

**CHALLENGES OF WATER SUPPLY MANAGEMENT: A CASE OF UMDONI  
LOCAL MUNICIPALITY, KWA-ZULU NATAL PROVINCE – SOUTH AFRICA**

By

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## **DECLARATION**

I Ntokozo Gumbi hereby declare that this mini-dissertation submitted for the Degree Master of Development at the University of Limpopo, Turfloop Graduate School of Leadership has not been previously submitted by me for a degree at any other university; that it is my work in design and execution, and all materials contained in here has been acknowledged.

.....

**Gumbi, N. (Ms)**

.....

**Date**

## **DEDICATION**

This study is dedicated to all the people who supported me during my studies. The University of Limpopo Women's Solidarity Association (ULWASA), thank you for all the support and opportunities that you made available for me to focus on my studies. A big thank you to ULWASA ladies for the motivational talks we had when we had the writing retreats, those interactions made a positive impact and possible for me to achieve my academic goals.

To all the rural communities in Kwa-Zulu Natal, especially those who experience the challenges of water supply management in their areas, the Umdoni Local Municipality and the Ugu District Municipality Water Service Management who works on improving the current situation in Umdoni.

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## **ABSTRACT**

The aim of the study was to examine the challenges of water supply management in Umdoni Local Municipality.

Two methods were employed to collect data in the study. The first method involved one-on-one interviews with the participants. An interview guide was used to obtain data pertaining water supply services from a water services manager, a municipal manager and ten (10) ward councillors. The second method entailed analysis of documents within the municipality.

In this study findings were based on issues such as prioritization of effective water supply for Umdoni Local Municipality, community consultation and participation, addressing capacity constrains in the Municipality such as human resources, water service infrastructure and skills development.

The underlying causes of the water supply problems are based on the basic infrastructure, provision of water supply being very poor and dismal across the area. Water serves as a basic need to which everybody has the right to access, however, water supply is unfortunately disrupted by many factors. The findings in this study shows that poor water supply emanates from many factors such as management skills, technical challenges and illegal connections.

This study recommends that Umdoni Local Municipality has additions of water plants, building of new reservoirs and upgrades of water pipes, especially in Amahlongwa area as it needs urgent attention.

The key words are: potable water, free basic water and water management.

## **ACRONYMS AND ABBREVIATIONS**

|          |  |
|----------|--|
| ANC:     | African National Congress                  |
| BLA:     | Black Local Authorities                    |
| CMA:     | Catchment Management Agencies              |
| DBSA:    | Development Bank of South Africa           |
| DWAF:    | Department of Water Affairs and Forestry   |
| FBS:     | Free Basic Service                         |
| FBW:     | Free Basic water                           |
| FBWP:    | Free Basic Water Policy                    |
| IWRM:    | Integrated Water Resource Management       |
| KZN:     | Kwa-Zulu Natal                             |
| NWA:     | National Water Act                         |
| NWRS:    | National Water Resource Strategy           |
| PGDS:    | Provincial Growth and Development Strategy |
| RDP:     | Reconstruction and Development Programme   |
| SA:      | South Africa                               |
| StatsSA: | Statistics South Africa                    |
| WSA:     | Water Service Authorities                  |
| WSP:     | Water Service Provider                     |

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# **CHAPTER 1**

## **ORIENTATION TO THE STUDY**

### **1.1 INTRODUCTION**

This chapter discusses the background, the problem statement and the motivation for this study. It discusses the anticipated outcome and its significance. It explains the aim and objectives of the study, lists the research questions, defines concepts used for the study and outlines the research report.

### **1.2 BACKGROUND**

The study is about the challenges of water supply management in Umdoni Local Municipality. The Umdoni Local Municipality is one of the six local municipalities located within the Ugu District Municipality. It is situated along the KwaZulu-Natal South Coast, about 50km from Durban and 65km from Port Shepstone. The area can be broadly divided into three major land use: the commercial agriculture dominated by sugarcane; traditional authority areas located to the north of the municipal area; and coastal urban nodes forming part of the ribbon development stretching from Amanzimtoti down to Port Edward. The rural areas particularly those that fall under traditional authorities, are characterised by underdevelopment and the associated poverty. A large number of people live under abject poverty arising from a high rate of unemployment, functional illiteracy, services backlog and poor access to public facilities (Umdoni Local Municipality, 2014).

Water is a basic need for human life. It is essential for domestic purposes, industrial and commercial use as well as agriculture and mining. This means that in all activities undertaken for the survival of human and animal species, water plays a major role. Based on this premise, the South African Government introduced the Free Basic Water (FBW) Policy in the year 2001 to ensure that all citizens of this country have access to clean water. The policy is also enshrined in Section 27 of the Constitution of the Republic of South Africa, 1996, which states that everyone has the right to have access to sufficient food and water and that the state must take reasonable legislative and other measures within its available resources in order to achieve progressive realisation of this right (DWAF, 2007).

At national and provincial levels water service delivery is undertaken by a comprehensive numerical review that looks at trends of access and demand for adequate water supply in South African provinces. The expectations of comprehensive delivery to all is that those provinces identified as having the largest backlogs will advance in delivery at the most rapid pace and that the difference between provinces should narrow steadily (StatsSA, 2011).

Nationally, 63.2% of households rated the quality of water-related services they received as “good” in 2011. Satisfaction has, however, been eroding steadily since 2005 when 76.4% of users rated the services as good. The percentage of households who received piped water from their local municipalities increased from 78.8% in 2004, with a low point of 75.0% in 2008, to 85.9% in 2013. Provinces in which interruptions of water supply were more frequent were less likely to rate water service delivery as “good”. A total of 63.5% of households in Mpumalanga and 62.1% of households in Limpopo reported having had interruptions. Since 2009, the percentage of households that had reported interruptions increased strongly in the Free State and North West provinces while it decreased in KwaZulu-Natal (StatsSA, 2013).

Differences in free basic water services between 2012 and 2013 are partly due to changes in the targeting mechanisms used by municipalities to provide such services, namely technical, geographical, broad-based, self-based, consumption-based, property value, and plot size. According to Census 2011, KwaZulu-Natal has 61 municipalities, Eastern Cape 45 municipalities, Northern Cape 32 municipalities, Western Cape and Limpopo 30 municipalities, Free State 24 municipalities, North West 23 municipalities, Mpumalanga 21 municipalities and Gauteng 12 municipalities. Umdoni Local Municipality is ranked 136 in its population size, it has a total population of 78.875 people and only 40.6% households have access to piped water inside their dwelling (StatsSA, 2013).

### **1.3 PROBLEM STATEMENT**

The proposed study explored the challenges of water supply management in Umdoni Local Municipality, KwaZulu-Natal Province. The study determined whether the challenges of water supply management are due to lack of planning, poor management, infrastructure maintenance or lack of skill resources by the ward

councillor in charge to ensure the smooth running of basic services. It is the responsibility of the Umdoni Local Municipality to ensure that they manage water supply for the entire community within their municipality.

The Department of Local Government and Traditional Affairs believes in free basic water service delivery with the slogan “Let there be water for all” (Department of Local Government and Traditional Affairs, 2014). In addition, the National Development Plan clearly states that people have a right to access fresh drinkable water. However, the problem is that residents in some of the villages in Umdoni Local Municipality still spend weeks and even months without having access to clean drinkable water. This community struggles it depends on the nearby communities that have water and they also depend on vans owned by their neighbours who collect water at a fee. The municipality truck does not deliver water for them in time and as a result, the angry community set alight the ward councillor’s house as well as a water truck because they felt that the Umdoni Local Municipality and Ugu District Municipality are failing in their core service delivery (Jili, 2014).

As a result of the vandalism the municipality lost thousands of rands, which further delayed service delivery in the area. Authorities have admitted that the water supply system in some of the villages has been experiencing strain due to limited water source capacity. The district and local municipalities have been working together, providing water tankers to the community while working towards a long-term solution of water supply to the villagers (Jili, 2014).

#### **1.4 RATIONALE OF THE STUDY**

The anticipated outcome of the study was to find out the challenges of water supply management in Umdoni Local Municipality. The residents of Umdoni Local Municipality, have been struggling with receiving clean potable water despite the national development plan clearly stating that people have a right to access fresh drinkable water (StatsSA, 2014).

More recent studies such as the effectiveness of water supply services in rural areas on the issue of measurement of service delivery and living conditions in South African households confirm that the focus is to deliver to poor households. It is observed that

substantial progress has been made in supplying clean water in South Africa, especially in urban areas. However, rural areas still lag behind their urban counterparts (Hemson and O'Donovan, 2006).

Water is also vital to economic development of any community. As a result, it will be difficult for impoverished areas like the Umdoni local municipality community to develop if they still struggle with fundamental issues of water supply. Studies that identify factors that play a role in delaying efficient water supply and management are important to eventually plan strategies that can help in improving the situation (Hemson and O'Donovan, 2006).

### **1.5 SIGNIFICANCE OF THE STUDY**

The study will draw attention to the importance of implementing effective water supply management strategy that will work for the Umdoni and other similar communities. This will add value to the body of knowledge on factors that hinder effective water supply and necessary measures to improve lives of especially underprivileged communities.

The social groups that are expected to benefit from this study are the Ugu District Municipality; Umdoni Local Municipality and Department of Water Affairs in KwaZulu-Natal. This will, hopefully, help to improve water supply management in other municipalities as well as policy makers who work in the area of water supply management in Umdoni Local Municipality. As water is vital to all development, proper management and supply of water will eventually help in the economic development of the underprivileged South African communities.

### **1.6 AIM OF THE STUDY**

The aim of the study is to examine the challenges of water supply management in Umdoni Local Municipality.

### **1.7 OBJECTIVES OF THE STUDY**

The objectives of the study were:

- To investigate whether or not Umdoni Local Municipality feels that they supply sufficient water to the community

- To assess factors that hinders effective management and supply of clean water
- To determine ways that can improve effective water supply to the community

## **1.8 RESEARCH QUESTIONS**

The study will be guided by the following research questions:

- Is the quality and quantity of water perceived to be sufficient for human consumption?
- What are the issues that have an effect of water management in Umdoni Local Municipality?

What measures can be put in place to increase access to clean water in the area?

## **1.9 DEFINITION OF CONCEPTS**

### **1.9.1 Potable Water**

In this study, potable water refers to the availability and distribution of water supplied, water usage restriction and pressure in the water main, as well as system failure in providing these services (Hemson and Galvin, 2006).

### **1.9.2 Water Management**

It is the management of water resources under set policies and regulations. Water, once an abundant natural resource, is becoming a more valuable commodity due to droughts and overuse (Environmental Leader, 2014).

## **1.10 OUTLINE OF RESEARCH REPORT**

The mini-dissertation is structured as follows:

### **1.9.1 Chapter 1: Orientation of the Study**

The first chapter will give an overview of the background to the problem, the statement of the problem, objectives of the study as well as its significance.

### **1.9.2 Chapter 2: Literature Review**

The second chapter will give a review of critical analysis of existing literature on water supply and water management, challenges experienced as well as solutions from other areas and countries.



### **1.9.3 Chapter 3: Research Methodology**

The third chapter will give an outline of the research design used in this study, as well as study area, target population, sample and methods to be used for data collection.

### **1.9.4 Chapter 4: Results of the Study**

The fourth chapter will give overall findings following analysis of data collected for the study.

### **1.9.5 Chapter 5: Summary of Results, Conclusions and Recommendations**

The fifth chapter will present the summary of the study results, conclusions and recommendations for future research

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter reviews relevant literature on the challenges of water supply management. It further presents the evidence on water scarcity as rural communities remain vulnerable to the general state of drinking water management. Water related problems affect many people throughout the world, particularly rural residents. As a result a number of studies have been undertaken on this subject (Hemson and O'Donovan, 2006).

This chapter will therefore, further highlight the experiences on water related problems. The current issues pertaining to water supply and management will be discussed. The water legislation and policy on provision of water to communities are considered. The literature in South Africa, the regional and the international experiences related to the water supply management will be discussed.

#### **2.2 THE IMPORTANCE OF WATER**

Water is important for all forms of life, economic growth, development related activities and environmental sustainability. Most sectors cannot function without water; therefore the adequate and effective provision of water is central to the growth of an economy and the improvement of public welfare (Todaro and Smith, 2006).

Access to water is basic to life and is recognised as a fundamental human right. A healthy human life demands sufficient 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 (Nnadozie, 2011).

On the morning of 30 April 2008 Johannesburg High Court Judge Moroa Tsoka handed down judgement in the Mazibuko matter to a packed court. Findings for the applicants, the judge lambasted the City for its intimidatory and presumptive approach to the poor and for its impermissible unfair discrimination in forcibly installing prepayment water meters only in a poor, predominantly black, suburb. The judge,

moreover, found that the allocated amount of free basic water was insufficient to meet the basic needs of the households in Phiri (Dugard, 2010).

The judgement consequently ordered the City of Johannesburg to provide the applicant, and all similarly placed residents of Phiri with a free basic water supply of 50 litres per person per day and the option of a metered supply installed at the cost of the city. The judgement, which is remarkable for its appreciation both of the law and the plight of poor people, is entirely compatible with rights as transformation model. Such a model is rooted in an understanding of power relations and structural inequalities. Although viewing water primarily as a social good, such a model incorporates a redistributive conception of water as a commercial good at the level of luxury consumption. However, the supply of quality water in sufficient quantities is still a challenge, especially in rural areas (Dugard, 2010).

### **2.3 THE GLOBAL WATER SITUATION**

Water is one of the critical natural resources that acts as an engine for development. Access to clean water is also supposed to be one of the basic human rights that each individual is entitled to. The analysts from Coca Cola, Shell and Proctor & Gamble in 2006, conducted a study that concluded that over the next 20 years global water scarcity is going to become critical. This is as a result of countries becoming richer and therefore making heavier demands on scarce water supplies. They found that over the last 100 years global water usage has increased by six (6) times and it is expected that it will double by 2050. This increase in demand is mainly going to be driven by demands from irrigation and global agriculture. It is also predicted that by 2025 demand for water used in developing countries would have risen by 50% without concurrent increase in water sources (Beires, 2009).

The problem with these predictions of significant increases in the demand for water usage is that there is simply not enough quality water to go around in the areas where it is being demanded. According to the studies, a third of the world's population (more than 2 billion people) are living in areas where at present water is oversubscribed and this figure is only going to increase in water demand over the coming years. It has been predicted that there is going to be an increase in the risk of water conflicts in many countries (Beires, 2009).

In Africa, particularly sub-Saharan Africa, there is a high population growth with the increasing water scarcity that pose a serious constraints to future economic development. Since 1970, the global water demand has risen at an estimated rate of 2.4% per annum, with much higher demand trends in developing countries due to increasing urbanization and water-intensive agricultural activities. Developing countries are home to the overwhelming proportion of the world's 1.2 billion people without access to clean water, a figure that is expected to significantly increase in the next decades (Kamara and Sally, 2003).

Research has reflected that global water scarcity and food security projected that some sub-Saharan Africa would become physically water scarce in 2025, including South Africa. The other countries were categorized under different forms of economic water scarcity, requiring the development of more than twice the amount of water they currently use to meet reasonable future demands. Developed countries do face water shortage (Kamara and Sally, 2003).

#### **2.4 SOUTH AFRICA'S WATER SUPPLY AND MANAGEMENT**

South Africa does not have abundant water supplies. According to the world rankings, SA is ranked as the 30<sup>th</sup> driest country in the world as it only receives 500mm of rain per year which is less than the world average of 860mm per year. The province of Kwa-Zulu Natal has a slight advantage in this regard as it receives about 1000mm of rain per year. However, it is also the most populated province in the country therefore it has a high demand for water usage (Beires, 2009).

There is one unique factor to SA's spatial development plan which is vital to understand when examining SA's water supply. The major cities are isolated from water sources and it has taken major engineering and technology to mobilize the water needed to sustain industrial and urban areas. The problem with this is sustainability. As these industrial and urban areas grow in size it is going to become more difficult and costly to mobilize greater volumes of water to support the increased demand (Beires, 2009).

SA has no more surplus water to support future development. Any future economic development and well-being is going to be constrained by water scarcity. Water

scarcity is the manifestation of an increase in population growth, which may be as a result of natural growth or due to migration to a specific area. Water scarcity has far reaching implications for economic development, food security, the survival of cities and their citizens (Beires, 2009).

Water scarcity has serious implications on government's plans for economic development, increased service delivery and industrial development as there may just not be the natural water resources available to support such expansion. In the future, water is going to become a crucial factor in decision making regarding the feasibility of certain developments (Beires, 2009).

Prior to 1994, 30% households had access to potable water in the country and in 2013, 89.9% households had access to potable water. In urban areas an estimate of 85.9% households had access to potable water and rural areas 70% households had access to potable water. Kwazulu-Natal had 86.2% households with access to potable water and rural Kwazulu-Natal 21.3% households with access to piped or tap water in their dwellings, off-site or on-site. There were drivers that led to the introduction of free basic water policy in 2001 aside from the overarching opportunities created by democratizing and de-racializing the country, which immediately gave greater priority to meeting the basic needs of the poor majority of the population, (StatsSA, 2013).

Social development challenges are due to consequences of what happened prior 1994. This left the country with many dysfunctional settlements with little economic base, and skewed communities of largely old people, children and women with few economically active people. The ending of influx control saw accelerated urbanization, which put substantial pressures on the city administrations that were responsible for housing and service provision (Muller, 2008).

SA's relative water scarcity with 1,154 litres per person in 2000. SA was in terms of available water per capita, among the driest countries in the world, at 150<sup>th</sup> out of 180 countries, on par with Somalia, Lebanon, Burkina Faso and Morocco. The scarcity is aggravated by the fact that more than 60% of the country's GDP comes from the inland areas, where a substantial proportion of the population live high up in the main river basins (Muller, 2008).

The water scarcity challenge is compounded by high levels of climatic variability. Extensive storage is required to provide assured supplies during dry cycles. This situation makes efficient water use and demand management a high priority, and substantial investment in storage and transmission is required. Intensive water use also places great pressure on water ecosystems through the withdrawal of water as well as the discharge of wastes (Muller, 2008).

In SA, water infrastructure is well developed in urban areas as opposed to rural areas where the infrastructure in rural communities is usually undertaken through small water treatment plants. The water treatment systems are installed in areas which are not well serviced and which do not normally fall within the boundaries of urban areas. They include water supplies from boreholes and springs which are then chlorinated, treatment plants of small municipalities and establishments such as rural hospitals, schools, clinics and forestry stations (Momba, Obi and Thompson, 2009).

The primary purpose of water treatment is to render the water fit for human consumption. This requires the improvement of microbiological quality and the control of dangerous chemical substances and metals. Secondary purposes include maintenance; protection of distribution; plumbing systems; the management and control of aesthetic quality such as odour, colour and hardness. The efficacy of small water treatment plants is plagued by several technical and management problems, which includes the inability of plant operators to calculate chlorine dosages, determine flow rate, and estimate free chlorine residual concentrations, undertake readings of turbidity and pH values, or effect repairs of basic equipment (Momba et al., 2009).

Furthermore, there appears to be a lack of understanding of the process selection, design, chlorination techniques, process quality monitoring and evaluation. Others include poor working conditions, the frequent depletion of chemical stock, lack of a maintenance culture, lack of emergency preparedness and poor communication (Momba et al., 2009).

According to Hemson and Galvin (2006), one of the biggest challenges is that most municipalities fail to control and monitor the treatment plants. Lack of maintenance of equipment was noted to be a major problem. The lack of technical skills has been

highlighted as one of the major challenges to sustained quality water provision. These challenges underscore the need for upgrading and training of personnel but this has not been actively pursued by small water treatment plants in all provinces. The need for training is underscored by the inability of plant operators to calculate chlorine doses and calibrate or maintain equipment. Coordinated efforts should equally be put in place to maximise the human resource capacity available in water provision support systems in the provinces (Hemson and Galvin, 2006).

Strategic partnerships with relevant support agencies could assist to overcome this challenge. Partnership with research and academic institution also offers opportunities for technical assistance and manpower through internship programmes where suitably prepared students and research fellows can take part in water supply activities. Beyond the mechanical components in safe water supply, maintaining the quality of water supply is equally affected by the availability of adequate stocks of water treatment chemicals. In the event of the distribution of unsafe water, appropriate emergency plan should be instituted to avert or minimise the effect of the poor water quality (Hemson and Galvin, 2006).

Such plans would initially consist of emergency prevention measures which are mostly related to plant maintenance, strikes, sabotage, natural disasters, equipment failures, ensuring adequate supply of chemicals, various measures to protect the water treatment and distribution systems (Hemson and Galvin, 2006).

#### **2.4.1 HISTORY OF WATER MANAGEMENT IN SOUTH AFRICA**

The history of water in SA cannot be separated from the history of the country with many factors which created the darkest and the most triumphal chapters of human experience. The history of water is a mirror of the history of housing, migration, land, social engineering and development. One sector in the economy of SA had developed from a rudimentary settler level through an agricultural phase plagued by droughts and depressions into that of a sophisticated, mining and industrialised economy using modern techniques in keeping up with those of the western world. The other sector of the economy is poverty-bound, it is poverty aggravated by the systematic destruction of traditional subsistence economies. This sector enjoys little of the services and

advantages of the wealthy sector which were developed largely at the cost of the poor (DWAF, 1994).

The development of SA's water resources had been linked more with supporting the progress of the country's wealthy sector than with alleviating the position of the poor, particularly in the rural areas. By the end of the 19<sup>th</sup> century most of the water used in SA was for white commercial agriculture. Water for irrigation was generally diverted directly from rivers, since few dams had been constructed (Nnadozie, 2011).

Legislation enacted in the early years of this century protected the water rights of farmers along rivers and the State concentrated on the construction of works to benefit irrigation. The great economic depression which commenced in 1929 and the coincident drought gave impetus to the construction of several labour-intensive State schemes on which destitute whites from drought-stricken areas were employed and settled. In the mid-1930's subsidies were introduced to accelerate the development of private irrigation schemes (DWAF, 1994).

Later, the emphasis on irrigation in the legislation proved to be inadequate for the water requirements of an expanding industrial base. Accordingly, in 1956 a new Water Act (Act 54 of 1956) was passed, with the intention to ensure an equitable distribution of water for industrial and other competing users; to authorise strict control over the abstraction, use, supply, distribution; pollution of water; artificial atmospheric precipitation; the treatment and discharge of effluent water supply (Nnadozie, 2011).

In the years following the Second World War, subsidies for municipal water schemes were introduced to improve the standards of supply, although these were subsequently modified to assist only smaller municipalities that would otherwise not have been in a position to carry out works of a satisfactory standard. These subsidies made only a marginal contribution to the total cost of service development (DWAF, 1994).

Later, several Government regional water supply schemes were constructed, such as the Orange Free State Goldfields Scheme, they promoted the exploitation of newly discovered gold. Because of the scarcity of water and the geographical mismatching



of demand and supply, a more recent trend had been the construction by the State of large inter-basin transfer schemes, such as the Orange-Fish, Tugela-Vaal, Riviersonderend-Berg River and Usutu-Vaal projects which involved large and sophisticated engineering works, such as the Lesotho Highlands Project (DWAF, 1994).

With the introduction of Grand Apartheid and the balkanisation of the country into the homeland territories and the tri-cameral parliamentary own affairs administrations, it became very clear that virtually all of the vast investments mentioned above served the white sector of SA and the rest were left to fare for themselves. The government, using elaborate financial mechanisms, including the DBSA engaged in some development of water but the investments were very unevenly distributed and totally inadequate. Because of the lack of political legitimacy of the homelands it was impossible to enforce any tariff policy and so the homeland budgets became increasingly absorbed into the payment of operating subsidies (DWAF, 1994).

In many rural areas around the country 75% of existing water schemes were out of order. Within white SA the black townships were placed under the authority of the BLA and also largely left to fend for themselves. Under illegitimate and inefficient management, the meagre services which existed in the townships could not survive the protracted boycotts which black civil society resorted to as one of the last remaining tools of resistance before the fall of apartheid (DWAF, 1994).

#### **2.4.2 THE CHANGING WATER MANAGEMENT ENVIRONMENT**

In 1994, the introduction of democracy and the country becoming a signatory to several international environmental conventions, SA embarked on the comprehensive reform of water policies and institutions, guided by an IWRM approach. This rests on a set of South African Constitution and the Water Services Act of 1997, which sets out a regulatory framework for the provision of water (Nomquphu, Braine and Mitchell, 2007).

The National Water Policy of 1997 prescribes policy for the management of the country's limited water supplies in terms of quantity, quality and the unity of the hydrological cycle. It declares water as a public good and commits the national

government to serve as the public trustee of the nation's water resources (Nomqophu et al., 2007).

As a result of the observed disparities and inequalities, after democracy in 1994, SA government decided to pass laws and policies to deliver water to all its citizens. South African government has water policies and acts laid out as guidelines to water supply management.

### **2.4.3 WATER LEGISLATION AND POLICY**

Water policy is the responsibility of the National Department of Water Affairs and Forestry (DWAF), the local government does the implementation. Since 1994, two white paper policy documents on water delivery have been released by DWAF: the 1994 White Paper on Water Supply and Sanitation and the 1997 White Paper on National Water Policy for South Africa (DWAF, 1994).

The law with regard to water is extremely complex. Water law has a direct bearing on the everyday lives of all South Africans and therefore is very relevant to the achievement of the goal of universal basic service coverage in the country. South African water law has developed over time and by 1994 it was acknowledged that it needed to be revisited to ensure that it meets the needs of all, especially the poor (DWAF, 1994).

The water law of South Africa has been developed over the past 300 years primarily in the interests initially of agricultural land owners and more recently in the interests of industry and urban municipalities. The law has been based on the legal concepts brought by the Dutch (Roman Dutch law) and the British colonialists. The suitability of transposed law to both the climate of South Africa and the needs of the majority of its people is questioned (Kamara and Sally, 2003).

The initial Roman law concept of *dominus fluminis* distinguished between private water and public water, and determined that the right to the use of public water was vested in the State. The use of public water by any other individual or body was subject to the authority of the State. Exclusive use, for any purpose, of private water rests with the owner of the land on which it is found. All other water is public water (DWAF, 1994).

The British introduced the principle of riparian rights which gave riparian land owners the right of use of public water which effectively replaced the principle of *dominus fluminis*. Riparian property is land through which a water course passes or which is bordered by a water course. Water law was first codified in a number of Irrigation and Conservation Acts between 1906 and 1912 (Kamara and Sally, 2003).

These acts divided public water into normal and surplus water. Normal flow was deemed to be the perennial part of a river's flow and surplus flow is irregular high flows. The use of water by riparian landowners was determined differently for normal and surplus water. Normal water was on the basis of proportional apportionment, which is determined by the Water Courts in the case of disputes. A riparian owner is entitled to as much of the surplus flow as can be stored and beneficially used (DWAF, 1994).

With increasing urbanisation and industrialisation a review of the water law became necessary which led to the promulgation of the Water Act of 1956 (Act 54 of 1956). The act retained the principle of riparian rights but introduced some restrictions on the quantity of surplus water which could be stored or diverted without State sanction. Control by permit of the use of public water for industrial and urban purposes was introduced (Sutherland, Hordijk, Lewis, Meyer and Buthelezi, 2014).

The act also provided the State President with the authority to declare any area a Government Water Control Area where the State can exercise control over the use of public water. Provision was also made for the establishment of Water Boards, primarily for the supply of water to urban and industrial consumers (Sutherland et al., 2014).

Ground water is generally considered as private water unless its use is prescribed in terms of a Subterranean Water Control Area Water Quality. The act provides for the control of the discharge of pollutants into water courses as well as measures for taking action against offenders. Ownership of Private water is owned by the owner of the land on which it is found. Riparian land owners and concession holders who have gained the right to use public water are deemed to have the right of use but do not own the water rights of different consumer categories (DWAF, 1994).

The use of normal flow for domestic water and stock water has priority over irrigation and other uses. Up-stream use of normal flow for purposes other than domestic supply or stock water is restricted if such use would deprive down-stream users of such supply. Surplus water is not subject to such restrictions and riparian owners may use the entire normal flow of tributaries. In the previous homelands the Department of Water Affairs of the SA had no jurisdiction in the homelands, however these areas generally adopted the Water Act of 1956 except for Bophuthatswana which developed its own Water Act (DWAF, 1994).

South Africa is a semi-arid country with limited water resources. It was inappropriate for the country's water law to be based on systems imported from foreign countries with dissimilar climates. There was a need therefore to review South Africa's water law entirely. A White Paper to this effect was presented to Parliament during the 1994 Session giving notice of this and calling for public representations on proposals for consideration in a new act which was then prepared during 1995 (Kamara and Sally, 2003).

The principle water security for all should supersede all other rights to water was considered together with the concern that rights to access to water for all, particularly for basic human needs, have been prejudiced by the rights of riparian property owners and the concerns of industry and commercial agriculture. There was a need to regulate the exploitation of ground water which at that point was exploited beyond the capacity of natural recovery. This had a serious effect on the low flow of the country's rivers which compromised the water security of communities and directly harmed the environment (Sutherland et al, 2014).

There are also acts that have been promulgated in line with water management and supply. The acts and policies will now be discussed briefly.

#### **2.4.3.1 Water Service Act 108 of 1997**

The Water Services Act No 108 of 1997 was formed by the lifeline approach of the Reconstruction and Development Programme (RDP). The act states that water is to be delivered by local government. The act shifted responsibility for water and sanitation provision to local government. According to the Water Services Act, local

government is the Water Services Authority (WSA), with responsibility to provide access to water and sanitation services in their areas of jurisdiction.

The act also defines the Water Service Provider (WSP) as the structure that actually provides the water services. This may be the WSA itself, or a body contracted to do so on its behalf. In clause 19.2 it says that the private sector should only be considered as a service provider if all public sector options have been investigated and found not able to work. But in June 2000, the Minister of Water Affairs announced new regulations to amend the act, known as clause 19.5. This defines a water provider as anything from local government to the private sector. This now allows for private sector involvement in water services (Nnadozie, 2011).

During apartheid era, there was no central department of government that was dedicated to universal water supply management in SA. Homeland governments ran water service infrastructures. In the poorer black rural areas these were run inefficiently by uncoordinated homeland government structures that were almost completely dependent on the South African Government for funding (Nnadozie, 2011).

Centralisation had left a highly unevenly distributed municipal infrastructure, with black townships characterised by inadequate and poorly maintained services. Centralising water management had negative impact in people's lives because of the inequality, deprivation socially and politically. As a result the challenge of water supply is an immediate issue facing South African urban managers because water services is an essential element of urban growth (Goldblatt, 1996).

#### **2.4.3.2 The Constitution of the Republic of South Africa**

Prior 1994, South Africa had a centralised form of governance, but the inter-governmental relations system changed substantially as a result of the 1996 Constitution, which stipulated the creation of a quasi-federal system, consisting of national, provincial and local tiers of government. The 1996 Constitution states that each level of government is distinct, interdependent and inter-related (Cameron, 2014).

The principle of cooperative governance underpins this non-hierarchical system of inter-governmental relations. Section 151 (3) of the Constitution stipulates that municipality has the right to govern its own initiative, the local community's administrative affairs, subject to national and provincial government may not compromise or impede a municipality's right or ability to exercise its powers or perform its functions (Cameron, 2014).

Municipalities have the executive authority and right to administer local-government matters articulated in the constitution and any matter assigned to them by national or provincial legislation. The most important constitutional functions of local government include the provision of water, sanitation, roads, storm water drainage, solid waste disposal, electricity reticulation and municipal health services. The constitutions list of local government objectives includes the provision of services in a sustainable manner as well as the promotion of social and economic development (Cameron, 2014).

#### **2.4.3.3 The National Water Act 36 of 1998**

The National Water Act No 36 of 1998 establishes the public trusteeship of water and specifically focuses on the responsibilities of local government in water supply. The purpose of the act is to protect, use, develop, conserve, manage and control the nation's water resources in line with its underlying principles of equity and sustainability. The act provides for the progressive establishment of catchment management agencies (CMAs) by the minister. The purpose of these agencies is to delegate water resources management to the regional or catchment level and to involve local communities, within the framework of the national water resources strategy. It focuses on the resource-side of water management. The act also says that private sector water providers are only to be considered once all known public providers have been exhausted or found unwilling/incapable of providing water.

The National Water Act (NWA) of 1998 was promulgated to regulate the management of the country's water resources using the IWRM approach which rests on a set of South African Constitution and the Water Services Act of 1997, which sets out a regulatory framework for the provision of water (Nomquphu, Braune and Mitchell, 2007).

The regulatory framework for the provision of water takes place across several dimensions, including the different components of the hydrological system (surface water, groundwater, wetlands, estuaries, etc.); the coordinated development, management of water, land and related resources; integration of environmental sustainability with statutory, economic, and social objectives. One of the act's main objectives is progressively to decentralize responsibility and authority for water resources management to appropriate regional and local institutions, in order to participate more effectively in the management of these resources (Nomquphu et al., 2007).

Decentralization had led to the development of a three-tier water management system based on the provisions of the National Water Resource Strategy (NWRS) which was implemented at the national level (tier 1). The first tier is a national policy and regulatory framework, strategic and development planning at national and international level, reporting on the state of the environment and meeting international agreements. A regional water management area level (tier 2) focus mainly on water management at catchment scale (e.g. authorization/licencing and coordination of water-related activities) (Nomquphu et al., 2007).

The local level (tier 3) focuses on the provision of water services and the management of own water use in terms of tiers one (1) and two (2) requirements. The third tier is also responsible for meeting efficiency targets set by water services authorities and providers, including water boards, as well as all the water users and water user associations (Nomquphu et al., 2007).

Integrated catchment management (ICM), based on international best practice, is a key component of the institutional reform. For this purpose the country has been divided into 19 water management areas. These areas are a level 2 (tier 2) activity in which CMAs were established to carry out the devolved water management responsibilities (Nomquphu et al., 2007).

The institutional changes for water resources management have major implications for the monitoring of water resources. Monitoring, which historically, was almost exclusively a DWAF function, in future takes place at each tier as part of their

respective responsibilities for water resources management. The IWRM approach, as embodied in the NWA and the NWRS, was envisaged to cut across the water management hierarchies for the purpose of implementation, coordination, integration and where necessary monitoring (Nomquphu et al., 2007).

#### **2.4.4 Result of Legislation**

Both the Water Services Act and the National Water Act followed the supply-side approach to water management that was followed throughout the world until the 1980s. In supply-side water management, it is mainly government that subsidises capital expenditure to establish usually large-scale water infrastructure. Consumers then only pay a portion of the actual cost to supply water. Because of criticisms from international financial institutions and environmentalists, a shift occurred internationally in the 1980s and 1990s from supply-side to demand-side water management. The shift towards a demand driven approach is justified based on the so-called failure of the supply-driven approach and the inefficiency of public sector providers (Jenkins and Thomas, 2000).

The demand-driven approach as well as privatisation of water, had been supported internationally by the World Bank, the Global Water Partnership, the World Water Council, the World Commission on Water and Business Partners for Development. The argument is that water is an economic and tradable good that should be paid for based on market principles. This means that a socio-economic right is replaced as being a consumer right. The involvement of the private sector is seen as ensuring efficiency and providing the necessary investment in water (Smith, 2000).

Providing water for free is thus seen as inefficient and uneconomic. The argument is that not recognising the economic value of water has led to wasteful and environmentally damaging uses of water. The assumption is that if water is priced, it will be valued more. The aim of demand-side water management is thus to reduce the demand for water by changing the behaviour of consumers through pricing, education and regulation. This approach has opened the way for the involvement of the private sector and communities in water delivery. But with this approach came the notion of cost-recovery and also the removal of cross-subsidisation (Smith, 2000).



In SA, this international shift led to change. The National Water Conservation and Water Demand Management Strategy (2000) was the first policy document to reflect this shift. According to Goldblatt (1996) there might be a proportion of households unable to afford even a minimum social tariff. About 40% of urban black multiple households are unable to pay for services at the current tariffs. Furthermore, 55% would be unable to pay the actual costs of the services if the full supply costs were reflected in the price of water. Goldblatt presents a case that there will have to be some form of subsidy system to make up for the differences between cost and recoverable revenue.

If demand management is introduced through increasing water tariffs it is the poor who already find themselves in sub optimal conditions that will suffer the most. Goldblatt (1996) found that the poor households reacted a lot stronger to price increases with their demand for water consumption falling by more than 50% whereas the richer households demand fell only by 10% in response to the same price increase. This shows that it is the poor that are a lot more sensitive to price hikes than the well off and therefore demand management will have negative consequences for the poor, more especially from the rural areas.

Another important challenge in 1994 was the absence of a national institution of overseeing water supply and sanitation services. The responsibility for water services had been left largely at local level, with little national oversight. This was identified as a policy problem, and the need for an apex institution to take responsibility for the country's water supply and sanitation (Muller, 2008).

The main problem in SA is not having access to water and not being able to afford it. There is also a challenge of collecting money for providing water and for other services complicating the issue of efficient water management and supply resulting in cross-subsidisation. Rural communities receive free basic water of 300 litres per day (9, 000 litres per month) either via a ground tank or yard taps. Ground tanks can be replaced privately by yard taps. Semi-pressure roof tank systems are installed in state-provided low-income houses and these households pay a lower tariff. When customers who receive full-pressure water services default on payments, a flow limiter is installed in

consultation with the household and the household is trained to understand how it works (Sutherland, Hordjik, Lewis, Meyer and Buthelezi, 2014).

In 1995, the World Bank water expert, John Roome advised the then Minister of Water Affairs, Kader Asmal, that cross-subsidisation would be in conflict with privatisation (Bond, 2001). The private sector has been encouraged to become involved, according to government, so as to speed up water delivery. It is argued that full or partial privatisation will lead to more efficiency and productivity of state-owned enterprises. It also increases access to scarce resources like capital, technology and skills. With privatisation goes the acceptance of the principle of full cost-recovery for operation and maintenance (Smith, 2000).

Another issue that came as a result of legislation is decentralisation of the supply of water, responsibility for water and sanitation provision has shifted between national and local government over the past 20 years. In the first five years post-democracy (1994), the water supply programme was driven and implemented by the Department of Water Affairs and Forestry (DWAF). After 2000, when new local government institutions were established as a result of the national municipal demarcation process, water services functions were delegated to the local level (Sutherland, Hordjik, Lewis, Meyer and Buthelezi, 2014).

Under the Municipal Structures Act No 117 of 1998 the responsibility for service provision is delegated to WSAs, which in most cases are municipalities. Each WSA has to produce a plan to progressively ensure efficient, affordable and sustainable provision of water and sanitation services. Although service provision is a local government function, water resource management responsibilities are held at a central level (Sutherland et al., 2014).

Delegation of water services provision to the local level without adequate fiscal support from national government has resulted in pressure on municipalities to be financially self-sufficient and to recover service-related costs from all areas, with water as a commodity. The government provides a subsidy for the installation of basic services, including water and sanitation via the Municipal Infrastructure Grant. However, this

subsidy is not adequate and WSAs have to make up the shortfall (Sutherland et al., 2014).

The challenge for municipalities is to balance socially and environmentally just water provision with fiscal sustainability. The ethics and principles around water disconnections and water restrictions also require careful consideration, given the harsh manner in which these are applied in some municipalities in South Africa (Sutherland et al., 2014).

#### **2.4.5 Government Initiatives for Water Management and Supply**

In the post-apartheid era, the South African government promulgated acts and policies to govern the provision and management of water supply, especially to address backlogs in previously disadvantaged areas.

##### **2.4.5.1 Reconstruction and Development Programme (RDP)**

During the apartheid era, there was no central department of government that was dedicated to universal supply and management of water resources in South Africa. Homeland governments ran water service infrastructures. In poorer black rural areas these were run inefficiently by uncoordinated homeland government structures that were almost completely dependent on the South African Government for funding (Nnadozie, 2011).

The post-apartheid government instituted the RDP as the policy foundation stone of the new government. The RDP gave the DWAF the responsibility of ensuring universal access to basic water services for all South Africans. Subsequently, the White Paper on Water and Sanitation was released in 1994, with emphasis on speedy service delivery of water and sanitation services to ensure that all South Africans have access to basic water supply (DWAF, 2011).

In 2004, exactly 10 years into democracy the then President of South Africa, Thabo Mbeki, in one of the most remarkable State of the Nation addresses, made various time-bound promises on the key issues around household services, education, health care and security. Regarding access to water, President Mbeki promised that “within

the next five (5) years all households will have access to clean running water” (Mbeki, 2004:04).

The RDP and subsequent development programmes, the presidential targets and, at the international level, Target 10 of the Millennium Development Goals (halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation), are all time-bound development commitments that require consistent measurement of progress towards achieving the targets (Nnadozie, 2011).

The RDP was an integrated, coherent socio-economic policy framework, which sought to mobilise all South Africans and the country's resources toward the final eradication of the results of apartheid; the building of a democratic; non-racial and non-sexist future. It represented a vision for the fundamental transformation of South Africa. Women were targeted as the beneficiaries of the policy both in terms of representation on water project steering committees and through easing the burden placed on them in the rural areas to provide water to their households. Throughout the policy document, specific emphasis was placed on the development and empowerment of women (Schmitz, 1999).

Water and sanitation projects are more sustainable when women have ongoing responsibility for their operations and maintenance, as they were more committed since they are adversely affected by project failure. Water policies, thus had to have a gender-based approach to ensure sustainability (Mjoli, 1998).

According to Schmitz (1999) the integrated process of transformation ensured that the country develops to be a strong stable democratic institution, its practices are characterised by representation and participation; that it becomes a fully democratic and non-racial society; a prosperous society, having embarked upon a sustainable environmentally friendly growth and development path that addresses the moral as well as ethical development of the society.

#### **2.4.5.2 Rural Water Supply and Sanitation**

Rural Water Supply and Sanitation was the RDP Presidential Lead Project implemented by DWAF. The lack of basic services, such as water supply and

sanitation, are the key symptoms of poverty and underdevelopment. The provision of such services were regarded as central to reconstruction and development in South Africa. The need for running water is specific to women as it relates to their reproductive responsibilities. It is also women who are responsible for the collection of water (Hlophe, 2004).

The basic policy principle emphasises the fact that development should be demand-driven and community-based. The importance of gender approach to development needs to be worked out. Duncker (1998) puts forward strategies to empower women in water delivery and makes the following points: women should be more involved in planning and operations as part of a strategy to build a more equitable society; their involvement should be more than labour and should include access to resources, decision-making and management; care should be taken not to overburden women; to automatically perpetuate and reinforce the traditional roles of women.

Although it seems obvious that there should be a higher level of women's participation on the grounds of efficiency as much as equity, there still are serious problems about ensuring a high level of participation. Participation of women in a water project is multi-faceted: in planning, during construction phase, later in operation and maintenance. The two main objectives of the RDP were to attain both equity and economic growth (Hlophe, 2004).

The participation by communities are important for the sustainable use of water. Each specific context, in which water is used, influences the rights to access of different people and how water is managed. Water should be managed at a local level. All stakeholders, governments, civil society, NGOs, the private sector must work together in partnerships to ensure access to water for all. At a local level, water user associations, watershed committees and co-operatives have been very successful in water supply management (Hlophe, 2004).

#### **2.4.5.3 Free Basic Water Policy (FBWP)**

According to Muller (2008) a policy of free basic water, in the terms in which every household should receive 6, 000 litres of water per month free was introduced. Any use above the free litres of water should be paid for. The 6, 000 litres limit was set to

achieve some rural and urban equity, since where water is carried, more than 50 metres or so, the usage per capita drops to around 25 litres. The World Health Organization regards this as the minimum that should be achieved universally before services are improved (Hlophe, 2004).

The “free basic water” policy was a fundamental shift from the 1994 policy of the ANC government. The ANC’s Reconstruction and Development Programme (RDP) had avoided promising the “pie in the sky”. Its approach to water services was conservative, warning that all would have to pay something, talking of a lifeline tariff to ensure that all South Africans are able to afford water services, sufficient for health and hygiene requirements; in rural areas, a tariff that covers operating and maintenance costs of services (ANC, 1994:04).

Free basic services were part of the government’s response to debates about social welfare policy. Anxious to avoid the cost and the creation of a culture of dependency, the ANC opted to promote the social wage concept, which includes free basic water. For the users of water services, the main challenges are to obtain service infrastructure, ensure that it works safely, reliable and affordable (Muller, 2007).

There were also arguments about who is responsible for paying electricity and diesel bills for pumping water. These arguments sometimes left communities without water for weeks. Other arguments were about which villages should benefit from government-funded schemes. A KZN study by Muller (2007) showed that sound management and institutional arrangements are needed to achieve reliable, ongoing services. This is relevant to water supply as there has been considerable media reporting about water cut-offs in SA. In 10 years, the national investment programme provided infrastructure for basic water supply to more than 10 million people, supported by the larger metropolitan municipalities and housing programmes. By 2005, only an estimated 3.7 million out of 48.1 million people were without some access to safe water. SA’s 1996 Constitution mandated a high degree of decentralization as part of the country’s political settlement (Muller, 2008).

While the water supply programme was driven and implemented by the national DWAF for the first five (5) years, the second five (5) years were a period of

decentralization, during which new local government institutions were established following the local government elections of 2000. The DWAF programme had been characterized from the start in terms of building local government and making the constitution work rather than simply expanding water supplies (Muller, 2008).

In 2001, a decentralized fiscal system was established that integrated the financing of the national water supply and sanitation programme, it required that attention be paid to supporting new municipalities so that they could exercise their responsibilities. While the water services functions were being decentralized, the water resource management functions were kept at central level. This helped to maintain the integrity of rivers as management units by establishing an institutional counter balance between local government as water users, central government and its regional agencies as custodians of the resource (Muller, 2008).

However, in Umdoni Local Municipality a free basic water policy makes provision for the supply of 6, 000 litres of water per metered household per month. An Indigent Support Policy is in place which applies to residential and non-profit organizations entitling the beneficiaries to 6, 000 litres of water per household per month and 100% rebate on water and sanitation basic charges. They have 6616 water and 2638 sanitation households benefiting from Indigent Support, this is based on the billing system while in rural areas households benefit through over 5000 stand pipes in the whole district (Umdoni Local Municipality, 2014).

#### **2.4.5.4 Water as a natural resource**

According to the DWAF (1994), Water is a scarce and valuable resource in SA. Most parts of the country do not have high rainfall and droughts are an ever-present threat in all regions. SA's average annual rainfall of 500 mm is only 60% of the world average. It is poorly distributed, particularly relative to areas experiencing growth in demand. Only a narrow region along the eastern and southern coastlines is moderately well-watered, while the greater part of the interior and the western part of the country is arid or semi-arid.

According to the DWAF (1994), 65% of the country receives less than 500 mm of rain annually, which is usually regarded as the minimum for successful dry land farming.

Over 21% of the country receives less than 200 mm. As it gets drier towards the west the rainfall becomes more variable. Over most of the country the average annual potential evaporation, which ranges from about 1100 mm in the East to more than 3000 mm in the West, is well in excess of the annual rainfall, which reduces the surface runoff greatly.

In some areas the rivers have periods of up to 10 years of low flow, which must be catered for in the planning and the operation of water supply systems. Rainfall is restricted, possibly in cycles, by the forces of nature, over which the DWAF has no control. A vital component of the water supply mechanism is the catchment area itself, the development of which must be managed according to sound environmental and resource allocation principles (DWAF, 1994).

The importance of ground water is rapidly growing throughout the country because of dwindling surface water resources and the need to develop local resources optimally. Unfortunately, most of SA is underlain by hard rock formations, so only about 5400 million m<sup>3</sup> of water per annum may be obtainable from underground sources. The ground water is also saline over large areas of the country. Although ground water plays a lesser role in the water supply of SA than it does in many other parts of the world where extensive primary aquifers are the main sources of water, it is often the only source available to isolated communities, or may be the most cost-effective alternative (Goldblatt, 1996).

A difficulty hampering the use of ground water is uncertainty about its location and the potential supply from boreholes, mainly owing to insufficient knowledge about the characteristics of ground water sources. The Department has embarked on a groundwater characterisation and mapping programme to overcome this, although the programme needs to be accelerated. For water management to benefit all people in SA equitably, the available water has to be treated as a national asset (Goldblatt, 1996).

Limited water availability is only part of the problem. As SA is a water deficient country, all effluent has to be purified and returned to the rivers. As a result of inadequate effluent treatment and illegal discharges, the quality of water is deteriorating in many



areas. In time, quality may become a more important factor than quantity in water management in some areas, particularly in the interior (DWAF, 1994).

The aim of water quality management by the Department was to ensure the fitness for use of our water resources for domestic, industrial, agricultural and recreational purposes on a sustainable basis while protecting the ecological integrity of the water environment. A comprehensive water quality management policy had been developed by DWAF which embodied the principles of pollution prevention, a precautionary approach and a receiving water quality objective that will meet user requirements (DWAF, 1994).

## **2.5 CURRENT STATUS OF WATER MANAGEMENT AND SUPPLY IN SOUTH AFRICA**

According to StatsSA (2013), a comparison of the main sources of drinking water used by households were very high proportions of households in Western Cape (98.7%); Northern Cape (96.3%), Free State (96%); and Gauteng (95.9%) that had access to water either in their dwellings, off-site than in other provinces. In Mpumalanga (86.8%), North West (88.4%), Kwa-Zulu Natal (86. 2%) and Limpopo (77.5%) had access to clean potable water (StatsSA, 2013).

In 2013, StatsSA had estimated that 45.3% of households had access to piped water in their dwellings. A further 26.8% accessed water on site while 15.2% relied on communal taps and 2.6% relied on neighbours taps. Although generally households' access to water is improving, 4.2% of households still had to fetch water from rivers, streams, stagnant water pools, dams, wells and springs (StatsSA, 2013).

This is a decrease of more than five percentage (5%) points from 9.5% of households that had to access water from these sources in 2002. Even though there have been accrual fluctuations, the percentage of households who receive piped water supplies from local municipalities increased from 78.7% in 2004, with a low point of 75.6% in 2008, to 85.9% in 2013 (StatsSA, 2013).

Over 12.8 million households had access to piped water in 2013 compared to less than nine (9) million in 2004. Less than two-thirds (63.2%) of households rated the

water services as good in 2013. The percentage of households that rated water services 'poor' decreased slightly from 2012, it is still much higher than in 2005 (11.7% compared to 7.8%). This deterioration in levels of satisfaction is mirrored by an increase over time in the percentage of households who feel that their water is not clean, clear, does not taste good or is free of bad smells (StatsSA, 2013).

Water is not being efficiently allocated in South Africa because the price at which it is being provided does not reflect its true economic value. In 1997 there was a pivotal conference held in Dublin where it was decided that water should be regarded as an economic good. This opened the way for the school of thought that water should be allocated to its best uses by pricing it at its economic value, the same way in which other private goods are allocated through the competitive market. It is this line of thinking that has opened the way for the rapid privatization of water (Beires, 2009).

The International Monetary Fund (IMF) and the World Bank in particular have driven the initiatives of privatizing water utilities around the world and especially in Africa. In 2000, twelve countries in Africa were granted loans from the IMF on conditions that they privatize their water utilities. In SA as water scarcity becomes more of a reality demand side management through efficient pricing of water to reflect its true economic value is being pushed as a measure to curb water demand (Beires, 2009).

Several case studies have been done of where privatization has been implemented both in South Africa and in other African countries, and the findings were that it was only the businesses that benefited and the brunt of the system is borne by the poor. This is expected because commercialized companies or corporatized municipalities are driven to maximize profits and therefore do not take responsibility for the health and social costs of inadequate water consumption by the poor (Beires, 2009).

An example in SA, August 2000, there was a worst Cholera outbreak in the country due to water privatization. This was due to prepaid meters being installed and certain areas being cut off to fresh water due to them not paying for it. In a matter of days cholera broke out in these communities and spread throughout the country (Beires, 2009).

SA and in particular KZN has a historic basic water and sanitation service backlogs which originate from the apartheid legacy. This legacy has resulted in many abnormalities existing in water distribution in SA such as the fact that there are many people who live adjacent to water resource and yet have no access to water. This is why when the ANC government came into power in 1994 they introduced the life-line tariff, which meant that the government would supply 25 litres of water a day free of charge. Although this has been implemented its sufficiency and success has been questioned (Beires, 2009).

Goldblatt (1996) found that 57% of projects that have been implemented where the 25 litres of water supply was less than 200m away from households were not in operation. His studies also found that those poor households that had been linked up to the government municipal grids have experienced mass disconnections due to their inability to afford water prices. The study found that this disconnection due to affordability affects more than 1.5 million South Africans every year.

The three fundamental objectives for managing SA's water resources are:

- (i) **To achieve equitable access to clean water**, that is equity of access to water services, to the use of water resources, and to the benefits from the use of water resources.
- (ii) **To achieve sustainable use of water** by making progressive adjustments to water use with the objective of striking a balance between water availability and legitimate water requirements, and by implementing measures to protect water resources.
- (iii) **To achieve efficient and effective water use** for optimum social and economic benefit.

The purpose of the NWRS is the national framework for managing water resources; the framework for the preparation of catchment management strategies; provision of information, identification of development opportunities and constraints (DWA, 2006).

Strategic Framework for Water Services sector vision water is life, sanitation is dignity. In terms of the constitution, national, provincial and local spheres of government are distinctive, interdependent and interrelated. The Inter-Governmental Relations

Framework Act 2005 establishes a framework for these spheres of government in order to promote and facilitate intergovernmental relations, including the settlement of disputes (DWAF, 2006).

According to Nnadozie, Hirschowitz and Okin (1997), South Africa made the first attempts in using official statistics, to measure development and living conditions for South Africa households on a relative basis, in the post-apartheid era. Using the October 1994 household survey the study found wide discrepancies in the odds of access to basic services for different demographic segments of South African society. Black African households were found to be more likely to lack access to basic services: housing, water, sanitation and electricity, amongst others.

In 1999, a similar study was done, it compared access to basic services on the basis of household income; this study found that access to basic services was closely related to income. Households that belonged to the low-income group were likely to be excluded from access to basic services. The primary focuses of various regimes of the new era has been service delivery and infrastructural development for previously disadvantaged communities. More recent studies on the issue of measurement of service delivery and living conditions in South African households confirm that the focus is to deliver to poor households. (Nnadozie, 2011).

In a study by Borat et al (2008), the shift on non-income welfare in SA, reveal that the focus of the government welfare services in the post-apartheid era has been pro-poor. Households at the bottom of the expenditure defiles (poorest of the poor) were found to have been benefited more from government services. However, even though delivery seems to have been pro-poor, significant backlogs were noted in these studies among poor households, especially with respect to housing, sanitation and piped water.

These results are further confirmed by the work of Hemson and O'Donovan (2006), in which it is also observed that substantial progress has been made, but that a lot more effort is needed for universal access to basic services in SA. These studies also observed that a major impediment towards reaching service delivery targets for water and other household-based services is the issue of the rapid increase in the number

of households in recent years in SA, a phenomenon which operates independently of increases in population which has complicated and dramatically added to the numbers demanding access to basic services (Nnadorie, 2011).

## **2.6 APARTHEID URBAN POLICIES**

Apartheid urban policies have left a highly unevenly distributed municipal infrastructure, with black townships characterised by inadequate and poorly maintained services. The underlying principle of the RDP's water resources policy is the universal right of access to clean water (Goldblatt, 1996).

National government is mandated by the constitution to establish minimum standards for essential services including water supply. In its role as the custodian of South African water resources the DWAF, in a paper on water supply policy, translates the RDPs commitments into the practical goal of providing access to basic water supply and sanitation services to all (Constitution of the Republic of South Africa, 1994).

The Department defines basic water supply as 25 litres per person per day of good quality water, provided at a maximum distance of 200m on a regular and assured basis. The DWAF cautions however, that the expectations should not be created of the provision of free services because of the enormous capital requirements of universal water provision, sanitation and the strain that this would place on national, provincial and local government finances (Goldblatt, 1996).

The DWAF refers to experience from the United Nations International Drinking Water and Sanitation Decade which shows that governments and donors could provide only a fraction of the resources needed and that communities themselves would have to carry much of the cost of services provision. On the basis that attempts a free service for all have generally resulted in some service for few and little or none for most, the DWAF has adopted the principle of the user pays for the services as one of its principles for water supply (Goldblatt, 1996).

## **2.7 CURRENT STATUS OF WATER MANAGEMENT AND SUPPLY IN KWA-ZULU NATAL (KZN)**

In Kwa-Zulu Natal 2 078 601 households are receiving basic water service and 815 938 households are receiving free basic water services (StatsSA, 2013). One of the challenges in the provision of services has been the lack of coordination in planning and delivery. The province's mandate is to administer, monitor and to effect the smooth alignment between the national government as the initiator of services to be delivered and local government as the key delivery agents. The Provincial Growth and Development Strategy (PGDS) is a tool used to provide a vision for development that reflects the development priorities in terms of social needs and competitive economic growth potential of the Province (DWAF, 2006).

Inequalities exist in the provincial economy and there is a legacy of inequitable spatial development. The PGDS is a vehicle to address the legacies of the apartheid, to promote sustainable development, to ensure poverty eradication and employment creation. The strategy aims to ensure co-ordinated service delivery throughout KwaZulu-Natal, provides for a spatial framework for the province to focus on municipal areas where support is needed urgently for sustainable development and highlights the critical importance of the growth and development of the province' cities (DWAF, 2006).

In KZN, there are three (3) main sources that are responsible for the supply of the province's water, they are Umgeni Water, Umhlatuze Water and Uthukela Water. Out of all these three (3) entities, it is Umgeni Water that supplies the most users with water in the province. There are 12 major dams situated in the Umgeni region which allows Umgeni water to supply eThekweni, iLembe, Sisonke, uMgungundlovu, uMsunduzi, Umgeni and Ugu Municipalities (Umgeni Water, 2014).

As a province KZN has been plagued by water quality problems like the other provinces. In a study conducted by Umgeni Water (2003), they indicated that the bulk water requirement to meet the urban and industrial demands in the Umgeni region was 870ml per day. However, the supply of the Umgeni catchment area in 2003 was only 770ml per day. It is therefore clear that Umgeni is facing a situation of demand for water outstripping supply (Beires, 2009).

In the same study Umgeni water presented a scenario plan where nothing was done about the water shortage in the region, the study found that over a 40 year period the cumulative demand for water supply would be 27% lower than when compared to a scenario where water was not a limiting factor. This indicates the economic and human development consequences that arise out of the constraints imposed by water scarcity (Beires, 2009).

The standard response to water shortage in the past has been to build more dams. Although this is a short term measure to increase the supply they are not measures that will solve the long term problem. There will have to be demand management put in place and this will have further human development consequences (Beires, 2009).

Drinking water quality provision in many rural areas is substandard. In almost all South African metropolitan areas, the consumer is provided with high quality drinking water. However, in many rural communities, the situation is very different. The water quality is often poor and the impact of water-borne disease is significant (Mackintosh and Colvin, 2003).

## **2.8 CURRENT STATUS OF WATER MANAGEMENT AND SUPPLY IN UMDONI LOCAL MUNICIPALITY**

The Umdoni Local Municipality is experiencing water shortage and disruption of services on a regular basis. The provision of water is the responsibility of the Ugu District Municipality. The Umdoni Local Municipality is assisting in gathering information and the development of a Consolidated Infrastructure Plan (CIP) to inform the Water Services Development Plan (WSDP) by providing information on backlogs and needs. This will assist the Ugu District to strategize the eradication of backlogs. The service level provision within the Local Municipality indicated having higher than average level of service provision (Umdoni Local Municipality, 2014).

In 2001, 37% households had access to piped water; 12% households had access to piped water on site; 36% households had access to public tap. In 2011, 41% households had access to piped water on site; 12% households had access to public tap and 44% households had access to public tap. The basic services are a challenge as they involve a number of stakeholders, with Umdoni Local Municipality being the

recipient for some and the implementing agent for others. Ugu District Municipality is the service provider for the water and sanitation projects, it had since removed the WSDP which will address the housing backlog (Integrated Development Plan, 2014).

The Umdoni Local Municipality ensures effective service delivery. Indigent support is governed by a policy with the indigence threshold being two state pensions. The Municipality offers the following free basic services; rates, refuse and electricity. During the 2013 financial year, Umdoni Local Municipality was in the process of reviewing the indigent register so as to ensure the accuracy and completeness of the register. Given the level of unemployment within Umdoni Local Municipality, they expected the number of indigents register to increase (Integrated Development Plan, 2014).

The municipality had adopted policies of promulgated by-laws to facilitate collection amongst all categories of debt. The municipality currently has approximately R24 millions of grants. Municipal Infrastructure Grant expenditure remains one of the key focus areas of the municipality given our limited financial resources. The municipality has minimal loans which had been undertaken. The municipality chooses to fund its projects via internal funding together with grant funding (Integrated Development Plan, 2014).

However, people spend weeks and even months without having access to clean drinkable water. The community struggles and depends on the nearby communities thus being Amandawe. They fetch water there; since there is always water in Amandawe and no water at all in Amahlongwa. They depend on vans owned by their neighbours because the municipality truck does not deliver water for them in time of need and this is regarded as discrimination against those who do not have such means of transport, and this brings me to the conclusion that the Amahlongwa community is being discriminated against when coming to supply of fresh clean drinking water, because nothing is being done to try and improve their current situation. The National Development Plan clearly states that people have a right to access fresh drinkable water (StatsSA, 2013).



The gaps in level of services include a rural/urban national design standard; which affects the rural area more because the level of service required in the rural area increases annually and the actual level of service cannot keep up with the demand. This trend will continue until service levels are equalised. The aged water and sanitation infrastructure, lack of capacity of key treatment plants continues to be a challenge resulting in many interruptions and service delivery challenges (Ugu District Municipality, 2014).

The key programmes around this still present challenges for the urban coastal strip namely: refurbishment of sanitation infrastructure; waterborne sanitation - only 30% reticulated; augmentation of water bulk supply schemes; development of water resources (dams) and sustainable sanitation for low cost housing projects. The major infrastructure for water services in Ugu District Municipality therefore includes the following: eight (8) dams; 6000km pipelines (estimate); 160 reservoirs; 125 pump stations; 16 water treatment works and 18 waste water treatment works (Ugu District Municipality, 2014).

As indicated in the WSDP the existing water infrastructure suggests that the formal urban coastal areas have well developed bulk infrastructure and networks. Historically it was the main focus for infrastructure development in the district. The coastal areas remain the highest concentration of the population and are also the main economic centres for the District (Ugu District Municipality, 2014).

Infrastructure development in the rural areas was historically done in a haphazard manner and this resulted in a number of stand-alone rural water schemes that many times are supplied from unsustainable water sources. The Regional Master Planning Initiatives that were completed in 2006 corrected the lack of planning in the rural areas and shifted the focus towards the implementation of more sustainable Regional Water Schemes (Ugu District Municipality, 2014).

The existing and planned future infrastructure in Ugu District has a number of bulk supply sources (water treatment works or external bulk supply sources) that form the basis of the current and future water supply systems in the District. Each one of the

bulk supply sources supplies a specific zone that could be ring fenced and used as the basis for further analysis (Ugu District Municipality, 2014).

These supply zones were not always clearly definable, especially in the urban areas where a number of interconnections exist to allow certain areas to be supplied from more than one bulk supply source. An attempt was made to ring fence back-to-back supply zones that cover the entire district. The supply zones also formed the building blocks for the development of the water demand model and the water demands were ring fenced within the supply zones and linked back to the respective bulk supply sources (Ugu District Municipality, 2014).

The water demands could then be compared with the ability of the bulk infrastructure and water sources to meet the current and future water demands. The back-to-back water supply zones that were identified derived from dams, rivers, ground water and bulk purchases from eThekweni and Umgeni Water. The water was then treated at several treatment plants, owned by the district before being distributed to households (Ugu District Municipality, 2014).

Distribution of water was done via more than 42 000 private household connections and over 5 000 communal stand taps which mainly serviced the inland rural areas. The demographics of the Ugu District Municipality vary from dense formal urban settlements to scattered rural settlements and must be dealt with differently when planning for the provision of water services (Ugu District Municipality, 2014).

Different levels of service are appropriate for each settlement category and the Council Scientific and Industrial Research (CSIR) Guidelines for Human Settlement Planning and Design were used as a guideline to determine the water delivery standards per settlement category. The water delivery standards were also used to develop a water demand model for the district; to calculate current and future water demands per supply zone. The current level of basic service within the district comprises predominantly community standpipes at 200m (Ugu District Municipality, 2014).

## **2.9 SUMMARY**

This chapter reviewed literature on the challenges of water supply management. The following topics were discussed: the importance of water; the global water situation; South African's water supply and management. The history of water management in South Africa; the changing water management environment; the changing water management environment; the water legislation and policy, having a closer look at the Water Service Act No 108 of 1997, the National Water Act No 36 of 1998 and result of legislation were reviewed.

The government initiatives for water management were discussed with discussions around the RDP, rural water supply and sanitation, free basic water supply, water as a natural resource and water rights and law. Further discussions were on the current status of water management and supply in South Africa, Kwa-Zulu Natal and Umdoni Local Municipality.

According to StatsSA (2013), 11 794 526 households has access to basic services and 5 269 475 households have access to free basic services. In Kwa-Zulu Natal 2 078 601 households are receiving basic water service and 815 938 households are receiving free basic water services. Differences in free basic services between 2012 and 2013 are partly the result of changes in the targeting mechanisms used by municipalities to provide such services namely technical, geographical, broad-based, self-based, consumption-based, property value and plot size.

Research methodology would be discussed in the next chapter.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1. INTRODUCTION**

This chapter describes the research methodology used for this study. In assessing the challenges of water supply management for the Umdoni Local Municipality, a qualitative study was selected. The rationale for the choice of this approach lies in the fact that the study aimed to get an in-depth understanding of the magnitude of impact based on the perspective of the community which faced these challenges on a daily basis. So this chapter presents the research design, target population, sample and data collection methods that were used to collect data.

#### **3.2 RESEARCH DESIGN**

A research design is a plan or strategy which moves from the underlying philosophical assumptions to specify the selection of the respondents, the data gathering techniques and data analysis used. The choice of research design is based on the researcher's assumptions, research skills, research practices and this influences the way in which data is collected. There is a wide range of research designs from which a researcher may select one that is congruent with her or his philosophical assumptions and most appropriate for generating the kind of data required to answer the research question(s) posed (Maree, 2007).

The current study used a qualitative approach, based on interpretivism paradigm, which strives to comprehend how individuals in everyday setting construct meaning and explain the events of their words. Interpretive paradigm is underpinned by observation and interpretation, thus to observe is to collect information about events, while to interpret is to make meaning of that information by drawing inferences or by judging the match between the information and some abstract pattern. It attempts to understand phenomena through the meanings that people assign to the words (Maree, 2007).

Qualitative research is based on a naturalistic approach that seeks to understand phenomena in context (or real-world settings) and, in general, the researcher does not attempt to manipulate the phenomenon of interest. In other words, research is carried

out in real-life situations and not in an experimental (test-retest) situation. Consequently, unobtrusive data gathering techniques, like interviews and observations, are dominant in the naturalist (interpretive) paradigm (Maree, 2007).

### **3.3 STUDY AREA**

The study area was Umdoni Local Municipality in the Ugu District Municipality in Kwa-Zulu Natal Province. Umdoni Local Municipality is the smallest municipality in Kwa-Zulu Natal and it is located about 50km from the main city of the province, Durban, and 65km from Port Shepstone along the South Coast. It is bordered by the eThekweni Metro Municipality to the north, Umzumbe Local Municipality to the South, Vulamehlo Local Municipality to the West, making it almost halfway from Port Shepstone and Durban. Umdoni Local Municipality has a coastline of approximately 40km and stretches inland as far as Umzinto.

This study area, i.e. Umdoni Local Municipality, incorporates seven (7) traditional authority areas comprising 10 municipal wards and nine (9) Proportional Representative Councillors (Umdoni Local Municipality, 2014).

### **3.4 POPULATION OF THE STUDY**

According to Statistics South Africa Census (2011), Umdoni Municipality has a total population of approximately 78 875 which constitutes of 40 581 of that population being female and 38 294 being male. The Municipality has a total number of 22 869 households.

Yin (1994:34) defines a population of a research study as the entire group of persons that is of interest to the researcher, and which meets the criteria for inclusion in the study. The population in this study was the 25 officials who are directly responsible for water management and supply in the Umdoni Local Municipality. This population size includes the manager (water service management based at the Ugu District Municipality), as well as the Municipal Manager and the Ward Council of Umdoni Local Municipality (the target population size = 25).

### **3.5 THE SAMPLE SIZE AND SAMPLING METHODS**

Sampling refers to the process used to select a portion of the population for study. It is usually impossible to include the entire population in your study, the two main restrictions being time and cost. Sampling theory has been developed to suggest ways of drawing scientific samples, that is, samples that are random and representative of the population and whose findings can tell us more about the population in general (Maree, 2007).

The actual drawing of the sample involves the generation of a predetermined number – the sample size – of random numbers. The population elements corresponding to these numbers form the sample. The crucial part of this method is that the numbers should be determined randomly (Maree, 2007).

A sample size depends on the nature of the analysis to be performed, the desired precision of the estimated one wished to achieve, the kind or number of comparisons that will be made, the number of variables that have to be examined simultaneously and how heterogenous the universe is sampled. A qualitative inquiry typically focuses in-depth on relatively small samples. It is fine to use a sample size in a qualitative study (Patton, 2002).

In this study, 10 respondents (ward councillors) who directly work with water management and supply in the Umdoni Local Municipality purposively selected from the total population of 25 officials. Each second person was randomly selected to arrive at a total of 10. The reason for the small sample was that this is a qualitative study and all respondents were going to be interviewed individually. The sample included:

- The District Water Service Manager (UDM),
- The Municipal Manager (ULM) and
- Ten (10) Ward Councillors.

Thus the total sample was  $n = 12$ .

### **3.6 DATA COLLECTION METHODS AND PROCEDURE**

This is the qualitative study where data was collected on the despondence's biographical information and the information that would be in line with the objectives of the study. The current study is two-fold:

- Firstly, a desktop analysis was conducted. Desktop research is mostly for the work that has already been done. It is investigating what data is already available regarding a given problem. Conceptual or general questions can be answered on the basis of existing research or previous studies. Literature research and desktop research can also serve as preliminary research and this can help clarify the goals of the research (Green, 2007).

The municipality's IDP documents and the Water Strategy were looked into to see what the municipality had identified as challenges towards effective water management and supply.

- Secondly, the officials who work directly with water management (based at the District Municipal offices), the ward councillors at the Umdoni Local Municipality (ULM) as well as the Municipal Manager at the (ULM) were interviewed. These interviews were conducted to find out what their experiences or challenges are in terms of water supply and management in the municipality. Research schedules was used during the interviews as a way of standardising the kind of questions asked of each participants. One research schedule was designed for the municipal manager and the manager of water services delivery (see Appendix B) and another one was for the ward councillors (see Appendix C).

Interviews, using interview schedule, were used for this study. According to Green (2007) interviews resemble everyday conversations, although they are focused, to a greater or lesser extent, on the researcher's needs for data. They also differ from everyday conversation because researchers want to conduct them in the most rigorous way they can in order to ensure reliability and validity. This means that both the researchers and the users of the findings can be as confident as possible that the findings reflect what the research sets out to answer, rather than reflecting the bias of the researcher, or a typical group (Green, 2007).

There are different types of interviews which are used in qualitative methods that range from unstructured, semi-structured using the topic as a guide, unstructured and very detailed such as life histories. Semi-structured questions were used for this study (Green, 2007).

### **3.7 ETHICAL CONSIDERATIONS**

Ethics is a set of moral principles and rules aimed at protecting the interests of the respondents when conducting research (Green, 2007). The current study considered ethics as follows:

- **Permission:** the permission to conduct the study was sought from the District Manager (UDM) and the Municipal Manager (ULM) prior to conducting the study (see Appendix A).
- **Informed consent:** consent means that everyone who participates in the study should have freely consented to the participation, without being coerced or unfairly pressurised. It is in this vein that the study, as well as its purpose, was explained to the research participants to get their consent prior to conducting interviews. Participants were also informed of their right to withdraw from the study at any point should they wish to do so.
- **Confidentiality:** it is not always easy or even possible to measure the dangers of a certain context to a given population, let alone to individuals. It is, therefore, essential to protect the identity of the person from whom the researcher gathers information. If collected, the identity of the participants must be protected at all times and not be left lying around in notebooks or un-protected (Green, 2007). The identities of participants were not kept on record. The information provided will be kept confidential and will not be deliberately used to harm the participants in any way.

The results of the study will be made available and accessible to interested stakeholders.



### **3.9 LIMITATIONS OF THE STUDY**

The participants in this study were only the officials who directly work with water supply management and ward councillors at the Umdoni local municipality. The small sample will mean that the study can only be used to guide others in the same kind of situation but cannot be generalizable.

## **CHAPTER 4**

### **RESULTS OF THE STUDY**

#### **4.1 INTRODUCTION**

The purpose of this chapter is to present results of the study from data collected from the respondents who directly work with water supply management in the Umdoni Local Municipality (ULM), the ward councillors and the municipal documents. The main aim of the study was to analyse challenges of water supply management in ULM. The data collected from the documents such as the municipality's IDP (2014) and Water Strategy were looked into, to see what the municipality had identified as challenges towards effective water supply management.

This chapter presents the main findings of the study based on the key research questions discussed in chapter one.

#### **4.2 DATA ANALYSIS**

As this study was qualitative in nature. The researcher used Excel for frequencies of demographic information and content analysis was used to analyse data. Excel was used for sorting and filtering functions range where participants were filtered or sorted in term of their gender etc. Graphs or pie charts were then prepared using the information captured on excel.

Content analysis is a systematic approach to qualitative data analysis that identifies and summarises message content. It refers to the analysis of things such as books, brochures, written documents, transcripts, news reports and visual media. Sometimes content analysis is used when working with narratives such as diaries or journals, or to analyse qualitative responses to open-ended questions on surveys, interviews or focus groups. It is a process of looking at data from different angles with a view to identifying keys in the text that will help us to understand and interpret the raw data (Maree, 2007: 101).

In this study the following content analysis steps were followed:

- 1) Data from the interviews were transcribed into Word format and Excel
- 2) Categorised into coding themes based on research findings
- 3) Preparing data units in relations to research questions and objectives
- 4) Captured on Excel and Word
- 5) Analysed on Excel in terms of bar charts and pie charts; analysed on Word in terms of tables

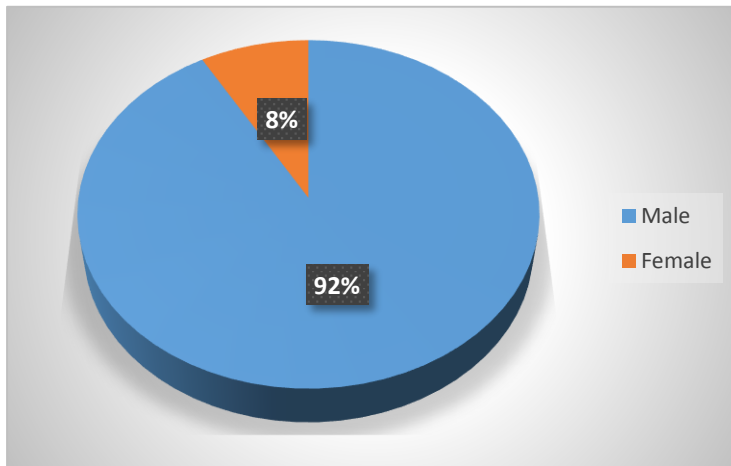
### 4.3 DEMOGRAPHIC INFORMATION

This section presents the respondents' personal information, this included respondents' gender, age, level of education, number of years at work and position at work.

The total number of respondents who were interviewed was the two (2) municipal officials and 10 ward councillors.

#### 4.3.1 Gender

The gender of the respondents is presented in figure 4.1 underneath.

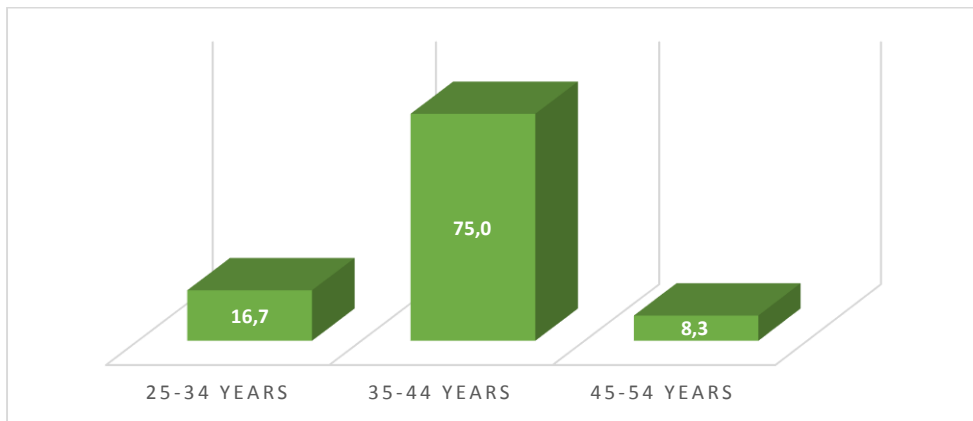


**Fig 4.1: Gender of respondents**

The above figure reflects that 92% of the respondents (Municipal Officials and Ward Councillors) are male and 8% female.

### 4.3.2 Age

Figure 4.2 gives the ages of the respondents in the current study.



**Fig 4.2:**

### Respondents' Age

The above figure reflects that 16.7% of the respondents are between the ages of 25 to 34; 75.0% between the ages of 35 to 44 and 8.3% between the ages of 45 to 54 years old.

### 4.3.3 Level of Education

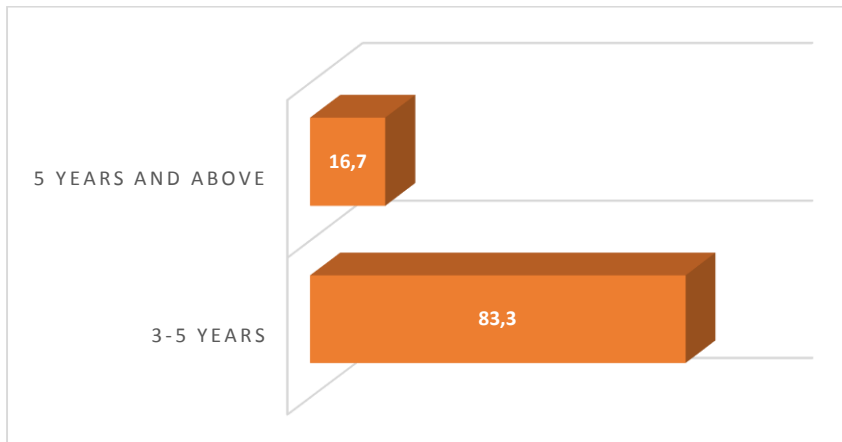
**Table 4.1: Level of education**

| Level of education | Frequency | Percent |
|--------------------|-----------|---------|
| Secondary          | 1         | 8.3     |
| Tertiary           | 11        | 91.7    |
| Total              | 12        | 100.0   |

The above table shows that one (1) out of 12 respondents which is 8.3% have secondary education and 11 out of 12 respondents which is 91.7% have tertiary education. Secondary education means (Grade 12 and lower) while tertiary means (post-matric diploma, degree or postgraduate degree). Of those with tertiary education eight (8) have a diploma, two (2) a degree and one (1) a postgraduate qualification.

#### 4.3.4 Years at work

The researcher wanted to know the number of years the respondents have worked at the Municipality.



**Fig 4.3: Number of years at work**

The figure above shows that two (2) (16.7%) of the respondents have been working for five (5) years and above at ULM; and that 10 (83.3%) respondents have been working for between three (3) to five (5) years. This indicates that only a few of the employees that work directly with water management and supply have long service at the Municipality.

#### 4.3.5 Position of the respondent at work

The position of the respondents at work is presented in table 4.2 below.

**Table 4.2: Position at work**

| Position               | Frequency | Percent |
|------------------------|-----------|---------|
| Ward Councillors       | 10        | 83.3    |
| Water Services Manager | 1         | 8.35    |
| Municipal Manager      | 1         | 8.35    |
| Total                  | 12        | 100.0   |

The table above shows that out of 12 interviewed respondents, 10 are working as ward councillors, one (1) as water services manager and one (1) municipal manager.

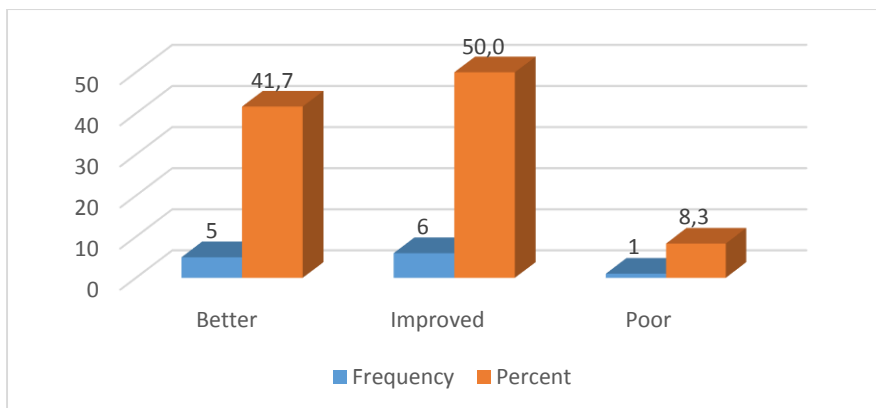
#### 4.4 FINDINGS ABOUT PERCEPTIONS ON PROVISION OF WATER

This section presents data about the perceptions of the respondents on water provision in the Municipality. Data were gathered using interviews and analysis of documents, in particular, the IDP of the Ugu District Municipality and Umdoni Local Municipality. The respondents were asked about their perceptions towards the water supplied to the Municipality, how they access that water and the overall uses of water by the community.

##### 4.4.1 Quality of Water Services rendered by Ugu District Municipality (UDM)

One of the questions was to find out if ULM is in overall happy with services rendered by UDM. The above figure represents the perception of the rate of quality service by UDM at ULM. About 41.7% respondents said that the rate of quality service is better; 50.0% says it has improved and 8.3% says that the rate of quality service is poor as prior 1994.

Out of 12 Ward Councillors; five (5) said the quality of water service is better; six (6) says it has improved and one (1) says it is poor.



**Fig 4.4: Rate of Quality Service**

#### 4.4.2 The Overall Quality of Water in Umdoni Local Municipality (ULM)

All the respondents who were interviewed indicated that the overall quality of water supplied to residents of ULM is good and 100% clear.



**Fig 4.5: The perceived overall quality of water**

#### 4.4.3 The Uses of Water in Umdoni Local Municipality (ULM)

The current study sought to establish the uses of water for Umdoni local municipality.

**Table 4.3: Uses of water in Umdoni Local Municipality**

| Uses of Water       | Frequency | Percent      |
|---------------------|-----------|--------------|
| Agricultural        | 1         | 10.0         |
| Households purposes | 9         | 90.0         |
| <b>Total</b>        | <b>10</b> | <b>100.0</b> |

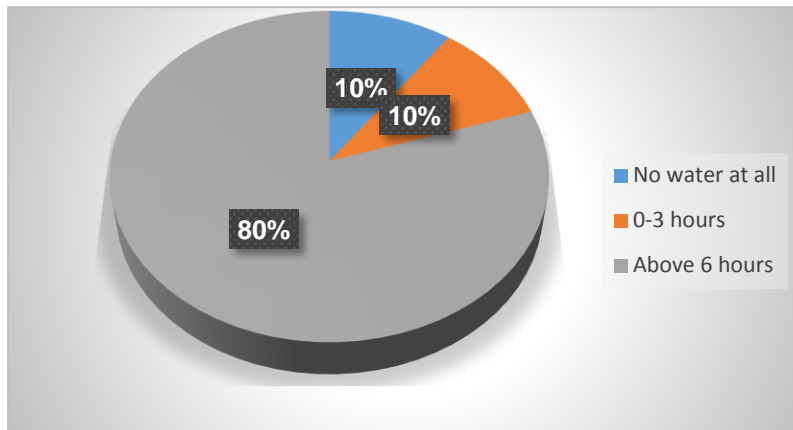
The table above shows us that 10.0% of the households use water for agricultural purposes and other 90.0% uses it mainly for domestic purposes. Domestic water use includes cooking, bathing, cleaning, and watering family food plots or gardens.

#### 4.4.4 Estimated Hours of Community Receiving Water

The Umdoni Local Municipality is experiencing water shortage and disruption of services on a regular basis. The provision of water is the responsibility of the Ugu District Municipality although the Local Municipality is assisting in gathering information and the development of a Consolidated Infrastructure Plan to inform the

Water Services Development Plan by providing information on backlogs and needs. (Umdoni Local Municipality, 2014).

The researcher sought to find out how many hours in a day (i.e per 24 hours) was the water available for the community of the Umdoni Local Municipality.



**Fig 4.6: Number of hours for receiving water**

According to the respondents and as depicted in the above figure 80% of the Umdoni households receive water for above six (6) hours per day; 10% households receive water for between zero (0) to three (3) hours per day and 10% households do not receive water at all. As a result, those people who do not receive potable water at all hire their neighbours' vans to collect water for them from the nearest wards that have water. This transporting of water comes at a cost with high rates.

Those who receive potable municipal water for a few hours wake up in the early hours of the morning to fill their water buckets so that they have enough water for those hours when they will not have water at all. The inconvenience of water shortage also brings a health hazard, hence those without water at all cannot afford to take care of their hygiene more especially the young girl teenagers who need enough water to keep clean.

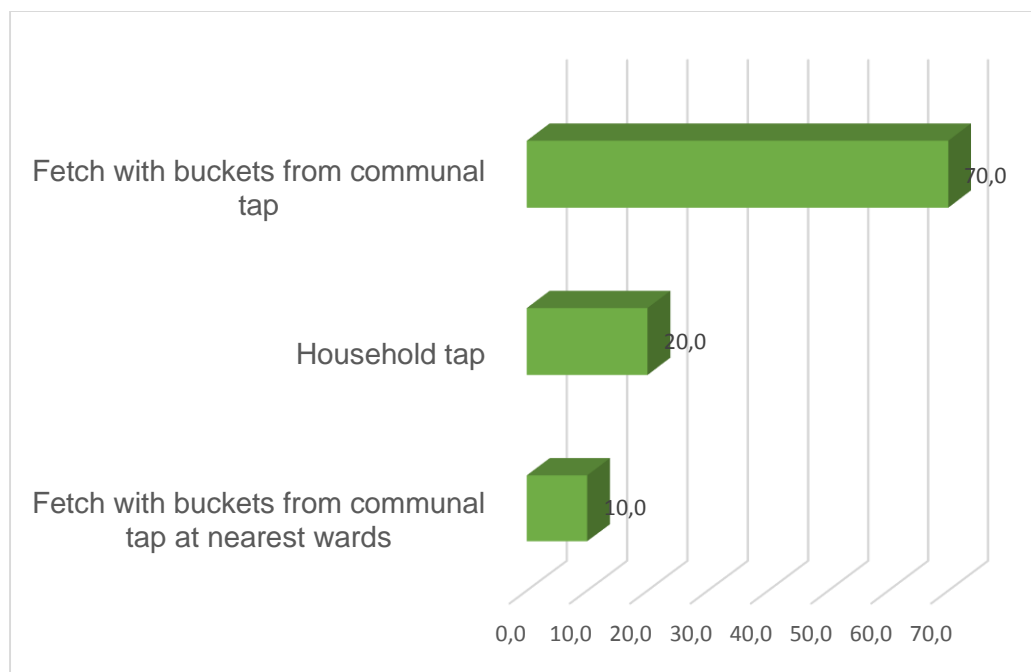


This was confirmed by one of the respondents who stated that: “*These young girls even miss school because they cannot go in public without being clean more especially when they are on their periods as a result they even miss school*”. This shows that inadequate supply of water affects the education of children, especially girls, having a possible negative effect of their future and children who have to wake up early to collect water, they go to school already tired. Effective concentration and learning can be affected.

#### 4.4.5 Water Supply to Households

According to the Ugu District Municipality Integrated Development Plan (IDP), the water supply to the District is derived from dams, rivers, ground water and bulk purchases from eThekweni and Umgeni Water. The water is then treated at several treatment plants, owned by Ugu before being distributed to households. Distribution of water is done via more than 50 000 private household connections and over 5 000 communal stand taps which mainly service the inland rural areas (Ugu District Municipality, 2014).

The researcher checked how the water was supplied to the Umdoni Local Municipality households in the Ugu District Municipality.



**Fig 4.7: Water supply to households**

The above figure reflects that 70.0% of the households fetch water with buckets from communal taps that are on average 1km away from each homestead; 20.0% gets water straight from their household wards and 10.0% fetch water with buckets from the communal taps at the nearest taps because they do not have water in their own wards. One of the respondents said that: *“In our ward we go for weeks or even months without water, as the municipality we have failed the community”?*

#### 4.4.6 Critical Success Factors in Water Supply

##### 4.4.6.1 Improved Water Supply

Table 4.4. Underneath presents the responses of the participants when asked about what they perceive to be some success factors in terms of water supply and management in their area.

**Table 4.4: Water Service**

| Position of respondents             | Response   |
|-------------------------------------|--|
| Ward Councillors                    | Bad, water service is getting worse  |
| Ward Councillors                    | Improved, water service is now better compared to before 1994                              |
| Ward Councillors                    | Excellent  |
| Ward Councillors                    | Good   |
| Ward Councillors                    | Excellent  |
| Ward Councillors                    | Good   |
| Ward Councillors                    | Good   |
| Ward Councillors                    | Good   |
| Ward Councillors                    | Excellent  |
| Ward Councillors                    | Good   |
| Water Services & Municipal Managers | Better, Umdoni used to be supplied by one plant but now it is being supplied by two plants |
| Water Services & Municipal Managers | Improved, water services supply in Umdoni had improved over the years                      |

The Water Services Manager, Municipal Managers as well as Ward Councillors mostly agree that the water supply since 1994 is satisfactory compared to those who were unhappy with the water supply. However, there is still a possibility for improvement in

some wards within the Umdoni Municipality. There has been some improvement in the provision of safe drinking water within Umdoni area since 1996, five percent (5%) of the households had piped water on site; nine percent (9%) of the households had public taps but now 12% of the households has piped water on site and 44% has public taps where they receive potable water.

#### **4.4.6.2 Community Consultation**

According to the municipals officials who were interviewed, as well as the ULM's IDP (2014) the following were identified as critical success factors:

- The Municipality has hosted road shows and awareness campaigns that involve the Ward Councillors as part of decision making.
- Bulk short message services (sms's) are sent to the community regarding water shortage related issues, warning the community about impending water cuts as well as reasons for those.
- The Ward Councillors are always informed about decisions made in the district.
- Testing, monitoring and maintaining high water quality in its treatment plants complies with the requirement of the Blue Drop/Green Initiative.

#### **4.4.7 Challenges facing the Umdoni Local Municipality in Water Supply**

Water services must be provided to all persons in the Ugu District Municipality area on a sustainable basis within the financial and human resources of the Municipality to promote a healthy lifestyle; to attract investment and promote economic growth in the region. The Constitution provides that everyone is entitled to a healthy lifestyle and to water, and that is taken further in the Water Services Act which, in section 3 (1), states that everyone has a right to access basic water supply and sanitation, both collectively referred to as water services. Basic water supply means to 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 (Ugu District Municipality, 2014).

The Ugu District Municipality (UDM) strives to provide water services to all persons who reside, work or visit its area of jurisdiction in a manner that is economically and financially sustainable. In other words, water services are provided within a framework of fiscal discipline and a balanced budget. UDM is able, from its own resources or by way of grants from other resources, including other levels of government, to provide free basic water services to its poorer communities, it does so in accordance with the policies of the national government, but always subject to the aforementioned fundamental principle (Ugu District Municipality, 2014).

Within the framework of this fundamental principle, the UDM would strive by applying efficient practices and innovative policies, to provide water services in a range of levels of services to cater for the needs of all its people so that all may receive water services which improve the quality of their lives and the health. The extension of water services to all areas of the district will be guided by this principle and the upgrading of existing water services. It is equally the objective of the municipality to provide water services to all as soon as possible in accordance with its mandate under the law (Ugu District Municipality, 2014).

Ugu District Municipality is 94.4 kilometres away from Umdoni Local Municipality. According to Umdoni Local Municipality's IDP (2014), UDM is responsible for general water supply; planning; implementation; overall decision making and management in Umdoni. However, it would have been much better if the local municipality was responsible for all water related decisions because the District is not within their area and as a result the decision taken by the district mostly disadvantages those who permanently do not have water supply.

- The respondents identified the following as challenges to the effective water supply in ULM:
- The fact that water supply is managed at the district, which is far from the local municipality.
- They felt that there is an inadequate communication and consultation with the ULM community.
- Not all wards have water and some of those that have water do not have it all the time.

- Management is challenged by the fact that as there is no sustainable water source in the area, water supply comes at a high cost. The cost is what results in slow progress.
- The Municipality has shortage of qualified personnel who are dedicated to water supply and management.

The ULM's IDP (2014) identified the following challenges in ULM:

- The water supply to the Ugu District Municipality (UDM) is derived from dams, rivers, ground water and bulk purchases from eThekweni and Umgeni Water.
- The water is then treated at several treatment plants, owned by UDM before being distributed to the households. The distribution to households involves transportation of water in pipes that goes for several kilometres.
- The current level of basic service within the district comprises predominantly community standpipes at 200m from houses.
- There is an inadequate budget allocation. UDM did not meet the millennium development goals of 100% access to water and sanitation by 2014 due to the shortage of funding. Additional funding is required to eradicate the water and sanitation backlog.
- There is a shortage of qualified personnel, which may be contributory to poor service delivery of services including water services.
- Community involvement and consultation, the community is not adequately consulted and thus not sufficiently involved in decision making.
- Lack of infrastructure – storm water maintenance and inadequate maintenance of the infrastructure that is available.
- Ageing infrastructure that may lead to water loss through bursting pipes and water leaks.
- Inability to adhere to time-frames.
- Inefficient communication about impending water cut offs within the Municipality and with the community at large.
- Poor workmanship.
- Spatial planning, the rural areas planning is not like in urban areas. Therefore, the planning for water infrastructure is not that clear or well-coordinated.
- Theft and vandalism of pump stations equipment by community members.

- Some community members in ULM do not have water supply at all, they depend on the municipal trucks and nearest wards for water.
- Shortage of water does not only inconvenience the community members but bring a big health hazard hence they end up saving the little water they have.
- Children even miss school because of not having enough water to bath and wash their school uniform.

Although the district municipality is facing their own problems, the respondents said it was the shortage of water that was the biggest problem. It is the district's responsibility to make sure that they provide water to all the municipal wards and should take responsibility in dealing with their shortfalls. Strategies should be put in place to deal with shortage of water and the community must not suffer just because the municipality fails to take ownership of its responsibilities. Most wards have sufficient water supply and the community is very happy, however there is only one (1) ward which permanently does not have water.

Umdoni Local Municipality has a lot of water supply management challenges. However, it is important for the community of Umdoni to work together to ensure that none of their community members would vandalise or destroy the municipal property because it is the community members more especially women and children that suffer the most in instances of effective and efficient supply management. The Ward Councillors are supposed to be the link between the community and the municipal officials, however, the Water Services Manager, Municipal Manager and Ward Councillors do not consult the communities.

#### **4.5 SUMMARY**

This chapter presented, findings from data collected from the respondents who directly work with water supply management in the Umdoni Local Municipality (ULM). The researcher wanted to answer why there were challenges of water supply management. The collected data was studied to see what the municipality had identified as challenges towards effective water supply management. The main findings of the study were based on the key research questions discussed in previous

chapters. The quality and quantity of data determine the relevance of the research results and the overall experience of the ULM to water supply management.

In terms of the National Government's definition of backlogs households must have access to a formal water supply within 200m walking distance. This implies that only 45% of households in the Ugu District Municipality have been served with a RDP level of service, 50% served with piped water making the backlog of households not receiving satisfactory standards five percent (5%) as per Stat SA Census 2011. In Umdoni Municipality, 44% number of households has been served with a RDP level of service and only 53% served with piped water making the backlog of households not receiving satisfactory standards three percent (3%) as per Stat SA Census 2011 (Ugu District Municipality, 2014).

## **CHAPTER 5**

### **SUMMARY OF RESULTS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

In South Africa, every person has a right to access basic water and sanitation services. The Ugu District Municipality believes that adequate and effective water services will contribute significantly to the health and quality of life of the people in its area of jurisdiction. Thus, as part of its mandate as a development agency and as of the Integrated Development Plan (IDP) for the municipality, the Ugu District Municipality will strive to bring water services to every corner of its area in a way which will not only provide basic water services as defined in the Water Services Act, but which will meaningfully contribute to the improvement of the health and quality of life for all its people. The Ugu District Municipality fully supports the National Government's Policy on providing free basic water services to the poorer section of the community (Ugu District Municipality, 2014).

This chapter presents the summary of results, conclusions drawn from collected data and recommendations. The summary of results reflects on the research objectives, evaluating if they were accomplished as outlined in Chapter One (1). Recommendations are made on critical issues based on the respondents being Water Services Managers, Municipal Managers and the Ward Councillors as they are the potential solution to water supply management. The conclusions were based on the empirical data and the theoretical aspects obtained during the research. The lessons learnt by the Umdoni Local Municipality should influence the future policy, planning and implementation of efficient water supply services management to all the communities within the municipality area.

#### **5.2 SUMMARY AND DISCUSSION OF RESULTS**

The purpose of this study was to observe the challenges of water supply management in Umdoni Local Municipality being one of the six local municipalities within the Ugu District Municipality. The study explored challenges of water supply management in Umdoni Local Municipality. The study determined whether the challenges of water supply were due to lack of planning, poor management, infrastructure maintenance or



lack of skill resources by the Water Services Managers, Municipal Managers and Ward Councillors in charge to ensure the smooth running of basic services.

It is the Umdoni Local Municipality's responsibility to ensure that they manage water supply for the entire community. However, the results of this study show that there have been inconsistencies in terms of water supply in Umdoni Local Municipality. In some wards water supply is adequate and good quality while in other wards residents spend weeks and even months without access to clean drinkable water even though the National Development Plan clearly states that people have a right to access fresh drinkable water.

According to Nnadozie (2011), most recent studies that were concluded on topics such as the effectiveness of water supply services in rural areas on issues of service delivery and living conditions in South African households confirm that the focus should be to deliver to poor households. It was observed that substantial progress had been made in supplying clean water in South Africa, more especially in urban areas. However, rural areas still lag behind their urban counterparts.

Access to water is basic for human life and it is recognised as a fundamental human right. A healthy human life demands sufficient and safe water supply. However in Umdoni Local Municipality, there are some challenges that are experienced in terms of effective water supply to the local community. The challenges include:

- Some wards do not consistently have potable water while one ward does not have any clean water at all times. The lack of clean water and inconsistency of supply in other areas also affect children, especially girls who either miss school to fetch water, go to school tired after fetching water in the morning or fetch water in the evenings before and/or instead of doing their homework. This will ultimately affect their learning. The inadequate supply of water also comes at a cost to the community members who have to buy the water from the nearby municipal wards.
- The responsibility of water management and supply is at district level, making it challenging for local communities to easily follow-up on matters of concern while at the same time making it difficult for management to keep their fingers on the priorities of the community.

- There are no water sources in the municipal area. So water is transported for long distances. This implies cost, as well as water loss, through leakages from ageing infrastructure.
- There is shortage of qualified personnel which has implications for the effective planning and implementation of programmes on water supply and management.
- There is also a challenge of inadequate finance/budget which has implications for the insufficient funds also make it difficult for personnel to construct new and up-to date infrastructure.
- The community (in the form of councillors) also complained that there is not enough community consultation in terms of water supply and management. This complicates the issue of management not have adequate perspective on is priority for the community that they serve.

The respondents also indicated that they have succeeded in certain areas as follows:

- Management and employees that work with water management and supply managed to find ways of communicating with the community about water issues (as well as other service delivery issues). The communication is through road shows, awareness campaigns as well as the use of bulk sms’.
- The quality of water supplied is perceived by respondents as good. The community uses water basically for household and agricultural purposes.

### **5.3 RECOMMENDATIONS**

The current study recommends the following:

#### **5.3.1 Prioritization of Effective Water Supply for Umdoni Local Municipality**

Water is important as a basis of life, however the dissatisfactory water supply situation is a big concern for the Umdoni community. Whilst addressing the long term constraints, Umdoni Local Municipality must also have short term strategies to improve water supply management to its households. Water supply should be made one of the priority areas and should be top on the service delivery agenda.

### **5.3.2 Water Sources**

Additions of water plants, building of new reservoirs, upgrades of water pipes, especially in Amahlongwa area need urgent attention. A reservoir should be built and it will be a great value because the water pump stations will have backup water storage. This will ensure efficient water supply for the households. In the meantime, it is also recommended that the municipal truck supply water at least four times a week in places where there is no water at all or in places where the water supply is inconsistent.

### **5.3.3 Education and Training**

- The education and training can be in the form of awareness campaigns and road shows to educate the community. The community should be educated and be aware of several issues that include:
  - The fact that illegal connections, theft, vandalism of pipes and other equipment serve as a setback to service delivery.
  - This comes at a cost to the municipality that further delays service delivery.
  - The importance of water and why it is in short supply in their municipal area
  - Methods of saving water
  - Traditional water harvesting methods
- The district must be very strict towards those who vandalise the municipality's property if they are identified.
- Community must also be informed about the reasons why there are problems in cases where there is no water, and be involved in finding solutions for such problems.
- Community involved in all activities or plans would ensure that any illegal activities come to an end and those who are involved in illegal activities would be severely disciplined.
- The Ward Councillors must explain and even educate their communities on the importance of attending community meetings and the disadvantages of missing such.
- The success of this endeavour will improve quality and accelerate service provision to communities.

#### **5.3.4 Penalties for those who Damage Municipal Property/Infrastructure**

The district must be very strict towards those people who vandalise the municipality's property if they are identified, including those who make illegal water pipe connections. The illegal connections perpetuate the problem of damaged pipes and constant water leakage. They also delay efficient service delivery.

#### **5.3.5 HR and Skills Development**

Proper skills audit should be conducted, so that it can be followed by training and/or recruitment and placement of the right personnel in the right positions for effective service deliver. The municipality should also look into funds and see if they can allocate more money for more efficient water and sanitation management. This will also ensure human development as the municipality could have employable community who would take ownership in the development of their own area.

#### **5.3.6 Community Consultation and Participation**

The Ward Councillors should be more effective in ensuring that there is enough interaction and consultation within their communities. It is important to involve the community to participate in decision-making and planning in issues that concern them and to assist evaluate the overall service delivery.

The Ugu District Municipality needs to involve communities when planning, this will help the households to feel as part of their development because they are the custodians of water in the area. The community will also know the reasons for the delays and/or success factors.

Women and children must not suffer because of shortage of water. Women and children are expected to walk very long distances to fetch water from the nearest wards in cases where there is no water supply in their wards and therefore women must be involved in all stages of planning, implementation and management of constant water supply to ensure that it is effectively and efficiently deployed within their wards and Umdoni Local Municipality as a whole.

Women can also be involved in coming up with plans that could improve water supply management. Women management forum could also be implemented, where women would manage all water supply related issues. This forum could also look at anti-corruption plans to avoid equipment theft from the water forum stations.

### **5.3.7 Anti-corruption forums**

Anti-corruption forums could be introduced to assist in ensuring that there is effective community participation as the community would be involved and working as a whole in finding ways of dealing and disciplining those guilty of vandalism and thefts at pump stations which results in the communities having to go for months without water.

The Anti-corruption forum can also assist safe guard against the negative issues that might disturb water supply. Community watch hotline can be implemented where illegal activities can be reported. As a result the Umdoni community would protect and take ownership of their own development as a community.

### **5.3.8 Participation with other stakeholders**

The Ugu District Municipality should establish partnerships with other stakeholders such as private sectors, particularly Umgeni Water and the Department of Water Affairs, in order to address the water supply backlog to communities within its jurisdiction. The Municipality has to ensure that it has sustainable and feasible plans.

### **5.3.9 Communication in Umdoni Local Municipality**

Communication between Ugu District Municipality, Umdoni Local Municipality and households needs to be addressed. The Ward Councillors and Community Leadership have to coordinate the households to attend the community meetings where challenges within the community would be discussed. Road shows can also make use of this platform to educate the community about the negative impact of vandalising the municipal property which negatively affect water supply within their communities.

It is suggested that the same study should be carried out at the national level. The effectiveness of water supply management to South African Municipalities also need to be assessed. Another study can be done on the programmes and strategies that

Ugu District uses to ensure efficient water services delivery to the community so that the backlogs are eradicated.

#### **5.4 SUMMARY**

Life depends on water in order to survive. Everybody needs water for drinking, cleaning and washing. Water shortage means failure to meet the community demands for clean potable water. Due to the nature of these challenges Umdoni Local Municipality has to encourage community members to participate in community development. The implementation of new plans and strategies need to sort out the challenges and ensure efficient water supply.

The Ugu District Municipality, Umdoni Local Municipality has a few success factors in terms of their water supply and management. However, they are still faced with several challenges in terms of meeting the water requirements of their community. The municipality and the community must work in partnership to successfully develop their endeavours in ensuring efficient, effective and sustainable water supply management.

Theft and vandalism, take the community backwards because there is no going forward as the Municipality has to replace the stolen and/or damaged equipment from the pump stations which costs a fortune. Strategies should be in place to ensure that the community treat municipal property with respect and dignity, to ensure efficient water services delivery to the community and that the service delivery backlogs would be eradicated.

It is mostly women and children that suffer when there is no water. In some instances, children even miss school because their school uniform is dirty and they cannot bath for weeks. This can have a negative effect on the education of children, especially girls. It also poses a health threat especially to young girls at their puberty stage because they need efficient water to keep clean and hygienic at all times. If, they cannot keep clean they can be ridiculed by their peers at school and therefore decide to miss school.

The District has the municipal truck that delivers water in cases when they is no water. However the truck delivers water daily to the wards that already have water and only go to the needy areas once every third week. The ward councillors should communicate with the district to ensure that the district municipal truck gives preference to the needy wards thus as a result the needy wards will be catered for in time of need.

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**APPENDIX A**  
**LETTER OF PERMISSION TO CONDUCT RESEARCH**

PO Box 33, Port Shepstone 4240  
Kwa Zulu-Natal  
South Africa



28 Connor Street  
Tel: (039) 688 5807  
Fax: (039) 682 3350

*Ugu Distrik Munisipaliteit*

*Ugu District Municipality*

*Ugu Umasipala Wesifunda*

**OFFICE OF THE MUNICIPAL  
MANAGER**

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05 June 2015

ATT: Ms N Gumbi

EMAIL: [Ntokozo.Gumbi@ul.ac.za](mailto:Ntokozo.Gumbi@ul.ac.za)  
Cell : 015 268 4141

**PERMISSION TO CONDUCT RESEARCH STUDY WITHIN UGU DISTRICT MUNICIPALITY**

I would like to acknowledge receipt of the letter requesting to conduct research in Ugu District Municipality. Your request to conduct research study in uGu District municipality has been accepted.

Kindly advise on the date that you would like to resume with the survey in our Municipality in order for us to make necessary arrangements.

Thanks and Regards,

**DD NAIDOO**  
**MUNICIPAL MANAGER**

PARK RYNIE: (039) 976 1333

PORT SHEPSTONE: (039) 688 5700

OSLO BEACH: (039) 688 5830

HARDING: (039) 433 1563

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**24 HOUR CUSTOMER CARE CENTRE: (039) 688 5830**

[www.ugu.org.za](http://www.ugu.org.za)

## APPENDIX B

### WATER MANAGEMENT AND MUNICIPAL MANAGERS' INTERVIEW GUIDE

#### A. DEMOGRAPHIC INFORMATION

##### 1. Gender

|        |  |
|--------|--|
| Male   |  |
| Female |  |

##### 2. Age

|              |  |
|--------------|--|
| 19 - 24      |  |
| 25 - 34      |  |
| 35 - 44      |  |
| 45 - 54      |  |
| 55 and above |  |

##### 19 Level of education

|                      |  |
|----------------------|--|
| Primary              |  |
| Secondary            |  |
| Tertiary             |  |
| Other please specify |  |

##### 20 How long have you worked as a Water Services Manager?

|                   |  |
|-------------------|--|
| 0 – 3 years       |  |
| 4 – 5 years       |  |
| 5 years and above |  |

#### B. INFORMATION ON WATER SUPPLY AND PERCEPTION BY CONSUMERS

##### 1. Success factors

- a. How has the water supply been in Umdoni Municipality since 1994?
- b. What are the water supply problems faced by households in Umdoni Municipality?

- c. How would you rate the quality services rendered by Ugu District in Umdoni Municipality?

|          |  |
|----------|--|
| Better   |  |
| Improved |  |
| Poor     |  |

## 2. EXPECTATIONS OF COMMUNITY

- a. Do you think the municipality has meet the community's expectations in water supply and management?
  
- b. What do you think would make the community happy regarding the water supply management?

## 3. CONSULTATION

- a. Does the Municipality consult the community before making any water supply and management decisions?
  
- b. Who is in charge of the overall decision making of water supply and management in Umdoni?

## 4. CHALLENGES

- a. What are the water supply and management problems faced by water supply services managers?
  
- b. What is the problem that hinders the institutions dealing with water supply fail to deliver water in Umdoni Municipality?
  
- c. What impact does the inconsistency of water supply services have on the people or households of Umdoni Municipality?
  
- d. What are the communities' alternatives means of water supply when they have not water?

**5. PLANS FOR THE FUTURE**

- a. Are there strategies put in place to improve the water supply and management in Umdoni?
  
- b. Which management strategies do you think are necessary to improve water supply?

**6. ADDITIONAL COMMENTS**

- a. Do you have any suggestion on how the District could improve the water supply management in Umdoni?
  
- b. Do you have any other comments or concerns?

## APPENDIX C

### INTERVIEW GUIDELINE USED TO INTERVIEW WARD COUNCILLORS

#### A. DEMOGRAPHIC INFORMATION

##### 1. Gender

|        |  |
|--------|--|
| Male   |  |
| Female |  |

##### 2. Age

|              |  |
|--------------|--|
| 19 -24       |  |
| 25 -34       |  |
| 35 - 44      |  |
| 45 - 54      |  |
| 55 and above |  |

##### 3. Level of education

|                      |  |
|----------------------|--|
| Primary              |  |
| Secondary            |  |
| Tertiary             |  |
| Other please specify |  |

##### 4. How long have you worked as a ward councillor?

|                   |  |
|-------------------|--|
| 0 – 3 years       |  |
| 3 – 5 years       |  |
| 5 years and above |  |

#### B. SITUATION ANALYSIS AND WATER SUPPLY SERVICES STATUS

##### 1. Success factors

1.1 How has the water supply been in Umdoni Municipality since 1994?

1.2 What are the water supply problems faced by households in Umdoni Municipality?

1.3 How would you rate the quality services rendered by Ugu District in Umdoni Municipality?

|          |  |
|----------|--|
| Better   |  |
| Improved |  |
| Poor     |  |

1.4 Are you satisfied with the type of water supply services rendered in Umdoni?

|     |  |
|-----|--|
| Yes |  |
| No  |  |

### C. QUALITY OF WATER / WATER USES

1. The overall quality of water in Umdoni is it:

|        |  |
|--------|--|
| Clear  |  |
| Cloudy |  |
| Brown  |  |

2. What do you use the water for?

|                      |  |
|----------------------|--|
| Agricultural         |  |
| Household purposes   |  |
| Drinking             |  |
| Business             |  |
| Other please specify |  |

3. How many hours as estimated do you receive water in your area in the morning?

|               |  |
|---------------|--|
| 0 – 3 hours   |  |
| 3 – 6 hours   |  |
| Above 6 hours |  |

4. How is the water supplied to households?

|   |  |
|---|--|
| Household tap                           |  |
| Fetch with buckets from communal tap    |  |
| Fetch with buckets from neighbours tap  |  |
| Fetch with buckets from municipal truck |  |

#### **D. REASONS FOR CHALLENGES**

1. What are the water supply problems faced by you as councillor?
2. What is the problem that hinders the institutions dealing with water supply fail to deliver water in Umdoni Municipality?
3. What impact does the inconsistency of water supply services have on the people or households in Umdoni Municipality?
4. What are the communities' alternatives means of water supply when then have no water?

#### **E. EXPECTATIONS**

1. What are the communities' expectations to constant water supply?

#### **F. CONSULTATION – SERVICE DELIVERY AS OUTLINED ON THE IDP**

1. Does the District Municipality consult the Umdoni community when making decisions regarding water supply management?
2. Who is responsible for water supply management in Umdoni?
3. Who is responsible for planning for water supply management in Umdoni?
4. Who is responsible for implementation for water supply management in Umdoni?

5. Who is responsible for overall decision making for water supply management in Umdoni?

### **G. STRATEGIES**

1. Are some strategies put in place to improve the poor water supply in Umdoni?
2. Which management strategies do you think are necessary to improve water supply and women's involvement in water management in Umdoni?
3. In your own opinion what do you think should be taken into consideration when analysing the impact of domestic rural water supply on women and sustainability?

### **H. SUGGESTIONS**

1. Do you have any suggestions in how or what the municipality can do to improve the current situation?



**APPENDIX D**  
**UGU DISTRICT MUNICIPAL TRUCK**



**APPENDIX E**  
**COMMUNITY MEMBERS USING VANS TO COLLECT WATER**



# APPENDIX F

## MAP OF UMDONI LOCAL MUNICIPALITY

