ASSESSMENT ON THE LEVEL OF SOCIAL SERVICE DELIVERY:
A CASE OF WATER SERVICE AT MOROGORO URBAN

ASSESSMENT ON THE LEVEL OF SOCIAL SERVICE DELIVERY: A CASE OF WATER SERVICE AT MOROGORO URBAN

By

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CERTIFICATION

We, the undersigned, certify that we have read and here by recommend for acceptance by the Mzumbe University, a dissertation entitled **Assessment on the level of social service delivery: a case of water service at Morogoro Urban,** in Partial Fulfillment of the Requirement for the Award of the Degree of Masters of Public Administration of Mzumbe University

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DECLARATION AND COPYRIGHT

I, **Praise Maro**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for similar or any other degree award.

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Date……

ACKNOWLEDGEMENT

I had a sneaking idea that writing acknowledgement is a mere convection rather than conviction. Upon completion of this dissertation, I must confess that this was a misconception. This is because successful completion of this work would not have been possible were it not for the support of a number of people and institutions in one way or another. It would be therefore, unfair not to recognize their contributions.

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DEDICATION

I would like to dedicate this dissertation to Almighty God for His abundant blessing onto my life. To my beloved parents Dr and Mrs Maro for they knew word of Proverb 4:13 “take fast hold of instruction (education), let her not go keep her for is thy life” and to my aunt Praise Prosper Maro.

LIST OF ABBREVIATIONS AND ACRONYMS

CBO	Community Based Organizations
CESCR	Committee on Economic, Social and Cultural Rights
DAWASA	Dar es Salaam Water and Sanitation Authority
DAWASCO	Dar es Salaam Water and Sewerage Cooperation
EWURA	Energy and Water Utilities Regulatory Authority
ICESCR	The International Covenant on Economic, Social and Cultural Rights
MORUWASA	Morogoro Water Supply and Sewerage Authority
MoW	Ministry of Water
NAWAPO	National Water Policy
NGO	Non-Governmental Organisation
NRW	Non-Revenue Water
UNFP	United Nations for Population Activity
UNICEF	United Nations International Children Emergency Fund
UWSSAs	Urban Water Supply and Sanitation Authority
WHO	World Health Organization
WWDR	The World Water Development Report

ABSTRACT

The aim of this study is to examine the level of water service delivery at Morogoro Urban. Specific objectives were: to asses status of water service availability at household level; to find out techniques used for water service delivery; to examine the consequence water service availability at household level and to find out challenges facing delivery of water service

A sample of 200 respondents was used. Primary data were collected by using questionnaires and in-depth interview whereas secondary data were collected by using documentary analysis. Data were presented by using Tables and Figures. SPSS was used to analyse the collected data.

The study found that, majority of the respondents (51.2%) was satisfied with water supply while 48.8% were not satisfied with water service. Also, the study found that 133 households where connected with tap water which is equivalent to 66.5% while 67 households that are 33.5% are not connected with tap water. Moreover, the study found that, there are different techniques used for water service delivery, majority of the respondents (59.1%) identified state agency as a provider of water services. The study found that, significant number of the respondents (47.2%) suggested that, poor infrastructure is a major challenges facing delivery of water service.

The study concludes that, most of the households are satisfied with water services despite of the availability of service problems. There are various challenges hinder water supply, among factors that have hindered water provision include poor and old infrastructures, climate change, and destruction of environment, financial problem and non-renewable water sources. The study recommendations include: educating people on proper preservation of water resources and how to share the resource equally among members within their households; the government needs to invest in proper water infrastructures and water purification. The government also needs to subsidise water and make water affordable for the poor.

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CHAPTER ONE

INTRODUCTION AND PROBLEM SETTING

1.1 Background Information

In all corners of the world people face trouble with water, the bond that binds every living thing as vital to life as air. Access to water for life is a basic human need and a fundamental human right. Yet in our increasingly urbanising world, more than 1.1 billion people are denied the right to clean water. These headline numbers capture only one of the problems (Watkins, 2006).

Already some one third of the world's population is living in either water-scarce, or water shortage areas (Shah, 2007). It is predicted that climate change and population growth will take this number to one half humanity. The scarcity at the heart of global water crisis is also rooted in power, poverty and inequality, not in physical availability (Shah, 2007).

A large number of people without adequate provision for safe water live in urban areas. Two third (60%) of the water withdrawn for human use goes to urban areas, about half of that to irrigate food crops for urban residents, roughly one-third for use by industry, and the remainder for drinking (Kjellen, 2006). Urban water problems are caused by the increase of urban populations. In 2001 it was expected that by the year 2006, every second human being could live in urban settlements, Recent estimations show urbanisation level of 61.1% for the year 2030 (Mushi, 2004).

According to the 2000 Global Water Supply and Sanitation Assessment Report, the majority of the world's population without access to improve water supply service lives in Africa and Asia (Hans and Kemal, 2007). Mwandosya and Meena (1998) estimated that, one third of the population of the developing world would face severe water shortage by 2025. Furthermore Khatri (2007) argued that in Africa during 2008 about 12 countries were in severe water stress, the situation was worse to people living in informal settlements.

Estimations show that 99.8% of deaths worldwide are attributed to the environmental complex of unsafe water and hygiene occurs in developing countries (Kjellen, 2006). Urban dwellers in the collective of developed regions are better well served, with

some 71% of households estimated to have direct access to piped water, and over 90% are estimated to have access to improved source of water, implying that at least 20 litres per person a day is available within one kilometre a day (WHO&UNICEF, 2000, WHO&UNICEF 2004, Kjellen, 2006).

Compared to urban areas on average rural areas are even less well served with water services (Kjellen, 2006). Water problems in the developing countries cities have been compounded by rapid rates of urbanization (Mato, 2002). While the African total urban population growth was estimated at 14.2% in 1950, it rose to 35.2% in 1990 and over 41.5% by 2000 (Mwapilinda, 1998, Mato, 2002). In 1987 the World Commission on Environment and Development reported that "in the space of one decade, the developing world will have to increase by 65% its capacity to produce and manage its urban infrastructure, services and shelter merely to maintain present condition". This goal was not met. Urbanization in most of the African countries has occurred without a corresponding substantial growth of urban economy to support infrastructure delivery (UNCHS, 1987, 1996, Mwapilinda, 1998, Mato 2002).

The water available in Tanzania should be more than adequate for the population's needs. Parts of the Great Lakes Victoria, Tanganyika and Nyasa lie within the country, and there are five major river systems which are used to generate over 85% of the country's power (Edwards P, 2000). The situation in Tanzania is not promising, strategies to improve urban water supply system started during the colonial time when a cost sharing system was promoted by colonial government (Maganga et al., 2001). Despite the fact water scarcity continued to be experienced in the country, soon after independence, Tanzania adopted Socialism and self-reliance as the social, economic and political ideology. From this time, water became a free good for a rural dweller (Semboja and Wangwe, 1995).

In urban centres, on the other hand, consumers who obtained water from metered public kiosks or those with house connections continued to pay for water. It was later decided that consumers who obtained water from public kiosks should also not pay for water consequently, people who continued to pay for water in the urban areas were those who had either house connection or a water connection in the yard (Mushi, 2004). The free water for all policy was not a solution to urban water problems; it caused further problems like the deterioration of water infrastructure and

more water leakages. This increased water shortages.

Poor performance of the "free water for all" policy called for a change in the water supply policy. The first step which the government took was to introduce a cost sharing strategy in construction, operation and maintenance of community based water supply system. From 1995, the Ministry of Water began thinking about formulating a National Water Policy which was intended to guide the development and management of water resources in the country. The policy was finally adopted by the government of Tanzania in 1991 (Mujwahuzi, 2002). It had many objectives, one of which is "to increase the health and productivity of the population through the provision of safe water and adequate water supply service to the people and provide effective water supply and waste disposal services.

At Morogoro region, MORUWASA was given autonomy in response to 1991 National Water Policy, were it had to ensure water supply at Morogoro. A lot of work has been done to improve water situation. It is estimated that 64% of the region's urban population is served with clean water that is used for domestic needs, industrial and commercial needs. While rural areas population covered with an adequate supply of potable water is 49% that includes the demand for human domestic needs and livestock. (Planning Commission, 1997).Tanzanian Forestry Research Institute reported that "the issue of freshwater availability in Morogoro Urban and throughout the region is believed to be diminishing".(Uisso, 2013) hence there is a need to improve water situation in Morogoro Urban Areas.

1.2 Statement of the Problem

Human existence depends on water, it is a basic natural resource which sustains life, one of the eight (8) Millennium Development Goals (MDG) declared by UNDP as a means to poverty reduction is reducing by half the proportion of households that do not have access to safe water by 2015 (Galiani et al., 2005). In this connection, the World Bank (2005) has observed that poor access to water supply is often a result of poor policies and management practices. According to the UNDP (2006), 2040 is a more likely year for this goal to be achieved in Africa. The implication is a reduction of the people potentially exposed to water related health risks. As a means to enhancing access to safe water the government of Tanzania created a conducive environment that allows various actors to play part in delivery of water services,

These includes Energy and Water utilities (EWURA), Ministry of Water (MoW), water agencies and Municipal and District council.

In response to fulfillment of MDGs on reducing the number of household without access to safe water, Morogoro Urban water and Sewerage Authority (MORUWASA) plans to increase the percentage of the municipal population with access to clean and safe water to 94% by the end of the year 2010,MORUWASA has put in place a number of strategies which includes the rehabilitation of the Mambogo water intake, construction of the Mambogo water treatment works, which is expected to supply an additional 2,000 m3 /day (MORUWASA strategic plan 2010-2022) . MORUWASA has increased the water distribution network of Mkundi Water Supply Project which has increased 2,922 additional customers getting access to clean and safe water. (MORUWASA Executive Business plan, 2010).

Despite of the strategies to expand water networks by MORUWASA and creation of new water service still the targets in water provision is not been fulfilled, currently2012/2013 MORUWASA saves only 85% of the municipal population which is below target of 94% 0f 2010, water demand has risen to 3,565,893.30 m3/quarter whereas the Quantity of water produced is only 2,185,000.00 m3/quarter (URT,2013). MORUWASA is expecting to face some challenges in the near future as the population of the Morogoro Municipality (National Population Census of 2012) was 315,866 people. This is expected to increase by 79% to 514,524 people by the year 2020. It is therefore the intention of this research to assess the level of water service provision at Morogoro Urban due to that there are no enough researchers done and water problem is growing massively in most of the areas.

1.3 Research Objectives

1.3.1 General Objective

To asses water services delivery at Morogoro Urban

1.3.2 Specific Objectives

This study seeks to achieve the following specific objectives,

i. To investigate status of water service availability at household level.
ii. To find out techniques used for water service delivery.
iii. To examine the consequence water service availability at household level.

iv. To find out challenges facing delivery of water service.

1.4 Research Questions

The study was guided by the following specific questions:

i. What is the status of water service availability at household level?
ii. What are techniques used for water service delivery?
iii. What is the consequences water service availability at household level?
iv. What are the challenges facing delivery of water service?

1.5 Rationale of the Study

The water crisis is not caused by lack of water itself but by lack of effective water management. Although the natural environment provides an important backdrop, it is connected with how we administer, allocate, control and regulate water uses which are often the crux of water scarcity. Therefore the study aims at,

i) **Other researcher**

A part from this research, other who are willing to conduct the same research concerning water service delivery, have an opportunity to conduct more research on the issue since research is cyclic so that they can make knowledge gap on the study.

ii) **Community**

To increase citizen participation, local community involvement in water supply projects so as to increase sense of ownership. It will raise awareness on proper management of water service; this will give knowledge on water conservation by citizens for poverty alleviation.

iii) **Government**

The study provides the government with appropriate information on state of water and factors that hinder effective provision of water. This gives insight to the government on solving the problem of water, as water is life and without water there is no life hence no government.

1.6 Definition of Key Terms

Water means all water flowing over the surface of the ground or contained in or flowing in or from a, spring or stream or natural lake or reservoir or swamp or beneath a watercourse and all water from ground strata (Water Resource Management Act 2009)

Service: A valuable action, deed, or effort performed to satisfy a need or to fulfil a demand (Business dictionary.com). This can be done by individuals, group of organized people, government, private sector, Non-Governmental Organisations (NGOs) and Community Based Organizations.

1.7 Limitations of the Study

Enough time was required to conduct the study on assessment of water service provision all over the country. But due time constraints, only one study area was selected to conduct the research which was Morogoro Urban. During the study it was not easy to have interviews with all selected officials due to their duties and tight work schedules which they had. Hence, the researcher conducted interviews with some of the officials which were Local government leaders, distribution engineer, water engineer, operation officials and bursar at Morogoro water supply and sewerage authority.

1.8 Delimitation of the Study

In order to keep the study under control, the study confirmed itself on two wards which were Kilakala and Kichangani. This was done to shorten the distance, minimise time and costs so as to give a clear data of the study.

1.9 Organization of Report

Chapter one; This chapter is the introduction chapter, which explains the background of the study as well as the statement of the problem, further more it explains the research objectives as well as research questions, limitations and delimitation of the study. Finally, it provides definition of key terms that were being used in this research report study and also the organisation report as well.

Chapter two; This is a literature review chapter, thus on this included theoretical literature review as well as literature review from the early study about the concept

related to water delivery as, availability and adequacy of water service in Tanzania, strategies of promoting water service, Public Choice Theory. This chapter is all about what others have reported and researched and have written previously on matters pertaining to water service. It includes theoretical literature, empirical literature and the study intervention on the literature reviews and also conceptual framework and research gap.

Chapter three; This chapter presents full explanation in details about methodologies that were being used in this research report study that are type of study, study area, study population, unity analysis, variables and measurements, samples size and sample techniques, types and source of data and last is data collection methods, validity issues and also data analysis issues.

Chapter four; This chapter presents data analysis and findings according to the way respondents answered different questions through method of data collection presented in chapter three. This chapter provides results on socio demographic status of respondents, status of water service delivery at Morogoro Urban, factors that affect delivery of water that are categorised in three parts that is consumers of water, service providers and sector framework.

Chapter five; In this chapter clear solutions have been given on how to overcome this issue. The government, that is service provider, needs to restructure, rehabilitate and expand water utilities. This chapter presents a summary of the study, findings, conclusion and also the recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presented a series of reviewed literatures that attempt to show about what is already known on the subject matter. First, it presents the meaning and broad understanding of the concept. Secondly, it provides an explanation of some empirical studies similar to this study. Thirdly, it shows the research gap.

2.2 Availability and Adequacy of Water Service in Tanzania

According to the Food and Agriculture Organization (FAO), Tanzania has extensive water resources, Tanzania had 96.27 km3 of renewable water resources per year, these water sources includes the parts of the Great Lakes Victoria, Tanganyika and Nyasa which lie within the country, and the five major river systems which are used to generate over 85% of the country's water. (Edwards P, 2000).

Tanzania over the last three years period 2010 to 2013, total water production increased from 119.42 million m^3 in 2010/11 to 127.35million m^3 in 2012/13. While the increase in water production over the same period has been only 7%, the corresponding increases in water demand of 16% (EWURA, 2012). In addition, over the same period 2012/13 Tanzania was still facing water demand of 226.7Million m^3.

This total water demand is estimated to have increased by 2% compared to the previous year's water demand which has been caused by increase of population in most of the areas.

2.3 Strategies of Promoting Water Service Availability and Delivery in Tanzania

Efforts to enable citizens to access clean and safe water have been undertaken by the government and hence increasing the number of people who have access to clean and safe water. In Tanzania rural areas proportion of people with access to clean and safe water increased from 6 percent to 57.8 percent in 2011, whereas in urban areas it increased to 86 percent during the same period. There has been rapid increase of population and increasing demand for water for various activities that has resulted into water stress in many parts of the country (URT 2012).

The Water Sector has put in place enabling environment (plans, programmes and policies) that recognise the importance of the water resource, this include: the National Water Policy 2002; The current Water Policy calls for incentives for efficient water use and efficient utilization of water resources. Therefore, nine River Basin Management Offices have been established for regulation of water utilization and delivery by various stakeholders. The Water Policy allows for private participation and states that emphasis should be placed on construction of dams, charco dams and water wells (URT, 2012).

A number of programmes addressing water use in water deficient areas are being implemented. Such Programmes include: Participatory Irrigation Development Programme, which deals with water harvesting, construction of small dams, and water lifting from shallow water wells; Lake Victoria Environmental Management Project, and Participatory Agricultural Development and Empowerment Project(URT,2002). In addition, the sector has robust policies, legal framework and strategies; and has ratified International and regional Conventions that address issues of drought, climate change, water bodies and wetlands for effective water service delivery.

2.4 Public Choice Theory

This study will be guided by Public choice approach, Public choice approach which gained popularity in the 1970's and 1980's has its base on rational choice approach. It is oriented towards the understanding realm of public choice that is politics and bureaucracy. The origin of this approach may be found in the works of Gordon Tullock, Anthony Downs and William Niskanen (Sapru, 2004).Public choice theory examines the provision of public goods. A public good is anything that is at least partly rival and/or non-excludable in the sense that addition of new beneficiaries neither increases nor reduces the value of the good to the original beneficiaries. Examples of public goods include water, air, security, and good government (Okoye

J, 2013). It is just as difficult to charge people for its use, as it is difficult to exclude non-payers from its use. Public goods may be naturally available; produced by the government; produced by private individuals and firms, by non-state collective action, or they may not be produced at all. The need for public provision becomes necessary because of the difficulty in identifying the extent of need by an individual

and how much each should be charged. In essence the private sector faces serious challenges in providing socially desirable levels of the public good.

Public Choice is often used to explain economic of non market decision making or simply the application of economics to political science (Sapru, 2004). It attempts to look at governments from the perspective of the bureaucrats and politicians who compose them, and makes the assumption that they act based on budget maximizing model in a self-interested way for the purpose of maximizing their own economic benefits (Okoye J,2013). The theory applies economic analysis, usually decision theory and game theory, to the political decision-making process in order to reveal certain systematic trends towards inefficient government policies.

Water also bears the characteristics of natural monopolies in that the costs of production in terms of infrastructure involved are higher than the variable costs and the production subject to economies of scale, hence rendering the construction of competing systems impractical. The government therefore regulates the monopolies to avoid public/consumers' exploitation through overpricing (Sapru,2004). Water is also considered to be a merit or social good that everyone ought to have in the interest of equity or social justice. Every society wants its members to have water irrespective of its members' ability to pay.

Water is a finite environmental resource that is prone to overuse (Budds and McGranahan, 2003). This therefore calls for the government to regulate its abstraction and its sources for both sustainability and safety. The environmental protection calls for additional costs. These characteristics of water have resulted in government assuming oversight role so as to ensure that markets provide water and sanitation at optimal and sustainable levels (Migai, 2009).

2.5 Responsibility of Managing Water

Each and every one is responsible in managing water as in the water management act, 2009 states that "every person residing in the mainland Tanzania shall have a stake and a duty to safeguard and protect water resources and to introduce the relevant authority of any activity and phenomenon that may affect the quality and quantity of the water resources significantly."(Water Management Act, 2009)

District level, through District Council participates in Basin Boards and Catchment Committees. It is responsible for planning and development of water resources in accordance with Basin plans, protection and conservation of natural resources in the villages and wards, establishment of bylaws on the management of water resources, conflict resolution in accordance with established laws and regulations. In addition the District Councils will make assessment of water demands of their respective districts, and participate fully in the preparation of Basin plans (URT, 2002).

Community is responsible for managing water sector because they are they are the primary users, guardians and managers of water sources. In order to enhance this there is a need for both men and women to participate in decision-making, planning, management and implementation of water resources management. (Water and Sanitation report, 2002).

In the community, there is community level that includes Water User Association (WUAs) or Water User Group (WUGs) as the lowest level of management. They are responsible for local level management of allocated water resources, intervention of disputes among users and between groups within their areas of control, participate in the preparation of water utilization plans, conservation and protecting water sources, and catchment areas, efficient and effective water use and ensuring return flows, enforcement of the law and execution of conditions of water rights, and control of pollution (URT, 2002).

Private sectors, for improved delivery levels are enhanced through private sector in water supply and sanitation services. Private sector is responsible in managing water in ensuring efficiency and effectiveness and hence development and sustainability of service delivery.

Minister, the minister is responsible in appointing members of national water board, director of water resource and catchment and sub catchment water committees, whose functions are provide supervision and coordination of water boards, ensure coordination and coordinated planning on aspect that may impact on water resources so as to ensure sustainable development of water resource of national interest. But also ensure safe construction and management of dams (Water Management Act, 2009).

2.6 Empirical Reviews

Different studies have been conducted and carried out in various part of the world about water service provision status in different areas, among them includes the following:

Theodory and Malipula (2012) did a study on supplying domestic water to informal settlements in Manzese Dar-es-Salaam, challenges and way forward. The study used cross sectional case study design and simple random sampling. Questionnaire, interviews, published and unpublished literally works where used as a major method of data collection. The size of the study was 105 respondents in following category; Dar es Salaam Water and Sewerage Cooperation (DAWASCO), Dar es Salaam Water and Sanitation Authority (DAWASA), private providers of domestic water services and local government officials operating in Manzese.

The study revealed the following that the state of domestic water supply services in the area is not promising as water supply services are unreliable, difficult to access and too expensive for many users. In accessing supply of water there are several challenges including poor and old water infrastructures, sabotage of water infrastructure, illegal water connections, unreliable water sources, unregulated water provision, rapid population growth in demand for water and lateral expansion of cities that require costly infrastructures.

Theodory and Malipula (2012) recommended that there should be deliberate efforts by the government and development partners to improve water infrastructures in informal settlement, empower people to take advantage of rational water supply projects to lighten their sense of ownership and improve water supply service.

Nkochwa (2008) did a study on water supply deficiency and implication for rural development in Niger-delta in Nigeria. The study used survey method. Interviews, observation structured questionnaire was used to obtain data. The size of the study was 501 people in the following category farmers (65%), traders (17%), civil servants (4%), housewives (6%) and others (retired and students 8%).

The study revealed the following, despite development policies and program water provision is often the least considered among other social services. Low profile and the real cost of development is not considered, huge sum of is money allocated to

rural water provision, but in return rural water provision is never addressed with any urgency. The crisis of infrastructure in provision of water makes the society rest in economic, social insecurity.

Nkwocha(2008) suggests that there is a need for effective democratic dispensation. The government with the genuine cooperation of external agencies should provide rural areas in Niger delta with adequate and regular water supply and other basic services.

Mziray (1996) did a study on possible causes of destruction of water catchment areas. Water is a prerequisite for survival of any human being and for their own development. Inadequate water and sanitation facilities are some of most critical problems faced by many developing countries. These problems are brought through deforestation and erosion occurring due to rapid rate as population expands into mountainside in search for life, pollution of surface sources by industrial discharges and agricultural chemicals that expand as agriculture becomes modern and technical, discharge of human waste. Mziray (1996) suggests that protecting water sources in Tanzania is a solution to environmental problems this is through awareness and protection of environment. National governments, donor agencies and NGO's should ensure women are fully involved in all water catchment areas protecting programmes and projects.

In 2001 an article titled *challenges of water management in Peru* written by Algeria Reveals that problems of water management arise from different perspectives that is inadequate water policy, from a weak and ineffective water authority and institutional arrangements. He reveals that this problem can be confronted by sweeping reform of water related institutions and to have new water policies that will ensure effective and encourage public participation in decision making process.

Schouten (2009) did a study on rapid change initiative in African public water utilities, where the study used a case study on three countries which are Tanzania, Uganda and Zambia. He explains that the water sector is in awful need for sustainable adjustment; yet the public water sector in general is known for its high level of organizational inertia and reluctance to adopt innovations. As Thomas and Ford (2005) stated, the water sector is "stubbornly clinging to their orthodox vision and understandings of new technology and innovation".

He suggests for 100 days rapid change initiatives in Africa public water utilities. As he says in Tanzania that there is a need of making special funds available to help the organization and leadership of the organization needs to have confidence that change can happen in water sector.

Kalulu (2010) conducted a study on "assessment of the performance of public water utility in Malawi" Malawi like many developing countries provide water by public authorities that continuous meet challenges in the growing urban population. Water scarcity and deterioration affects quality of services due to increase in difficult and cost. He used interview and documentation review. Key aspects studied included unaccounted for water; Working ratio, bill collection efficiency and efficiency of operation and maintenance. The working ratio of the utility ranged from 0.69 to 1.3 which was above the proposed target working ratio 0.68 for developing country utilities. It was found that the level of unaccounted for water utility ranged from 36% to 47% compared to 25% for developing countries. The utility was not financially sustainable as it had been making losses since 2002.The working ratio of up to 1.3 implying that the utility was unable to meet its operational and capital cost. It was concluded that the utility was generally performing poorly as most performance indicators were outside the range for best practice targets for utilities in developing countries.

Patrick (1999) did a study on future trends water resources meeting future demands. He explains that water crisis predicted in 1993 by OECD International Future Programme has materialised already in some parts of the world, the floods in Bangladesh and China is not the only question, water problems have been perpetuated by population growth and rights of future generations, location trends, economic development strategy and agricultural expansion. And to solve this it doesn't have to focus on technical or infrastructural solution but on how best exploit the potential for efficiency gains at user's level equitable access to all.

Mckenzie and Ray (2005), did a study Status of household water delivery in India, 90000 household where surveyed and other data taken from National Family Health (NFHS-1999) and Demographic Health Surveys, (DHS-1999) among questions asked include, source of drinking water, time taken to fetch water for household that do not receive water from their premises and method used to purify water. The study

revealed that system of household water provision in India is unable to provide convenient and safe access to drinking water for a large sector of the population. Urban water delivery is characterised by irregular delivery and pressure, provided by inefficient and heavily subsidized municipal boards which are unable to maintain and expand the existing system.

The situation is somewhat worse in peri-urban and rural areas with declining water availability, groundwater depletion and poor maintenance of existing infrastructure. Substantial reform is needed in order to cater for existing needs, and to meet increasing demand for water fuelled by both population and income growth.

Shanmugham (2011) did a study on an assessment of the status of water and sanitation in Ethiopia-Ambo Town, The study used cross sectional survey design and stratified simple random sample of fifty was taken from urban and rural units. Interviews, observation, published and unpublished literally work where used as a method of data collection. The empirical findings revealed that when services are being provided, there is a stark need to improve the service levels from the financial and technical matters to administrative matters to complement the changing local situations. The rapid urbanisation in small and medium towns in the regional development of Ethiopia has to match their future requirements through sustainable resources and strategic interventions in service delivery management.

Kabudi (2005) challenges of legislating of water utilisation in rural Tanzania: drafting new laws, explains that the Tanzania nation faces abundant water resources although in recent years water resources have started to diminish in terms of its quality and quantity. Supply system in Urban and rural areas have also faced series of operational and structural problems and hence shortage of water supply and sanitation. He further explains among the critical problems perpetuating the situation is lack of clearly defined and adequate institutional framework. As in National water policy 2002(NAWAPO) states that "this legislation, water utilization (control and regulation) Act 1974 and associated regulations do not adequately meet present and emerging water resources management challenges. Thus legislation needs to be reviewed in order to address the growing management challenges."(NAWAPO, 2002).

Davidson et al. (2013) did a research on, Dimensions of water accessibility in Eastern Kogi State of Nigeria. The aim of this study was to examine the dimensions of water accessibility by households in the eastern part of Kogi State. The methods of data collection relied on secondary and primary sources. It involved the use of structured questionnaire to elicit information from households. In addition, revenue and expenditure on water infrastructure was analysed. The level of accessibility was assessed in the framework of World Health Organisation's (WHO) accessibility indicators. The result revealed that, eastern Kogi state is experiencing water crisis. The Major source water supply to households is traditional and unprotected water sources. Based on the WHO's standard households water access was classified into basic – no access level. The emerging dimensions in distance, time and money translating to a mean distance travel of 513meters daily; 65minutes and N145 respectively. Also, it was discovered that neglect in general infrastructure provision and particularly water by government have worsen the challenge. Based on the findings, recommendations were made. One of such recommendations is the need to factor in some distributive guidelines in terms of percentage allocation to infrastructure development in general and sector.

2.7 Research Gap

Much has been done to address provision of water services in Tanzania. Many studies concentrated on clients perception survey as of Theodory and Malipula(2012) did a study on supplying domestic water to informal settlement in Manzese Dar-es-Salaam, Nkochwa (2008) did a study on client perception in assessing water supply deficiency and implication of rural development in Niger-Delta Nigeria, Mckenzie and Ray (2005) did a study on status of household water in India, while other researchers focused in challenges in delivery of water service as Kalulu (2010) conducted a study on assessment of the performance of public water utility in Malawi. This study focuses its attention on the availability and adequacy of water services in Morogoro Urban drawing attention from two wards as none of the identified studies paid attention to these localities.

2.8 Conceptual Framework

In assessing the water service delivery at Morogoro Urban, there is a need to have an overview of important aspects that enhance performance of water utilities. There is a need to assess citizen participation, water service providers and sector framework that are among indicators in proper water service.

Citizen participation, citizens are the consumers of water service. In order to have proper water management there is a need of integral approach whereas people's participation plays a crucial role. This is because development is a task that involves the society as a whole and not being exclusive domain of government.

Water service providers include management, institutions that are government and private service providers (private sector), were by in order to enhance proper water provision; providers must have proper plans, resources, strategies, effective and efficient water management.

Sector framework, there is a need to ensure that there is strong sector framework that aims at increasing economic growth and reduction of poverty to citizens. This could be fulfilled through clear division of powers and management of water service. Sector framework includes National Water Policy 2002, National Water Vision 2025, Millennium Development Goals and National Water Sector Strategy (NWSDS).

Therefore, in enhancing proper water service delivery it has to consider citizen participation who are consumers of water service, water providers who render water service to the citizens and efficient sector framework that will result in water service provision.

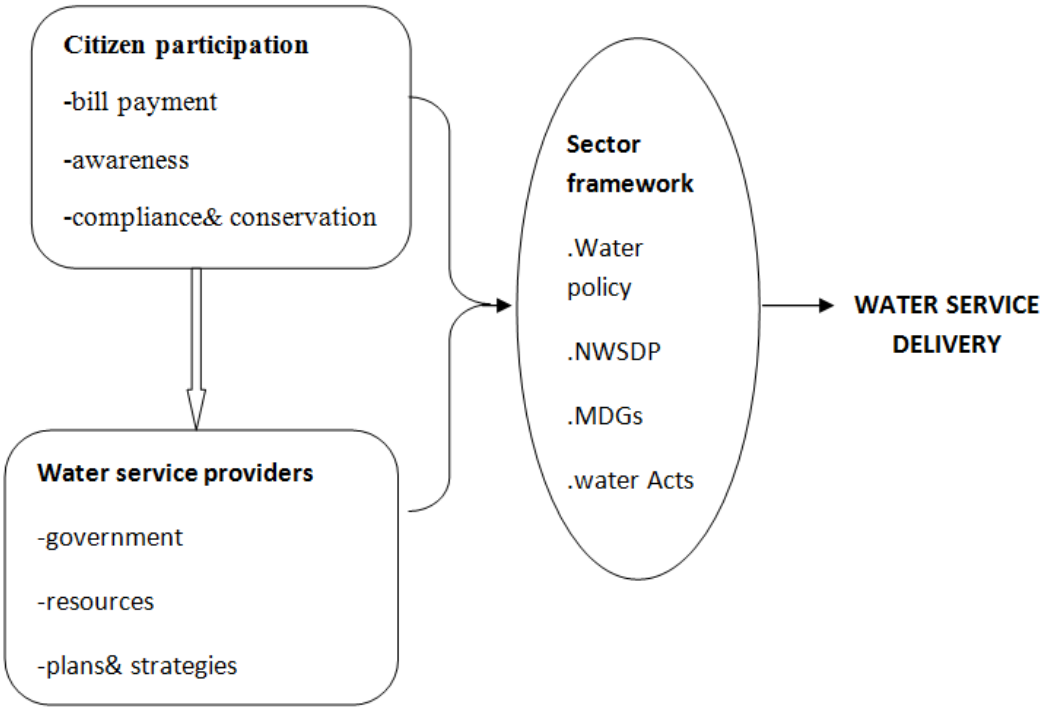


Figure 2.1: Conceptual Framework of the Study

Source: Researcher own conception

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The scheme that was used to generate answers to the problem was a case study design. Case study is essentially an intensive investigation of the particular unit under consideration (Kothari, 2004). The researcher was interested in this method because it enables to understand fully the behavioural patterns of the concerned unit. In the words of Charles Horton Cooley in Kothari (2004) '….*case study deepens our perception and gives us a clearer insight into life*….' It gets at behaviour directly and not by an indirect and abstract approach. Therefore, the method was expected to bring about deeper insights and better understanding of water service availability at Morogoro Urban.

3.2 Area of the Study

Morogoro is Located about 190 km west of Dar es Salaam, it is situated on the lower slopes of the Uluguru Mountains and covers an area of 260 km².It is allocated in latitude -6, 8167(649'0.012"S) and longitude 37, 6667(3740'0.120"E) and altitude 511 meters. It is rich in diversity, culture and industry. Administratively, the municipal has only one division, 19 wards and 274 hamlets. (UN-HABITAT, 2009).Administratively Morogoro is divided into one division, 19 Wards, and 274 hamlets, two wards were sample; the wards were Kichangani with a population of 19,166 and Kilakala with 10,149 (NBS, 2013).

However, the choice of Morogoro Urban as the research area is after considering the following factors; first, Morogoro Urban areas has been facing water scarcity. Second, the area is accessible and economical to the researcher as she is the familiar with it, similarly the presence of necessary infrastructures such as transport for the researcher. Third, the area has diverse of social and economic groups, diverse in term of traditions, values, attitudes, education and gender.

Administration of Morogoro

Morogoro region, is under the Morogoro Regional commissioner. At the district level it is under the district commissioner. At the municipality level the municipal director is the chief executive of all activities done in the municipality. Both the District

commissioner and Morogoro municipal director are male. This implies that women are less represented at the top positions in the municipality.

The wards are under the ward secretary who is helped by various officers, for instance health officer, education officers and agricultural officers. Half of the surveyed wards were headed by female ward secretaries, reflecting greater gender awareness at this administrative level. After the ward secretary is the street chairperson who is helped by the street secretary. At this level there was equal representation of both women and men. Figure 4.1 represents the administrative structure of the municipality.

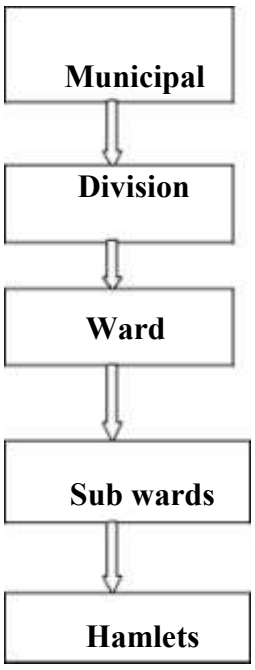


Figure 3.1: Administrative structure of Morogoro

Source: Morogoro council profile, 2004.

3.3 Sample Size

Purposive and simple random sampling was adopted. Purposive sampling technique was used to select wards and selection of District water engineer (1), operational officers (5), distribution engineer and bursar from MORUWASA. Sample size for citizens was selected by using the following formula

$$S = \frac{N}{1+N(e)^2}$$ **Where;** S = sample size, N=population size, e = error term. For social science research 5% error term is recommended. However, if there is resource limitation, more than 5% error term can be used (Naing*et al.,* 2006).This study suggesting e = 7% with an assumption of homogeneity population. Population size of Kilakala is 19166 and Kichangani is 10149 total 29315

$$S = \frac{29315}{1+29315(0.07)^2} = 202.6707$$

Sample size determination and selection, has host of important factors that need to be considered: (1) availability of funding and time available to accomplish the task; (2) the length of questionnaire; (3) the type of question; (4) the analysis to be employed; (5) availability of field helpers; (6) anticipated response rates are and (7) manageability of data. (Bailey, 1994, Kothari, 1990, Frankfort-Nachmias, 1992 and Nachmias, 1992). Due to the above factors 200 household were used in the study.

3.4 Sampling Procedures

There are two main types of sampling procedures/methods, these are: probability and non-probability. This study employed both in order to increase validity and reliability of the research findings. Probability sampling was employed and used purposive sampling while non-probability sampling used simple random sampling.

3.4.1 Purposive Sampling

Babbie (2008), defined purposive sampling as a type of non-probability sampling in which the units to be observed are selected on the basis of the researchers' judgment about which ones were useful or representative. This technique, as Robson (1995) argues, it enables the researcher to sample according to his or her judgment as to typicality and interests. From this method, the researcher chose deliberately some officials who typically represent the whole unit of inquiry The researcher used purposive sampling to select Local Government leaders, District water engineer (1), operational officers (5), distribution engineer and bursar at MORUWASA

Table 3.1: Sample Distribution

No	Purposively selected	No of Respondents
1	District water engineer	1
2	Operational officers	5
3	Distribution Engineer	1
4	Bursar	1

3.4.2 Stratified Sampling Technique

According to Mendenhall, Ott and Scheaffer (1971) Stratified samples, is obtained by separating the population elements into non overlapping groups called strata and then selecting a simple random from within each group primarily to ensure that different groups of a population are adequately represented in the sample so as to increase their level of accuracy when estimating parameters (Frankfort,2005). Furthermore all other things being equal, stratified sampling considerably reduces the cost of execution. Sampled population was divided into strata with different economic status and age strata were being identified at the ward level and streets.

3.4.3 Convenient Sampling Technique

Convenience sampling obtain sample by selecting whatever sampling units are conveniently available (Frankfort C, 2005). Convenience sampling is collected with the populations on hand; the data is readily available for the researcher to collect. They do not typically have to travel great distances to collect the data, but simply pull from whatever environment is nearby. From selected strata sample was selected conveniently. Convenience sample was used at the household level to identify respondents who were willing to answer the questionnaire.

3.5 Data Collection Methods

Data was collected from both primary and secondary sources. Primary data was collected through questionnaires with both open and closed ended questions which were administered to respondents, supplemented by interviews and observation method. Secondary data was collected through library research and both print and electronic formats. Research reports were reviewed and major parts summarized. The use of a combination of methods, that is triangulation according to Waysman and Sawaya (1998), enhances the validity and reliability

of data collected because each method has its own strength and weaknesses.

3.5.1 Questionnaires

Questionnaires were structured into two types. Type one contained open-ended questions that gave an opportunity to the respondents to express their opinions on the study, while the second type was closed questions with possible answers to choose, from among alternatives.

Questionnaires were selected and used as the data collection instruments for several reasons. One, being anonymity which usually is assured when using a questionnaire and it is critical in a situation where a researcher is also the assessor of the respondents. This is the main reason as why questionnaire were administered to few respondents due to the possibility of undue influence and bias (Sarantakos, 1998). The questionnaire allows quick and efficient data collection providing a stable, consistent and uniform measure without variation.

Target group: Questionnaire was administered to the citizens in this case study.

3.5.2 Interviews

A limited number of respondents were invited, after survey, to participate in structured interviews during the research. This mixed approach was expected to balance the broader area of data collection. More prescriptive survey questions were provided to participants with an opportunity to give more data spontaneously and in-depth accounts of their perception on water service delivery at the study areas. In a way, interviews are sought to reduce the shortcomings of the questionnaires.

Face-to-face interviews were used to get detailed information from respondents about their views, opinions and perspectives regarding on the water service availability at Morogoro Urban. During interviews relationship was created by starting with general questions to make respondents feel relaxed in answering questions.

Target group: District water engineer, operational officers, distribution engineer and bursar of MORUWASA.

3.5.3 Observation

Observation n is way of gathering data by watching behavior, events, or noting physical characteristics in their natural setting. Observations can be overt (everyone knows they are being observed) or covert (no one knows they are being observed and the observer is concealed). The benefit of covert observation is that people are more likely to behave naturally if they do not know they are being observed. However, you will typically need to conduct overt observations because of ethical problems related to concealing your observation Taylor & Steele (1996).

Observations can also be either direct or indirect. Direct observation is when you watch interactions, processes, or behaviors as they occur. Indirect observations are when you watch the results of interactions, processes, or behaviours(Taylor and Steele, 1996). From the study area leakage of water ,interval of repairing the leakage was observed and flow of water from the water taps was observed.

3.6 Collection of Secondary Data

Secondary data refers to the data which have already been collected and analysed by someone else. Secondary data may either be published data or unpublished data. Similarly, secondary data serve the purpose of giving out the solution of the problem at hand .In this study; secondary data was largely obtained from MORUWASA Strategic Business Plan, Quartely Report and Annual Report.

3.7 Data Processing and Analysis

3.7.1 Data Processing

In order to detect errors and omissions the researcher edited data collected and ensured that the data were accurate, consistent with other facts gathered and were been arranged to facilitate coding and tabulation. Coding was be done to assign numerals or other symbols to answers so that responses can be put into a limited number of categories or classes which are appropriate to the research problem under consideration.

Because research results presented had a large volume of raw data, classification was done to reduce them into homogeneous groups for meaningful relationships. Data was arranged in groups or classes on the basis of common characteristics. After assembling data into classes, the researcher tabulated (arrange them in some kind of

concise and logical order) data. Thus, the researcher summarised raw data and displayed the same in the form of statistical tables (columns and rows) for further analysis.

3.7.2 Data Analysis

Data collected were analysed by both qualitatively and quantitatively. These were summarised and analysed by computer software known as Statistical Package for Social Science (SPSS). Frequency distribution and percentages were used to describe major variables.

For the purpose of this study specific objective number one, two and three which were quantitative and qualitative type of data was analysed by descriptive statistics whereby there was presentation of percentage and frequencies. For specific objective number four it was analysed by factor analysis technique

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSION OF THE FINDINGS

4.1 Introduction

This chapter is presents discussion of the research findings. The first section of the chapter gives introduction; section two presents socio-demographical characteristics of the respondents. Section three presents status of social service availability at household level while techniques used for social service delivery are presented in section four. Section five gives the consequence social service availability at household level. The last section of the chapter explains factors affecting delivery of social service.

4.2 Social-Demographic Characteristics of the Respondents

4.2.1 Age of the Respondents

The study was interested to examine age of the respondents. The study found that, significance number of the respondents was aged between 36 and 45 years, as presented in Table 4.1

Table 4.1: Age of Respondents

Age group	Frequency	Percent	Valid Percent	Cumulative Percent
25-35	14	9.3	9.3	9.3
36-45	47	31.1	31.1	40.4
46-55	33	21.9	21.9	62.3
56-65	36	23.8	23.8	86.1
66 and above	21	13.9	13.9	100.0
Total	151	100.0	100.0	

Source: Field Study2013/2014

The results of the study show that 25years and above are mature and are the heads of household. The respondents that were interviewed and answered questionnaire were categorised into age intervals, that is, from 25-36 were 14 equivalent to 9.3% , respondents ranging from age 36-45 were 47 equivalent to 31.1% , respondents ranging from 46-55 were 33 equivalent to 21.9%, 56-65 were 36 equivalent to 23.8% and above 66 were 21 equivalent to 13.9%. Purposefully, respondents older than 50 years of age were questioned, they accounted for 37.7% of the sample population. The main purpose of having respondents from this age group was to have some historical background on water provision in Morogoro Urban.

4.2.2 Gender of the Head of Household

The study examines gender of the head of household in order to establish the level of social service delivery. The study found that, majority of the respondents (74.2%) were males, as presented in Table 4.2

Table 4.2: Gender of the Head of Household

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	112	74.2	74.2	74.2
	Female	39	25.8	25.8	100.0
	Total	151	100.0	100.0	

Source: Field Study 2013/2014

The result shows that both males and females heads of the households. However, male respondents are many than females. The results reflect the culture of most Tanzanian societies where most of management activities are dominated by men. The target of researcher at this point was to find out gender proportional which participated fully as respondents on the research study of assessment of level of water service provision at Morogoro . The response shows that the male respondents were 112 equivalents to 74.2% and female respondents were 39, equivalent to 35.8%.

4.2.3 Household Size

The study was interested to examine household size. With regard to the household size, fourth fifth (78%) of household who answered the questionnaire had 4 to 9 household members. In an urban setting this is a very big household size. The bigger the household the more water needed for daily activities. Only (17%) of the population had small household from 1to 3 members. This group was made of youth, a number of whom were recently married. Table 4.3 presents the household of the respondents.

Table 4.3: Household Size

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
1-3	34	17.0	17.0	17.0
4-6	28	14.0	14.0	31.0
7-9	129	64.5	64.5	95.5
10 and above	9	4.5	4.5	100.0
Total	**200**	**100.0**	**100.0**	

Source: Field Study 2013/2014

As mentioned earlier, large families imply more water usage in urban areas. Mc Granahan and Satterthwaite in 2006 noted that deficiencies in safe water supply for health and the environment are far more critical in densely populated areas than rural areas, where there is often some reliable source of water and waste dilutes more easily.

4.2.4 Education of Respondents

The study examines level of education of the respondents. The study found that, significant number of the respondents (41.1%) had primary school education. Table 4.4 presents the level of education of the respondents.

Table 4.4: Level of Education

Level of education	Frequency	Percent	Valid Percent	Cumulative Percent
primary	62	41.1	41.1	41.1
secondary	46	30.5	30.5	71.5
certificate	2	1.3	1.3	72.8
diploma	15	9.9	9.9	82.8
degree	24	15.9	15.9	98.7
masters	2	1.3	1.3	100.0
Total	**151**	**100.0**	**100.0**	

Source: Field Study 2013/2014

The results show that the majority of respondents (41%) had primary level of education while about (30.5%) had secondary level of education. A small number of respondents, that is about 1.3%, 9.9%, 15.9% and 1.3 % possessed certificate, diploma, and degree and masters level of education respectively.

4.2.5 Marital Status of Head of Family

The study examines marital status of head of family. The study found that, majority of the respondents (71.5%) was married. Table 4.5 shows marital status of head of

family.

Table 4.5: Marital Status of Head of Family

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
married	108	71.5	71.5	71.5
Single	19	12.6	12.6	84.1
widowed	24	15.9	15.9	100.0
Total	151	100.0	100.0	

Source: Field Study 2013/ 2014

The results shows that majority of respondents who were 108 equivalent to 71.5% were married. However, other categories of marital status were involved in answering the questionnaire. The results show that 19 heads of household equivalent to 12.6% were single and 24 equivalents to 15.9% were widowed.

4.2.6 Types of Employment

The study investigates type of employment of the respondents. The study found that, important number of the respondents (49%) were self-employed. Also, the study found that, the remaining population comprised employees (45%) and unpaid family workers (6%). Moreover, the study found that, the employees comprised teachers (14.4%), nurses (6%), accountants (3.2%), soldiers (3.2%), agricultural officers (5.2%), administrators (9.6%) and Medical officers (5.2%). A number of women were engaged in employment like the personal secretary and teaching practise. More than 80% of the accountants and administrators were men. Half (50%) of the self-employed respondents were employed in petty trade.

Table 4.6: Types of Employment

Responses	Frequency	Percent	Valid Percent	Cumulative Percent
employee	97	48.5	48.5	48.5
self employed	92	46.0	46.0	94.5
unpaid family worker	11	5.5	5.5	100.0
Total	200	100.0	100.0	

Source: Field Study2013/ 2014

They engage in small businesses for their livelihood. Women account for 66% of the self-employed people. Among these married women accounted for 58%. Since the majority of them have low education they engage in small businesses. Only 44% of male respondents reported engaging in petty trade. Male respondents were mostly

found dealing with carpentry, masonry, butchery and water vending in self-employment sectors. On the other hand, female respondents were found selling cooked food, fried fish and trade in self-employment sectors.

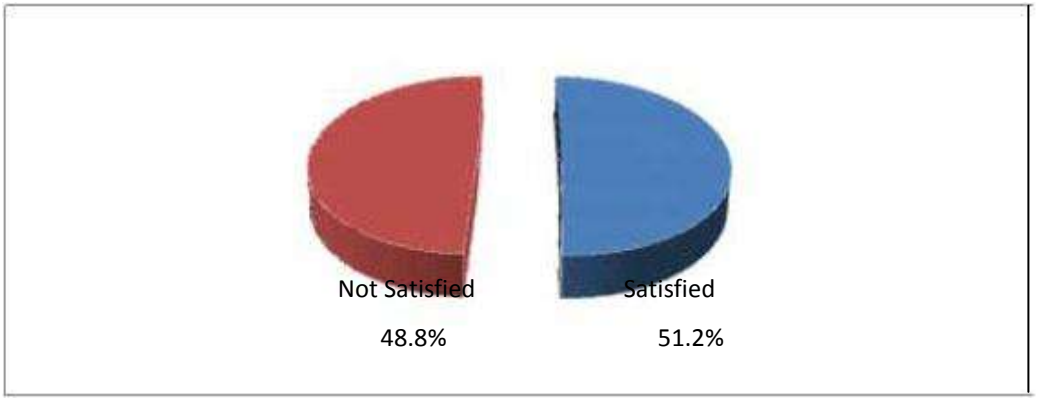
A number of women owned small shops around their homes. A few were involved in tailoring. The kind of trade they dealt with was informal and low paying. It was observed that there was a decrease in the number of people employed by the government in the sample. This may be attributed to the fact that most of the interviews took place during the working hours. This applies for the private employees as well.

Lack of employment is furthermore caused by population growth which is attributed to rural-urban migration (Mushi, 2004). Mushi observed that one third of the population in Tanzania was residing in urban areas; this was fuelled by an influx of unemployed youth from rural areas. Having difficult living conditions, residents' accessibility to various social services is also limited. The low income earners in Morogoro suffer much compared to high income earners, water supply in these areas is of low quality. Thus, community has to resort to other mechanisms to get water.

4.3 Status of Water Service Availability at Household Level

The study was interested to examine the status of water service availability at household level. Consumers were asked to identify if were satisfied with water service availability. The study found that, majority of the respondents (5.2%), as presented in Figure 4.1

Figure 4.1: Customer Satisfaction on the Status of Water Services



Source: Field Study2013/ 2014

Figure 4.1 presents customer satisfaction on the status of water services. The study found that, minority of the customers (51.2%) was not satisfied with the availability of the water services. This relate to the study conducted by Nkonya (2010), the study found that, delivery of household water continues to be a problem for Mainland Tanzanians. The government was doing "very" or "fairly" badly in delivering water to households. The situation is deteriorating, particularly in the rural areas. Overall, (48.8%) of customers were not satisfied. Also, the study found that, majority of the customers (51.2%) was satisfied with water services. This relate to the responses obtained during interview. One consumer revealed that as the box Number 1 below says:

Box 1: Responses on the Availability of Water Services

> *"We are satisfied with the availability of water services. Water situation does seem to have improved over the last couple of years in urban localities, but the same does not hold for the rural areas, where dissatisfaction is on the increase".*

The study concludes that, most of the customers are satisfied with the availability of water services. Although some of the rural customers were not satisfied with the availability of the water services. This implies that, for some extent MORUWASA has good services.

Meanwhile, the study examines availability and adequacy of water services at household level. Water is one of most important natural resources and is the essence of life on earth. The availability of safe and adequate water is not merely for health reasons, but also for economic development (WHO, UNICEF, 2006). Consumers were asked to identify if they are connected with tape water. The study found that, majority of the household (66.5%) was connected with tap water, as presented in Table 4.6.

Table 4.7: Household Connected with Tape Water

Response	Number	Percent
Yes	133	66.5
No	67	33.5
Every day for few hours	2	1
1-2days a week	92	46
3-5 days a week	24	12
Once a month	15	7.5

Source: Field Study, 2013/2014

Table 4.7 presents household connected with tape water. The study found that, minority of the households (33.5%) was not connected with tape water. This relate to the study conducted by (WHO 2005), the study found that, Connecting private dwellings to main water is expensive and typically cannot be publicly financed. Furthermore, only about 42% of people with access to water have household connection or yard tap As a result household in developing countries spend considerable amount of time fetching water. This relate to the responses obtained during interview. One consumer stated that:

Box 2: Household Connected with Tape Water

> *"We are not connected with tape water. There has been longevity in acquiring the services due to the fact that others are willing to pay and to have tap water connections but MORUWASA has not taken initiatives to ensure that the service availability in their areas".*

Also, the study found that, majority of the consumers (66.5%) identified that, they are connected with tape water. This implies that, the most of the people are connected with tape water.

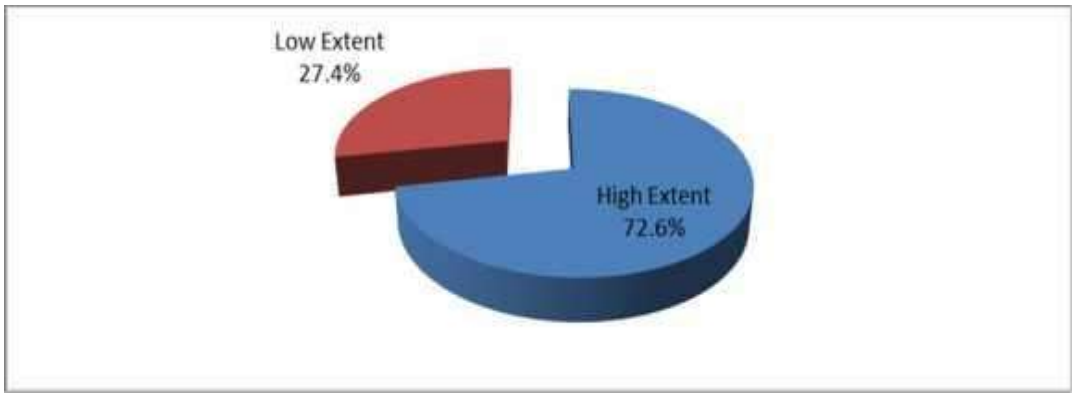
Moreover, the study was interested to examine the level of water service availability at Morogoro. Consumers were asked to identify the level of water service availability at Morogoro. The study found that, minority of the respondents (46.0%) from the households identified that water is not enough for their households' use as they received water once or twice per week for very few hours and sometimes during night hours whereby it is not easy for them to stay all night fetching water.

Furthermore, the study found that, majority of the consumers (66.5%) were connected with tap water, the status of water provision in most of places in Morogoro Urban is problematic. At the same time, the study found that, minority of the consumers (46%) do not receive a regular supply of good quality water, high percentage receives water once or twice a week for few hours per day, pressure is irregular and water is of questionable quality. Given that water is not clean, the households tie pieces of clothes on the tap to cleanse water for domestic uses. The study found that, small number of consumers (12%) receives water 3-5days a week. The study found that, insignificant number of the consumers (7.5%) claimed that they receive water once in a month whether it is dry season or rain season.

The study concludes that, although the process of providing tap water to consumers requires a complex and carefully designed system of collection, storage, treatment and distribution. Majority of the households were connected with tap water.

Moreover, service providers were asked to identify the extent of household connected with tape water. The study found that, majority of the MORUWASA officials (72.6%) identified that, for large extent households are connected with tape water, as presented in Figure 4.2

Figure 4.2: The Extent of Household Connected With Tape Water



Source: Field Study, 2013/2014

Figure 4.2 presents the extent of household connected with tape water. The study found that, minority of the officials (27.4%) identified for small extent households are connected with tape water. Also, the study found that, majority of the MORUWASA officials (72.6%) identified that, for large extent households are connected with tape water. This relate to the study conducted by Nkonya (2006), the

study found that, slightly more than half the population of Tanzania is estimated to have access to an improved water source, with stark differences between urban areas. This is similar to responses obtained during interview, one MORUWASA employee revealed that as on box Number 3;

Box 3: The Extent of Household Connected With Tape Water

> *"We are providing service to large population. Most urban households have some access to the piped network, whether directly or indirectly, system capacity constraints maintain spatial variability in access to water".*

The study concludes that, most of the households have access to tape water. Neighborhood access to piper water significantly reduces the probability of household receiving water from non-piped source.

4.3.1 Interruptions of Water Supply

The study was interested to examine the interactions during service provision. Consumers were asked to state whether or not they had experienced supply interruption in their water supply from MORUWASA. The study found that out of 133 consumers who were connected with tape water, 110 (82.9%) identified that they get water interruptions per WSP, as presented in 4.8 Table

Table 4.8: Interruptions of Water Supply

Response	Number	Percent
Yes	110	82.9
No	23	17.29

Source: Field Study 2013/2014

Table 4.7 presents responses on water service interruption. The study found that, small number of the consumer (17.29%) identified that they don't get water interruptions per WSP. The study found that, majority of the respondents (82.9%) who are connected with tape water experienced interruption in water supply. This relate to the study conducted by Esther (2009), the study found that, water service interruption is common in most of the developing countries. Service interruption is caused by lack of sufficient fund, poor and old infrastructure and lack of monitoring. During interview, one of the MORUWASA employees revealed as on box number 4 below;

Box 4: Water Service Interruptions

> *"Water service interruption is common in Morogoro. Water service must sometimes be interrupted or water pressure reduced, to allow emergency leak repairs, preventive maintenance activities and pipe installations".*

The study concludes that, water service interruption is common in Morogoro. Service interruption is caused by poor infrastructure, infrastructure maintenance and pipe installations

4.3.2 Quality of Water

The study was interested to examine the indicators of quality water. Water quality has two indicators; objective based on scientific data and subjective based on the user's perception of water based on its drinkability, the physical features including colour and turbidity. In the developing world, water quality is of serious concern apart from accessibility. Water could be accessed from various sources including natural sources but the quality remains of concern. The quality of water was measured in terms of physical characteristics of water, colour and dirty particles.

Consumers were asked to state how many times they had coloured water from their household consumption connection. The assumption was that different water service providers would endeavor in various ways to supply quality water. Customers were asked to identify the frequency when household received coloured water. The study found that, majority of the customers (38.34%) identified that they received coloured water from their tapes several times, as presented in Table 4.8

Table 4.9: Quality of Water

Responses	Time	Response	Percent
How often in a month household received coloured Water	once	11	8.2
	2-4times a month	25	18.7
	5-10 times a month	36	27.06
	severally	51	38.34

Source: Field Study 2013/2014

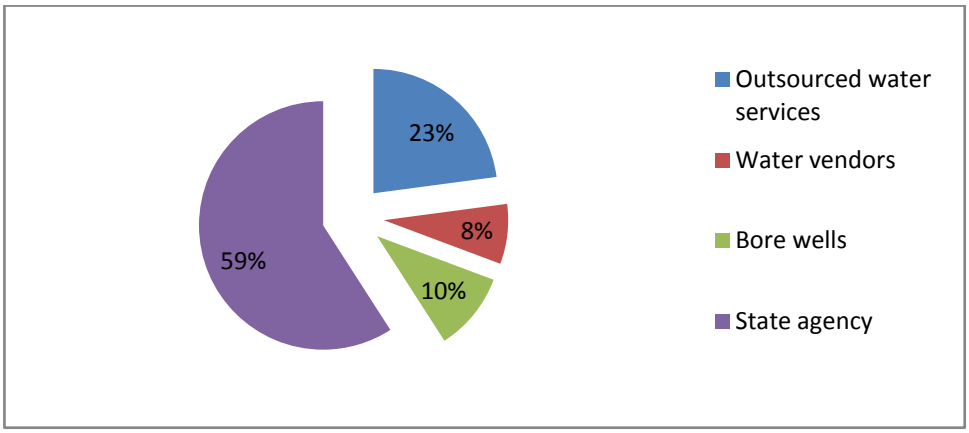
Table 4.8 shows the frequency when household received coloured water from their tapes. The study found that small number of the consumers (8.2%) identified that they receive coloured once in a month. Also, the study found that small number of the consumer (18.7%) explained that they receive coloured water with particles 2-4times a month.

The study concludes that, water quality varies significantly within the country. Some of the customers obtain quality water. Colour and turbidity levels become problematic due to inadequate fund and infrastructure maintenance.

4.4 Techniques used for Water Service Delivery

The study examines the techniques used for water service delivery. The study found that, there are different techniques used for water service delivery, majority of the respondents (59.1%) identified state agency as a provider of water services.

Figure 4.3: Techniques used for Water Service Delivery



Source: Field Study 2013/2014.

Figure 4.3 presents techniques used for water service delivery. The study found that, significant number of the respondents (22.9%) identified that, water services is delivered by outsourcing water providers.

4.4.1 State Agency Actor

The study examines techniques used for water service delivery. Service providers were asked to identify techniques used for water service delivery. The study found that, majority of the MORUWASA employees (59.1%) identified state agency as a provider of water services. This relate to the finding obtained during interview. One respondent revealed that;

Box 5: State Agency Actors as a Provider as Water Services

> *"The physical infrastructure for water abstraction and distribution was built by government agencies, and has always been run by public actors. While the distribution to customers has been highly deficient giving large room for small-scale private operators the bulk supplies to the city are still in public hands"*

The study found that, the large number of the MORUWASA employees identified that water service is delivered by using state agency. At Morogoro region MORUWASA has been given authority as a Government Agency and it operates under the Ministry of Water Development. The Authority's mission is: to provide enough, clean and safe water to the Morogoro Municipal area and to avail environmentally and hygienically acceptable high quality sewerage service in the municipality (MORUWASA Strategic plan 2010). MORUWASA is the sole provider of water service at Morogoro. MORUWASA as a sole provider of water service produces 29500m3 cubic meters of water daily. The immovable assets that MORUWASA uses to achieve this production level include: a dam/reservoir which produces 24,000 m3/day and 6 water intake. MORUWASA has one main source of water to distribute to all its clients, thus has led to scarcity of water as population has increased and water supply demand increased.

4.4.2 Outsourced Water Services

The study was interested to examine techniques used for water service delivery. MORUWASA employees were asked to identify techniques used for water service delivery. The study found that, important number of the employees (22.9%) identified that, outsource water services is a major technique used for water supply. This relate to finding obtained during interview. One respondent stated that:

Box 6: Outsourced Water Services

> *"Sometime water services are provided through outsourcing. This involves the allocation of water distribution processes to a specialist external service provider. This is influenced by lack of expert-labor in some portions of the business process".*

Outsourced water services in this case refer to the functioning non formal Government organisation which were not registered which were non-governmental organization and faith-based organizations in delivery of water services for and on behalf of the government.

4.4.3 Water Vendors

MORUWASA employees were asked to identify techniques used for water service delivery. The study found that, small number of the respondents (10.2%) identified that water vendors are used to supply water. This relate to the study conducted by Bourque (2010), the study found that, most of the households receive water through water venders. Vendors are informal household or individuals informally (sometimes illegally) reselling water from their utility water connections. The carriers, or distributing vendors, usually employ some form of transport, with manual or -driven vehicles typically catering to the better-off households in low-income areas, and motorized vehicles (tankers) typically serving higher-income low-density areas. Despite their important role for water access, the majority of small-scale private providers apart from those licensed to sell utility water from a designated tap fall outside the scope of regulation.

Also, the study found that, water vending is recently scaling up at Morogoro at the areas which are not reached or have limited access to water services. Water vending involves obtaining water from a variety of points: mostly from owners of private water connections; but sometimes from illegal taps, public standpipes and community kiosks. According to UNDP, (2011) water vendors purchase water from a community managed water kiosk set up by private providers and re-sell it to their customers. There are both mobile water vendors and stationed water vendors. Stationed water vendors sell water and certain established water points whereas the mobile vendors move around using water tank boozers or pushcarts and supply water to already known customers. Water vending though operating in regulatory vacuum is emerging as an alternative mode of water delivery not only in vulnerable poor urban areas, but also to wealthy individuals, industries and institutions which are underserved or have unreliable water supply networks. Despite lack of regulatory mechanism on the functioning of water vending in terms of quality of water supplied and the pricing element, vending is gaining popularity as it responds to the gaps in public delivery

4.4.4 Bore Wells

The study found that, small number of the service providers (7.8%) identified bore wells is used to supply water. this relate to the study conducted by Starkey (2012),

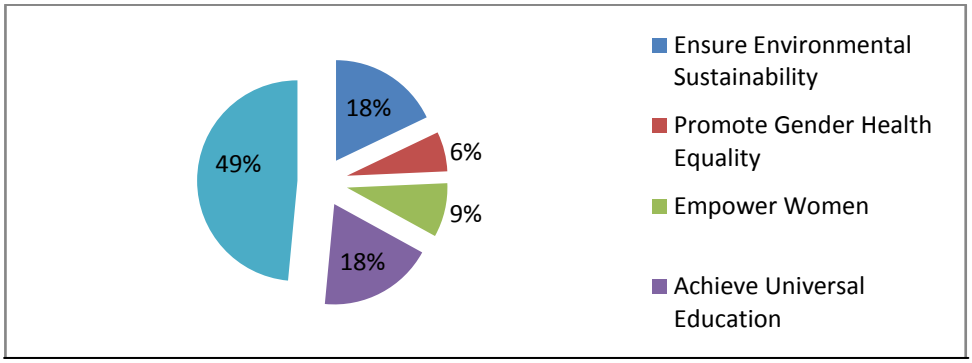
the study found that, currently a solution being implemented in several parts of the world is digging wells to provide drinking water for the whole community Wells have been great resolution to the water crisis problem to most of the areas. These wells have included community owned well and faith based wells, community owned wells are the initiatives of the villagers under Village Water Committees (VWCs) which basically involves community members in making decision on water and sanitation issues affecting their area. VWC are elected by the community to ensure that their water facilities are managed properly on the day-to-day basis.

The study concludes that, there are different techniques used for water service delivery. The major technique for water service delivery involves state agency and outsource service providers.

4.5 The Consequence Water Service Availability at Household Level

The study was interested to examine the consequence water service availability at household level. The study found that there is different consequence water service availability at household level, as presented in Figure 4.4

Figure 4.4: Consequence Water Service Availability at Household Level



Source: Field Study 2013/2014

Figure 4.4 presents the consequence water service availability at household level. The study found that, significant number of the respondents (48.5%) identified that water service availability facilitates eradication of extreme poverty.

4.5.1 Eradicate Extreme Poverty and Hunger

The study found that, important number of the respondents (48.5%) identified that, water service availability facilitates eradication of extreme poverty. This relate to the study conducted by Alaci *et al.,* (2013), the study found that, assuring the water

supply for the household has significant consequences both in terms of time and monetary costs. At the same time, insufficient and inadequate water supply and sanitation result in increased health risks for the population and a higher morbidity and mortality due to water-related diseases. Improving water supply and sanitation will have a positive impact on the individual income and poverty situation of the beneficiary household. Reducing the time and energy burden of water collection by providing safe water at a nearer distance will enable household members to engage in other activities, among them productive and income generating activities. This is similar to responses obtained during interview. One of interviewed MORUWASA employee revealed that;

Box 7: Water Availability and Poverty Alleviation

> *"Water availability reduces extreme poverty. Improved water quality will reduce the health risks and also the costs of preventing and treating ill family members. Furthermore, the reduction of working days lost to water-related diseases will also have a positive impact on the household's income situation".* (Alaci et al., 2013).

4.5.2 Achieve Universal Education

The study found that significant number of the respondents (18.5%) identified that, water availability facilitate universal education achievement. This is similar to study conducted by Kabudi (2005), the study found that improved water supply and sanitation facilities exert their positive impact on primary education through several channels. Relieving girls from their water fetching duties can improve their school attendance as can the installation of separate sanitation facilities at the schools. Both boys' and girls' school attendance and educational achievements improve significantly with reduced health-risks and better nutritional status from improved water supply and sanitation as well as reduced injuries and strain from water carrying, in particular for girls. Chronic early childhood diarrhoea can result in permanent effects on brain development with the resulting impact on a child's learning achievements.

4.5.3 Promote Gender Equality and Empower Women

The study found that, small number of the respondents (8.7%) identified that, water service availability promote gender equality and empower women. According to Alegria (2001), in most societies, ensuring the household's water supply falls under

responsibility of the women. Considerable time and energy are being spent daily on collecting water and caring for family members suffering from water-related illnesses. Improving water supply and sanitation impacts positively on women's living conditions by giving them more time for productive endeavors, adult education, empowerment activities and leisure, at the same time, reducing the distance to the water supply and sanitation facilities will also improve the security and safety and reduce the risk of harassment. During interview, one of the consumers stated that:

Box 8: Water Availability and Gender Equality

> *"Improve water supply impacts on the socio-cultural position of women and has the potential to provide them with privacy and dignity as well as increased status within the family and wider community. Female representation on water boards and user committees strengthens the role of women in society and has far reaching socio-cultural impacts"*

4.5.4 Improve Health

The study found that small number of the respondents (6.4%) identified that, water serve availability facilitate health improvement. According to Yaw, (2004) insufficient water supply and sanitation as well as inappropriate hygiene practices are associated with number of different diseases. Eliminating stagnant, standing water around the households and water points can contribute to reducing the incidence of malaria, in particular in dry areas with few natural mosquito breeding places. At the same time, reducing the incidence of water-borne, water-washed and water- based diseases through improved services and hygiene behaviors will have a positive impact on reducing the susceptibility to other illnesses. For people living with HIV/AIDS, water, sanitation and hygiene is extremely important in reducing the incidence of opportunistic infections.

4.5.5 Ensure Environmental Sustainability

The study found that, small number of the respondents (17.9%) identified that water service availability ensure environmental sustainability. Insufficient or inadequate water supply and sanitation is very often associated with an unsustainable exploitation of natural resources. Improved water management, including industrial pollution control and water conservation is a key factor for maintaining ecosystem

integrity. Adequate treatment and disposal of excreta and both household and industrial wastewater contribute to less pressure on freshwater resources. Furthermore, improved sanitation reduces flows of human excreta into waterways and reducing the respective health and environmental risks. Furthermore, water, sanitation and hygiene is important for improving the lives of slum dwellers, by reducing the risks of contracting water-related illnesses, relieving the burden on women and opening opportunities for small-scale enterprises (Schouten and Buyi 2009).

The study concludes that, water service availability has different impact on household. Water availability reduces extreme poverty. Also, improved water quality will reduce the health risks

Meanwhile, the study was interested to examine the outcomes of water shortage at consumer level. Consumers were asked to identify the outcomes of water shortage at consumer level. Table 4.9 shows the outcomes of water shortage at consumer level

Table 4.10: Outcomes of Water Shortage at Consumer Level

		Number	Percent
Responsibility	Male	13	6
	Female	27	13.5
	Children	40	20
	Female & children	13	6.5
	Male & children	2	1
Distance covered	1-1000m	105	52.5
	2000-3000	2	1
	4000-5000	3	1.5
Time taken	1-30mins	74	37
	31-60	32	16
	61-90	2	1
	91-120	3	1.5

Source: Field Study 2013/2014.

A common knowledge is that access to water affect household in many ways; time spent in searching or even waiting for water, long distance travel and even cost and quantity of water, using the data from household as shown in table above. The study found that, majority of the respondents (52.5%) travel to fetch water for home uses 1000meter daily. This means travelling for 7kms per week, 28kms per month and 365km per year. The energy used in travelling this distance amount to

loss in productive cycle.

Also, the study found that, important number of the respondents (37%) seen that they spend an average of 30minute in search of water for household per day. This means that they spend 210 minutes (4hours) per week, 16 hours per month and 192 hours yearly in fetch of water. By implication this is what is actually being lost due to present water situation. It shows that a household loses so much on daily bases in search of water. Lack of MORUWASA tap water connections leads to scarcity of drinking water, cooking water and water for other uses. This creates competition for the available water sources that are usually so far, that women and girls have to walk long distance to fetch water. The distance to main drinking water is 1km for most household and there are some differences between seasons, during dry season and MORUWASA breakdowns household obtain water from a distance from a distance of 3km or more. They have to walk to nearby wards to street to fetch water, a situation that consumes much of their times and thus interrupts others time schedules like attending school.

Because water from MORUWASA taps takes a long duration of time to flow the problem becomes very acute. The distance increases and the cost of pipe water. One bucket/jerry can of water may cost from tsh100 to 500/=. Queues at the taps become very long. In order to beat the long queue at the water points, they have to start the trip before dawn. The fetching of water is mostly done by women, girls and few boys. This poses security problems because they may be attacked by bandits or rapists on their way, to counteract this, women walk in groups. Transporting water for long distance is also a problem because they have to carry water for long distance is also a problem because they have to carry water on their heads, making many trips. They have to carry the water in heavy buckets which is very detrimental to their health. Following the urban nature of the area there is a lot of traffic congestion in the area, there are cars, bicycles and a lot of people walking on foot. This causes a lot inconveniences to those who are carrying water over their heads.

Walking long distance and standing in long queues have side effects to most of the young generations, this leads to moral decay to these generations. This is mainly due to the fact that there are various categories of people at the queues. The kind of talks that prevail at the queues do not take into consideration the existence of the young and old people since most of them are not familiar to each other due to the fact that

they come from different social systems and places. These queues are characterised by various insults among water fetchers. This being the case, the young generation along the queues copy ideas from their elders at the end of the day especially from those who are careless about insults and acquire bad behaviours.

Figure 4.5: Women Waiting for Water

4.6 Challenges facing Delivery of Water Service

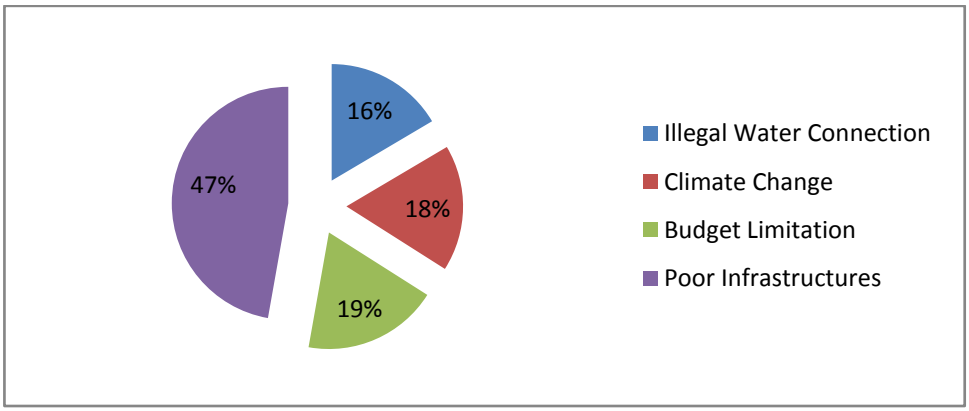
The study examines challenges facing delivery of social service. The study found that, there are different challenges facing delivery of social service. The study found that, significant number of the respondents (47.2%) suggested that, poor infrastructure is a major challenges facing delivery of water service. This relate to the study conducted by Rodriguez *et al.,* (2012), the study found that, all countries face a growing funding gap as they try to keep up with the rehabilitation, operation and maintenance of aging water infrastructures. New water systems must be built to cope with growing population, shifting of consumption patterns and a changing climate. During interview water engineers stated as shown on Box Number 9 below;

Box 9: Infrastructure and Water Supply

> *"A sustainable water supply needs among other requirements water tanks, pipes and motors, which can supply water according to the existing population demand, infrastructures that exist are poor, too old and of poor quality and therefore incapable to supply water which can meet the existing population demands. Water infrastructures at urban areas were installed in 1960's and 1970's. The old age of water infrastructure causes serious water loss due to that most of water infrastructure are uncovered and damaged"*

Also, the study found that, important number of the respondents (18.8%) identified budget limitation. Figure 4.5 presents challenges facing delivery of water service. Central governments do not follow through on planned commitments to the water sector. One reason that budgets fail to be implemented is that they are rarely linked to policy objectives, such as poverty reduction or economic growth. This means that budgets are not the result of forecasts of the investments needed to meet policy goals, but from competition between water and other infrastructure, military, and social sectors. But also with regardless of planned commitments, budgets themselves can fluctuate because they are generally a percentage of GDP, a value that, of course, varies with economic growth. Therefore, even if budgets were fully executed, the value of the funds transferred would change from year to year, making it difficult for local governments to plan for the future, especially in the case of capital investment. The impact of the financial crisis on GDP is expected to reduce the rate of access to water supply.

Figure 4.6: Challenges facing Delivery of Water Service



Source: Field Study 2013/2014

Figure 4.6 presents challenges facing delivery of water service. The study found that small number of the respondents (16.5%) identified illegal water connection. This relates to the study conducted by Butterworth *et al,* (2009), poor governance of water supply system implies that many people lack services. The impacts of poor governance are many as water system is unaccounted for, lost through illegal connections and excessive leakages Respondents who were operation officers and water engineer explained that among the factors that hinder proper provision of water are illegal water connections. Illegal water connection prevents MORUWASA from supplying water to meet population demands. This position is anchored on the fact

that about 46% of the water that is supposed to be supplied is lost though illegal and un-coordinated connections by consumers of the service.

Also, the study found that, small number of the respondents (17.5%) identified climate change as a challenge facing water delivery. Climate variability, water resource management and economic development are intricately linked. Water availability and poor water management is a root of vulnerability for many countries already and this is likely to increase the future climate changes (WWDR-2009). Climate changes have undeniable impacts on water; it will continue to impact the water cycle directly or indirectly. Climate change has also affected Morogoro Urban which has perpetuated to water scarcity as explained by water engineer and operation officers at MORUWASA. It has resulted in shifting and intensifying weather extremes that includes scarce rainfall, hence uncertainty in the quality and quantity of water supplies. But also there is a need to manage the interaction between human demands (demand side drivers) and water supply and naturally occurring changes in climate patterns that increasingly intensified through climate change.

Public budget problem

Central governments do not follow through on planned commitments to the water sector. One reason that budgets fail to be implemented is that they are rarely linked to policy objectives, such as poverty reduction or economic growth. This means that budgets are not the result of forecasts of the investments needed to meet policy goals, but from competition between water and other infrastructure, military, and social sectors. But also with regardless of planned commitments, budgets themselves can fluctuate because they are generally a percentage of GDP, a value that, of course, varies with economic growth. Therefore, even if budgets were fully executed, the value of the funds transferred would change from year to year, making it difficult for local governments to plan for the future, especially in the case of capital investment. The impact of the financial crisis on GDP is expected to reduce the rate of access to water supply.

Environmental conservation

Environmental conservation and water resource management have a dual friendship. Environment is a water using sector, terrestrial and aquatic life requires a good quality of water in sufficient qualities and quantities for survival and productivity.

Environment provides services that maintain the water resources in a useable state for all sectors (World Bank, 2007). From the study the respondents that were water engineer and operation officers explained that there has been massive environmental pollution by the citizens that results to water shortage, this is due to rapid urbanisation where citizens are expanding in urban areas and hence therefore destroy and clear forest for building construction. But also destruction of water catchment areas, industrial and human being disposals, agriculture activities near the water catchment has destroyed resulted in water shortages.

Climate change

Climate variability, water resource management and economic development are intricately linked. Water availability and poor water management is a root of vulnerability for many countries already and this is likely to increase the future climate changes (WWDR-2009). Climate changes have undeniable impacts on water; it will continue to impact the water cycle directly or indirectly. Climate change has also affected Morogoro Municipality which has perpetuated to water scarcity as explained by water engineer and operation officers at MORUWASA. It has resulted in shifting and intensifying weather extremes that includes scarce rainfall, hence uncertainty in the quality and quantity of water supplies. But also there is a need to manage the interaction between human demands (demand side drivers) and water supply and naturally occurring changes in climate patterns that increasingly intensified through climate change.

Ageing water Infrastructures

All countries face a growing funding gap as they try to keep up with the rehabilitation, operation and maintenance of aging water infrastructures. New water systems must be built to cope with growing population, shifting of consumption patterns and a changing climate (Rodriguez et al., 2012).

Respondents who were operational officers and water engineers explained that a sustainable water supply needs among other requirements water tanks, pipes and motors, which can supply water according to the existing population demand, infrastructures that exist are poor, too old and of poor quality and therefore incapable to supply water which can meet the existing population demands. According to the response it has been revealed that water infrastructures in the Municipal were

installed in 1960's and 1970's. The old age of water infrastructure causes serious water loss due to that most of water infrastructure in the Municipality are uncovered and damaged.

Malfunctions of water meters

Some form of metering is necessary in order for suppliers to be able to charge in proportion to water used (Mckenzie, 2005). Metering has other advantages such as, helping suppliers keep track of how much water is being used in different parts of the system, allowing detection and reduction of illegal connections, and providing for identification of leakages.

Despite these advantages above, there has been a problem of widespread metering as explained by water and distribution engineers of MORUWASA as a problem in enhancing water service. Of course in order to benefit from the advantages of metering, the meters must be operational. Customers with metered connections in Morogoro Municipality were 20,000 meters with this number only 17,890 meters were functioning while 2110 meters were not in order due to that were old, breakdown and others need replacement. But also with functioning meters, bureaucratic inefficiency in the bill collecting process means that a good number of customers do not pay their bills regularly.

Non-renewable water

Large number of obvious leaks of water means there is still substantial scope for improvements (McIntosh, 2003). Among the factors that hindered effective water provision as explained by water engineer and operation officer was a problem of losses and leakages as well as inefficiency and wastage of water bills from both leakages and illegal connections. There has been a loss of 29500m3 per day equal to 46% of distributed water is being lost each day in Morogoro Municipality. In addition, financial costs to the water utility, high levels of unaccounted water are also major reasons for intermittency in the supply of water since leaks and illegal connections lower water pressure in the distribution system.

4.6.1 Other Related Factors

Poverty

Basing on the category of employment and education level, most of the inhabitants in

the study area are not earning much money to suffice their daily needs including water provision. With the exception of water from local wells, streams and swamps all other sources do not provide free water. The price of water in the study area differed from 200 to 500 Tsh per 20 litres and during dry season is 1000 per 20 litres.

High income earners in surveyed areas have the capacity to drill water wells, connect to MORUWASA water or buy large storage facilities. Compared to low income earners they suffer less. Despite the fact that the national water policy 2002 had planned to put appropriate social equity considerations so that a basic level of water supply and sanitation is provided to the poor at affordable costs, problems among low income earners still exist.

Population increase and urbanisation

Finding from some of the areas it was revealed that these areas were previously not settled. In the past five years they lacked some basic social services such as transport facilities, electricity and water. Population increase has led to the development of an intermediate transport form. This transport form consists of registered mini buses and motor cycles. It assists in moving people to the main roads.

The study area is greatly unplanned settlements. In such settlements social services especially water service is carried out poorly. Households have many members, 74% of the surveyed households had 4-9 family members. Given that there is ineffective water supply and management, this increases problems of water availability. The findings showed that half of families (26%) with households members less than 3 were satisfied with water that was provided.

Cutting of water pipes

Observation in the study wards revealed that some individuals cut water pipes from either MORUWASA or other water tanks so as to get water. This is normally done along the river valleys and along roads. When people cut pipes, they disconnected the flow of water to individuals who are legally connected. This is bad practice causes a lot of water leakages, a lot of conflicts arise among the inhabitants of the area. To avoid the cutting of pipes individuals connected to water from MORUWASA or other water tanks keep on monitoring the security of their pipes.

The cutting of MORUWASA pipes is also caused by the temporary construction activities taking place in the area. The rehabilitation of main road and feeder roads is among the causes of water leakages. Broken pipes are not repaired in time hence several households are deprived of water for a long period.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Water service provision is a critical matter in all aspects and levels that is globally and locally. Through this report a solution has been shown on how to overcome this problem. A clear chance to solve the problem through this report is been given to households that are the consumers of water utility and MORUWASA as an organ responsible for water provision. This chapter presents a summary of the findings, conclusion and also recommendation of the study.

5.2 Summary of the Study

The study findings is directed to water sector in Tanzania specifically Morogoro Urban. Researcher has developed this report due to number of researchers have developed interest in investigating the problem at a global and country level in general without focusing on regional wise in order for improvements to be done at the grassroots level which is regions and municipal. Being able to solve and improve water services availability will enhance socio-economic development in the municipalities and our country in general.

Through reading some of journals, reports and books a researchers gap of knowledge has developed in this study. The study was guided by the main research objective of assessing water service delivery at Morogoro. This objective helped gain insight on gathering views on water service availability at household level, factors that hinder effective water provision and to suggest future plans on effective water service.

Data collection was done through interviews and questionnaire and observation method. The research specific objectives were analysed by descriptive and factor analysis method.

5.3 Summary of the Study Findings

The study found that, majority of the respondents (51.2%) was satisfied with water supply. Also, the study found that 133 households where connected with tap water which is equivalent to 66.5% while 67 households that are 33.5% are not connected with tap water. Moreover, the study found that, there are different techniques used to

provide social services. Various actors were involved in delivery of water service this includes state actors and non-state actors. State actors are government agency which has the autonomy in supply of water which was MORUWASA while non-state actors include water vendors and bore wells. Furthermore, the study found that, majority of the respondents (64.8%) identified social service improve social living standard. The study found that, significant number of the respondents (47.2%) suggested that, poor infrastructure is a major challenges facing delivery of social service.

With regard to specific objective two finding from the study shows that the Government of Tanzania in accordance to water work Acts has formally established Urban Water and Sewarage Authorities (UWSSA's) in all the regions as a mechanism to ensure proper delivery of water to the citizens, although they are also non state actors who were informally established and are working illegally on delivery of water service due to scarcity of water in some of the areas, hence bore wells and water vendors were used as private business to sale water to citizens.

Specific objective three which aimed to assess the impact of water service, it was contributed by MORUWASA and questionnaire from Household were as MORUWASA has taken positive impact on ensuring delivery of water to citizens by expanding Mindu Area Reservoir as main source of water used by Morogoro and increase of water pipes at Kihonda and Kingolwira. Initiatives were done to ensure water service availability but still water service delivery remains to be a problem as out of 95 households who answered this question explained that water service delivery has negative impact of their lives as they walk long distance and use time in search of water as shown from the results that, 40% of children and female are the one responsible in fetching water these are the one who are most affected by water shortage, 6% are male and 1% is male and children.

5.4 Conclusion

The study concludes that, most of the households are satisfied with water services despite of the availability of service problems. There are various challenges hinder water supply, among factors that have hindered water provision include poor and old infrastructures, climate change, and destruction of environment, financial problem and non-renewable water sources. Improving the water situations positively affects

the development of a country. According to the United Nations Development Report, every one dollar invested in water returns an average eight dollars in increased productivity; and to further illustrate this correlation, reports showed that the absence of safe water costs sub-Saharan Africa approximately 5% of its Gross Domestic Product (Water Aid, 2011).

Local communities in the urban have to walk long distance up to 2kms in search of water, because they receive water twice per week thus wasting much of their time in this activity. This affects the functioning of other economic activities. The most vulnerable group is women, young boys and girls who are water fetchers. To meet the Millennium Development Goal (MDG) of halving the proportion of people without sustainable access to safe water and sanitation, governments have to work hard so as to reduce the time spent by women and young girls in fetching of water. Some households have to buy many storage facilities for storing water for uses during water deprivation days. This mechanism becomes more useful to rich households for they can afford to buy modern facilities with large storage capacities compared to low quality storage facilities the poor. Local capacities to harvest rain water have to be improved for betterment of low income earning societies.

Having no alternatives, some households decide to use as little water as possible so as to meet future needs. In most cases some uses are skipped at the expenses of others. In most cases the washing of clothes and other sanitary uses have to wait until when water flows in great amount. This mechanism has effect on the sanitary situation of the municipality and hygiene of the residents. To counteract drinking and cooking water problems some families use water from borehole wells. This situation endangers their health since the quality of water from wells does not meet drinking and cooking purposes, some is polluted.

Data from the field reveal that the major causes of water shortage in the municipality are among others, environmental and climatic problems, financial and economic problems, population increase, poor and old infrastructures, lack of proper water governance and lack of local community participation in planning. There is a need to have responsible and proactive and pro-poor leaders in order to reduce water problem.

The government needs to combat these water problems by subsidizing water and make water affordable for the poor. Finally, it should increase the overall supply of available safe water through further development of rainfall harvesting, deep wells, and boreholes to tap underground water. Such efforts by the government, with effective collaboration from customary institutions and fulfillment of millennium development goals, will move Tanzania and its regions closer to meeting its obligation to progressively realize its people's right to water.

5.5 Recommendations

Report has analysed most of the issues on water service availability at Morogoro the Researcher came with much convincing solutions that can improve water status and how we to overcome the problem of water scarcity within the urban areas if this can be fully implement

There is a need for the government and MORUWASA to

Improving water supply management requires reforms in governance and changes to utility structure. Restructuring should involve changes in both organisational and operational aspects of utilities, including ownership, operational management procedures, decentralisation or regionalisation, allocation of decision making responsibility, involvement of stakeholders, regulation and accountability. Communities should participate in the planning, implementation and operation of water projects. Community interests should be reflected in the municipal plans. Involving members of the beneficiary community in decision related to the design, construction and operation of a water supply system increase acceptance of the system in the community. Effective engagement of local government in water supply projects is needed for sustainability. For sustainable, community water supply projects, different departments have to work together. There should be coordination between different departments, for instance between water, health, education and community development.

As revealed by the findings from the study wards, rainfall harvesting plays an important role in household water supply. Improvements in rain water harvesting techniques are of great importance to let this source more reliable. Local communities have to be trained on the importance of rain water harvesting. There is a need for households to have large volume storage facilities to mitigate water

shortages. Water from bore wells and vendors are the main alternative source, there is a need to effectively manage these sources. Water from these sources should be used when treated. The local government and Non-Governmental Organisations should put in place mechanisms to treat this water before it is used by the community.

Water problems are exacerbated by leakages from pipe-cutting and problems of water pressure and quality. It is obvious that residents decide to cut water pipes so as to get this vital and necessary resource. There is also negligence of the citizens and lack of legitimate ways of accessing water result in pipes being cut. Pipe cutting is a result of the fact that most of the pipes are found on the surface. Facilitating access to pipe water, deepening pipes and education to residents on the importance of pipe water can reduce the problem. Furthermore, frequent monitoring of the pipes by MORUWASA and the individuals connected to pipe water can also reduce the problem.

Ground water is an increasingly a major source of water supply for the area. The sustainability of this resource is threatened by environmental problems. These problems demand collective efforts to resolve. There is a need to address the issues of ground water pollution. There is a need to establish an information system for ground water pollution monitoring and develop a rapid assessment model to guide protection strategies. An inventory of ground water pollution sources is of great importance. The extent of aquifer pollution should be determined for better management.

Uncertainties in future climatic conditions cause large uncertainties in future hydrological conditions and water availability. It is difficult for water supply planners and managers to accommodate such large range of uncertainties. To overcome this number of strategies could be considered. The first strategy is for scientist to improve climatic models and reduce magnitude of climatic uncertainty. The second strategy is for water supply managers to evaluate the capacities of existing facilities to provide adequate water supplies during severe droughts. The third strategy would be to evaluate the capabilities of existing facilities to provide adequate water supplies during even more severe droughts that could occur in the future in association with global warming.

Water supply in the study wards is problematic. To address this, smarter water systems are needed. It is important to improve the infrastructure that recovers and recycles water, thereby reverse the rivers of waste water in the municipal, and better utilize what is currently disposed , in massive quantities. The old water infrastructure should be repaired to meet the current population water needs. Creating new technologies and coordinating the inputs and outputs of different water supply projects would rather reduce the problem.

Women Involvement, previous water supply and sanitation programmes including the formulation of regional water master plans did little to promote women involvement in sector activities. Woman should be encouraged and educated in order to participate in decision making, planning, implementation, operation and maintenance, monitoring and evaluation of sector programmes and projects as they are the ones responsible in search of water for household.

5.6 Areas for Further Studies

Future studies on the level of social service delivery should different social service delivery initiations. Also, impending studies should involve the large sample. This will increase the validity of the research findings.

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APPENDICES

Appendix I: Questionnaire

QUESTIONNAIRE FOR A RESEARCH STUDY ON ASSESMENT OF WATER SERVICE DELIVERY AT MOROGORO MUNICIPALITY.

Dear respondent,

Provided below is a set of questions that requires your response. The collected information will be used for academic purpose for **Praise Maro** and not otherwise. Confidentiality is vital in respect to the information written in this questionnaire.

SECTION A

1. Name of interviewer
   (Opt)…….Cell……
2. Date of interview

DD		MM		YYYY			

3. Ward…….
4. Village……..
5. Sub village……
6. Household size……..
7. Number of dependants……
8. Gender of the head of household: Male [ ] Female [ ]
9. Age of the head of household (years)……
10. Level of education of head of household:
    Primary education [ ] Secondary education [ ] Diploma [ ]
    Certificate [ ] Degree holder [ ] none [ ]
11. Marital status of the head of household

Married [ ] Single [ ] Widowed [ ]

12. Employment

Employee [ ] Self employed [ ] Unpaid family employment [ ]

PART B:

Household Views on water services availability at home stead.

13. Is your household connected with tap water? i. Yes ii. No

14. Do you have access to clean and safe water? i. Yes ii. No

14 If yes in 12 above, what is the flow of water

i. Every day for 24 hours

ii. Every day for some few hours

iii. Few days in the week

iv. Once in a month

v. Not predictable

16. Do you experience water interruption

i) Yes

ii) No [ ]

17. How many times do you have water interruption in a month?

i) once ii) twice iii) thrice iv) 4 times a month v) more than four times a month

18. What are the main causes of water interruption?

.....

19. How soon are the water interruptions solved by service providers? i) 1-3days ii)3-7days iii)8-30 days iv) over 30days

20 If yes in 12 above, do you pay water bills on time every month?

i. Yes

ii. No

21. If yes in 12 above, do you think the amount you are paying is affordable to your household?

i. Strong agree ii. Agree iii. Disagree iv. Strongly disagree

17 If yes in 12 above, how do you judge the value for money for service given by MORUWASA?

i. Strongly agree ii. Agree iii .disagree iv. Strongly disagree

22. If no in 12 above, where do you get water for household use?

i. From my neighborhood
ii. Buy from street vendors
iii. Nearby springs
iv. Own deep well
v. Rainfall harvesting
vi. Other (specify) …….

23. In the source mentioned in 17 above ,what is the distance from home to water collection area and time taken.

i. ……(km)
ii. ……(mins)

24. Who is responsible for water collection at home?

i. Male ii. Female iii. Children iv. Female and children v. Male and Children

25. what are the effects you get out of shortage of water

……
……
……
…….....…

THANK YOU FOR YOUR COOPERATION

Appendix II: Checklist for MORUWASA

1. What is the demand of water for the whole municipal?
2. Demand and distribution of the wards in the municipal
3. What is the capacity of the authority in water delivery?
4. Participation of citizens in enhancing proper provision of water?
5. What are the factors that hinder attaining the whole need population water provision at the municipal level?
6. What should be done to improve the existing situation?

Appendix III: Responsibility of Managing Water

Institution	Responsibility
Minister responsible for Water	• Prepares and implement national sector policies and strategies • Ensures policies and strategies are implemented. • Co-ordinates planning for projects of national importance. • Secures finance for projects of national importance. • Monitors performance and regulates Community Owned Organisations • Provides technical guidance to Councils.
Service Providers	• Provide water supply and sanitation services in accordance with contractual requirements. Collect revenues for services
Community Owned Water Supply Organisations	• Own and manage water supply assets. • Operate and maintain water supply assets. • Determine consumer tariffs. • Collect revenue for the provision of services. • Contract and manage Service Providers.
Energy and Water Utilities Regulatory	• Approves business plans and tariffs and issues operating licenses
Authority.	• Monitors water quality and performance. • Collects and publishes comparative performance data (bench marking) • Publishes technical guidelines and standards
president's Office Regional Administration and Local Government	• Co-ordinates planning of projects from local government authorities. • Co-ordinates local government authority budgets. • Co-ordinates capacity building for

	local government authorities.
Municipal and District Councils	• Representation on Boards. • Co-ordinate budgets within Council Budgets. • Disburse block grant funds. • Co-ordinate physical planning • Delegated performance monitoring and regulation.

Source: NAWAPO, 2002, Water ACT 2009

Appendix IV: Indicators and Description of Variables

INDICATOR	DESCRIPTION
Providers	Percentage (%) of actors involved in delivery of water services
Regulators	Magnitude of MORUWASA involved in regulating water services
Clients	Percentage(%) of water service beneficiaries connected to water services
Quality	Percentage(%) of water units consumed
Quantity	Percentage(%) of safe water consumed
Equity	Percentage(%) of clients deserving rights for water services.