

**The impact of water service provision on the quality of life of the eMalangeni
and eMahlongwa rural communities**



By

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Abstract

Through a case study of the Umdoni Local Municipality the study assessed the claims made in the Ugu District Municipality 2008 Report that eMalangeni and eMahlomgwa communities have achieved 100 percent water provision. Furthermore, the study used the Rostowrian's four of the five-stage model of development to interrogate whether water service provision has improved the standard of living of the people in these two communities. The findings of this study reveal that there is a positive correlation between the installation of water standpipes and an improvement of the standard of living, though it is spread unevenly in these areas. The study concludes that government departments such as the Departments of Water Affairs and Forestry, Agriculture and Rural Development and Land Reform should forge strong relationships aimed at assisting the UDM to achieve its prime objective of improving the quality of life of all who fall under its jurisdiction.

Declaration

I hereby declare that this work is my own investigation and that all the data sources utilized have been acknowledged by means of complete references and bibliography. This work has not been concurrently submitted to any university or technikon.

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PREFACE

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Last, but not least, I offer my regards and blessings to all of those who supported me in any respect during the completion of the project.

Dedication

**This dissertation is dedicated to my mother who passed away while I was young. Nomkhonto Clementina Khomo, thank you so much for having me-
*,ngiyabonga kakhulu ukungiletha kulomhlaba’.***

Abbreviations and Acronyms

African National Congress (ANC)
Community Based Organizations (CBOs)
Community Water Supply and Sanitation (CWSS)
Department of Water Affairs and Forestry (DWAF)
Free Basic Water Provision (FBWP)
Ghana’s Living Standards Survey (GLSS)
Human Sciences Research Council (HSRC)
Integrated Development Plan (IDP)
International Policy Centre for Growth Inclusive (IPCGI)
Local Economic Development (LED)
Lower South Coast Regional Water Services Corporation (LSCRWSC)
Millennium Development Goals (MDGs)
Municipal Structures Act (MSA)
National Water Act (NWA)
Non-Governmental Organisations (NGOs)
Reconstruction and Development Programme (RDP)
South African Local Association (SALGA)
Ugu District Municipality Backlog Report (UDMBR)
Ugu District Municipality (UDM)
Ugu Regional Council (URC)
Ugu Water Dialogues Report (UWDR)
United Nations Educational Scientific and Cultural Organization (UNESCO)
United Nations General Comment (UNG)
United Nations World Water Development Report (UNWWDR)

Water Services Act (WSA)

Water Services Authority-Water Service Provider (WSA-WSP)

World Health Organization (WHO)

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CHAPTER ONE

The Impact of Water Service Provision on the Quality of life of the eMalangeni and eMahlongwa Rural Communities

1. Introduction

“Safe drinking water, sanitation and good hygiene are fundamental to health, survival, growth and development. However, these basic necessities are still a luxury for many of the world’s poor people. Over 1.1 billion of our fellow citizens do not use drinking water from improved sources, while 2.6 billion lack basic sanitation. Safe drinking water and sanitation are so obviously essential to health that they risk being taken for granted. Efforts to prevent death from diarrhoea or to reduce the burden of such diseases such as ascariis, dracunculiasis, hookworm, schistosomiasis and trachoma are doomed to failure unless people have access to safe drinking water and basic sanitation. Lack of sanitation indirectly inhibits the learning abilities of millions of school-aged children who are infested with intestinal worms transmitted through inadequate sanitation facilities and poor hygiene” (World Health Organization and UNICEF, 2006).

There is a positive correlation between the improvement of the standard of living of the rural communities of eMalangeni and eMahlongwa and the installation of communal standpipes in these areas. Water service provision in rural areas is premised on the notion that there are strong economic arguments for building infrastructure that supports productive enterprises, and equally strong ethical arguments based on historical omissions. According to the Ugu District Municipality (UDM) Backlog Report of 2008, prior to the installation of standpipes in eMalangeni and eMahlongwa communities, the main sources of water in these areas were perennial rivers. South Africa’s mortality statistics for 2004 reveal that an average of 12 children aged 0-4 years died every day from intestinal infectious diseases, many of which were water-borne diseases. An earlier study in 1999 found that 200 000 children were at risk of missing school classes because they had to carry water for more than 24 hours a week to meet the survival needs of their households (Department of Water Affairs and Forestry (DWAF) Report, 2004).

It is a hackneyed but nevertheless valid truth that water provision as part of service delivery is one of the discourses dominating the political and the public domain in contemporary South

Africa. For decades water provision has been relegated as a peripheral issue in rural communities. This research project examines the impact of water provision on the quality of life of the eMalangeni and eMahlengwa rural communities, which fall under the jurisdiction of the Umdoni Local Municipality. The former is a semi-rural area and the latter is a deep rural area. Access to water services has been a core priority of the Ugu District Municipality which is responsible for the delivery of services to these two communities. Access in this study is contextualized as the availability of water to the citizens in terms of both quantity and quality.

The right to water contained in the Bill of Rights of South Africa's Constitution is consistent with the United Nations General Comment (UNGC) No. 3 (1990). It provides that states are obliged to ensure access to a basic amount of water that is adequate and safe for personal and domestic use to prevent diseases. In the light of constitutional provisions and the current backlog in providing access to water, the Ugu District Municipality has invested heavily in water as a basic human need and is committed to ensuring the right of access to water and water facilities and services on a non-discriminatory basis, particularly for less fortunate or marginalized groups; and ensuring that personal security is not threatened when people physically access water.

1.2 Background

A quick snapshot of the Umdoni demographic statistics reveals that the local municipality has a population of 61 913 of which 31 275 reside in the urban areas and 30 638 in rural areas; 9 142 people from the rural areas are unemployed. Umdoni Local Municipality is situated in the town of Scottburgh, South of Durban. It covers an area of 236 square kilometers. These areas are divided into urban, rural and privately owned land, 31275, 30638 and 171 respectively. There are 7060 households in the urban area, 6 918 in the rural area and 39 households on privately owned land.

The Ugu District Municipality Backlog Report reveals that Ugu District Municipality started to provide water to residents of Umdoni Local Municipality in 2002/2003. The Ugu District Municipality provides water services to all local municipalities under its jurisdiction. In terms of the Municipal Structures Act (MSA), the Water Service Authority function has been delegated to

either local or district municipalities, depending on their capacity. Statistics cited in the June 2008 Ugu District Municipality revealed that by 2006 100 percent of the Umdoni Local Municipality population had access to water, *via* communal or yard taps. Prior to this date, almost no households were connected to a source of water. When rural and urban areas were integrated, new challenges surfaced, such as a change in focus from urban problems to rural ones, where water topped the list.

A research study conducted for the South African Local Government Association (SALGA) on the performance of Metros, District municipalities and local municipalities as Water Authorities in 2008 rated the Ugu District Municipality a well-performing municipality with high quality water (Water Dialogues Report 2008: 31-Ugu Case Study). This can be attributed to the fact that the Ugu District Municipality has its own laboratory to regularly analyze water samples. However, in the six local municipalities (Hibiscus Coast, uMzumbe, uMuziwabantu, Vulamehlo, Umdoni and eZinqoleni) that comprise the Ugu District Municipality, it is estimated that a total of 282 580 people do not receive water at Reconstruction and Development Programme (RDP) standards. The RDP standards entail quality; a minimum quantity of 25 litres of water per person per day, and a minimum flow rate of not less than 10 litres a minute. The water should be available within 200 metres of a household. Crucial in these standards is the requirement that the supply of water should remain uninterrupted for more than seven days per year (Ugu District Municipality Backlog Report, 2008). The Ugu District Municipality Backlog Report (2008) notes that the 17 386 residents of eMalangeni reside in 3 900 households. According to the Umdoni Local Municipality, all of these households have access to water at RDP standards. The same report reveals that the eMahlongwa community has a population of 7 008 residents who reside in 1 500 households¹; and all of these households have access to water at communal standpipes.

Through a case study of Umdoni Local Municipality, this study assesses the claims made in the Ugu Municipality 2008 Report that eMalangeni and eMahlongwa communities have achieved

¹ See appendix C: Photograph number two gives examples of the types of households that are found in the eMahlongwa area. The photograph shows the old-type standpipe where the residents collect water. This standpipe saves the residents from collecting water from unsafe water sources because it does not get depleted.

100 percent water provision. This research study further examined the extent to which water service provision has improved the standard of living of people in these two communities.

In 2001, Kebede undertook a study in Ethiopia which is similar to this present study. He found that there was sufficient quantity and quality of safe drinking water at an accessible distance to users. This reduced the incidence of water-borne diseases; bathing using soap increased from less than once per week to between daily and weekly; household utensils were cleaned more regularly; there was time for observance of religious rites; reduced fatigue and a changed workload for women; and the quantities of water used for domestic functions increased from 10 litres per person per day to 18-22 litres per day.

According to the Ugu District Municipality Backlog Report (2008) all households within the two case study communities have 100 percent access to water at RDP standards. On the other hand, the same report estimates that to upgrade from communal standpipes to household connections will cost the Ugu District Municipality approximately R1.1 billion. Ugu Municipality also has a water tanker drought relief programme in place during periods of drought; the tankers are placed within walking distance of all households.

Despite claims that the municipality is doing very well, the Ugu Water Dialogue Report (2008) notes that most residents interviewed in the communities drew their water from communal standpipes or perennial rivers. The municipality argues that part of the reason for the outstanding water backlogs in both rural and urban areas is that it does not have a strong enough financial base to effectively clear the backlogs, which would cost in the region of R1.8 billion (Ugu Water Dialogues Report, 2008). The Ugu Water Dialogues Report (2008) revealed that problems with water, including burst pipes, were regularly reported to the local councilor or ward committee. Only a tiny number of community members were aware of the Municipality's customer care call centre.

In 2001 Evans conducted a study on the impact of water provision on the standard of living of communities in Ghana. He found that there was an increase in school attendance rates for both

teachers and students, and absenteeism or dropout rates were reduced. Wives were able to rest with their husbands until daylight, community pride and dignity were enhanced, there was an improvement in the colour and general appearance of cooked food, and households were able to serve visitors with potable water in clean cups and offer cooked food. There was also an increase in cleanliness levels in the community and the condition of clothing, improved refuse disposal and a reduction in the number of storing cups and other containers with stains. The time required to queue for water was significantly reduced, as was the distance travelled to fetch water, and observance of funerals or religious duties was made easier.

Hemson's 2006 study examined the extent and effect of the labour done by South Africa's child water bearers. He found that the period of time children are involved in collecting water ranged from a few hours a week to more than 40 hours a week, with an average of 16 hours. His findings are similar to Kebede's (2001) findings which concluded that the provision of water has a positive impact on school attendance. The number of students attending school classes regularly increased, hours spent on school-related activities increased to between seven and nine per day, students had time for studying and parents acquired new ideas and practices. The social time spent on water collection was reduced from an average of six to eight hours to five minutes; more time was spent with the family and social or community interaction increased.

On behalf of the Human Sciences Research Council (HSRC), Hemson conducted a study in 1998 to examine the gender aspects of water delivery and in particular, the participation of women in managing water supplies. The study found that women bear the major burden of providing water for household use in Africa and also for the health of their families. In South Africa, the statistics indicate that the poorest African families are those in rural areas who live in huts, located some distance from water sources. Furthermore, the examination of the performance of water projects in the rural areas of South Africa revealed a high level of project failure with blame being apportioned to the delivery agencies, to arbitrary changes in budgetary allocations, and to ineffective local government. The study noted that in rural South Africa, women are often the first to rise in the mornings to fetch water for the family.

Hemson *et al*'s (2007) research on water in Bizana highlights the difficulties encountered by communities in relation to access to water. As a response to access barriers, the Human Sciences Research Council implemented the Citizen Voice project in Bizana in the Eastern Cape Province. The project generated and captured evidence of the difficulties communities encountered in relation to water and other related services such as the health of under-five year olds, but it did not bring about an immediate improvement in people's lives. The United Nations World Water Development Report (UNWWDR) reveals that one of the biggest threats to health remains the lack of water and poor sanitation. It estimates that worldwide, 1.1 billion people have not seen an improvement in their water supplies. As a result, approximately a million people die of malaria each year. The report also indicates that much of the disease burden is largely preventable through better access to clean drinking water. Furthermore, it argues that universal piped water and full sanitation would reduce the burden of infectious diseases.

Research by Gamper in Brazil provides a perspective on access to water on the other side of the world. Between 1995 and 1997, diseases associated with diarrhea accounted for 8% of infant deaths. In Brazil, infants are susceptible to water-borne diseases due to relatively short period of breastfeeding. Water-borne diseases are most likely to escalate when breastfeeding is replaced with supplementary liquids or solids, usually below the age of one year (Gamper, 2008). The study also revealed that a piped water supply can also decrease infant mortality indirectly, because caregivers are able to devote more time to childcare instead of water collection activities.

There are perceptions that poor access to water prevents women from participating in remunerated activities. This study's findings will shed light on this issue. The Ghana's Living Standards Survey (GLSS) (1999) revealed that if a woman's household does not have access to the water network, but is living in a community where half her neighbors are connected to the utility, there is a lower probability of having to fetch water from afar. It is likely that the other households would resell water from their taps. One would accordingly expect increases in labour market participation, but the Survey found that living in a community with access to water does

not increase the probability of women entering the labour market. Rather, it simply implies longer working hours for those women already engaged in remunerated activities.

The South African government claims to have supplied safe drinking water to approximately 16 million people between 1994 and 2006. It claims that this has had a huge impact on the quality of life of rural women and children. In 2004, Statistics South Africa reported that an average of 12 children aged 0-14 years died every day from intestinal infectious diseases, many of which were water-borne. These diseases were a major cause of natural deaths among children aged 1-4 years (Statistics South Africa in the Department of Water Affairs, 2004). In 1999 Statistics South Africa found that approximately 200 000 children had run the risk of missing school classes because they had to carry water for more than 24 hours a week to meet their households' survival needs. Furthermore, it was reported that 97 percent of these children lived in remote areas of former homelands where provision is most difficult.

The provision of water infrastructure is associated with women spending fewer hours collecting water. Those living closer to the water source also spend less time collecting water. However, it is unclear whether the time women save is devoted to paid activities (International Policy Centre for Growth Inclusive (IPCGI), 1999). After the end of apartheid, South Africa's newly elected government inherited huge water backlogs. Different agencies provide different estimates of the extent of the problem. One source reported that about 15 million people did not have access to water in 1994. By 2004, about 10 million people had gained access to an improved water source. However, these figures are not underpinned by the Census data compiled by World Health Organization (WHO). In terms of the WHO's statistics, the share of the population with access to an improved water source only improved from 83% in 1994 to 88% in 2004. This suggests that only 2 million people received access to water during that period of time (Water Supply and Sanitation in South Africa, Wikipedia, 2006).

In a study conducted by the Water Voice Project, South African adult females said that their problem was walking long distances of about 2 to 3 kilometers daily to public taps, carrying 20 to 25 liters containers on their head, with long queues at the service points. Should there be

contamination at the service points the whole village is at risk (Water Voice Project, 2003). Across the globe 1.1 billion people lack access to safe drinking water. As a result, 1.8 million people die every year of diarrheal diseases, 90 percent of which are children under the age of 5 years. In an effort to address this situation the United Nations formulated the Millennium Development Goals (MDGs). Goal number seven aims to halve the proportion of people without sustainable access to safe water by 2015. The year of reference for this goal is 1990. To attain this goal, an additional 260 000 people should gain access to improved water supplies until 2015. Improvement in water provision would improve the quality of life of people of all ages. For example, in the 0 to 4 year age group, the toll of child mortality might decrease and in the 5 to 14 year age group far more children, particularly girls, could go to school if they had adequate drinking water. Children would be able to rise above their families' poverty. From the age of 15 to 59, productivity gains would be achieved with improved water access and people older than 60 years of age could expect to live longer (World Health Organization, 2004, Facts and Figures).

1.3 Hypothesis

There is a positive correlation between the improvement of the standard of living of the rural communities of eMalangeni and eMahlongwa and the installation of communal standpipes in these areas.

1.4 Objectives of the study

This study considers the provision of water to people, rich and poor, living within eMalangeni and eMahlongwa. The main objectives are as follows:

- To determine improvements in the socio-economic conditions of the communities after water installation.
- To establish whether there are any existing social dialogue platforms where water issues are engaged.
- To ascertain and analyze residents' contemporary perceptions of water delivery and more specifically, the problems associated with poor water delivery in the municipality.
- To make recommendations in an attempt to ameliorate any problems that may be identified.

Key research questions that informed the research are:

- Is the quality and quantity of water sufficient for human consumption?
- Is water available daily without interruption?
- Does the amount of water provided allow for all domestic functions?
- What was the standard of living of the eMahlengwa and eMalangeni residents like before the installation of water?
- Has the standard of living of the eMahlengwa and eMalangeni residents improved after water installation?
- In what way has the standard of living of the communities improved since they started receiving water?

This research study is also geared towards examining the implementation and effectiveness of the water legislative framework in the delivery of water services at eMalangeni and eMahlengwa with specific reference to the Water Services Act (WSA) (Act 108 of 1997) and the National Water Act (Act 36 of 1998). The latter requires that government take reasonable legislative and other measures to ensure that every citizen has access to sufficient water. The right of access to water is also contained in Chapter 2 of the Bill of Rights of the Constitution of the Republic of South Africa which is consistent with the United Nations General Comment No. 3 on the human right to water. This UN General Comment sets out a framework of action for governments around the globe to ensure that citizens - whether rich or poor - have enough clean water for their daily needs. Finally, this study aims to determine whether there have been improvements in socio-economic conditions in South Africa before and after 1994 as a result of the delivery of water.

It is estimated that 14 million people in the rural areas of South Africa did not have access to water services in 1994. Hence, this research thesis attempted to investigate the extent to which the government has rendered water services to its citizens from 1994 up to the present; to ascertain and analyze residents' contemporary perceptions of water delivery and more specifically about the problems associated with poor water delivery, if any in the municipality;

and to make recommendations in an attempt to ameliorate any problems that may have been identified.

It further assessed, through the case study of Umdoni Local Municipality, the claims made in the Ugu District Municipality 2008 Report that eMalangeni and eMahlolongwa communities have achieved 100 percent water provision. The study also examined the extent to which water service provision has improved the lives of people in these two communities.

1.5 Principal theories upon which the research project is constructed

It is an undisputable fact there is a relationship between the state, represented by the legislature and civil service, and the community as water consumers. The state through the legislature promulgated laws i.e. the Section 27 (b) of Chapter 2 of the Constitution of the Republic of South Africa, Act No. 108 of 1996, the National Water Act (NWA) (Act 36 of 1998) and the Water Services Act (Act 108 of 1997) and civil servants are duty bound to implement such laws. In a democratic state, water provision processes should be participatory in nature and should take into cognizance the needs, desires and demands of the local populace.

Following is the Rostowian’s four of five Stage model of Development

4. Age of High Mass Consumption:

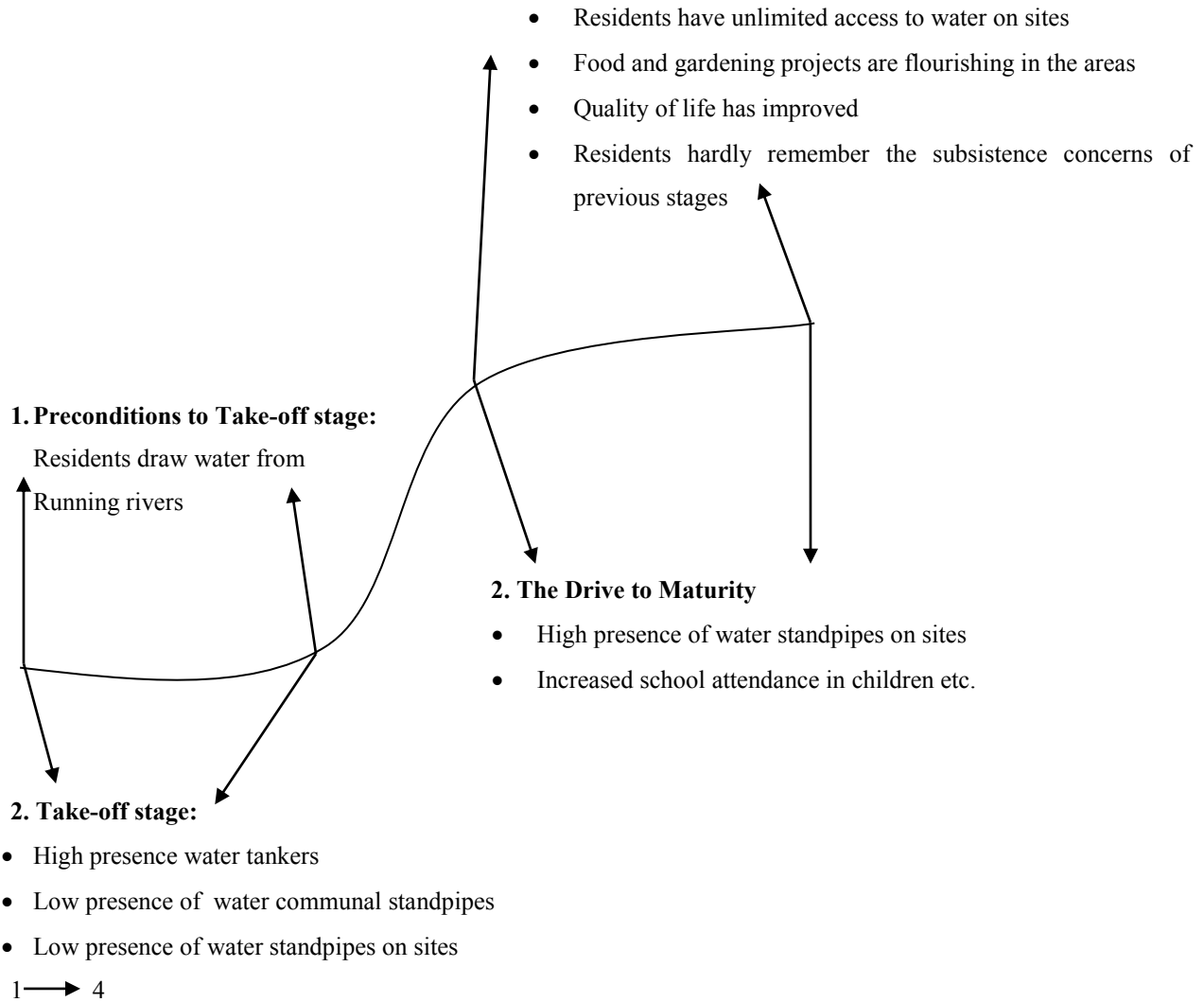


Figure 1: The sketch above shows the different stages of water installation at eMalangeni and eMahlongwa and is adapted from Rostow’s stages of development.

The theoretical framework utilized in this study is premised on the Rostowian’s four of five-stage model of development (See figure 1 above). The model is used to interrogate whether water provision has reached the stage where it has changed the standard of living of the case study communities. Rostow’s model has been selected because it describes the development stages that the case study communities went through up to very recently. For an example, at the

preconditions to take-off stage, the residents of the two areas had no access to clean drinking water. They drew water from lakes and running rivers such as uMzinto. At the take-off stage, residents had an alternative to draw water from *Ujojo* (pit-latrines and water tanks) placed near to households. The drive to maturity is a stage where water is available but there are sometimes cutoffs. In this stage, it is expected that there is a change in the standard of living of the people and children's attendance at school is not affected by the burden of collecting water². Lastly, at the age of mass consumption it is expected that most members of the community live in prosperity and persons living in this community are offered both abundance and a multiplicity of choices. One may argue that Rostow's approach is old, but however it is still serving the same purpose as new approaches do, because it could describe how these two researched communities socially and economically evolved over a period of time.

1.6 Research methodology and methods

This research is qualitative in nature in the sense that it seeks to understand behavior and institutions by getting to know the persons involved and their values, rituals, symbols, beliefs, and emotions. The study adopted a probability sampling method known as systematic random sampling. eMalangeni community has 3900 households, of which a sample of 30 households was drawn for the study. The researcher began by selecting respondents randomly at the very beginning of the investigation and then systematically selected every (nth=130) element. This means that throughout the study one household was representative of 130 households during the collection of data. The researcher administered the questionnaires by reading out the questions in the presence of all members of the household and used these as a basis for conducting interviews. This technique was applicable to both samples. It was pursued with the purpose of obtaining thick, rich and detailed data. The sample consisted of 20 women and 10 men. This was the case because women bear the burden of the collection of water. The same modus operandi was followed at eMahlongwa. The eMahlongwa community has 1 500 households and a sample

²See Truman, 1949 on the stages of development..... the prime object in employing Rostowian's stages of development in this research study is to reveal the period before water installation and how the living standards of the eMalangeni and eMahlongwa residents improved in the post water installation era. This has been described through the sketch above, showing how lifestyles changed over time stage by stage.

of six women and four men were drawn for the study. This means that throughout the study one household was representative of 158 households during the collection of data.

1.6.1 Data Collection Instruments

The questionnaire comprised of both open- and closed-ended questions. The former set of questions as defined by Lazarsfeld (1944) provided opportunities for the interviewer to discover a lack of information on the part of the respondent; the latter did not. Lazarsfeld further indicates that it is futile to raise questions that are beyond the experiences of respondents. Rita *et al.* (1989) observe that, with closed-ended questions, respondents are offered a set of answers and asked to choose the one that best represents their views. This method was chosen as the principal research approach, as it is used to survey groups characteristics, general conditions and attitudes towards certain issues (Yin, 2003); in this case it is used to assess water service delivery at eMalangeni and eMahlongwa.

The questionnaire contained a reasonable number of simple questions so that respondents would not be confused and bored by ambiguous and lengthy questions. Open-ended questions were formulated to obtain a comprehensive picture of this complex situation, because they allowed the respondents to answer the way they feel. The questionnaire-based surveys were supplemented with a focus group discussion³ comprising of more women than men from both areas. Furthermore, one focus group interview was undertaken with a group of between five and eight respondents in each area.

1.7 Chapter Outline

Chapter One introduces this study. Chapter Two provides a literature review and the theoretical framework; Chapter Three discusses the research methodology underpinning the study and Chapter Four contains the data analysis and interpretation of results. Finally, Chapter Five offers the conclusions and recommendations.

³See page 77 for the focus groups discussions in the eMalangeni and eMahlongwa areas.

CHAPTER TWO

Literature Review and Theoretical Framework

2.1 Introduction

“Apartheid’s skewed water policies have had an adverse impact on the country’s disadvantaged communities as a whole. It is, however, the meagre consumption of domestic water by rural South Africans which reflects the brutality of the apartheid-capitalist history. Lack of water and sanitation facilities makes domestic water provision a burdensome activity for many rural women. Not only do rural women travel long distances to access water, but illnesses related to the decline in the quality of water from natural sources are an additional burden on women as primary caretakers in rural communities” (The Cholera Outbreak: A 2000-2002 case study of the source of the outbreak in the Madlebe Tribal Authority areas, uThungulu Region, KwaZulu-Natal).

Prior to the democratic dispensation water infrastructural development in South Africa was geared to support the country’s wealthy sector, comprised mainly of the white elite. Years of apartheid governance relegated water service delivery to rural, poor households to a peripheral issue. The post-1994 democratic dispensation inherited skewed water infrastructural development, where 12-14 million people had no proper access to quality water services (Rowlston, 2000). Due to the urban-rural disparities, the majority of these people lived in the former homelands, where 75 percent of the population subsisted on 13 percent of South Africa’s land. Most of the land in these homelands was water-deprived (Department of Water Affairs and Forestry, 1999). Many people in rural areas live in households that are far from one another and far removed from water supplies and connections⁴. This makes it expensive for municipalities to reticulate infrastructure networks. This has been the major challenge for the ANC-led government and has remained unresolved in the past 18 years of governance.

2.2 Living Conditions of Rural Communities Prior to Water Installation

The Ugu Dialogue Report (2008) indicated that the apartheid regime supplied water and sanitation services to the urban, mainly white, municipalities. According to the SALGA through the 2006/2007 Integrated Development Plan (IDP) the Ugu District Municipality served approximately 61 percent of all rural and urban residents with some level of water services. Furthermore, it indicated that water backlogs were predominantly in the rural areas, which were

⁴See appendix C: Photograph number two on the list.

home to 84 percent of the population (591000 people). During this time 263000 people were without access to safe drinking water. One hundred percent of urban residents had access and 35 percent of rural households had access to water at an RDP standard of a standpipe within 200 metres. In the context of this study the Hibiscus Coast Municipality represents the urban strip of the Ugu Municipality because it is predominantly white, whereas eMalangeni and eMahlongwa in the Umdoni Local Municipality represent the hinterlands. At the beginning of the transition to democracy in the early 1990s, it was widely recognised that water and sanitation services would need to be greatly expanded to integrate previously excluded groups or areas, especially those who lived in rural areas where there were almost no services rendered. Water and sanitation services delivery post-1994 can be divided into three broad eras: 1994-2000, 2000-2005/6 and 2005/6 to the present and the foreseeable future. Following the country's first democratic elections and in keeping with the Reconstruction and Development Programme (RDP), the national Department of Water Affairs and Forestry (DWAF) undertook water and sanitation provision through its regional offices. The second era was one of transition wherein DWAF began transferring responsibilities to the municipalities. In the nascent third era, municipalities are responsible for all water and sanitation delivery services, with DWAF and other national departments providing a regulatory, support and oversight role.

Until the early 1990s, the Lower South Coast Regional Water Services Corporation (LSCRWSC) supplied water in bulk to municipalities on the KwaZulu-Natal South Coast. In 1993, the LSCRWSC was incorporated into the Ugu Joint Services Board, which became the Ugu Regional Council in 1996. The local sphere of government was constitutionally mandated for basic service provision from 1996; it was also recognised that a municipal re-demarcation and transformation process would need to be undertaken, following which municipalities would require time to become established before undertaking the delivery of municipal services. Thus, from 1994-2000 DWAF dealt with the enormous backlogs in the delivery of water services.

The DWAF focused on extending services to previously un-served rural areas which were integrated into the larger government through the creation of local municipalities; the rural local municipalities of today largely correspond with the areas that were ruled by the KwaZulu

homeland government under the apartheid system. The homelands areas were administered under the system of traditional tribal authorities, with a tribal, communal land tenure system. The apartheid system ensured the effective underdevelopment of these areas as zones of low-cost labour reproduction for the mining, manufacturing and domestic sectors as well as the labour needs of commercial farming. Very little in the way of infrastructure and services, including roads, water and sanitation, as well as health and education were provided for the majority rural African people through Bantu administration channels, or by various forms of local government and homeland structures. Black people living an urban existence or in peri-urban areas were restricted to very limited parcels of land and also denied the levels of service provided to white residents.

The DWAF adopted a community-based delivery approach to water services in rural areas, working in collaboration with local and national Non-Governmental Organisations (NGOs), the most influential of those being the Mvula Trust. Community-based models have frequently been advocated as the most efficient, effective and affordable approach to rural water services provision. In Ugu alone around 17 different community-based water projects were formed that had mandates to operate and manage water supply in the district. It is hard to find consensus about the effectiveness and potential of Community-Based Organisations (CBOs), but the Ugu experience seems, at first glance, to indicate this was not the most efficient strategy for the area.

The few case studies conducted in the UDM during that time suggested a homogenous general model for the extension of services. First, physical infrastructure was extended *via* DWAF and the national Community Water Supply and Sanitation (CWSS) infrastructure grants to an Implementing Agent through DWAF's regional offices. Next, a local water committee was nominated and elected through participatory processes at village level. These community-based committees were referred to as „Village Water Committees“ in the Mvula Trust terminology and implemented schemes and as „Project Steering Committees“ in DWAF implemented schemes. For the purposes of this case study, they will be referred to as „community water committees“. The community water committee would then appoint around four to six paid employees (including a chair, secretary, treasurer and maintenance positions); receive training in project and

financial management; and establish an office with equipment to perform various provision and management functions, including billing, community communication and decision making. In Ugu, some of the water committees were formalised as CBOs and would then sign a Water Services Authority-Water Service Provider (WSA-WSP) contract with the Ugu Regional Council (URC).

2.3 Socio-economic improvements associated with water availability

In 2003 the then Minister of Water Affairs and Forestry, Ronnie Kasrils claimed that the South African government had supplied safe drinking water to approximately 16 million people since 1994. He noted that this had a huge impact on the quality of life of rural women and children. In 2004, Statistics South Africa (Statistics South Africa in the Department of Water Affairs, 2004) reported that an average of 12 children aged 0-14 years died every day from intestinal infectious diseases, many of which were water-borne.



The Sezela River triggered water-borne diseases: Photograph by Mlethwa Khomo

Earlier, in 1999, Statistics South Africa conducted a study which found that approximately 200 000 children ran the risk of missing school classes because they had to carry water for more than 24 hours a week to meet their households' survival needs. Furthermore, it was reported that 97

percent of these children lived in the remote areas of former homelands where water provision is most difficult.

The Ugu Water Dialogue (2008) noted that the Ugu District Municipality is performing relatively well in comparison with other district municipalities in South Africa, but that substantial investments are required to provide effective, equitable and affordable water and sanitation. Interviews with municipal officials revealed that due to historical inequalities, and a more recent focus on the extension and improvement of services in towns, urban coastal areas receive better levels of water and sanitation services overall than inland rural communities. The municipality contends that the main reason for the remaining backlogs in both urban and rural areas is that it does not have sufficient funds to effectively address the backlogs, which will cost about R1.8 billion for water alone.

Hemson's (2003) research on the sustainability of water projects in KwaZulu-Natal revealed that the impact of water provision on the health and wellbeing of communities had been difficult to calculate. He also expressed deep disappointment in the fact that health data was generally not available to enable a review of the impact of clean drinking water on health conditions. However, calculations made on data arising from the Demographic and Health Survey of 1998 clearly demonstrated that both water and sanitation had an acute effect on child mortality rates. In households which did not have piped water, the child mortality rate was twice as high as in households with piped water (from 11.6 to 27.7) while for those households without flush sanitation the mortality rate is reduced. Twenty six out of 40 respondents interviewed for this reported that health hazards were widespread in the eMalangeni and eMahlongwa areas before the installation of water standpipes. Sixteen respondents noted a decrease in water-borne diseases after the installation of standpipes. The study also found that there were considerable increases in women's wellbeing as the length of time they spent collecting water for the household was decreased. The respondents also reported activities like community gardens resulting from water provision, though this was not a general phenomenon.

In many societies, water is at the centre of women's traditional responsibilities. Water is collected and stored in order to be able to take care of children, prepare food for the family, clean the house, and maintain sanitation. These tasks form the daily activities of a woman. In some regions, women spend approximately five hours a day collecting fuel wood and up to four hours preparing food for the household. In Africa, estimates reveal that 90% of the work of collecting water and wood for the family and food preparation is carried out by women. In the eMalangeni and eMahlengwa areas, women respondents dominated water-related discussions during the collection of data. The women respondents are at the forefront of improving the quality of life of their households. They collect water for their households and also plant vegetables. If men plant gardens they do so in the name of assisting their wives, not as part of their obligations. Bringing water sources closer to a household significantly lightens women's workloads, and also frees them up for other economic activities. Young women are able to attend school. Women play a central role in educating their children about water. Their interest in water awareness is understandable, as it is they who look after the household and children who fall sick.

Bradley (1977) argued that clean water may significantly avoid the spread of water-related diseases such as cholera and typhoid. He indicates that these diseases are directly transmitted when water contaminated by feces or urine is drunk or utilized in food preparation. An increase in the quantity of and access to water may also decrease the impact of diseases such as common diarrheal diseases, which are transmitted by fecal or oral routes rather than the drinking of polluted water. Bradley (1977) adds that improved water quality may lead to reduced contact with unsafe water supplies, which will in turn reduce the impact of water-related sicknesses; unsafe water supplies house intermediate host organisms in which some parasites spend their life cycle and provide a habitat for insect vectors of diseases such as malaria. Water-related diseases such as cholera were widespread in the eMalangeni and eMahlengwa communities before water installation. In contrast, the incidence of these diseases decreased across the areas of the Umdoni Local Municipality, including eMalangeni and eMahlengwa after the installation of piped water, as this study found.

Estrey (1994) reported that improved water sources saved women time and energy; their spare time was then spent on food-linked activities, like feeding their own children more often. Interestingly, he also noted that while the advantages of improved water provision seemed obvious, a correlation between water provision and childhood mortality could not be convincingly shown in many previous studies. This was partly because of serious shortcomings in data and research methods.

According to Keshavarzi *et al.* (2006) and Hanson *et al.* (2003) improved water supplies are mostly utilized for purposes such as cooking, drinking, personal hygiene (laundry, bathing and cleaning) livestock watering and in some instances vegetable garden watering and yard cleaning. Skat (2004) argues that when people gain access to water in close proximity they tend to use the freed up time for activities such as searching for jobs. At the same, school attendance can improve since the chance of contracting water-related illnesses or time spent on collecting water during school time will be cut back. There is significant evidence around the world that improved water provision generates substantial benefits in the main by saving time and energy. This suggests that the collection of basic water needs can be both time consuming and physically exhausting. It is noted that this burden falls largely on women and children⁵.

Women take responsibility for the care of the sick in a household, and this consumes much time and money. The time freed up once improved water supplies are secured can be used for economically productive or educational activities. Water programmes also contribute towards economic development through job creation; however the impact is relatively modest, since the number of permanent jobs created is small at the community level (Esrey *et al.*, 1990).

2.3.1 Household reliance on water services

The Reconstruction and Development Programme (RDP) (1994) noted that when the African National Congress-led government (ANC) came to power in 1994, it identified lack of access to water as a key symptom of poverty and under-development. In the democratic era access to

⁵ See appendix C: Photograph number one with school children collecting water from the standpipe. It indicates the time spent by school-going children in the water queue, which time could be used for doing homework or studying for forthcoming tests. This challenge can only be solved through increasing the number of standpipes in the areas.

water has become a basic human right. This right stipulates that there should be equitable allocation of water, that water development should be demand driven, that water is an economic good, meaning the user should be charged for water used, and that there should be integrated environmental development. The Department of Water Affairs and Forestry (DWAF) (2001) noted that this right has been realized through the Free Basic Water Provision (FBWP) of 6000 litres of safe water per month per poor household.

Van Koppen (1999) observed that if the poor gain access to water, it provides them with opportunities to improve their health and secure and sustainable livelihoods. Furthermore, he acknowledged that institutions and infrastructure aggravate the poverty trap since the poor are on the periphery in terms of access to land, irrigation schemes, market access and credit. The residents of eMalangeni and eMahlengwa have access to safe drinking water from the standpipes, despite the fact that the number of communal standpipes is inadequate to meet the needs of the growing population in these areas. Furthermore, there are various factors that negatively affect water provision within these communities. These include, amongst others, climate change and topography, resulting in the households being far apart⁶. This makes it difficult to reticulate water networks. It has also been noted that one third of rural households engage in agricultural activities. While it contributes little to household income, agriculture is the most important livelihood strategy in rural areas after remittances and wages from low-skilled jobs.

Francis (2000) argued that women specifically benefit from access to agricultural assets such as community gardens, irrigated plots and secure land tenure. This underlines the fact that, without water, life is impossible. The United Nations Fund (2003) noted that water is essential to sustain health, yet both the quality and quantity of available water supplies are decreasing in many parts of the world. Approximately half of the world's rivers are seriously depleted and polluted or contaminated. This has entrenched poverty in whole countries, and excluded different groups of people in others. Furthermore, it has been highlighted that women in particular are vulnerable to water linked diseases largely because of their role in collecting water, washing clothes, cleaning

⁶See photograph in appendix C showing that households are far apart from one another.

and cooking, and in rural areas, performing day-to-day agricultural activities. Carrying heavy water buckets over long distances put women's health at risk, particularly during pregnancy, and can result in premature birth or back injuries.

2.3.2 Water's contribution towards Local Economic Development

Local Economic Development (LED) means different things to different people; however it is seen as one of the most significant ways of alleviating poverty. As part of the Integrated Development Plan (IDP), key stakeholders in a municipality may forge relationships to take decisions aimed at growing the local economy that will create income opportunities for more people; a case in point are the poor. In the context of this debate, water provision presents people with multiple choices in life in the following manner:

2.3.1.1 Household usage of water

Approximately 3900 households in the eMalangeni community have access to safe drinking water services, while nearly 1500 households in eMahlongwa enjoy the same services. The residents of these two communities can now engage in household duties such as cooking, bathing, washing clothes, drinking, cleaning the house and other various activities like brick-making, watering vegetable gardens, using water services available at their door steps.

2.3.2.2 Subsistence Farming

Globally around 70 percent of all water used is for agricultural development. If the world's food crisis is to be successfully resolved sufficient water of appropriate quantity and quality will be necessary. Water scarcity is already a serious issue in many arid and semi-arid countries, and the problem is likely to significantly intensify in the future. Agriculture also affects people's quality of life in many ways (*Water Resources Development*, Vol. 9 No. 1, 1993). Molden, D. (2007) indicated that across the globe agriculture utilizes approximately 70 percent of the total water drawn for human use from rivers, lakes, ponds, reservoirs and aquifers. However, it has been noted that there are huge differences in irrigation water use across continents, countries and agricultural systems. Since farming is an integral part of community livelihoods in the Umdoni Municipality, water is utilized for agricultural activities in the eMalangeni and eMahlongwa

areas. This is one of the main community-based economic activities and survival strategies. It involves various activities such as homestead and community gardens dominated by the production of fresh vegetables such as cabbages, spinach etc. The community plays an important role in ensuring food security and alleviating poverty. The main subsistence farming in Umdoni Municipality is vegetable production and livestock keeping⁷, though unevenly spread. The Departments of Agriculture, Welfare and Social Development played an important role in the establishment of agricultural activities. Industrial agriculture activities necessitate an increasing amount of water. The continuous and exclusive application of chemical fertilizers gradually decreases the soil's water retention capacity, requiring an increase in the frequency of irrigation. On the other hand, the application of organic compounds like manure, ash, bone meal, plant waste and composts can promote improved water infiltration and maintain the water retention capacity of the soil, thus helping to decrease the need for frequent irrigation on farms. Moreover, the use of organic matter in soil reduces the surface flow of water, soil erosion and nutrient removal (World Bank Publications, 2005). The Umdoni Rural Development Strategy reflects that a number of emerging farmers are engaged in sugar cane production in the Umdoni area. There are approximately 219 small scale sugar cane farmers producing on approximately 312ha land.

The Libyan Arab Jamahiriya Conference (2008) revealed that agricultural activities alone consume 50 percent of a country's water services, including irrigation. Agricultural production has been thwarted by the unevenness of the distribution of water. As a result, irrigation began to play a significant role, but is largely restricted to White, commercial farmers. Extending irrigation to small, developing farmers is one of the targets of the government's land reform and distribution policy.

The Umdoni Municipality Rural Development Strategy (2009) noted that agriculture is one of the main survival strategies and community economic activities in the Municipality. This includes a range of activities, including, among others, homestead and community gardens mainly focusing on fresh vegetable production. Furthermore, the strategy also revealed that many

⁷See photograph in Appendix C showing the types of vegetable gardens that are found both in the eMalangeni and eMahlogwa areas.

gardens have been established in the eMahlongwa and eMalangeni communities in recent years. Major players in the facilitation of these gardens included the Departments of Agriculture, Welfare and Social Development.

Women are the world's principal food producers and providers and their role in agricultural activities is increasing, partly because men migrate from rural to urban areas. But they often remain underestimated in development strategies. *Water Resources Development* (1993) indicated that agricultural water use was predicted to rise nearly ten-fold during the 20th century. However, this does not mean that all the various types of water use would rise or be likely to increase over time. The increase in the rate of water usage was higher than population growth. In contrast, water use in industry was expected to increase nearly four-fold during the same period. This trend was likely to persist, at least for the early part of the 21st century. While this paints a picture of the global situation, there are significant differences in water usage in individual countries, depending on their levels of socio-economic development.

2.3.2.3 Poultry and stock farming

Water is part and parcel of all aspect of poultry metabolic processes. It has a crucial role to play in the regulation of body temperature, food digestion and the removal of body waste. At acceptable temperature levels, poultry consume at least as twice and much water as feed, whereas when heat stress appears, water intake will double or quadruple. Therefore, a safe and adequate supply of water is important for efficient poultry production⁸. The Umdoni Rural Development Strategy indicates that the Umgwempisi poultry farming project exists in eMalangeni and the Sikhulakane poultry farming project in eMahlongwa. These two projects have benefited from R200 000 funding from the Department of Economic Affairs and Tourism, in order for them to expand. Water is important to both maintain the current operations and expand in the future in order to retain the support of the Department.

Consuming water is more important than consuming food, because it constitutes approximately 60-70 percent of an animal's live weight. Domestic animals can live approximately 60 days

⁸If water is cut for a long period of time, poultry farming cannot continue. This means that there will be no chicken meat available on the market.

without food but only about seven days without water (Faries, Sweeten and Reager, 1997). Livestock should be provided with all the water they can drink because animals that do not drink enough water may suffer stress or dehydration.

Greg (1999), a beef cattle specialist, indicates that cows that are given unlimited access to water will produce more milk and more butterfat as opposed to cows that have limited access to water, for example only twice a day. Furthermore, he indicates that the same animal will consume different levels of water in different physiological states. He provides the example of a pregnant or lactating animal, who will consume more water than a non-pregnant or non-lactating animal.

2.4 Stakeholder participation in Water Dialogues

Hemson (1999) observed that the Department of Water Affairs and Forestry (DWAF) established significant benchmarks in public policy by ruling that 50 percent of positions on water committees should be occupied by women. This gained overwhelming support even in relatively conservative communities and has accelerated the participation of women in projects benefitting communities. With the transfer of responsibility from the DWAF to District Municipalities there is a danger that this gender sensitive policy could be lost in the drive to secure functioning projects under local government. Women already bear the primary responsibility for water provision at the household level; what they require is recognition in the public space. Their participation has helped direct the attention of local government management to key problems and solutions.

Research has shown that most water projects are headed by older, better-educated men. Hemson (1999) highlighted that this is a reflection of the existing power relations in society and is seen to follow certain development logic. These men (often only a single individual) have access to a *bakkie* truck and cellphone, understand and are familiar with administrative structures, and are used to dealing with outsiders. Although these are in a sense privileged individuals, this is a relative concept; many are ensuring that projects continue on a day-to-day basis, but this cannot continue indefinitely. A number are quite elderly and have given considerable time to public life, but they are not passing on their skills to the next generation. In many cases, this is not so much a

matter of clinging on to power as an evident lack of young people taking on a commitment to public life in rural communities.

The United Nations Educational Scientific and Cultural Organization (UNESCO) (2003) noted that when water management strategies are developed, it is not enough to consider economic efficiency and environment sustainability. It should also be recognized that water is a vehicle for improving people's livelihood stability, which requires that water be supplied for domestic activities as well as small-scale agricultural and other productive activities. Bruch (2000) argued that the participation of the public in decision-making is one of the methods for enhancing deliberate democracy. At its heart, a deliberative polity promotes political dialogue aimed at mutual understanding, which does not mean that people will agree, but rather that they will be motivated to resolve conflicts by arguing their case rather than by other means. Bruch (2000) was of the opinion that approaches that are participatory in character enhance project quality, ownership and sustainability.

2.5 Challenges emanating from Water Installation in Rural Communities

The challenges associated with water are found across Africa. For example, eMalangeni and eMahlongwa residents complained of vandalism of taps and water cut-offs without prior notice. In some cases, households are situated a long walking distance from a standpipe, caused mainly by the fact that the households are far apart from each other. The lives of residents are put at risk when they have to cross the roads with water containers in their hands to collect water from other supplies⁹. Repairs take a long time. It has been estimated that every year in Africa alone, over 10000 handpumps break down. Studies indicate that 90 percent of the handpumps break down within three years of installation and need repairs and parts. However, the spare parts and technical expertise for repairs are unavailable without donor support and therefore most handpumps are abandoned within three to five years. When similar new pumps are installed, it is obvious that the community soon finds itself without safe water again (Handpump Forum in Accra, Ghana in November, 2006).

⁹See photo in appendix C: Children walking on the road carrying empty 25 litre containers to collect water from across the road.

The Handpump Forum discussed the factors that should be taken into consideration if water installation is to be a success. Amongst others, these include the suitability of the technology to meet the water supply needs of rural communities in every part of the community and under all climatic conditions. It also needs to be established whether rural communities have the financial resources and technical ability to maintain the water system in the long term. The early failure of new water systems was often due to the failure to involve and educate the community in their management and maintenance, rather than to technological complexity. As long as the time is taken to adequately train responsible individuals, the technical capacity required to operate the systems presented here is not an issue. However, the ability to produce or acquire materials locally plays an important role in system maintenance as spare parts may have to be sourced from external sources with long lead times for delivery.

The Mvula Trust has observed that major challenges after water installation were to ensure that poor rural communities benefit from the free basic water policy as soon as possible, and that the subsidy is provided in as cost effective a manner as possible, and is sustained. Mvula Trust intends to expand its rural sanitation programme, giving it the same importance as the water supply programme, and ensure that the approach used is consistent with national policy development principles. To develop water services in a more holistic way, they should be implemented in line with national government's Integrated Sustainable Rural Development Strategy. To maintain its own intellectual independence despite its financial reliance on project income rather than core income in the light of these challenges, the Mvula Trust intended to step outside the boundaries of water and sanitation provision, to explore related issues such as water resource management, rural livelihoods and local economic development related to access to potable water and sanitation.

2.6 Government Response to Water Challenges

The Deputy Minister of Water and Environmental Affairs Joyce Mabudafhasi (2011) indicated in her Department's budget vote that the DWAF has adopted a hands-on approach to support both provincial and local government in ensuring that water is supplied to all citizens and that the environment is safeguarded. Furthermore, she indicated that they are busy mobilizing

community leaders to come on board and actively participate in the management of water and the environment; their indigenous knowledge will help achieve this. Water and the environment are of concern to all communities. All water related matters are reported either to the existing water committee or democratic elected leadership and an UGU office based in Esparenza in eMalangeni and eMahlolongwa. The Ugu as a water service provider also stages road shows in an effort to send a message to the communities under its jurisdiction.

Mabudafhasi also quoted success stories: “we have managed to unblock water challenges in Setlagole village in the North West by constructing borehole water scheme”. In Limpopo, Mukula Village: “we managed to respond to lack of water supply by rehabilitating the existing boreholes as a short term solution; construction of bulk water scheme commenced in May this year to be completed in June 2012”. The Integrated Development Plan (IDP) Review (2008) indicated that the Ugu District Municipality was planning to construct water reservoirs to provide water to areas that were without it at the time. During the IDP Review some municipalities indicated that they were not provided with water for days on end, either from communal taps or water trucks. The Umndoni IDP also indicated that in 2002/ 2003 water services could be categorized in a variety of ways. There were 6 860 in-house water connections, 620 inside-the-yard connections, 1 258 public standpipes and 53 water tankers or water carriers.

Smet, J. and Sijbesma, C. (2002) note that the points at which water is delivered to users are called service connections. These can be house, yard or group connections or public standpipes. A house connection is a water service pipe with in-house plumbing, a yard connection is similar to a house connection, but is different in that it has no in-house piping: the tap is placed inside the yard. Group connections are taps placed outside and shared by a group of households. Public standpipes are the most common service connection in small communities. They are made of bricks, masonry or concrete and can have platforms at different levels. Each tap should be situated at an appropriate point to provide water to at least 40-70 people. The walking distance to the water supply should be limited to 200m (500m in sparsely populated rural areas). Multiple standpipes can provide water for up to 250-300 people. Problems arising from standpipes are possible water wastage and the risk of the formation of stagnant pools of dirty water with

associated health hazards. One way to deal with these problems is payment for water consumed. When a water distribution system is designed the possibility of an increase in water demand should be taken into account.

Smet, J. and Sijbesma, C. (2002) further point out that the amount of water a person needs each day depends on many factors. Climate, standard of living, hygiene awareness, and workload influence human water consumption that for normal functioning varies from three to 10 litres of water per day. Part of this water may be derived from food. A factor influencing water consumption is also its availability and distribution methods.

The data for obtaining a first estimate of the water demand of a community is the number of households from an aerial survey, the average family size, and studies on water supply systems for existing water communities. An alternative approach is to draw a social map of the community, interviewing men and women in the community and taking into account the presence in the area of schools, hospitals etc. Another important factor that has to be taken into consideration is whether the water is or is not used for irrigation even if the general priority is domestic water supply.

Furthermore, the authors indicate that it is often very difficult to accurately estimate the future water demand of a community. The water usage figures should also allow for about 20 percent for further losses and wastage. Individual house connections provide a higher level of service than a tap placed in the house yard. In selecting the type of service, financial considerations are usually an important factor, together with the location and size of the community. As a rough estimation, the water supply for a centralized community settlement would need to have a capacity of 0.3 LT/sec per 1000 people when the water is mainly distributed by means of public standpipes and about 1.5 LT/sec per 1000 people or more when yard and house connections predominate.

2.7 Theoretical Framework Underpinning the Study

There are five Rostow's stages of development, but this research study adopted only four of them. It begins with the preconditions to take-off stage which tackles the period before the installation of water standpipes at eMalangeni and eMahlongwa. There is reasonable information available as to how negotiations towards the installation of water standpipes unfolded, but it is thought that the first water standpipes were installed between 1986 and 1987 by LIMA, an NGO. Water provision data for these areas revealed that formal involvement of water service providers began after the first democratic local government elections around the year 2000. The Water Dialogue Synthesis Report (2009) notes that the UDM as a Water Service Provider or Water Service Authority had an estimated population of 700 000 residents. It managed to provide water to approximately 24 percent of these residents from 2000/2001 to 2009. The report also estimates that around 40 percent of the UDM's population has no access to safe drinking water, which translates to about 263 000 residents. Included in these statistics are 22 schools without access to water. The estimated cost of eradicating these water backlogs is R1.12 billion. This assumes that the cost will be around R1 500 per capita, but the report notes that the actual costs could be a bit higher in areas where there is no readily available natural source of water and as well as in areas where households are far apart from one another. The Umdoni Municipality came into being on 5 December 2000; at that time the residents were mainly collecting water from the streams and perennial rivers. The negotiations leading to the crafting of the IDP started in the early 1990s. During this period various negotiating forums came up with the idea of integrated development planning as a reaction to previous, outdated forms of planning.

In 1995, the IDP emerged as a distinct approach to planning and was the basis of the RDP. In Umdoni, certain steps were taken towards the adoption of the IDP. The first meeting was held on 15 October 2001 and covered the IDP process, a presentation and discussion of the current reality report and the distribution of forms to help forum members to report back on key issues. This was followed by a forum meeting on 10 November 2001 where presentations were given and work groups were convened, resulting in the first draft of priority issues. The public consultations were held on 1, 8, and 10 December, 2001 at Mahlashana Primary School Hall, uMzinto Library Hall and Pennington Library Hall respectively. The technical committee took

over to perform an in depth analysis of the information. On 23 February 2002 the third forum meeting was held where key issues were finalized and prioritized. Further meetings were held until the IDP document was adopted by the Council at its meeting on 12 June 2002. The overall amount required to meet all municipal needs was estimated at R2 578 386 for the 2001/2002 financial year. The parties involved in the whole process were municipal officials, councilors, interested groups and affected parties. The overall objective of these meetings was to provide some basic facts and figures about the existing situation in the Umdoni Municipality Area to all involved in the IDP process. It should be noted that the take-off stage is used to outline the road towards the installation of water at eMalangeni and eMahlongwa, a period when the residents were still collecting water from rivers and when water-borne diseases were rife in these areas.

The take-off stage of development is used to describe how the quality of life of eMalangeni and eMahlongwa improved after gradually turning away from collecting river water to other, safer sources such as water tankers and public standpipes. The UDM has installed more than 5 000 standpipes across the areas under its jurisdiction and two water tankers on average per area, sharing one standpipe. The overall objective of the Umdoni Local Municipality is to ensure that all households within its area of jurisdiction have adequate access to safe drinking water. The municipal priorities of installation of water points and local reticulation systems for household provision are included in the UDM Water Service Development Plan, the IDP and the Service Delivery and Budget Implementation Plan, which are reviewed annually. It has engaged the UDM to initiate a partnership with the DWAF focusing on spring protection programmes, rain harvesting programmes to promote water recycling and has incorporated the planning, monitoring and evaluation of and reporting on water and sanitation provision within the Performance Management System of the Umdoni Local Municipality. A commitment has been made to maintain the balance between new services and the maintenance of existing services. At this stage residents in these areas collect water from water tankers in times of droughts and there are a few public standpipes and inside-yard connections. The low presence of the water standpipes in the areas caused residents to congest at one public tap and resulted in long queues.

These water sources were situated some distance away from homesteads. Hemson's study in different communities, two of which were in KwaZulu-Natal, aimed to understand work done by children to access water in deep rural areas. He interviewed 1 052 children. The study revealed that children are more involved than women in the collection of water. Of the 1 052 children interviewed in the communities 81 percent had collected water in the previous seven days. Hemson observes that, while adult women who also collect water are often more visible, the major burden falls on the shoulders of children. This is because children tend to collect water before school or late in the afternoon. The residents encountered various problems. For example, Mr Kaizer Gubevu from eMahlomgwa said: "It was difficult to get water to wash especially in summer because there was a lot of rain then it turned water into red like colour so you could not wash bright clothes like white shirts for school".

According to the drive to maturity stage the residents of the areas under study are presumed to have started enjoying water from the public standpipes and inside the yards. The Ugu Water Dialogue (2008) revealed that the Ugu District Municipality is performing well in comparison with other district municipalities in South Africa but that substantial investments are required to provide effective, equitable and affordable water and sanitation. Interviews with municipal officials found that due to historical inequalities, and a more recent focus on the extension and improvement of services in towns, urban coastal areas receive better levels of water and sanitation services overall than inland rural communities. The municipality contends that the main reason for the remaining backlogs in both urban and rural areas is that it does not have sufficient funds to effectively address the backlogs, which will cost about R1.8 billion for water alone. It needs to be reiterated that the UDM is a WSA responsible for water provision in the local municipalities under its jurisdiction. The remaining water backlogs are unevenly distributed across the areas within the UDM. In the areas in question water service rendition is satisfactory. This became evident when 32.5 percent of the 30 respondents from eMalangeni proudly said that their household duties are much easier after the installation of water standpipes, whether public or inside the yard. Furthermore, this was confirmed by all respondents during one-on-one interviews from both communities when the researcher asked them whether there was anything that needs improvement in the quality and quantity of water. All they asked for was an increase in the number of public standpipes; otherwise water quality and quantity are good.

At the stage of high mass consumption, most sections of the two communities in question live in prosperity and their residents are offered both abundance and a multiplicity of choices. Rostow (1960) states that the West or the North belongs to this category today. To contextualize, this stage reflects that the eMalangeni and eMahlongwa rural communities have unlimited access to water on site, food and gardening projects are flourishing in the areas, people's lives have improved and residents of these communities hardly remember the subsistence concerns of the previous stages. The water-related diseases that were threats to human life at the preconditions for take-off stage are now history. This stage of development is reflected in the findings of a study carried out in Ghana by Evans in 2001. His findings reveal how the installation of water in a community changed people's lives around. He reported that school attendance rates for both teachers and learners increased significantly and student absenteeism or dropouts were reduced. Wives began to rest with their husbands until day break, there was an increase in pride and dignity in the community and an improvement in the colour and general appearance of cooked food, as well as the ability to serve visitors with potable water in clean cups and offer cooked food. There was also increased in the cleanliness levels of people and clothing, improved refuse disposal and a reduction in storing cups and other containers with stains. The time spent queuing for water was significantly reduced, as was the distance travelled to collect water and observance of funerals or religious duties was made easier. In eMalangeni and eMahlongwa, the residents now have multiple choices. They have clean drinking water and are also engaging in agriculture.

2.8 Conclusion

The Rostow's stages of development described above have formed a firm foundation for this research study. The choice of the Rostowian model of development has been mainly based on the stages that the eMalangeni and eMahlongwa rural communities went through up until recent times. Rostow begins with traditional society as a stage of development where traditions and customs dominate society or a community. The current study did not have a particular interest in this stage. In the two case studies of rural communities, the theoretical framework starts from the preconditions for take-off stage and progresses to the high mass consumption stage of development. The choice of these stages is based on their ability to describe how the residents lived their lives in relation to water supply at each stage. The local and international literature

has been utilized to demonstrate how water access and installation impact on people's lives. Based on the Ugu District Municipality 2008 Report the eMalangeni and eMahlongwa communities have achieved 100 percent water provision. This research study will further examine the extent to which water service provision has improved the standard of living of people in these two communities. Based on the findings, it is concluded that the two case study communities are at the high consumption stage.

CHAPTER THREE

Research Methodology

3.1 Introduction

Research is one of the most important tools for answering questions. The Merriam-Webster Collegiate Dictionary, Tenth Edition defines research as a hunt for the truth and getting to know more about a subject under study by reading up on it. Furthermore, it indicates that it is also about reflecting, playing with ideas, choosing the areas that interest a researcher and following up on them. For example, in this study, the researcher wanted to establish the impact of water provision on the quality of life of the people of eMalangeni and eMahlolongwa communities. The problems surrounding water provision constitute an important social policy research phenomenon which requires a thorough analysis of the social problem in order to provide policy makers with pragmatic and action-oriented recommendations for alleviating the problem. The researcher conducted this study to determine whether the standard of living of the eMalangeni and eMahlolongwa rural communities has significantly improved since they started receiving water from standpipes.

3.2 Data Collection Methods

The researcher was aware that a research method must be able to meet the objectives of the study. It must be able to provide the information that the researcher sought to collect. A qualitative approach to data collection was adopted, using focus groups and questionnaires which were later quantitatively analyzed. The overall objective of the inquiry was to determine whether the standard of living of the two communities improved after water installation.

Boyd (2001) indicates that people construct meanings about the world in which they exist. He further indicates that qualitative researchers believe that human behavior is best understood within the environment or natural setting where exact actions are occurring and hence the researcher strives to locate and gather descriptive data of the person-environment relationship. In addition to narratives, in the form of interview transcripts and field observation notes, multiple forms of qualitative data exist, for example photographs, videotapes, diaries, memos, letters, tastes and smell and so on.

Borg and Gall (1989) indicate that the term „qualitative research“ can be used interchangeably with ethnography, naturalistic, subjective and post positivistic research. On the other hand, Goetz and LeCompte (1984) choose to employ ethnography as an overall rubric for research using qualitative methods and for ethnographies. Ethnographies are often defined as analytic descriptions or reconstructions of intact cultural scenes and groups (Goetz and LeCompte, 1984). Qualitative research methods typically involve interviews and observations, although they may also involve case studies, surveys and historical and document analysis.

Goetz and LeCompte (1984) discourage conclusions based only on what is prescribed in text. Qualitative research allows the researcher to connect data with the social factors of the environment presented, which makes it easier to define the root of the problem.

Kuper (2008) reveals that one of the critical decisions in qualitative studies is who or what to involve when sampling or whom to interview/observe and what texts need analysis. Kvale (1995) observes that there is branch of philosophy concerned with the theory of knowledge. He argues that it attempts to provide answers to the questions we have, for example how and what we can know. He stresses that this involves thinking about the nature of knowledge itself, about its scope, and about the validity and reliability of claims to knowledge. He is of the opinion that research methods provide ways of approaching, and hopefully answering our research questions. He concludes by saying that research methods can be described as the way to the goal.

Furthermore, to explain past changes, surveys can be used to predict future changes. Such changes may be beyond the control of the surveyor, in which the case the survey is more likely to be concerned with revealing the outcomes of the change or examining the merits of different policy options. Once changes have been observed, the surveyor may be called upon to evaluate the results of the changes.

3.2.1 The research questionnaire (See Appendix 1)

This study adopted the qualitative approach supplemented with systematic sampling and quantitative approach for data analysis which allow a researcher to understand the world through

interaction; hence it was appropriate for the researcher to use questionnaires for this study. These questionnaires were administered personally by the researcher, who was therefore in close contact with the respondents. To generate rich data and thick description, the researcher avoided employing student interns who might not know what to probe and what not to probe, resulting in weak data; instead the researcher gathered data himself.

Administering a questionnaire among respondents enhanced the researcher's knowledge about the provision of water services to the respondents in the communities of eMalangeni and eMahlongwa. Through interaction with respondents the issue of electricity was mentioned; this was not part of the research study, because the inquiry was investigating whether water provision improved the standard of living of the respondents.

The questionnaire comprised of both open and closed-ended questions. The former as defined by Lazarsfeld (1944) provide opportunities for the interviewer to discover a lack of information on the part of the respondent, whereas closed-ended questions do not. Lazarsfeld (1944) further indicates that it is futile to raise questions that are beyond the experiences of the respondents. Rita *et al.* (1989) observe that with closed-ended questions, respondents are offered a set of answers and asked to choose the one that best represents their views. This method was chosen as the principal research approach (Yin, 2003); in this case, policies governing water service delivery.

The researcher constructed both open-and closed-ended questions. Open-ended questions gave respondents an opportunity to express their views in their own words. They gave participants space to give their answers the way they wanted to without restriction. Open-ended questions gave respondents an opportunity to voice their opinions about whether water was accessible and sufficient to provide an adequate standard of living. Respondents were able to describe the kind of challenges they are facing in accessing water sources and what needs to be done to address these challenges.

Closed-ended questions were employed as a way of obtaining a clear and definite set of answers on water provision. The researcher employed closed-ended questions to generate simple, factual information and clear answers. Through the use of closed-ended questions the researcher was able to take control of the process, and obtain uniform and accurate answers. Closed-ended questions were less time-consuming for the respondents to complete. It also increased the return rate. Another benefit of using closed-ended questions is that the answers were easy to standardize; they lend themselves to statistical analysis. By using both open- and closed-ended questions, the researcher was able to ensure that there were fewer irrelevant or confusing answers to the questions. It became easy for the researcher to administer the questionnaires, code answers and analyze data.

3.2.2 The Questionnaire Intensity

The questionnaire, including biographical data, consists of 13 questions. Through past fieldwork experience the researcher realized that the longer the questionnaire, the fewer correctly completed questionnaires are received. For this reason, the questionnaire was made as short as possible. Experienced researchers emphasize the importance of having fewer questions rather than more, but ineffective, questions. Empirical evidence reveals that while many people may enjoy the attention and stimulation of being interviewed, others may consider it as a nuisance, particularly if the interview comes at a time when they are tired, pre-occupied or uncomfortable.

The research questionnaire is divided into five sections

The first three pages of the questionnaire (see Appendix A) cover the demographic profile of the respondent, namely; age, gender, race group, education, employment and monthly income. Questions 1 and 2 seek to understand the background pertaining to water in the two rural communities. Question 3 evaluates whether the residents' lives have changed for the better after the installation of piped water. Questions 4 and 5 look at the extent to which water installation programmes have improved residents' standard of living. Questions 6, 7, 8 and 11 seek to unearth whether water-related problems still exist in the areas. Question 9 attempts to establish the levels of satisfaction in the areas with water service rendition. Question 10 tackles the

functions of water within a household or its significance as a basic necessity of life. Finally, question 12 seeks a general comment by the residents about water rendition.

3.2.3 Piloting the Research Questionnaire

Haralambos and Holborn (2000) argue the need for a pilot study, also known as pilot experiment. The pilot study is a mini pretest study undertaken ahead of the main research project, in order to establish well in advance the strengths and weaknesses of the research design such as a questionnaire and to improve it if need be. This was done in an attempt to prevent money and time being wasted on an inadequately designed project. Furthermore, the pilot experiment was undertaken with members of suitable population, but not with the exact members who later formed part of the larger final sample. It was believed that involving members of the relevant population in both pilot and large-scale research studies would influence their behavior in the final sample.

According to the Ugu District Municipality Backlog Report (2008), eMalangeni has approximately 17 386 residents in 3 900 households. As per information provided by the uMdoni Local Municipality, all of these households have access to water at RDP standards. The same report reveals that the eMahlongwa community has a population of 7008 residents who reside in 1 580 households; and all of these households have access to water at communal standpipes. Simon (2002) defines a population as a collection of items of interest in research. He further indicates that a population represents a group that one wants to generalize one's research to. It is important that the researcher at least know some of the overall characteristics of the larger population. This information helps the researcher to determine the size of the representative sample. The greater the diversity and difference that resides within the population, the larger the sample size for study. Capturing the variability in the population allows for more variation in the sample, and since many statistical tests operate on the principles of variation, it ensures that the statistics used later are valid.

3.3 Research Methods

3.3.1 Sampling method

Sampling is defined by many economists as part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population, especially for the purpose of statistical inference. Each observation measures one or more properties (weight, location, etc.) of an observable entity in order to distinguish objects or individuals. Shuttleworth (2009) argues that numerous experiments to sample a whole population have proved impossible, because of the time, expense, and sheer numbers of subjects involved.

Cochran (1953) argues that population denotes the aggregate from which the sample is drawn. Furthermore, he indicates that the definition of the population may present no problem, as when sampling a batch of electric bulbs in order to estimate the average length of life of a bulb. On the other hand, in sampling a population of firms, rules must be set up to define a firm, and borderline cases will emerge. These must be usable in practice: the enumerator must be able to decide in the field, without much hesitation, whether a doubtful case belongs to the population or not. Tucker *et al.* (1995) argue that data may need to be collected from various contexts, because what is true in one context may not be true in another.

In accordance with Merriam-Webster Collegiate Dictionary, Tenth Edition a subset is defined as a finite part of a statistical population whose properties are studied to ascertain information about the large-scale population (1985). When dealing with people, it can be defined as a set of respondents selected from a larger population for the purposes of a survey. Fridah (2005) goes on to suggest that a sample may provide a researcher with the needed information quickly. For example, if one is a doctor and a contagious and at times fatal disease has broken out in a village within one's area of jurisdiction, one is required to conduct quick tests to help save the situation. If one tries a census of those affected, they may be long dead by the time one arrives at one's results. In such a case just a few of those already infected could be used to provide the required information.

Considering the large number of people enjoying access to water in the two communities, it was necessary to conduct sampling for this study. Sampling reduced the level of expenditure and financial constraints; there was no sponsorship or funding for this project. The sampling method that was utilized was the probability sampling method: each member of the population had a known non-zero probability of being selected as part of the sample. The eMalangeni and eMahlongwa communities' demographics are taken from the Ugu District Municipality (UDM) Backlog Report 2008. This made it possible for the researcher to at least know some of the overall demographics: age, gender, class and location of the population. Such information was important because it allowed the researcher to ensure that areas of uncertainty or ambiguity were clarified. Thus, the researcher was able to avoid the misinterpretations which sometimes occur with questionnaires.

3.3.2 Systematic Sampling

Systematic sampling, which is also known as an „Nth name selection technique“ is employed as a sampling technique in this study. After the required sample size was calculated, every Nth record was selected from a list of population members. As long as the list does not contain any hidden order, this sampling method is as good as the random sampling method. Its advantage over the random sampling technique is its simplicity. Systematic sampling is frequently used to select a specified number of records from a computer file. Two communities were sampled: eMalangeni and eMahlongwa. A total of 30 households were drawn from the population of 3 900 households at eMalangeni. Therefore, one respondent household was representative of 158. On the other hand, a total of 10 households were selected from the population of 1 500 at eMahlongwa. Basically, this means that one respondent household was representative of 130 from a population of 1 500. The key intent of the researcher was to select sampling units that have the true characteristics of the larger scale population. All the households collecting standpipe water had an equal opportunity of being selected. The interviews were then undertaken and gave the researcher insight into the area and whether the standard of living of the residents and beneficiaries at eMalangeni and eMahlongwa was adequate. Systematic sampling helps a researcher to focus on important subpopulations and ignores the irrelevant ones, which improves the accuracy of estimations made.

3.4 Methods of data analysis

Percentages and frequencies are used as data analyses instruments. Percentage is defined as a proportion in relation to a whole which is normally an amount per hundred. A frequency is defined as the number of accuracies within a given time period and is also seen as the ratio of the number of observations in a statistical category to the total number of observations (Word Net, 2007). Data analysis is presented through thick description phenomena, which include pictures and narratives. Furthermore Statistical Packages for Social Sciences (SPSS), questionnaires and observations were used.

3.5 Research protocols and ethics

Since one of the key objectives of the study was to evaluate the impact of water service provision on the improvement of the standard of living of the residents, the study incorporated all households, because that is where the residents collecting water reside, despite the varying distances they have to travel to water sources. In analyzing the research findings pseudonyms were used to ensure the anonymity and confidentiality of the respondents.

3.6 Conclusion

The research methods employed in this study assisted the researcher to meet the objectives of the study and to gain clarity on whether there are initiatives in place to improve the standard of living of the people and whether they are serving a purpose, if any. The data collected broadened the scope of researcher's knowledge of water provision services and measures that need to be put in place to improve the quality of life. This was achieved through the interaction between the researcher and the respondents who articulated their daily challenges in relation to water provision during the interviews.

CHAPTER FOUR

Data Analysis, Interpretation and Discussion of Results

4.1 Introduction

Data analysis is a process of systematically applying statistical and logical techniques to describe, subscribe, summarize and compare data. It assists in highlighting useful information and supports decision making.

4.2 Data Analysis

This investigation concerns the impact of water provision on the quality of life of the eMalangeni and eMahlongwa rural communities. The sample comprised of males and females; the latter comprised 65.0% of the sample. This is due to the fact that males often migrate to urban areas in search of jobs.

4.3 Sample Characteristics

The eMalangeni community has 3900 households, of which a sample of 30 households was drawn for the study. This means that throughout the study one household was representative of 130 households during the collection of data. The eMahlongwa community has 1 500 households and a sample of 10 households was drawn for the study, one respondent per household. This means that throughout the study one household was representative of 158 households during the collection of data. The total number of respondents participating in this study was 40; both communities are characterized by a larger proportion of females than males. The researcher also discovered that women collect water and plant vegetables for their households; whereas men undertake construction activities such as making blocks.

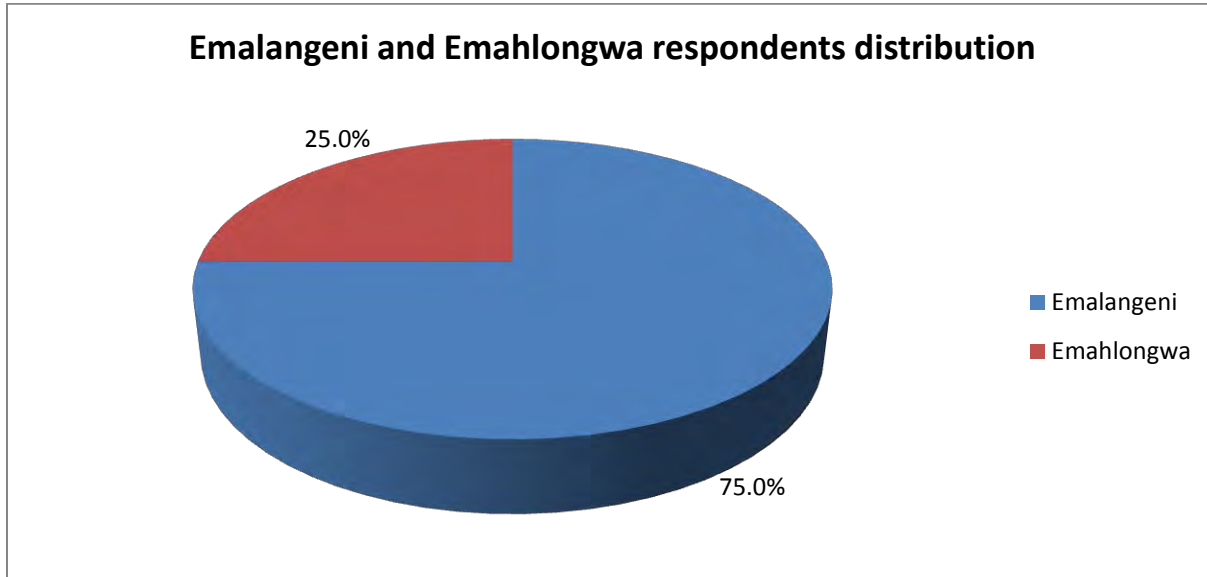
4.4: Demographic information

4.4.1 Biographical Information

Gender of Respondents	<i>f</i> = number of respondents	Percentage
Females	26	65.0%
Males	14	35.0%
Total	N = 40	100%
Age of respondents		
Under 20 years	2	5.0%
21- 30 years	15	37.5%
31 - 40 years	6	15.0%
41 - 50 years	8	20.0%
51 - 60 years	7	17.5%
61+	2	5.0%
Total	N = 40	100%
Educational level	<i>f</i> = number of respondents	Percentage
No formal education	6	15.0%
Primary education	15	37.5%
Secondary education	2	5.0%
Matric	11	27.5%
Post matric	6	15.0%
Total	N = 40	100.0%
Employment Status	<i>f</i> = number of respondents	Percentage
Unemployed	22	55.0%
Informal	11	27.5%
Part-time	3	7.5%
Full-time	4	10.0%
Total	N = 40	100%
Level of income per month	<i>f</i> = number of respondents	Percentage
Refused to answer	2	5.0%
No income	22	55.0%
R0 – R200	1	2.5%
R400 – R599	4	10.0%
R600 – R799	3	7.5%
R800 – R999	2	5.0%
R1000+	6	15.0%
Total	N = 40	100%

Table 1: Demographic Information

The demographic statistics show that the majority of respondents (30) (75.0%) were drawn from eMalangeni community, while 10 (25.0%) were drawn from eMahlongwa. A total of 26 (65.0%) female and 14 (35.0%) male respondents participated in the study.



Graph 1: Distribution of respondents

The **age** distribution of the respondents reveals that 2 (5.0%) of the respondents are under 20 years old; 15 (37.5%) are between the ages of 21-30; 6 (15.0%) are between the ages of 31-40; eight (20.0%) come from the group between the ages of 41-50 years; whereas 7 (17.5%) are between the ages of 51 and 60 years. Lastly, 2 (5.0%) of the recipients are 61 and older. The statistical analysis reveals that 17 (43.0%) respondents in the youth age-group bear the brunt of water collection in these communities. Young people are supposed to be involved in development projects in order to alleviate poverty. The table above indicates that 15 (37.5%) respondents were in the age group 21-30 years; which was the largest age group in the sample, and that the smallest group was that of women who are 61 years and older.

The **education level** of respondents reveals that 6 (15.0%) respondents do not have formal education¹⁰, followed by 15 (37.5%) with primary education; 2 (5.0%) with secondary education;

¹⁰In case of illiterate respondents, the researcher (himself an isiZulu speaker) read the questions out to them and ticked the appropriate responses on their questionnaires.

11 (27.5%) with matric and 6 (15.0%) with post-matric qualifications. The researcher is therefore confident that the respondents were able to understand the questions. These statistics increase the reliability of the measuring instrument which in this case is the questionnaire. However, the percentage of 15.0% of respondents with no formal education reveals that government still needs to do more in order to tackle illiteracy in order to meet the Millennium Development Goals by 2015 (United Nations literacy Decade-International Plan of Action, 2008).

The analysis of the **employment status** of the respondents indicates that the majority of the respondents (22) (55.0%) are unemployed and this is supported by the fact that most of the respondents were available in their households at all times of the day during the interviews. The unemployment percentage is in tandem with International Monetary Fund statistics (2010) which reveal that 24 907 people were unemployed. A total of 11 (27.5%) respondents are involved in the informal economy at bus stops and taxi ranks in the town of Umzinto. The employment status of respondents also reveals that 3 (7.5%) respondents are involved in atypical employment¹¹ in Umzinto restaurants and bars, including working as domestics in the suburban node of the Umdoni Local Municipality. Lastly, a total of 4 (10.0%) respondents are employed full time at the uMdoni Local Municipality, Sezela C.G, Smith (Sugar Mill) and as professional teachers in the nearby schools.

The **income per month** distribution reveals that a majority of respondents 22 (55.0%) have no income, which correlates with the unemployment levels reported above, but 4 (10.0%) respondents indicated that they look to their employed children for financial support and are in the income bracket R400-R599. This needs to be viewed against the backdrop of the labour market that has been shedding jobs instead of creating them in the labour intensive sector. The 6 (15.0%) respondents that earn R1 000 or more per month are either employed full time in government departments or local manufacturing companies and another 2 (5.0%) respondents receive a monthly income of R800-R999 from their pension grants and full time jobs in retail shops and food outlets. Only 3(7.5%) rely on the informal sector and earn R600-R799 per month selling fruits and vegetables from tables. One (2.5%) respondent receives an occasional income

¹¹If have a job today, you do not know if you will have it tomorrow.

of up to R200 from stokvels (*Umholiswano*). Lastly, 2 (5.0%) respondents refused to reveal any information about their income, due to privacy concerns.

4.4.1 What was your life like before water was installed?

A total of 26 (65.0%) respondents highlighted that there were health hazards associated with drinking river water before water installation; they either had to boil water in order to kill germs or put three full table spoons into each 25 litres container and wait approximately six hours before drinking it. Five (12.5%) respondents stated that it was difficult to get water for doing washing because water would change colour on a seasonal basis, especially in summer, leaving the school children with no choice but to wear each uniform four or five times per week. One (2.5%) respondent revealed that they were supplied with water by water tankers during the dry season; if one missed a water tanker one had to ask neighbors who were there when the tanker arrived for water. Four (10.0%) respondents indicated that they started collecting water from the standpipe¹² and do not know what was happening before water installation and 2 (5.0%) highlighted that they used to pay for water through a coupon system in the past. They bought four coupons for R40, R10 each, and could collect three 25 litre containers of water per coupon. The coupon system was bad, particularly for those who had no stable income because when the coupons were finished they reverted to fetching water from unprotected sources which resulted in an outbreak of cholera. Lastly, 1 (2.5%) respondent felt that the queues were too long at the standpipes. Children were at risk of missing school classes because they had to carry water for more than 24 hours a week to meet the survival needs of their households

The **eMalangeni** statistics reveal that 20 (50.0%) respondents indicated that there were health hazards associated with drinking river water before water installation. Underpinning this are South Africa's mortality figures for 2004 which reveal that an average of 12 children aged 0-4 years died every day from intestinal infectious diseases, many of which were water-borne diseases. Six (15.0%) respondents from eMahlengwa concurred. In contrast, 3 (7.5%) respondents experienced difficulty in getting water for the purpose of washing clothes before water installation, followed by 2 (5.0%) respondents from eMahlengwa, especially during heavy

¹²See photo in appendix C: Residents started collecting water from this standpipe.

rains, because water would change colour, causing school children to wear the same uniform four to five times per week. Without clean drinking water people led undignified lives. Only 1 (2.5%) respondent highlighted that water used to be available through water tankers in the dry winter season, while 4 (10.0%) revealed that they had no past experience because they had always collected water from the standpipe and 2 (5.0%) paid for water through a coupon system. For example, Ms Thabile Dlamini a 37-year old woman said: “I used to buy four coupons per month which were credited with R10 each and with this I was only able to collect three 25 litres of water per month per coupon. If we foresaw that water could finish before the end of the month we had to use the remaining water for drinking and collect water from the river for washing and other domestic activities” (Interview on 3 August 2011). In contrast, 1 (2.5%) respondent from eMahlongwa felt queues were too long at the standpipe. Finally, 1 (2.5%) revealed that he used to take cattle to a river to drink at midday. This respondent, Mr Nkosinathi Msomi, said: “I used to take my cattle to a river for drinking midday; it was unsafe, because sometimes they were snakes around the river at that time, as a result a snake bit and left dead one cow in this community” (Interview on 4 August, 2011).

The **gender** cross-tabulation reveals that a total of number of 10 (25.0%) males, and 16 (40.0%) females felt that there were health hazards associated with drinking water before water installation; these people were frequently affected by diseases such as cholera. Three (7.5%) male respondents and 2 (5.0%) female respondents experienced difficulty in accessing washing water. One (2.5%) female respondent said that she used to take cattle to the river to drink, while 4 (10.0%) indicated that they had always collected water from the standpipe, because they arrived in the area after the installation of water; 2 (5.0%) stated that they used to pay for water through the coupon system, and 1 (2.5%) felt that queues were too long at the standpipes. Lastly, 1 (2.5%) male respondent said that he used to drive cattle to the river to drink at midday.

The **age cross-tabulation** shows that 8 (20.0%) respondents in the group between 21-30 years of age; 6 (15.0%) between the ages of 31 and 40, seven (17.5%) aged 41-50 years, followed by 3 (7.5%) aged between 51- 60 and 2 (5.0%) 61 and over felt that there were health hazards associated with using or drinking water before water installation. For example, Mr Khumbulani Ngcobo said: “we used to have various water-related diseases such as cholera, bilharzias in young boys and itching skin after bathing with it, but after the installation of piped water all now is history” (Interview on 5 August,

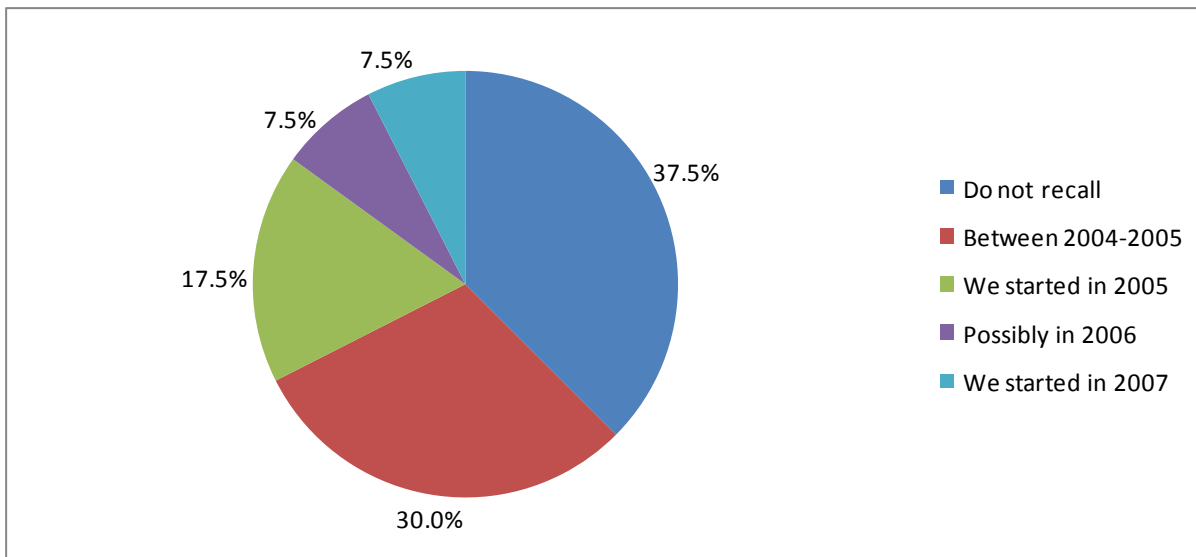
2011), whereas 1 (2.5%) respondent under 20 years of age, followed by 2 (5.0%) aged 21-30 and 2 (5.0%) between 51-60 felt that there was difficulty in getting washing water before water installation. Mr Kaizer Gubevu from eMahlongwa mentioned: “It was difficult to get water to wash especially in summer because rain used to fall most frequently turning water into red like in colour. This left the residents with no water to wash bright colours of clothes like white shirts for school children. This prompted the rise of absenteeism amongst the school learners” (Interview on 3 August, 2011). The statistics also show that 1 (2.5%) respondent between the ages of 21-30 years revealed that they used to be provided with water through water tankers in the dry season before water installation, and 1 (2.5%) respondent under 20 years of age, one (2.5%) respondent between 21 and 30 years old, and 2 (5.0%) respondents between the ages of 51-60 years had always collected water from the standpipe. For example, Mr Skhumbuzo Mkhize said: “I was not born in this area. The residents were already collecting water from the standpipe when I came to this area, although we collect water from the standpipe, but if we want to swim we still go to running rivers and get infected with skin related diseases” (Interview on 4 August, 2011). On the other hand 1 (2.5%) respondent between the ages of 21 and 30 years, and 1 (2.5%) respondent aged between 31-40 years said that they used to pay for water through a coupon system, followed by 1(2.5%) respondent between 31 and 40 years old, who indicated that the queues were long at the standpipe and 1 (2.5%) respondent between 41 and 50 years old who commented that he used to drive cattle to the river to drink.

The **educational level** cross-tabulation shows that 4 (10.0%) respondents with no formal education indicated that the water collected for household chores from running rivers caused water-borne diseases such as cholera, itching skin, and bilharzias before the installation of the standpipes; 1 (2.5%) respondent experienced difficulties in obtaining washing water before the water installation; and 1 (2.5%) respondent cited no experience of water-borne diseases, because they had always collected water from the standpipe. The statistics also reveal that the majority of respondents 13 (32.5%) had at least primary education, many of whom had completed grade 9 and 10 and were able to produce their reports, citing various reasons for leaving school. Members of this group highlighted that they had to collect water that carried diseases such as cholera before water installation. In contrast, only 1 (2.5%) respondent had always collected clean drinking water from the standpipe, because she came to the area after water installation. Lastly, 1(2.5%) respondent revealed that he used to herd cattle to a river to drink at midday.

Amongst the respondents with secondary education 1 (2.5%) said that water from running rivers carried water borne diseases and 1 (2.5%) experienced difficulties in accessing washing water. The statistics on education levels also reveal that 5 (12.5%) respondents with matric certificates indicated that drinking water carried health hazards, resulting in a cholera outbreak, 2 (5.0%) had difficulties accessing washing water in both the dry and rainy seasons, and 1 (2.5%) highlighted that water used to be provided by tankers during times of drought. Amongst those with matric 1 (2.5%) respondent had always collected water from the standpipe and therefore has no knowledge of the period before water installation and 2 (5.0%) used to pay for water through the coupon system. In the last group with post-matric qualifications 3 (7.5%) respondents cited water-related diseases, and 1 (2.5%) revealed difficulty in getting washing water, whereas 1 (2.5%) mentioned that water was provided through water tankers during times of drought. Lastly, 1 (2.5%) respondent indicated that the queues were too long at the standpipes, because only a small volume of water flowed out from the tap.

The **employment** cross-tabulation statistics showed that 14 (35.0%) of the respondents who felt that there were health hazards associated with drinking river water before water installation are unemployed. The lack of access to water caused widespread absenteeism at school and work. One respondent (2.5%) cited difficulties in accessing washing water, because in rainy seasons it would change colour; 1 (2.5%) said that water was provided by tankers during times of drought, 4 (10.0%) had no experience of the period before water installation, because they had always collected water from the standpipes, and 1 (2.5%) said that she used to pay for water through the coupon system. Lastly, 1 (2.5%) respondent said that she used to stand in the queue for a long time awaiting her turn to fetch water from the standpipe. Of the respondents who mentioned health hazards associated with drinking water 8 (20.0%) are informally employed, followed by 3 (7.5%) who experienced difficulties in accessing water for washing. Of the respondents who felt that there were health hazards associated with drinking water 2 (5.0%) are employed in part-time jobs and 1 (2.5%) said that she used to pay for water through the coupon system. Amongst those respondents who mentioned that there were health hazards associated with drinking river water 2 (5.0%) are fully employed, followed by 1 (2.5%) who had difficulty in accessing water. Lastly, 1 (2.5%) respondent said that he used to herd cattle to the river to drink at midday.

4.4.2 The respondents who were collecting water were asked to state when they started collecting water from the standpipe



Graph 2: Showing years of water installation

A total of 15 (37.5%) respondents said that they do not recall when they started collecting water from the standpipe; some respondents do not recall when they started collecting water from the standpipe because they were not born in the area. Twelve (30.0%) started collecting water from the standpipe between 2004 and 2005; 7 (17.5%) started in 2003; 3 (7.5%) said that it was possibly in 2006 and 3 (7.5%) started in 2007. The eMalangeni and eMahlengwa statistics reveal that 9 (22.5) and 6 (15.0%) respondents respectively said that they do not recall when they started receiving water, whereas 10 (25.0%) and 2 (5.0%) respondents respectively cited between 2004 and 2005. The statistics also indicate that 7 (17.5%) respondents from eMalangeni started collecting water in 2003, while 3 (7.5%) respondents responded that they possibly started in 2006, followed by 1 (2.5%) and 2 (5.0%) respectively in 2007.

The **gender** cross-tabulation reveals that a total of 3 (7.5%) male respondents highlighted that they do not recall when they started collecting water from the standpipe; one of the reasons given by the respondents, especially elderly people, was that they are uneducated hence they do not recall the years easily unless there was an incident which hit the community or nation hard; 5 (12.0%) started collecting piped water between 2004 and 2005; 3 (7.5%) started collecting in

2003, 1 (2.5%) respondent possibly started in 2006 and 2 (5.0%) started collecting in 2007. The statistics also show that a total of 12 (30.0%) female respondents did not know when they started collecting water from the standpipe, followed by 7 (17.5%) who started collecting water between 2004 and 2005, 4 (10.0%) who started in 2003, 2 (5.0%) who possibly started collecting in 2006 and 1 (2.5%) who started collecting water in 2007.

The **age** cross-tabulation reveals that 1 (2.5%) respondent in the group under 20 years old started collecting water from the standpipe between 2004 and 2005, followed by 1(2.5%) who started collecting in 2007. In the age group 21-30 years, 3 (7.5%) mentioned that they do not know when they started collecting water from the standpipe, 3 (7.5%) started between 2004 and 2005, four (10.0%) started in 2003 and the last 3 (7.5%) said that they possibly started collecting in 2006. A total number of 5 (12.5%) in the age group 31-40 said they do not know when they started collecting water from the standpipe, 1 (2.5%) started between 2004 and 2005, 1 (2.5%) in 2003, 1 (2.5%) and the last 1 (2.5%) started in 2007. The cross-tabulation statistics also reveal that in the age group 41-50 years, three (7.5%) do not know which year they started collecting water from the standpipe. Mr Themba Khoza a 49-year old from eMalangeni indicated: “I do not remember easily because I never went to school, only young people and those who were born into privileged families who can remember the things that happened in the past. Furthermore, I was not born into this area; I was born in the area, called Dududu at Umkhomazi, where education was not encouraged” (Interview on 5 August, 2011). In the same age group, 3 (7.5%) respondents started collecting water from the standpipe between 2004 and 2005, followed by 1 (2.5%) who started in 2003. Lastly, 1 (2.5%) started in 2007. In the age group 51 to 60 years, three (7.5%) did not know when they started collecting water from the standpipe, followed by 3 (7.5%) who started between 2004 and 2005 and 1 (2.5%) who started in 2003. The majority of those who said they started in 2003 grew up in the community. Lastly, in the age group 61 years and above 1 (2.5%) started collecting water from the standpipe between 2004 and 2005. The example is Mrs Thandi Kheswa who said: “I think it was in 2004 or 2005, although I am not exactly sure the year in which we started collected water from the standpipe” (Interview on 4 August, 2011).

The statistics on the **educational level** of respondents reveal that 4 (10.0%)of the respondents with no formal education do not recall when they started collecting water from the standpipe, either because they lack education, as indicated earlier or were not born in the area they live in at

present; 2 (5.0%) started collecting water between 2004 and 2005. Five (12.5%) respondents with primary education indicated that they do not recall when they started collecting water from the standpipe, followed by 6 (15.0%) who said they started between 2004 and 2005; 3 (7.5%) started in 2003 and the last and smallest number, 1 (2.5%), started in 2007. The smallest number of respondents with secondary education 2 (5.0%) do not recall when they started collecting water from the standpipe. Among respondents with matric certificates 3 (7.5%) do not know when they started collecting water from the standpipe; 4 (10.0%) started between 2004 and 2005; 2 (5.5%) started in 2003; 1 (2.5%) said that they possibly started in 2006 and 1 (2.5%) started in 2007. In the group of respondents with post-matric qualifications 1 (2.5%) does not recall when they started collecting water from the standpipe; 2 (5.0%) started in 2003; and 2 (5.0%) did not recall the exact year when they started collecting water, but said it was possibly between 2004 and 2005. Lastly, 1 (2.5%) highlighted that they started collecting piped water in 2007.

The statistics on **employment status** show that 7 (17.5%) informally employed respondents, followed by 1 (2.5%) in a part time job and 7 (17.5%) unemployed said that they do not recall when they started collecting water, while 3 (7.5%) in an informal employment, followed by 1 (2.5%) employed on a part-time basis, 2 (5.0%) in full-time employment and 6 (15.0%) mentioned that they started collecting water between 2004 and 2005. Of those who started collecting water from the standpipe in 2003, one (2.5%) respondents employed on a part-time basis, followed by 2 (5.0%) respondents in full-time jobs and 4 (10.0%) are unemployed. One 1 (2.5%) respondent who is on an informal job stated that possibly she started collecting water in 2006 and a further 2 (5.0%) unemployed said they possibly started in 2006 and 3 (7.50%) unemployed started collecting water from the standpipe in 2007.

With regard to **income per month** 1 (2.5%) respondent refused to reveal her income and did not recall when she started collecting water from the standpipe, followed by 1 (2.5%) respondent who mentioned that she possibly started collecting water in 2006. Eight (20.0%) respondents who have no income said that they do not recall when they started collecting water from the standpipe, followed by 6 (15.0%) who revealed that they started between 2004 and 2005, 4 (10.0%) started collecting water in 2003, three (7.5%) stated that they started in 2007 and 1

(2.5%) respondent refused to reveal her income said possibly in 2006. Of those that earn between R0-200 per month, one (2.5%) did not recall when they started collecting water from the standpipe. Amongst those that who earn between R400-R599 per month, two (5.0%) did not recall when they started collecting water from the standpipe, followed by 2 (5.0%), whereas 1 (2.5%) who earning between R600-R799 per month did not recall, 1 (2.5%) started in 2003 and 1 (2.5%) said possibly in 2006. Two (5.0%) respondents earning between R800-R999 per month did not recall when they started collecting water from the standpipe. Four (10.0%) respondents earning R1 000 or more per month mentioned that they started collecting water from the standpipe between 2004 and 2005 and 2 (5.0%) started collecting water from the standpipe in 2003.

4.4.3 Has your standard of living improved after the installation of water?

A total of 35 (87.5%) respondents revealed that their standard of living has improved after water installation; many mentioned that the number of vegetable gardens started to increase after water installation because they can now irrigate their crops with clean water. Some of the respondents also mentioned that when water was scarce they had to irrigate their crops with dirty water left over from washing; the vegetables would wilt and dry out. A total of 2 (5.0%) highlighted that their standard of living has not improved, citing reasons such as lack of income and no food in the household and 3 (7.5%) did not know whether their standard of living had improved after water installation or not because, while they celebrated when they started collecting water from the standpipe, they are still suffering from a lack of income and food in the household. The eMalangeni and eMahlongwa statistics reveal that 27 (67.5%) and 8 (20.0%) respondents respectively mentioned that their standard of living has improved; whereas 2 (5.0%) respondents from the eMahlongwa area indicated that there is no improvement after water installation because they cannot see any positive impact on their lives; they are still suffering like they used to before water installation and 3 (7.5%) from eMalangeni did not know whether there is improvement in their standard of living or not.

The statistics relating to **gender** reveal that a total of 13 (35.0%) male respondents felt that water installation has improved their standard of living, followed by 1 (2.5%) who mentioned that his

standard of living has not improved after water installation. A total of 22 (55.0%) female respondents indicated that water installation has improved their standard of living; many mentioned that the number of vegetable gardens started to increase after water installation because they can now irrigate their crops with clean water. Some of the respondents also mentioned that when water was scarce they had to irrigate their crops with dirty water left over from washing; vegetables would then wilt and dry out. The respondents are able to use the time they would have spent collecting water were there no standpipes for social ceremonies such as attending weddings and church. In contrast, 2 (5.0%) female respondents indicated that their standard of living has not improved and 2 (5.0%) mentioned that they do not know whether their standard of living has improved after water installation or not because their lives are same as they were before water installation.

The **age** cross-tabulation shows that 2 (5.0%) respondents in the cohort under 20 years old do not know whether their standard of living improved after the installation of water, because they cannot see any positive impact on their lives. Twelve (30.5%) respondents who were between 21 and 30 years old mentioned that their standard of living has improved after the installation of water and 1 (2.5%) respondent did not know whether her standard of living had improved after water installation or not. The example is Miss Sizakele Mthombeni who said: “I do not know whether my standard of living has improved after water installation because the standpipe is far apart from the household in such a way that I walk approximately 1 km from home to the standpipe. The time I use on the way to collect water may be used for preparing food for the family and wash school uniform for my children” (Interview on 3 August, 2011). On the other hand, 8 (20.0%) respondents in the age group between 31 and 40 years mentioned that their standard of living has improved, while 7 (17.5%) respondents who were between 41 and 50 years old revealed that their standard of living has improved, and 1 (2.5%) respondent in this age group indicated that her standard of living has not improved after water installation. The statistics on age also showed that 6 (15.0%) respondents between 51 and 60 years old mentioned that their standard of living has improved after water installation, followed by 1 (2.5%) respondent who did not know whether her standard of living has improved or not. In the age category 60 years and above 2 (5.0%) respondents felt that their standard of living has improved after the installation of water. For example Mrs Nokuzola Mdletshe said: “I did not have a garden for vegetables when we were collecting water from a river because it was situated

approximately 2 km away from home. I had to collect water twice a day which was before sunset and in the afternoon to avoid hot sun before water installation. Now, I am no longer worried about waking up before sunset to collect water because water is closer to the household. Furthermore, I have now decided to start a vegetable garden inside the yard, so the money that was spent on buying vegetables before water installation is now being used to buy more bread and flour for steam bread” (Interview on 1 August, 2011).

Statistics on **educational levels** show that amongst respondents who believe that their lives are better since the installation of water, 6 (15.0%) have no formal education, 15 (37.5%) have primary education, and 2 (2.5%) have secondary education. On the other hand, 9 (22.5%) respondents with matric certificates responded that their standard of living has not improved. and 2 (5.0%) said that they do not know whether their standard of living has improved. Five (12.5%) respondents with post-matric qualifications stated that their standard of living has not improved and 1 (2.5%) did not know whether her standard has improved after water installation or not.

Statistics on **employment status** show that of the respondents who believe that their lives are better than before they started collecting water from the standpipe 19 (47.5%) are unemployed, 9 (22.5%) are informally employed, 3 (7.5%) have part-time jobs and 4 (10.0%) are employed full time. In contrast, 3 (7.5%) unemployed respondents mentioned that they do not know whether their standard of living has improved or not; and 2 (5.0%) who are in the informal employment indicated that their standard of living has not improved because they are still suffering from the same poverty they experienced before water installation.

Two (5.0%) respondents who mentioned that their lives are better now that standpipe water is available refused to reveal their income. A majority of 19 (47.5%) respondents with no income felt that their standard of living has improved after the installation of piped water because they can now grow vegetables and spend the little money they have on other household necessities. Two (5.0%) respondents who earned between R400-R599 per month; 3 (7.5%) who earned between R600-R799, 2 (5.0%) earning between R800-R999, and 6 (15.0%) who earned R1000 or more per month concurred. On the other hand, 3 (7.5%) respondents with no income mentioned that they do not know whether their standard of living has improved or not and 1 (2.5%) respondent earning between R0-R200 per month did not know whether their standard of

living has improved or not. Lastly, 2 (5.0%) respondents earning between R400-R599 per month revealed that their standard of living has not improved after the installation of water.

4.4.4 What aspect of your standard of living has improved since the installation of water?

What aspect of your standard of living has improved since the installation of piped water?	<i>f</i> = number of respondents	Percentage
Household chores are much easier e.g. cooking, cleaning etc.	16	40.0%
The standpipes are situated in a neat environment	2	5.0%
Diseases associated with health are on the decrease	16	40.0%
Don't know	5	12.5%
Water that residents drink tastes good	1	2.5%
Total	N = 40	100%

Table 4: The residents living standard have improved after water installation

A total of 16 (40.0%) respondents mentioned that their standard of living has improved since water installation. Many mentioned that household duties are much easier, for example residents no longer leave crockery, cutlery etc. dirty as was the order of the day before water installation. Safe drinking water was scarce such that residents had to think of the following day's needs when using it. A total of 2 (5.0%) respondents felt that the standpipes are situated in a neat environment, so the water they collect is free from bacterial contamination. Sixteen (40.0%) respondents mentioned that diseases associated with water are on the decrease since water installation, since they do not draw water for drinking from unprotected sources any more. Five (12.5%) respondents did not know whether their standard of living has improved or not because while they celebrated when they started collecting water from the standpipe, they still suffer from a lack of income and food in the household and 2 (5.0%) revealed that the water they drink tastes good since water installation. The statistics on eMalangeni and eMahlongwa also reveal that 13 (32.5%) and 3 (7.5%) respondents respectively mentioned that household duties have become much easier, while 1 (2.5%) and 1 (2.5%) respondent respectively highlighted that the standpipe is situated in a neat environment. Twelve (30.0%) and 4 (10.0%) respondents respectively indicated that diseases associated with water are on the decrease after water installation; whereas 4 (10.0%) and 1 (2.5%) respectively mentioned that they do not know whether their standard of living has improved or not. One (2.5%) respondent from eMahlongwa revealed that she no longer carries water on her head as she did before water installation.

The **gender** cross-tabulation shows that 6 (15.0%) male respondents mentioned that their household duties are much easier now; for example residents no longer leave crockery, cutlery etc. dirty as was the order of the day before water installation. Safe drinking water was scarce and residents had to take the following day's needs into consideration. Seven (17.5%) male respondents mentioned that the incidence of water-borne diseases has decreased and 1 (2.5%) respondent said that he did not know what aspect of their standard of living has improved after the installation of piped water, because while they celebrated when they started collecting water from the standpipe, they still suffer from a lack of income and food in the household. On the other hand, a total of 10 (25.0%) female respondents responded that households chores are much easier now, followed by 2 (5.0%) who felt that the standpipe is situated in a neat environment, 9 (22.5%) who indicated that the incidence of water-borne diseases has decreased, 4 (10.0%) who did not know whether their standard of living has improved or not, and 1 (2.5%) who mentioned that the water that they drink tastes good.

The age cross-tabulation reveals that 2 (5.0%) respondents under the age of 20, followed by 1 (2.5%) between 21 and 30 years of age, 1 (2.5%) respondent between 41 and 50 years old, and 1 (2.5%) between the ages of 51 and 60 do not know what aspect of their standard of living might have been improved after water installation, because while they celebrated when they started collecting water from the standpipe, they still suffer from a lack of income and food in the household. Out of those who mentioned that household duties are much easier after water installation 6 (15.0%) respondents were between the ages of 21 and 30, followed by 3 (7.5%) respondents between the ages of 31 and 40, 2 (5.0%) aged between 41 and 50, 4 (10.0%) respondents between the ages of 51 and 60, and 1 (2.5%) respondent more than 60 years old. The example is Miss Zethu Mhlongo who said: "Cattle used to urinate into water when we are collecting it from a river. Now, I am a happy person because I wash my clothes with clean water from the standpipe" (Interview on 3 August, 2011). In contrast, 1 (2.5%) respondent between the ages of 21 and 30 and 1 (2.5%) between the ages of 41 and 50 mentioned that the standpipe is situated in a neat environment, hence the water they drink is free from bacterial contamination. Five (12.5%) respondents between the ages of 21 and 30 indicated that water-related diseases have decreased after the installation of water. Mrs Phumzile Shezi had to say this: "my family and I do not suffer from water

based diseases as was the order of the day when we are collecting water from the running river and also the water we drink is now tasty because we do not put Jik into it or boil it before drinking” (Interview on 7 August, 2011). Five (12.5%) respondents between the ages of 31 and 40, 3 (7.5%) between 41-50 years of age, and 2 (5.0%) between the ages of 51 and 60 concurred. Miss Thokozile Gumbi pointed out: “We used to walk in a foot path with tall grass, bush alongside and sugar cane plantation. We were fortunate that the notorious sugar cane serial killer did not harm us. Maybe, we were too old to be his victims. Furthermore, we were afraid of ghosts if we woke up early in the morning because there was a myth that ghosts take you to places you do not know. Now, I am happy because the standpipe is situated in a neat environment. Furthermore, I do not share water with animals; the diseases such as cholera have decreased as a result” (Interview on 31 July, 2011).

The statistics on **educational levels** reveal that amongst the respondents who believe that their living standard is better since water installation, 4 (10.0%) have no formal education, 4 (10.0%) have primary education, 5 (5.0%) secondary education and 3 (7.5%) respondents have post-matric qualifications. Of the respondents who believe that their lives are not yet better 1 (2.5%) respondent with secondary education and 1 (2.5%) with primary education mentioned that the standpipe is situated in a good environment; hence the water they drink is free from bacterial contamination. Most respondents said that they grow vegetables in homestead gardens and irrigate them with water from a running river. Two (5.0%) respondents with no formal education, 3 (7.5%) with secondary education and 9 (20.0%) with primary education indicated that the incidence of water-related diseases has decreased since water installation. Two (5.0%) respondents with matric, 1 (2.5%) respondent with primary education, 1 (2.5%) with a post-matric qualification and 1 (2.5%) respondent with secondary education said they did not know whether their standard of living has improved or not because they do not see positive changes in their lives. Lastly, 1 (2.5%) respondent with secondary education mentioned that her standard of living has improved because she collects water from the standpipe which is situated in a neat environment and is believed to be free from bacterial contamination.

Statistics on **employment status** show that of the respondents who mentioned that household duties are much easier than before they started collecting water from the standpipe, 6 (15.0%) are unemployed, followed by 4 (10.0%) informally employed; 2 (5.0%) are employed part time; and 4 (10.0%) have full time jobs. Two (5.0%) respondents who are unemployed mentioned that the

standpipe is situated in a neat environment which is free from bacterial contamination, followed by 11 (27.5%) who are unemployed who indicated that the incidence of water-borne diseases have decreased and that there has not been a cholera outbreak since water installation. Three (7.5%) unemployed respondents said that they do not know whether there is improvement in their standard of living or not because, while they celebrated when they started collecting water from the standpipe, they still suffer from a lack of income and food in the household. Five (12.5%) respondents who are employed in the informal sector pointed out that water-borne diseases have decreased since the installation of water, followed by 1 (2.5%) who did not know whether the standard of living has improved. Lastly, 1 (2.5%) respondent in informal employment highlighted that the water they drink tastes good since water installation (2). One (2.5%) respondent who is employed part time did not know whether the standard of living has improved and 4 (10.0%) respondents in full time employment indicated that household duties are much easier than before they started collecting water from the standpipe.

The statistics on **income per month** amongst respondents who indicated that their standard of living has improved since they started collecting water from the standpipe reveal that 1 (2.5%) respondent refused to answer the question. No specific reason was given by this respondent other than mumbling that she has no money. One (2.5%) respondent did not know whether the standard of living has improved or not and also refused to reveal their income. A total number of 7 (17.5%) respondents who had no income highlighted that the household duties are much easier than before they started collecting water from the standpipe. For example, the residents no longer leave crockery, cutlery etc. dirty as was the order of the day before water installation. Safe drinking water was scarce and residents had to take the following day's needs into consideration. Two (5.0%) respondents mentioned that the standpipe is placed at a distance from their household, followed by 10 (25.0%) who mentioned that the incidence of water-borne diseases has decreased since water installation and 3 (7.5%) did not know whether their standard of living has improved or not because, while they celebrated when they started collecting water from the standpipe, they still suffer from a lack of income and food in the household. One (2.5%) respondent who earns between R0-R200 per month mentioned that household duties are much easier than before water installation. Amongst those who earn between R400-R599 per month, 1

(2.5%) respondent mentioned that household duties are much easier than before water installation and 1 (2.5%) respondent pointed out that the incidence of water-borne diseases has decreased, followed by 1 (2.5%) respondent did not know whether the standard of living has improved or not after water installation. Lastly, 1 (2.5%) respondent mentioned they no longer draw turbid water because the water they now drink tastes good. The statistics also show that among the respondents that earned between R600-R799 per month, 1 (2.5%) highlighted that household duties are much easier now and 2 (5.0%) respondents mentioned that the time spent on water related duties has decreased since water installation. From those who earn between R800-R999 per month 2 (5.0%) respondents mentioned that the incidence of water-borne diseases has decreased since water installation and 6 (15.0%) respondents who earn R1 000 or more per month indicated that household duties are much easier since the installation of water.

4.4.5 How has water improved your economic situation?

A total of 23 (57.5%) respondents said that the installation of water has not improved their economic situation; most respondents mentioned that except for the clean drinking water they draw from the standpipe, things are still the same in their household. However, 12 (30.0%) respondents revealed that water installation has improved their economic situation; through growing vegetables such as spinach, cabbages etc., since most respondents are unemployed they use the money that was previously used to buy vegetables for other household necessities. One (2.5%) respondent indicated that he boils traditional medicine with clean water to sell for cash, 1 (2.5%) did not know whether their economic situation had improved or not, and 1 (2.5%) respondent mentioned that her economic situation has improved through brick-making and poultry farming and the money that was previously used to buy bricks and poultry has now been diverted to other household necessities such as sugar, bread etc. Statistics on eMalangeni and eMahlengwa reveal that 19 (47.5%) and 4 (10.0%) respondents respectively mentioned that water has not improved their economic situation, and 9 (22.5%) and 3 (7.5%) respondents respectively pointed out that their economic situation has improved through growing vegetables. One (2.5%) respondent from eMalangeni mentioned that he boils traditional medicine with clean water to sell for cash, 1 (2.5%) respondent from the same area did not know whether the economic situation has improved or not and 2 (5.0%) respondents from eMahlengwa mentioned

that their economic situation has improved through brick-making. Mrs Khonjiwe Cele said: “I used to hire three people to assist in collecting water and mixing concrete for making blocks before water installation. I had to pay them R40 each day per person. Now, I collect water from the standpipe next to the household. Therefore, the money that was used to pay casuals is now being spent on other necessities of the household such as paying school fees and uniform for my kids. I have even established a small garden inside the yard” (Interview on 3 August, 2011). Lastly, 1 (2.5%) respondent mentioned that their economic situation has improved through poultry farming for subsistence.

The **gender** cross-tabulation reveals that amongst the male respondents 8 (20.0%), followed by 15 (37.5%), and 3 (7.5%) mentioned that their economic situation has improved since water installation because they can now grow vegetables such as cabbages and spinach. Nine (22.5%) female respondents also stated the same, citing the similar reasons as that of the latter. One (2.5%) male respondent indicated that his economic situation had improved through boiling traditional medicine to sell for cash, followed by 1 (2.5%) who did not know whether the standard of living has improved or not and 1 (20.5%) male and 1 (2.5%) female respondent who felt that their economic situation has improved through brick-making after water installation. Lastly, 1 (2.5%) female respondent mentioned that her standard of living has improved after water installation.

The **age** cross-tabulation shows that 2 (5.0%) respondents under the age of 20 pointed out that their economic situation has not improved since water installation because things are still the same in the household, followed by 9 (22.5%) in the 21 to 30 age group. Four (10.0%) respondents mentioned that their economic situation has improved, because they can now grow vegetables in their gardens such as cabbages, spinach etc. and use the money that was previously used to buy vegetables for other household necessities. The example is Mr Sakhile Gutshwa who said: “my life has improved economically, because now I can grow vegetables in the garden and farm poultry for subsistence and cash, before water installation it was impossible because river used to dry in winter (Interview on 5 August, 2011). In the age group 31 to 40 years, 3 (7.5%) respondents mentioned that their economic situation has improved after water installation, whereas 4 (10.0%) respondents highlighted that their economic situation has improved after water installation through growing vegetables, and 1 (2.5%) male respondent said that his economic situation has improved through

brick-making, because he collects water from the source next to his home. A total of 3 (7.5%) respondents in the age group between 41 and 50 years old mentioned that they have not seen economic improvement in their lives since water installation; 1 (2.5%) respondent pointed out that their economic situation has improved after water installation through growing vegetables and 1 (2.5%) responded that the standard of living has improved after water installation through boiling traditional medicine to sell for cash. Mr. Mandlakayise Mtolo said, “I used to walk a long distance for water. Now I fetch water close to the house. However, the water that we collect from the standpipe contains more chlorine so the residents complain that they sometimes suffer from running stomach” (Interview on 31 August, 2011). In contrast, 1 (2.5%) respondent did not know whether the standard of living has improved or not, followed by 1 (2.5%) who mentioned that the standard of living has improved through brick-making with water from the closest source and 1 (2.5%) respondent who highlighted that their standard of living has improved through poultry farming. Amongst those who are between 51 and 60 years old 5 (12.5%) respondents mentioned that their standard of living has not improved after water installation and 2 (5.0%) respondents highlighted that their standard of living has improved after water installation through growing vegetables. Lastly, 1 (2.5%) respondent in the age group 61 years and above did not know whether the standard of living has improved or not and 1 (2.5%) said the standard of living has improved through growing vegetables. The example is Mr. Sipho Khuluse who said: “We used to sleep on empty stomach at some point before water installation. Now, we grow vegetables in the garden for subsistence and sell the surplus for cash and vegetables are irrigated with clean water from the standpipe. Therefore, the vegetables are always green in color showing healthiness” (Interview on 3 August, 2011).

The **educational level** cross-tabulation shows that 5 (12.5%) respondents with no formal education mentioned that their economic situation has improved since the installation of water, followed by 1 (2.5%) respondent who felt that the standard of living has improved after water installation through growing vegetables in the garden such as spinach, cabbages etc. Amongst the respondents who had primary education 6 (15.0%) stated that their economic situation has not improved, whereas 5 (12.5%) with primary education felt that their standard of living has improved since water installation through growing vegetables in the garden, 1 (2.5%) started to boil traditional medicine for to sell for cash after water installation and 1 (2.5%) respondent did not know whether the standard of living has improved or not after water installation. Lastly, 2

(5.0%) respondents mentioned that their standard of living standard has improved through brick-making; they say that the money which they previously used to pay people to bring water to their home for mixing concrete for bricks is now used for other household needs. Among the respondents with secondary education, 1 (2.5%) mentioned that their standard of living has improved since water installation through making bricks and 1 (2.5%) mentioned that their standard of living has improved through poultry farming, because they no longer buy chicken to eat; whereas 8 (20.0%) respondents with matric certificates highlighted that their standard of living has improved after water installation and 3 (7.5%) felt that their economic situation has improved since water installation through growing vegetables. The statistics also reveal that 3 (7.5%) respondents with post-matric qualifications mentioned that their standard of living has not improved after water installation and 3 (7.5%) felt that their standard of living has improved after water installation through growing vegetables.

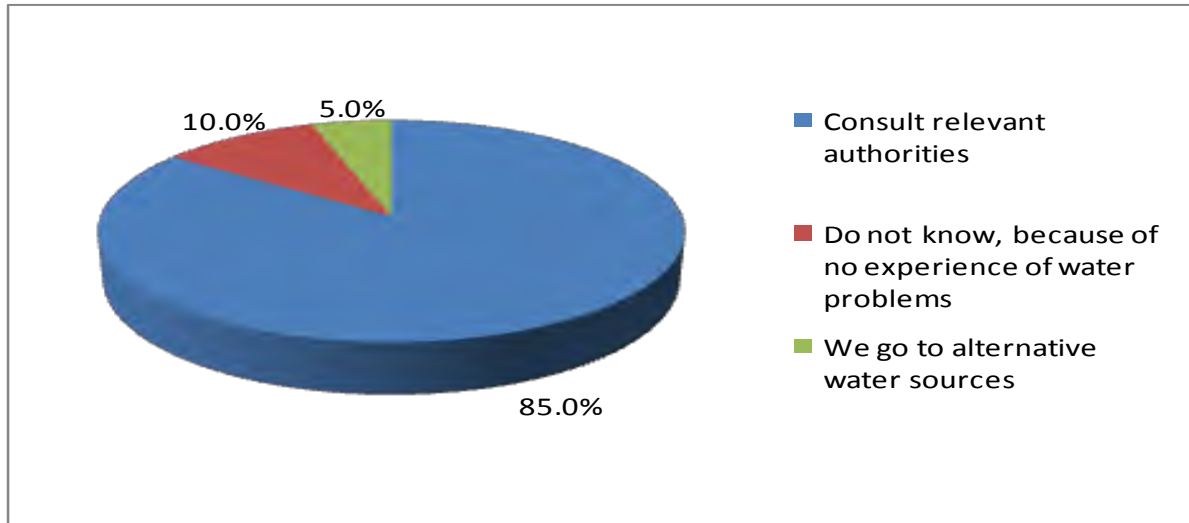
The **employment status** cross-tabulation shows that 12 (30.0%) unemployed respondents mentioned that their standard of living has not improved after water installation and 7 (17.5%) unemployed respondents said their economic situation has improved after water installation through growing vegetables in the garden such as spinach and cabbages; most respondents indicated that the money that was previously used to buy vegetables is now used for other household necessities, followed by 1 (2.5%) respondent who did not know whether her standard of living has improved or not because things remain the same as before water installation. Two (5.0%) respondents mentioned that their standard of living has improved through brick-making; these respondents mentioned that the money they used to pay casual workers to fetch water in order to mix concrete for making blocks or bricks is now used for other household necessities. Amongst the respondents in the informal sector 7 (17.5%) felt that their economic situation has improved after water installation, 2 (5.0%) respondents felt that their standard of living has improved through growing vegetables in their garden, and 1 (2.5%) mentioned that his standard of living has improved through boiling traditional medicine to sell for cash. One (2.5%) respondent said their standard of living has improved through poultry farming. The statistics also reveal that 3 (7.5%) respondents who have part time jobs mentioned that they did not know whether their economic situation has improved or not after water installation; whereas among

those employed in full time jobs 1 (2.5%) respondent did not know whether their economic situation has improved or not and 3 (7.5%) felt that their economic situation has improved through growing vegetables in their garden after water installation.

The **income per month** cross-tabulation shows that 2 (5.0%) respondents refused to answer the question, “**How has water improved your economic situation?**” A total of 12 (30.0%) respondents who had no income did not know whether their economic situation had improved or not after water installation; most of them mentioned that water installation has not brought economic relief to them because they are still unemployed, as was the case before the installation of water. Seven (17.5%) respondents mentioned that their economic situation has improved through growing vegetables in their garden; most highlighted that the money they used to spend on vegetables is now available for other household necessities, 1 (2.5%) respondent did not know whether their economic situation has improved or not because there is still unemployment, 2 (5.0%) respondents mentioned that their economic situation has improved through brick-making, because they used to hire casuals to collect water for mixing concrete; now that money is used for other household necessities. In the group earning between R0 and R200 per month, 1 (2.5%) respondent mentioned that the economic situation has not improved after water installation, while 2 (5.0%) respondents earning between R400-R599 per month said their economic situation has not improved after water installation, but 1 (2.5%) earning between R400-R599 per month felt that their economic situation has improved after water installation, through boiling traditional medicine for cash. The example is Mr Mandla Mthembu who said: “I did not have something to make cash before water installation. Now, I grow vegetables for subsistence and sell the surplus in the market at uMzinto. I make R350 out of these vegetables a day, but if I had a good day I make approximately R500 per day. The large fraction of the proceeds assists me to pay for education of my children as well as the running costs of the household” (Interview on 2 August 2011). Lastly, 1 (2.5%) respondent mentioned that the economic situation has improved through poultry farming; if they have a visitor at home, they no longer send a child to the shop to buy meat for curry. One (2.5%) of the respondents earning R600-R799 per month felt that the economic situation has not improved and 2 (5.0%) mentioned that their economic situation has improved through growing vegetables in the garden such as cabbages, spinach etc. In the group earning R800-R999 per month, 2 (5.0%) respondents indicated that their economic situation has not improved after water installation; whereas 3 (7.5%) respondents earning R1000

or more per month mentioned that their economic situation has not improved and 3 (7.5%) respondents felt that it has improved after water installation through growing vegetables.

4.4.6 How do you address the problems associated with water in your area?



Graph 4: Ways of solving water problems

A total of 34 (85.0%) respondents said that they consult with the relevant authorities to address the problems associated with water in their area. These include the Water Committee. Four (10.0%) respondents highlighted that they do not know because they have not experienced a water problem in the area and 2 (5.0%) respondents stated that they use alternative water sources. The eMalangeni and eMahlongwa cross-tabulation reveal that 26 (65.0%) and 8 (20.0%) respondents respectively indicated that they consult with the relevant authorities to address problems associated with water; 3 (7.5%) and 1 (2.5%) respondent respectively did not know, because they have not experienced any water-related problem; and 1 (2.5%) and 1 (2.5%) respondent respectively said that they use an alternative water source if they have a problem associated with water in the area.

The **gender** cross-tabulation shows that 13 (32.5%) male respondents mentioned that they consult with the Water Committee if they have a problem associated with water in the area and 1 (2.5%) said that they use alternative water sources if they a problem associated with water,

whereas 21 (52.5%) female respondents said that they consult with the relevant authorities regarding water problems, followed by 4 (10.0%) who stated that they do not know because they have not experienced any water-related problem and 1 (2.5%) respondent who indicated that they use alternative water sources if they have a problem associated with water in the area.

The **Age** cross-tabulation reveals that 2 (5.0%) respondents under the age of 20 years mentioned that they consult with relevant authorities such as the Water Committee if they have a problem associated with water in the area. In the 21 to 30 years age group, 11 (27.5%) respondents stated that they consult with the relevant authorities; and 1 (2.5%) respondent responded that she does not know because she has no experience of a problem associated with water. Mrs Siviwe Mlambo said: "I have no experience of a problem associated with water, because since I came here I have not experienced any problem regarding water" (Interview 7 August, 2011). A further 1 (2.5%) respondent in this age group revealed that she uses alternative water sources if she has a problem associated with water in the area. Amongst the respondents who were between 31 and 40 years old, 8 (20.0%) mentioned that they consult with relevant authorities such as the Water Committee if they have a problem associated with water in the area; whereas 5 (12.5%) respondents between 41 and 50 years old highlighted that they consult with relevant authorities such as the Water Committee in the area, followed by 2 (5.0%) respondents who did not know, because they have no experience of a problem associated with water and 1 (2.5%) who pointed out that they use alternative water sources if the water is finished in their standpipe, which is unsafe because sometimes they have to send children across the road to fetch water. The statistics also reveal that 6 (17.6%) respondents between the ages of 51 and 60 indicated that they consult with relevant authorities such as the Water Committee if they have a problem associated with water in the area and 1 (2.5%) respondent did not know what to do, having had no previous experience of water-related problems. Of respondents aged 61 and above 2 (5.0%) mentioned that they consult with relevant authorities such as the Water Committee. Mrs Thembi Shoba responded: "I go to the water committee with regard to water problem and report. They then go to report at Esperanza. After that I often see the problem being solved. My neighbor also told me that she reported a water problem to the water committee one day and it was attended to within three days" (Interview on 5 August, 2011)

The **educational level** cross-tabulation shows that 5 (12.5%) respondents with no formal education indicated that they consult with relevant authorities such as the Water Committee if they have a problem associated with water in the area, followed by 1 (2.5%) respondent who does not know what to do, because she has not experienced such a problem in the past. A total of 12 (30.0%) respondents with primary education mentioned that they consult with relevant authorities such as the Water Committee if they have a problem associated with water in the area, followed by 2 (5.0%) respondents who do not know what to do, because they have no past experience of a problem related to water in the area. One (2.5%) respondent mentioned that she uses alternative water sources if she has a problem associated with water in the area; she also mentioned that collecting water from other sources is unsafe because they sometimes risk sending their children across the road to fetch water. Fortunately, they have not experienced a road fatality. In the group of respondents with secondary education 2 (5.0%) consult with relevant authorities such as the Water Committee. Eleven (27.0%) respondents with a matric certificate and 4 (10.0%) with post-matric qualifications mentioned that they consult with relevant authorities if they have a problem with water in the area; whereas 1 (2.5%) respondent with no formal education did not know what to do because they have no previous experience of water problems in the area and 1 (2.5%) respondent with a post-matric qualification mentioned that she uses alternative water sources if she has a problem with water in the nearest standpipe. In most cases she goes and collects water from the standpipe across the road because the water does not run out at that standpipe.

The **employment status** cross-tabulation reveals that amongst the respondents who consult with relevant authorities such as the Water Committee if they have a problem associated with water in the area, 20 (50.0%) are unemployed; followed by 10 (25.5%) respondents employed in the informal sector; 2 (5.0%) respondents with part time jobs and 2 (5.0%) respondents who have full time jobs. Among those who mentioned that they do not know what to do because they have no past experience of a problem associated with water 1 (2.5%) respondent is unemployed, 1 (2.5%) works in the informal sector, 1 (2.5%) is in a part time job and 1 (2.5%) is in full time employment. Lastly, of the respondents who said that they use alternative water sources if they

have a problem associated with water in the area, 1 (2.5%) respondent is unemployed and 1 (2.5%) has a full time job.

The **income per month** cross-tabulation indicates that amongst the respondents who consult with relevant authorities if they have a problem associated with water in the area, 1 (2.5%) refused to answer the question: „**How do you address the problems associated with water in your area?**“; 20 (50.0%) had no income, 1 (2.5%) respondent earns R0-R200 per month, 4 (10.0%) earn R400-R599 per month, 3 (7.5%) respondents earn R600-R799 per month, 1 (2.5%) R800-R999 and 4 (10.0%) respondents earn R1 000 or more per month. One (2.5%) respondent with no income, 1 (2.5%) who earns R800-R900 per month and 1 (2.5%) respondent who earns R1 000 or more per month said that they do not know what to do because they have no past experience of a problem associated with water. Lastly, 1 (2.5%) respondent with no income and 1 (2.5%) who earns R1 000 or more per month mentioned that they use alternative sources if they have problem associated with water in the area.

4.4.7 What is your perception about water delivery in your area?

A total of 34 (85.0%) respondents said that they are satisfied with water delivery in the area; most added that they are satisfied because the water is of good quality, it comes out in large volumes when running a tap and the standpipe is situated in a neat environment. Five (12.5%) respondents indicated that water delivery is bad in the area, because if they report a problem associated with water to the Ward Councilor he usually says he is not responsible for water and he does not refer them to the person who they should talk to, claiming that he is too busy, and the problem is not attended to. One (2.5%) respondent highlighted that they need more community standpipes. The statistics on eMalangeni and eMahlengwa areas reveal that 25 (62.5%) and 9 (22.5%) respondents respectively said that they are satisfied with water delivery in the area; while 4 (10.0%) and 1 (2.5%) respondents respectively claimed that water delivery is bad, giving the same reasons mentioned above. Lastly, of the respondents living in eMalangeni 1 (2.5%) mentioned that more taps need to be installed in the area, so that they will not spend so much time in queues for water.

The **gender** cross-tabulation shows that a total of 14 (35.0%) male respondents highlighted that the community needs more taps; the majority of these respondents said that they spend too long standing in queues and that this time could be used for other activities. They also mentioned that this negatively affects learners' performance at school because while an educator is teaching in class they are thinking about water queues. The majority of the female respondents (22)(55.0%) said that they are satisfied with water delivery in the area; however, 4 (10.0%) claimed that water delivery is bad in the area, because if they report a problem associated with water to the Ward Councilor, he usually tells them that he is not responsible for water delivery.

The **age** cross-tabulation reveals that a total of 2 (5.0%) respondents under 20 years, followed by 12 (30.0%) respondents between 21 and 30 years and 7 (17.5%) respondents between the ages of 31 and 40 years mentioned that they are satisfied with the delivery of water in the area. On the other hand, 1 (2.5%) respondent aged 21-30 and 1 (2.5%) between the ages of 31 and 40 felt that water delivery in the area is bad, because if they report a problem associated with water to the Ward Councilor he usually tells them that he is not responsible for water issues. An example is Mr Jackson Nomndayi who said: "Water delivery in the area is quite bad. When I go to the Councilor to report he would tell me that he is not responsible for water issues, we must report to the Ugu office based at Esperanza. We, as the community, believe that he is the one who must go and report on our behalf because we voted for him to help us" (Interview on 5 August, 2011). Six (15.0%) respondents aged 41-50, 5 (12.5%) between the ages of 51 and 60 and 2 (5.0%) respondents aged 61 and above are satisfied with water delivery in the area, but 2 (5.0%) aged 41-50 felt that water delivery is bad, because the Ward Councilor usually tells them that he is not responsible for water issues. In contrast, 1 (2.5%) respondent aged between 51 and 60 said that water delivery is bad because if they report a problem associated with water to the Ward Councilor he usually tells them that he is not responsible for water. Lastly, 1 (2.5%) respondent between 51-60 years highlighted that more standpipes need to be installed in the area. Mrs Phakamile Jili a 55-year-mother had to say this: "I am very happy about water in the area, because if there is going to be a water cut-off the Ugu people drive their cars around the area and tell us to store more water because water is due for purification, so we won't have water for some days. This shows respect to me" (Interview on 3 August, 2011).

Statistics on **educational levels** reveal that 4 (10.0%) respondents with no formal education, 12 (30.0%) with primary education, 2 (5.0%) with secondary education, the majority of the respondents 11 (27.5%) with matric and 5 (12.5%) with post-matric qualifications such as teaching answered that they are satisfied with the delivery of water in the area. On the other hand, 1 (2.5%) respondent with no formal education, 3 (7.5%) with primary education and 1 (2.5%) respondent with a post-matric qualification mentioned that water delivery is bad, because the Ward Councilor usually tells them that he is not responsible for water and that they must go and report it at the UDM office in Esparenza. Lastly, 1 (2.5%) respondent with no formal education mentioned that more standpipes need to be installed in the area.

The **employment status** cross-tabulation reveals that 19 (47.5%) unemployed respondents mentioned that they are satisfied with water delivery in the area, followed by 10 (25.0%) in the informal sector, 2 (5.0%) in part time jobs and 3 (7.5%) in full time employment. A total of 2 (5.0%) unemployed respondents mentioned that water delivery is bad because if they report a problem associated with water to the Ward Councilor he usually tells them that he is not responsible for water, followed by 1 (2.5%) in the informal sector, 1 (2.5%) in part time jobs and 1 (2.5%) in a full time job. Lastly, 1 (2.5%) unemployed respondent felt that more standpipes need to be installed in the areas. Many of the respondents are satisfied with water delivery in the area, because water is safe for drinking, it tastes good and the environment around the standpipe is taken care of such that it is not possible hideout for dangerous animals such as snakes and so on.

The **income per month** cross-tabulation shows that 1 (2.5%) respondent refused to answer the question “**what is your perception about water delivery in your area?**” Nineteen (47.5%) respondents with no income, 1 (2.5%) who earns R0-R200 per month, 4 (10.0%) who earn R400-R599 per month, 2 (5.0%) earning R600-R799 per month, 2 (5.0%) who earn R800-R999 per month and 5 (12.5%) in the income bracket R1 000 or more per month are satisfied with the delivery of water in the area. Two (5.0%) respondents with no income felt that water delivery is bad, because if they report a problem associated with water to the Ward Councilor, he usually tells them that he is not responsible for water, followed by 1 (2.5%) who earns R600-R799 per

month and 1 (2.5%) who earns R1 000 or more per month. Lastly, 1 (2.5%) respondent with no income felt that more standpipes need to be installed in the areas.

4.4.8 Briefly elaborate as to what problems are associated with water delivery in your area

A total of 4 (10.0%) respondents indicated that the problem associated with water delivery in the area is tap vandalism, followed by the majority of 24 (60.0%) respondents who mentioned water cut-offs. One (2.5%) respondent cited long queues at the standpipe, 3 (7.5%) respondents pointed out that the water source is far from the household because of the topography of the area and 8 (20.0%) respondents did not know what problems were associated with water in the area. The statistics on eMalangeni and eMahlengwa areas reveal that 3 (7.5%) and 1 (2.5%) respondents respectively said that the problem associated with water delivery in the area is tap vandalism. The majority of 17 (42.5%) and 7 (17.5%) respondents respectively highlighted that the problem associated with water delivery in the area is water cut-offs; whereas 1 (2.5%) respondent from eMalangeni mentioned that the queues are frequently long at the standpipes and 3 (7.5%) respondents felt that water source is distant from the households. Lastly, 6 (15.0%) and 2 (5.0%) respondents respectively said that they do not know the problems associated with water delivery in the area.

The **gender** cross-tabulation shows that 1 (2.5%) male respondent mentioned that the problem associated with water in the area is tap vandalism, usually done by youngsters at night, followed by 7 (17.5%) respondents who pointed to water cut-offs and 6 (15.0%) who said that they do not know the problems associated with water delivery in the area. Amongst the female respondents 3 (7.5%) cited tap vandalism and 17 (42.5%) felt that water cut-offs are a problem in the area. Miss Ntombenhle Shezi said: “We sometimes run short of water in the standpipe, while we are waiting for water to return we suffer because we have limited choices of water sources. If the municipality can install more standpipes I believe we may not have water cut-off at the same time. I also think that if we can have two additional standpipes that can make a difference” (Interview on 31 August 2011). One (2.5%) respondent mentioned the long queues at the standpipe and said that they spend approximately 20 minutes queuing. Three (7.5%) respondents felt that water source is distant from most households and 2 (5.0%) did not know about problems associated with water delivery in the area. The reasons range from being born elsewhere to spending more time in urban than rural areas.

The **age** cross-tabulation statistics reveal that 2 (5.0%) respondents under 20 years old did not know of any problem associated with water. Of those between the ages of 21 and 30, 1 (2.5%) cited tap vandalism, 10 (25.0%) mentioned water cut-offs, and 1 (2.5%) respondent mentioned that there are frequently long queues at the standpipe. One (2.5%) respondent did not know of any problems associated with water. Amongst the respondents in the age group 31-40 years 1 (2.5%) mentioned tap vandalism as a common problem in the area and 5 (12.5%) said that there are water cut-offs in the area. Most respondents complained about water cut-offs. Miss Siphesihle Zondo said: "I only know of water cut-offs in the area" (Interview on 3 August, 2011). One (2.5%) respondent aged between 31 and 40 pointed out that they walk long distances to the standpipe and 1 (2.5%) did not know of any problems associated with water in the area. The statistics also reveal that 1 (2.5%) respondent between the ages of 41 and 50 mentioned tap vandalism because youngsters break taps at night or turn them on and leave them unattended until next morning. Miss Sizeni Mbhele said: "We have a problem here; the youngsters frequently break the taps at night. Then the taps run unattended until we come next morning. In so doing, the Municipality loses large volumes of water which we would have been used to irrigate the vegetables in the garden. Furthermore, I suspect that they sell these taps to a scrap yard at uMzinto. In response, I think the Municipality needs to change the pipes made of copper and replace them with steel pipes to prevent this from happening because the municipality loses large sums of money to maintenance" (Interview on 5 August, 2011). Four (10.0%) respondents aged 41 to 50 highlighted that water cut-offs are a common problem in the area; most respondents complain that this happens without them being informed in advance and it takes for a while for the service to be restored. They find themselves left with no option but to revert to collecting water from unsafe sources such as running rivers. One (2.5%) respondent felt that the standpipe is too far from the household because of the terrain. The environment is rocky and hilly and some households are approximately 1 km away from each other, making it too difficult to reticulate water infrastructure¹³. Lastly, 2 (5.0%) respondents did not know of any problems associated with water in the area. Five (12.5%) respondents aged between 51 and 60 raised the problem of water cut-offs, followed by 1 (2.5%) who indicated that the standpipe is far from home and 1 (2.5%) respondent who did not know of any problems associated with water. In the age group 61 and above, 1 (2.5%) respondent mentioned tap vandalism as a problem associated with water and 1 (2.5%) did not know of any problems associated with water in the area. Mr Mandlonke

¹³ Please see appendix C.

Khuboni said: “I do not know any water- related problem in the area, because I am not permanently staying here, I only visit home at the weekends and on public holidays” (Interview on 6 August, 2011).

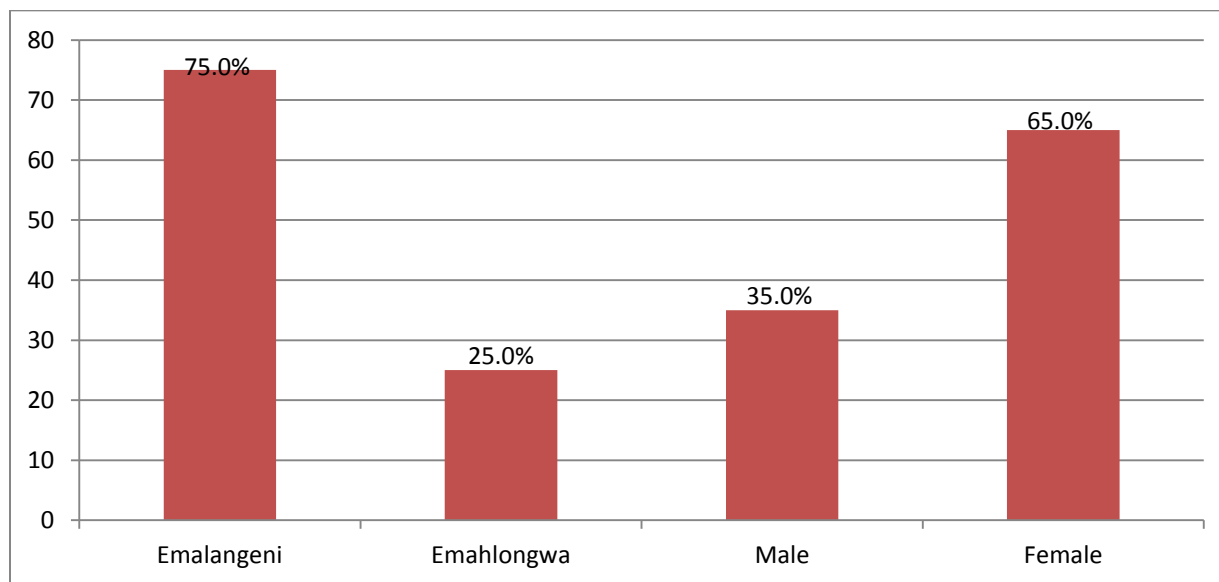
The **educational level** cross-tabulation shows that 1 (2.5%) respondent with no formal education, 1 (2.5%) with matric, 1 (2.5%) respondent with primary education and 1 (2.5%) with a post-matric qualification mentioned tap vandalism as a water-related problem in the area. Of the respondents who mentioned that there are water cut-offs in the area 2 (5.0%) had no formal education, followed by 7 (20.0%) with matric certificates, 9 (22.5%) with primary education, 4 (10.0%) with a post-matric qualification and 2 (5.0%) with secondary education. Two (5.0%) respondents with no formal education and 1 (2.5%) with primary education felt that water is too far from the household. One (2.5%) respondent with formal education, 3 (7.5%) respondents with matric certificates and 4 (10.0%) respondents with primary education did not know of any problem associated with water delivery in the area. Lastly, 1 (2.5%) respondent felt that the queues to collect water from the standpipe are very long.

The **employment status** cross-tabulation shows that 3 (7.5%) unemployed respondents and 1 (2.5%) respondent employed in the informal sector mentioned that the problem associated with water delivery is standpipe vandalism done by youngsters at night. A total of 12 (30.0%) unemployed respondents, followed by 8 (20.0%) respondents in the informal sector, 1 (2.5%) in a part time job and 3 (7.5%) in full time employment highlighted that the problem associated with water delivery in the area is water cut-offs or disruptions; and 1 (2.5%) respondent with a full time job felt that the queues to collect water from the standpipe are very long. Two (5.0%) unemployed respondents and 1 (2.5%) respondent in a part time job pointed out that the standpipe is far from the household, because of the topography of the area. Amongst the respondents 5 (12.5%) unemployed, 2 (5.0%) in the informal sector and 1 (2.5%) in a part time job mentioned that they do not know of any problems associated with water delivery in the area.

The **income per month** cross-tabulation shows that 1 (2.5%) respondent refused to answer the question, “**what are the problems associated with water delivery in your area?**” Eleven (27.5%) respondents with no income, 1 (2.5%) earning R0-R200 per month, 4 (10.0%) earning R400-R599 per month, 2 (5.0%) with an income of R600-R799 per month, 1 (2.5%) earning

R800-R999 per month and 4 (10.0%) respondents earning R1 000 or more per month mentioned that the problem associated with water delivery in the area is water cut-offs. Four (10.0%) respondents with no income indicated that the problem associated with water delivery is tap vandalism. Amongst the respondents who believe that water is far from the household 1(2.5%) refused to answer this question. Two (5.0%) respondents with no income and 1 (2.5%) earning R1 000 or more per month mentioned that they frequently stand in long queues to collect water from the standpipe. Of the respondents who did not know of any problems associated with water delivery in the area, 5 (12.5%) had no income, followed by 1 (2.5%) earning R600-R799 per month, 1 (2.5%) earning R800-R999 per month and 1 (2.5%) with an income of R1 000 or more per month.

4.4.9 What is your opinion on the quality and quantity of water you are receiving?



Graph 5: Residents' opinions about water quantity and quality

Statistics on eMalangeni and eMahlongwa reveal that all respondents (30 (75.0%) and 10 (25.0%) respectively) highlighted that water is of good quality and quantity. Many of these respondents indicated that the water is of good quality because it looks clean and tastes good. On the other hand, in terms of satisfactory water quantity, they mean that water comes out in large volumes when running the tap. The **gender** cross-tabulation shows that a total of 14 (35.0%) male respondents mentioned that water is of good quality and quantity and 26 (65.0%) female

respondents concurred. The age cross-tabulation shows that, of the respondents who stated that the water they collect from the standpipe was of good quality and quantity, 2 (5.0%) were under 20 years, followed by 13 (32.5%) between the ages of 21 and 30 years, 8 (20.0%) were 31-40 years old, 8 (20.0%) were between the ages of 41 and 50, 7 (17.5%) between 51 and 60 years old and 2 (5.0%) were 61 years old or more. An example is Miss Nokuthula Mzobe said: “I do not have a problem with both quality and quantity of water we collect from the standpipe, but we still fall short of standpipes in the area. The number of standpipes has not been increased over the past six years to be consistent with ever-growing population. Approximately, 16 households share one standpipe which often leads to arguments as to how many containers should a person fill up at a time. Furthermore, we still lack of water for recreational purposes such as swimming, which I think is necessary to stay health” (Interview on 5 August, 2011).

The **educational level** cross-tabulation reveals that a total of 6 (15.0%) respondents who stated that the water they collect from the standpipes is of good quality and quantity have no formal education, followed by 15 (37.5%) with primary education, 2 (5.0%) with secondary education, 11 (27.5%) with matric certificates and 6 (15.0%) with post-matric qualifications such as teaching.

The **employment status** cross-tabulation reveals that a total of 22 (55.0%) respondents who felt that the water is of good quality and quantity are unemployed, followed by 11 (27.5%) in the informal sector, 3 (7.5%) who are employed part time and 4 (10.0%) in full time employment. Many of the respondents who said water is of good quality and quantity are unemployed and they emphasized that they are the ones who regularly fetch water; therefore they understand the real situation regarding water.

The **income per month** cross-tabulation reveals that a total of 2 (5.0%) respondents refused to answer the question, “**What is your opinion on the quality and quantity of water you are collecting?**” Twenty two (55.0%) respondents with no income, 1 (2.5%) earning R0-R200 per month, 4 (10.0%) earning R400-R599 per month, 3 (7.5%) who earn between R600 and R799 per month, 2 (5.0%) earning between R800 and R1000 per month and 6 (15.0%) respondents earning R1 000 or more per month mentioned that the water they collect from the standpipe is of good quality and quantity.

4.4.10 What aspect of domestic functions do you normally require water for?

A total of 14 (35.0%) male respondents, and 25 (62.5%) female respondents mentioned that they use water for household chores such as drinking, cooking, washing, cleaning etc. One (2.5%) female respondent highlighted that she uses water for household chores and also to irrigate vegetables such as cabbage and spinach in the garden. Statistics on eMalangeni and eMahlongwa areas reveal that 29 (72.5%) and 10 (25.0%) respondents respectively pointed out that they require water for household chores such as cooking, washing, drinking and cleaning and 1 (2.5%) respondent from eMalangeni indicated that she requires water for household chores such as cooking, drinking, washing, cleaning and irrigating the vegetables in her garden.

What aspect of domestic functions do you normally require water for?

Water normally used for	f = number of respondents	Percentage
Household chores e.g. cooking, washing, drinking, cleaning the house etc.	39	97.5%
Household chores and watering the garden crops	1	2.5%
Total	N = 40	100%

Table 2: Uses of water in the household

A total of 39 (97.5%) respondents answered that they normally require water for cooking, drinking, cleaning and washing and 1 (2.5%) respondent said she normally uses water for household chores as well as irrigating the vegetables in her garden. The **gender** cross-tabulation reveals that 14 (35.0%) male respondents and 25 (62.5%) female respondents highlighted that they normally require water for household chores such as cooking, drinking and cleaning and 1 (2.5%) respondent mentioned that she normally uses water for both domestic purposes and irrigating the vegetables in her garden.

The **age** cross-tabulation shows that amongst the respondents who normally require water for household chores such as cooking, drinking, cleaning and washing, a total of 2 (5.0%) are less than 20 years old, followed by the majority of 12 (30.0%) respondents who are between 21 and 30 years old, 8 (20.0%) aged 31-40 years, 8 (20.0%) aged 41-50 years, 7 (17.5%) who are between the ages of 51-60 and 2 (5.0%) who are 61 years old or older. Lastly, 1 (2.5%) respondent between 21 and 40 years of age mentioned that she normally requires water for

domestic chores such as cooking, drinking, cleaning and washing, as well as for irrigating vegetables such as cabbages and spinach in her garden.

The **educational level** cross-tabulation reveals that 6 (15.0%) respondents with no formal education indicated that they normally require water for household chores such as cooking, drinking, cleaning and washing, followed by 15 (37.7%) respondents with primary education and 2 (5.0%) respondents with secondary education. Amongst those with matric certificates 11 (27.5%) mentioned that they normally require water for the household chores indicated earlier. Five (12.5%) respondents with post-matric qualifications concurred and 1 (2.5%) respondent mentioned both household chores and irrigating the vegetables in the garden.

The **employment status** cross-tabulation reveals that the majority of respondents who normally require water for household chores such as cooking, drinking and cleaning (22 (55.0%)) are unemployed, followed by 11 (27.5%) in the informal sector 3 (7.5%) working part time and 3 (7.5%) respondents in full time jobs. One (2.5%) respondent mentioned household chores and irrigating the vegetables in the garden.

The **income per month** cross-tabulation reveals that 2 (5.0%) respondents refused to answer the question: “**what aspect of domestic functions do you normally require water for?**” Among the respondents that indicated that they normally require water for domestic chores such as cooking, drinking, cleaning and washing, 22 (55.0%) respondents have no income, 1 (2.5%) earns R0-R200 per month, 4 (10.0%) respondents earn R400-R599 per month, 3 (7.5%) earn between R600 and R799 per month, 2 (5.0%) earn between R800 and R999 per month and 5 (12.5%) earn R1 000 or more per month. Lastly, 1 (2.5%) respondent earning R1 000 or more per month mentioned that water is normally required for household functions such as cooking, drinking, cleaning and washing as well as irrigating the vegetables in the garden.

4.4.11 Do you encounter any problems when reporting a water-related problem?

Do you encounter any problem when reporting a water-related problem?	<i>f</i> = number of respondents	Percentage
No problem, because we have the water committee	36	90.0%
Yes, the municipality takes long to solve water problems	3	7.5%
Don't know	1	2.5%
Total	N = 40	100%

Table 3: Respondents' opinions on water problems

A total of 36 (90.0%) respondents highlighted that they do not encounter any problems when reporting water-related problems because they have a Water Committee, followed by 3 (7.5%) respondents who mentioned that they encounter problems because the municipality takes a long time to solve water problems and 1 (2.5%) respondent who did not know whether they encounter difficulties when reporting a problem associated with water. Many of these respondents mentioned that they do not encounter problems about water queries, because if they report it to the Water Committee it does everything possible to report water problems to the relevant authorities and get them attended to.

Statistics on eMalangeni and eMahlolongwa reveal that 27 (67.5%) and 9 (22.5%) respondents respectively pointed out that they do not encounter any problems in reporting water-related issues, because they have a Water Committee; 2 (5.0%) and 1 (2.5%) respondents respectively mentioned that they have difficulties because the municipality takes so long to solve water-related problems. Lastly, 1 (2.5%) respondent from eMalangeni did not know whether they have difficulties in reporting water-related problems or not.

The **gender** cross-tabulation shows that 12 (30.0%) male respondents highlighted that they do not encounter problems, because they have a Water Committee to deal with these issues, followed by 1 (2.5%) respondent who said that the municipality takes too long to solve water problems and 1 (2.5%) who did not know whether they encounter problems when reporting a problem associated with water or not. On the other hand, 24 (60.0%) female respondents indicated that they do not encounter problems because they have a Water Committee to deal with problems associated with water, while 2 (5.0%) respondents said that they do encounter difficulties because the municipality takes too long to solve water-related problems.

The **age** cross-tabulation shows that 2 (5.0%) respondents aged less than 20 years, followed by 13 (32.5%) between the ages of 21-30 mentioned that they do not encounter problems because they have a Water Committee to deal with issues associated with water. Amongst those who are between 31 and 40 years, 7 (17.5%) respondents mentioned that they do not encounter problems because they have a Water Committee to deal with such issues and 1 (2.5%) respondent

indicated that they encounter problems because the municipality takes too long to solve the problems associated with water. Mr Sangoza Mdlalose said: “The councilor called a community meeting upon assumption of its term of office. The meeting elected committees that will work with the Councilor and discussed the reporting lines about the community problems. Any problem reported to the committee or Councilor, after a day or two is attended to” (Interview on 31 August, 2011). Six (15.0%) respondents who are between 41 and 50 years old said that they do not encounter problems; 2 (5.0%) respondents indicated that they do encounter difficulties because the municipality takes too long to solve problems, 6 (15.0%) respondents between 51 and 60 years of age denied the existence of problems, boasting about the work done by the Water Committee in the area, and 1 (2.5%) aged 51 to 60 and 2 (5.0%) aged 61 or more indicated that they do not know whether there are difficulties or not.

Statistics on **educational level** reveal that 5 (12.5%) respondents with no formal education, followed by 12 (30.0%) respondents with primary education, 2 (5.0%) respondents with secondary education, 11 (27.5%) respondents with matric certificates and 6 (15.0%) with post-matric qualifications mentioned that they do not encounter problems when approaching the municipality with water queries, because they have a Water Committee to deal with these issues. Lastly, 1 (2.5%) respondent with no formal education did not know whether they encounter difficulties or not and 3 (7.5%) respondents with primary education agreed that they encounter problems because the municipality takes too long to solve the problems associated with water.

The **employment status** cross-tabulation shows that 20 (50.0%) unemployed respondents, followed by 11 (27.5%) respondents working in the informal sector, 2 (5.0%) in part time jobs and 3 (7.5%) in full time employment highlighted that they do not encounter problems when approaching the municipality with water queries, because they have a Water Committee. On the other hand 1 (2.5%) unemployed respondent, followed by 1 (2.5%) respondent in a part time job and 1 (2.5%) in full time employment mentioned that they encounter problems when approaching the municipality with water queries. Lastly, 1 (2.5%) unemployed respondent did not know whether they, as a community, encounter problems when approaching the municipality with water queries.

The **income per month** cross-tabulation reveals that 1 (2.5%) respondent refused to answer the question, “**Do you encounter any problems when approaching the municipality with water queries?**” Twenty (50.0%) respondents with no income, 1 (2.5%) respondent earning R0-200 per month, 4 (10.0%) respondents earning R400-R599 per month, 3 (7.5%) respondents earning R600-R799 per month, 2 (5.0%) respondents earning R800-R999 per month and 5 (12.5%) respondents earning R1 000 or more per month said they do not encounter problems when approaching the municipality with water queries, because they have a Water Committee to deal with such issues. On the other hand, 1 (2.5%) respondent refused to answer the question as mentioned. One (2.5%) respondent with no income and 1 (2.5%) respondent earning R1 000 or more per month said that they encounter problems when approaching the municipality with water queries, because the municipality takes too long to solve water problems. Lastly, 1 (2.5%) respondent with no income did not know whether the community encounters problems when approaching the municipality with water queries.

4.4.12 Is there anything that needs improvement in the quality and quantity of water?

A total of 10 (25.0%) respondents said that something needs improvement in terms of the quality and quantity of water, whereas 24 (60.0%) stated that there no improvement needed in both the quality and quantity of water and 6 (15.0%) respondents did not know whether improvement is needed or not. Statistics on eMalangeni and eMahlongwa indicate that 8 (20.0%) and 2 (5.0%) respondents respectively pointed out that something needs improvement in terms of the quality and quantity of water; the majority of respondents (16 (40.0%) and 8 (20.0%) respectively) mentioned that no improvement is needed in the quality and quantity of water. Lastly, 6 (15.0%) respondents highlighted that they do not know whether improvement is required in the quality and quantity of water.

The **gender** cross-tabulation shows that 2 (5.0%) male respondents and 8 (20.0%) female respondents mentioned that improvement is required in the quality and quantity of water; whereas 7 (17.5%) male respondents and 17 (42.0%) female respondents said that no improvement was required in the quality and quantity of water. Lastly, 5 (12.5%) male and 1

(2.5%) female respondent, the smallest number of respondents, did not know whether anything was required to improve the quality and quantity of water.

The **age** cross-tabulation reveals that 2 (5.0%) respondents under the age of 20, followed by 6 (15.0%) aged 21-30 years, 5 (12.5%) respondents between 31 and 40 years old, 5 (12.5%) aged 41-50 years, 4 (10.0%) between 51 and 60 years old and 2 (5.0%) aged 61 years and over felt that no improvements are required in the quality and quantity of water. Mrs Thokozile Nhlapho said: “The standpipe is situated far away from the households. Meantime, I think it needs to be relocated to where most people live, while the municipality is trying to find means and ways of installing more standpipes; otherwise everything is fine with the quality and quantity of water” (Interview on 31 July, 2011). The majority (4(10.0%)) of the respondents who indicated that improvements are required in the quality and quantity of water are aged 21-30 years, followed by 3 (7.5%) between the ages of 31 and 40, 1 (2.5%) 41-50 years and 2 (5.0%) between the ages of 51 and 60. Lastly, 3 (7.5%) respondents aged 21-30 years, followed by 2 (5.0%) respondents between the ages of 41 and 50 and 1 (2.5%) aged between 51 and 60 years respondent who pointed out that the water source needs to be relocated to where most people live did not know whether improvements in the quality and quantity of water are required.

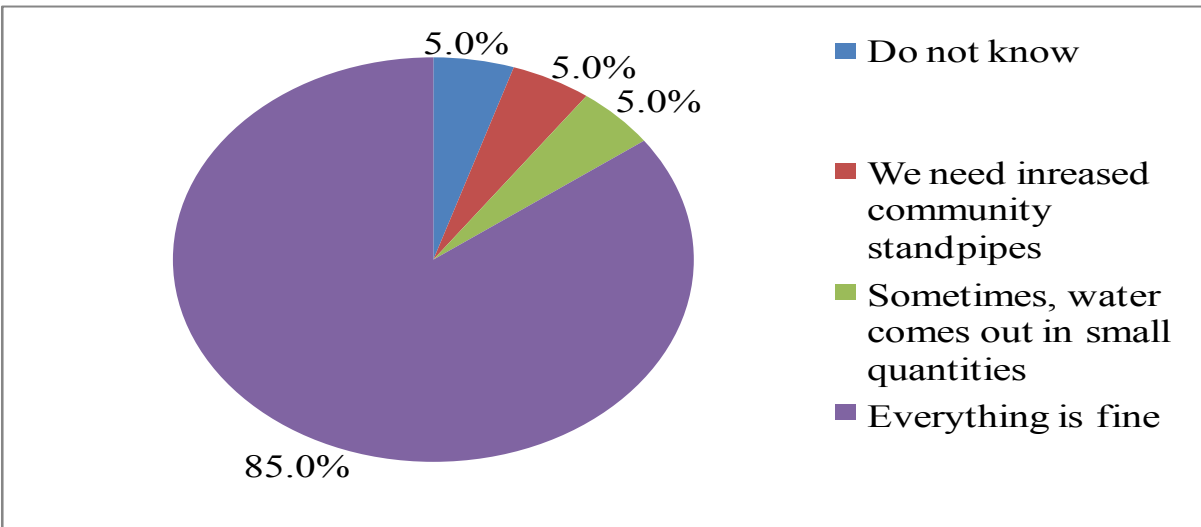
The **educational level** cross-tabulation reveals that 1 (2.5%) respondent with no formal education, followed by 5 (12.5%) with primary education, 2 (5.0%) with matric certificates and 2 (5.0%) with post-matric qualifications felt that improvements were required in the quality and quantity of water. A total of 4 (10.0%) respondents with no formal education, followed by 8 (20.0%) with primary education, 2 (5.0%) with secondary education, and 4 (10.0%) with post-matric qualification respondents mentioned that no improvement is needed in the quality and quantity of water. Lastly, 1 (2.5%) respondent with no formal education did not know whether improvements are required in the quality and quantity of water, followed by 2 (5.0%) with primary education, 6 (15.0%) with matric certificates and 3 (7.5%) with post-matric qualifications.

The **employment status** cross-tabulation shows that 4 (10.0%) unemployed respondents, 3 (7.5%) in the informal sector, 2 (5.0%) respondents with part time work and 3 (7.5%) respondents

with full time jobs felt that improvements were required in the quality and quantity of water. Amongst the respondents who mentioned that no improvements are required in the quality and quantity of water, the majority of 15 (37.5%) are unemployed, followed by 6 (15.0%) in the informal sector and 1 (2.5%) in a full time job. Lastly, 3 (7.5%) unemployed respondents, 2 (5.0%) in the informal sector and 1 (2.5%) respondent in a part time job highlighted that they do not know whether improvements are required in the quality and quantity of water.

The **income per month** cross-tabulation shows that 1 (2.5%) respondent refused to answer this question. Sixteen (40.0%) respondents with no income, 2 (5.0%) earning R400-R599 per month, 2 (5.0%) earning R800-R999 per month and 3 (7.5%) earning R1000 or more per month felt that no improvements are required in the quality and quantity of water. A total of 4 (10.0%) respondents with no income, 1 (2.5%) earning R0-R200 per month, 2 (5.0%) earning R600-R799 per month and 3 (7.5%) earning R1 000 or more per month pointed out that improvements are required in the quality and quantity of water. Lastly, 1 (2.5%) respondent refused to answer this question and 2 (5.0%) respondents with no income, followed by 2 (5.0%) earning R400-599 per month and 1 (2.5%) respondent earning R600-R799 per month said that they do not know whether improvements are required in the quality and quantity of water.

4.4.13 What should be done to improve the quality and quantity of water, since the delivery of water by providers?



Graph 6: Residents' perceptions about the delivery of water

A total of 34 (85.5%) respondents stated that no improvements are required in the quality and quantity of water; since the delivery of water everything is fine. Two (5.0%) respondents highlighted that sometimes water comes out of the tap in small quantities and improvements are needed in this area and 2 (5.0%) felt that the number of standpipes needs to be increased. Lastly, 2 (5.0%) respondents said that they do not know what should be done in terms of the quality and quantity of water. The statistics relating to eMalangeni and eMahlongwa reveal that 24 (60.0%) and 10 (25.0%) respondents respectively felt that there no improvements are required in the quality and quantity of water; since the delivery of water everything is fine. In contrast, 2 (5.0%) respondents from eMalangeni said that the number of standpipes should be increased and 2 (5.0%) respondents stated that they do not know whether there is a need for any improvement in the quality and quantity of water

The **gender** cross-tabulation shows that 13 (32.0%) male respondents and the majority of 21 (52.5%) female respondents stated that no improvements are required in the quality and quantity of water; since the delivery of water everything is fine. One (2.5%) respondent did not know whether improvements in the quality and quantity of water are required; since the delivery of

water everything is fine; 2 (5.0%) respondents highlighted that sometimes, water comes out in small quantities from the tap, followed by 2 (5.0%) respondents who felt that the number of standpipes needs to increase and 1 (2.5%) respondent who did not know whether improvements are needed in the quality and quantity of water.

The **age** cross-tabulation reveals that 2 (5.0%) of the respondents who mentioned that there is no improvement required in the quality and quantity of water are less than 20 old, followed by 10 (25.0%) aged 21-30 years, 6 (15.0%) aged 31-40 years, 7 (17.5%) aged 41-50 years, 7 (17.5%) between the ages of 51-60 years and 2 (5.0%) aged 61 or above. Of the respondents who said that water sometimes comes out in small quantities from the tap, and that improvements are needed in that area, 1 (2.5%) are aged 21-30 years and 1 (2.5%) is in the 31-40 years age cohort; whereas 2 (5.0%) respondents aged 21 to 30 years mentioned that they need the number of standpipes to increase. Lastly, 1 (2.5%) respondent aged 31-40 years and 1 (2.5%) between the ages of 41 and 50 years did not know whether improvements are required in the quality and quantity of water.

The **educational level** cross-tabulation reveals that 6 (15.0%) of the respondents who mentioned that there is no need for improvements in the quality and quantity of water - since the delivery of water, everything is fine- have no formal education, 12 (30.0%) have primary education, 2 (5.0%) have secondary education, 10 (25.0%) have matric certificates, and 4 (10.0%) have post-matric qualifications. One (2.5%) respondent with primary education and 1 (2.5%) with a matric certificate pointed out that water sometimes comes out in small amounts from the tap, so improvements are needed in that area. Two (5.0%) respondents with primary education highlighted that they do not know what should be improved in the quality and quantity of water. and 2 (5.0%) respondents with post-matric qualifications said that the number of standpipes should be increased.

The **employment status** cross-tabulation statistics show that 20 (50.0%) respondents who are unemployed indicated that no improvements are required in the quality and quantity of water, followed by 9 (22.5%) in the informal sector, 3 (7.5%) with part time employment and 2 (5.0%)

in full time jobs. Two (5.0%) respondents who are unemployed said that they do not know what should be improved in the quality and quantity of water, followed by 1 (2.5%) in the informal sector. One (2.5%) respondent in a full time job mentioned that water sometimes comes out in small amounts from the taps and that improvements are needed in this area. Lastly, 1 (2.5%) respondent in the informal sector, and 1 (2.5%) respondent in a full time job mentioned that they need the number of standpipes to increase.

The **income per month** cross-tabulation reveals that 2 (5.0%) respondents refused to answer this question. Twenty (50.0%) respondents with no income, 4 (10.0%) earning R400-R599 per month, 2 (5.0%) earning R600-R799 per month, 2 (5.0%) earning R800-R999 per month, 1 (2.5%) respondent earning between R600 and R799 per month and 4 (10.0%) earning R1000 or more per month felt that there is no need for improvements in the quality and quantity of water; since water delivery; everything is fine. Two (5.0%) respondents with no income stated that they do not know what should be improved in the quality and quantity of water. One (2.5%) respondent earning R0-R200 per month and 1(2.5%) respondent earning R1 000 or more per month said that water sometimes comes out in small quantities from the tap and that improvements are needed in this area. Lastly, 1 (2.5%) respondent earning R1 000 or more per month indicated that they require the number of standpipes to increase.

The Focus Group discussion

The research included both focus groups and individual interviews. This qualitative research centered on the two areas mentioned earlier. More women than men live in the two communities. The focus group interviews were conducted with a group of 5 female and 2 male respondents. The overall purpose of the focus group interviews was not to be a substitute for individual interviews, but to supplement the data collected through them. During the individual interviews the researcher himself identified the households and set a date with senior residents who would later participate in the focus group discussions in order to crosscheck whether their answers, opinions and perceptions about water service rendition would be similar to those found in the individual interviews.

In the second phase, the researcher started to hold meetings with respondents in both areas. The eMalangeni's meeting was held on 5 September 2011 from 9h00 to 10h00. The answers were no different from the individual interviews, and on the same day the researcher travelled to eMahlengwa to hold the second meeting from 12h00 to 13h20. The group of 6 female and 2 male respondents focused more on the lack of electricity than water; otherwise the answers, opinions and perceptions were similar across the areas.

4.5 Findings of the study

As indicated in the literature review on page 21, Francis (2000) argued that women specifically benefit from access to agricultural assets such as community gardens, irrigated plots and secure land tenure. This indicates that without water services, life is impossible. His argument is consistent with the findings of this study, because the female respondents revealed that water is utilized for agricultural activities and that farming is an integral part of the communities' livelihood and survival strategies in the eMalangeni and eMahlengwa areas. Hemson's 2006 study examined the extent and effect of the labour done by South Africa's child water bearers. He found that children spent from a few hours a week to more than 40 hours a week, with an average of 16 hours, collecting water. He concluded that the provision of water has a positive impact on school attendance. The number of students attending school classes increased, hours spent on school-related activities increased to between seven and nine per day, students had time

to study and parents acquired new ideas and practices. The social time spent on water collection was reduced from an average of six to eight hours to five minutes; more time was spent with the family and social or community interaction increased. In this study most respondents indicated that their standard of living improved after the installation of water in the areas. They mentioned various improvement indicators such as a reduction in water-borne diseases, the ability to establish vegetable gardens and so on.

Bradley (1977) argued that clean water may significantly avoid the spread of water-borne diseases such as cholera and typhoid. He indicated that these diseases are directly transmitted when water contaminated by feces or urine is drunk or used in food preparation. Therefore, an increase in quantity and access to water may decrease the impact of water-borne diseases such as common diarrheal diseases, which are transmitted by fecal or oral routes rather than the drinking of polluted water. Furthermore, he argued that improved water may lead to reduced contact with unsafe water supplies, which will in turn reduce the impact of water-borne illnesses; unsafe water sources house intermediate host organisms in which some parasites spend their life cycle and water-borne diseases such as malaria, where it provides a habitat for insect vectors of disease. This study has shown that water-borne related-diseases were widespread in eMalangeni and eMahlongwa prior to water installation. This was indicated in the literature review on page 19.

As highlighted in the literature review on page 24, the Umdoni Municipality's Rural Development Strategy (2009) noted that agriculture is one of the main survival strategies and community economic activities in the Umdoni region. This includes a range of activities, including, among others, homestead and community gardens mainly focusing on fresh vegetable production. Furthermore, the strategy also revealed that many gardens have been established in eMahlongwa and eMalangeni communities in recent years. Major players in the facilitation of this activity included the Departments of Agriculture and Welfare and Social Development. Mr. Khumbulani Ngcobo said: "I had a garden for vegetables inside the yard. It was very difficult to obtain water to irrigate my garden vegetables because we had water sources which went dry in winter. I had to employ an unemployed man from the neighborhood to a push wheel barrow with two 25 litres of water on and pay him R12 per trip. The road was very bumpy in such a way that a wheel barrow had worn out rapidly" (Interview on 5 August,

2011). The findings also reveal that majority of the respondents complained of water cut-offs with no prior notice given to residents. For example, Miss Siphesihle Zondo said: “I only know of water cut-off in the area, otherwise I do not know any water related problem” (Interview on 3 August, 2011).

As indicated in the literature review on page 20, Keshavarzi *et al.* (2006) and Hemson *et al.* (2002) argued that an improved water supply is mostly utilized for purposes such as cooking, drinking, personal hygiene (laundry, bathing and cleaning), livestock watering in some instances, watering vegetable gardens and yard cleaning. Skat (2004) argues that when people gain access to water in close proximity they tend to use the freed up time for activities such as searching for jobs. At the same, school attendance can improve since the chance of contracting water-borne illnesses or time spent on collecting water during school time will be cut back. The work of Keshavarzi *et al.* and Hemson *et al.* is consistent with the findings of this study, because almost all respondents said that they normally require water for domestic functions such as cooking, doing washing, house cleaning, drinking and so on, whilst only a small number mentioned that they require water for both household chores and watering garden crops such as cabbages, onions and spinach. Those respondents who highlighted that they have vegetables in their gardens pointed out that their standard of living has improved a bit, because they eat fresh produce and also use freed up cash for other household necessities. A good example is Mrs. Thembelihle Mncwabe whose statement is representative of almost all respondents⁴: “I use water for domestic functions such as cooking, drinking, do washing, clean the house and also feed the stock” (Interview on 6 August, 2011). Furthermore, the data generated for this study reveal that the majority of the respondents are unemployed: since they now have safe drinking water, they can water their vegetables and enhance their quality of life.

As highlighted in the literature review on page 21, Van Koppen (1999) argued that access to water provides the poor with opportunities to build healthy, secure, sustainable livelihoods. Furthermore, he acknowledged that institutions and infrastructure aggravate the poverty trap since the poor are on the periphery in terms of access to land, irrigation schemes, market access and credit. It has also been noted that one-third of rural households engage in agricultural activities. Although it contributes little to household income, agriculture is the most important livelihood strategy in rural areas after remittances and wages from low-skilled jobs. The

residents of eMalangeni and eMahlongwa have access to safe drinking water either from a communal standpipe or inside the yard, despite the fact that the communal standpipes are not sufficient for the ever increasing population. Most of the study respondents did not know whether their economic situation had improved after the installation of standpipes; the next largest group of respondents said that life improved in economic terms by being able to cultivate vegetables gardens.

4.6 Testing the Hypothesis

The hypothesis advanced in this study is that:

- There is a positive correlation between the improvement in the standard of living of the rural communities of eMalangeni and eMahlongwa and the installation of communal standpipes in the areas.

This study found that the majority of the respondents are confident that the provision of water in their areas and the availability of safe drinking water have addressed the ills of the past and created new economic activities and opportunities. The only common challenge that stood out was that most respondents are unhappy about the distance they have to walk from their households to the standpipes. The concern they put forward is that the standpipes are located in the areas far from their households. As a result, they end up spending a great deal of time walking to and from the standpipes.

Most respondents who cited the long walking distance to and from the standpipe as their major concern expressed the desire for the Ugu District Municipality to make a concerted effort in partnership with other relevant agencies to increase the number of standpipes in the areas. On the other hand, those who felt that water installation had brought new economic opportunities would like the Ugu District Municipality to provide them with seeds, manure and training in agriculture. No unique case was identified in the areas. This means that the findings of this study confirm the hypothesis in its entirety.

In other cases the respondents revealed that they sometimes send their children across the road with two or three 25 litre containers to fetch water. This seems to be a double standard, because it poses a threat to children's lives and also consumes a lot of their time which should be used doing homework. However, the findings of the study show that the majority of respondents are satisfied with the water provision, particularly the water quality and quantity. This is so because after the installation of water standpipes incidences of water-borne diseases decreased and vegetable gardens were established in the areas. This does not negate the overall intent of bring safe drinking water to the people. An increased number of standpipes in the areas can assist government in achieving the Millennium Development Goal of halving the illiteracy rate by 2015.

4.7 Conclusion

The impact of water provision on people's quality of life cannot be assessed in isolation from outstanding water problems. Therefore, the extent to which water provision positively impacts on each household is largely reliant on, amongst other things, the walking distance of a household to the standpipes, and the time spent waiting at the standpipe for their turn to collect water, etc.

CHAPTER FIVE

Conclusion and Recommendations

5.1 Introduction

This study has considered the impact of water service provision on the quality of life of the eMalangeni and eMahlengwa rural communities and also sought to evaluate the correlation between the improvement in the standard of living of the rural communities of eMalangeni and eMahlengwa and the installation of communal standpipes in the areas. It has been established that there is a positive correlation between the improvement of the standard of living of the rural communities of eMalangeni and eMahlengwa and the installation of communal standpipes in the areas.

5.2 Conclusion

Prior to arriving at any conclusions, the objectives of this research study are revisited so as to advance recommendations in tandem with the overall objectives. The engagements between the researcher and the residents of eMalangeni and eMahlengwa revealed that the community standpipes fall short of the need in the areas. Hence the objectives of the study were as follows:

The objectives of the study are as follows:

- To determine the improvement in the socio-economic conditions of the communities after water installation.
- To establish whether there are any existing social dialogue platforms where water issues are engaged.
- To ascertain and analyze the contemporary perceptions of residents about water delivery and more specifically about problems associated with poor water delivery in the municipality.
- To make recommendations in an attempt to ameliorate any problems that may be identified.

The key research questions were:

- Is the quality and quantity of water good for human consumption?
- Is water available every day?

- Does the water provided cater for all domestic functions?
- What is the standard of living of the eMahlengwa and eMalangeni residents like after the installation of water?
- Has the standard of living of the eMahlengwa and eMalangeni residents improved after water installation?
- In what way has the standard of living of the communities improved since they started receiving water?

The conclusion arrived at is consistent with the theoretical framework utilized in this study which is premised on the **Rostowian's four of five-stage model of development**. The model is used to interrogate whether water provision has reached a stage where it has changed the standard of living of the case study communities. The work of Rostow has been selected because it describes the development stages that the case study communities went through up until very recently. The period referred to as the preconditions to-take off stage has been described in line with the period where people were still collecting water from unsafe water sources e.g. perennial rivers, lakes, dug wells, springs etc., whereas the take-off stage is associated with a period where there was a heavy presence of water tankers and a low presence of standpipes. At the drive to maturity stage-there is a heavy presence of standpipes and inside-the-yard connections. School attendance increased in the areas. In the stage of mass consumption residents have unlimited access to water on site. Food and gardening projects are flourishing in the areas, the quality of life has improved and residents hardly remember the subsistence concerns of previous stages.

5.3 Recommendations

The major challenge facing the Ugu District Municipality is to ensure that the number of standpipes in the areas is increased to support the ever increasing number of households. Hence, this research study strongly suggests that the Ugu District Municipality places this challenge first on the agenda of its Integrated Development Plan (IDP) in years to come. This would be in line with the obligation of local authorities to reflect their overall short- to medium-term development objectives. In addition, the Department of Water Affairs and Forestry should intervene with suitable strategies and monitor whether projects are being executed as planned.

The purpose of this study was to assess the impact of water service provision on the quality of life of the eMalangeni and eMahlolongwa rural communities, since the Ugu District municipality Backlog Report revealed that the eMalangeni and eMahlolongwa rural communities have 100 percent access to water services. The study found that, indeed, all households have access to piped water sources; nevertheless, it was noted that the number of standpipes in the areas is insufficient for the ever increasing number of households.

Erratic interruption of water in the areas

The majority of residents complained that they experience water cuts in their areas. The biggest problem with water cut-offs is that the residents do not receive notification well in advance, so that they can make the necessary arrangements to see them through the breakdown. Since water is a basic need for human survival, this research study strongly suggests that the Ugu District Municipality Water Desk develops fliers and distribute them to all affected households, perhaps three days in advance of an interruption in service.

Reduced walking distance from a household to the standpipe

The study reveals a positive correlation between water installation and the standard of living of the eMalangeni and eMahlolongwa rural communities. A common, convenient area should be found where the community can collect water from a public tap. This would be consistent with what was promised in the Redistribution and Development Programme (RDP) in that each household is supposed to have access to a water source within 200 metres, or within 500 metres in sparsely populated areas.

Water's impact on the standard of living of the people

Amongst the most prominent social and health indicators of improvement cited by the respondents were the reduction in the incidence of water-borne diseases and domestic duties becoming much easier. On the other hand, their economic circumstances have not necessarily improved, as approximately 50% of the respondents do not know whether their quality of life has improved or not, followed by those who believe that their lifestyle is better than before, through the ability to cultivate small vegetable gardens on their plots. This study, therefore suggests that

the Ugu District Municipality enter into partnerships with agencies that have the expertise to train people in agricultural activities and provide them with seeds and manure to produce their own food.

Community needs embedded in water provision

When the researcher was conducting interviews, the respondents stated that they are also in need of electricity in their areas. Thus, this calls for the Department of Water Affairs and Forestry, the Department of Agriculture and Rural Development and Eskom to establish a strong partnership aimed at addressing this challenge.

A sense of community needs to be encouraged within the areas

Some respondents stated that the water service is cut without their being informed well in advance. They are forced to revert to river water or to ask favors from those who have water inside their yards. This study suggests that the community members promote a culture of helping one another during these tough times as a temporary fix until the matter is attended to by the relevant authorities.

The involvement of the mayoral committee

The UDM mayor needs to closely monitor the provision of water services in the areas under the municipality's jurisdiction to ensure that the mandate promised in the IDP is not compromised. This study strongly suggests that this should happen either monthly, quarterly or every six months, so that any problem identified is attended to within a reasonable period of time.

Priority of water services

The UDM should consider coming up with ample water relief programmes in addition to the current water tankers mentioned by the respondents. For example, springs should be identified in order to dig wells in the areas. Water is life. This means that without water, life is impossible. Young, unemployed people in the areas could be trained on water-related matters and used as a vehicle to address problems within the communities.

Relevant Stakeholder Partnerships

Government departments such as the Departments of Water Affairs and Forestry and Agriculture and Rural Development should come together to assist the UDM in achieving its prime objective of improving the lives of the many people under its area of jurisdiction. This call is informed by the fact that during data collection only a few respondents said that they were given seeds to produce food, but they have not started planting yet because they are still undergoing training.

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Appendix (A)



QUESTIONNAIRE: COMMUNITIES' RESIDENTS

Interview Location:	_____
Date:	_____
Time:	_____

Please indicate your answer by marking a tick (✓) in the appropriate box.

SECTION A: BIOGRAPHICAL INFORMATION OF RESPONDENTS

Gender

Please state your gender.

Female	1
Male	1

Race Group

Please indicate your race group for research purposes.

African	1
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Age

Please state your age.

Under 20 years	1
21- 30 years	2
31 – 40 years	3
41 – 50 years	4
51 – 60 years	5
61 +	6

Educational Qualifications

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Employment Status

Unemployed	
Informal	
Part time	
Full time	

Income per month

Refused to answer	
No income	
R0-R200	
R400-R599	
R600-R799	

R800-R999	
R1000+	

SECTION B: The Impact of Water Service Provision on the Quality of Life of eMalangeni and eMahlongwa Rural Communities

1. What was your life like before the installation of water standpipes?

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2. Briefly explain as to when you started receiving water?

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3. Has your standard of living improved after the installation of water meter?

Yes	
No	
Don't know	

4. What aspect of your standard of living has improved since the installation of water?

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5. How has water improved your economic situation?

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6. How do you address the problems associated with water in your area?

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7. What is your perception about water delivery in your area?

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8. Briefly elaborate as to what are problems associated with water delivery in the area?

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9. What is your opinion on the quality and quantity of water you are receiving?

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10. What aspects of domestic functions do you normally require water for?

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11. Do you encounter any problems when approaching the community with water queries?

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12. Is there anything you think needs improvement in the water quality and quantity?

Yes	
No	
Don't know	

12.1. What should be done to improve the quality and quantity of water, since the delivery of water by providers?

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Thank you for your time and effort in participating in this research study

Appendix B

N.B Pseudonyms are used for ethical considerations

Miss Gugu Mthembu	Interview on the 31th July, 2011
Mr Jackson Nomndayi	Interview on the 5 th August, 2011
Mr. Kaizer Gubevu	Interview on the 3 rd August, 2011
Mrs Khonjiwe Cele	Interview on the 3 rd August, 2011
Mr Khumbulani Ngcobo	Interview on the 5th August, 2011
Miss Phakamile Jili	Interview on the 3 rd August, 2011
Mrs Phumzile Shezi	Interview on the 7 th August, 2011
Mr. Thebe Xhosa	Interview on the 5 th August, 2011
Miss Sizakele Mthombeni	Interview on the 3 rd August, 2011
Mr Mandlakayise Mtolo	Interview on the 31th August, 2011
MrMandlonke Khuboni	Interview on the 6 th August, 2011
MrNkosinathi Msomi	Interview on the 4 th August, 2011
Miss NobuhleMtshali	Interview on the 31th July. 2011
Miss Nobuntu Jali	Interview on the 3 rd August, 2011
Miss Nokuthula Mzobe	Interview on the 5 th August, 2011
Mrs Nokuzola Mdletshe	Interview on the 1 st August, 2011
Mr Sakhile Gutshwa	Interview on the 5 th August, 2011
Mr Sangoza Mdlalose	Interview on the 31th August, 2011
MrSkhumbuzo Mkhize	Interview on the 4 th August, 2011
Miss Siphesihle Zondo	Interview on the 3 rd August, 2011
Mr. Siphon Khuluse	Interview on the 3 rd August, 2011
Mr Siphon Mdlalose	Interview on the 6 th August, 2011

Mrs Siviwe Mlambo	Interview on the 7 th August, 2011
Miss Sizeni Mbhele	Interview on the 5 th August, 2011
Mrs Thembelihle Mncwabe	Interview on the 6 th August, 2011
Miss Thabile Dlamini	Interview on the 3 rd August“ 2011
MrsThandiKheswa	Interview on the 4 th August, 2011
MrsThembi Shoba	Interview on the 5 th August, 2011
Miss ThokozileGumbi	Interview on the 31th July, 2011
Mrs Thokozile Nhlapho	Interview on the 31th July, 2011
Miss Zethu Mhlongo	Interview on the 3 rd August, 2011

Appendix C



Photograph number one by Dr. Cebekhulu at eMalangeni: Children bear the brunt of water collection



The type of standpipe existed in the past: A photograph taken by Mlethwa at eMahlongwa.



The terrain is hilly and rocky



Photograph showing vegetables in the garden: respondents eat fresh produce from their own garden.



Poultry controlled room



Children walk long distance to collect water: Photograph by Mlethwa Khomo



Sugar plantation is one of the LED strategies at eMalangeni



Public Works Programme



Brick-making place



Cattle grazing ground

Appendix D

A copy of informed consent

The study examined the impact of water service provision on the quality of life of the eMalangeni and eMahlomgwa communities. These two communities are found in the Umdoni Local Municipality which is situated in the town of Scottsburg, South of Durban. The primary objective of the study is to determine the improvement of socio-economic conditions of the communities after the installation of water standpipes. This research study is also geared towards examining the implementation and effectiveness of water legislative framework in the delivery of water services at eMalangeni and eMahlomgwa with specific reference to the Water Services Act (WSA) (Act 108 of 1997) and the Water National (Act 36 of 1998).

The participants were required to fill in the questionnaires and also to be part of focus group discussions. The findings of the study might benefit the Department of Water Affairs and Forestry in adopting an umbrella approach to solve the problems ascertained by the study. The participants could withdraw at any stage and there would be no repercussions afterwards. Pseudonyms were used to protect the anonymity or confidentiality of the participants. The questionnaires were used in a form of interviews as an instrument to collect data.

Researcher's contact details:

Mobile number: 083 543 2223

Email Address: Khomom@ukzn.ac.za

Researcher's Signature

Participants Signatures