factors and ethical issues are to be considered because they may delay or affect the progress of the programme (Loo, 2002). Guarantee vivid requirements from the project manager and the sponsor (Walker & Norrie, 2004).

Where these facts are ensured before the start of the programme there would be no doubt that the programme will attain its proposed outcomes. Badiru (2012) contends that there are six phases in project management. He counts the closure of the project as a phase on its own that is why he speaks about six stages or phases.

According to Irani (2010) there are six phases in project management. He counts the control and closure of the project as phases on their own that is why he speaks about six stages or phases. According to Irani (2010) the project management consists of five stages. De Beer and Swanepoel (2000) argue that project management consists of five phases. He also counts the project closure as a phase on its own. In this section the closure of a project will be together with the fourth phase, thus maintaining four stages. The four stages or phases will include every aspects of project management. These phases are discussed below;

2.4.2.1 Phase one – Feasibility Stage

This stage commenced when the project management needed to determine the need for a product. Justification of the identified need should be made. A project can be initiated as a result of different needs or issues (Badiru, 2012). For example, the need of a project may be the improvement of facilities, etc. At this phase new ideas are taken into consideration in order to verify that new products can be produced as the organization's funds and utilities will be best utilized (Burke, 2010). In this phase the knowledge of a plan is wisely studied to verify if it is rewarding the programme. At this stage a decision making team is convinced that the programme would be finished (Horine, 2009). Where an organization needs to invest for the future, it is important to consider levels in project management and the type of technology and alterations that might exists in the future (Iran, 2010). This has an effect on the budget that should be invested. In this phase the management of the programme looks at whether the programme will be productive.

They focus on the timing of benefits, outflow of costs, cash-flow of the organization and risks. Phase one assists management to decide whether to deposit their money in the project or not (Doms, 2004).

2.4.2.2 Phase two – Design and Development Stage

Once the proposal to start a project is accepted, the project shifts to the second stage to design and develop the project.

As soon as the management comes up with the idea to invest in the programme a well elucidating document dealing with finance will be made available by those in support of the programme. At this phase the programme design takes place. The standards or metrics of a project are verified in this phase (Luu *et al.*, 2008). In this stage the budget is assigned to the project to ensure the entire project needs will be catered for (Burke, 2011). This action leads to the project management plan. Discussions regarding items and agreements start in this phase.

A plan demonstrating the various actions that are required in order to achieve the proposed or needed goal is made in this phase (Cleland & Ireland, 2012). Project planning establishes the manner in which a project can be started and also ensures objectives (Badiru, 2012). In planning it is where objectives, project definition, team organization and performance criteria, e.g. time, cost and quality are scrutinized (Badiru, 2010). He (Badiru, 2012) also points out that organizing is also done in this phase to ensure that functions of the project are well directed in order for project goal to be achieved. Cleland and Ireland (2012) emphasize that motivation, supervision and delegation are more important in this phase.

As a result, it is crucial that the project manager should possess skills for project management in order to direct a project as required. The second phase of a project is project definition and planning. This phase is important because it is the stage where the layout of the project has been developed which consists of every events or duties, whether duties are associated, the length of time the duty should occur, and verification of whether the duties are linked to a certain period of time (whether any fixed date is involved for duties to be completed).

De Beer and Swanepoel (2000) also affirm that one technique to use in planning development projects is a work breakdown structure (WBS) in which activities are assigned to responsible people.

Li and Shearer (2005) argue that in the phase of planning, programme managing information group (pool) is pulled on nine zones. These nine areas are control; potential; efficiency; cost-effectiveness; excellent supervision; risk management; procurement supervision; HR controlling, and communication organizing.

2.4.2.3 Phase three – Execution or implementation stage

As soon as project management plan is accepted the budget is assigned for the project to implement the project's project management plan to resolve problems (Alberts and Hayes, 2007). This is the largest stage of the project management as it involves more efforts and budget (expenditure) (Burke, 2010). Burke (2010) further argues that in reality this stage should implement the project according to project management strategy and complete design from the design and development stage. In this phase resources will be distributed. Van Rooij (2011) mentions that an essential goal of this phase is to declare the roles around members of the project and to charge them with the responsibilities. Van Rooij (2011) also states that it is advisable to bring up important project related information during this phase.

The resources assigned in this phase include finance, equipment, facilities, tools, information, and skills (Badiru, 2012). In this phase monitoring or checking takes place in order to verify whether the project outcomes adapt to project plans as well as performance terms (Troxler and Blank, 1989). An approach for combining resources as well as management of resources at the same time taking note of training needs is important (Sawhney *et al.*, (2004). In this phase the project is fully functional. At this stage performance management system measurements are evaluated to make sure that the project produces the required results.

Hartman and Ashrafi (2002) argue that there are aspects which can have a serious effect on the running of the project. These factors are regarded as metrics and they include; firstly, reality check-the aim of checking this is to match the real approach used against the approaches used in first phase where the programme was supported and ended up being financed (Hobbs, 2008). Secondly, benefits realization-this is done to check if the project will be of assistance. In this phase benefits and goals are compared (Bradley, 2006).

Third is time management. This is done to map the time set in the scope with the time the programme is managed or progressing.

It is to verify whether the completion of the programme will be reached on time. If delays or problems occur they should be fixed to maintain objectives (O'Connell, 2007). Fourth is cost creep. This is done to guarantee great management of expenses in the programme. This is also done in order to manage the programme expenses that are not easily noticed. These costs may involve personnel or administrative issues (Iran *et al.*, 1997). Fifth, harmonization-this is done to ensure associated programme benefits, threats and expenses no matter what the situation. This is also to guarantee the benefit achievement and to minimize financial losses. In this phase it is recommended to make use of outside evaluators who have expertise of project management or permit them to provide a new viewpoint (Box & Platt, 2005).

2.4.2.4 Phase four – Commission and handover stage

This is the fourth and last stage of the project lifecycle, it affirm the completion of the project (Fleming & Koppelman, 2000). As it is the final phase of the project and tasks are completed, it is expected that the client should have approved the outcome. The last phase (phase four) is regarded as the termination of a project (Badiru, 2010). He mentions that the termination of project activities should be made by submitting a formal final report and the signature put on as a proof that a product of a project can be officially released to the beneficiaries. It is imperative that in this stage project managers compare project status and progress with the real strategy, as assets carry out the planned duties (Luu *et al.*, 2008).

In this phase it will be important for the project supervisors to ensure that time tables are adjusted to ensure that the programme produces the intended results (Troxler & Blank, 1989). Rodríguez *et al.* (2010) affirms that the primary goal of the monitoring and control stage is to observe and correct the problems with the implementation and design. The results of the programme may assist the decision makers. In this stage various evaluations are conducted to validate agreement (Cleland & Ireland, 2012). The phase warrants the tools to ensure all is in working order prior to tendering the product over to the beneficiaries.

The training of beneficiaries is offered in this stage. After the beneficiary's product has been handed over to the beneficiaries and the acceptance by beneficiaries made the project is terminated and a closeout report produced (Burke, 2010). Due to the sum of finance invested in the project the management wishes to know whether there is appropriate progress in the project to avoid losses.

As a result, it is important for project to be evaluated before, during and after the project has been closed or completed. Despite the amount of finance involved in the project, evaluation is important in order to measure the objectives to see whether the project outcomes may be achieved or not (Lycett *et al.*, 2004).

Evaluation assists in deciding whether success indeed exists or all things involve a failure. It also assists to verify if an effort of the programme can be constructed. Lastly, it will assist in making provision for corrections to be made. The people or management dealing with this phase should be the people who are autonomous or self-governing with no preferences, not influenced by the outcomes of the evaluation. The evaluation team should be objective and should have no secrecy.

The evaluation team should be confident in that results or outcomes of the evaluation can be publicized so that any mistake can be of assistance to the international learning and recurrence of achievements (Gulliver, 1987). It is important to bear in mind that project management needs to be monitored and controlled during its functioning period (Sawhney *et al.*, 2004). The control and monitoring of project management is carried out in order to monitor the project progress and match it against the starting point (Cleland & Ireland, 2012; Burke, 2011). The evaluation in this phase is a post-implementation evaluation or assessment phase. The phase four of project life cycle demonstrates the achievement of the project management as the project has been completed. The post-implementation evaluation is fairly scarce and standardized work (Beyon-Devis *et al.*, 2004; Al-Yaseen *et al.*, 2006, 2008).

Horine (2009) points out that evaluation and or continuous assessing of the programme are important to verify programme achievement and study its past events. The main aim is to guarantee that good production is attained to ensure the project is gaining. De Beer and Swanepoel (2000) argue that The Programme Evaluation and Review Technique (PERT) involve a system in which the whole project improves in the course of the preparation stage.

The investigation of these programmes is crucial as resources like finance and persons are determined. The fourth phase warrants the tools to ensure all is in working order prior to tendering the product over to the beneficiaries. The training of beneficiaries is offered in this stage.

After the beneficiary's product has been handed over to the beneficiaries and the acceptance by beneficiaries made the project is terminated and a close out report produced (Burke, 2010). The mentioned writers above agree that the most important phase in programme life cycle evaluation is post-implementation. Although ex-ante (phase1) evaluation has been conducted, the authorities always disregard to establish and make known the importance of investment connected with the plans of making money (Irani, 2010).

What organizations normally do is that they fail to adhere to this approach (post-implementation) and, as a result, organizations do not learn in a fruitful manner. Irani (2010) mentions that the most important aim of this stage is to establish if; firstly, programme objectives have been attained and underpinning reasons are provided to rectify the errors that occurred, if any. Secondly, goals have been attained and underpinning reasons are provided to rectify the errors that occurred, if any. Finally, assess the activities against investment made and for reporting back to funders.

2.4.3. Project Management influence on water provisioning

Rogers and Hall (2003) argue that Project Management plays a crucial role in water provision in that it ensures responsibility, everything is clearly made, nothing is hidden, and nothing cannot be understood. It also gives the same chances of employment to everyone, the situation in which everyone is treated equally, the quality of doing something well without waste of money, and producing the result that is intended when performing, and cash viability. Project management involves people working together and encouraging one another with the intention of making the project successful. This joint working of community members results to community empowerment where at the end community becomes a decision-making body, organizes and makes sure its strategies are applied.

Gomez and Nakat (2002) affirm that the working together of people is known to be the greater step or catalyst that fuels project success. In other words it is a method that influences combined investigation of knowledge that can lead to the strategies and production of new organizations and or intensify the current organizations. Gomez and Nakat (2002) further mention that authorization is a vital footing for ensuring that those who are using water are required to guarantee their own water service improvement.

Project management as the tool for empowerment involves the improvement of rural water management activities. Empowerment is an authority given to somebody or organization or a group of people to take over their own life or situation they are in. The decisions they are making should be fruitful (Aslop *et al.*, 2006). According to Rautanen *et al.* (2014) the Rural Village Water Resources Management Project in the New Partnership for Africa's Development (NEPAD) is a plan decided by governments in Africa which is meant through and through to assist in uplifting the continent's economic growth. The model of participation was initiated by New Partnership for Africa's Development (NEPAD) to be applied by municipalities at large as the model has been proved to be the major instrument for project success.

Kendie and Guri (2006) argue that in Ghana, non-governmental organizations (NGO) and the state frequently ensure that community members take part in municipalities, and in managing non-renewable resources. The components for participatory model (things to be dealt with by participants in the model) are as follows: shelter, water supply, sanitation, livestock water, irrigation water and anything which can be community developmental or can improve the social welfare of the society.

According to Haughey (2011) project management triangle is used to explain and makes it easier to comprehend the Project Management. An important idea is to deal with each of the three acknowledgements (cost, scope and time) because if one perspective is moved the other perspectives will immediately change. The three features are most important parts of the project with quality at the middle of the triangle. For example, if a client asks for additional functions at the middle of a project, then the time and cost will also increase.

According to De Beer and Swanepoel (2000) it is important to adhere to the notion that managers with good qualities of being leaders are to be tasked to deal with community needs. It is believed that managers with good qualities would be able to attend the needs of the community in a way that produces the required results. The production will be attained as stated in the time frame and efficiency will be maintained. Rautanen *et al.* (2014) further argue that more backing is strongly supplied by Rural Village Water Resources Management Project for joint organizing, application centred in all municipalities at community spheres.

The instruments that are aiming at the construction of tough Water Users Committees wishing to be owners are Village Development Committee, Water Use Master Plans and step-by-step model is for organizing and application.

The most crucial portion in step by step model is getting things started. The mentioned models believe that community is the main contributor or actor in project management. Active community participation is important as projects impact on their well-being (Pandy & Paulus, 2000). As a result, their entrance to the provision of water services is determined by their beliefs, decisions, opinions, morals, principles, integrity, loyalty judgments and status. Where this has been done correctly participants will feel that the programme is owned by them.

All in all, project management plays an important role in water provisioning as it emphasizes on participation where community members need to be the participants. It is evident that a project which is meant to serve them should also involve them as they are beneficiaries.

Where the rules or protocol (project management phases) of running a project has been followed or adhered to the project will be sustainable because all participants will be actively involved. It is important to mention that if these are not applied correctly in water provisioning, the water delivery system would be hindered. Further to that, even if one of the project management phases can be ignored, water delivery service will be unlikely to be successful. Kayser *et al.* (2013) emphasize that monitoring and evaluation in water services is important in order to ensure that water provisioning is adequate

2.5 Summary

The chapter has discussed and shown the following topics, namely, approaches to development, top-down approach, advantages for top-down method, drawbacks of top-down method, bottom-up method, disadvantages for bottom-up method and privatization in water provision and project management has been appropriately explained. The next chapter will explain the research methodology of the study.

CHAPTER THREE

Research Methodology

3.1 Introduction

The chapter discusses the method of research that was used. The main components of the chapter are research design, population study and strategies for collecting, analysing data sampling, reliability and validity. Issues that relate to ethics of research are also discussed. Research design deals with how the study is structured. Philosophical underpinning of the study is discussed. Research methods explain the methods used. Finally, strategies for collecting and analysing data are presented. Details of these elements are provided below.

3.2 Research design

The study employed mixed methods of research approach in order to attain a complete interpretation of the occurrences in the study. Howe (1988) proposed pragmatism paradigm. Howe's (1988) compatibility thesis argues that the blending of both quantitative and qualitative approaches is regarded as important and he further states that the mixing of these approaches is the part of philosophy that deals with knowledge. According to Albright *et al.* (2013) the utilization of mixed methods, involving two approaches, which are quantitative and qualitative, plays a critical role in the understanding of pragmatic trial results and implementation efforts. Similarly, qualitative data alone are likely to provide limited vision which is able to produce the results that are intended or wanted by the investigation without the breadth provided by quantitative data. It is in the combination of the strengths found in different types of data that the full understanding can be achieved.

Albright *et al.* (2013) further state that albeit it is accentuated thoroughly that quantitative methods and qualitative methods vary significantly. As a result, it is recommended that if the two approaches are blended in many different means effectiveness and or satisfactory results can be attained because it has been proved that one method cannot give the required outcome.

Ideally, the providers, communities, and participants of the study will also have a strong voice in the dissemination and implementation of research that will be better designed, conducted, and interpreted through the utilization of blended methods.

Venkatesh *et al.* (2013) contend that a combined approach in investigation is a methodology that utilizes the blending of quantitative and qualitative investigation approaches in one similar study. As a result it is believed that the research of this nature would assist in providing the good results which can improve the knowledge produced by the study. Venkatesh *et al.* (2013) further state that there are three vital ways in which blended approaches can be considered, namely; (1) suitability of a blended approach (2) improvement of substantive theory of blended approaches (3) evaluation of validity and reliability of blended approaches. Teddlie and Tashakkori (2009) contend that a combined approaches investigation affords a chance for the huge collection of different interpretations. The investigator might face difficulties or inconsistent deductions resulting from qualitative and quantitative components.

The different outcomes are important because they draw to a re-examination of information based on ideas and the expectations which state clearly the components of a blending approaches investigation. These outcomes do not improve an interpretation of the occurrence. On the other hand, outcomes assist in assessing circumstance of the occurrence or relationships between its elements (i.e. substantive theory) and ensure the creation of opportunities that will focus on future investigation. Findings that complement one another are important to the fact that they produce theories that deal with important or serious matters. These outcomes also provide a complete opinion of the occurrence and interrelations amongst its parts.

According to Greene and Caracelli (1997) the truth is that water information management system investigation which applies thorough quantitative and qualitative approaches provides the understanding on different information system phenomena. Water information management system (WIMS) investigation continues to maintain the use of combined methods in research because it is essential as it produces results that can cancel or reduce disadvantages caused by other approaches that operate on their own. According to Johnson and Turner (2003) blending approaches investigation can influence the attractive combination and reduce non-overlapping strength of quantitative and qualitative approaches, and give more understanding of the situation which any one of these approaches separately would be unable to give.

A mixed methods approach was used in this study to initially verify the behaviour of those involved in the study concerning the title and in depth-interviews conducted so as to explore separate perceptions of the participants about the title.

Patton (2002) asserts that the investigator in mixed methods exploration can create information regarding the actual matters centred on pragmatism, which accentuate attempts to tracing responses to the study questions rather than concentrating on the approaches utilized. Teddlie and Tashakkori (2009) affirm that in mixed methods an investigator blends quantitative and qualitative approaches in the same exploration, collects together the numeric (numbers) data and passage (world) data simultaneously or in categorization, then chooses fluctuating data and measurement instrument used that are appropriate in resolving the research aim and outcomes and solutions to the questions of the study.

Mixed methods approach was used in this study because it would be of assistance in getting the full interpretation of some developments and designs, creating and analysing the theories, advancing new size tools, learning different perceptions and interpreting the connection amongst the things that are able to change (variables) and can further be used in addressing different research problems. Creswell *et al.* (2003) mention the following to be the key explanations for blending qualitative and quantitative approaches in the same research paper, namely; to elucidate or describe quantitative outcomes following qualitative statistics; to utilize qualitative statistics (data) to improve sizing tool or theory which has been consequently verified; to match quantitative and qualitative statistics (data) collections to create highly tested deductions and to improve a research with additional statistics, both qualitative and quantitative.

This study used a survey with the intention of verifying the behaviours of those involved in the study. Thereafter, follow up and in depth interviews were conducted in order to study more about different perceptions pertaining to the title of the research. As a result, the investigator collected quantitative questionnaire statistics (data) as well as specific interview statistics (data). Patton (2002) further argues that whenever mixed approaches are used in the study the investigator creates information about the actual world matters concentrating on pragmatism, which emphasizes on getting responses to questions of the study rather than on the utilized strategies.

Mixed methods permit for background understandings, the utilization of several approaches and are able to change plans in order to deal with the questions of the study. As a result, in this study, questions were regarded as being of more importance than the methods that were used as they would enable the researcher to obtain the desired information.

3.3 Population of the study

The population of Umzumbe Local Municipality grew from 165 803 to 193 768 people between the period 1996 and 2001. The period 2001 to 2011 saw a declining trend in population numbers, from nearly 200 000 to just above 150 000 (Umzumbe Local Municipality, 2012/2013-2016/2017). The targeted population for the study included the officials of Umgeni Water Board, UGu District Municipality, Umzumbe Local Municipality councillors and the community of Umzumbe Local Municipality. In reality, it is the responsibility of the investigator to describe or delineate the population target. Welman *et al.* (2005) argue that targeted people are people to whom the investigator preferably intends to use in order to form an opinion that is considered valid for her or his outcomes. For the purpose of this study population can be defined as people or individuals living in a particular area, city or country and who are targeted by the researcher to take samples and measurement of his or her study.

3.4 Research methods

3.4.1 Qualitative data collection

Primary data collection involved qualitative data generated from the interviewing of officials (engineers) from Umgeni Water Board. The primary reason for visiting this organization was that it is the main role player in water provision. UGu District Municipality engineer was interviewed during the data collection process in order to assist in clarifying his role in water provisioning. The uGu District Municipality water engineer was also interviewed in order to explain their role as a municipality in water supply to the Umzumbe Local Municipality's residents.

All in all in this study three (3) water engineers were interviewed. This is underpinned by Patton (2002) who mentions that the small illustration size is intentionally chosen amongst the persons who are more knowledgeable and skilled about the study event.

Fontana and Frey (2005) reassess all the events that happened in the past regarding the questioning process in the discipline of social sciences. The three main methods, namely; unstructured, structured, and also open-ended interviews are observed at the same time. Modification and alterations throughout the usage are also noted. This study employed open-ended questions. According to Creswell (2002) the main reason for using open-ended questions is that in qualitative research interviews these questions always follow a conservation form. The aim of the researcher was to examine completely or carefully those involved in the research, their personal opinions, notions, principles and the way they behave towards certain occasions.

Normally open-ended questioning comprises of a sequence of conversations. This study focused mainly on participant's own perceptions of the event or phenomenon. Care was maintained not to base the study on a single informant. Such interview authorized the investigator to deliver the communication not involving words or speech and responses that would supply assistance in the statistical examination (analysis). Respondents were free to say what they believed is proper as open-ended interviews were used. Detailed information was given by respondents when this method of interviewing was used. Recording an interview is essential during the interview session.

According to Nieuwenhuis (2007) recording an interview must be conducted in a careful manner. Therefore, a tape recorder was utilized to record the interview, but permission from the participant was acquired before recording could start. Although recording was used notes were also taken by the researcher so that the researcher could reassess responses, and also, at the end of the conversation supplementary questions were asked. At the end of the conversation, the tape would be played and listened to, to reflect on the conversation in order to detect cracks essential to be explored in a form of clarity seeking questioning. Tape recording assists if the researcher anticipates posing supplementary enquiries or, in the case where there are some people in the vicinity to hook for important information. During the interview progressions, some few clarity seeking questions were posed, where there was any matter found to be of specific interest.

Secondary data were also used in this study so as to improve primary data in order to improve the most important quality of the research. Creswell (2002) further asserts that less important providers of information are books, magazines and articles.

The books, magazines and articles are from the task that was released before. Therefore, secondary data for this study were generated from water supply policy, yearly report for 2013 and 2014, and Umzumbe Local Municipality (2012/2013-2016/2017).

3.4.2 Interviews

The investigator in the study made use of conversation (interview) where the researcher posed questions to those involved in the study with the intention of gaining statistics (data) and to study the notions, behaviours, principles, personal viewpoints and attitudes of those involved. Nieuwenhuis (2007) argues that the intention of qualitative questioning is to use the knowledge of those involved in the exploration and view the situation.

Where qualitative questioning has been utilized properly, it can become an important foundation where knowledge can be obtained. In this study, interviewing is crucial in that it assisted the investigator to acquire good and straightforward data which enabled the investigator to know how those involved build the information and how society is organized. Tracy (2013) states that when the interview is conducted on conversation basis it offers the chance to produce a relationship in which the researcher and participants understand one another very well. During this stage communication involving words or speech (verbal data) and communication not involving words or speech (non-verbal data) was obtained.

Interviewing in this study assisted the researcher to pose probing questions to achieve comprehensive statistics of data and confirm the information that had been heard by the researcher. In this study interviews were important as Maree and Pietersen (2007) argue that persons who are knowledgeable about the community situation are included in qualitative in-depth questioning. Therefore, it is important to know that informant interviews assisted in collecting data where a large number of persons were involved. The large number also involved leaders of the community and citizens, as they are the ones who receive the information first concerning community members or community situations. The study involved 77 participants (people interviewed).

Recommendations and resolutions of any challenges facing the community can be made by community members, because they are well-informed about the community.

3.4.3 Use of documents

The collection of qualitative documents was conducted on rural water-related policy and strategy documents. Nieuwenhuis (2007) asserts that original information is the knowledge which has not been released officially to be known by the public. This information or knowledge was collected by the researcher from those who are directly involved in the study. Examples of the primary sources are; correspondence, reports, etc. The term “lesser source” is used to explain any resources such as magazines, books, articles, etc.

These materials were once released officially to be known by community members. Gouais and Wach (2013) argue that Qualitative Document Analysis (QDA) aimed to focus primarily on policy documents of development partners with which Triple-S is actively engaged. Where policy documents were not available, similar documents, such as strategy or guideline documents, were analysed. Understanding the strengths and weaknesses in these policy documents may help to show where change in the rural water sector is still required, in addition to providing nuanced information about the documents of the individual partners.

Prior (2008) argues that the recognition of the existence of documents as social facts or constructs alerts people to the necessity to treat them seriously in social research. Documents can tell a lot about a social setting or individual life. Prior (2003) further contends that the analysis of documentary evidence can form an important part of broader ethnographic study of everyday life; documentary analysis may also be employed as the main method for qualitative research in its own right.

Atkinson and Coffey (2010) affirm that official papers or books that give information or that can be used as evidence or proof of something are regarded as social facts. These documents can be utilized in a societal setting. Documents are versions of reality, scripted according to various kind of convention, with a particular purpose in mind. Documents construct particular kinds of representations using particular kinds of textual (and often, too, non-textual) convention. Documents should not be seen as replacements for other kinds of data. Scourfield *et al.* (2012) contend that documents cannot be treated, however official or otherwise as firm evidence of what they report. Therefore, repeated observations about data from official sources were made.

A useful starting position for the analysis of documents in social research is that documents are socially defined, produced and consumed. Atkinson and Coffey (2010) further mention that in analyzing documents as a social research data, researchers should be mindful, not only of what the documents might contain in terms of information or content, but also of how they are structured and the functions to which they are put.

3.4.4 Quantitative data collection

It is clearly mentioned that various techniques may be utilized to gather information from the participant's model. In this study quantitative data collection was conducted through face-to-face survey with the respondents following structured questionnaires. Maree and Pietersen (2007) argue that in certain situations other approaches are better but it is emphasized that all approaches have benefits and drawbacks or shortcomings. Fraenkel and Wallen (2006) mention the following to be the advantages of face-to-face survey; it is important in this research because the investigator was able to generate a high response rate, long questionnaires were used, respondents did not need to be literate and also the survey assisted in clarifying issues that were not clear to the respondents. The questionnaire consisted of two main categories of questions, that is; open-ended and closed-ended questions (Bell, 2005).

Therefore, this study demanded the researcher to focus on using open-ended interviews so as to make sure that participants are able to supply trustworthy and complete replies. The participant's intelligence was exposed and difficult questions were sufficiently replied to and structured examination of respondents produced extremely needed knowledge. Fraenkel and Wallen (2006) further affirm the following to be the disadvantages of face to face interviewing: investigator unfairness is a high risk, more chances for fees to be high and the investigator is to be a professional. Maree and Pietersen (2007) argue that closed-ended questions are important because they make coding as well as analysing statistics be easy. Questions that are hurtful may be replied without difficulties, simply and immediately replied. Closed-ended enquiries in this study provided more answers amongst which respondents could select answers.

As a result, statistics (data) acquired from the management of closed-ended enquiries could be examined without difficulties. Further to that, the technique of 'spontaneous answers' was frequently employed.

In this instance, responses were not posed to the interviewees but the respondents had to think and give answers by themselves. Obviously, great care was taken to organize questions randomly with respect to sensitive matters. The survey questionnaire was directed to respondents who were community members. The survey questionnaire was used to acquire numerous data as required for statistical propositions assigned by the study. Questionnaires were used to collect statistical information from the community of Umzumbe Local Municipality. Explained in detail in section 3.4.12 and 3.4.13.1.

The interview questions were written and discussed in either English or IsiZulu in order to accommodate participants who could not comprehend or did not know English, or who could not fill the answers in isiZulu. In order to assist those who could not write or read, the investigator wrote their answers.

3.4.5 Advantages and disadvantages of questionnaires

Brink (1996) and Kumar (2005) contend that the advantages and disadvantages of questionnaires need to be considered throughout the research procedure. Some of the advantages of questionnaires relate to the fact that they are cheap and also not wasteful. They require a small number of people and a smaller amount of cash is needed. The third advantage of questionnaires is that pre-coded data give more chance to respondents to think about responses on questionnaires. Also questionnaires enable a huge number of participants to be reachable. They also enable secrecy because of the absence of facial communication so that reliability and validity can be easily established.

Disadvantages of questionnaires are that they have less answer rates or inadequate replies. The spreading of questionnaires may be expensive because the investigator has to provide the participants with an envelope that already has an address and affixed stamp. The answers to questions can have prejudice caused by answers to certain enquiries because the participants may learn questions prior to giving responses. The chances for clarity seeking questions are absent where participants fail to comprehend the enquiries and restrictions. The subjects may omit to answer some of the items.

3.4.6 Qualitative data analysis strategy

In qualitative data analysis strategy the examination of qualitative statistics (data) is usually used to explain viewpoints that are intended to analyse expressive and descriptive analyses of what is contained in qualitative method. According to Nieuwenhuis (2007) qualitative data analysis attempts to verify the way how those involved explain the meaning of their event by examining their way of noticing things, the way they think or behave, knowledge, beliefs, ideas and capabilities to try to estimate the building of their event. By means of inductive method of analysis qualitative data can be attained because the major aim is to allow the outcome of the research to occur from the common, main subjects' intrinsic natural data, with no limits enforced by an organized theoretic aims.

Charmaz (2003) plainly defines the ideas and principles on which data are based and examines communication. Importantly grounded model comprises of organized inductive strategies for data gathering and analysis to construct the best theoretic backgrounds that elucidate the gathered data. People from the age of 21years were interviewed. After that interviews were transcribed. Each interview was read back to participants, offering the participant a chance to read the transcript and eliminate anything which felt too personal (member checks).

3.4.7 Coding of qualitative data analysis

The term “coding” can be described as the method of interpreting the recorded data, in sequence (numeric) and making sure that data are divided to make meanings. Saldana (2009) contends that coding of data is important because it ensures that data are divided or grouped to represent the events or occurrences. The first activities of coding process have been called “open coding” and “initial coding” by grounded theories (Charmaz, 2006; Glaser & Strauss, 1967) and “first cycle coding” (Saldana, 2011).

In this study meaningful segments were located and coded. According to Nieuwenhuis (2007) the term “coding” is described as the designing of sections of statistics (data) with codes, graphs and distinctive titles. In this study segments of data were marked with symbols. This means that whenever an expressive part can be established in a section coding is usually allocated to show that part. Seidel and Kelle (1995) differentiate codes into two fundamental methods.

Firstly, these methods act as impartial, clear portrayals of realities or investigative instruments that provide opportunity for the continuation of enquiry and findings. In the first instance coding acts as gathering ideas for important statistics (data). In the second case coding markers act as symbols indicating how to explain events that are occurring. Precisely, in this study coding markers indicate how the researcher rationalized the occurrence. In addition to that code labels afforded the researcher the opportunity to create more findings pertaining to the truth of the statistics (data) mentioned in the coding.

The coding procedure enabled the researcher to rapidly recover and gather every passage and any statistics (data) related to the main opinion or view in order for the little that has been arranged to be collected and analysed as a collective and by so doing it will be easier to match various circumstances (Nieuwenhuis, 2007). A main list of every code which has been established and utilized by this study will be preserved. These similar codes will be re-used to the related sections of statistics (data). This process is called *in vivo* coding and is typical of, for, example, grounded theory and narrative data analysis.

3.4.8 A priori coding

The researcher developed a priori code before examining the current data. This was useful as the researcher intended to examine current models or to increase them. Coding, like the whole data analysis process, is fluid. After the coding of data had been completed an attempt to summarize and organize data was made. In summarizing the outcomes, procedures such as listing, categorizing and examining the associations and pattern of the statistics (data) were pertinent. In the literature (especially sources dealing with grounded theory) references to axial coding and selective coding were found to follow the initial open coding. Charmaz (2006) argues that axial coding is the method of reconstructing data which were cracked when the coding was not closed (Strauss & Corbin, 1998). This process is more intuitively related to categorizing coding which consists of organizing groups of different codes beneath a categorized umbrella group that creates theoretical sense. In axial coding, data were placed collectively with an intention of trying to find clear relations between groups and subgroups of statistics (data).

As a result, this would include elucidating and interpreting connections between classes so as to comprehend the event to which they connect.

Coding and dealing with a small number of people involved the method of choosing and finding the main group and scientifically linking it to additional groups. Enumeration was useful in ensuring how many people share the same understanding of the concept. Thereafter, efforts were made to work through all the data sources and code all the data before moving on to the next step of the analysis process. As a result, as the key cause for this action, the researcher needed to have all codes established before identifying possible categories and start sorting codes. Secondly, the researcher read data across data sources to establish which pieces of information corroborated each other and which were contradictory.

3.4.9 Coding “Notes”

Lastly, as an element of the coding method, notes of the reactions and ideas that emerged were jotted down. All central thoughts were essential to the success of the study. The obtained notes recommended fresh understandings and relationships with additional information. On top of that, the researcher was aware of what emerged from the information. As a result, these notes directed enquiries (questions) and matters for the researcher to consider when coding, as well as gathering extra information.

3.4.10 Interpretation of data

The researcher approached data analysis inductively, thus used what was in data sources to code and develop categories. This means that what the researcher had was quite simply, expressive abstracts for those participating in the research. The examined information was taken into consideration, as well as theories to make known their support of the present knowledge and or create fresh interpretation for knowledge dissemination. This was the investigator’s sole input in ensuring the improvement of discipline. In interpreting the analysed data the researcher searched any developing designs, relations, ideas and elucidations in the information. Ritchie and Lewis (2003) propose that at this stage, the qualitative investigator might involve describing notions, charting the range and the way the event happens, dividing different information, discovery relations in the information, supplying descriptions and mounting approaches.

3.4.11 Quantitative data analysis strategy

Seventy (70=n) households were sampled from the number of research participants. In quantitative analysis data collected were systematically arranged and analyzed. Statistical Package for Social Sciences (SPSS) in this study was utilized for data examination because some closed ended questions were used. Information in this study was analyzed by means of expressive data. Occurrence tables, bar graphs and pie diagrams explaining and interpreting data were inserted using a computer. The open-ended questions in this research were analyzed or examined through quantitative content as the researcher intended calculating the developing features and ideas.

To ensure that the participant's contribution was appropriately comprehended the outcomes of the organized conversation, including questionnaires, were shown and examined. Practising this is essential to reassess ideas, insights, beliefs and capabilities of the replies of the Umgeni Water Board, municipal officials, councillors, as well as community members which were combined and examined. Efforts were made to ensure a detailed understanding of the information.

3.4.12 Sampling in qualitative research method

When selecting persons for interview it is important to keep in mind that the crucial stage is sampling. Sampling is a strategy which assists in selecting foundations for the data (Lyubomirsky, 2008). According to Tracy (2013) sampling refers to selecting precise sites, numerous occasions, day times and undertakings to be monitored in the real world. Sampling is also a method which is utilized to elect a certain population's part for the research. In general, qualitative investigation is largely centered on non-probability sampling process. Thus, a sample size of one (1=n) official from Umgeni Water Board, one (1=n) government official from UGu District Municipality and five (5=n) councilors was used.

3.4.13 Non-probability sampling method

Non-probability sampling method is not structured to be utilized in random electing of the community members who should take part in the research. The researcher should be careful not to make essential deductions regarding the community.

As a result, the utilization of non-probability samples should be restricted at all costs. In other words, investigators are warned not to use non-probability samples at all times.

The researcher may use a non-probability sample in the circumstance mentioned below; outcome is required immediately, the evaluating apparatus required to be examined, where it is not easy to get community members, not much time is obtainable, initial investigations have to take place to improve survey phase and not much finance is obtainable. Non-probability sampling consists of four types, but this study used the one below.

3.4.13.1 Purposive sampling

Purposive sampling is the best method for non-probability sampling. Maree and Pieterse (2007) contend that the use of this approach is believed to be important in the circumstance of a precise aim in the researcher's thought. In this study subjects were chosen for sampling because of their features which made the researcher to be convinced that they are the people who possess information which can be valuable to the research. As a result, it is important that choices for sampling should be done for the precise purpose of gaining the foundation for data to respond to the questions of the study.

Smaller sample size is mostly included in the research which is qualitative in nature than the research of quantitative nature. Qualitative research involves sampling which is changeable and proceeds till no production of fresh subjects is delivered from the information gathering procedure. The choosing of subjects does not limit purposive sampling decisions, but nevertheless, for information gathering occasions, deeds, surroundings, and occurrences, consists of purposive sampling decisions. This research used purposive sampling method so as to select an appropriate number of the study participants. Welman *et al.* (2005) argue that purposive sampling method is considered as the crucial approach under non-probability sampling which the researcher may apply when collecting analysis's units. The pertinence of the people representing others is dependent on the use of purposive sampling method.

All samples attained using purposive sampling approaches are satisfactory and believed to be representing the required community members. This theory is also underpinned by David and Sutton (2004) who maintain that in theoretical sampling, the units are selected according to the researcher's understanding and beliefs about who is suitable for the title of the research.

3.4.13.2 Sampling in quantitative research method

Maree and Pietersen (2007) contend that sampling approaches appropriate to two main programmes are non-probability methods and probability methods. The method which is centred on the main beliefs of randomness and probability theory is probability method. Non-probability methods do not focus on principles of randomness. Probability theories need probability samples in order to form an opinion to make the use of the people truthful or valid whereby in non-probability sampling the same procedure does not apply.

3.4.13.3 Probability sampling method

This sampling approach ensures that any individual among the people has a chance of being chosen. Participants in this method are comprehensively randomly chosen. Electing methods in probability sampling applies an objective system. In the process of this method people and subjective intervention should be avoided by all means. The probability sampling method consists of four approaches. One of them is the following:

3.4.13.4 Simple random sampling

Maree and Petersen (2007) argue that to draw this sample it is essential for a comprehensive sample structure to be accessible. For participants to be identified it is important that individual participants need to be orderly classified by numbers. The actual portrayal of this sample involves the development of advanced sum of the magnitude of the model of the simple random statistics. To ensure that the figures make the sample the individual people should match the statistics. The most important portion in simple random sampling is the random resolute of figures. A good example of a mechanism that generates random numbers is the national lottery.

3.4.14 Reliability and validity

In this first section the researcher will describe the content of the term “reliability” as well as its importance when conducting research. Pietersen and Maree (2007) argue that the repetition and constant not changing of evaluating mechanism is referred to as reliability. The continuing reliability of answers was exposed when participants answered questions in questionnaires. When information gatherer prejudice is reduced reliability will be guaranteed.

Where the researcher manages, normalizing situations such as showing related individual features to every subject information gatherer prejudice will be reduced.

The researcher ensured secrecy, privacy and confidentiality by making sure that the situation where information was gathered was comfortable or conducive for respondents to give information voluntarily. In other words, nothing should affect the respondents (whether physical or psychological). To ensure diplomacy and suitability during data collection the investigator supplied respondents with physical relaxed seats in the community hall.

The researcher made sure that ventilators were operational to ensure that respondents enjoyed the interview. Where the hall had windows only, they were not closed for the lovely air to enter. During the interrogation the investigator remained with the respondents at all times until the interview was over. While the interview was in progress, a warning poster written “no interruption required” was put on the entrance to guarantee privacy. Respondents were told not to reveal their identity, to maintain secrecy. The second section will describe the content of the term “validity” as well as its importance when conducting research.

According to Pietersen and Maree (2007) the legitimacy of the tool denotes the degree to which it matches anything it is quantifying. Content validity denotes the degree covered by the tool to ensure that all information contained is meant to be assessed. For the investigator to attain the information which is valid the investigator presented a draft description to specialists in the real world for them to make remarks prior the completion of the final document. Questions were centred on the data collected in the period of literature review to guarantee that subjects were representing what they needed to be aware of in water provisioning. Further to that, the validity of information contained was guaranteed by the quality of having the same opinion or standard in managing the surveys.

Every survey was disseminated by the investigator to every respondent. Simple language was used when preparing questions so that all respondents could comprehend the meaning or content, e.g. isiZulu and English. Respondents were supplied with clear instructions and the investigator completed the surveys for respondents that were illiterate. Every respondent completed the surveys with the investigator being there. By so doing, the investigator prevented the manipulation of data, e.g. to prevent respondents from asking for assistance for surveys from other people.

To prove the survey it was given to the investigator who works with statistics at KwaDlangezwa. In the process, additional enquiries were made to guarantee supreme representation. Questions reshaping was made for proper answers and questions elucidation was supplemented to the closed-ended questions so as to deliver a more expressive information examination (Burns *et al.*, 1997).

Outside validation was guaranteed. Burns *et al.* (2009) mention that outside validation is the size of an area where outcomes of the research should be understood more than the model utilized. Everyone asked to take part in the research was requested to complete the questionnaires. Mentioning of few facts concerning the outcomes to all community members should be defended. Tracing respondents that are prepared to take part in the research might be problematic, predominantly where the research needs more time for the respondents. Whereby the number of people requested to take part in the research refused, the generalization of the outcomes to all community members becomes difficult to defend. This research was organized in order to restrict giving time or efforts to participants so as to mount involvement.

3.4.15 Ethical considerations

The research was guided by four principles of Beauchamp and Childress (2001) independence; admire the rights of the person's generosity; deed decent non-maleficence; not endangering but impartiality, and fairness. The researcher fully understands that the principal duties to those participating or involved in the research include the following: getting permission, guarantee privacy, confidentiality or secrecy and safeguard them from injury. The mentioned information is supported by Welman *et al.* (2005) who affirm that the investigator must consider the following moral concerns: i.e., participation of the investigator, informed consent, right to privacy, safeguarding from injury and secrecy.

3.4.15.1 Informed consent

After the purpose of the investigation has been intensively and clearly explained to the participants and they comprehend it, the researcher would ask for consent from the subjects. Therefore, the researcher would guarantee direct permission at the beginning of the interviews. In other words, participants would be able to know what data have been collected about them.

According to Cram (2009), in the Maori community, LaFrance and Crazy (2009) in the American Indian community, and Battiste (2007) in the Canadian First Nations communities researchers need to appear face to face to ask for permission to conduct research to these communities, and the expectation that the researcher will be honest about what they get out of the research (e.g. funding, publications) and what the tribe or clan gets out of the research.

This needs to be done before there is an agreement to allow researchers to commence their work. Informed consent was distributed to the respondents after they had agreed to be included in the research. Further to that the researcher made no promises to compensate the participants. To ensure this, informed consent and recorded information were read by the investigator and respondents. Thereafter, the investigator requested the subjects to put their signatures as a symbol of giving permission.

3.4.15.2 Right to privacy

It is very important for the investigator to inform the participants that their right to privacy will be guaranteed. Participants need to be told that their names will not be known (anonymity will be maintained). A number of people become comfortable with being connected with the data, but some individuals may want to remain anonymous, thus the researcher will ensure that anonymity is maintained at all times. A lack of data protection could deeply damage the trust between researcher and participant.

3.4.15.3 Protection from harm

To ensure protection from harm or injury the researcher guaranteed to the participants that an indemnity would be considered. Mertens (2010) argues that qualitative researchers who hold transformative values have a responsibility to address issues of human rights, social justice, discrimination, and oppression. As a result, the researcher made every endeavor to guard against human rights violation during the interview sessions in order to avoid harm.

3.4.15.4. Involvement of the researcher accentuate

In this study the dishonest influence of participants by the investigator was avoided at all times. To emphasize, researchers should understand that participants are not like figures, but people.

So, any beguiling acts by the investigators must not be practised. Fontana and Frey (1994) argue that researchers are warned to avoid using deceitful acts or methods of quizzing when questioning the respondents. For example, unethical behaviour in unstructured interviewing occurred in 1970 when a researcher named Humphreys was unable to find homosexual men in public restrooms who were willing to be interviewed during the Tearoom Trade Research (Fontana & Frey, 1994). He then secretly recorded their licence number plate and used these to trace the men in their residences. He even went as far as changing his appearance to be able to interview the men at their residences without being recognized.

The researcher apparently gave thought to the possible uses of his research, as Mertens and Wilson (2012) contend that no matter what the purpose, researchers need to give thought to the possible uses of their research from the beginning of the study throughout the entire process. Drew and Hardman (2007) mention that the main components of informed consent are voluntariness, knowledge, capacity and all these components need to be included in the consent to validate it. In order to ensure voluntary consent each person should be able to apply his or her own mind freely in making decisions (choices) that are devoid of force and any form of dishonesty, inducement, enticement, limitation, intimidation and pressure.

During the exploration procedure the right to decide must be maintained at all times. Materials, as well as methods, will determine if the knowledge was appropriately transferred to the respondents. Researchers are advised to ensure that the data are well organized so that they will be easily comprehended by the subjects. In order to ensure completion of the research the researcher must be in charge of it. The researcher ensured that participants had capacity to obtain and keep information which was required for the study in question. To be regarded as having enough skills or knowledge to do research well or not having the skills, the ability to do research would depend on the capability or ability of the individuals to obtain, maintain, and assess data.

3.4.15.5 Confidentiality

Secrecy was explained to all those taking part in the study. Secrecy denotes that respondents' well-being will be valued and honoured. Mention should be made to the respondents that secret data would be retrieved by the manager as well as the investigator.

Participants should be informed that their identification will not be written on transcripts as well as on the last information (accounting statement). The same will apply even to respondents who have no problem with their identification. Further to that, the participants were ensured that data would be used only for the purpose included in the initial informed consent process. At the end of the research data would be recorded and written, thereafter kept in a safe and secret room. Afterward, when the research was complete and statement reporting about the research had been made, demolishing of all recordings would be done.

3.4.15.6 Transparency and human rights

The researcher ensured that data collected were accessible to participants. In order to ensure transparency, the researcher included member checks (offering the participant a chance to read the transcript and eliminate anything which is felt too personal) during the interview progressions. A direct citation was made in order to make sure information can be back-traced. To demonstrate fairness or transparency the researcher mentioned to the respondents that should they wish to cancel their participation in the research they would be allowed to do so as it is their right to do so.

This is supported by Brydon-Muller *et al.* (2011) who affirm that qualitative researchers who work within the action research traditions have emphasized the ongoing inclusion of member and triangulation as strategies to involve participants in use of qualitative data. According to Mann and Stewart (2000) information safeguarding matters should be the responsibility of investigators to think about the lasting consequences at the initial phase. Therefore, the researcher considered the authenticity of data; hence the point was not to categorize the types of data, but also to identify important relevant actors and their roles. Harris (2009) points out that the members of the marginalized communities should be accorded all the rights and privileges of those from the dominant group, and not be relegated to a research assistant role or a token representative.

In this study all participants were treated equally. In other words, they were treated with full respect and their rights were fully guaranteed, even their cultural differences were respected.

3.4.15.7 Data storage and disposal

The data and records gathering and storage by the researcher must comply with the Data Protection Act of 1998. The researcher was responsible for the storage of data regarding this research. The expenses of the research included storage expenses. The researcher ensured that electronic data were planned in a manner that a back-up system would be made. It was the responsibility of the researcher to ensure that the principal data were kept in the Department of Anthropology and Development Studies at the University of Zululand. The main aim of doing so was to guarantee the protection and reliability of data.

The Head of Department of Anthropology and Development Studies has an obligation to ensure the data is well preserved. The retention of data will be made whereby research work is arranged for publication. This data will be reserved in the Department of Anthropology and Development Studies for a period of five years after the publication of this research. The Head of Department is responsible for the authorization and destruction of student researcher data and annals retained by the Department. Any secret data and annals which are written on paper will be torn into small pieces (shredded).

The destruction of secret data and annals in electrical form will be done by changing it into a new format. A magnetic field bulk eraser will be utilized to get rid of the annals in audio-visual tape. Where the researcher is dealt with the disposal of secret data and annals the researcher would guarantee that he made use of the more operative approach to prevent any alterations caused by technological improvements. The destruction of data would be documented in the Department of Anthropology and Development Studies.

In case the researcher is parting with the institution where the data are stored it would be the duty of the institution and the researcher to take the responsibility to guarantee that the data and records are well protected. Whereby no prescribed plans are made as to what could be done with the data, the following plans can be considered:

- (i) The University shall keep the data. The researcher will have a right to use the original data and be permitted to possess copies.
- (ii) The data may be taken to the university absorbing the researcher on condition that the university has sufficient amenities to preserve and keep the data and records.

- (iii) The data will be kept for five years and if no publications are grounded on the data, arrangement for the data to be destroyed will be made.

3.5 Summary

The chapter has outlined the main constituents of research design, methodology and strategies for collecting and analysing data, data sampling, reliability, validity, ethical considerations and destruction of data. Research design dealing with how the study is structured has been discussed. Research methods explaining the methods used have been mentioned. The next chapter will describe the study area.

CHAPTER FOUR

Description of the study area

4.1 Introduction

This chapter discusses the description of the study area. The main components of the chapter are a section that describes the UGu District Municipality; followed by the description of the study area, that is, how the study area is structured in terms of physical factors, social factors, economical factors, infrastructure, conclusion and references. Details of these elements are provided below:

4.2. The UGu District Municipality

The KwaZulu-Natal province consists of ten (10) district municipalities. The UGu District Municipality is amongst these ten (10) district municipalities and it is found in the South Coast. The UGu District Municipality is 5 866 km² in size and claims a great seashore of 112 kilometres, which make the border of the Eastern Cape Province and the Kwa-Zulu Natal Province. EThekweni Metro, UMgungundlovu District Municipality and Harry Gwala District Municipality are the municipalities where the region of the UGu District Municipality is bordered. There are eighty one (81) municipality wards and six (6) local municipalities found under UGu District Municipality. These localized municipalities are Vulamehlo, Umuziwabantu, Umzumbe, Umdoni, Hibiscus Coast and Ezinqoleni. There are forty two traditional authorities in the Ugu District Municipality region. UGu District Municipality has 722 484 people in comparison with the KwaZulu-Natal Province where the number of people is 10,259,230 (Stats SA, 2012).

4.3 Description of the study area: Umzumbe Local Municipality

The study focused on Umzumbe Local Municipality. Umzumbe Local Municipality (2012/2013-2016/2017) is under UGu District Municipality (DC 21) and it is the biggest municipality under UGu District Municipality. Umzumbe Local Municipality has no recognized towns.

The Umzumbe Local Municipality periphery is along the coast from Umthwalume to Hibberdene and expands about 60 kilometres away from the coast. The municipality is mainly rural and it is an area of 1260 square kilometres. Its build up/semi-urban area is about one (1) percent. The Umzumbe Local Municipality integrates seventeen (17) traditional authorities involving nineteen (19) municipality wards. The number of ward councillors in Umzumbe Local Municipality Council is 19. The number of Proportional Representative Councillors is 18. The remarkable existing characteristic is that more or less 60% of the overall land in Umzumbe Local Municipality is undeveloped (Umzumbe Local Municipality, 2012/2013-2016/2017).

Figure 4.1 below is the map of the Ugu District Municipality.

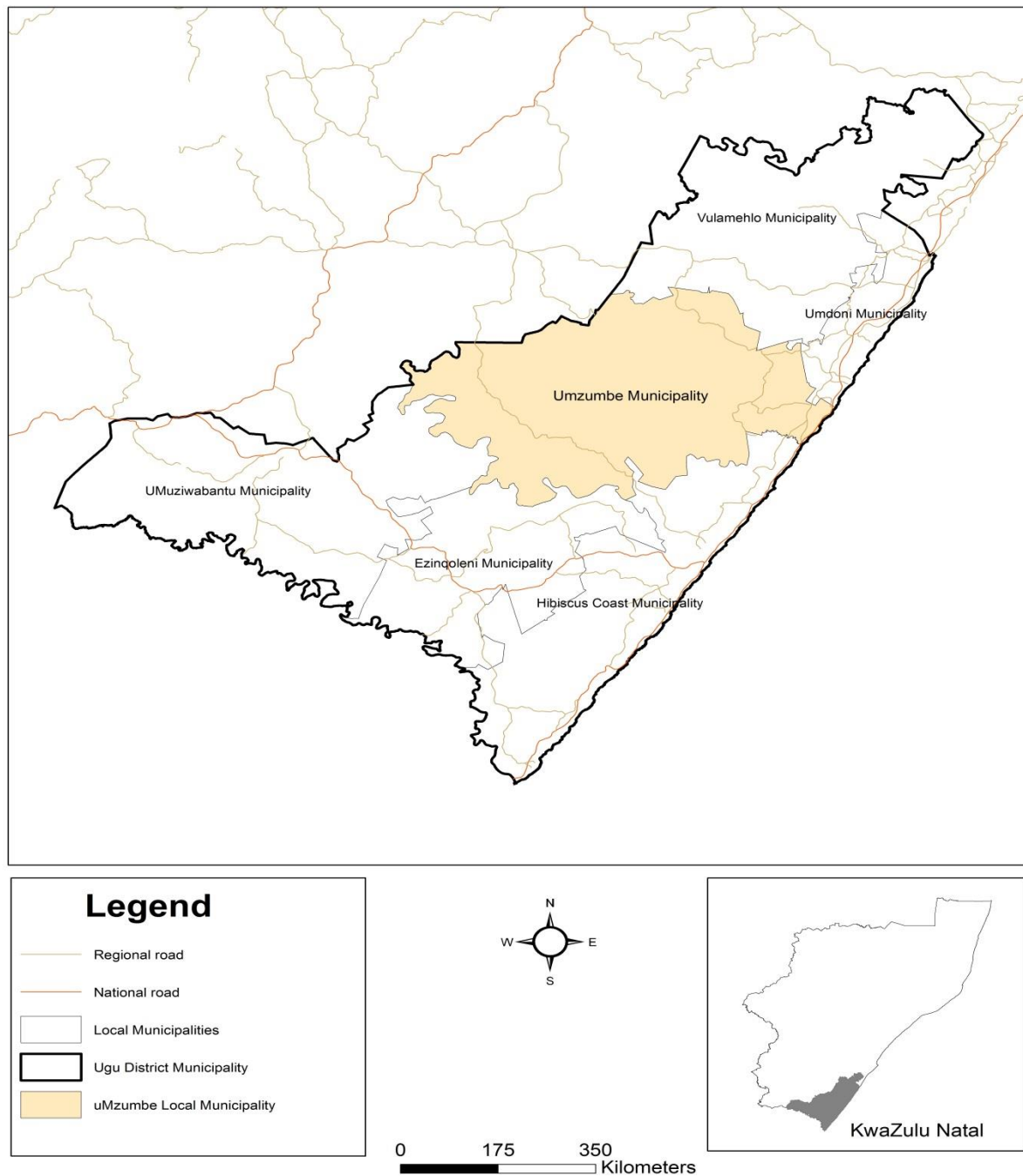


Figure 4:1The Map of UGu District Municipality showing Umzumbe Local Municipality – the study area
(Source: Researcher).

4.4. The main components of Umzumbe local municipality

4.4.1. Physical factors of the study area

Umzumbe Local Municipality consists of one big dam, called Umhlabatshane and this dam was constructed to serve Umzumbe Local Municipality residents. The Municipality also has three permanent rivers, namely, Umhlabatshane, Umzimkhulu, Umthwalume and three non-permanent rivers, namely, Ifafa, Umzumbe and Umfazazane (Umzumbe Local Municipality, 2012/2013-2016/2017). The Umzumbe Local Municipality area has a good natural drainage system which has the physical features of an area of land, especially the position of its rivers, mountains etc. The Umzumbe Local Municipality area consists of two (2) principal areas which rain flows into. The Umzimkhulu River is found on the south western portions of Umzumbe Local Municipality and these areas are drained by Umzimkhulu River and its streams.

The Mzimayi/Mfazazana River, Qula Mthwalume-uMgeni Rivers and KwaMalukaka-Umzumbe River are found on the eastern patterns of Umzumbe Local Municipality and these rivers drain extra water to the seashore. Umhlabatshane River and its streams are also found on the eastern patterns and they drain these areas (Umzumbe Local Municipality, 2012/2013-2016/2017). According to Preston-Whyte and Tyson, (1988) the warm Indian Ocean has the main effect on the KwaZulu-Natal Province's temperate weather and it is considered and judged by being compared with the place and strong point of the less lasting pressure organized upon the Indian Ocean. It is argued that the warm Indian Ocean has power over or manages seasons and daily heat variants, with a comparatively lesser variety and the sinking air related to the great force organized outcomes in commonly hot and warm situations the whole year.

According to uMoya-NILU., (2008) the climatological situations at the South African Weather Service's observing positions on the seashore at Paddock and Port Shepstone, approximately 16 kilometres towards Port Shepstone, are characteristic of UGu District Municipality coastal and away from the coast in the same order. The South African Weather Service (SAWS) (1998) argues that Umzumbe Local Municipality has a climate that is subtropical, with warm sunny winters and summer rainfall. Umzumbe Local Municipality enjoys a mean temperature of 26 Degrees Celsius, with an absolute high peaking at 38 Degrees Celsius in summer and dropping to almost freezing point in winter.

Umzumbe Local Municipality area receives more rain between September and March. These precipitations sometimes involve storms and the process in which heat moves through a gas or a liquid as the hotter part rises and the cooler, heavier part sinks (Umzumbe Local Municipality, 2012/2013-2016/2017). At times storms and sporadic cold fronts occur. The winter period is always linked with cold fronts.

The Umzumbe Local Municipality largely receives rainfall and is susceptible to weather variation, as a result of the great level existing by nature of weather variability, and frequent weather great occasions that are disturbing the populations of Umzumbe Local Municipality harmfully (Umzumbe Local Municipality, 2012/2013-2016/2017). Weather variations may be the source of difficulties for Umzumbe Local Municipality. These difficulties are linked to global climate variances like drought and flooding, etc. Unexpected weather situations are causing problems in Umzumbe Local Municipality area because houses for residents in Umzumbe area are made out of mud and all the inland roads are not tarred. When it rains roads become wet, causing problems for motorists to drive (Umzumbe Local Municipality, 2012/2013-2016/2017). The southern coast of KwaZulu-Natal is very exposed and vulnerable to coastal flooding, the rise in the regularity and greatness of intense events is expected and an apparent increase in extreme weather events shall impact negatively on communities and economic activities (Cabinet Lekgotla, 2010).

Umzumbe Local Municipality has plentiful and different fauna with visible bird life. The invertebrate populations, amphibians, mammals and reptiles area are found in Umzumbe Local Municipality. The Municipality consists of three types of red itemized frogs. These types of frogs are well-known from the 3030 BB Quarter Degree Grid Cell (QDGC) where Ntatshana Road is sited (Umzumbe Local Municipality, 2014/2015). Along the lower-lying drainage lines of Umzumbe Local Municipality are residue spots of wet land near a river or stream where the native plants grow. The two (2) huge Umdoni or Water berries (*Syzigiumcor datum*) are found in or beside a contracted, badly explained non-perennial drainage line. The Umzumbe Local Municipality ensures that these two trees are conserved for the future generation (Umzumbe Local Municipality, 2012/2013-2016/2017).

4.4.2 Social factors of the study area

The predictable number of people in Umzumbe Local Municipality is about 179, 638 people.

The Umzumbe Local Municipality people are probably averaged to have a share of 25.5% and ranges between 186, 879 and 179, 638. The community of Umzumbe Local Municipality which have access to piped water is 39.1%, community members which have access to spring or boreholes is 13.8% and community members still depending on dams or streams is 43.7% and 3.4% depends on other methods of supply (Umzumbe Local Municipality, 2012/2013-2016/2017). The Umzumbe Local Municipality is mainly rural and it suggests that most persons go to the urban areas to look for greener pastures (Umzumbe Local Municipality, 2012/2013-2016/2017).

The Umzumbe Local Municipality has reasonable learning amenities, although these institutions still need to be upgraded in order to ensure good capacity and quality. Although Umzumbe has a reasonable number of schools, it has no institution for higher learning. The Umzumbe Local Municipality provides the community with a TVET College as an alternative to ensure its inhabitants are educated. The TVET College offers rudimentary skills training and business (entrepreneurial) improvement. The Umzumbe Local Municipality is faced with the challenges in that its resources for business are limited because the area is huge (Umzumbe Local Municipality, 2012/2013-2016/2017).

The Municipality has one public hospital, called Assisi, and one general hospital, called Port Shepstone, which is in Port Shepstone. The Department of Health (2014) mentions that principal health care services believe that it is important for the diseases to be prevented, rather than cured. The prevention is done by the supply of rudimentary healing health services. The Department of Health further states that the provision of the health services involves HIV/AIDS, health promotion, immunisation, prevention and treatment, diet, maternal, child and women's health, management of transmissible illnesses, environmental health, dental health, recovery and disability, professional health and incurable diseases, mental health and prevention and treatment of tuberculosis (TB). According to the Kwa-Zulu Natal Department of Health, Umzumbe Local Municipality is suffering a common effect of HIV/AIDS. It is predicted that in 2004, 25, 788 people in Umzumbe were suffering from HIV/AIDS.

The yearly progress rate of HIV and the process of getting diseases in Umzumbe Local Municipality is 13.7% per year. The Department of Health in KwaZulu-Natal shows a high rise from 11.7% to 53.3% of deaths associated with AIDS. These deaths occurred from 1994 to 2004.

As a result, the Umzumbe Local Municipality population declined as from the year 2001 to 2007. The number of people who died is over 20 000 inhabitants. The push factor in Umzumbe Local Municipality can be a result of a lack of socio-economic (employment) opportunities (Umzumbe Local Municipality, 2012/2013-2016/2017). Schoeman *et al.* (2010) argue that constraints in human resources, which have been listed among the reasons for the persistent poor health outcomes, have been reported to the Ministry of Health, but little has been done to address the situation.

The poverty rate is high in Umzumbe Local Municipality (Umzumbe Local Municipality, 2012/2013-2016/2017). Chechini (2014) states that the elderly and the disabled people should be involved in programmes for advanced poverty reduction. The poverty reduction programmes are provisional cash transfers/money transmissions and pension paid for by the employer and not the employee. Orphans are catered for with grants by the Department of Social Welfare in order to reduce poverty. Umzumbe Local Municipality identifies households that earn less than R3500 per month. Thereafter, it ensures that families earning not more than R3500 qualify for the rural Reconstruction and development programme (RDP) which will then build houses for these people (government housing subsidy) (Umzumbe Local Municipality, 2012/2013-2016/2017). Regarding the Housing delivery programme Umzumbe Local Municipality aims to create sustainable Human settlement (Umzumbe Local Municipality, 2012/2013-2016/2017). Umzumbe Local Municipality is controlled by the African National Congress. There is political stability in the area and service delivery is not associated with political affiliation (Umzumbe Local Municipality, 2012/2013-2016/2017).

4.4.3 Economic factors of the study area

The Department of Agriculture (2014) mentions that the KwaZulu-Natal treasury intends to create entrance to domestic and foreign marketplaces for domestic agricultural products, improve commercial farming business owners, any agricultural industry, and increase relationships with global trading organizations, associates, participants and all sections of government. Agriculture has been proved to be the main source of income in the Umzumbe Local Municipality. The people who are not skilled are dependent on agriculture to earn a living. Some people are employed by sub-contractors to cut the woods, and some by Sappi to plant gum-trees and clean the forest, preparing the required woods to grow smoothly and some are employed in the sugar cane fields.

Heinrich and Amavilah (1998) argue that the Namibian government fully believes that small-scale mining businesses are the key in solving the poverty rate and creation of job opportunities, but for small-scale businesses to be a remedy, they should be lucrative first. As a result, the Umzumbe Local Municipality has adopted the practice by the Namibians, as the Umzumbe Local Municipality encourages its communities to make use of small scale business. The large number of small scale quarrying events happen adjacent the rivers of the Umzumbe Local Municipality. The river where the small-scale quarrying (sand mining) happens is Umthwalume River. The less quarrying sites which are not formal are also found along the rivers. The quarrying product from the Umzumbe Local Municipality is sold to areas away from Umzumbe Local Municipality and also in Umzumbe area for development.

The Umzumbe Local Municipality has Umthwalume beach where the top-class fishing takes place. The mentioned fishing-place supplies 10% of the population from the Umzumbe Local Municipality households. Further to that, the fish business is vended to eating places adjacent to the shore and residue is vended alongside the N2 road (Umzumbe Local Municipality, 2012/2013-2016/2017). Most, if not all governments, are intensifying the use of small business sector as a most possible engine for economic growth. It is axiomatic that the critical indicator for the success of self-employment is the determination, potential and ability of small businesses entrepreneurs to create job opportunities for other people. The small scale business sector is growing steadily, but the Umzumbe Local Municipality is hoping that the sector will be more productive as the time goes on. The Umzumbe Local Municipality has funded the making of domestic manufactured furniture, tissue making, sculptured wood, jewellery making and pouring water in bottles for sale.

The Umzumbe Local Municipality also has a large pool of crafters. The Municipality has a large number of youth business creativities. The people who are disabled and the crafters are being funded and empowered by Umzumbe Local Municipality. These people are now skilled in a manner that they can utilize their skills successfully. The Umzumbe Local Municipality aims to advance the quality of domestic production and ensure that the products also qualify for global markets (Umzumbe Local Municipality, 2012/2013-2016/2017). The Umzumbe Local Municipality identified the small scale business sector to be the sector that has been established to be, largely, not good enough when compared with the primary and secondary sector, when evaluated.

For instance, due to its rural nature, the Umzumbe Local Municipality has no financial services. Informal and formal trade channels are common in Umzumbe Local Municipality. Retailers are mainly common in wards 19, 10, 18, and 3.

Lack of road infrastructure is a challenge in the wards (Umzumbe Local Municipality, 2012/2013-2016/2017). The Umzumbe Local Municipality has the distinctive setting of its rivers, good-looking mountains, like uMsikazi, and native, as well as the practice of planting and taking care of trees and forests which supply sound eco-tourism (Umzumbe Local Municipality, 2012/2013-2016/2017).

4.4.4 Infrastructure of the study area

The Department of Transport (2014) affirms that strategic policy direction for the Department of Transport is: to support rural development, poverty alleviation and job creation as the department builds roads and bridges, provides safe integrated public transport systems, and manages traffic and the safety of all road users. The Umzumbe Local Municipality roads are arranged as follows: a national road, which is N2, provincial road, which is from Umtentweni to High flats village and local municipality roads. Local municipality roads are roads that are from the coast towards the hinterland. The road network shows that the Umzumbe Local Municipality is under class seven groups.

All the roads towards the hinterland are gravel made and motorists encounter serious problems to drive on these roads during rainy days (Umzumbe Local Municipality, 2012/2013-2016/2017). The inhabitants of the Umzumbe Local Municipality make use of buses and taxis when travelling. When the Umzumbe Local Municipality communities travel along the coastline zone for principal economic nodes they use minibus taxis as their mode of transport.

The living standard in the Municipality is far better in areas where accessibility is attained. Most of the inhabitants in the Umzumbe Local Municipality rely on climate situations when they travel as the means of transport is scarce and some areas are not accessible when it is raining. Some areas in the Umzumbe Local Municipality still lack infrastructure, causing these areas to be underdeveloped (Umzumbe Local Municipality, 2012/2013-2016/2017).

4.5 Summary

This chapter has described the UGu District Municipality and the description of the study area (how the study area is structured). Physical factors, social factors, political factors, economical factors, and infrastructure, have also been discussed. The next chapter will provide results and discussion.

CHAPTER FIVE

Results and discussion

5.1 Introduction

This chapter presents an analysis of results for this study. In the first section the demographic profiles of the respondents who participated. The second section uncovers the status of the Umzumbe Local Municipality regarding access and provision of water. The last section reveals local authority's outlooks on water provisioning.

5.2 Demographic characteristics of respondents

5.2.1 Population trends in the Umzumbe Local Municipality

Empirical studies such as Traynham *et al.* (2011) and Zetland (2011) have established that growing population combined with various environmental stresses (e.g. climate change) will pose unbearable challenges on water resources in many parts of the world. The situation could be more severe in water stressed countries such as South Africa with its steep socio-economic gradient. Population trends were then considered vital in this study. Figure 5.1 presents population dynamics for the Umzumbe Local Municipality. The results show that the population grew from 165 803 to 193 768 people between the period 1996 and 2001. The period 2001 to 2011 saw a declining trend in population numbers, from nearly 200 000 to just above 150 000.

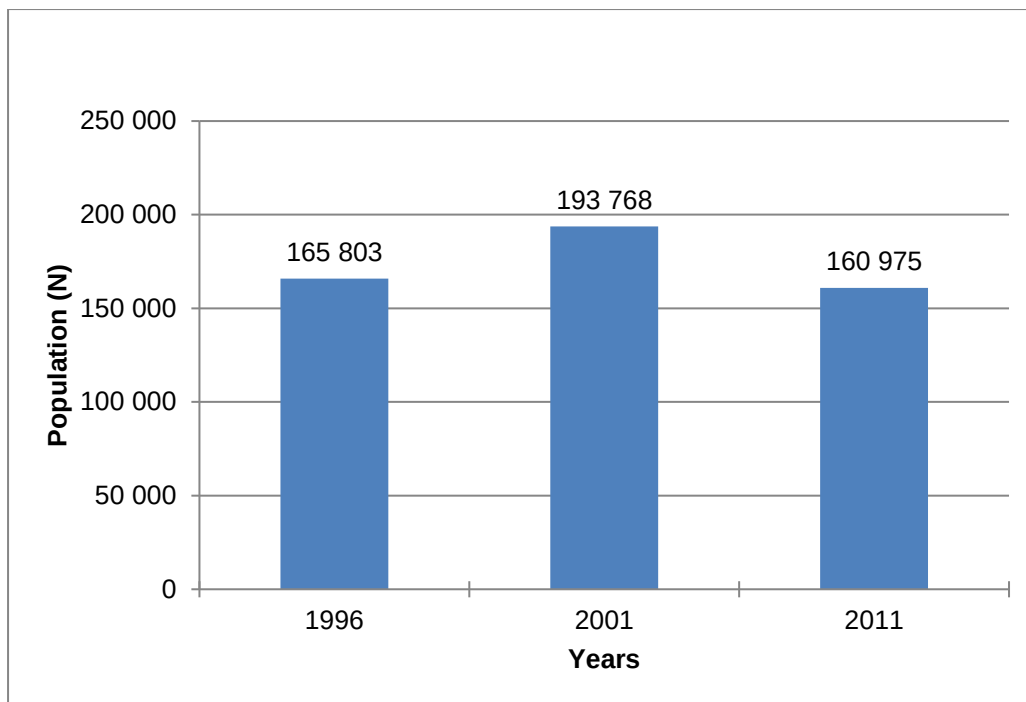


Figure 5:1 Population trends between 1996, 2001 and 2011 (Modified from STATSSA, 2012)

The main reason for this population drop, as explained in the Umzumbe Local Municipality (2012/2013-2016/2017), is that people have migrated to areas with high economic potential (mostly Durban) in search for varied opportunities. Rye (2006) affirms that employment opportunities are the main reasons for population in rural areas to migrate from rural areas to urban areas. The socio-economic issues are the pull factor for the population to move from rural areas to cities (Papola, 1988). Additionally, it could be said that there are limited economic opportunities in the Umzumbe Local Municipality as it is entirely rural in nature. It could, therefore, be said that population increase doesn't seem to pressure local authority regarding water provisioning but it is vital to expedite water access to local residents.

5.2.2 Population distribution in the Umzumbe Local Municipality

Population spatial distribution for the Umzumbe Local Municipality is portrayed in Figure 5.2. It is clearly evident that population is spatially concentrated in the southern part of the Umzumbe Local Municipality and sprinkled toward inland. Further inland is mountainous and, as such, no households are found there. Hibberdene serves as a central economic place and it is perhaps the reason for higher density surrounding it – exhibiting a distance decay formation.

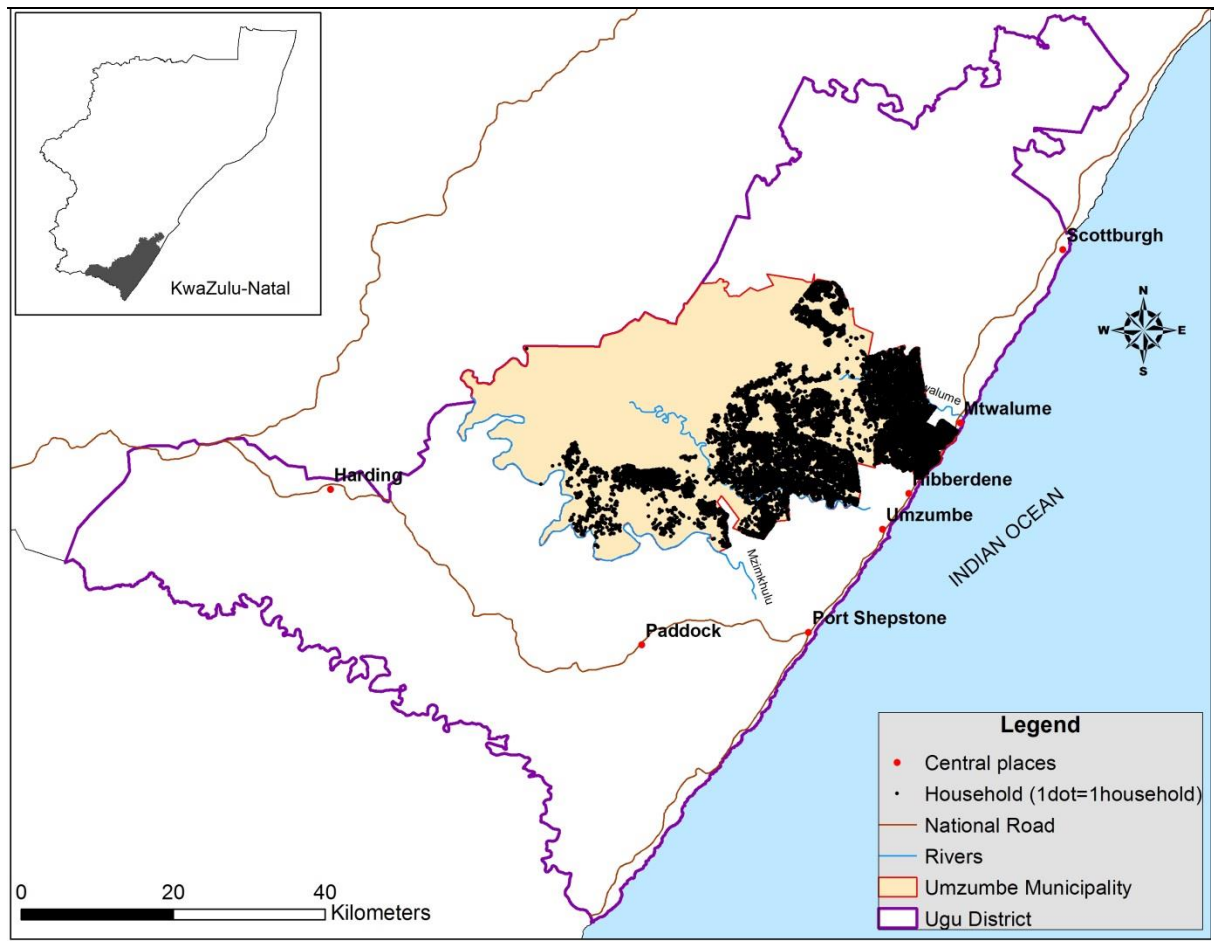


Figure 5:2 Population (household) spatial distribution

Three major rivers, namely: - Umzimkhulu, Umzumbe and Umthwalume flow from the north-western part toward the south east, forming an estuary in the Indian Ocean (Figure 5.2). These river systems are an indispensable asset (i.e. source of water) for communities that are nearby, as discussed in detail in section 5.2.5.

5.2.3 Gender of respondents per age groups

The distribution of the respondents across different age cohorts is relatively comparable (14-24%), (except for less than 20-year olds which had no representation) as was anticipated (see Chapter 4). The majority (71%) of respondents were identified as being females, most of which (72%) ranged between 21-50 years of age (Table 5.1).

These results which show the dominance of women, correspond with those of the Umzumbe Local Municipality's (STATSSA 2011) where females were >54%. In overall terms, the dominant age (24%) group was 21-30, followed by 23% of >60 age category.

Table 1 Gender of respondents per age group

		Age						Total
		<20	21-30	31-40	41-50	51-60	>60	
Gender	Male	0	5	2	1	4	8	20 (28.6)
	Female	0	12	13	11	6	8	50 (71.4)
Total		0 (0.0)	17 (24.3)	15 (21.4)	12 (17.1)	10 (14.3)	16 (22.9)	70 (100)

The results concur with UN (2005)'s assertion that women are globally acknowledged as central role players in the delivery, management and safeguarding of water. Significant inadequate water provision in the Umzumbe Local Municipality (as will be discussed in more detail in section 5.2.5) remains a challenge.

5.2.4 Marital status

The marital status of the respondents was determined to understand the nature and structure of respondents' families. Sampled respondents had a diversity of different marital status, as Figure 5.3 depicts. The results showed that the majority (44%) of the respondents were married, followed by (34%) who were identified as single. About 14% (males and females) were widowed and slightly less than 2% were separated. Most households were headed by adults and water provisioning, especially control could be effective. This is because adults are thought to be handy in guiding effective monitoring if proper awareness has been set.

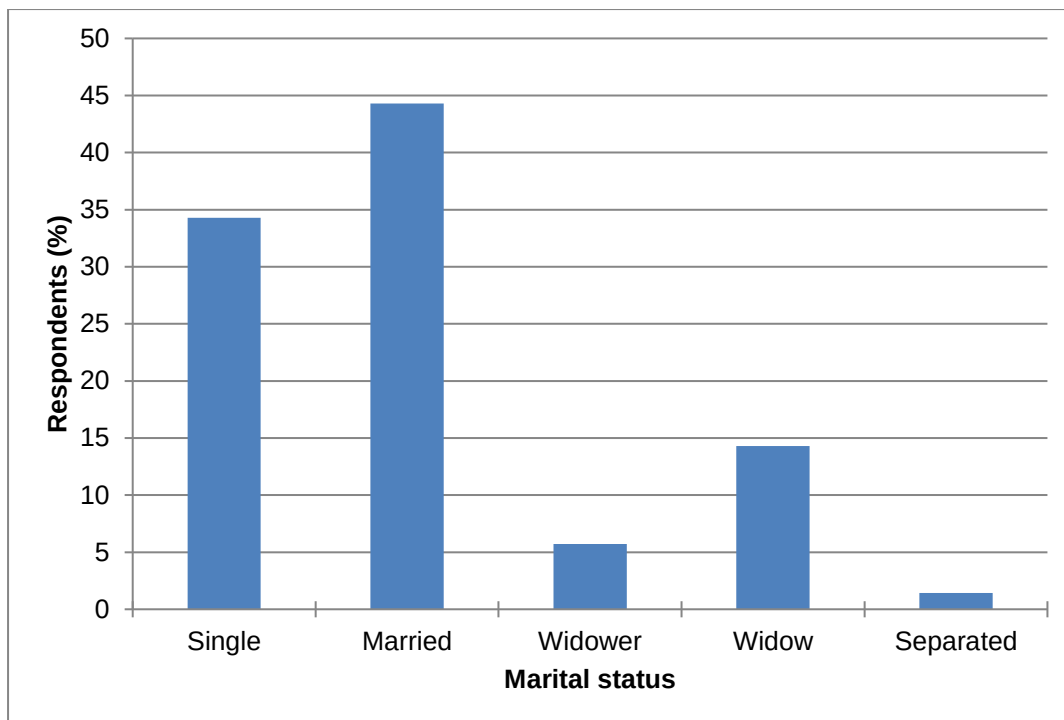


Figure 5:3 Marital status of respondents

5.2.5 Household income

There is a widespread recognition that water is having an economic value and it is gradually being tagged at a rate which mirrors its value and scarcity (Earle *et al.*, 2005). For this reason, household income becomes an essential determinant for water affordability, hence its inclusion in this study. It should be noted, however, that an analysis of household income was taken at a municipal level – allowing a comparative examination, as shown in Figure 5.4. Figure 5.4 shows that Umzumbe is relatively one of the low household income municipalities within UGU District. An average household income rose from slightly R14 000 to just over R35 000 in this decade from 2001 to 2011. As previously indicated, this is largely because Umzumbe is mostly rural in nature with limited economic opportunities.

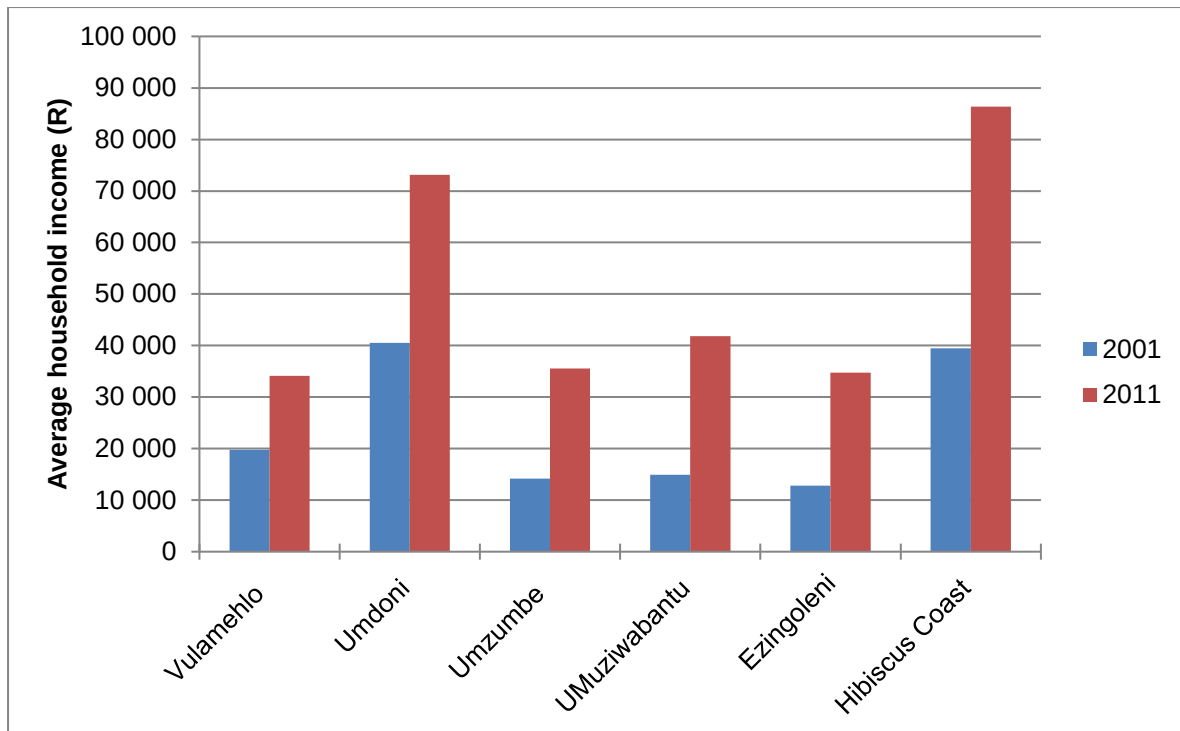


Figure 5:4 Average household income for the UGu District Municipalities (2001-2011)

It is important to note that access to, and provisioning of water is investigated in this study chiefly through local community' perceptions. At community level, perceptions occur in two dimensions: (a) at households level, and (b) at technical and government level. The perception differs as a function of the manner these two dimensions interrelate within a municipality. Noga and Wolbring (2013) maintain that perceptions are the lens in which the respondents reflect their experiences and appreciation regarding water provisioning and access. In a study such as the current one, views from both dimensions are fundamentally important, and the results thereof are presented in the subsequent sections.

5.3 Status of water access and provisioning in the Umzumbe Local Municipality

Soon after 1994, when the democratic government came into power, it inherited enormous municipal service backlogs that were evidently widespread in rural areas of South Africa (Manase *et al.*, 2009). To rectify this predicament, serious measures were set and water provisioning was on top of the list. Thus far, remarkable strides in accelerating water access and provisioning has been accomplished, but the problem remains unresolved in some communities (Smith, 2008).

In overall terms, the Umzumbe Local Municipality is no exception as it is one such area where nearly half of its population (46%) do not have access to piped water (Figure 5.5).

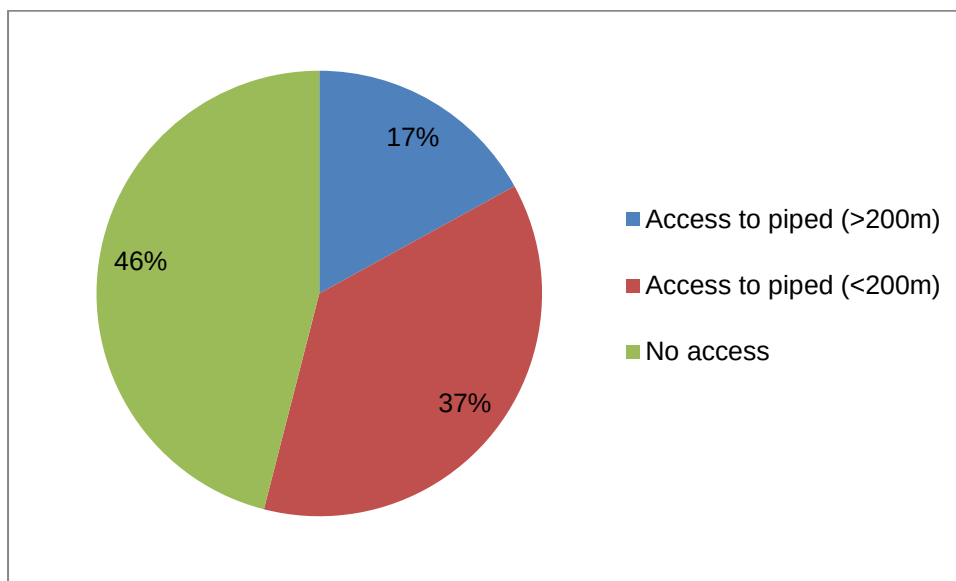


Figure 5:5 Water access in the Umzumbe Local Municipality (Modified from STATSSA 2011)

As noted in Water Dialogue (2008), the availability of water sources is a fundamental ingredient for an effective water provisioning process. The cited study further indicated that much of water supply in the Umzumbe Local Municipality is entirely derived from river run-off, with a small quantity coming from groundwater sources and unprotected springs. The following sub-section gives details on water authority and provider for the municipality.

5.3.1 Water service authority and provider

The UGu District Municipality (UDM) is both the water service authority as well as the water service provider for the entire UGu District Municipality. This essentially means that water provisioning is not a function and responsibility of the Umzumbe and other local municipalities, but that of the district. Similarly, with many areas of South Africa, the UGu District Municipality is facing severe water scarcity problems. The most notable factor which impedes water provisioning in the UDM, as the management specified, is the eradication of backlog of people that do not have portable water (however, these are not consistently spread across the municipality).

Other prominent factors include aged infrastructure, load shedding and environmental stresses such as droughts. Load shedding in particular, is a problem as most systems are greatly reliant on electricity for purification and pumping.

When asked about the extent to which they deliver water services, the municipality felt that the extent of water servicing is moderate but needs serious improvement. The municipality also indicated that, in improving the situation, they have supplementary programmes for water delivery and, prominent among these, is water tankering to communities affected by droughts and those having dysfunctional systems. This is, however, a costly way of providing water. Because of this, and for the sake of realising water provisioning goal across the UDM, the municipality is embarking on strategies to tap more funding to fast track service delivery and to upgrade existing infrastructure.

Apart from the UDM, the Umgeni Water Board (UWB) is a body whose mandate is to provide bulk water to the district. This is largely accomplished through managing the Amanzimtoti treatment water works and associated infrastructures to meet the bulk water delivery requirements. They have an operational bulk water agreement with the UDM and, as requirement, the UDM aligns itself with government infrastructure delivery plan as well as water service plan to meet community and industrial obligations. Umgeni Water Board mentioned that the UDM has weak infrastructure, skills challenge, inability to access municipality infrastructure grant (M.I.G) and bulk infrastructure grant (B.I.G). Moreover, the Umgeni Water Board management indicated that they have water available for the UDM to meet their supply needs, but the challenge is for the UDM to maintain, upgrade and extend their infrastructure. As well, it was pointed out that inland areas are susceptible to pumping failures due to lack of power, making water provisioning problems more steep for inland communities.

5.3.2 Relationship between local community and the municipality (regarding water provisioning)

The respondents were asked to indicate the relationship between the community and the municipality concerning water access and provisioning on a Likert scale of one to four, four being “strongly disagree” and Figure 5.6 below shows the results.

The results cast doubts on municipality's capability, since more respondents (96%) think the relationship between the community and the municipality with regards to water access and provisioning is poor. Of these, 59% were extremely negative about how the municipality handles water-related issues, which is the biggest portion compared to 37% who also felt that the relations are not good but still believe the municipality could deliver. Some respondents who live in urban areas felt differently about the relationship between the municipality and the community as 4% of them were satisfied.

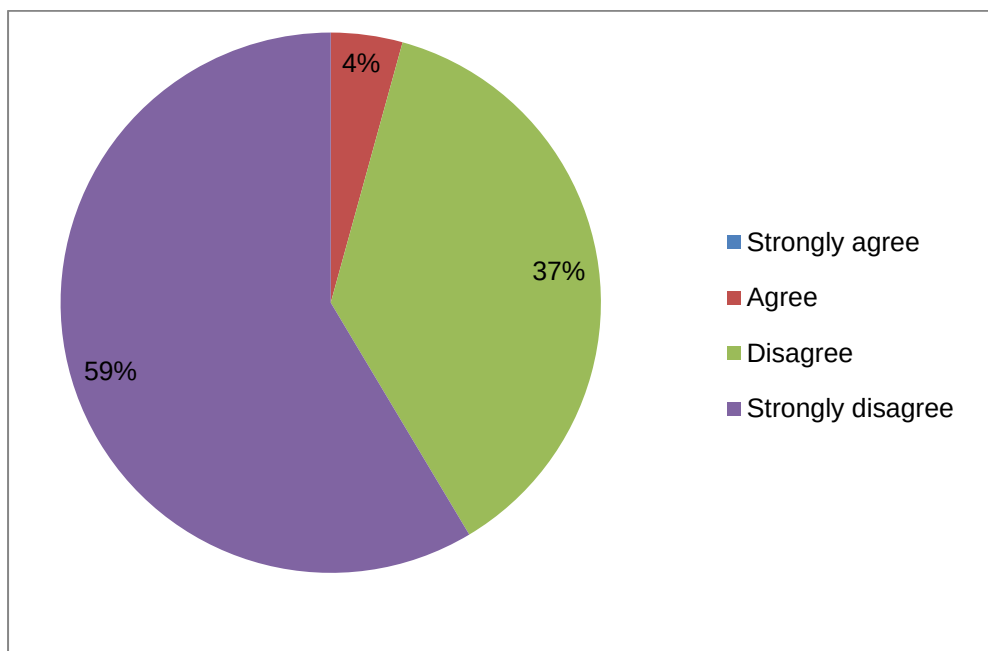


Figure 5:6 Respondents' perceived relationship with the municipality

In essence, the results imply that there is very little (if any) community involvement in municipal water and other service delivery projects. Conversely, Buch (1990) is of the view that community involvement is a prerequisite to viable water delivery and socio-economic development. In the same wavelength, World Bank (2010) upholds that whenever communities are involved in the planning, construction, installation and maintenance of water supplies, water projects are often more effectual, lucrative and thus viable than would be the case with more centralized decision-making.

As it is generally the case in South Africa and elsewhere in the world, the results suggest that water challenges are much more prevalent in rural areas than in their urban counterparts.

The communities living in low income rural areas suffer more than those living in urban areas with regard to water services (Levin, 1978). Adding to this difficulty is Umzumbe's tough terrain that often impedes successful installation and provisioning of water.

5.3.3 Local authority's perceptions on water access and provisioning

To gauge local authority's perceptions regarding water status in the Umzumbe Local Municipality, a total of five out of nineteen ward councillors were randomly selected. Interviews were then conducted and the results are documented herein this section.

As discussed previously, it is apparent that water challenges vary across the landscape of the municipality. Out of the total, 80% felt that the status of water is poor because they always receive complaints from community members regarding water-outage. Similarly, with that of general community members, the extent to which water-related projects are awarded is the cause for concern. Councillors also showed serious concern regarding aged infrastructure that generally results in failure in water provisioning to the public (Figure 5.7).



Figure 5:7 Some of the infrastructure used to provide water (Source: Researcher)

As shown in Figure 5.7, aged infrastructure is exposed or perhaps vulnerable to livestock. Further degradation and deterioration of several water infrastructures across the entire Umzumbe rural surroundings are reportedly befalling. As was discussed above (see section 5.2.1), the UGu District's water section is also aware of this quandary.

When the UGu District Municipality asked about the involvement of community members in the project decisions, the manager said they normally forward adopted decisions to councilors who then convey the message to communities. Unfortunately, there has been no community involvement when dealing with project appointments. As such, it can safely be said that results entail a top-down approach that is employed by the municipality instead of applying both top-down and bottom-up approaches. A combination of these two approaches as empirical studies attest Eckerberg *et al.* (2015) ensures the efficacy of community projects. Local councillors were also asked the same question, and their response echoes the municipality reservations that general community is not involved in matters dealing with community projects.

The UGu District Municipality was asked whether they charge community members for water tariffs. They responded that the municipality supplies 200 litres piped water free of charge for a period of three months to those who can get water into their yards as set in the Water Service Act 108 of 1997 (Republic of South Africa, 1997). After the free 200 litres has been used up, charges commence. While this is fairly reasonable, the problem is that most community members cannot afford to pay for water services as the unemployment rate is high (see section 5.2.5). As a result, the municipality restricts water services for those who do not pay – as is the case elsewhere in South Africa.

5.3.4 Respondents' awareness of inadequate water provisioning

The results reflecting respondents' awareness about the causes of inadequate water provision are present in Figure 5.8. The majority (54%) of the respondents appear to know the cause of inadequate water provisioning. This is a good reflection because if community members are aware of the problem then it is easier for the local authority to resolve and monitor it.

As may be expected, because of the technical nature of the water provisioning process, nearly half of the respondents did not know what the problems are.

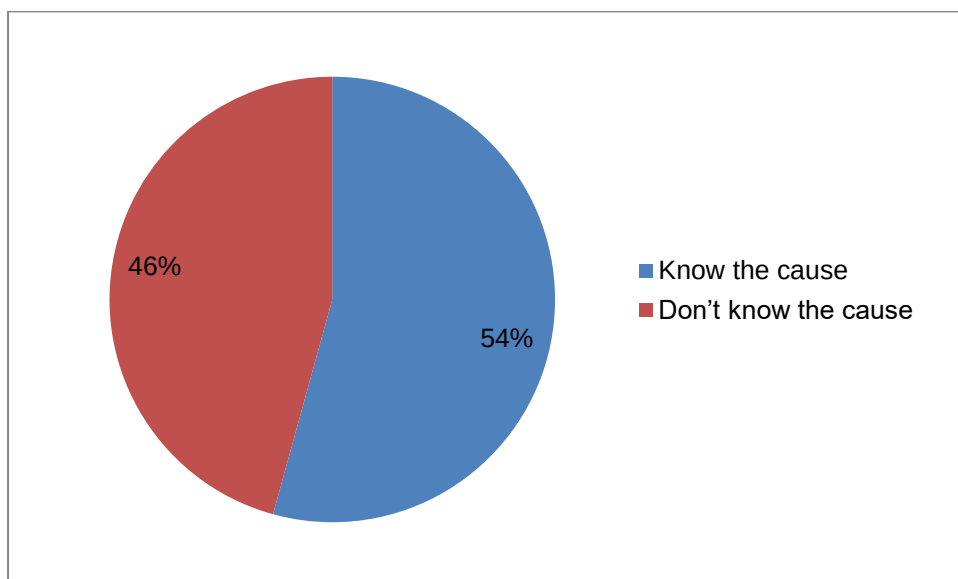


Figure 5:8 Respondents' awareness towards water provisioning

As explained above, slightly more than half of the respondents were aware of the problems that trigger inadequate water provisioning. Figure 5.9 below reflects reasons that respondents perceive as the base of the problem of water provisioning. Just over two thirds (70%) (majority) of the respondents reported that unskilled contractors are the main reason for glitches in water provisioning in a wider context of the Umzumbe Local Municipality, more specifically in non-urban areas. This is reasonable since the Umzumbe Local Municipality is entirely rural in nature (Umzumbe Local Municipality, 2012/2013-2016/2017). An additional challenge which aggravates the water provisioning problem, as reported by the respondents, was that contractors do not complete water projects. This aspect surfaced or rather was reiterated as a cause for concern during the interview session with local authorities (councillors) when asked about the same problem. About how this problem could be resolved, respondents felt that experienced and professional contractors should be appointed.

As well, electrical power outage was mentioned by 22% of respondents as the problem which causes water shortages in this area. A detailed account for electricity supply problems in the broader context of the Umzumbe Local Municipality is fully captured in the Umzumbe Local Municipality (Umzumbe Local Municipality 2014/2015).

A small proportion (8%) of respondents felt that the misuse of water supplied by the municipality is the cause for concern. In such cases, water awareness programmes could be instrumental in enhancing community understanding of water challenges not only in their communities, but in the South African context as water scarcity is nation-wide.

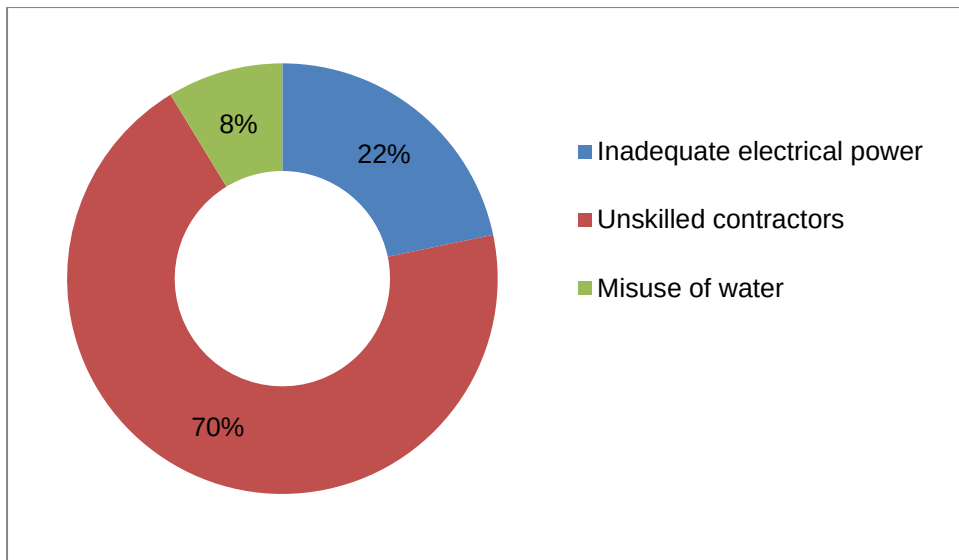


Figure 5:9 Reasons for water problems

Asked about existing factors that could enhance water provisioning in the Umzumbe Local Municipality, all respondents seemed uncertain as they do not know (see Table 5.2).

Table 2 Existing factors that could enhance water provisioning

	Frequency	Percentage
Yes	0	0
No	70	100

This essentially means that there are no potential features that respondents saw as sources such as existing natural and man-made water resources. Possibly their reasoning was more into limited infrastructural or rather technological factors that could be used to resolve this problem.

5.3.5 Coping with water shortages

Respondents were asked on how (ways) they cope with water shortages, and all respondents raised two options (in equal slices) as shown in Figure 5.10. About 50% said they fetch water from nearby rivers and streams. Much of these respondents were located adjacent to these said sources. The other half cited water tanker as instrumental in assisting during water problem episodes.

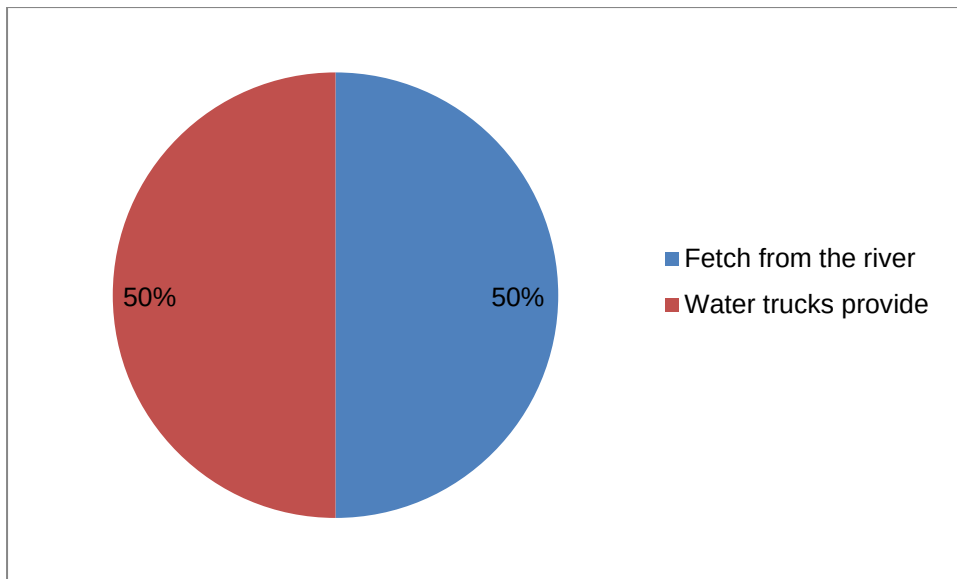


Figure 5:10 Respondents' perceived ways to cope with water shortages

5.3.6 Alternative for water provision

In ensuring access to water services, as outlined in the Water Services Act (1997), relevant water services authority should take into account the alternative ways for water provision. Given this account, an important question that arises now is how the water provisioning problem should be addressed in the Umzumbe Local Municipality. Cairncross and Kinnear (1992) respond by giving two notable options: (a) the political determination of government and (b) the availability of infrastructure to bring development to the underprivileged, at a charge which, together with government, they can manage. Fortunately for South African citizens, government made a commitment to provide water. As shown in Figure 5.11, more than two thirds (78%) of respondents reported that an alternative for water provisioning is through a water-tanker.

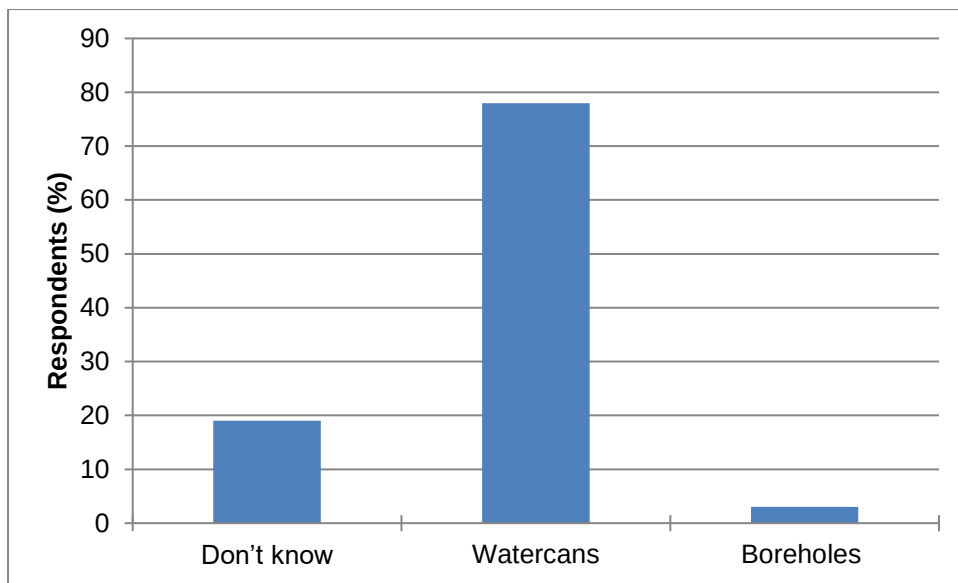


Figure 5:11 Respondents' perceived alternatives for water provisioning

However, a concern that was raised from using water-tankers is that of poor road conditions most of which have impassable potholes. Figure 5.12 shows the type of water-tanker used in the Umzumbe Local Municipality and the nature of roads.



Figure 5:12 Water tanker used in the Umzumbe Local Municipality

The study established that water tankers deliver water every second week. This was highly inadequate. The feeling of the respondents was that water would have to be delivered more than twice a week for a satisfactory supply. As would be expected in any other rural area, respondents in much of Umzumbe reported that during heavy rainfall seasons, it is difficult to get water and rainwater harvesting becomes a temporary option. This alternative is, to a larger extent, disadvantageous to community members with small household numbers, especially if members are working and also studying. Nearly one-fifth (19%) seemed not to know a convenient alternative to improve water provision. Much of these respondents were located in marginalized areas within the municipality where the terrain makes it difficult to provide water. A significantly small proportion (3%) perceives boreholes as a better option to escape water challenges in the area. Figure 5.13 shows an example of existing borehole in the municipality.



Figure 5:13 Borehole infrastructure in the Umzumbe Local Municipality

The respondents indicated that the borehole system is mostly available and can be established as communal in various sections of the Umzumbe Local Municipality so that all community members, especially where water challenge is evident, can have increased access.

5.3.7 Framework/policy of water provisioning

In an attempt to identify a framework or policy that informs water provisioning in the Umzumbe Local Municipality, water authorities were interviewed. The UGu District Municipality stated that water provisioning is regulated by “The basic water service policy which is provided in the Water Services Act (Act 108 of 1997)” which stipulates that municipalities should provide water to the communities for a period of three months free of charge or without cost (Republic of South Africa, 1997). Communities to be considered involve the poor communities living in rural areas.

The UGu District Municipality further stated that they encounter a serious problem as most of the community members do not pay for water services. This consequently forces the municipality to restrict water supply to people.

5.4 General discussions on findings

The study analysis showed that the number of people in the Umzumbe Local Municipality population is declining as many have moved to areas with job opportunities, as Umzumbe Local Municipality lacks economic base (see section 5.2.1). The population of the Umzumbe Local Municipality prefers to form a dense cluster along the sea, around Hibberdine as a central economic place (see section 5.2.2). The households in the Umzumbe Local Municipality receive a low income, making it difficult to afford paying for water services (see section 5.2.5). The findings presented that much of water provision in the Umzumbe Local Municipality is totally derived from river run-off, with a small quantity coming from groundwater sources and unprotected springs (see section 5.3). Figure 5.5 shows that 46% of the Umzumbe Local Municipality population do not have access to piped water.

The UGu District Municipality is responsible for water provisioning in the Umzumbe Local Municipality. Umgeni Water Board provides water to the UGu District Municipality (see section 5.3.1). The analysis showed that 96% of the respondents showed bad relationship between the municipality and the community.

It also showed that water challenges are more prevalent in rural areas than in urban areas (see Figure 5.6). Aged infrastructure, not repaired, may also be the cause of water shortage (see Figure 5.7). The majority of respondents (70%) believed that unskilled labour may be the cause for contractors not to complete projects (see section 5.3.4). Some respondents mentioned electricity shortage as a cause of water shortage (see section 5.3.4). 78% of the respondents mentioned the use of water tankers as an alternative (see section 5.3.6). The findings indicated that municipality do not involve community members in water project decisions. In other words municipality applies top-down approach (see section 5.3.3).

5.5 Summary

This chapter presented findings and a discussion on the findings. The chapter showed that the Umzumbe Local Municipality is facing water provisioning challenges and the situation is not necessarily unique within a wider context of the UGu District Municipality, as some other local municipalities of the district experience similar challenges.

CHAPTER SIX

Summary, Conclusion and Recommendations

6.1 Introduction

This is the final chapter of the study. It is organised in this manner, the first part summarises the whole study, and this is followed by conclusions of the study which are based on the aim and objectives. Conclusions of the study are also discussed. Recommendations are the final part of this of the chapter. The chapter opens by presenting the summary of the study.

6.2 Summary of the study

The perceived shortage of water in the Umzumbe Local Municipality motivated the researcher to conduct the study on water access and provisioning in the Umzumbe Local Municipality. The first chapter presented the background of the study, the statement of the problem, the research questions and the objectives to be met at the end of the study. The chapter also highlighted the contribution of the study. Chapter two of the study presented the theoretical framework of the study. In this chapter three concepts that were assumed to inform the study are top-down and bottom-up framework to service delivery. The second theory of the study is the privatisation concept. This concept is important because it provides a framework which embeds water delivery policy. The final concept deals with project management. Packaging of projects will determine the success and failure of projects.

Chapter three is research methodology. The study employed mixed methods of research approach in order to achieve a comprehensive interpretation of the happenings in the study. The use of mixed methods is important because it includes two approaches, and these are quantitative and qualitative. The mixture of these approaches strengthens the results found in different types of data so that the full understanding can be achieved. The data collection techniques and ethical issues were discussed.

The next chapter described the study area. Areas covered included geography of the area, the socio-economic situation, and infrastructural picture.

This chapter is important because it locates the environment of water provisioning. Chapter five is where data is presented and analyzed. Important aspects of the chapter include, population demographics, spatial distribution of the population, status of water provisioning and, lastly, a general discussion of the findings. Data analysis and interpretation showed the causes of water shortage in the Umzumbe Local Municipality. The study verified the relationship between the Umgeni Water Board and the UGu District Municipality with regard to water provisioning and found that the relationship is well maintained. The data analysis proved that the relationship between the UGu District Municipality and the Umzumbe Local Municipality residents with regard to water provisioning is poor.

6.3 Conclusions of the study

The conclusions are based on the objectives of the study as they are presented in chapter one. With regards to the socio-economic and spatial distribution of the population of the study area, the study found that the Umzumbe Local Municipality lacks economic base causing its population to migrate to other areas, like Durban, in search of employment opportunities. This is in agreement with Rye's (2006) view that job opportunities are the major reasons why people in rural areas decide to migrate from rural areas to urban areas. The results also showed that the Umzumbe Local Municipality's population forms a dense cluster along the sea, around Hibberdine (refer to map in chapter five). It might happen that this is happening because Hibberdine is a central economic place (see sections 5.2.1 and 5.2.2 of chapter five). The study also found that people are unable to pay for services, a situation which could be attributed to the fact that the area lacks a sound economic base.

The findings indicate that 46% of the Umzumbe Local Municipality's population do not have access to piped water and that water challenges are more prevalent in rural areas than in urban areas. The communities living in low income rural areas are prone to poor water services, causing them to suffer more than those living in urban areas (Levin, 1978). The result showed that the Umgeni Water Board is the main provider of water to the UGu District Municipality and the UGu District Municipality is responsible for water provisioning in the Umzumbe Local Municipality area (see section 5.3.1 of chapter five). The findings indicate that the community is not properly engaged in water provisioning as the UGu District Municipality does not involve community members in the project decision-making process. The municipality is applying top-down approach when dealing with community projects.

As a result, there is no sense of ownership entrusted to the community members by the municipality (see section 5.3.3 of chapter five). Active community participation is important as projects impact on their well-being (Pandy & Paulus, 2000).

The results showed that 78% of the respondents mentioned the use of water tankers as alternative sources of water and other community members use rivers, springs and boreholes (see section 5.3.6 of chapter five). The UGu District Municipality has water provisioning policy which is regulated by the Water Services Act (Act 108 of 1997) which stipulates that municipalities should provide 200 litres of water per day to the poor rural communities for three months free of charge. The findings presented that the old infrastructure which is not repaired may also be the cause of water shortage (see Figure 5.7 of chapter five). Seventy percent of the population believed that appointment of unskilled contractors may be the cause of water shortage as water projects are not completed. Some respondents believe that frequent power outages may be the cause of water shortage (see section 5.3.4 of chapter five).

6.4 Recommendations of the study

The following recommendations are based on the results and findings of the study. The findings presented that the Umgeni Water Board supplies the UGu District Municipality (UDM) with water, but the challenge with UDM is to maintain, upgrade and extend their infrastructure. The results further showed that the UDM has weak infrastructure, shortage of skills, inability to access municipality infrastructure grant (M.I.G) and bulk infrastructure grant (B.I.G). Further to that, the UDM areas further inland are prone to pumping failures due to lack of power. It is recommended that the UDM acquires more resources and funding to improve human capital and upgrading of infrastructure.

The findings showed that the water infrastructure is exposed to livestock and some infrastructure is old. The UDM should ensure that all water sources utilized by community members are well protected against the livestock and the aged infrastructure should be replaced in time to ensure adequate water provision. Further to that, there is a need for a large dam for this area, to meet the growing demand of 150 mega litres per day. The UDM should ensure that more power is installed to boost the water and purification pumps in areas where pumps are failing to pump water adequately.

The findings showed that the UDM does not involve community members when dealing with community project issues. The UDM applies top-down approach when dealing with community projects. As a result, it is recommended that the UDM should make sure that it prioritizes bottom-up approach rather than top-down approaches when dealing with community project matters. A combination of these two approaches as empirical studies attest, Eckerberg *et al.* (2015), ensure the efficacy of community projects. The participation of community in project management should result to a sense of ownership where community members will feel being owners of the project, and thus appreciate the service delivered.

The UDM needs to make sure that the community of the Umzumbe Local Municipality is encouraged to participate in water projects because joint working of people is a catalyst that fuel project success. This is underpinned by World Bank (2010) which advocates that wherever communities are involved in the planning, construction, installation and maintenance of water provisions, water projects are often more effectual, productive and sustainable than would be the case with more centralized decision-making. Kendie and Guri (2006) affirm that in Ghana, non-governmental organizations (NGO) and the state often encourage community members to take part in municipalities, and also in controlling and managing of non-renewable resources. It is always advisable to consider any programme known to be societal. This can be done easily by including community's agents.

The study established that water tankers deliver water every second week which, according to the findings, is highly inadequate. The results also indicated that the dependence on water tankers for water provisioning is an expensive and non-sustainable option and lends itself for areas not to be serviced. Even then the suggestion to the UDM is that water tankers should deliver water at least twice a week to the community when stand pipes and water taps are dry as this would help community members not to fetch contaminated and unsafe water from rivers and streams.

The findings also indicated that community members misuse water supplied by the municipality. As a result the UDM should conduct awareness workshops or awareness campaigns where community members would be made aware that it is important to protect their property as it is intended to benefit them. When monitoring and evaluation has been done faults will be noticed and measures to address them taken in advance.

The main aim of monitoring and control in project management is to detect and correct the problems with the implementation and design (Rodríguez, 2010). Policy makers and planners are also assisted through the use of monitoring and evaluation models. Kayser *et al.* (2013) emphasize that monitoring and evaluation in water services is essential in order to ensure that the municipal and community members are able to recognize changes in water projects, as well as progress.

The findings indicated that the hiring of unskilled contractors could be the cause of water outage in the Umzumbe Local Municipality as contractors leave projects not completed. In order to deal with contractors that leave the project not completed the UDM should adhere to the project management phase's procedure in order to make sure community projects are successfully managed without any dubious means. In summary, these phases are, (i) Feasibility Stage (ii) Design and Development Stage (iii) Execution or Implementation Stage and (iv) Commission and Handover Stage.

The UDM should make sure that contractors have experience of project management phases prior to their appointment. In other words, the UDM should try by all means to check and prove that contractors who applied for project management do possess the required credentials (skills) needed for a particular community development project before a contractor is hired. In this case monitoring and evaluation should be emphasized in all stages of project implementation in order to notice and rectify the wrongs at any early stage. Sandoy *et al.* (2005) argue that project management involves risks and these risks can be seen varying, and even during disagreement situations. The truth is that risks cannot be done away with but need to be managed.

Bradley (2000) mentions the requirements to ensure project management success. These factors include; skills for project management are of utmost essential. Project managers who are not skilled are to be avoided at all cost. Surely, if the contractor fully qualifies to run the project it will be impossible for it to abandon the project before it is completed. This will assist the municipality to reduce the costs of hiring contractors now and again. Thereafter, community needs will be addressed and harmony will exist in community strata.

In a nutshell, it can be concluded that participation is crucial as it ensures that community members take ownership of development projects and it guarantees success.

This encourages more development and ensures that community becomes more self-reliant and is able to manage its own social welfare.

6.5 Summary of the chapter

This chapter has presented the summary, conclusions and recommendations of the study based on the results and discussions in chapter five of this study. The conclusion and recommendations of the study could assist the authorities in making decisions regarding water provisioning in Umzumbe Local Municipality.

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APPENDIX A:

INTERVIEW SCHEDULE WITH THE UMGENI WATER BOARD

Researcher	: CM Duma
Supervisor	: Mr. SS Nhlabathi
Topic of study	: Water access and provisioning in Umzumbe Local Municipality under uGu District Municipality
Development	: Development of Anthropology & Development Studies
Programme	: Master's Degree (Development Studies)
University	: University of Zululand

Note to participants/respondents:

- We need your help to investigate water access and provisioning in Umzumbe Local Municipality under Ugu District Municipality.
- Although we would like you to help us, you are **not compelled** to take part in this research
- Your identity will **ONLY BE KNOWN** to the researcher, as such the information shared will not reveal who you are.

How to respond to the interview?

- Please answer the questions as truthfully as you can
- If you do not feel comfortable answering a question, you can indicate that you do not want to answer. For questions that you answer, your responses will be kept confidential

Thanking you in advance for your time and participation

Interview schedule with Umgeni Water Board

1. What is your major role in water access and provisioning in the uGu District Municipality?

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2. What is the role of the different stakeholders (community, government, business) in water provisioning?

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3. Would you say that water provisioning process meets all the needs of the different stakeholders? Explain

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4. There appears to be a water shortage in the uGu District, according to you what would you say are the issues in this challenge?

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5. How do you ensure water access and provisioning in the uGu District Municipality?

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6. May you explain the challenges of water access and provisioning in uGu District Municipality?

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7. May you explain the nature of resources do you have regarding water access and provisioning in uGu District Municipality?

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8. Would say that water provisioning in the Ugu District Municipality is reliable?

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9. Any suggestions on how water provisioning can be improved?

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Your cooperation will be highly appreciated

Yours Faithfully

Mr. C.M. Duma

Contact No. (0726641594)

APPENDIX B:

INTERVIEW SCHEDULE WITH THE UGU DISTRICT MUNICIPALITY MANAGER

Researcher	: CM Duma
Supervisor	: Mr. SS Nhlabathi
Topic of study	: Water access and provisioning in Umzumbe Local Municipality under uGu District Municipality
Development	: Development of Anthropology & Development Studies
Programme	: Master's Degree (Development Studies)
University	: University of Zululand

Note to participants/respondents:

- We need your help to investigate water access and provisioning in Umzumbe Local Municipality under uGu District Municipality.
- Although we would like you to help us, you are **not compelled** to take part in this research
- Your identity will **ONLY BE KNOWN** to the researcher, as such the information shared will not reveal who you are.

How to respond to the interview?

- Please answer the questions as truthfully as you can
- If you do not feel comfortable answering a question, you can indicate that you do not want to answer. For questions that you answer, your responses will be kept confidential

Thanking you in advance for your time and participation

Interview schedule with UGu District Municipality Manager

1. What is the role that is played by uGu District Municipality in the provision and access to water? Explain?

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2. May you describe the extent to which water provisioning is reliable in your district?

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3. Explain the challenges of water access and provisioning within uGu District Municipality, if there are any?

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4. What are the factors that deter regular water provisioning in the district. Explain

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5. Would you say that the community is well serviced with water?

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6. Describe the current strategies used to ensure adequate water provisioning?

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7. May you explain any strategies that you may introduce in the near future to ensure adequate water provisioning in uGu District?

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8. Is there any framework/policy responsible that guides water supply within the municipality?

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9. Does the framework include the implementation /water supply in the municipality?

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10. Apart from your unit are there any other units you work with to ensure adequate water access?

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11. May you explain whether municipality engage community members in discussions dealing with service delivery projects

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12. May you explain whether you charge community members for water service delivery.

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Your cooperation will be highly appreciated

Yours Faithfully

Mr. C.M. Duma

Contact No. (0726641594)

APPENDIX C:

INTERVIEW SCHEDULE WITH WARD COUNCILLOR

Researcher	: CM Duma
Supervisor	: Mr. SS Nhlabathi
Topic of study	: Water access and provisioning in Umzumbe Local Municipality under uGu District Municipality
Development	: Development of Anthropology & Development Studies
Programme	: Master's Degree (Development Studies)
University	: University of Zululand

Note to participants/respondents:

- We need your help to investigate water access and provisioning in Umzumbe Local Municipality under uGu District Municipality.
- Although we would like you to help us, you are **not compelled** to take part in this research
- Your identity will **ONLY BE KNOWN** to the researcher, as such the information shared will not reveal who you are.

How to respond to the interview?

- Please answer the questions as truthfully as you can
- If you do not feel comfortable answering a question, you can indicate that you do not want to answer. For questions that you answer, your responses will be kept confidential

Thanking you in advance for your time and participation

Interview survey guide to ward councillor

1. How is the relationship between the municipality and the community?

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2. Kindly explain your experience with water provisioning in your district.

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3. Does the municipality deliver safe water and sanitation?

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4. What would you say are the causes of inadequate water provisioning in the Umzumbe Local Municipality?

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5. What would you identify as factors deterring consistent water provisioning in Umzumbe Local Municipality?

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6. May you explain those factors you say are in favour of water provisioning in Umzumbe Local Municipality?

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7. May you explain how your community members cope with water shortage in this district?

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8. May you explain what you think your municipality should do to ensure a regular supply of water in the Umzumbe Local Municipality?

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9. May you explain whether municipality involves community members in discussions dealing with water delivery projects.

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Your cooperation will be highly appreciated

Yours Faithfully

Mr. C.M. Duma

Contact No. (0726641594)

APPENDIX D:

INTERVIEW SCHEDULE WITH WARD COUNCILLOR (ISIZULU VERSION)

Researcher	: CM Duma
Supervisor	: Mr. SS Nhlabathi
Topic of study	: Water access and provisioning in Umzumbe Local Municipality under uGu District Municipality
Development	: Development of Anthropology & Development Studies
Programme	: Master's Degree (Development Studies)
University	: University of Zululand

Note to participants/respondents:

- We need your help to investigate water access and provisioning in Umzumbe Local Municipality under uGu District Municipality.
- Sicela usizo lwakho ekuphenyeni ngokutholakala kwamanzi nokuphakelwa kwawo ngu masipala wase-Emzumbe ngaphansi kweyingisoGu.
- Although we would like you to help us, you are **not compelled** to take part in this research.
- Nakuba siding usizo lwakho kuloluphenyo, **AWUPHOQIWE** ukuba uzibandakanye kulolucwaningo.
- Your identity will **ONLY BE KNOWN** to the researcher, as such the information shared will not reveal who you are.
- Imininingwane yakho **IZOKWAZIWA** ngumcwaningi kuphela, nokuqukethwe (ulwazi) ngeke kuveze ukuthi ungubani.

How to respond to the interview? / kufanele uphendule kanjani kwinhlolelwazi?

- Please answer the questions as truthfully as you can
- Sicela uphendule umbuzo ngeqiniso eliphelele

- If you do not feel comfortable answering a question, you can indicate that you do not want to answer. For questions that you answer, your responses will be kept confidential
- Mawungaphathekile kahle ngokuphendula imibuzo, ungaku khombisa lokho ngoku ngavumi ukuphendula. Izimpendulo zakho zizogcinwa ziyimfihlo.

***Thanking you in advance for your time and participation/Sibonga isikhathi sakho
nokuhlanganyela nathi***

Inhlololwazi ye Khansela

1. Akewuchaze ngobudlelwano phakathi kukamasipala nomphakathi.

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2. Akewuchaze ngespiliyoni sakho ngokuphakelwa kwamanzi kulesiyingi.

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3. Ningumphakathi niwathola kanjani amanzi ahlanzekile?

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4. Ungathi yini eyenza ukuthi amanzi angaphakwa ndlela eyenele?

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5. Kungaba yini lena eyenza kuphazamiseke ukunikezelwa kwamanzi kulesiyingi?

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6. Chaza izindlela ezingenza ukuba ukuphakelwa kwamanzi kube kuhle.

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7. Akewuchaze ukuthi umphakathi uphila kanjani noma wenzenjani uma amanzi engekho.

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8. Akewuchaze ukuthi umasipala angenzenjani ukuqinisekisa ukungapheli kwamanzi kulesiyingi.

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9. Akewuchaze ukuthi kungabe Umasipala uyawubandakanya yini umphakathi ezingxozweni zokulethwa kwezingqalasizinda emphakathini.

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Ngobonga ukubambisana

Yimina ozithobayo

Mr. C.M. Duma

Inombolo yokuxhumana (0726641594)

APPENDIX E:

IMVUME YOKWENZA U-CWANINGO EMPHAKATHINI

Igama lami ngingu Clifford Mhlanyukwa Duma, ngifunda eNyuvesi YakwaZulu, Ongoye, ngenza iziqu zemasitazi kwi Diphatiment ye Anthropoplogy & Development Studies. Inhloso yalolucwaningo ukuthola uvo lomphakathi kanye nabobonke ababhekelela ukunikezelwa kwenkonzo yamanzi emphakathini, kanye nokuthola ukuthi kungani ukunikezelwa kwenkonzo yamanzi emphakathini kuyingqinamba. Isihloko socwaningo simi kanje: “*Water access and provisioning in Umzumbe Local Municipality within Ugu District Municipality, KwaZulu-Natal Province*” (Ngesizulu-Ukufinyelela nokuphakelwa kwamanzi emphakathini wasemzumbe ngu masipala umzumbe onguhulumeni wasekhaya).

Lolucwaningo luqondene nokufunda kuphela akukhonzuzo enjengemali nokunye okutholakayo futhi akukho mali ekhokhwayo noma ezotholwa ngalo. Kuphela ukwandisa ulwazi mayelana nokwakhiwa kohlelo lwezamanzi uqinisekisa ukuthi umphakathi uyafinyelela emanzini nokuqinisekisa ukuthi inkonzo yamanzi iyanikezelwa emphakathini.

Ukubamba iqhaza kulolucwaningo akuzukudinga ukuba kwenziwe imicikilisho enjengokubhekwa nokucutshungulwa kwezempilo. Kuzokuba yimfihlo futhi ngeke kudluliselwe ukuthi wake wabamba iqhaza kulolucwaningo, negama lakho ngeke linikezwe muntu. Ayikho futhi imininingwane yakho eyodalulwa kunoma ngubani abukho ubungozi ongangena kubo ngokubamba iqhaza. Futhi uvumelekile ukushiya uma uzwa kungasakulungeli ukuqhubeka kulolucwaningo.

Uma uvuma ukubamba iqhaza kulolucwaningo, ngicela usayine lencwadi yokuvuma. Ingeyokugcina marekhodi kuphela, akukho lapho ezosiwa khona.

Mina.....
ngiyifundile lencwadi mayelana nokubamba iqhaza kulolucwaningo. Ngiaqinisekisa ukuthi konke kuchaziwe ngolimi engilwejwayele negilwaziyo. Ngiaqonda ukuthi yini edingeka kimi angiphoqwanga futhi akukho engikwethenjisiwe ekubambeni kwami iqhaza. Ngakho-ke ngizolibamba iqhaza ngokuzikhethela kulolucwaningo.

Ukusayina kobambi iqhaza

Usuku.....

APPENDIX F:

SURVEY: UMZUMBE LOCAL MUNICIPALITY GENERAL PUBLIC

Researcher	: CM Duma
Supervisor	: Mr. SS Nhlabathi
Topic of study	: Water access and provisioning in Umzumbe Local Municipality under uGu District Municipality
Development	: Development of Anthropology & Development Studies
Programme	: Master's Degree (Development Studies)
University	: University of Zululand

Note to participants/respondents:

- We need your help to investigate water access and provisioning in Umzumbe Local Municipality under Ugu District Municipality.
- Although we would like you to help us, you are **not compelled** to take part in this research
- Your identity will **ONLY BE KNOWN** to the researcher, as such the information shared will not reveal who you are.

How to respond to the interview?

- Please answer the questions as truthfully as you can
- If you do not feel comfortable answering a question, you can indicate that you do not want to answer. For questions that you answer, your responses will be kept confidential

Thanking you in advance for your time and participation

The questionnaire for general public of Umzumbe Local Municipality

Dear respondent

I am a registered student in the department of anthropology and development studies at the University of Zululand. I am undertaking this project as part of my higher degree program to water access and provisioning in Umzumbe local municipality under Ugu District Municipality.

Section A: Demographic particulars

Q 1. Please indicate your gender?

Male	01
Female	02

Q 2. To which race group do you belong?

African	01
White	02
Colored	03
Asian	04
Other	05

Q 3. To which age category do you belong?

Under 20 years	01
21-30 years	02
31-40 years	03
41-50 years	04
51-60 years	05
60+ years	06

Q 4. What is your marital status?

Single	01
Married	02
Widower	03
Widow	04
Separated	05

Q 5. What is your home language?

English	01
IsiZulu	02
Afrikaans	03
siSwati	04
Tshivenda	05
Sesotho	06
Setswana	07
Sepedi	08
Xitsonga	09
IsiNdebele	010
IsiXhosa	011
Other (Please List.....)	012

Section B: Water access and provisioning

Q 6. Is the relationship between the municipality and the community with regards to water provisioning effective?

Kindly use one of the following codes:

1= Strongly agree

2= Agree

3= Disagree

4= Strongly disagree

1	2	3	4
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Q 7. Do you experience problems with water provisioning in your Local Municipality?

Yes	01
No	02

If No what do you think might be the cause?

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Q 8. Does the municipality ensure safe water supply?

Yes	01
No	02

Q 9. According to you are there any causes of inadequate water provisioning in Umzumbe Local this district?

Yes	01
No	02

Q 9.1 If Yes, What are they?

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Q 10. Do you know of any factors deterring consistent water provisioning in Umzumbe Local

Municipality?

Yes	01
No	02

Q 10.1 If yes, may you explain these factors?

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Q 11. Do you know any factors that are in favour of water provisioning in Umzumbe Local Municipality?

Yes	01
No	02

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Q 11.1 If yes, may you explain these factors.

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Q 12. How do you cope with water shortage in Umzumbe Local Municipality?

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Q 13. Do you think Umzumbe Local Municipality can do something to ensure a regular supply of water in its area?

Yes	01
No	02

Q 13.1 If yes, what should be done?

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Q 14. May you explain any alternatives catered by the municipality to ensure water provision to the community?

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Q 15. Is the supply of water by Umzumbe Local Municipality satisfactory?

Kindly use one of the following codes:

1= Strongly agree

2= Agree

4= Strongly disagree

1	2	3	4
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Your cooperation will be highly appreciated

Yours Faithfully

Mr. C.M. Duma

Contact number (0726641594)

APPENDIX G:

IMIBUZO YOCWANINGO NGESIZULU EBHEKENE NOMPHEKATHI

Researcher	: CM Duma
Supervisor	: Mr. SS Nhlabathi
Topic of study	: Water access and provisioning in Umzumbe Local Municipality under uGu District Municipality
Development	: Development of Anthropology & Development Studies
Programme	: Master's Degree (Development Studies)
University	: University of Zululand

Note to participants/respondents/abayingxenywe yocwaningo:

- We need your help to investigate water access and provisioning in Umzumbe Local Municipality under Ugu District Municipality.
- Sicela usizo lwakho ekuphenyeni ngokutholakala kwamanzi nokuphakelwa kwawo ngu masipala wase-Emzumbe ngaphansi kweyingisoGu.
- Although we would like you to help us, you are **not compelled** to take part in this research.
- Nakuba siding usizo lwakho kuloluphenyo, **AWUPHOQIWE** ukuba uzibandakanye kulolucwaningo.
- Your identity will **ONLY BE KNOWN** to the researcher, as such the information shared will not reveal who you are.
- Imininingwane yakho **IZOKWAZIWA** ngumcwaningi kuphela, nokuqukethwe (ulwazi) ngeke kuveze ukuthi ungubani.

How to respond to the interview?/ kufanele uphendule kanjani kwinhlolelwazi?

- Please answer the questions as truthfully as you can
- Sicela uphendule umbuzo ngeqiniso eliphelele

- If you do not feel comfortable answering a question, you can indicate that you do not want to answer. For questions that you answer, your responses will be kept confidential
- Mawungaphathekile kahle ngokuphendula imibuzo, ungaku khombisa lokho ngoku ngavumi ukuphendula. Izimpendulo zakho zizogcinwa ziyimfihlo.

***Thanking you in advance for your time and participation/Sibonga isikhathi sakho
nokuhlanganyela nathi***

Inhlololwazi eqondene nomphakathi wamasipala Umzumbe

Ngiyabingelela

Ngingumfundi emnyangweni wezentuthuko enyuvesi yasOngoye. Ngenza ucwaningo ngaphansi kwesihloko: Ukunikezelwa nokufinyelela kwamanzi emphakathini waseMzumbe nhaphansi kwesiyingi somasipala woGu.

Q 1. Ubulili?

Owesilisa		
Owesifazane		

Q 2. Uhlanga?

Owomdabu		
Omhlophe		
Ikhalaadi		
Indiya		
Okunye		

Q 3. Iminyaka?

Ngaphansi kwemininyaka engama 20		
Phakathi kwama 21-30		
Phakathi kwama 31-40		
Phakathi kwama 41-50		
Phakathi kwama 51-60		
Phakathi kwama 60+		

Q 4. Ubudlelwano?

Ongashadile	
Oshadile	
Ongumfelwa	

Ongumfelokazi		
Owehlukanisile		

Q 5. Ulimi lwasekhaya?

English		
IsiZulu		
Afrikaans		
siSwati		
Tshivenda		
Sesotho		
Setswana		
Sepedi		
Xitsonga		
IsiNdebele		
IsiXhosa		
Other (Please List)		

Q 6. Kungabe bukhona ubudlelwano phakathi kukamasipala nomphakathi?

Ngivuma kakhulu	Ngiyavuma	Ngiyaphika	Ngiphika kakhulu

Q 7. Kungabe unaso isipiliyoni ngokuphakelwa kwamanzi ngumaspala woMzumbe?

Yebo	
Cha	

Q 8. Kungabe umasipala unikezela ngamanzi ahlanzekile emphakathini?

Yebo	
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Cha	
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Q 9. Ngokwakho kungabe ikhona imbangela yokungaphakwa ngokwanele kwamanzi emphakathini ngumasipala?

Ngivuma kakhulu	Ngiyavuma	Ngiyaphika	Ngiphika kakhulu

Q 10. Kungabe uyazi ukuthi yini lena eyenza kuphazamiseke ukunikezelwa kwamanzi kulesiyingi?

Yebo	
Cha	

Q 10.1 Uma uvuma ngicela uchaze kabanzi.

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Q 11. Kungabe uyazazi izindlela ezingenza ukuba ukuphakelwa kwamanzi kube kuhle?

Yebo	
Cha	

Q 11.1 Uma wazi ngicela uzichaze lezizindlela

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Q 12. Umphakathi wenzenjani uma amanzi engekho?

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Q 13. Uma ucabanga kungabe uyazi ukuthi umasipala angenzenjani ukuqinisekisa ukungapheli kwamanzi lapha Emzumbi?

Yebo	
Cha	

Q 13.1 Uma wazi ngicela uchaze ukuthi umasipala angenzenjani.

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Q 14. Kungabe uyazazi ezinye izindlela zamasipala ezibekelwe ukuhlinzeka umphakathi ngamanzi?

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Q 15. Kungabe kuyenelisa ukuphakelwa kwamanzi ngu Masipala wase-Emzumbe?

Ngivuma kakhulu	Ngiyavuma	Ngiyaphika	Ngiphika kakhulu

Ngobonga ukubambisana

Yimina ozithobayo

Mr. C.M. Duma

Inombolo yokuxhumana (0726641594)