WATER SERVICES DELIVERY IN MUKONDENI VILLAGE IN LIMPOPO PROVINCE, SOUTH AFRICA

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MINI-DISSERTATION

Submitted in partial fulfilment of the requirements for the degree of

MASTER OF DEVELOPMENT STUDIES

in

CURRICULUM STUDIES

in the

FACULTY OF MANAGEMENT AND LAW
(TURFLOOP GRADUATE SCHOOL OF LEADERSHIP)

at the

UNIVERSITY OF LIMPOPO

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DECLARATION

I, Lidzani Lucas Netshipale, declare that the study, Water Service Delivery in Mukondeni Village of Mutale Local Municipality, Vhembe District, Limpopo Province is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete reference and that this work has not been submitted before to any other institution.

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Lidzani Lucas Netshipale Date

ACKNOWLEDGEMENTS

It is a pleasure to thank the many wonderful people who made this mini-dissertation possible:

- The Mutale Local Municipality and its officials for participating and giving me permission for the study to be carried out. The researcher also thanks the residents of Mukondeni for their active participation in the study. I would also like to thank Vhembe District Municipality's Water Services Department's senior officials, Mr M. R. Bidzhiwe and Mr A. P. Mavhungu, for their assistance during the data collection phase.
- My Mother, Mrs Azwidihwi Munzhedzi Netshipale, and My lovely daughter, Antoinette Tshedza Netshipale, for being the pillar of my strength. Her enthusiasm, relentless encouragement and the moral support kept me focused.
- Dr S. A. Rankoana, my supervisor, for her inspiration, guidance, support and encouragement as well as my editor Dr Lukas Mkuti.
- Advocate F. A. Ponelis (Former-Faculty Acting Executive Dean), Professor J. P. Tsheola (Executive Dean), Professor M. P. Sebola, Mr O. A. Oni and Mr L. L. Lebelo for their support and encouragement.
- Prof M. M. Sibara (Deputy Vice-Chancellor) and Mrs T. R. Mawasha (Secretary) for their support and encouragement.

ABSTRACT

The provision of basic water services delivery to all South African citizens is one of the biggest challenges of many local municipalities. The objective of this study was to explore water services delivery in the communities of Mukondeni village in Limpopo Province. The Department of Water Affairs and Forestry (DWAF) has the responsibility to ensure that all South Africans have access to basic water supply and emphasizes on speedy delivery of water and sanitation services. The Department of Water Affairs (DWA) is mandated with managing and protecting the country's water resources, with the National Regulator responsible for systems of accountability.

The study evaluated the respondents of the communities, authorities responsible in water services delivery and the nature of the resources in water supply. The outcome of the study shows that, the communities and water services department (workers) were dissatisfied with the current water services delivery. Direct involvement, coordination and co-operation by the government, as well as developing a culture of empowering the local communities should bring better water services delivery to the village and to Mutale Local Municipality in general. The study recommends that one main pipeline from the plant to Mukondeni village should be installed and awareness campaigns for efficient and effective use of water should be launched. This should help ease and improve the present precarious situation.

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CHAPTER 1
INTRODUCTION

1.1 Background of the study

South Africa's water related challenges for sustainable development are compounded by its historical past and water scarcity. The biggest challenge regarding water and development in the country is the provision of basic water services to all and in particular the poor. The provision of services to the poor is however only one of the challenges for sustainable development in the water industry. Other challenges relate to the high level of non-revenue demand, weak institutional capacity of the water services industry, and the economic viability of service provision, environmental degradation of water resources and the availability of sufficient water resources. In Vhembe District Municipality, Mutale Local Municipality is one of the poor municipalities where households are dependent on river water for domestic and agricultural purposes.

Water is the lifeblood of the planet that links all people together. Except during floods and droughts, the importance of water in the daily lives of people is sometimes ignored. For generations, many privileged South Africans merely relied on tap water (Palmer & Eberhard, 1994; Lotter, 1995). Water Supply and Sanitation Policy (World Water Assessment Programme, 2003) described by the White Paper (World Health Organization's Guidelines for Drinking Water Quality, 2012) is the basis of quantity, cartage, and availability, assurance of supply, quality and upgradability (Republic of South Africa, 1994).

Basic water supply in terms of the Water Services Act, 1997 (Act 108 of 1997) means the prescribed minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal households to support life and personal hygiene. According to Harvey and Reed (2004), during the last decade, South Africa has achieved mixed success on the provision of safe water supply and sanitation to rural communities. At the household and school level there are concerns about the quality and use of these water and sanitation facilities. A study conducted by the Water Research Commission in 2002 indicated that rural areas suffered massive backlogs regarding the provision of adequate sanitation.

South Africa has undergone immense social and economic changes over the last years, following the abolition of apartheid and a fundamental Reconstruction and Development Programme (RDP) aimed at creating a more open and development oriented society. These reforms have led to the introduction of bulk water projects at all spheres of government.

The post-apartheid government instituted the RDP as the policy foundation stone of the new government. The RDP gave the Department of Water Affairs and Forestry (DWAF) the responsibility of ensuring universal access to basic water for all South Africans. Subsequently, the White Paper on Water and Sanitation was released in 1994, with emphasis on speedy delivery of water and sanitation services to ensure that all South Africans have access to basic water supply (DWAF, 2004). The South African Water Sector Institutional landscape strives to provide running tap water and electricity to rural communities by 2025 (Claassen et al., 2013). Water supply in South Africa is characterized by both achievements and challenges with concern mostly in the rural areas of Limpopo Province (Water Supply & Sanitation in South Africa; 2013). Black African households were found to be more likely to lack access to basic services such as housing, water, sanitation and electricity (Hirschowitz & Okin, 1997).

The management of water is not the responsibility of the municipality, national and provincial water resources management department, consumers or any individual but of all those who derive goods and services from it. Water is interlinked with, and cannot be isolated from, economic and social development as outlined in the Millennium Development Goals and not forgetting its role in maintaining the ecological integrity of the water resources. Government is required by law to ensure that everyone has access to water and the municipalities play an important role in ensuring that this constitutional right is realised. That places enormous pressure on the water services authorities to ensure that they provide water services and maintain the system in a reliable condition. In addition, post 1994 there were vast areas of our communities which were still subserviced, in terms of water services. The implications of this on the scarce water resources is quite colossal, especially if

the legal requirement of having the ecosystem protected by reserving for it sufficient water of adequate quality is taken into consideration (Kidd, 2011).

The problems of water service delivery in rural communities are a continuous concern which has, in many instances, led to protests and acts of vandalism to property. Building of dams, drilling of boreholes and installation of supply pipes have contributed to water supply in the country. The present study explored the current water service delivery in Mukondeni village. The study engaged the authorities responsible for water supply in order to find out the challenges that communities face, types, status and sustainability of water resources in the community.

1.2 Definition of concepts

Water: an essential clear, pellucid, transparent fluid which is used as an everyday item and it is available in streams, lakes, oceans and rain is the major constituent of the fluids. Water is crucial for human life and all living things. For human beings it is needed for drinking, washing, cooking, planting and a number of essential activities. According to the World Health Organisation (2006), water is one of the important natural resources and is the essence of life on the earth.

Water authority: Water Management Department ensuring that there is an efficient supply of water to the parties or by any municipality that has the executive authority to provide water services within its area of jurisdiction roles and responsibilities.

Water law: The legal status of water, water rights, and conflict solution mechanisms, possible contradictions between laws, legal pluralism, administrative regulations, and implementation mechanisms.

Water policy: This covers usage priorities, water tariffs, decentralization or centralization of competencies, participation, and coordination with other policies.

Water administration: The organizational structure of water management, including funding, staff, capacities, and fee collection (Saleth & Dinar, 1999).

1.3 Problem statement

Who are the authorities responsible for water supply in Mukondeni village? Which water resources supply the village with water and what is their status? Vhembe District is responsible for providing clean water to the Mutale Local Municipality as mandated by Water Service Authority of Limpopo Province. Mutale Local

Municipality is the water authority. It is the responsibility of the municipality to supply water to all the communities and villages that fall under its jurisdiction. The survey reveals that the municipality is not satisfying all its communities in terms of water services delivery. Significant problems and challenges include incompetent staff, financial sustainability of service providers and the lack of service providers and the problems of proper maintenance and sustainability of water resources (Wellfield, 2011).

The provision of adequate water to the communities remains a challenge as a result of poor municipal infrastructure. Other factors include the South African Government policy of providing and sustaining water supply as free basic needs; the financial stability of service providers which lead to the lack of maintenance and payment of the water services by community members; the existence of water boards which is controlled by supplying and lack of cost recovery for water services process which includes insufficient monitoring of meters system and control over the communal street stand pipes by communities. The majority of the households in Mutale Municipality use boreholes and these create health risks because the underground river water is not clean. The access to water as a basic necessity to life can have profound effects on health and the inaccessibility of water to the households can lead to community members buying water or incurring economic costs in fetching or collecting water from communal supplies or nearest villages.

1.4 Rationale of the study

The majority of social protests associated with water service delivery tend to occur in communities as characterized by high levels of poverty, unemployment, inequality, relative deprivation, marginalization and disjuncture (including communication breakdown) between water services development planning at municipal and national levels and water use at local household and community levels, irrespective of the political party affiliation of local government. Such disjuncture can predispose people in affected localities towards protest action. They are often multi-faceted and include, among other things, differences in perception between what practitioners consider to be effective ways of rendering water services and what water services users consider as their legitimate needs and expectations. Residents expressed frustrations over unmet expectations for water services, lack of downward

accountability by municipal officials, indifference and lack of monitoring and censure of non-compliance by water services authorities and officials.

Mutale Local Municipality is a drought-stricken area located in Vhembe District Municipality. Lack of water for household consumption, livestock and farming has been a major concern for the communities in Mutale for a very long time. A study commissioned by the World Bank in 2010 and 2011 concludes that water service delivery in Mutale is rather poor. Some of the reasons for this is lack of competent staff, poor maintenance of water resources and misuse of water resources by the communities. The municipality has challenges in the recruitment of staff and infrastructure to maintain water resources (Wellfield, 2011). The present study was designed to explore water service delivery in Mukondeni community in Mutale Local Municipal area. The study examined water service delivery in the community and the measures available to ensure consistent water supply.

1.5 Significance of the study

Water supply in Vhembe District Municipality is an ongoing problem as a result of poor maintenance of water resources and incompetent staff. This ongoing problem has been in existence despite the existence of Albasin and Nandoni reservoirs which supply the entire district with water. An outline of water service delivery in Mukondeni village was helpful in determining the person or people responsible for water service delivery, the types and status of water resources and factors responsible for inconsistence supply of water in the community. The outcomes of the proposed study will be helpful in addressing the problems related to the provision of water outlined during a study commissioned by the World Bank (2010) in Mutale Local Municipality. The study results reflected incompetent staff, lack of maintenance of water resources and misuse of the resources by the community as the main causes of inconsistent water supply in the communities supplied by Mutale Local Municipality (Wellfield, 2011). The study will be helpful to the wider community in that it will identify the kind of challenges facing the provision of water. Limpopo Province could establish the major causes of poor water services delivery and draw lessons from them.

Given the emphasis of water supply as a path to development, the study on the water services delivery in Mukondeni village in Mutale Local Municipality in Vhembe district municipality of the Limpopo would be useful to policy makers. A study focusing on an individual village is necessary in order to account for all the factors that are unique to the village. Therefore, the study will help to shift the focus of the municipality to better water service delivery. This can be achieved by better understanding of the socio-economic factors that are a result of poor service delivery. In South Africa much work has been done to study the notion of water supply, comparatively, yet little has been done to analyse water service delivery.

1.6 Study purpose

1.6.1 Aim

The aim of the study is to explore water service delivery in Mutale Local Municipality in Vhembe District located in Limpopo Province.

1.6.2 Objectives

The study was conducted to investigate the body responsible for water services delivery in Mukondeni village, Mutale Local Municipality. A description of the types and status of water resources available in the village is provided. Furthermore, the study explains the effectiveness of the local authorities in making water available to the village, and presents the problems experienced by the authority in ensuring consistent water supply to the village.

1.6.3 Research Questions

- Who is responsible for providing water to Mukondeni village?
- What type of water resources supply the village?
- What problems does the village have in the area of water supply?
- What are the problems experienced by the authority responsible for water supply in the village?

1.7 Organization of the study

The study is presented in five chapters. Chapter two presents the literature review and the implications from that review. Chapter three presents the research methods employed in the study. Chapter four discusses the study findings and chapter five presents discussion of the study findings, conclusion and recommendations.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Water is a basic nutrient of the human body and is critical to human life. It supports the digestion of food, absorption, transportation and use of nutrients and the elimination of toxins and wastes from the body (Kleiner, 1999). Water is also essential for the preparation of food. The human body requires a minimum intake of water in order to be able to sustain life before mild and then severe dehydration occurs. The quantity of water delivered and used in the households is an important aspect of domestic water supplies, which influences hygiene and therefore public health. To date, the World health Organisation (WHO) has not provided guidance on the quantity of domestic water that is required to promote good health (Howard & Bartram, 2013). Access to water is basic to life and is recognized as a fundamental human right which demands sufficient healthy human life and safe water. In South African law and policy, basic water supply must be sufficient, safe, accessible and affordable. Basic water must also be provided continuously with a stipulated minimum rate of flow and quality (Hemson & Galvin, 2006)

According to the South African Municipal Systems Act of 2000, the Integrated Development Plan (IDP) is a process in which a municipality and other local role players compile a blue print that outlines how services will be delivered to the community and makes the provision that should be reviewed annually. Integrated development is a five-year strategic document that informs all the planning in the local municipality (Mutale Final Integrated Development Plan [IDP] Review, 2013/14).

This chapter presents an overview of water service delivery in Mutale Local Municipalities. Mutale Municipality has set its focus on addressing the needs of its communities in the rural villages in order to improve and transform their socio-economic conditions. Its priorities and target goals in economic and infrastructure cluster are to decrease the number of people without sustainable access to safe drinking water by 2015. An integrated development plan identified the key priority issues, objectives, strategies, programmes and projects to respond to the institutional and socio-economic challenges facing the municipality (Mutale IDP,

2013/14).The programmes and projects which are set in the IDP will enable the municipality to pass the next hurdle of development. The developmental plan goals of Mutale Municipality can be achievable in conjunction with stakeholders, traditional leaders, community based organizations, as well as other organs of the state (Mutale IDP, 2013/14).

The operational sustainability of rural water-supply systems is discussed in this section. The Department of Drinking Water Supply and Sewerage (DDWSS), with the assistance of the United Nations Children's Fund and bilateral aid organizations, developed a blueprint that is often used by government organizations and NGOs for project implementation. The analysis shows no significant association between satisfaction and respondent variables such as gender, age, economic status and education. The principal component analysis shows that water quantity, reliability, Water Use Centre trust-worthiness, convenience of water-point locations, water quality, and water-flow pressure are the most crucial and correlated variables in the performance of water-supply systems.

The section also indicates that users' preferences differ between rural villages and market centres, regarding the improvement of existing systems. The water users in market centres strongly prefer water quantity, adequate flow pressure and convenient water-point locations. Water engineers and planners should consider the need in rural villages of high priority operation and maintenance management, convenient water point locations and reliability. This will assist in proper designing and planning of rural water supply programmes.

Available literature addresses the contribution and maintenance of domestic use of water and sanitation, fiscal policy and instruments on water scarcity consumption, types and status of water supply resources available in agriculture production as well as charges and payments of water services delivery and supply in South Africa and in municipalities in particular. It goes further to highlight the challenges and effectiveness of the water control authorities in the local municipalities, community protests related to water supply, the problem of unclean water and the poor socio-economic situation. There are a number of specific factors that the reviews of previous studies have been drawn into this study.

2.2 The authorities responsible for water services delivery

Empirical and theoretical literature on water shortage and supply in South Africa and municipalities are addressed. The study focuses on water shortage in South Africa, as well as in some African countries. It deals with the challenges of water shortage by looking at previous literature conducted on water shortage. Wester (2003) indicates that through using river basin management, government together with stakeholders can achieve equitable water management distribution in their communities.

Recent studies on service delivery and living conditions in South African households confirm that the focus is on water service delivery to poor households (Bhorat et al., 2008). The provision of safe and sufficient drinking water in South Africa relies on the availability of freshwater resources (Van Ginkel et al., 2001). In the rural areas, the majority of the population relies on raw water resources such as rivers; wells and ponds which are faecal contaminated and usually not treated. River water was found to be of poor microbiological quality and unsafe for human consumption (Obi et al., 2002). It remains the responsibility of water authorities to treat the water before it is consumed (Wester, 2003). An important consideration is the availability of the necessary social, economic and technical resources that are needed to treat the available water (Ohlsson, 1995; Turton & Haasbroek, 2001). The capability of a society depends on a high degree of human ingenuity and the ability to adapt strategies and tactics that will help to promote more effective and efficient use of water (Ashton et al., 2001). Watershed or catchment area alterations, such as dams that are built for water storage to increase the water supply and demand as the population grows are necessary (Ce van Ginkel, 2011). According to Countinho (2009), change in food consumption of the population and growth leads to increases in water demand.

Generally, there is increase in the capacity of water users domestically, and this influences decision making of basin water management in terms of reform. The importance of stakeholders in the management of drinking water supplies should be effective and efficient (BMC Public Health, 2012).The problems of drinking water supply system in a small village in the country are largely high. Much of the water supply infrastructure is out of operation and many villagers are forced to procure

private solutions. High poverty levels of the villagers make the local administration unable to maintain the infrastructure to provide a reliable water supply. This is caused by the unwillingness to pay the water fee with outstanding higher bills because for the rural communities, water is a free natural resource. It also increases the responsibility of all stakeholders to manage the local water supply system in their communities (Rost et al., 2015).

2.2.1 Fiscal instruments on water scarcity consumption

A historical transformation of water management depends in the time frame of the changes to the contemporary times, with different political, social and economic settings in the transformative capacity of institutions (Booysen, 2009). There are factors or characteristics which make it difficult to manage water; such as surface water management and ground water resources as it become variability of annual seasonal and multi-annual time frames; the use of water both as a public and private good and the action of one user which could have a serious contamination and supply implications for many other users (Hinsch, 2009).

2.2.2 Water security and scarcity

Water security and scarcity, water pricing and charging and economic growth have influence on water consumption. Some countries use instruments that set the limits on water use and can influence fiscal policy on water use, both direct and indirect (Casey, Carter & Yoe, 2012). There are various ways that governments choose to collect and spend money to collect revenue through a raft of taxation, charging and pricing mechanisms. It gives a range of expenditure, grant, subsidy and payment mechanisms as the way of collecting administrative costs from households and business (Young, 2015). South Africa is a chronically water stressed country with between 500 m^3 and 1000 m^3 of water available per person per year (Ashton, 2002). Surface water is heavily committed for use, water is imported from neighbouring countries, and the limited groundwater resources do not offer much reprieve (Scholes, 2001). As a result, water availability is predicted to be the single greatest and most urgent development constraint facing South Africa. The need for water is further highlighted by the fact that water scarcity in developing countries is closely linked to the prevalence of poverty, hunger and disease (Falkenmark, 1994; Ashton & Haasbroek, 2002).

The quantities of water collected can also depend on the factors such as supply reliability, which is dependent on family income level. Low-income families are likely to be at the greatest risk from poor water supply continuity. They have more limited resources and less ability to store large volumes of water at home; this leads to the use of smaller volumes of water and impaired hygiene (Koekemoer, 2009).

2.3 The authorities' effectiveness on water delivery

The development of a framework for water quality monitoring has been proposed based on a telecommunications infrastructure as government officials such as public officials, councillors and municipal officials use fiscal instruments for the country in order to limit water use. Mutale Local Municipality water services delivery has been registered in terms of Section 26 of the National Water Act (Act No. 36 of 1998) for the operation of water care works used for purification or treatment of water (Nemadodzi, 2012). Setting the price of water and regulating the law determine how much water should be consumed per person per litre daily. The pricing of water affects both the distribution of water among the various sectors and the quantity of water usage (Rost et al., 2015).

2.3.1The use of quality water for domestic purposes

The use of water for domestic purposes cannot easily be distinguished from productive use at the household level, particularly among poor urban communities. Domestic quality water use to sustain livelihoods among the poor forms an integral part of household coping strategies. Generally society needs quality water, as it refers to the state of the water in terms of its purity or level of contamination. Water quality impacts water availability. Water of poor quality is less suited to support socio-economic activities, which lead to scaling of pipes and infrastructure, interference with chemical processes and cause health risks (Ashton & Godfrey, 2014).

Industries usually depend on clean water to produce quality products in efficient processes, where poor water quality can lead to scaling of pipes and infrastructure, interference with chemical processes and cause health risks. Poor water quality also reduces options for domestic and recreational use. While human health is mostly affected by microbiological contamination due to inadequate sanitation, excessive

algal growth can lead to the production of toxins. Other impacts on human health from poor quality water include carcinogenic substances that can cause diseases such as cancer, cholera and diarrhoea (Ashton & Godfrey, 2007). Water resource quality is defined in the National Water Act (NWA, Act No. 36 of 1998) as the quality of all the aspects of a water resource, including in stream flow (quantity, pattern, timing, water level and assurance), water quality (physical, chemical and biological characteristics), in-stream and riparian habitat (character and condition) and aquatic biota (characteristics, condition and distribution). There may also be important health and social gains from ensuring adequate quality of service to support small-scale productive use, for example where this involves food production.

Access to water adequate for small-scale productive activity in such areas is therefore important as part of poverty alleviation and may deliver significant indirect health benefits as a result. Maximum health benefits are likely to be obtained by directing resources towards ensuring that all households have access to improved water sources, and in some circumstances in directly upgrading to access at the household level (generally through piped means) (Howard, 2003).There are also minimum requirements for domestic supply of water, which include adequate water for laundry and bathing. In some cases this will be done at the house and in other circumstances some or all of these activities may be carried out at the water source (river) rather than at the household. In both cases, it would be expected that if an improved source is used, this should provide adequate quantities of water to meet these demands. Where the source is an improved communal source whether laundering occurs at the house or source may vary on the nature of the settlement, with greater use at the household expected in urban areas (Howard & Pond, 2012).

2.3.2 Household productive uses of domestic water

The productive uses of domestic water at the household level include brewing, small-scale food production and household construction in low-income areas. Poor quality irrigation water can affect crop growth and reduce yields or lead to increased salt loads in soils, which renders them less productive (Ashton & Godfrey, 2014). Community-level enterprises that use water resources in income generating activities, such as irrigation systems (beyond simple use of water by a household for gardening), industry, larger commercial entities, energy production and transport

must be considered. The use of water resources in the economic activities or production greatly exceeds the use for domestic supply, but may compromise the ability of the resource to meet basic needs either through over-consumption or through uses leading to quality deterioration (Howard & Bartram, 2013).

There will be an increase in the productive uses of water, particular value for low-income households and communities through health and well-being benefits (Thompson et al., 2001). Direct health benefits are derived as water improves the nutrition and food security from garden crops that have been watered. Indirect health benefits arise from improvements in household wealth from productive activity. In urban areas, this often is essential for low-income communities to meet nutritional requirements and may offer additional income from small-scale sales (Howard & Bartram, 2013). Amenity uses of water are not typically considered in relation to health aspects of water quantity. These include lawn-watering and car washing, although in some cases the latter would be more correctly categorized as productive uses of water as it may be used to provide an income. There are some benefits of purely amenity uses of water in terms of quality of life. However, particularly for the most vulnerable, amenity use of water is likely to be limited. The principal concern in relation to amenity uses of domestic water supplies is to reduce the consumption of water for these purposes when this may place a significant demand on the water supply such that universal basic access is compromised (Stephens, 1996).

2.3.3 Quantity in health-based surveillance programmes

The role of the health sector in promoting better water supplies to maximize health gains should be to advocate for those interventions that will deliver the greatest improvements in health. A key component of this role is the regular surveillance of water supplies in order to assess progress with meeting targets consistent with stated public health goals and to identify priority areas for intervention. WHO (1993) defines surveillance as “the continuous and vigilant oversight of drinking water supplies from a public health perspective”.

Water quantity has traditionally been viewed as forming a key indicator for such surveillance programmes, alongside measures of quality, cost, continuity and coverage (Howard, & Pond, (2012).Elsewhere it has been suggested that service level may be more appropriate (Bartram, 1999).

2.3.4 Minimum requirements for all hygiene needs

The evidence suggests that water quantities used by households are primarily dependent on access as determined by distance or time for collection. These differences are primarily seen as functioning at four levels, broadly equivalent to service level, shown in table 1 below. The estimated quantities of water at each level may reduce where water supplies are intermittent and the risks of ingress of contaminated water into domestic water supplies will increase.

Table 1: Service level descriptors of water in relation to hygiene (Howard, 2003).

Service level Description	**Distance/time measure**	**Likely quantities collected**	**Level of health concern**
No access	More than 1000m or 30 minutes total collection time.	Very low (often less than 5 l/c/d).	Very high as hygiene not assured and consumption needs may be at risk. Quality difficult to assure; emphasis on effective use and water handling hygiene.
Basic access	Between 100 and 1000m (5 to 30 minutes total Collection time).	Low. Average is unlikely to exceed 20 l/c/d; laundry and/or bathing may occur at water source with additional volumes of water.	Medium. Not all requirements may be met. Quality difficult to assure.
Intermediate Access	On-plot, (e.g. single tap in house or yard).	Medium, likely to be around 50 l/c/d, higher volumes unlikely as energy/time requirements still significant.	Low. Most basic hygiene and consumption needs met. Bathing and laundry possible on-site, which may increase frequency of laundering. Issues of effective use still important. Quality more readily assured.
Optimal Access	Water is piped into the home through multiple taps.	Varies significantly but likely above 100 l/c/d and may be up to 300l/c/d.	Very low. All uses can be met, quality readily assured.

These levels of access can also be interpreted in terms of household water security. The no access group effectively does not have household water security as the quantities collected are low; the effort taken to acquire water is excessive and quality cannot be assured. The group with basic access could be said to also have basic household water security, provided (reasonably) continuous and quality can be assured at source and protected during subsequent handling. The group with intermediate access can be said to have effective household water security as sufficient water is available to meet domestic needs and quality can be assured. This may be influenced by the degree of discontinuity within the supply, but it would be expected that household coping strategies would include bulk storage, which has been shown to be protective of health in Pakistan (Hoek et al., 2002). The group with optimal access also has optimal household water security with quantity, quality and continuity all likely to be adequate for domestic water needs.

Available evidence indicates that service level is more relevant to health than quantity of water and provides an indication of the volume of water that is available and used by households. The level of basic access is broadly equivalent to current definitions of minimum quantities of water required for health and intermediate access equivalent to quantity of water that Gleick (1996) argues is the basic water requirement. In relation to cost, the evidence available remains limited and contradictory, as does the evidence for relationships between reliability and quantity of water. However, it is likely that both will influence quantities of water collected in some settings, and therefore further research is required in this area.

Services level description suggests that health is significantly compromised at service levels described as no accesses in Table 1, where volumes collected may barely exceed the minimum for hydration. It suggest that of the global population estimated in 2000 of 6 billion people, around 1.1 billion are in a situation categorized as no accesses (Howard, 2003). Whilst significant health gains accrue to those 4.9 billion benefiting from basic access, significant health gains continue across categories intermediate access and optimal access. Approximately 2.8 billion of the global population presently have a household connection to a water supply, which covers both the category of intermediate and optimal access (Howard, 2003).

A minimum for basic health protection corresponds to basic access and experience shows that this is equivalent to a water collection of less than 20 l/c/d, of which about 7.5 litres is required for consumption. The effective use in hygiene practices of the limited water available at basic access service level is important if available health benefits are to accrue. The basic level of supply should be regarded as a minimum quantity of water and attention paid to increasing levels of service to yard level in order to increase volumes of water collected (Howard, 2003). Mutale Local Municipality is doing household connection, government building, and businesses and in any other agency that harness water. Water charges are for the sake of cost recovery, maintenance and operation. Water supply and sanitation systems are operated through a company or stakeholder and financed ultimately through user fees. With a subsidizing access to water, the government operates in a means tested subsidy scheme whereby qualifying poor households receive a subsidy administered from the municipalities. Under this arrangement, households can apply to have part of their water and sewage bill paid for them (Mutale IDP, 2013/14).

Increasing in a blockage tariff approach seems as a fair approach and it ensures that all have access to sufficient water for essential use. In effect, applicants are means tested and the scheme ensures that no more than 5% of household income is being spent on water. The water regulator is then left to set tariffs in a manner that sends clear economic signals about the value of water and the costs associated with supply and treatment. The resultant targeting of expenditure is much more efficient and much more equitable (Young, 2015). An approach of the hydraulic mission has not changed dramatically over the years, but it transformed various forms of control on water management. The benefit that may be derived on using design compact and highly efficient sensor systems by developing nations brings more in water supply saving and recycling (Katsriku et al., 2015). The introduction of water consumption and improvement of administrative costs, which are associated with complying with the general income taxation, borne by households and businesses, significantly reduce the cost of water use and pollution and production subsidies (Young, 2015). Because the villagers are poor, the local administration is unable to maintain the infrastructure and to provide a reliable water supply source. Water supply infrastructure is out of operation and force many villagers to set up private solutions

such as digging boreholes. This in turn causes their unwillingness to pay the water fee (Rost & Topbaev, 2015).

2.3.5 Shortage of staff in water services delivery

There are a number of factors which contribute to dysfunctional and improper water distribution, such as small number of water workers due to limited local municipalities' budget allocations. The World Bank report of 2008 identified some of the features that lead to debilitating performance in government sectors, which include the following: substantial under-staffing, especially at junior levels, lack of workforce planning; deterioration of real salaries or wages plus a high degree of wage compression; lack of morale or motivation on incentives problems; inability of major institutions involved in civil service management to provide policy guidance, direction, and supervision to sectorial or departmental units–defective managerial competence; over-centralization and over-concentration of powers and functions at the national level; poor physical work environment and poor facilities; logistical problems; excessive bureaucratization and red tape (e.g. promotions and appointments to key posts), and lack of political direction and commitment, leading to apathy and inertia and serious deficiencies in training institutions and programmes (ECA, 2010:51).

The supply of water and electricity for domestic or industrial use for consumers has to go through numerous bureaucratic channels before approval is given and in most cases, corrupt officials demand facilitation fees to hasten processes. In some cases, consumers abandon pursuit of these services in midstream, due to delays and other forms of bureaucratic insensitivities (Dalton et al., 2010).

2.3.6 Water service delivery in local villages

According to Alexander (2010) previous studies all sidestepped explicitly, engaging the role of service delivery in the protests aside from making references to such a relationship. Booysen (2007) shows that it is sometimes disputed whether there is a direct causal link between services deficits and protests. Atkinson (2007) and Marais et al. (2008) have provided some qualitative analyses on the causes of protests, and both studies report that inadequate service delivery is at the core of protest in South

Africa. Furthermore, investigations using quantitative methods as the link between service delivery and protests were advised to focus on these forms of relationships. Elsewhere though, particularly in the industrial democracies, many scholars have explored the causes of protest activity in varying levels of detail and produced a rich body of literature. In the developing countries, the literature has focused mostly on explaining the reasons for certain contentious events (Dalton et al., 2010). These literatures have emphasised the important role played by existing political and economic conditions in the generation of protest. Gurr (1970) emphasizes the role of relative deprivation as the key driver of protests. He argues that poverty, economic want and poor living conditions rouse feelings of resentment that are responsible for the protest generation. Gurr's theory has been subject to considerable critique, however. On the one hand, considerable deprivation has not always been followed by protest. Likewise, many protests, particularly in industrial democracies, show considerable association with privilege.

Although the resources model has been the subject of multiple reconfigurations, it largely retains currency and is generally more robust as an explanatory model for protest. It is important to note that the relative deprivation approach shows weak association with protest particularly in developed countries but performs better in low income countries (Dalton, 2010). The link between service delivery and protests has perhaps been overstated. Thompson and Nleya (2008) demonstrate that protests are associated with a number of other factors beyond service delivery; for example, multiple memberships of organizations operating both within and out of the local contexts, higher interpersonal trust, and higher trust in national institutions. The article is restricted to describing relationships emanating from service delivery as the starting point and culminating in protest.

2.4 Types and status of water supply resources available in the village

Water institutional reforms can address all types of water institutions: the water administration is restructured, competencies are reassigned, informal practices such as corruption are combated, laws are changed, and policy priorities are reformulated, etc. The main objectives of water institutional reforms as currently conducted in many countries are to make water institutions more market-oriented and democratic in order to reach more efficiency and equity. The main tools are the introduction of

water fees or irrigation service fees (ISF), decentralization, and the introduction of hydrographic management principles and enhancement of user participation (Sehring, 2014).

A water supply system must at least have water available every day for the basic water needs of a household (Majuru et al., 2012). This means that it must be provided at a quantity per person per day at a decent yield of flow rate. This way people will have enough water and it is readily available when they need to access it. A study by Gleitsman et al. (2007) show that community members are not willing to pay for the use of hand pumps because the flow rate of water from the hand pumps is too low and it therefore takes too long to collect water from the pumps. Such an example illustrates the influence that flow rate can have on the time it takes to collect water. This flow rate and consequently the time it takes to fill a container can also have a bearing on the quantity of water collected. For instance, municipalities in South Africa have been known to use the drip which restricts the flow rate of water to prevent the use of water over and above the Free Basic Water amount for households that have not paid for overdue accounts (Peters & Oldfield, 2005).

Unauthorised connections, for instance connecting a hosepipe to a communal tap, are becoming an increasingly common sight in SCWS in South Africa. Seshoka et al. (2014) report on one village where 1,700 illegal connections were counted, the majority of which were being used to irrigate garden plots. The result of this will be that that while the ‘connectors’ have more than their share of water, the water pressure is lowered to such an extent that communal taps furthest from the reservoir run dry (Koekemoer, 2009). Drawn from the 2010 annual report by the Department of Water Affairs (DWA) in South Africa, 97% of the population had access to basic water supply infrastructure (Department of Water Affairs, 2010). Based on this figure, it would appear that by 2010, South Africa had already achieved the Millennium Development Goal target of halving the proportion of people without access to an improved water source by 2015. However, the report also suggested that this figure should be treated with caution, as the figures only reflect infrastructure provided and do not reflect quality of on-going service provision (Department of Water Affairs, 2010). The statement by DWA embodies the challenge of reliability that has come to characterize water supplies in developing countries. As noted by Guardiola et al.

(2010), the presence of water supply infrastructure does not always indicate that people have access to safe water, as these technologies do not always work. All too often, providing new water supply infrastructure takes precedence over ensuring continued access to water (Koestler et al., 2010).

A water service in this study is defined by three attributes: access, availability and portability. The reliability of a water supply service is generally defined as the proportion of time that the service functions to its prescribed level (Moriarty et al., 2010). Therefore a reliable service should deliver water of sound health-related quality (potable), that is physically obtainable with appropriate technology (e.g. tap) within a reasonable distance from the household (accessible), while being constantly obtainable at the source in quantities sufficient for daily household demand for domestic use, including personal hygiene availability. Whether water system upgrades are indeed improving access, availability and portability of water is questionable, given the problem of unreliability (Majuru et al., 2012).

Unreliability of water supply impacts on health, and the need for more investigation on the effects of unreliability should be emphasised (Hunter et al., 2o10; Majuru et al., 2012). It is along this vein that this study sought to assess whether upgrading water supply systems in two small rural communities in Limpopo Province improved water service attributes of access, availability and portability, in light of reliability challenges. In answering this question selected benchmarks of water supply have been applied from the WHO and Department of Water Affairs (DWA) — the former for minimum access, availability and portability, and the latter for enhanced access, availability and portability.

2.5 Challenges experienced by authorities in water supply

South Africa is one of the slower countries in the implementation process and struggles over the redistribution of water resources (Warnera, 2008). The key challenges which are addressed in the monitoring of water quality for rural communities in African countries include contemporary times frame, with different political, social and economic settings, water pricing and charging and free-water supply. The proposed framework may be extended to design compact and highly

efficient sensor systems in the villages and important areas of national economic growth (Abdullar & Rakhmatullaev, 2015).

The time frame of the analysis is from the Middle Ages to contemporary times, with different political, social and economic settings in the framework of theory of transformative capacity of institutions' emergence of telecommunications in the last decade and advances in the field of instrumentation. These advances have enabled many new applications to be developed in particular for remote monitoring of physical environment by sensors spatially distributed.

The study has highlighted the nature of the problems experienced at the household level as being closely inter-related. While the respondents indicated that the local authority should take the main responsibility for addressing the problems, the results have shown that small and localized solutions may well contribute to a reduction in the risks in the local environment to which the poor, in particular, are exposed. Despite the large discrepancies between the rich and the poor, there is a strong infrastructure maintained by a competent local authority which can provide the basis for improvements in access to basic services so as to maximize the health benefits of urban living. What would appear to be needed is an innovative and creative approach to these problems to be adopted by households, community groups, officials, primary health care officials and the local authority service providers? These would typically include changed service delivery practice, changed household behaviour and health education around a range of issues, including use and maintenance of sewerage systems, indoor air quality, and water storage.

The study has also highlighted the need for certain national policies to be amended so as to more directly incorporate health concerns. This includes both the importance of the environmental health officer as part of the primary health care team and the need to promote health as part of the ongoing investment in public infrastructure. There are also grounds for concern about the standards of water delivery and the technical specifications which are not optimally health promoting. There is a need for housing policy guidelines and building support and advice in order to enhance health. The incremental improvement of informal housing, so as to reduce indoor air pollution, dampness, extreme temperature fluctuations etc., all of

which increase the chances of acute respiratory infections, should be given more attention as a short-term intervention. Ultimately, better housing for all remains a priority but without interim interventions, many avoidable child deaths will occur.

2.5.1 Payment for water

The issue of payment for services has been a major problem for most local authorities in South Africa. In this study people were asked what they currently paid for services and, for those using communal supplies, what they would be willing to pay for water at their home (Zaki & Amin, 2009). The local authorities' municipalities provide different payment rates, which differ by the regions and water use sector. The majority of non-payment occurs in rural villages, where there are many of the poorest households. There are also a substantial number of middle and upper middle wealth quintile households who do not pay for their water (Bland et. al., 2010). Some of the poorest households are in rural informal housing (villages), where the collection of payments for water has recently been regarded as impractical, but most of the middle and upper-income non-payment households would be in formal housing where water is metered.

Non-payment among these relatively affluent households probably reflects the so-called 'culture of non-payment' or the expectation that government should provide basic services such as water free. In answer to the question about what people were willing to pay for water on site (for those currently using a communal supply) the majority (77%) were willing to pay, although many qualified this with statements referring to the quality of the service. With the availability of 'regular' and 'reliable' supplies in water services delivery the majority of residents confirm willingness to pay, albeit for 'adequate services'. Only 23% were unwilling to pay for their water, the majority was from the middle income group. Monthly payment amounts are acceptable and low considering the relatively low volumes of water currently being consumed by these residents.

Mutale Municipality and Vhembe District Municipality (VDM) provide free basic water and sanitation to all indigent households. Indigents are defined as those households who are unable to make a monetary contribution towards basic services, no matter how small the amounts seem to be, due to a number of factors. The district has

Basic Water and Sanitation Service Policy (BWSSP) to manage the provision of basic water to the indigent people. The free basic water is 6kl per month per household. Mutale Local Municipality invoices the district their monthly free basic water expenditure (Mutale IDP, 2013/14).

2.5.2 Privatization and access to water by the poor

According to Mutale Municipality IDP, the majority of the households use boreholes as sources of water; however, these create health risks due to underground water which is not clean (Mutale IDP, 2013/14). In spite of the global priority, the built-in advantage referred to earlier and major efforts by many governments, access to water supply is still limited to the upper and the middleclass urban and rural population in many developing countries. This deficiency for the urban poor in the countries, the majority of whom live in informal (slum) settlements, is worse due to inability of the poor to pay for the service (Budds & Mc Granahan, 2003) and to access the service due to their quasi-legal or illegal tenure (Harwood, 1997; Jaglin, 2002).

2.5.3 Community protest in water services delivery

The protest wave in poor areas that is generally recognized to have started in 2004 has been attributed to failures in service delivery (Alexander, 2010). Whereas the exact configuration of grievances has varied from protest to protest and community to community, invariably, issues linked to deficits in service delivery have featured prominently (Booysen, 2007; Marais et al., 2008). Other grievances have included dissatisfaction with local councils and administrations who are accused of being unresponsive to the needs of citizens with councillors in particular standing accused of among other things, corruption and nepotism (Atkinson, 2007; Booysen, 2007; Alexander, 2010). Household surveys focus on demand for water supply services as viewed from the perspective of the population using or lacking such services. In this way, they complement the information provided in Evaluation 2000 and contribute valuable data on inequalities in access to, use of and expenditures on water at the household level (Bittner & Tavares, 2010).

2.5.4 Socio-economic conditions and geographical locations of the villages

Water-supply programmes consist of three essential components: technology, people and institutions. The interface of these facets determines whether a particular scheme is sustainable. The maintenance and operation of water-supply systems in rural villages and rural market centres varies with the geographical locations and socioeconomic conditions as core-operation and maintenance problems for drinking water sustainability are immensely different (Department of Water Affairs & Forestry, 2006).

2.6. Conclusion

The chapter provides evidence that water service delivery is a worldwide challenge. Incompetent staff and lack of proper water infrastructure are major determinants of proper water service delivery.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This chapter starts by describing the study area with its population and followed by an overview of the research method adopted for the study. It also goes further to describe the location of Mukondeni village, water service delivery in Mutale and analytical technique or approach used to analyse the questionnaires and interview guides for the variables that were considered in analysing the effect of water service delivery. It further elaborates on purposes of descriptive analysis and discriminant analysis presented subsequently. The categories for scoring are based on the interaction literature, specifically noting how water supply and service delivery interactions are conceptualized and measured within existing quantitative research. Water supply and service conflict scales incorporate items that represent water supply overlapping into service delivery.

3.2 Study Area

The present study was conducted in Mukondeni village, which is situated in the southern part of Mutale Local Municipality. It falls under Ward 4. It is a rural area which fully depends on primary sectors such as small-agricultural crop-plant, farming and small-scale development in market entrepreneurship. Mukondeni village is in Mutale Municipality within Vhembe District Municipality. Vhembe District Municipality is composed of four local municipalities i.e. Makhado, Musina, Mutale and Thulamela. Mutale Local Municipality covers 2 367.19 km² and its geographical location is: 22° 35´ S 30° 40´ E. The municipality is situated in the far north eastern corner of the district. Mutale Municipality shares its borders with Musina Local Municipality and Zimbabwe on the North, Mozambique on the East, Makhado Local Municipality to the west and Thulamela Local Municipality to the south. The Municipality is accessed through R525 road linking the Kruger National Park to the other local four municipalities within Vhembe District. It can also be accessed through P277/1 linking Thohoyandou.

Mutale Local Municipality has a total population of 91 870 people in 13 wards (Stats SA; 2011)**.** The large part of the population consists of the rural population between

the ages of 15 and 65 years and is mainly dominated by women. Most of the men migrated to seek employment opportunities outside Limpopo Province. Mukondeni village has about 200 dwelling units on a separate stand or yard and about 500 people (Mutale Local Municipality IDP, 2013/14).

According to StatsSA (2011), the total population growth of Mutale Municipality has increased by 9214 (11%) since 2001. This means that the households rose by 5700 from 2001 to 2011. This can also imply that the households are increasing albeit at a low rate. The households per ward in Mutale Municipality show that all the wards are dominated by tribal or traditional areas. The total number of households in Mutale Municipality according to census 2011 is 23 751.

The Table below shows the population size for Mutale Local Municipality per ward; the biggest population size in terms of statistics is Ward 5 with 9217 people. This Ward is on the periphery of the urban area. According to the 2011census, Ward 8 is the smallest with a population size of 5359. Ward 4 is the fifth lowest in population size with 6442 inhabitants.

Table 2: Population size per wards in Mutale Local Municipality Mutale: 9187

93402001: Ward 1	6,535
93402002: Ward 2	6,994
93402003: Ward 3	7,380
93402004: Ward 4	6,442
93402005: Ward 5	9,217
93402006: Ward 6	6,206
93402007: Ward 7	6,405
93402008: Ward 8	5,359
93402009: Ward 9	8,133
93402010: Ward 10	6,064
93402011: Ward 11	8,430
93402012: Ward 12	8,311

Mutale Local Municipality gets its water supply from Vhembe District Municipality (VDM), which is a Water Service Authority, and it is water service provider's responsibility to ensure that all the communities within the municipality are well supplied with clean bulk water resources (Mutale Local Municipality IDP, 2013/14).The development for this community means the improvement of their current standard of living with better services delivery. The IDP of Mutale Local Municipality provides clear guidelines for Mutale Municipality to:

(i) Introduce by-laws which guide the provisioning of water services in terms of the Water Services Act, 108 of 1997, and the relevant local government legislations such as the Municipal Systems Act, 32 of 2000, aimed at ensuring sustainable environmental health in the process of water service delivery.

(ii) Give comprehensive attention to the development and maintenance of a proper portable water supply and sanitation infrastructure in Mutale in an effort to prevent potential future of unclean water and diseases such as cholera.

The Department of Water and Environmental Affairs' (DWEA) Drinking Water Quality Framework provides the basic requirements for clean drinking water (RSA, 1997). Safe drinking water that complies with minimum drinking water specifications is crucial for the maintenance of human health over a life time of consumption. If the residents are provided with clean drinking water, it will undoubtedly improve local livelihoods and safeguard the community from exposure to water diseases.

The sources of water in Mutale are two rivers: Mutale River and Nwanedi Lupepe. Groundwater is a very valuable source of water; however, borehole yields and groundwater monitoring are problems in the district. The underground water provided to the communities is not clean and puts the majority of the residents under the risk of getting waterborne diseases such as cholera.

3.3. Research methodology

The research methodology and design adopted are supported by the literature review. The constructions of the research instruments (questionnaire, interview schedule, checklist etc.) are justified. The pretesting of the instruments in order to establish their validity and reliability are discussed.

3.3.1 Research design

The study adopted both qualitative and quantitative research approaches for data collection and analysis. Qualitative measures provide information on how households feel about the situation, how things are done and how people respond to an intervention (Dane, 1990). The study further used the qualitative approach to describe the nature and types and status of water that rural households use in the village, the effectiveness of strategies which are adopted by the authorities in making water available to the community and also to describe the level and consistency of water supply to the village. It is also used to assess the households' conditions of living, that is, their social, environmental and economic situation. Degrees of conceptual levels of water services delivery created in this study include, low, moderate and high. These levels are determined on the basis of a relevant system of ideas in the literature, as well as by the judgment made by households regarding their situation and the risks they face when using unclean water.

Quantitative methods provide the answers to the question: "How much and how many" and the results thereof are expressed in absolute numbers, percentages and ratios. The quantitative approach is used after the collection of data to analyze and interpret the data in terms of statistical values (Dane, 1990). The study adopted a quantitative approach to create records of the demographic profile on different households; and the frequency of change after households adopted some of the alternative water resources. The quantitative approach is also important in determining the proportion of households that are exposed to various types and status of water in the village, and also the amount of water supplied to the village either weekly or monthly.

3.3.2 Population of the study

The population of the study was made up of key informants, including community development members or leaders and workers, civic members (groups), Forum Members of Mukondeni village and Mutale Water supply Plant manager together with its workers. Mutale Local Municipality officials were surveyed using the snowball sampling method, so as to have as many key informants as possible.The study used primary data that were collected using a standardized questionnaire with questions that addressed water service delivery in Mukondeni village. The following aspects or

items were used to analyse the proposed study of the authorities responsible for water services delivery in the area: the officials in Mukondeni village, the types and status of water resources available in the village; the effectiveness of the authority in making water available to the village and the challenges faced by the authority responsible for water supply in the village.

3.3.3 Sampling method

Since it is generally impossible to study an entire population in the study area, the study relied on sampling procedure to acquire a section of the population to participate in the study. Dane (1990) refers to sampling as the process of selecting participants for research project. Self-selection sampling was used based on the responses and those interested in participating in the study and were invited to do so. The advantage of using sampling is that a researcher's collection of data using informants is less time consuming and less costly, and it is the only practical way to collect data when the population is extremely large. This decision was based on the calculation of the costs involved in the specific focus group. Therefore, the sample was made up of six Mutale Water Supply Plant workers and four councillors in Mukondeni village sampled through convenient sampling method in their places of work. Eight household members responsible for fetching water daily for domestic consumption were sampled through convenient sampling method at the water resources.

3.3.4 Data Collection method and analysis

Data were collected from the household members with a structured questionnaire. In-depth interviews were conducted with municipal water workers and the Mutale Local Municipality councillors. Textual secondary data were collected through literature review, desktop approach or study was employed. Primary or factual data were collected through a structured survey questionnaire and interviews. Qualitative data consist of narrative description which was obtained in qualitative inquiry. The data are detailed and rich, and include information about personal experiences, beliefs, perspectives, or situations relevant to the study. Qualitative data provide a high level of information to assist in decision-making. Data from households or participant members were collected through an assisted questionnaire (Appendix A). The field worker assisted the respondents in answering the questions. This decision

was made because of the high rate of illiteracy in the village. Interviews (Appendix B) were conducted with six to twelve key informants, including community development workers, to allow an open process of probing.

The output of the study is interpreted in accordance with the qualitative narration that was compiled from key informants' group and household's or community group member's respondents. From the interpretation, it was possible to determine whether the various risk (health) and level of satisfaction both in Mutale water services delivery officials and local-rural village residents in Mukondeni Village and surrounded area are increasing or decreasing their level of water services delivery to poor or better life for all.

3.5 Conclusion

For the purpose of this study the local village of Mukondeni, under the jurisdiction of the Mutale Local Municipality, Vhembe District of Limpopo Province, was identified as a case study. The current state of water services delivery at Mukondeni has a negative impact on the health of the local residents. As a result of the inconsistent water supply service, local residents have no other choice but to drink contaminated water from the nearby Mutale River. This, in recent times, has had the consequences of serious diseases such as cholera, diarrhoea and typhoid having eroded the health of local residents (Hinsch, 2009).

CHAPTER 4
STUDY RESULTS

4.1 Introduction

This chapter outlines the results of the thematic approach. Subthemes, frequencies and cross tabs were used to compute relevant variables which help address the issue of water service delivery in Mukondeni village. The purpose of this chapter is to present and interpret the empirical findings of this research. In interpretation, the immediate results are translated into integrated and meaningful statistics and findings (Nieman & Nieuwenhuizen, 2009). The findings are proved to be related to the objectives of the research. The success of this study is assured through both data analysis and interpretation.

4.2 Demographical information

4.2.1 Gender of the study sample

There was a need to determine the gender of the respondents in order to enable the researcher to make demographic inferences concerning the use of water in the study area. Figure 1 shows the gender of the respondents in terms of water usage.

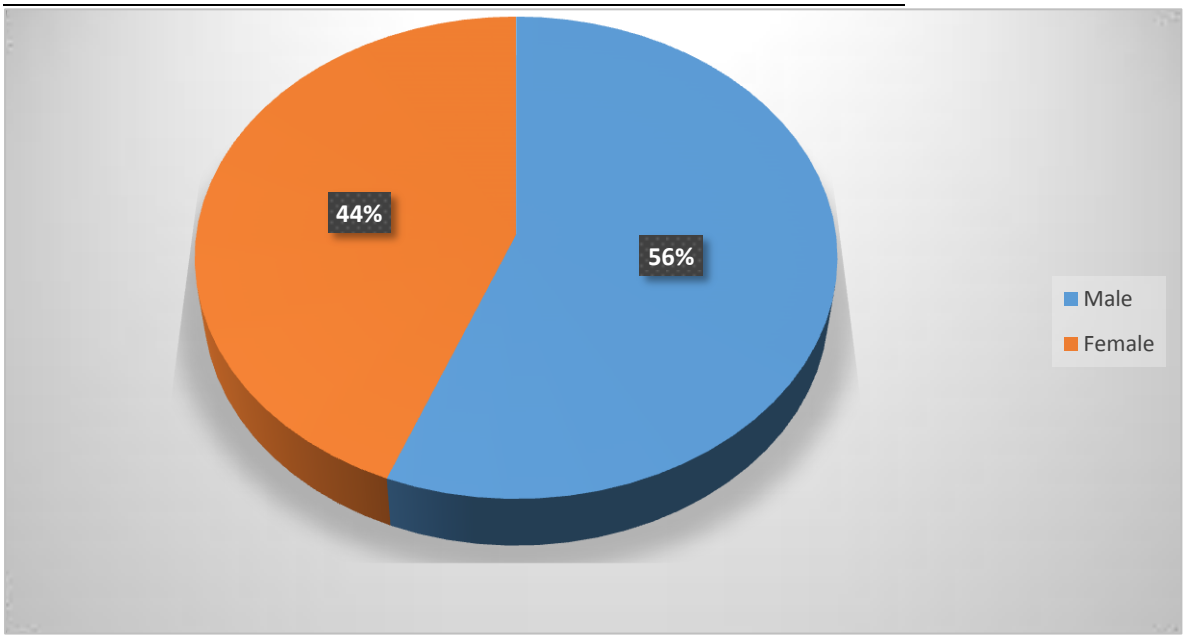

Figure 1. Gender of the respondents per household

The above figure shows the gender of the respondents. In a sample of 50 households, 28 respondents (56%) were male while the remaining 22 (44%) were

female.There was a need to determine the gender of the respondents in order to enable the researcher to make demographic inferences concerning the respondents.The results thus indicate that females are much more users of water than males, although both individuals need water in their daily life.

4.2.2 Respondents' occupation

The Table below indicates the respondents' occupation status as these individuals are in a position to give a true picture of the trends of the water services delivery performance of their municipality.

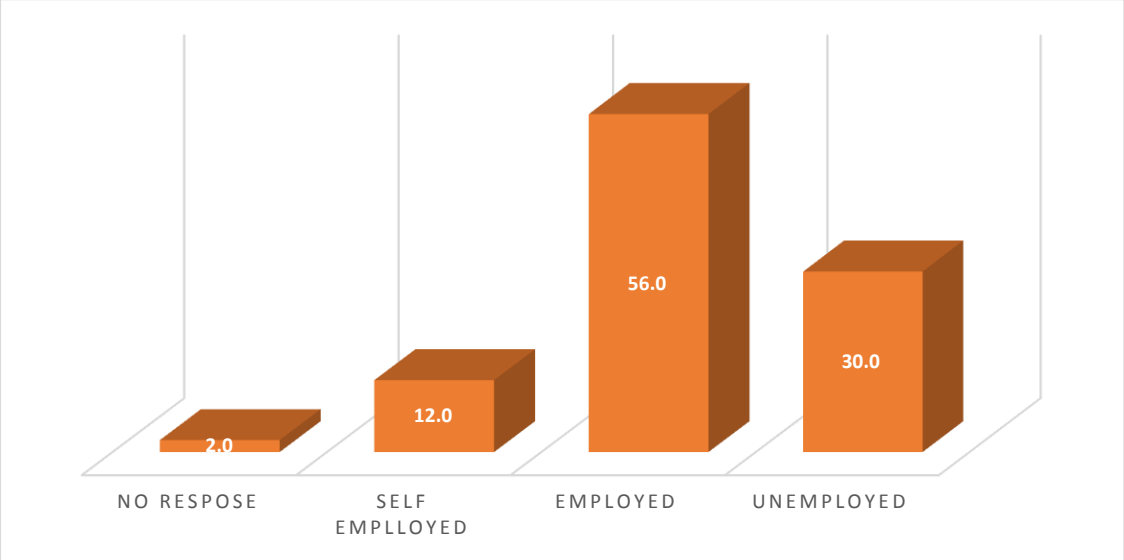

Figure 2. Respondents' occupation

The graph above shows the occupation status of the respondents. Out of the 50 respondents, 6 (12%) were self-employed. While 15 (30%) of the respondents were unemployed. Only 1(2%) respondent did not provide any response about his or her occupation. Twenty-eight (56%) of the respondents are working class individuals.

4.2.3 Education level of the respondents

It is important to determine the educational level of the respondents, that is, respondents who do not have any school qualification, those with secondary level, tertiary level and post-graduate level.

Figure 3. Respondents' education level

The figure above shows the education level of the respondents. In a sample of 50 respondents, 1 respondent (2%) did not go to school at all. A total of 12 (24%) had secondary qualification and 25 respondents (50%) obtained tertiary education. Twelve respondents 12 (24%) had post-graduate qualifications.

4.2.4 Age of the respondents

This study targeted all age groups in the village, i.e all people who use water in their daily lives. This was mainly because these individuals are in a position to give a true picture concerning water services delivery.

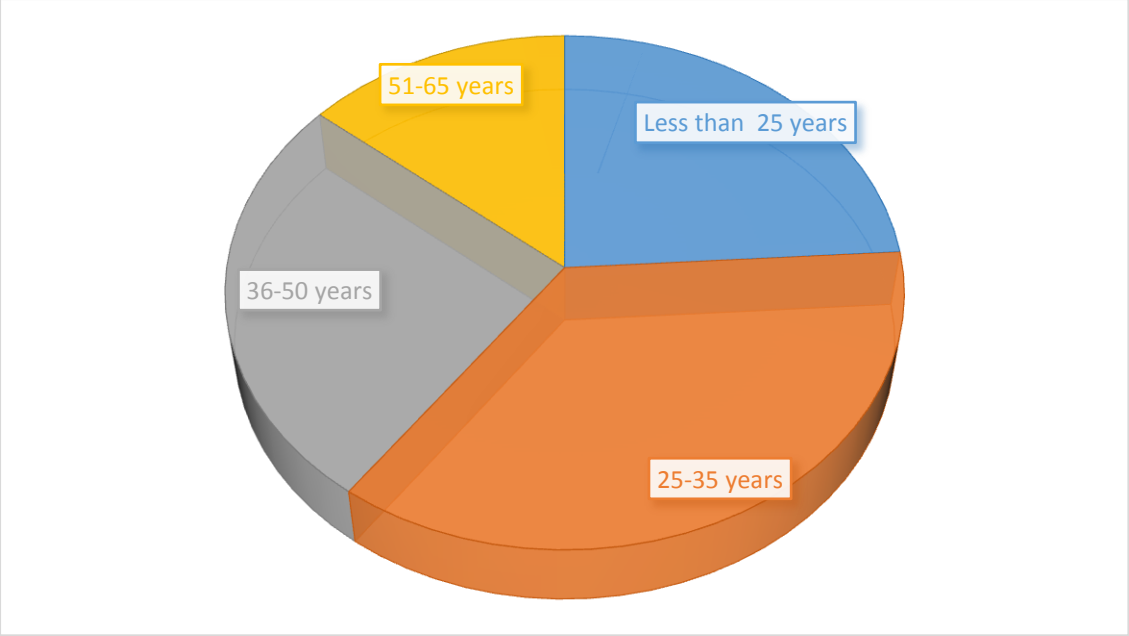

Figure 4. shows the age categories of the respondents

The chart above shows the age of the respondents. Twelve (24%) of the respondents are less than 25 years old, while 18 (36%) of the respondents belong to the age group of between 25 and 35 years. Thirteen (26%) of the respondents are between 36 and 50 years. The remaining 7(14%) are aged between 51 and 65 years.

4.2.5 Marital status of the respondents

Table 3. Marital status of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
	Single	25	50.0	50.0	50.0
	Unmarried	3	6.0	6.0	56.0
	Married	21	42.0	42.0	98.0
	Divorced	1	2.0	2.0	100.0
	Total	50	100.0	100.0	

The Table above shows the marital status of the respondents. In the sample of 50 respondents more than half 28 (56%) were single. The other respondents, 21(42%), were married, while only 1(2%) was divorced.

4.2.6 Full-time or permanent resident of Mukondeni

Some of the respondents live in the village as permanent residents and some are non-permanent. The majority of the respondents 36 (76%) were full-time residents, while 12 (24%) were non-permanent residents.

Table 4. Permanent and non-permanent resident's respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	76.0	76.0	76.0
	No	12	24.0	24.0	100.0
	Total	50	100.0	100.0	

4.2.7 Respodents' family size

Some families have a small number of members, while others are large families. The number of members in the family necessarily affects water usage.

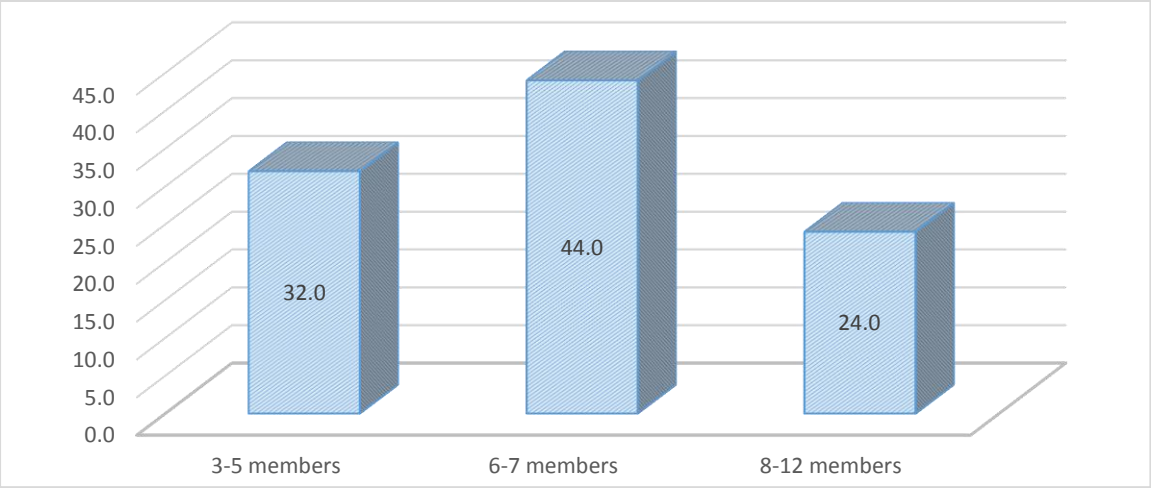

Figure 6. The number of the family members

Most community members have large families, ranging from 6-7 people in each household, constituting 44% of the respondents. Thirty-two percent (32%) of the members in the households per family are between 3 and 5 members. Only 24% of the households have the largest numbers of 8-12 members in the family.

4.2.8 Source of water of the villager

There are many ways or sources in which the villagers can obtain water for drinking, cooking, washing and other uses even though this water is unclean. The sources include water from the river, boreholes, rainfall and pipelines from the neigbouring villages.

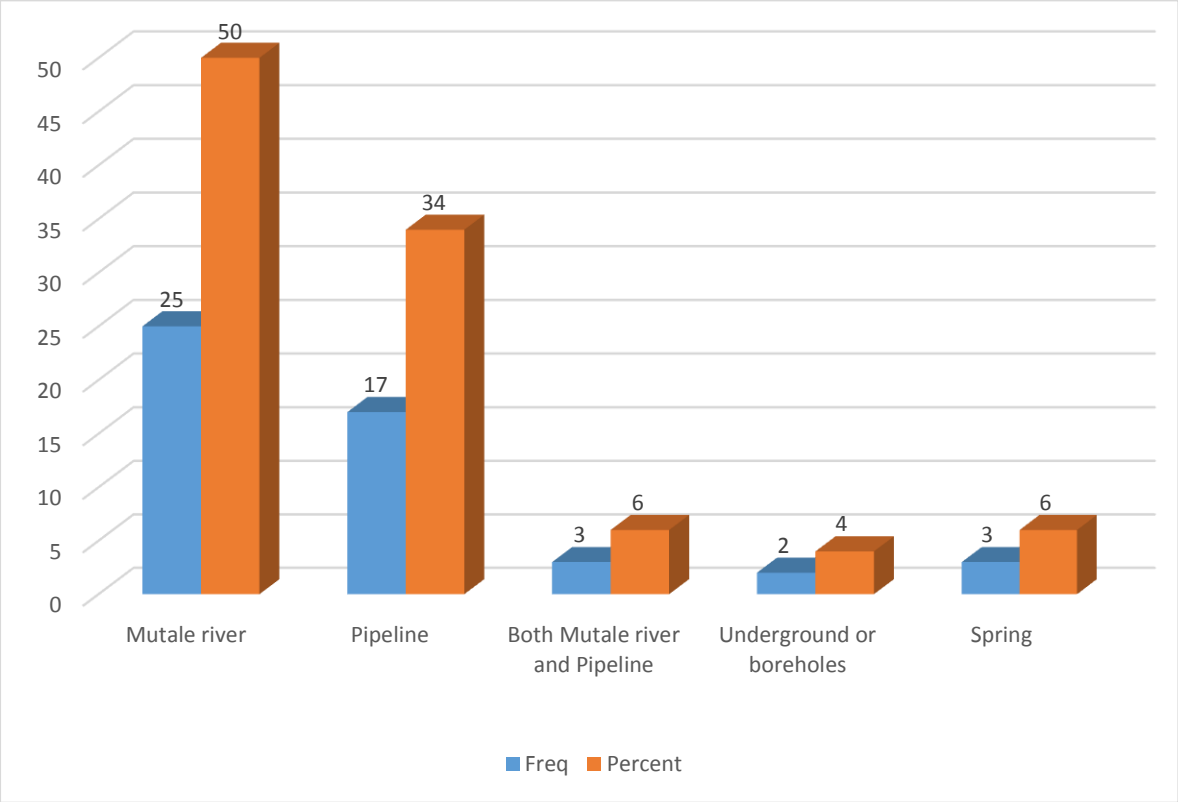

Figure 7. The main source of water supply in the village

Half of the respondents, which is 25 (50%) of the respondents indicated that their main source of water was from Mutale River which is nearby and 17 (34%) of the respondents got their water from the pipeline; with 3 (6%) saying they got water both from the river and pipeline, while 2(4%) sourced their water from boreholes or underground water. The other 3 (6%) source their water from the spring or use rain water.

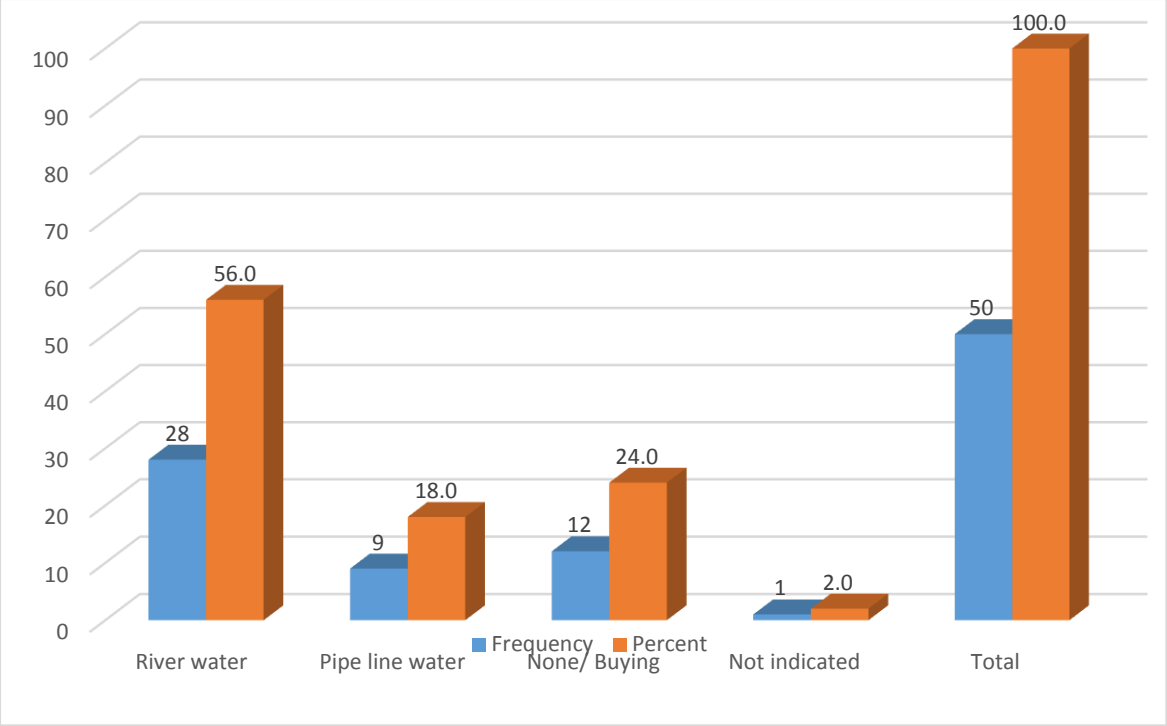

Figure 8. Alternative sources of water supply in the village

The above figure shows that the majority of the community members get their alternative source of water from the river. This is supported by the pictures below taken by the researcher showing the villagers fetching water from the neighbouring villages. The majority of the respondents, 28 (56%), indicated that their alternative source of water came from Mutale River. Only 9 (18%) of the respondents said that their alternative source of water was from the pipeline. Some of the respondents preferred to buy or hire a car to fetch water from the surrounding villages, which are Maheni and Mangaya. The pictures below show hired cars which villagers use to fetch water.

Picture 1. The villagers of Mukondeni fetching pipeline water from Mangaya village.

Picture 2. The villagers of Mukondeni in a hired car fetching water in Maheni village

4.3. Theme 1: Responsibility of water services delivery in Mukondeni village

This subtheme indicates the responsible parties for water as a service to the Mutale municipality. Most respondents identified Vhembe District Municipality as a responsible body for water supply. For example, few councillors indicated a technical manager as the person responsible for water service delivery.

4.3.1 Responsible workers

This subtheme draws mixed reaction in the analysis. For example, one Mutale Municipality worker and community members said, workers were not doing enough to make sure that water was always available to all areas. While others said it was doing enough to supply water. On the other hand councillors said “responsible workers are doing well”.

4.3.2 Water supply

This subtheme like the second one draws different responses, too. For example, community members believed that the Mutale Municipality was not providing sufficient water while the municipal workers believed it was supplying water. Councillors believed that the municipality provided sufficient support in water supply.

4.4 Theme 2: The competency of the authority in making water resource available to the village

4.4.1 Water resource planning

This subtheme was more on the municipal workers and authorities. Councillor’s stressed that the municipality was planning to erect boreholes to bring effectiveness in water supply, while municipal workers argued that the municipal authority was planning to upgrade the water scheme to bring effectiveness.

4.4.2 Water complaints

This subtheme shows whether the municipality received any complaints from the communities. Municipal workers and community members said that they sent complaints and the municipal supplied them with water brought to them by trucks. *Imbizos* and IDPs were suggested as ways and forums to communicate.

4.4.3 Maintenance of pipelines and service delivery satisfaction

Under this subtheme both the municipality and community members showed that the villages were not satisfied with the water services. Community members of Mukondeni village were worried with the poor maintenance of the pipelines. Picture 3, which was taken by the researcher shows that the street pipelines are not maintained. Some of the respondents indicated that the municipality did not care about water services delivery in the village.

Picture 3. Poor pipelines maintenance in Mukondeni village

This subtheme was more on the municipal workers and councillors. Municipal workers argued that “the municipality is busy with the upgrading of water schemes”. While the other municipal worker said “There is an operator busy with the maintenance”. On the other hand, councillors showed that Vhembe District Municipality was responsible for maintenance.

4.5 Theme 3: The types and status of water supply resources available in the village

4.5.1 Types of water services

This subtheme shows the types of water services delivered to the villages by the municipality. Municipal worker, councillors and community members said that they used water tanks to deliver and get water. The current water projects that the Mutale Local Municipality has completed are the construction of a weir on Mutale River to augment the raw water quantity, increasing pipe capacity from 200mm to 400 mm diameter to convey more water from the weir to the water treatment plant. These improvements and changes in the water treatment plant from slows and filtration to rapid sand filtration system increase the capacity to 3.6 from 2.5 mega litres a day.

4.5.2 Water supply pattern

This subtheme shows the pattern of water services supply delivered to the villages by the municipality. One municipal worker said that they use trucks to supply water

when there is shortage. There were mixed opinions on the community members' views. Some said that the municipality does not care. Others said there was no pattern and at times they supply water when there are funerals. A worrying comment was from one councillor who said, the municipality supplies water to Mukondeni village once a month.

4.5.3 Improving water supply

This subtheme shows what the three participants think must be done to improve water service delivery. One municipal worker said that "resources need to be increased". The villagers said the municipality needed to "fix and maintain water supply infrastructure". Councillors showed that there was a new development stage of "RDP houses with running water pipes".

The problem experienced at Mutale Local Municipality was that the residents were not paying for water services. This may be compounded by high unemployment and a few income earners with a regular income (Mutale Local Municipality IDP, 2007).

4.6 Challenges or problems experienced by the authority in ensuring consistent water supply to the village.

4.6.1 Problem faced

This subtheme shows the problem faced by all three participants. Another municipal worker said that lack of resources is a very big problem. The villagers said the municipality need to "communicate water supply patterns. They also said that "there is irregular delivery of water. Councillors were divided in this subtheme. For example, few showed that there was no problem while others stressed that communities had water service delivery problems.

4.6.2 Addressing problems

This subtheme shows how all the participants resolve their problem of water supply. A municipal worker suggested that "By having some additional technical staff", engaging ward councillors and tribal authorities it would be possible to find lasting solutions. One councillor suggested that community members needed to be educated on how to save and use water efficiently.

4.6.3 Role of villagers

This sub-theme shows the role that community members must play to resolve the problem of water scarcity. Few believe there is nothing they can do to resolve the problem. Municipal workers said the problem needed to be reported to the highest authorities. The councillors said that community members must “erect boreholes and store water in tanks and they must also advise the municipality on the water challenges.

4.7 Ethical considerations

Informed consent was sought at the beginning of the study. In addition, the respondents were asked to answer the questionnaire only to the best of their knowledge. There was no pressure to get them to respond to the questions posed.

4.8 Conclusion

This chapter presented the research findings. The objectives and the hypotheses were revisited. Data were analysed using the Statistical Package for Social Science (SPSS 16.0) software. The methods used to analyse data were also explained. The hypotheses were tested, and conclusions drawn. The next chapter presents discussion of the study findings, draws conclusions and highlights areas that still need further research.

CHAPTER 5
DISCUSSION, CONLUSION AND RECOMMENDATIONS

5.1 Discussion

This chapter reviews the interpretations of the study findings. Furthermore, it draws some recommendations from the empirical results and also lays forward recommendations for further research and policy implication in the water service delivery at the local municipal level. This chapter is presented in three sections. The study is summarized in section 5.1 where the findings of the study are discussed, section 5.2 presents the conclusions drawn from the key findings and section 5.3 presents the recommendations of the study. The general objective of the study was to explore water service delivery in Mutale Local Municipality in Vhembe District located in Limpopo Province. The study applied a thematic approach to answer the research questions. The themes showed different findings to support water service delivery in Mukondeni village.

5.1.1 Demography information

The demographic data of the study area is important since these figures may be used for future planning and projection. The determination of the demographic data is not only unique to this study. For example, a case study in Iquitos City, Peru had to grapple to determine the actual number of residents in the city (Fujita et al., 2005).The study showed that 86 per cent of the respondents were heads of households and only 14 percent were not. The study showed that 44 percent females were heads of households, while 56 percent were males. The households of Mukondeni village had on average of five members in their family. The owners of such houses were regarded as permanent residents of Mukondeni village since their names were in the community citizenship register (Mutale IDP, 2013/14).

Some households had no members living there as these had gone to other provinces on account of work, schooling and tertiary studies. Members of some households were there but the whole family was absent. The husbands only stayed there for work purposes only to go to their respective rural homes over the weekends. The owners only returned home during holidays, but a relative or domestic worker stayed in the household.

The differences in the number of members in each household may be due to the following reasons: In African culture married women are submissive to their husbands as the husbands are the recognised household heads (Tshesane, 2001). The husbands engage in migrant work far away in the big cities and come home during the holidays (Collinson et al., 2006); or child headed households and also single mothers may become head of the household (Keith, 2002).Nevertheless, the prime advantage for female headed household is the high awareness about water uses in the household, location of water sources and daily collection of drinking water (Arouna & Dabbert, 2012; Mezgebo & Ewnetu, 2015).

5.1.2 Comparison of gender and level of education

Figure 1 and Figure 3 (page 32 and 34 respectively) shows the cross tabs of gender and educational level respectively. The chart for gender and figure 3 for level of education of household members shows the cross tabs for gender and level of education. Both males and females were represented and had different views regarding water services delivery. The villagers contribute in the use of water in different ways in their daily lives. This practice can hamper sustainable water supply in the village.

Marked effects significant p = 0.05

Chi-square	1.40
P	0.496
Df	2

The Chi-square test shows if there is a relationship between two categorical variables. The p value must be larger than the cut off value of 0.05, which implies that in this case there is no statistically significant difference between level of education and practice which can hamper sustainable water supply.

5.1.3 Comparison of occupation and the age of the respondents

Figure 2 above shows the cross tabs for occupation and figure 4 shows the age categories of the respondents. Across self-employed, employed and unemployed showed different ratings. Within those who are self-employed none of the

respondents rated the service as poor. The employed rated the services across all three scales. The unemployed did not deem the service as either moderate or good.

Marked effects significant p = 0.05

Chi-square	0.80
P	0.096
Df	1

The Chi-square test shows if there is a relationship between two categorical variables. The p value must be larger than the cut off value of 0.05, which implies that in this case there is no statistical significance between transport cost and any measures which can be taken. The exact procedures for analysing the data, and the computer programmes used, must be specified. The research findings must be related to similar or different findings reported in the literature review. It is essential that the discussion of the research findings should not only relate to the literature review, but should also indicate correlations or contrasts in findings obtained in response to different questions. Any unexpected findings should be recorded as such, and possible explanations should be provided, if possible.

5.1.4 The authorities responsible for water services delivery in the Mukondeni village

Vhembe District Municipality is responsible for water supply together with their technical staff or manager. The provincial government and district municipality had failed to keep rural water supplies functioning properly, as it had not provided sufficient on-going support (Algotsson & Murombo, 2009). The Mutale Local Municipality and Water Department admit that they are not providing water services to Mukondeni villagers to their satisfaction. The administrative, technical capacity and support staff members in water services need to be strengthened. The administrative system should be accessible and receptive to the public or community as a whole (Smith & Green, 2005).

5.1.5 The effectiveness of distribution of water by the authority in the village

It is important to outline how regulations in the water sector works in South Africa. The DWA regional offices regulate municipalities within the provinces where they are situated, exercising authority on non-partisan lines. At the local level, a Water Service Authority has oversight over a Water Service Provider directly responsible for local operations. The Ward Committee has direct oversight over water services, raising any concerns with its mayors and ward councillors. The Mutale Local Municipality provides track tankering water supply system to the village, thus ensuring that there is access of water services for the basic needs such as water for drinking, cocking and washing or doing laundry (Howard & Bartram, 2003).

In practice, administratively, this division of labour has not worked. Local regulation in water services has been weak because municipal water departments are both referee and player at the same time. Politicians, Ward committees and Ward councillors have become rife with patronage and are often insufficiently knowledgeable about water issues to adequately express matters raised in their constituencies at the city council level (Smith, 2011).Some of the respondents raised concerns about the hiring of qualified and knowledgeable workers in water services delivery department.

5.1.6 The current main source of water supply in the Mukondeni village

The Department of Water Affairs (DWA) is mandated with managing and protecting the country's water resources, with the National Regulator responsible for systems of accountability. The finding shows that the majority of the population obtains water from the river and their alternative source of water comes from the pipelines in the neighbouring village. They hire cars to transport this water. Figures 4.1 and 4.2 show the villagers of Mukondeni fetching water from the neighbour Mangaya and Maheni villages respectively. The communities of Mukondeni village are dissatisfied with the state of water service supply / delivery in the village. They end up getting their water from Mutale River. Since this water is untreated, it is a health risk.

5.1.7 The challenges experienced by the municipality authorities and water services department regarding consistent water supply to the village

Mutale Local Municipality faces the challenge of supplying water services as there is an increase in population just like any other municipality in South Africa. The current

challenge in Mukondeni village is inadequate capacity supply levels of quality water and illegal connections on supply pipelines. Some of the challenges are depicted by pictures 1, 2 and 3. There is concern from Mutale water services workers about illegal pipelines connection by community members of Mangaya and Maheni. It is also accompanied by the lack or poor water monitoring system and inefficient control of the pipelines and plant valves. Illegal connection results in low pressure of water supply on the main pipelines.

5.2. Conclusion

The study sought to assist Mutale Local Municipality in finding the reasons why the residents were not satisfied with the level of water services delivery, suggesting ways to persuade the local municipality, water services workers (Vhembe water workers), traditional leaders (headmen), the community or residents to address the challenges, and raising the community's awareness to the advantages of dealing directly with the water services. The study was designed to evaluate the community's satisfaction with the current water supply services, source of water, challenges experienced by the municipal authorities in providing water consistently to Mukondeni village and the type and status of water resources available.

The DWAF (2012) promulgated a minimum level of water supply of 25 litres per capita per day, which the local authorities are expected to provide to their residents without the residents incurring any costs or paying for the water charges within 200 m from their homes. The free basic water supply is water supply that is subsidised by Mutale Local Municipality and any consumption above the free water 25 litres per capita per day attracts payment by the consumer (Mutale Local Municipality IDP, 2007). Local Municipality Priorities and Target per Cluster of the municipalities must directly get involved the daily lives of the communities as they are the ones who serve them. Therefore, they have an obligation to develop a culture of participatory governance to encourage and empower local communities to participate in the affairs of their authorities (DPSA, 2004/5).

DWA also developed Build-Operate-Train-Transfer (BOTT) and Project Implementing Authority (PIA) as a means to construct new infrastructure, train and facilitate the local government and communities in the management process. PIA

provided various types of operation and maintenance support to the local government. Water treatment system and process controller classification as per requirement of Regulation needs to be finalized on BDS (Limpopo Municipal Blue Drop Assessment, 2011).

5.3 Recommendations

Based on the research findings, Mutale Local Municipality should introduce the reallocation of water services department, launch awareness campaigns together with monitoring and maintenances systems in water services delivery. The municipality should also have one main pipeline; this will lead to an improvement of water services delivery. It is also important to introduce meter system charges or adopt a business model when it comes to households or stand taps. The systems will discourage the misuse of water, at the same time meeting the standard of free basic water needs for the indigents. Generally, the following could be the proposed solutions to improve water service delivery capability.

5.3.1 Reallocation of the water services department

The municipal authority and the Mutale water workers should jointly work together as a single municipality, rather than the current situation where Mutale water services departments are controlled by Vhembe District Municipality. This creates a long channel of communication between the municipal authority, water workers and end-users of water in general. Equally this causes unnecessary delays when the community members report poor water services supply. Direct communication must be established between the Mutale municipality and the community or end-user of water. The provision and maintenance of water services should also be done by Mutale Local Municipality rather than Vhembe District Municipality.

5.3.2. Awareness campaigns

The municipality should also conduct public meetings at the end or beginning of each year to get the respondents' report on their performance on water supply services in the previous year. Such an exercise can bring qualitative improvement as people will discuss pertinent issues related to the supply of water, thus collectively seeking new ways of managing the situation. Accurate data on the demography of the study area is important since the figures may be used for future planning and

projection in maintenance and service delivery. It is important for the support groups or participants to become accepted members in principle for the local municipality and organizations in government programmes.

Public participation and co-operation with Mutale Local Municipality authorities is necessary. This will encourage effective and efficient provision of water services delivery. It implies democratic participation of citizens in elaborating or implementing water policies and projects as well as managing water resources (Orange & Rijsberman, 2000). The method intends to raise the ability of the public premised on the assumption that people need to understand how services work and how to interface with their councils. The 'Citizens' Voice' process has helped create knowledge and procedures to ensure that beneficiaries are able to hold to account those who deliver services if they fail to comply with existing standards. In particular, the user platforms provide a way for the public to raise structural issues and to support local ward councillors to express local grievances through the ward committee structure.

5.3.3 One main pipeline from the plant to the villagers

The municipality or water section department should install or used one main pipeline connection, rather than two different water supply pipelines from Tshandama dam to the villagers. The connection of the water taps in their yard, must be accompanied by the meters in all of their households. The introducing of the prepaid water supply system can lead to efficient usage of water to all villagers; the households should pay for the amount of water they use in their household. The reconstruction of one main pipeline from Tshandama dam or main source of water supply in the Mutale Local Municipality will bring efficient and affective water usage. It will also have in place better monitoring system of water services.

5.3.4 Adopt a business model for water services delivery

Water services delivery units or departments must be structured on good business principles. This implies a properly staffed organization that includes all the skills and experience required for the effective management and operation of the service, covering both the technical and financial responsibilities. Councillors have an

important role to play in this organization, being the equivalent of the board of directors.

5.4 Overview of research findings

The municipality has initiated developmental projects that are aimed at increasing the quantity of water (Mutale Local Municipality IDP, 2007). The current water projects that the Mutale Local Municipality (MLM) has completed are the construction of a weir on Mutale River to augment the raw water quantity. It has increased pipe size from 200mm to 400 mm diameter to convey more water from the weir to the water treatment plant and has changed the water treatment plant from slows and filtration to rapid sand filtration system with the capacity of 3.6 mega litres a day. Further, it has constructed two additional water reservoirs with a combined capacity of 13 mega litres.

Many rural households do not have private water connections and, thus, are forced to travel a distance or hire cars to collect water from neighbouring villages public taps, springs (rainfall) and Mutale River (MLM IDP, 2007). However, there are some rural households that own private water taps that are connected to the main municipal water distribution system and shared with the neighbouring villages. The Water Safety Plan needs to improve in order to cover all the supply systems. Other aspects requiring improvement include a more thorough assessment of risks, a risk prioritization method and various treatment systems in final water has to be conducted to avoid all contaminant possibilities. Without management support and availing of budget, DWQ management services will never adhere to all the requirements of satisfactory performance (Smith & Green, 2005).

5.5 Areas for further research

Many policy-makers, researchers, and water managers advocate that water must be managed at the level of river basins, based on the argument that river basins are a natural unit and the logic unit for water management (Newson, 1997). There may be some value, in the use of Mutale River water supply as alternative water source.

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Appendix A

QUESTIANNAIRE FOR THE PROJECT: WATER SERVICES DELIVERY IN MUKONDENI VILLAGE IN LIMPOPO PROVINCE

I am Lidzani Lucas Netshipale, a Master of Development Studies student in the Turfloop Graduate School of Leadership (TGSL) at the University of Limpopo. I am conducting research into water services delivery in Mukondeni village in Mutale Local Municipality in Vhembe District Municipality in Limpopo Province. This research will be used for academic purposes only. Please be assured that the responses from the respondents will be kept confidential. If you need any assistance in answering the questions, please do not hesitate to ask. Your cooperation and participation in this research and answering questions honestly will be greatly appreciated.

Thank you in anticipation for your cooperation.

A. 1.1. Demographic information

1. Gender of the respondent

Male	1
Female	2

2. Occupation of the respondent

Water services staff (general employee)	1
Senior staff employee	2
Management staff	3
Mayor or councillor	4

3. Level of education

No schooling at all	1
Primary level	2
Secondary level	3
Tertiary level	4
Postgraduate education	5

4. Age of the respondent

Less than 25 years	1
25 35 years	2
36-50 years	3
51- 65 years	4
Greater than 65 years	5

5. Marital status of the respondent

Single	1
Unmarried	2
Widowed	3
Married	4
Divorced	5

6. How long have you been working in this section or municipality?

0-10 years	1
11-20 years	2
11-30 years	3
31- 40 years	4
41- Until now (entire life)	5

7. What is type of employment do you have in the Mutale Local Municipality?

Permanent employee	1
Contract employee	2
Part-time employee	3

B. **Theme 1**. The authorities responsible for water services delivery in Mutale Local Municipality.

1. Who is responsible for water services delivery in Mutale Local Municipality?

2. Are the responsible worker(s) doing enough to make sure that water is always available to all areas?

3. Does the municipality provide sufficient support in water supply to the villages?

4. What are the monitoring measures for the authorities who are responsible for the provision of water services?

Theme 2. The competency of the authority in making water available to the village.

1. What is the kind of planning on the part of the municipality authority which can bring the effectiveness of water services delivery?

2. Does the municipality receive compliance from the community regarding water services delivery? And how do they respond to them?

3. Are community members satisfied with the water services supply?

4. Does the municipality have any maintenance schedule on water services delivery? If yes, how does it work?

Theme 3. The types and status of water supply resources available in the village.

3.1 What type of water services does the municipality provide to the community of Mukondeni village?

3.2 How often does the municipality supply water to the villagers?

3.3. What should be done to improve water supply in the villages?

Theme 4. Challenges or problems experienced by the authority in ensuring consistent water supply to the village.

4.1. What are the main problems the Municipality faced in the different villages of Mutale in terms of water supply?

4.2. How are the problems addressed?

4.3. What is the role of the village authorities in addressing the problems?

4.4. Is there anything that the municipality officials of councillors should do in order to reduce or eliminate the problem of poor water supply?

Appendix B

QUESTIONNAIRES TO MUNICIPALITY COUNCILLORS AND WORKERS

Demographic information:

Gender of the respondent:

Occupation of the respondent:

Level of education:

Age of the respondent:

Marital status of the respondent:

Period of working in water section or municipality:

Type or status of employment:

Theme 1: The authorities responsible for water services delivery in Mukondeni village, Mutale Local Municipality.

1. Who is responsible for water services delivery in Mutale Local Municipality?

2. Are the responsible worker(s) doing enough to make sure that water is always available to all areas?

3. Does the municipality provide sufficient support in supplying water to Mukondeni village?

4. What are the monitoring measures for the authorities who are responsible for water services provision?

Theme 2: The competency of the authority in making water available to the village.

1. What kind of planning on the part of the municipality which can bring the effectiveness of water services delivery?

2. Does the municipality received compliance from the community about water services delivery? And how do they respond on them?

3. Are the community satisfied with the water services supply?

4. Does the municipality have any maintenance schedule on water service delivery? If yes how it works?

Theme 3: The types and status of water supply resources available in the village

3.1 What type of water services does the municipality provide to the community of Mukondeni village?

3.2 How often does the municipality supply water to Mukondeni village?

3.3. What should be done to improve water supply in the village?

Theme 4: Challenges or problems experienced by the authority in ensuring consistent water supply to the village.

4.1. What are the main problems that the municipality faces with regard to water supply in Mukondeni village?

4.2. How are the problems addressed?

4.3. What is the role of the village authorities in addressing the problems?

4.4. Is there anything the municipality officials or councillors should do, in order to reduce or eliminate the poor water supply?

University of Limpopo
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3074, Fax: (015) 268 3523, Email:Lidzani.netshipale@ul.ac.za

QUESTIONNAIRE

TO: Mukondeni Local Authority

FROM: Mr LL Netshipale

I am Mr Lidzani Lucas Netshipale, a resident of Mukondeni village. I am a student at the University of Limpopo, Turfloop Graduate School of Leadership (TGSL). I am researching on Water Service delivery in Mukondeni village of Mutale Local Municipality in Vhembe District located in Limpopo Province.
I am requesting your permission as Head of the Community/ Traditional Leader of Mukondeni village (Chief) to conduct the study. The study process involves conducting interviews about water services delivery in the village.

Thanking you in advance

Contacts :(015) 268 3074
Cell number: 0723129665

LL Netshipale
Signature: Date: 25/03/2015

Head of Department (HOD) 0735383811
Signature: Date: 25/03/15

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SCHOOL OF LEADERSHIP
2015 -03- 26
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SCHOOL ADMINISTRATOR

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MUTALE MUNICIPALITY
13 -04- 2015
PRIVATE BAG X1254 MUTALE 0956
TEL: 015 967 9600

Ref: 5/2/2
Enq: Netshikovhela F.
Date: 10 April 2015

Dear Netshipale L.L

SUBJECT: REQUEST FOR CONDUCTING RESEARCH AT MUTALE MUNICIPALITY.

The above matter refers

Your request for conducting an academic research within Mutale Municipality is hereby approved.

Our request is that upon completion of your research we will appreciate being favoured with a copy as we hope its recommendation will be of great importance to us in planning for future sustainable community service delivery

While your main support may be managers Technical and Corporate Services we will appreciate working through the office of the Municipal Manager for coordination.

Looking forward to a fruitful interaction.

Municipal Manager

2015/04/13
Date

University of Limpopo
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3074, Fax: (015) 268 3523, Email:Lidzani.netshipale@ul.ac.za

Mutale Local Municipality
Private Bag X 1254
Mutale
0956

DATE: 27 March 2015

Dear Municipal Manager

SUBJECT: REQUEST FOR CONDUCTING RESEARCH AT MUTALE LOCAL MUNICIPALITY

My name is Netshipale Lidzani Lucas. I am a resident of Mukondeni village (Thegwe Tribal Authority) and I am currently working at the University of Limpopo as a Junior Lecturer. As a gesture to further my studies I registered for Masters in Development Studies (Student number 201015557) in 2014 with the purpose of conducting research with the topic "**Water services delivery in Mukondeni village of Mutale Local Municipality in Vhembe District Municipality of the Limpopo Province**". As a resident of Mukondeni village, the motivation for doing the study was out of personal observation pertaining to water service delivery problems in Mutale Local Municipality.With this background, this letter serves as a request for permission to conduct research in Mukondeni villages and Mutale Local Municipality.

For any enquiry please contact me on the contacts below

Thanking you in advance

Contacts: 015 268 3074 Cell number: 0723129665

Yours faithfully
Mr. LL Netshipale

Date 25/03/2015

HOD: Masters of Development Studies: Prof G Makombe: 0735383811
Signature:

Date: 25-03-15

UNIVERSITY OF LIMPOPO
TURFLOOP GRADUATE
SCHOOL OF LEADERSHIP
2015 -03- 26
SIGN:
SCHOOL ADMINISTRATOR

INTERNAL MEMO

To whom it may concern

From: Dr SA Rankoana

HOD: Department of Sociology & Anthropology
Supervisor of Mr L.L. Netshipale

Date: 26 March 2015

Subject: **Proof of Data Collection Process**

I am the supervisor of Mr L.L. Netshipale, student number 201015557. The student is enrolled for Masters in Developmental Studies with TGSL. The proposed study title is **Water services delivery in Mukondeni village in Mutale Local Municipality in Vhembe District Municipality of the Limpopo.**

The research proposal is approved by TGSL Higher Degrees Committee. The student is ready to collect data in Mukondeni Village and Mutale Local Municipality. Data collection process is planned for 30th-31st March and 1st -24th April 2015.

Kind regards

Dr SA Rankoana

Finding solutions for Africa

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19 August 2015

TO WHOM IT MAY CONCERN

Re: **LANGUAGE EDITING LETTER – MR L.L. NETSHIPALE**

This letter serves as proof that I edited research work of Mr L.L. Netshipale (201015557) entitled "***WATER SERVICES DELIVERY IN MUKONDENI VILLAGE IN MUTALE LOCAL MUNICIPALITY IN VHEMBE DISTRICT MUNICIPALITY OF LIMPOPO PROVINCE***".

Yours faithfully

DR L.D. MKUTI
DEPARTMENT OF LANGUAGES

UNIVERSITY OF LIMPOPO
SCHOOL OF LANGUAGES AND COMMUNICATION STUDIES
HEAD OF DEPARTMENT
19 AUG 2015
DEPARTMENT OF LANGUAGES
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