

**ASSESSMENT OF NATIONAL WATER POLICY (2002)
IMPLEMENTATION IN ACCESSING DOMESTIC WATER
SUPPLY: A CASE OF MUFINDI DISTRICT, TANZANIA**

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IMPLEMENTATION IN ACCESSING DOMESTIC WATER
SUPPLY: A CASE OF MUFINDI DISTRICT, TANZANIA**

**By
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**A Dissertation Submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Development Policy (MSc. DP) of Mzumbe
University
2015.**

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation titled Assessment of Tanzania National Water Policy (2002) Implementation in Accessing Domestic Water Supply in Mufindi District, in partial fulfillment of the requirements for Degree of Masters of Science in Development Policy.

Major Supervisor

Internal Examiner

Signature

Acceptance for the board of Institute of Development Studies

DECLARATION AND COPYRIGHT

I, Nounou M. Mcheka, declare that this thesis is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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May the good Lord bless you all!

Nounou Mohamed Mcheka

DEDICATION

To my sons John and Is-haq and my lovely husband Julius, who endured times of loneliness during the tiring moments of preparation of this dissertation.

LIST OF ABBREVIATIONS

CDC	-	Centers for Disease Control
DED	-	District Executive Director
EPA	-	Environmental Protection Agency
EWURA	-	Energy and Water Utilities Regulatory Authorities
HBS	-	Households Budget Survey
LGAs	-	Local Government Authorities
MDG	-	Millennium Development Goals
MoW	-	Ministry of Water
MoWI	-	Ministry of Water and Irrigation
MSc-DP	-	Master of Science – Development Policy
MUWASU	-	Mufindi Water Supply
NAWAPO	-	National Water Policy
NPM	-	New Public Management
NSGRP	-	National Strategy for Growth and Reduction of Poverty
PMO	-	Prime Minister’s Office
RWSN	-	Rural Water Supply
SIDA	-	Swedish international Development Agency
SSA	-	Sub-Saharan Africa
TASAF	-	Tanzania Social Action Fund
UN	-	United Nations
URT	-	United Republic of Tanzania
USGS	-	United State Geological Survey
VEO	-	Village Executive Officer
VWF	-	Village Water Fund
WEO	-	Ward Executive Officer
WHO	-	World Health Organization
WUA	-	Water User Association

ABSTRACT

This study examined on how National Water Policy of 2002 was implemented in accessing Domestic Water use in Rural Part of Mufindi District especially in Rungemba Ward. The study objective was to assess the implementation of Tanzania National Water Policy, 2002 in the accessibility of clean and safe water for domestic use in rural community of Mufindi District. Study comes out with several specific objectives first, to explore how water sources are being protected in rural community. Second, to examine the status of domestic water supply and thirdly, to identify challenges facing community in accessing clean and safe water for domestic use.

This Study adopted cross-sectional descriptive research design. Data were collected checked for relevance and edited to remove some errors. The collected data was coded for analysis. On entering the collected data from questionnaire survey into computer, Statistical Package for Social sciences (SPSS) was used. This was done by numbering them so as to match with SPSS statistical package for the analysis procedure. After conducting research data presented in the form of tables, charts and graphs as the way to keep them clear and understandable to anyone who came across the document and read it.

Results showed that, community were involved in water source protection, as in study area there were village water committees, bye-laws, village water funds, also results showed that many villagers access water more than 400metres differently from what Policy recommend, and majority used stream water rather than other water sources. Moreover results showed community faced several challenges in water source protection like majority they don't want to pay for services, limited community involvement in water source protection, theft of metal iron parts and lack of maintenance of hand pumps and tapes.

It is concluded that, people should be aware on all issues concerning water source protection so that they can be able to take all precautions measures relating to water source protection

The study recommended that, water tapes and pumps should be maintained, so that the households can get water throughout the year. Also the government should support community on the improvement of water sources by providing training on issues related to water sources management in order to enhance water supply sustainability.

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CHAPTER ONE

1.0 INTRODUCTION TO THE STUDY

1.1 Introduction

This chapter focuses on six areas which are introduction, background of the study, statement of the problem, objectives of the study which includes general and specific objectives, research questions and significance of the study.

1.2 Background information

Water is fundamental for life and health. It is a natural resource upon which all life depends. Access to safe water and sanitation are crucial for human survival and are essential considerations when addressing socioeconomic development, poverty, and health problems. Evolution of the Tanzanian National Water Policy dates back to 1971 when the Government of Tanzania declared a 20-year water supply program (1971-1991) whereby it was envisaged that all inhabitants would have access to safe and reliable water sources by 1991. Ten years later it was clear that the target was far from being achieved. Among the key reasons for poor coverage were the top down approach from the Central Government and inappropriate technologies that were beyond the capability of the communities to operate and maintain, and which the government could not sustain.

According to the United Nation (UN) Committee on Economic, Social, and Cultural Rights, an individual's right to water includes sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic issues. Fulfillment of the right to water requires water that is available, of sufficient quality, and accessible. Water availability is described as having enough water for personal and domestic issues, including food preparation, sanitation, and washing clothes. Water quality is defined as being free from substances, including microorganisms, chemicals, and other hazards that threaten a person's health. Finally, water accessibility is defined as physical and economic access to water.

Thus, a person should have enough water for personal and domestic issues (water availability) and this water should be safe (water quality), regardless of cost (water accessibility). For many in Tanzania, there are threats to all three elements of an individual's right to water: a decrease in water availability, a lack of access to water particularly in rural areas, and potential threats to water quality.

In 1991 the government approved the first National Water Policy with community participation through village water committees, establishment of village water funds and adoption of technologies that are both affordable and easy to operate and maintain, as key features. The Government retained the role of investor and would be partly responsible for operation and maintenance cost. With the advancement of time it became apparent that the government could not continue meeting operation and maintenance costs and communities were encouraged to manage the schemes and establish their own water entities.

The 2002 National Water Policy was developed with the role of the central government as a sole investors, implementers and manager of the projects in rural and urban area and lack of importance ascribed to environment protection and water management (URT, 2002). According to the policy water resources planning should be carried out on river basin basis following an integrated multi-sectoral approach. It is also calls for full participation of beneficiary communities in planning, implementation and management of water supply facilities and water sources protection.

The National Strategy for Growth and Poverty Reduction (MKUKUTA) called for improving Tanzania water supply to 65% coverage by 2010. Water supply is identified as one of the seven priority poverty reduction strategies. The MDG target translates into a target of 74% water supply coverage by the 2015 deadline. It is estimated that, more than half of Tanzanian population have access to an improved water source. This is different compared to urban areas whereby (about 79% in 2010)

had access to domestic water, whereby (about 44% in 2010) had access to domestic water.

In rural areas, access is defined as meaning that each household have to travel less than one kilometer to a protected drinking water source in the dry season.

Making clean and potable water accessible to people has been one of the daunting challenges. Very modest success was achieved under MKUKUTA I with access to water increasing from 53.7 % in 2005 to 60.1% in 2010 in rural areas and from 74% in 2005 to 84% in 2010 in urban areas .According to data from the Household Budget Surveys (HBS) 2000/2001 and 2007 access to an improved water source in mainland Tanzania even decreased from 55% in 2000 to 52% in 2007. Using a narrow definition, in 2007 around 34% of households had access to piped water, as opposed to 40% in 2000. However, using a broader definition of access that also includes standpipes and protected springs, there has been a slight increase in the proportion of households accessing a drinking water source within one kilometer. Estimates from the Joint Monitoring Programme for Water Supply and Sanitation (JMP) show a different trend. They show a slight decline in access from 55% in 1990 to 53% in 2010.

The National Water Policy of 2002 aims at ensuring that beneficiaries participate fully in all stages of water resource development. The Policy recognizes the fundamental but intricate linkages between water and socio-economic development, including environmental requirements. Water and sanitation policies in Tanzania are developed in line with Development Vision 2025 and the National Strategy for Growth and Reduction of Poverty-II. It emphasized on universal access to safe water as one of the objectives of Vision 2025 that urban residents must access water within 200 meters and rural residents within 400 meters, but still the problem of poor accessibility of water to rural and urban residents is increasing which causes having water borne diseases, also women and children uses much time on water fetching rather than doing other development activities and going to schools for children. In this respect of above background, this study was set out to assess Water Policy of

2002, implementation in accessing domestic water in rural part of Mufindi especially in Rungemba ward.

In Tanzania despite the efforts made by government in solving water problem still the access to water and sanitation remain low. It is estimated in rural areas, only about 44% of people in 2010 had access of water (MoW, 2011). In rural areas, water supply and sanitation are provided by Community Owned Water Supply Organization (COWSOs). They have been established through local government framework of village councils following the adoption of water sector development strategy. This effort has yet to bear fruits anticipated. Many villages in the country still face shortage of clean drinking water. Mothers in rural areas with babies in their back still walk long distances in search of water to use in their daily activities like cooking, washing and drinking. In the new National Water Policy (NAWAPO) of 2002 rural water supply service delivery aims at improving health and alleviating poverty of the rural population through improved access to adequate and safe water. This policy has several specific objectives. This study looked on how NAWAPO provides adequate, safe, affordable and sustainable water supply services to the rural population.

1.3 Statement of the problem

About 80% of Tanzania's population estimated lives in rural areas with poor access to reliable water supply. Despite significant investment in the Rural Water Supply (RWS) since the early 1970s, presently only about 50% of the rural population has access to a reliable water supply service. However, due to poor operation and maintenance of hand pumps, over 30% of the rural water supply schemes are not functioning properly (URT, 2008).

Water availability in Mufindi District in general is about 70% and in Rungemba Ward is about 50%. Most of the people in Rungemba Ward depend on water from nearby sources which mostly are stream, shallow wells and hand pumps. Most of hand pumps are right off, due to lack of maintenance. In this situation most of time

villagers are used to fetch water in unprotected sources, which are not safe for domestic consumption. The outcomes of using water from unsafe sources generally lead to health problems, which have economic impacts to the household, especially the rural and urban poor communities (SIDA, 2004). There is high rate of water availability in the Mufindi District but accessibility in Rungemba Ward is still low compared to its availability.

Several studies have been conducted including water supply sustainability in Mozambique, improved water sources and satisfaction of water provision services in Ethiopia and the demand for water in rural areas: determinants and policy implications (Jansz, 2011; Abebaw *et al.*, 2011; World Bank, 1993). Apart from the studies conducted still there is limited evidence of studies on the link between water policy implementation and access to domestic water supply particularly in the study area. This study assessed the implementation of Tanzania water policy of 2002 in the accessibility of clean and safe water for domestic use in rural community of Mufindi District.

1.4 Objectives of the Study

1.4.1 Main Objective

The main objective of this study was to assess the implementation of Tanzania water policy of 2002 in the accessibility of clean and safe water for domestic use in rural community of Mufindi District.

1.4.2 Specific objectives

Specifically the objectives were to:

- i. Explore water sources protection in the study area.
- ii. Examine the status of accessibility to domestic water supply service
- iii. Identify challenges facing community in accessing water supply service for domestic use.

1.5 Research Questions

1. How is water sources protected in the study area?
2. What is the status of domestic water in study area?
3. What are the challenges facing community in accessing water supply service for domestic use?

1.6 Significance of the study

The significance of this study lies in the facts that it addresses domestic water accessibility problem in rural party of Mufindi especially in Rungemba Ward. This study will enable water sector and partners to contribute in creating demand and supply side accountability in sector governance. Apart from that, this study will stimulate research in new research areas that are likely to provide useful data to inform policy makers, planning decision and advocacy effort at local and other levels of policy implementation. Hence, the findings of this study serve as reference for those working in the planning and design works of rural water supply.

1.7 Scope of the Study

This study pays focus on the assessment of NAWAPO in accessing safe domestic water to the rural part of Mufindi District. Emphasis was on examining the current situation of the water availability, accessibility, use and challenges facing community in accessing clean and safe water for domestic use.

1.8 Limitation of the Study

In the process of conducting research, there were some problems encountered that hampered the researcher from conducting the research particularly during data collection, data entry and data analysis: First, it was difficult to find some respondents. This was due to fact that some respondent were living far from the central of village (*Mahameni*) and it is difficult to reach there and find them around. So this took researcher to made extra efforts in finding the respondents and even made appointment twice by phone calling and physical follow up to ensure their accessibility.

Second, inadequate fund: this was a very big challenges faced by researcher in all process of data collection up to data analysis. There were no funds allocated for doing this study, so this made the researcher to use own funds for food, accommodation and even transport to and from the site.

Third, alcoholic addicted respondents: this was a very big challenge faced by researcher when it was realized that some of respondents were drinking too much and they did not responded properly to question posed. The research had to come back on the next day morning when they were sober and were able to provide appropriate answers to the questions. Fourth, there was a limitation on the aspect of time. Most of the respondents were too busy to take part in the interviews, as they were directly involved in the bringing of household income. However, the researcher managed to overcome this weakness by scheduling the interview date on the days when many household members were a bit free, that was days like Sundays so that the people would participate.

1.8 Organization of the Study

The study was organized in the way that in the first chapter deals with background information of the problem, statement of the problem, the study objectives , study questions, significance of the study, scope of the study, limitation of the study and organization of the study. Chapter two provides literature review of related studies and conceptual framework. Chapter three is about methodology of the study, in this are included location of study area, research design, study population, sampling techniques and sample size, data collection method as well as data analysis techniques. Chapter four is about presentation of findings. Chapter five is about discussion of findings and chapter six is about summary of findings, conclusion, policy implication, recommendations and area for further study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review related to the study, it presents definition of key term, concepts of policy, water policy, policy implementation, and the accessibility of domestic water supply, categories of domestic water supply as well as factor affecting domestic water supply, instruments for Policy Implementation, determinants of domestic water supply, theories of water implementation, empirical literature review and conceptual frame work that guided this study.

2.2 Theoretical Literature Review

2.2.1 Conceptualization of key terms

2.2.1.1 Policy

It is conceptualized according to the different contexts and uses. According to Warioba (2003), Policy is simply defined as a guide for action with specific objective. Sometimes it is described as a statement of intention. The term policy is used by the government agencies, private sectors and other organizations to describe a range of different activities comprising objectives, setting priorities, describing a plan and specifying decision rules. Policies show directions on the intention of the organization on what the organization intends to achieve. It enables the organization to communicate its goals and objectives clearly to the implementers, community members, and other stakeholders (SAPRU, 2002). Policy denotes, among other things, guidance for action. It may take the form of a declaration of goals and objectives, a declaration of courses of action and a declaration on societal values.

2.2.1.2 Water policy

Water policy refers to those deliberate and conscious-actions intended to govern the administration, management and procedures aimed at the implementation and proper use of water as a natural resource. This involves integration of water planning

processes by which water rights, water diversions and In this study implementation means, policy is take action to make people to get domestic water services as it is stated in NAWAPO, 2002. National Water Policy involves a holistic approach projected to conserve, utilize and protect all the national water bodies and aquatic ecosystem for national benefit (Bonnie & Kathrine, 2007).

2.2.1.3 Implementation

Implementation is defined as “those actions by public and private individuals (or group) that are directed at the achievement of the objectives set forth in prior policy decision” (Van Meter and Van Horn, 1975). Therefore the implementation is the process of achieving the goals that are stated in a policy.

2.2.1.4 Policy implementation

According to Ottoson and Green (1987) policy implementation is an iterative process in which ideas, expressed as policy, are transformed into behavior, expressed as social action. The social action transformed from the policy is typically aimed at social betterment and most frequently manifests as programs, procedures, regulations, or practices. Generally, policy implementation can be considered the process of carrying out a government decision (Berman, 1978). Howlett and Ramesh, (2003) define policy implementation as a “stage whereby programs of policies are carried out, as well as involves translation of plans into practice” In their book, they identified two types of implementation process, which are top- down and bottom- up approaches.

In defining policy implementation, it is useful to make the conceptual distinction between the policy implementation process and policy outcomes, even though these are interactive in practice (O’Toole, 2000). The process involves action on the behalf of the policy, whereas policy outcomes refer to the ultimate effect on the policy problem. Ottoson and Green (1987) suggest that “implementation is an iterative process in which ideas, expressed as policy, are transformed into behavior, expressed as social action” .The social action transformed from the policy is typically aimed at social betterment and most frequently manifests as programs, procedures, regulations

or practices. In this study implementation means, policy is taken into action to make people to get domestic water services as it is stated in NAWAPO of 2002.

According to United State Geological Survey Water Science School defined, domestic water use as water used for indoor and outdoor household purposes, all the things you do at home: drinking, preparing food, bathing, washing clothes and dishes, brushing your teeth, watering the garden, and even washing our animals. Water generally gets to our homes in one of two ways. This implies that the requirements with regard to the adequacy of water apply across all these uses and not solely in relation to consumption of water. Either it is delivered by a city/county water department (or maybe from a private company), or people supply their own water, normally from a well.

Water delivered to homes is called "public-supplied deliveries" and water that people supply themselves is called "self supplied", and is almost always from ground.

2.2.1.5 Accessibility of domestic water

Accessibility can best be understood as being accomplished when social, political, economic and physical barriers which prevent people from accessing social, economic, cultural and political opportunities have been removed. In the context of this study, accessibility refers to a variety of practical and concrete measures which assist community to access water in the study areas (Spacrb, 2009). The practical measures are like making sure the study population has improved water sources, allocating water points within 400m, having technicians for regular service and repair as well as establishing bye-laws. In this study accessibility means the availability of domestic water supply within households at least 20 liters per person per day from an "improved" source within 400-1000 meters of the user's dwelling.

According to centers for disease control (CDC), access to safe drinking water is measured by the percentage of the population having access to and using improved drinking water sources. 12 of the 15 most water scarce countries are located in the Middle, East and North Africa. The last 'Population and Housing Census' carried out

in mainland Tanzania (excluding Zanzibar) in 2002 reported that 42% of rural households and 85% of urban households have access to improved water supply. Moreover, according to the revised NAWAPO (URT, 2002), at least 30% of all water schemes are not functioning properly. In this study, access to domestic water has been a significant factor in rural development. If water is available and accessed within 400m, this means individuals can increase production as they cannot waste time on fetching water. This study prefers piped and hand pumps as the best water sources to be used in rural area

2.2.2 National Water Policy of 2002

The main objective of NAWAPO 2002 is to develop a comprehensive framework for sustainable development and management of the Nation's water resources, in which valuable legal and institutional framework for its implementation will be put in place. The policy aims at ensuring that beneficiaries participate fully in planning, construction, operation, maintenance and management of community based domestic water supply schemes. This policy seeks to address cross-sectoral interests in water, watershed management and integrated and participatory approaches for water resources planning, development and management. Also, the policy lays a foundation for sustainable development and management of water resources in the changing roles of the Government from service provider to that of coordination, policy and guidelines formulation, and regulation (URT, 2002).

2.2.2.1 Instruments for Policy Implementation

In implementing Tanzania National Water Policy 2002, the following instruments must be in cooperated. According to water policy these instruments are first, Technical instruments: These are technical measures, which are used to control water uses including gating of abstractions, flow metering, and application of cleaner production technology. Second, Economic instruments: Economic instruments include water pricing, charges, penalties and incentives to be used to stimulate marketing mechanism, and serve as an incentive to conserve water, and reduce pollution of water sources. This instrument will also facilitate water allocations.

Third, Administrative instruments: Administrative instruments include information management systems and monitoring, information products, water resources plans including water source protection plans, water resources models and decision support systems, various water resources guidelines. Fourth, Legal instruments: Legal instruments include restrictions and all prohibitions imposed by the regulatory body and the Government. These are individual licenses for abstractions and their revisions guidelines, discharge permits, codes of conduct guidelines, standards, Environment Impact Assessments, and agreements, treaties and protocols for trans-boundary water resources.

Fifth, Regulatory instruments: Regulatory instruments include appropriate management structures and procedures. These procedures and criteria to be adopted include applications for and granting of permits, a clearly defined water right system, appropriate standards and guidelines that control water abstractions from water bodies, controls on specific technologies aimed at reducing water use or waste loads, control of discharge of waste products into water sources (in terms of quantity, quality, timing and location of discharges), and standards for water provided for specific uses or for goods or materials which are potentially polluting. Sixth, Participatory Instruments: These include sensitization, community education, consultations and discussions.

2.2.3.1 Categories of domestic water supply

White *et al.* (1972) grouped domestic water to three categories in relation to normal domestic supply. First, consumption, (drinking and cooking), Second, hygiene (including basic needs for personal and domestic cleanliness). Third, amenity use (for instance car washing, lawn watering). In updating the drawers of water study, Thompson *et al.* (2001) suggest a fourth category can be included of 'productive use' which is of particular relevance to poor households in developing countries. Productive use of water includes uses such as brewing, animal watering, construction and small-scale horticulture.

2.2.4 Domestic rural water supply

One of the critical components of the Millennium Development Goals (MDGs) is increasing access to domestic water supply coupled with improved water resource management and development in rural areas (Lenton, *et al.*, 2008). According to WHO domestic water is water used for all domestic purposes which include drinking, cooking and bathing. Therefore when measuring adequacy of water in the household all such uses should be considered (WHO, 2003). To ensure that rural households are water secure, it is necessary to evaluate the number, geographic location, yield, dependability, season and quality of the water sources (Kahinda, *et al.*, 2007). Besides, equipping people in rural communities with appropriate technologies and skills to enable them harvest rain water and excavate underground water together with effective management of these sources can provide sustainable solutions to the problems associated with the scarcity of domestic water supply in rural households (Malley, *et al.*, 2008,) Improved water supply services in rural areas can in turn give women more time for productive endeavors, adult education, empowerment activities and leisure (Panda, 2007).

Therefore, investment in community based organizations for water management can improve social capital for women through leadership, networking opportunities and solidarity building which can enhance their empowerment in society (Lenton, *et al.*, 2008).

2.2.5 The state of Water Globally

When a National Water Policy is implemented, several benefits will automatically accrue from its full adoption. Increased water supply will be realized with improved availability, quality of fresh water and the reliability for domestic, agricultural, municipal, industrial, security, energy and environmental needs. With a national water policy in place, adverse effects like floods and drought will drastically be reduced due to implementation of advanced technology in the conservation of water, and its sources to reduce effects of global warming and climatic changes (US Water Policy, 2011).

Water globally is in crisis state that is a general term used to describe a situation where the available water within a region is less than the region's demand. The term has been used to describe the availability of potable water in a variety of regions by the United Nations and other world organizations. Others, for example the Food and Agriculture Organization (FAO), said in 2003 that there is no water crisis but steps must be taken to avoid one in the future. The major aspects of the water crisis are allegedly overall scarcity of usable water and water pollution (UN, 2003). About 80% of the world's population lives in areas with threats to water security. The water security is a shared threat to human and nature and it is pandemic. Human water-management strategies can affect detrimentally to wildlife, such as migrating fish. Regions with intensive agriculture and dense population as the US and Europe have high threat to water security (UN, 2003).

While the world's population tripled in the 20th century, the use of renewable water resources has grown six-fold. Within the next fifty years, the world population will increase by another 40 to 50 %. This population growth - coupled with industrialization and urbanization will result in an increasing demand for water and will have serious consequences on the environment (World Water Council, 2009). Already there is more waste water generated and dispersed today than at any other time in the history of our planet. More than one out of six people lack access to safe drinking water, namely 1.1 billion people, and more than two out of six lack adequate sanitation, namely 2.6 billion people (WHO/UNICEF, 2002). 3900 children die every day from water borne diseases in poor conditions population (WHO, 2004). There are wide differences by region of water availability, accessibility and its uses as well. In Africa an estimated 88% of all freshwater use is for agriculture, 7% for domestic purposes, and 5% for industry.

In Asia water also is used mostly for agriculture, estimated at 86% of total use, while industry accounts for 8%, and domestic use, 6%. In Europe, however, most water use is for industry, at 54%, while agriculture accounts for 33%, and domestic use 13% (Singhn, 2005). As the water resource becoming scarce, tensions among

different users may intensify, both at the national and international level. Over 260 river basins are shared by two or more countries. In the absence of strong institutions and agreements, changes within a basin can lead to Trans boundary tensions. When major projects proceed without regional collaboration, they can become a point of conflicts, heightening regional instability. The Parana La Plata, the Aral Sea, the Jordan and the Danube may serve as examples. Due to the pressure on the Aral Sea, half of its superficies has disappeared, representing 2/3 of its volume. 36 000 km² of marine grounds are now recovered by salt (World Water Council, 2009).

2.2.6 Water Situation in Developing Countries

Water resource in developing countries is inextricably linked with climate, so the prospect of global climate change has serious implications for water resources and regional development (Riebsame *et al.*, 1995). Efforts to provide adequate water resources for Africa will confront several challenges, including population pressure, problems associated with land use, such as erosion/siltation; and possible ecological consequences of land-use change on the hydrological cycle.

Climate change-especially changes in climate variability through droughts and flooding-will make addressing these problems more complex. The greatest impact will continue to be felt by the poor, who have the most limited access to water resources. Availability of water in sub-Saharan Africa (SSA) is highly variable. Only the humid tropical zones in central and West Africa have abundant water (Sharma *et al.*, 1996), eight countries were suffering from water stress or scarcity in 1990, this situation is getting worse as a consequence of rapid population growth, and increased economic development. By 2000, about 300 million Africans risk living in a water-scarce environment. Moreover, by 2025, the number of countries experiencing water stress will rise to 18 affecting 600 million people (UNN, 2011).

Many countries will shift from water surplus to water scarcity as a result of population changes alone between 1990 and 2025, using a per capita water-scarcity limit of 1,000 m³ yr⁻¹. Long-term precipitation records from the Sahara give a clear indication of declining precipitation in that region (UNEP, 1997). These declines in

precipitation register as reduced hydrological discharges in major river basins in the sub humid zones. It is apparent that several countries will face water availability restrictions by the middle of the 21st century, if current consumption trends persist. The combination of demographic trends and climate change is likely to cause economically significant constraints in some parts of Africa.

2.2.7 Institutions Responsible for Water Issues in Tanzania.

There are several institutions of water services in Tanzania like, the Ministry of Health and Social Welfare, MoWI, the Ministry of Education and Vocational Training and Prime Minister's Office Regional Administration and Local Government. (PMO-RALG) signed a *Memorandum of Understanding* for the integrated implementation of sanitation and hygiene activities (URT, 2009). Commercial water service providers are regulated by the Energy and Water Utilities Regulatory Authority (EWURA) established in 2001 by the Energy and Water Utilities Regulatory Authority Act, Cap 414 (URT, 2012).

EWURA is responsible for licensing, tariff review and approval, performance monitoring and standards. It started operating in the water sector in 2006. Screening of possible environmental impacts on proposed project sites is carried out by the National Environment Management Council (NEMC) as part of the Environmental and Social Management Framework (URT, 2009). NEMC is responsible for setting standards and issuing permits for the discharge of effluents into the environment, including into water resources.

The Ministry of Water and Irrigation (MoWI) is the agency responsible for overall water supply for domestic purposes, policy setting, co-ordination, monitoring, evaluation and regulating community water supplies. The promotion of hygiene and sanitation is in the hands of the Ministry of Health and Social Welfare. Decentralization in the Tanzanian water and sanitation sector has transferred responsibilities for service provision to Local Government Authorities (LGAs).

LGAs comprise 132 municipal, district and town councils, they are responsible for the procurement, financing, management and monitoring of service providers in their administrative area. In this, they are advised by the Prime Minister's Office - Regional Administration and Local Government (PMO-RALG). It plays a key co-ordination role in planning and capacity building for local authorities. It is also responsible for allocating resources for service delivery. The Regional Secretariat provides technical support to LGAs and monitors their activity (URT, 2010). Ministries that plays an active role in water and sanitation sector are the Ministry of Finance and Economic Affairs (MoFEA) oversees intra-government funding and is responsible for the overall planning and budgeting, including the water and sanitation sector. The Ministry of Education and Vocational Training is responsible for hygiene education and the provision of sanitation in schools.

2.3 Empirical Literature Review

2.3.1 Water availability and accessibility

The study conducted in Kenya by Medina (2007) on availability and accessibility of water to Kisumu area reported that, the Government of Kenya must recognize the provision of clean and safe water as an integral part to economic growth. Based on this recognition the government is implementing fundamental reforms to address the challenges in water sector. The purpose of the reforms is to improve the management of water resources, improve access to water and sanitation services, enhance accountability for water resource management through decentralized provision of service and improve utilization of water resources. The study underscores the principle and recognition of the fact that the private sector offers invaluable potential, which has not been fully harnessed to contribute to sustainable development of the water sector. Also the study sets out the framework that is intended to bring about the culture that promotes comprehensive water resources management and development with the private sector and community participation as the prime movers in the process to guarantee sustainability of the water projects in Kenya.

2.3.2 Community participation in water supply and sanitation services

Another study was conducted by William, (2008) in Tanzania on assessment of community participation in water supply and sanitation services. This study linked participatory approach and sustainability of water services which was focused in rural areas. Two villages in Temeke district were used as a case study. The study examined the extent to which people participated in the initial project planning, capacity building, and strategies to achieve sustainability. The objective of the study was Firstly, to assess community participation and how beneficiaries of water and sanitation services in rural areas were involved in deciding on matters that affect water projects sustainability, how the approach helps in making the projects sustainable. After obtain findings he come out with several recommendations were given as follows: Sufficient information should be used in formulating policies and also in measuring progress towards the achievements of set targets and objectives. Not only that but also he insisted on transparency, as in his study he noted that there was no transparency on the expenditure of project funds which gave a sign of embezzlements. It is critical problem for many development projects, legal measures should be taken against project and grassroots local leaders who trick project funds.

Proper training and technical support at all levels and for all groups engaging in water project implementation and management should given priority. Water attendants should be given basic technical training which serves a purpose for minor repairs in case of system breakdowns. Not only that but also he insisted on mobilization from initial stage of project implementation so as to build interest in sustaining the initiated project services. Then he found cooperation among the key stakeholders is important especially among the LG leaders and WC, and between WC and the community, as well as technical experts at the municipal and institutional level.

2.3.3 Water supply and accessibility

Another study was conducted in Ethiopia on “Access to improved water source and satisfaction with services” The main objective of the study was to examine the sources of drinking water used by people in remote rural localities. Investigation on whether access to an improved water supply has increased users’ satisfaction with quality and availability was also another objective. After the study the findings were as follows, improved water sources increased users’ satisfaction with both quality and quantity of drinking water. However, household satisfaction with the availability is lower than satisfaction with quality. In this access to improved water sources is limited and surface water obtained from rivers, lakes and ponds is the major source of drinking water for about 58% of the households. Likewise, they show that demographic, socio-economic, and location characteristics have strong influence on household access to an improved source of drinking water in the study area.

Also in study conducted in Malawi on Water Supply and Accessibility done by Water Aid in 2006 found that, only 2 percent of Malawians have access to piped water inside their dwelling, and 70 percent of these households are located in the urban areas. The Lilongwe Water Board (LWB) and Blantyre Water Board (BWB) provide urban water supply service. Despite their basic corporate structure, the Water Boards in Lilongwe and Blantyre have not been able to cover operating costs through user fees, much less service loans or reinvest. The situation in the other Water Boards (WBs) is slightly better as they do cover operating costs. All WBs require capacity building, restructuring, investment planning and capital, increased customer focus, efficiency improvements, and support in reaching low income consumers. In terms of low-income service, the Lilongwe Water Board has experimented with a new model of kiosk management, which has potential to be replicated in other urban areas (Nawema, 2003).

Ghana as medium ranked country in terms of population with access to improved sanitation and safe water resource for urban residents. As at 2002, overall sanitation coverage was 58% with 79% for safe water (UN, 2003). In most cases, tap water is

used for drinking and cooking, whilst well and river water is used for washing. In the Accra Metropolis, over 60 % have access to potable water. However, whilst these overall statistics do indicate some differences within particular settlements, they also hide other differences between residential areas. In Greater Metropolis for instance, areas such as Adenta, Teshie, Nungua, Nima and other places use water from unprotected sources while others use water that is red in colour, due to contamination, from an unreliable borehole, and some use both, for different purposes (UN, 2003).

2.4 Policy Implementation Theory

This theoretical account emphasizes policy implementation as a change process characterized by multiple organizations and shaped to some extent by administrative practice but also influenced by politics and value differences. The review of more recent contributions to the literature, led the study to examine three factors, consistent with these characteristics that are proposed to play an important role in today's policy implementation process and its evaluation: networked governance, sociopolitical context and the democratic turn, and new public management. Although these factors clearly overlap, each is distinguished to facilitate our analysis and advance the related discourse.

2.4.1 Networked governance

Policy theorists recognize that implementation involves coordinating action across multiple organizational actors and implementers (O'Toole, 2000). The relationships and interaction among agencies across the implementation chain are growing more complex as newer networked approaches to policy implementation are adopted. Of interest, then, are the networked organizational structures that allow policy ideas to take their shape as real-world actions. This aspect of policy implementation requires the evaluator to confront a "world of multiple institutional actors whose cooperation and perhaps coordination are needed for implementation success" (O'Toole, 2000). Emerging literatures in the policy sciences around networked governance offer insights into the organizational structures and relationships involved in contemporary

policy implementation (O'Toole, 2000). In Tanzania we have different agencies that deals with domestic water use and supply to indigenous. Those agencies play a big role in domestic water supply and sanitation. Those during implementation process there are many problem and challenges might accrued due to several factors like infrastructures, lack of finance, ignorance etc.

In networked governance, horizontal relationships aimed at improving service integration, often with non- governmental partners, are typically joined with vertical or hierarchical ones reflecting traditional, intergovernmental relationships (Heinrich, Hill, & Lynn, 2004). These networked organizational structures are presumed to offer a collaborative advantage with the potential to achieve what no single program or agency could accomplish on its own (Lasker, Weiss, & Miller, 2002). At the same time, networks introduce new challenges to implementation as a greater number of agency representatives come to the table, each with multiple interests and unique constituencies. Evaluating policy implementation in a networked governance context poses several challenges given that complex social problems are usually addressed, accountability becomes fragmented, and the performance of the network itself is important to implementation success.

2.4.2 Sociopolitical factors

The realities of the sociopolitical context suggest that evaluators must attend to political factors affecting the policy implementation process by considering who has a stake in shaping implementation and which stakeholders have the power to define both program details and their outcomes. These power differentials have important implications for evaluating implementation and for evaluation practice more broadly. Evaluators must consider the relationships and interactions among organizational actors where conflicts between government actors at different levels, private sector organizations, and the grassroots community can play out as a tug-of-war (Alloway1995 & Lounsbury, 2006). From competing agendas, mandates, reward structures, and constituencies can compromise the mutual respect and trust needed to

reach agreeable solutions to pressing health and social problems while potentially discounting some actors' values and priorities that are relevant to an evaluation.

2.4.3 The democratic turn

In policy studies coincides with the introduction of more participatory evaluation approaches, whether qualitative, quantitative, or mixed-methods approaches are used. For instance, evaluation models advocated by Guba and Lincoln (1989), House and Howe (1999), and Fetterman and Wandersman (2005) promote stakeholder participation and empowerment of stakeholders through methods consistent with constructionist and other interpretive paradigms. Similarly, the application of participatory research approaches to evaluation, such as action research (Best *et al.*, 2008), participatory research (Battram *et al.*, 2012), and community based participatory research (Israel *et al.*, 1998), especially at the program level, is also consistent with this democratic turn in policy evaluation.

Carrillo (2008) also advances a pluralistic approach as central to understanding, and she encourages evaluators to adopt a stance of value plurality in order to better advance the interests of a diversity of stakeholders. Striving for a more democratic practice requires that evaluators challenge their philosophical assumptions and consider alternative paradigms that embrace contextually sensitive methods and approaches, experiential knowledge, and the multiple perspectives and values of participants. Given that policy implementation is significantly influenced by context and the multiple actors engaged in the process, employing methods insensitive to both would likely compromise an evaluation effort.

2.4.4 New public management (NPM)

A global, public management reform that emerged in the early 1990s, advocates, in part, outcome-based performance. In fact, performance is so central to NPM that it has been called "results-oriented government" (Osborne & Gaebler, 1992). Performance, as measured through outcomes rather than outputs, is emphasized in NPM as a means to assess management and policy effectiveness, as well as a means of accountability (Peters, 2001). Policy implementation is a dynamic and evolving

change process owing to a confluence of factors, including networked implementation structures, sociopolitical conflict, and administrative reforms that shape how policy ideas are translated into social betterment programs.

2.5 Knowledge Gap

The previous studies focused much on the water supply in urban areas and ways that used for supplying water service and the way forward to improve the water supply through improvement of water infrastructure, institutions reforms, policy reforms, policy formulation and improvement of settlement planning for easier water infrastructure development. Despite of many studies conducted in different areas, they lack a focusing on why water is available but not accessible to domestic users.

The study focused on the why water is available but not accessible to the community within 400metres as policy stipulates.

2.6 Conceptual Framework

The relationship between water policy implementation and domestic water accessibility is explained by a set of independent and dependent variables. In this study independent variables are community involvement from initial stage, availability of resources as well as participatory instruments. Community involvement from initial stage in water provision may improve accessibility of domestic water to the rural areas by improving water contribution and existence of water committees. In this study availability of resources like financial, human labour and technical support are very crucial. In participatory instruments sensitization, training on water uses and protection being provided to different age groups make community to be aware on water protection and sustainability. This can be guided by bye-laws which established in particular area (e.g.in the study area). By doing this can normally creates sense of ownership. Having this all variables can lead community to access domestic water supply.

2.6.1 Variables and their measurements

Accessing safe domestic water supply is dependent variable whereas implementations of water policy are independent variables with following variables, community involvement from initial stage, availability of resources, and participatory instruments.

2.6.2 Implementation of water policy

Accessibility to domestic water supply depends on good implementation of water policy. This is like having knowledge and skills on how to utilize resources. These resources can be human, financial, technical, participatory and even skills and technology which are important in implementation of water policy (Van metre and Van Horn, 1975). Having enough resources can assist in accessing domestic water. Human resource management was very important issue in policy implementation. This study intends to evaluate human capacity and capability in attaining all issues relating to accessing to safe domestic water supply. This can be in terms of managing all domestic water projects or contributing to labour power to community activities. Also financial management is very crucial issue in policy implementation as availability of funds can stimulate management of all projects relating to water issues such as minor and major maintenance and repair of water points and even paying for technicians. Lack of expert's knowledge also hinders successful implementation of policy (Parson, 1995).

Moreover participation is important to be considered in policy implementation (URT, 2002). In this study sensitization was considered in all issues relating to accessing safe domestic water through training and meetings. In implementing water policy people ought to be educated on the advantage of taking safe water and disadvantage of taking unsafe water for drinking. Community participate in establishing by laws as well as to use it effectively to those who break the laws.

2.6.3 Community involvement from initial stage

Community involvement was considered the way the community plays part in ensuring domestic water accessibility. EPA defined community involvement as the process of engaging in dialogue and collaboration with community members. Community should involve in all stage starting from initial stage of planning, development and operational stages of any activities. A good community involvement program contributes to the best possible development and operating decisions. Community involvement is a key factor of success in implementation of water policy (George 1991). Policy cannot be implemented if there is no support from influential political leaders, influential individuals from community and interest group (Parsons, 1995).

In this case if community involved in improving water contribution and establishment of water committees, the water can be accessible throughout the year. This means that, if community is paying anything for the water consumed by it, will help in operational and maintenance aspect of water project, and also to its sustainability. This means can make community have enough funds available to carry out the required operation and maintenance costs. “The community which pays charges to the water services gives a good signal that the water supply project will operate for long period of time” (TASAF projects handbook, 2008).

Establishment of Water Committees (WC) is the most common form of rural water systems through which beneficiaries are supposed to contribute to the costs of the project and share the benefit. WC is essential in strengthening and sustaining established water structures and service. Also WC is important to enable detailed monitoring and finding solutions to various problems confronting the proper functioning of the installed water infrastructures. In this perspective water committees are elected to manage projects on behalf of the whole community. Committee deals with issues such as preparing budgets, procurement of goods and services, and developing necessary action plans. Such activities are normally best

done by a small group of people who then are able to give necessary feedback to the entire community members (Claud, 1998).

Water committee is the representative body of a community regarding development projects; therefore the committees are answerable and accountable to both the village council and advisory council committee and to the community. The WC specifically prepares and submits project progress report to the village council and advisory council committee. Communication between the WC and Village council and advisory council committees must be a two-way traffic. It requires trust, commitment and openness (TASAF handbook, 2005).

2.6.4 Availability of resource

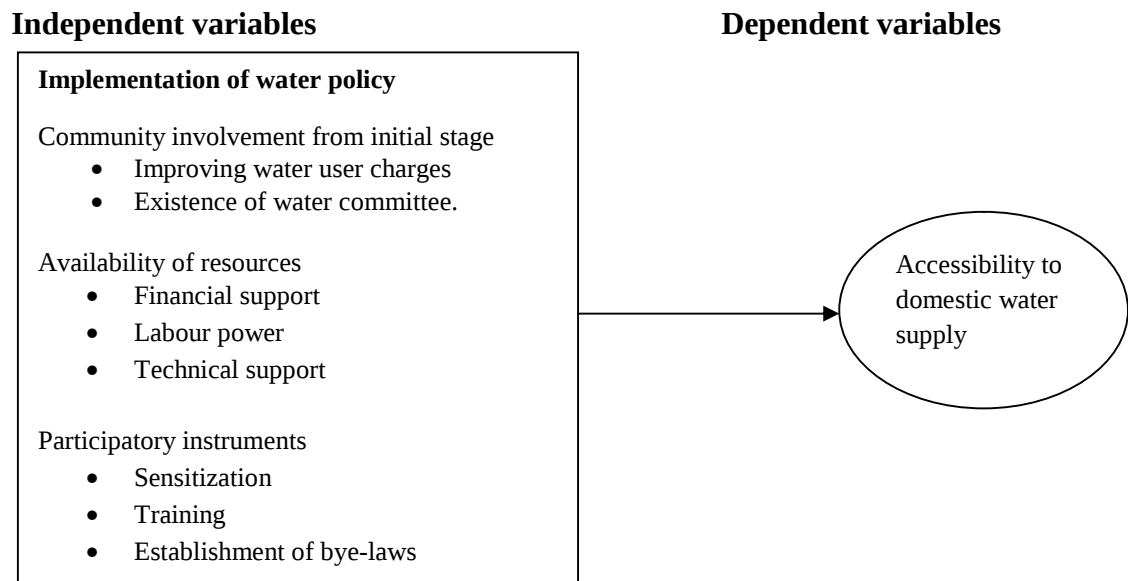
Resource like financial, human labour and technical support is very important aspect in accessing water for domestic purposes. In this when community has enough funds for implementing water projects can maintain accessibility and sustainability of water points and water sources. Technical, financial and management aspects is important for the sustainability of water projects (NWP, 2002).

The community should be empowered with technical and managerial skills to enable them to own and manage their water project through establishing water user groups (URT, 2002). For effective operations and maintenance of water projects, it is important that financial management be in the hands of community members by opening bank accounts (Brike, 1997). Financial management if is in the hands of community members. Money collected from user charge fees will be to cover operation and maintenance cost. Labour power is also important aspect in operation and maintenance of projects as community can be engaged in different activities which lead to water accessibility.

2.6.5 Participatory instruments

Sensitization is the way as to promote representative participation, good governance, accountability, and peaceful change. Also Service training to water project attendants is an equally an important component to achieve project sustainability (Claud, 1998).

Water attendants should be selected among community members for convenience of providing water services to the communities (ibid). Hence, they need to be equipped with basic knowledge and skills on how to operate the water system in case of breakdown. Moreover establishment of bye-laws help in guiding infrastructure sustainability.



Sources: Author's Construct (2015) adapted from NAWAPO, (2002).

Figure 2.1: Conceptual framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research design, area of the study and population of the study as well as sample and sampling techniques, data collection methods and data analysis.

3.2 The Study Area

The study was carried out in Mufindi District Council, which is in Iringa Region. It is conducted at Kitelewasi, Itimbo and Rungemba villages due to the facts that, in this area there are many water sources within study area like Hodi, Lyandembela and Rungemba but this water sources are not well protected to make it accessible to study population. The people of this area are Hehe, Bena and Kinga.

3.2.1 Climate and topography

The district climate varies with attitude and closely associated with two distinctive landscape zones namely the eastern highlands and the Mufindi Plateau characterize the Mufindi District. The eastern highlands lie at an altitude of 1,700 – 2,200 above sea levels. The feature ranges from southwest to the eastern part of Udzungwa mountain ranges, which is the part of the Eastern Arc Mountains and the Kihansi Dam with its Catchments. The mean annual rainfall ranges between 1200-1600mm. The average precipitation is 1400mm per annum whereby the east and south are the wetter parts while the west is much drier. Temperatures are often below 15°C, the mean monthly is 18.4°C (maxima-November and February) and the minima is 13.2°C (July). The soil is generally red clay of moderate fertility with dark top soil having high organic matter content. Much of the land is at risk of erosion due to steep slopes of over 30% gradient.

Topography of the eastern Highland typified by its steep topography; mostly the landform is steeply dissected with slopes of more than 30 percent gradient, often as steep as 50 percent. Flatter top slopes of 2 to 8 percent and 8 to 16 percent gradient comprise an average about 10 percent of this land unit. The drainage pattern is very dense, with infield flat bottomlands generally less than 20 mm width. Vegetation includes low/shrub land and scattered forests.

3.2.2 Administrative set up

Mufindi district is among four districts in Iringa region. Other districts are Kilolo, Iringa rural and Iringa municipal. Mufindi District has 116 villages, 29 wards and five divisions. It is bordered by Iringa district in northern part, Njombe in southern part, (Njombe Region), Mbarali (Mbeya Region) in western part and eastern part is bordered by Kilombero (Morogoro Region).

3.2.3 Climate of Mufindi District

Mufindi District lies in southern highlands zone where there is enough rainfall. However in three divisions of the eastern part there are enough rainfall almost throughout the rainy season, this is from November to June. The western part which is bordered by Mbarali District which is near to Rift valley the rains end hardly up to April.

3.2.4 Economic activities in Mufindi District

The major economic activities carried in Mufindi District are agriculture and livestock keeping. Agricultural activities involve food crops and cash crops. The main food crops cultivated are maize, beans, and Irish potatoes. The major cash crops are tea and planted forest. Sao Hill Forest is a very big forest plantation owned by Government of Tanzania. Uniliver Tea Companies Ltd and Mufindi Tea Co. Ltd are owned by private companies.

3.3 Research Design

There are various types of research designs but for the purpose of this study cross-sectional design with both qualitative and quantitative approaches was used. The study carried once at particular point in time. The qualitative approach helps to know Water Policy Implementation and quantitative approaches helps to describe data from the study. The two approaches complement each other in gathering data and create valuable information on implementation of National Water policy.

3.4 Study Population and Sample

Population of the study covered water users, elders who are aware with water situation of the area, village leaders and staff from water department. In this study the respondents sampled include 90 households from Kitelewasi and Itimbo villages in Rungemba Ward.

Also the use key informants who were 2 Village Executive Officers, 1 Ward Executive Officer, 2 elders from each village , 2 water committee members and 2 staff from Mufindi water department provided data and various issues related to water policy implementation.

Table 3.1: Distribution of the Respondents

Type of respondents	Size of the respondents	Percentage
Local residents	90	90.91
Village Executive Officer	2	2.02
Ward Executive Officer	1	1.01
Elders	2	2.02
Village Water committees	2	2.02
Water department staff	2	2.02
Total Respondents	99	100

Source: Field data, 2015.

The study used two types of sampling techniques which were simple random sampling and purposive sampling. Simple random sampling was employed in selecting households in which the heads were the respondents. Purposive sampling was used to select the key informants who were aware and knowledgeable about water availability and accessibility. The Key informants included VEO, WEO, elite

elders, village water committee members and District Water Department staff. Village Executive Officers are the ones who manage water situation of the area and give details of water protection. WEO is overall in charge of ward and policy implementer in ward level.

Elite elders were important because they knew water situation of the area for many years, she/ he tell the past situation to present situation. Village water committee's member deals with issues relating to planning; implementing, technical issues and part of maintenance and water department staff are involved in implementing water Policy.

3.5 Data Collection Methods and Tools

Different methods were used to collect data. These included questionnaires, observations and key informants interviews. Questionnaire method was used to the households where questionnaire was distributed to 90 heads of households while interview method was applied to the key informants.

Table 3.2: Methodology applied to study population.

Respondent	Technique	Data collection method	Managerial factor
Water users households	Simple random sampling	Questionnaire	Information in availability and accessibility of domestic water
Village Executive Officer	Purposive sampling	Interview	Information on water protection
Ward Executive Officer	Purposive sampling	Interview	Information on managerial
Elders	Purposive sampling	Interview	Information on water situation
Staff of MUWASU	Purposive sampling	Interview	Information on water policy implementation
Water committees Members	Purposive sampling	Interview	Information on supervision.

Source: Field data, 2015.

3.5.1 Data collection methods

The study used two types of data: secondary and primary data. The study employed interview, questionnaire and observation methods for primary data and documentary review method for secondary data.

3.5.1.1 Questionnaire

In this study questionnaire method was used for data collection. This method is simple compared to interview and it is free from bias.

It also makes respondent comfortable when answering question (Kothari, 1991). The questionnaire was prepared in Swahili so as to enable all respondents to be clear on what she/ he respond. The collection of data was done using questionnaire which was administered to respondents. Questionnaire involved closed and open question.

3.5.1.2 Observation

Rwegoshora in Nyagawa (2005), argue that, science begins with observation and must ultimately return to observation for its final validation. This tool helps the researcher to assess the magnitude and learn about their living condition, physical appearance and behavior. Through observation the researcher was physically present in the field, thus recording party of relevant data through hearing and seeing. The tool used is observation checklist.

3.5.1.3 Key informant interview

In collecting data of this study, interview was used to key informants especially to Mufindi Water department staff, Village executive officers, Ward executive officers, elders and water committee's members. In applying this method the interviewee answers were guided by interview guide from interviewer. This was a face to face conversation in which the researcher interviewed nine (9) key informants. This method helped to get the detailed data and experience from the key informants on water source protection, accessibility and challenges faced domestic water supply service.

3.5.1.4 Documentary review

Documentary review was conducted to obtain secondary data from documentations such as scholarly papers, research report publication and relevant documents from library and from the district and village levels.

3.6 Data Processing, Analysis and Presentation

The data that were collected using questionnaires were checked for uniformity, consistency and accuracy. A data entry interface was created in which software program known as Statistical Package for Social Scientists (SPSS) was used.

These data were analyzed quantitatively using descriptive analysis and inferential analysis. The descriptive analysis refers to statistically describing, aggregating, and presenting the constructs of interest or associations between these constructs while the inferential analysis refers to the statistical testing of hypotheses (theory testing) (Bhattacharjee, 2012). This program was preferable because it is one of the most readily available statistical analysis software and is user friendly. The responses in the questionnaire were quantified to allow for measurement. This was mainly useful where responses had to be compared. On the other hand, qualitative data was analyzed using the KAPs (Knowledge, Attitude and Practice) matrix.

3.7 Ethical Considerations

Respondents as the major stakeholders, the information they provide is one of the bases for coming up with findings and recommendations. Therefore, the research ensured that all the information that the respondents provided remained confidential. Participants in the research were aware that their participation in the study was voluntary, that they have the freedom to withdraw from the study at any time without any unfavorable consequences, and they are not harmed as a result of their participation or non-participation in the project (Bhattacharjee, 2012).

Anonymity was observed by not disclosing the names of respondents, as at times there is usually intimidation, especially when confidential information was involved. Anonymity implies that the researcher or readers of the final research report or paper could not identify a given response with a specific respondent (Bhattacharjee, 2012). To protect subjects' interests and future well-being, their identity were protected in this study.

This was done by using the dual principles of anonymity and confidentiality for all the people who took part in the study.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses findings of the study on the assessment of Tanzania National Water Policy 2002 implementation in accessing domestic water supply service in Mufindi District. The chapter opens with the consideration of the sex orientation of people that took part in the research. The education background and the employment status of the respondents from the households are equally considered. The marital status at household levels is another parameter that guided the investigation. The problems of water interruptions and pollution on the household are discussed subsequently, and the chapter ends with recommendations from the respondents themselves.

4.2 Socio- Demographics Variable of Respondents

This section covers brief characteristics of respondents that were involved in collecting data on assessing Tanzania National Water Policy 2002 Implementation in accessing domestic water supply in Mufindi District. The section presents population characteristics in relation to gender, age respondent's occupation, marital status and education level. The results were as follows:

4.2.1 Age of the respondents

Table 4.1: Distribution of respondents by age category

Age category of respondents	Frequency	Percent
31-40	38	42.2
41-50	14	15.6
above 50	10	11.1
Total	90	100.0

Source: Field Data, 2015

Results in Table 4.1 show that 42.20% of the respondents have an age of 31-40 years while 11.1% of the respondents, have an age of more than 50 years old. This implies that, the people who involved in this study lay in the age group of 31-40 .This age

group is matured enough to support the provision of information toward safe and clean water accessibility.

4.2.2 Sex of the respondents

Table 4.2: Distribution of respondents by sex

Sex	Frequency	Percent
Male	33	36.7
Female	57	63.3
Total	90	100.0

Source: Field data 2015

Findings in Table 4.2 indicate that more than half 63.3% of the respondents were females while 36.7% of respondents were males. This result indicated that, women are the ones who mostly use domestic water and are the ones also who have information of water accessibility and availability. They are busy fetching water for domestic uses and have little chance of participating in socio-economic development.

4.2.3 Marital status of respondents

Table 4.3: Distribution of respondents by marital status

Marital status of respondents	Frequency	Percent
Single	13	14.4
Married	44	48.9
Divorced	9	10.0
Widow	16	17.8
Separated	8	8.9
Total	90	100.0

Source: Field Data, 2015

The results in Table 4.3 show that 48.9% of the respondents in the study area were married and 14.4% of the respondents were single. This finding implies that, the relationship of marital status and water accessibility is important in order to support domestic uses and other activities.

Table 4.4: Distribution of respondents by occupation

Occupation of Respondents	Frequency	Percent
Farmers	55	61.1
Livestock keeper	7	7.8
Business man/women	10	11.1
Others	18	20.0
Total	90	100.0

Source: Field data, 2015

The finding in Table 4.4 indicates that 61.1% of the respondents are farmers while only 7.8% of the respondents are livestock keepers. This means that the main activities of the area is agriculture and strong attention should be taken when applying in agricultural inputs in the farms especially those in high areas, so that when it rained the input does not get into water sources.

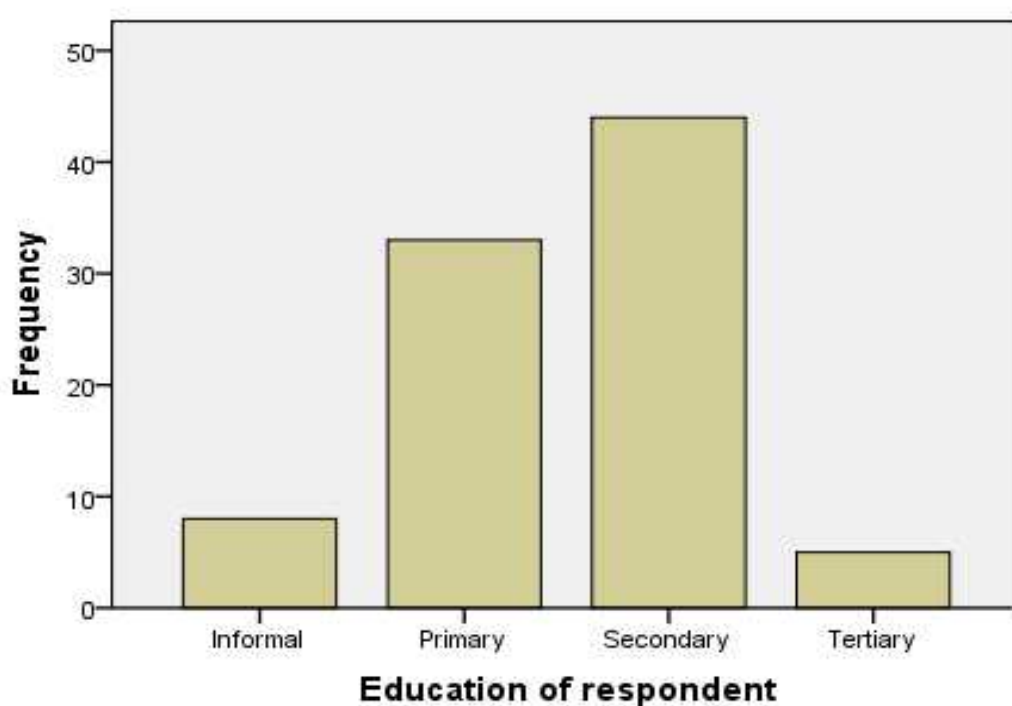


Figure 4.1: Education level of respondents

Source: Field data, 2015

4.2.4 Respondents by education level

Education does not only open up new ways but it also helps people find new mechanisms of resource utilization. The national as well as the global goal of provision of education to all has resulted in more and more people enrolling into the educational system. In Rungemba as shown in figure 4.1 out of 90 respondents interviewed 48.9% of respondents had secondary education, followed by respondents having 36.7% who had primary education. Furthermore, the results showed 8.9% of had informal education. On other side the results indicated that there is variation in education level among the respondents within respective study area.

Family Size	Frequency	Percent
<5	32	35.6
6-10	39	43.3
>10	19	21.1
Total	90	100.0

Figure 4.2: Distribution respondents by household size

Source: Field data, 2015

4.2.5 Household size of the respondents

Results in Figure 4.2 shows that, 43.3% of the respondents had the household size of 6-10 while 35.6% of the respondents had the family size of less than 5 and 21.3% of the respondents had family size of more than 10 members. This implies that, majority of the respondents in the study area have high number of members in their household which need high amount of water for domestic uses.

4.2.6 Experience of respondents living in the study area

Table 4.5: Distribution of respondents basing on living experience in the study area

Duration of stay (Years)	Frequency	Percent
<5	7	7.8
6-25	25	27.8
26-35	33	36.7
36-50	1	21.1
More than 50	6	6.7
Total	90	100.0

Source: Field data, 2015

The majority of the respondents have been staying in the study area for more than five years. Results in Table 4.5 shows that only 7.8% of respondents have been living in the study area for less than five years while 36.7% of respondents lived in the study area for 26 to 35 years, 21.1% of respondents lived in the study area for 36 to 50 years. The results showed that majority know situation of study area as they were there for many years. They know the situation of water availability and accessibility to households in the study area. They know how situation was before and how it is currently. This can help them to identify problem associated with lack of the water in their area and to take serious measure to overcome their situation.

4.3 Water Source Protection in Study Area

4.3.1 Community involvement in water source protection

The study scrutinized from the respondents their understanding on the ways the community was involved in protection of their water sources, the summary of the findings are presented in Table 4.6

Table 4.6: Distribution of respondents on community involvement in water source protection

Community involvement in water source protection	Frequency	Percent
Community	19	21.1
Village Government	9	10.0
Village Water Committee	10	11.1
Both	46	51.1
I don't know	6	6.7
Total	90	100.0

Source: Field data 2015

Results in Table 4.6 shows that community, village government and village water committees' members were involved in water source protection exercise. Fifty one point one percent of the respondents know if water source protection exercise is responsible for all community members, village government members and village water committee's members. Other respondents of about 21.1% of the respondents show only community members were responsible for water protection exercise;

while 11.1% of respondents said village water committee's members were responsible for water protection exercise. Also result shows that 10.0% of respondents said water source protection exercise is responsible for Village government members while 6.7% of respondents they said they do not know who is responsible. This implies that, majority of the respondents in the study area were participating in water source/ points protection.

4.3.2 Availability of by-laws governing protection of their water sources

The study scrutinized from the respondents their understanding on the by-laws regarding protection of their water sources, the summary of the findings are presented in Figure 4.3.

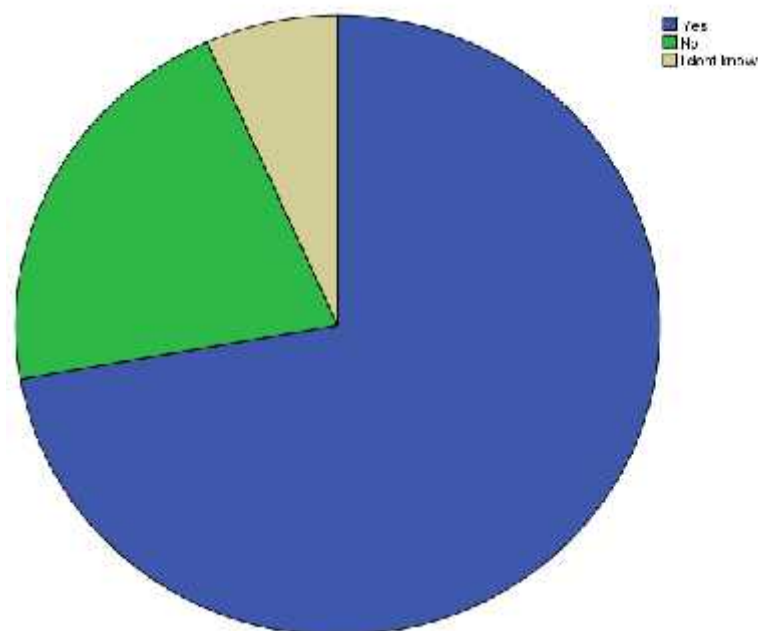


Figure 4.3: Distribution respondents by having awareness of bye-laws

Source: Field data 2015

The findings from Figure 4.3 discovered that majority (72.2%) of the respondents has information about the by-laws availability and regulation governed water

sources. However 27.8% of the respondents said they don't have information about by-laws. This implies that community are aware of availability of bye-laws and are involving in water source protection.

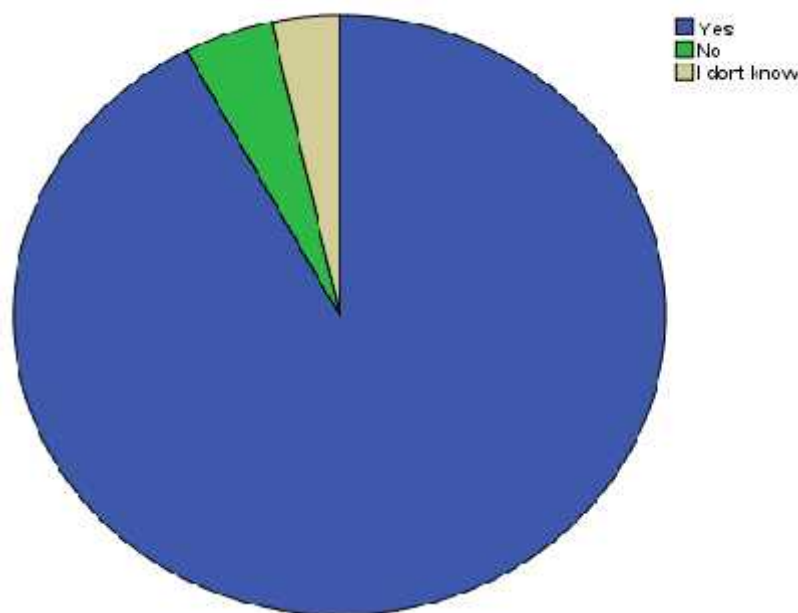


Figure 4.4: show awareness on availability of village water fund

Source: Field data 2015

4.3.3 Availability of village water fund in study area

The result in Figure 4.4 shows in study area there were village water fund in each village as 92.3% of the respondents agreed. Moreover only 7.7% of the respondents said there was no Village Water Fund in study area. This implies many respondents were aware of Village water fund within their areas. The implication of this is having Village Water Fund can help to repair their pumps and water tape in any case of breakdown.

4.3.4 Community participation activities in protecting water sources/points

The respondents were asked to mention how they participate in water source/points protection exercise and they mentioned the following as per Table 4.7

Table 4.7: Community participation in water source/ points protection

Activities Participated in	Frequency	Percent
Cleaning water points/sources	37	41.1
Planting tree near water sources/points	15	16.7
Involved in meeting	15	16.7
Fencing water points	12	13.3
Prohibits human activities around sources/points	9	10.0
Not involved	2	2.2
Total	90	100.0

Source: Field data 2015

The findings in Table 4.7 revealed that many respondents were involved in cleaning the water points around water sources, followed by 16.7% of respondents who were engaging in planting trees exercise and 16.7% of respondents involved in the meeting in relation with water source protection. Moreover 13.3% of respondents were involved in fencing water points/ sources while 10% of respondents were involved to make sure any human activities are not conducted in water sources/points. Meanwhile 2%of respondents were not involved in any activities. The implication of this is many villagers are aware of water sources/ points protection that's why they are trying to participate differently in water sources/ points protection.



Figure: 4.5: Source at Rungemba Village

Source: Field data 2015

4.3.5 Awareness on existence of village water account

The study wanted to know whether the respondents were aware of the existence of village bank account relating to water sources so as to know the safety of water collected and expenditure cash by reviewing bank transaction. The results are shown in Table 4.8

Table 4.8: Distribution on availability of village water account

Response on availability Village water Account	Frequency	Percent
Aware	81	90.0
Not aware	9	10.0
Total	90	100.0

Source: Field data 2015

The finding from Table 4.8 shows that the majority of respondents (90%) agreed that there were bank account and the money collected are kept in bank while 10% of the respondents don't know if there is bank account or not . This implies that money collected from individuals is kept safely in Mufindi Community Bank, and is normally used for regular maintenance.

4.3.6 Payment of water use charges

The study tended to know the sustainability of available water projects in the study area by looking on how people paid on service they get in water service. The findings were as presented in Table 4.9

Table 4.9: Distribution of respondents by payment of water use

Response regarding Payment on water use	Frequency	Percent
Monthly	3	2.2
Annually	86	95.6
I don't know	3	2.2
Total	90	100.0

Source: Field data 2015

From the Table 4.9 the finding shows 95.6% of respondent said that they paid for service annually, which means that they paid it once for each household per year, while 2.2% of the respondents said they pay it monthly; and the last group 2.2% of the respondents don't know how people pay for the service.

4.4 Domestic Water Accessibility

4.4.1 Sources of Water for the Households

Table 4.10: Distribution of Sources of Water for the Households

Sources of water	Frequency	Percent
Taped water	16	17.8
Hand pumped water	16	17.8
Shallow wells	14	15.6
Stream	44	48.8
Total	90	100

Source: Field data, 2015

Results in Table 4.10 shows, that 44.8% of the respondents use stream water, while 17.8% of the respondents use taped water, 17.8% of the respondents uses hand pumped water, 15.6% of respondents uses shallow wells. This result indicated that, majority of people in Rungemba Village use spring water rather than other sources. The implication is that, more people in the study area use spring water as it is

available and easily accessible in the area. The researcher observed that though 17.8% of respondent said they use taped water, only two tapes were functioning during time of data collection.



Figure 4.6: Hodi stream, showing water uses for domestic purposes.

Source: Field data, 2015.



Figure 4.7: Tape water point at Rungemba

Source: Field work 2015

Above is water point located at Rungemba village which is donated by CDTI Rungemba, meanwhile it is not functioning.



Figure 4.8: Hand pump at Kitelewasi village

Source: Field data 2015



Figure 4.9: shallow well at Itimbo Village

Source: Field data 2015

4.4.2 Water consumption per day

Table 4.11: Distribution of Water consumption per day

Consumption in Liters	Frequency	Percent
20-50	6	6.7
51-80	20	22.2
81-100	32	35.6
More than 100	32	35.6
Total	90	100.0

Source: Field data 2015

The findings from Table 4.11 shows water consumption per day in each household. Thirty five point six percent of the respondents shows they uses more than 100 litres per day, while again 35.6% of the respondents use 81-100 litres per day, 22.2% of respondents use 51-80 litres and 6.7% of respondents uses 20-50 litres per day. The implication of this is people need more water for domestic purposes though in some area in this study this commodity is scarce.

4.4.3 People's satisfaction by the amount of water supplied

Table 4.12 Distribution of respondents by satisfactions on amount of water

People's satisfaction on Quantity	Frequency	Percent
Yes	41	45.5
Somehow	23	25.5
No	26	29.0
Total	90	100.0

Source: Field data 2015

The survey findings in Table 4.12 indicate that 45.5% of respondents were satisfied with amount of water, while 25.6% of respondent were somehow satisfied as they said that though they get water for domestic purposes, the water is not enough for doing all general cleaning. Meanwhile, 29.0% of the respondents were not satisfied with amount of water as they travelled long distance to fetch water. This implies that as water is very essential commodity if the majority are satisfied it means that they

can engage in other income generating activities rather than spending more time in fetching water.

4.4.4 Distance to the alternative sources of water

Table 4.13: Distribution of distance to water point

Distance in meters	Frequency	Percent
<400	25	27.8
400-1000	37	41.1
>1000	28	31.1
Total	90	100.0

Source: Field data, 2015

The results in Table 4.13 show that 41.1% of the respondents travelled 400m to 1000m to fetch water in Rungemba Ward while 31.1% of the respondents mentioned the distance of more than 1000m. Twenty seven point eight percent of the respondents mentioned a distance of less than 400m. Majority in community travelled within 400m-1000m while others use more than 1000m. The implication of this is that distances that people cover in their endeavors' to collect water for their households do differ from one place to another and at times even from one household to the other. However, it should be noted that the major players in sourcing water for the households are women and girl children as are major domestic water users; for this reason the distances should be viewed in the feminine aspect.

4.5 Challenges Facing Community in Accessing Domestic Water Supply Service

4.5.1 Challenges relating to water source protection

The respondents were asked to mention the challenges they face in relation to water source protection. The challenges mentioned are shown in Table 4.14

Table 4.14: Challenges facing community relating to water source protection

Response on challenges	Frequency	Percent
Don't pay for service	20	22.2
Limited community involvement	20	22.2
Theft of metal iron parts	17	18.9
Lack of maintenance of hand pumps and tapes	11	12.2
Long distance to water sources	8	8.9
Cutting trees around water sources	7	7.8
Climate change	4	4.4
Dissatisfied with colour of water	3	3.4
Total	90	100.0

Source: Field data 2015

The findings in Table 4.14 revealed that the two biggest challenges facing water sources and water point's protection are unwillingness of the people to pay for the service provided and limited participation in community works relating to water source protection as was mentioned by 22.2% of the respondents. They lead to failure of maintenance of many hand pumps in the study area. As a result the majority of the households in the study area were using stream water for domestic purposes. This implies many villagers were not participating in community activities. Moreover 18.9 % of the respondents mentioned theft of metal iron. It was reported by the respondents that other villagers tend to break some parts of metal iron and go to and sell it as scrap in Mafinga Township.

Moreover 12.2% of the respondents mentioned lack of maintenance of their hand pumps and taps were challenges facing them. Apart from that 8.9 % of the respondents said that long distance to water point was among the challenges faced some of households in the study area. Moreover, 7.8% of the respondents mentioned cutting trees around water sources was among the challenges they faced on water source protection for sustainability. Climate change was another challenge faced the residents in the study area as it was reported by 4.4% of the respondents.

Due to this, during dry season water dries up and become scarce. This leads women to travel long distance or take long time on fetching water.

People tended to cut trees for domestic use like firewood and preparing charcoal. One point one percent of the respondents said they know nothing concerning water source protection.

Also findings revealed 3.4% of the respondents were not satisfied with water colour. This was observed that those who were not satisfied with water colour were fetching water from traditional sources like shallow wells and stream.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the findings of the study on the Assessment of Water Policy 2002, implementation in accessing domestic water supply in Mufindi District. However, it is important at this stage to come again with the specific objectives in order for the discussion to be clearly understood. The following were the specific objectives of the study are:- to explore water sources protection in the study area, to examine the status of domestic water accessibility and lastly is to identify challenges facing community in accessing water supply service for domestic use.

5.2 Socio- demographic characteristics of respondents

The study started by analyzing respondents' characteristics. This was important because it helped the researcher to understand the nature of respondents as well as information they provide. The components of demographic characteristics studied include sex, age, marital status, education, occupation and size of households. The following is the discussion of the findings:

5.2.1 Sex of respondents

The main purpose of including respondent sex as an important construct in this study is to assess the ratio of men and women in water resource management. As per result which shows 63.3% of respondents were female compared to 36.7 % of respondents were male. This implies that majority who provided information about water resource management were female though both sexes are user of domestic water. Although all are water users, female plays great part on fetching water and domestic water use like washing, bathing and cooking this means men used water after women brought it home. Women's essential role as providers and users of water must be acknowledged and reflected in the institutional arrangement for the development and management of water resources (Wijk, 2001; van Wijk-Sijbesma, 1998). From this

discussion it can be suggested that women play an important role in water resource management and supply.

The implication is that important to involve women in all issues concerning water policy implementation. Women need to be empowered to participate at all level from planning, through implementation up to evaluation of policy.

5.2.2 Age of respondents

Age is very important in implementation of policy. This means this study included the views of different people on the area. Age- sex composition of the population is an important phenomenon in the demographic studies because they determine most socio-economic activities of the society (Riyaza, 2001). The findings revealed that 42.2% of respondents have an age between 31 and 40, followed by 31.1% of respondents who lied between 20 and 30 years , thereafter 15.6% of respondents who had 14 to 50 years, and lastly to those who had above 50 years old were 11.1% of the respondents. This indicates that all respondents were matured enough to give detail of clean and safe water. As our study lied in head of household this means those are the ones who have information on water accessibility in the area.

5.2.3 Education level of the respondents

The study found that majority, 48.9% of the respondents had secondary education followed by primary education and then those who had tertiary and informal education. This indicates that the study involved all group of people as those with their education level can be in position to give all information about water accessibility of the area. Not only that but also through education they have they can be capable when trained about water resource management. And it is important in policy implementation to train on water uses all people with different education level from planning stage up to the implementation stage.

5.2.4 Household size of the respondents

The study revealed that 43.4% of the respondents had 6-10 people, followed by 35.6% of respondents who had less than 5 people in their households and 21.1% of

respondents who had more than 10 people in their households. This implied that, 64.4% of households had more than 6 people. The implication of this is that as many households had more than 6 members the water use is more compared to those with lower than 6 members. As they were many, water uses also increased. As all family members washed their clothes, take bath and using for drinking and cooking. Average per capita water use was 38 liters per capita per day. However, there were major differences in the quantity of water used by households that uses taped water and those who use water from traditional source. (<http://www.iied.org/agri/dowrvv-intro.html>).

5.2.5 Living experience in study area

Findings revealed that 57.8% of respondents have lived in the area for a period of between 26-50yrs; 227.8% of respondents have been living in the study area for about 6-25 years. The implication of this is that respondents are aware of the situation of the area for many years. If people have access to domestic water this enables them to engage in other developmental activities other than fetching water. In the study area women and girls are the ones who are responsible for fetching water for daily use, and they are the ones who are mostly economically affected because besides of taking care of the family are they are the ones who are considerable in this activities. On response to how long the respondent live in study area, she answered by saying:-

“I have lived in this area for many years now. I was born here and I have spent all my life here, I know well the water situation of this area. Around 1960, there was a lot of water in this area, people used to fetch water in the river “Lyandembela”, which originate from Ruaha. We use water for all domestic purpose in our households. It was not easy to move from one part to other, compared to nowadays. The water level is decreasing today and always, you can pass on foot instead of swimming”.

5.3 Water Sources Protection in the Study Area

5.3.1 Community Involvement in water source protection

Findings revealed that, respondents are aware of who is responsible in all issues concerning water resource management and protection. From the findings 51.1% of

respondents were aware on water source protection. It was observed that though villagers are aware, they don't follow up on all issues concerning water resource management. Many water points were dirty as if they were not used. Apart from the majority knowing that they were responsible, 21.1% of respondents were aware that it was the responsibility of the community to protect their water sources. The response of the key informant where asked who was responsible in issues concerning water source protection, replied that:

“As villagers, we are all needed to play part in all issues concerning water protection, and luckily enough we have Village water committees which play a big part in making our source safe. We have by-laws which were established in order to protect our environment and those law breakers are punished for this. We have our schedule of cleaning our water sources and water points and other related community activities.

5.3.2 Village water Committees.

Findings revealed that , 93.4% of respondents show people are aware of village water committees in study area. The water committee is very essential in rural water systems. Through it beneficiaries are supposed to contribute to the costs of the project and share the benefit. The function of the Village Water Committees principally to represent the community in contact with the development partners, to organize community contribution in term of both labor and cash, to keep project's records of expenditure and payment, to collecting water tariffs, to organize Water Committees meetings for discussing and deciding on issues and problems, and to inform the community on regular basis on the decisions reached (TASAF projects handbook, 2005).

5.3.3 Availability of by-laws

By-laws are effectively local laws that deal with local issues. They are made by a body, such as a local authority, using powers granted by an Act of Parliament, and so are forms of delegated legislation (Oxford LibGuides, 2002). The study scrutinized the respondents concerning their understanding of the bylaws protection of their water sources, the summary of the findings were as follows: 72.2% said they were

have by-laws, 21.1% they said they don't have by-laws and 6.7% said they don't know if there are by-laws or not. From interviewing one key informant, she responded that:

“Our department is the one which is responsible for training all villagers in making by-laws. In this ward I am responsible for this, and I together with some officers from the Community Development Office and from the Department of law we made it. So I assure you all these villages in my ward have by-laws and they use it. You can get different answers on this like we don't know, or even we don't have by-laws. You know some people don't like them. People like changes but don't want to change, they don't want to leave their traditional behavior, they like to cultivate near water sources, cut water friendly trees and some people naturally don't want to participate in community activities”

The same question was asked to another key informant who responded:

“We have by-laws which were enacted since 1999, we use them and many were punished after breaking such laws by planting unfriendly trees like bamboos near water sources. The cash we get helps us in other developmental activities in our village. We paid school fees for orphans. The case of those who break laws concerning water issues, the cash paid is normally used to do maintenance and buying spares”.

The above quotation from a key informant shows that the community is aware about by-laws, through receiving various training concerning water resource management as well as by-laws. Furthermore, the findings revealed that training about by-laws formulation and use were conducted and the community was involved in passing these by-laws through village assembly meeting.

5.3.4 Involvement of community in water protection

According to guidelines on effective community involvement, Community involvement is effective interactions between planners, decision makers, individual and representative stakeholders to identify issues and exchange views on a continuous basis. It is important to involve different stakeholders and community in water resource management so as to increase strength on this. People involvement creates sense of ownership among villagers. Stakeholder's involvement is a key factor of success in implementation of policy. Parsons (1995) argues that if the

policy to be implemented does not have the support from influential political leaders, influential individuals from community and interest groups it may not be easily implemented. In this case if community is fully involved in performing activities it can facilitate make sustainability and accessibility of social services. From findings it revealed majority were participating in cleaning water points and water sources once per months. The researcher on when visiting water points and water source she observed that the points and sources were dirty. Upon being interviewing by one key informant, a village water committee member from Rungemba responded that:

“As VWC member, am responsible to make sure all water points and sources are safe always. We attended much training concerning this from district level officers from DEDs office as well as from KAPs, WWF and Rufiji basin. We tried our level best to make sure that we protect our water, though during rainy season it is difficult to get people involved in development activities as many are far out for agricultural activities”

Findings also show that apart from cleaning water points, 16.7% of respondents were involved in planting water friendly trees and the same percentage were involved in meeting, followed by fencing water points, prohibiting human activities to be undertaken near water points and water sources as it can cause water pollution. During the discussion with one of the key informants, VEO of Kitelewasi Village said:

“We had meeting with WDF, and during meeting we had asked for trees to plant around sources. We received water friendly trees called Mivengi from WDF for planting around water source. This helps in preventing our environment from water pollution and restores springs water”

The implication of this is that, community is aware of their responsibility about water resource management. They should be involved in all activities in all works related to water resource management. Involving community increased strength in community work especially in community projects (NAWAPO, 2002). Awareness on community involvement should be enhanced so as to increase community strength at all levels.

5.3.5 Village Water Fund (VWF)

Village water Fund is very essential in running water projects in any area. The study shows that in the study area there are water funds established for facilitating the running of water projects. The study shows 92.3% of the respondents were aware of availability of water funds. It is traditional that when you establish any water projects you must formulate Village water funds. The funds are collected from each household whether monthly or annually. But from our study findings show that though there were VWF, still the water taps and hand pumps were not maintained which made only water tap from Rungemba village to be the only one pump functioning and only one tap and one only one hand pump is functioning at Kitelewasi village.

The Tanzania National Water Policy put emphasis on community driven development. It recommends participatory planning and cost sharing to help in construction, operation and maintenance of community based domestic water supply systems in the rural areas. This means that whether or not the community is paying anything for the water consumed by it, the water can be accessible hence the sustainability of projects. This aspect is not only linked with the operation and maintenance aspect of water project, but also with its sustainability. In this sense the community has enough funds available to undertake out the required operation and maintenance costs.

“The community which pays charges to the water services gives a good signal that the water supply project will operate for a long period of time” (TASAF Projects Handbook, 2008). The response on awareness of availability of village water fund, the reply was that;

“Water is free commodity though in order to make it sustainable we need to be charged for water service. We normally pay once a year T.shs 10,000/= for each household after or during harvest period, though it is still difficult for them to pay due to poverty among households. Some people adjusted and started to pay though it is difficult for others as they still think it is government responsibility”

5.4 Status of Accessibility to Domestic Water Supply

5.4.1 Sources of Water for the Households

The results revealed that the majority of respondents use stream water rather than other types of water points. The implication of that is that they use this stream water for domestic purposes because it is more accessible than other types of water. The colour is not good enough for human consumption. Responding to a question posed relating to the water point/ source frequently used by the household the key informant said

“My family normally uses water from the stream for all purposes washing, cooking and bathing. We do not have neither hand pumps nor water taps in our sub village. I’m forced to use this water as I don’t have any means of getting other water type. I know that water from stream is not good enough which it can lead to diseases like typhoid and diarrhea. I’m becoming old and I live with my granddaughter who is small so I’m the one who is responsible on fetching water for our uses”

5.4.2 Distance to water source

On accessing domestic water service the study found that 41.1% of the respondents travel 400m to 1000m for fetching water in Rungemba Ward while 31.1% of the respondents mentioned the distance of more than 1000m and 27.8% of the respondents mentioned less than 400m. This implies that, the majority of people in the community travel from 400m to 1000m to fetch water.

It is stipulated by National Water Policy that, provision of clean and safe water to the population should be within 400 meters from their households by the year 2002. Today only about 50% of the rural population has access to a reliable water supply service. This is the same with Rungemba Ward where few water points are within 400m. And 52.2% of the respondents were accessing water beyond the limit estimated, that is 400m to 1000m.

The provision of water to the people enables community to attain safe and clean water and engage in income generating activities. What is important is that, only 27% of the respondents travelled less than 400m to collect water and it is the women who transport the water home on their heads. However, during the dry seasons

people travel to alternative sources which are mainly traditional wells and or dam to collect water.

5.4.3 Sources of water for the households

The findings shows that, 48.8% of the respondents' use stream water, followed by 17.8 % of the respondents who use water from hand pumps and taps water 17.8% and 15.6% uses shallow wells. This result indicated that, many people in the study area use unsafe and unclean water compared to those who use safe and clean water. This is due to the fact that many people in the area especially those from Rungemba and Itimbo water points are not reliable, this obligates them to fetch water from traditional source like stream and shallow wells which are not safe as compared to protected sources. Responding to a question on which water source were frequently used by household for daily domestic purposes, many key informants argues that:

“My family normally uses water from the stream as it passes near my household. I know the water is not safe for drinking and cooking, as some of villagers wash their clothes and pour soupy water around stream. Not only that but also some urinate around the stream and some villagers brought their animals to drink water. This normally leads to outbreak of diseases like diarrhoea. In our areas we had many water pumps around 1980-1990 which were financed by DANIDA. They tried to allocate points near any social service facility like hospital, schools, church and where the majority live. It was good since the community didn't spend much time on fetching water exercise as population was low compared to nowadays when we have few points and population is increasing.”

“We were normally using water from taps and hand pumps for all domestic purposes, when taps and hand pumps were on use, but after they broke down we use stream water and shallow well water for all domestic purposes. We use water from streams and traditional shallow wells for all domestic purposes. like cooking, washing clothes, bathing and even watering our animals.”

It was also reported by the key the informants that in 2012 Rungemba Community Development Institute financed Kitelewasi and Rungemba villages 7 water pipe points in each village though to date only one water points is functioning in Kitelewasi and two are functioning in Rungemba village

5.4.4 Water consumption per day

Findings revealed that many people in study area uses stream water for general domestic purposes like washing, cooking, cleaning and bathing. In this study 35.5% of respondents use more than 100 litres per day and 35.5% of respondents uses around 81 to 100 litres per day. It is observed that those who use more than 100lts have families of more than six (6) people in each household. One respondent from Itimbo in response to a question on daily water consumption said,

“We have a very big problem in water; our ward has three villages Itimbo, Rungemba and Kitelewasi. Our village Itimbo has no water tap; though we had hand pumps to date no any hand pump is operating. My family fetches water from traditional shallow well which is about 800m from my house, the water is not enough and during dry season the shallow well dried. We are about six in my household we use 50lts to 70lts per day, the water is not enough for my household’s domestic use but the point which we are depending on does not have enough water”.

5.5 Challenges Community faced in Water Source/Points Protection.

The findings revealed that there are challenges facing water source / point protection; firstly people don’t want to pay for service.

People want to receive social services but they don’t want to pay for it. This discourages others who are willing to pay for service. It is ambiguous some are paying some not. We as leaders found different measures to make people pay”. (Village Chairperson-Rungemba)

Apart from that limited community involvement in community activities is another challenge faced. In this people don’t like to engage in development activities in their area. This is a very big challenge faced in all villages. Engaging in developmental activities generally doesn’t require any cash, but still people don’t want to engage in developmental activities.

“I normally participate in developmental activities, but the main problem here, you can see the same figure always, others don’t even remember when they participated in any task; this discourage those who are willing, and it is rare that leaders punish those who don’t participate”.(Community Member)

Not only that but also Scrap metal theft was among challenges raised during this study. As now day's people are busy selling scraps metal "*chuma chakavu*". Metal thefts have become a trouble and danger for our communities across the nation (Schupan, 2011).

Scrap metal selling has become a business to some dwellers as some decided to steal the metal and to scrap metal buyers from scrap metal buyers . During interview respondent said:

"Villagers are the one who stole some parts of iron and went to sell it to Mafinga. This is especially when pipes broke". (District Water Engineer)

Moreover lack of maintenance is another problem faced in water source protection. This is the case when pipes are broken intentionally or unintentionally. This problem is due to theft or when people don't want to pay for water. Through observation researcher found one pipe which was not functioning and when asked one community member responded,

"You see that pipe, it is about two years since it broke; it was donated by DANIDA, we failed to maintain it because to the facts that our leaders said they did not have enough funds to buy spares".

Distance to safe domestic water is another challenge mentioned during data collection. This is especially to those who live at the border of the village, where there are no taps or hand pumps. As reported by one key informant that:

"We have several water sources. This was not enough as the sources are located at the centre of town. For those who live far from centre it is a challenge for them. They have to use stream water which is not safe as animals use it and at the same time people use it".

Lastly cutting trees around water sources, this was hard to monitor and protect. The water sources were far away from the residences. In Rungemba Ward water sources are at the outskirts of villages so it is hard to supervise them as people went there often to cut firewood. Besides, cutting trees may cause deforestation around water sources as well as water pollution.

CHAPTER SIX

SUMMARY, CONCLUSION, RECOMMENDATIONS AND POLICY IMPLICATIONS

6.1 Introduction

The study was about “The assessment of Tanzania National Water Policy of 2002, implementation in accessing domestic water supply service”. The intention of conducting this research is to know how far policy has succeeded in provision of domestic water supply as aimed. The chapter presents the summary, conclusion, recommendation as well as Policy implication.

6.2 Summary of Findings

6.2.1 Water source protection in study area

From the finding it shows in Rungemba there are many water points and eight water sources which were protected. People used to fetch water for domestic uses from different water points which were near their households. Findings show that, the majority use stream water for general domestic purposes. Itimbo village had seven hand pumps donated by DANIDA in 2000 but during the time of the study none of the pumps was working. Many people were accessing water more than 400m differently to what is intended by NAWAPO (2002) that rural dwellers should access water within 400m. People don't want to contribute for water service as they experience frequent cut offs of water supplies. As a result people decided to dig their wells in their homestead. This is mainly the families which are well off and male headed households. In women headed households, only a few can manage to dig their well in their households. Due to this those who fetch water far from their area spend more time in this exercise rather than other income generating activities as compared to those who fetch water from nearby water points or to those who have wells near homestead.

6.2.2 The status of accessibility to domestic water supply services

Findings show that the establishment of bye-laws helped the study area concerning those violate water protection laws on water sources and water points in the study area. Having bye-laws can help people not to break the laws, like cultivating around water sources and water pollution.

Village water committee members were selected in each village, in order to manage all issues concerning water use. Village water Funds were established in order to ensure sustainability of water project. Each household contributes 10,000/= per year. Moreover, findings revealed that people at grass root level were participating in different activities in water resource management for example cleaning water points/sources, fencing water sources, planting water friendly trees, involved in meeting and secure environment around sources by prohibiting destructive human activities to go on. On district level administration the District Executive Director (DED) office provide technical support.

6.2.3 Challenges community face in accessing water supply service for domestic use

Findings show community members in study area faces many challenges relating to water accessibility in domestic water in rural area. The challenges are people don't want to pay for the water service, because there was no constant supply of water. Second, limited community involvement, third, theft of iron parts from hand pumps and water tapes and sell as scrappers, fourth, lack of maintenance and repair for broken hand pumps, water tapes, fifth, long distance to fetch domestic water, six cutting trees around water sources and other respondents mention climate change as a challenge in accessing domestic water supply.

6.3 Conclusion

Policy implementation in accessing domestic water supply in Rungemba ward has been a challenge, though there are lots of water sources in the area to be modified and used for human domestic purposes. The complexity of the water conditions at

domestic levels has in the recent past been compounded by a wide range of issues, including distance, cutting trees around water sources, cultivating around water sources and climate change. The available few water resources which are capable of meeting the high consumption demands have faced a problem of breakdown. These sources are very important for domestic uses that's why is located in residential areas. Those water points for example hand pumps and taps were donated by DANIDA and Community Development Training Institute of Rungemba.

Dissatisfaction of water colour rose due to human activities for example farming lead to pollution of the few available water resources. There is need to practice agriculture in a sustainable manner. Furthermore, the findings show that most of the challenges mentioned by respondents make domestic water unsafe inaccessible.

6.4 Theoretical Implication

This study was about assessment of Tanzania National Water Policy of 2002, and its implementation in accessing domestic water supply.. Good implementation of policy allows accessibility for domestic water supply, community involvement from the initial stage to implementation stage is compulsory aiming to sensitize all groups. The implementation theory insists on stakeholder's participation, coordinating of action across multiple organizational actors, implementers, political actors who have power to define both program details and their outcome. From this study stakeholders were involved though not in all stages for example, they were not involved in planning; they were only involved at implementation stage.

Multiple organization like KAP'S and DANIDA were involved in accessing domestic water to community. The study shows also that no political leader is able to influence community members to be serious and contribute to the maintenance of hand pumps and hand points.

6.5 Recommendations

The study recommended that the water taps and hand pumps should be maintained, so that the households can get water throughout the year. There is a need for more and strengthened community sensitization campaigns, especially on water source protection and creation of Water User Association (WUA). These recommendations are vital, as they associate implementation of water policy with the willingness of people to take part in the process of enhancing sustainable water accessibility at household level.

Also the government should support community on the improvement of water sources by providing training on issues related to water sources management in order to enhance water supply sustainability. Good management of water resource ensures community accessibility to clean and safe by improving the availability of water sources

Another recommendation is that the current status of available water should be evaluated in order to improve the quality and quantity of water in the study area. The government, community and private sector should collaborate to provide hand pumps and pipeline in maintenance and allocating new water sources.

Also, the government should support efforts to make water accessible by reducing reduction the factors that hinders water supply to the community. Those factors include reduction of distance to water sources and provision of safe and clean water to community.

The Tanzania National water Policy should be reviewed, by involving different stakeholders. That is it should be participatory in nature. It should involve different levels from grass root level to all upper levels to participate in the whole process.

6.6 Areas for further research

It is recommended that more studies should be conducted in other districts, so that the the implementation performance of National Water Policy in Mufindi District can be compared to other successful district in Tanzania.

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APPENDICES

Appendix 1: Questionnaire

Dear Respondent

My name is Nounou Mohamed Mcheka, a student of Mzumbe University pursuing Masters in Development Policy. Presently am conducting research on assessment of Tanzania National Water policy, 2002 on accessing domestic water supply at Rungemba ward. You are therefore requested to respond to the questions as instructed so as to make this study success. The information provided will be cared and remain secret. The study is very important for fulfillment of course I pursue.

Instructions

Please respond to the researcher for the correct answers.

SECTION A: Personal information.

- 1 .Name of Ward:
2. Name of Village:
3. Age
4. Sex.....
5. Marital status.....
6. Level of education.....
7. Occupation.....
8. Household size.....

SECTION B: Water accessibility.

9 How many years have you live in this area.....

10. Can you mention available water sources in your area?

- a)
- b)
- c)
- d)

SECTION C; Water accessibility

11. What is the average distance from your place to water source for domestic purpose?

- a) Below 400m
- b) Between 400m and 1000m
- c) More than 1000m

12. Which sources are frequently used for daily domestic purpose?.
.....

13. What is the average consumption of water per person per day?

- a) 5-10 lts
- b) 10-20 lts
- c) More than 20

14. Is the amount of water mentioned in the previous question enough for daily human consumption per day? YES/NO

If the answer is no give reasons

.....
.....

15 . What are the roles of following in Water Policy Implementation?

a) Community.....

.....
.....
.....

b) Village government.....

.....
.....
.....

c) Village water committee.....

.....
.....

SECTION D ; Water protection

16. Who are responsible in protecting water sources?

a. Community

b. Village government

c. Village water committee.

17. How people participate in protecting water sources.....

.....
.....

18. Do you have byelaws regarding water source protection? YES/ NO

19. If NO what is your plan.....

20. Do you have water committee? YES/ NO

21. If YES how many members do you have

22. If NO why?

23. If yes is it active?

24. What normally this WC does?

SECTION E ; Water policy implementation

25. Do you have Village Water Fund? YES/ NO

26. If yes do you have account? YES/NO

27. Do people pay for water? YES/ NO

28. Are the available water infrastructures for domestic water supply in this village/ward

adequate? YES/NO

If no what should be done to improve?

.....

.....

29. How is the community involved in the implementation of water policy?

.....

.....

.....

SECTION F ; Challenges facing on Water Policy Implementation.

30. Do you face any problem when getting water from water point?

If yes what problem?

.....

.....

Appendix 2: Checklist for the Key informant

1. What is your title?
2. When did you start working with MUWASU?
3. Why establishment of MUWASU?
4. What is your role in MUWASU?
6. What are the main sources of MUWASU water supply?
7. How do you involve the community in water related issues?
8. Do people connected to piped water afford to pay their month bills?
9. How frequent do you do maintenance of water infrastructure?
10. Are there any cases of sabotage to water infrastructure?
12. Are there any water projects to supplement water supply done by MUWASU?
13. Do private sector involve in water supply?
- 14.. What could be done to improve water accessibility to rural dwellers?
15. As leader what challenges do you face in implementing water projects in your area?

Appendix 3: Checklist for Key Informants

1. Position of respondent.....
2. Title of the respondent.....
3. How long have you been in this position?
4. What are the main sources of water at Rungemba ward?
5. Briefly explain water situation in Rungemba ward ?
6. How do you value water in Rungemba ward?
7. Is water accessible in your area?
8. If No, What should be done to improve the accessibility of water in Rungemba ward?
9. How do people involved in improving the quality and quantity of water in Rungemba ward?
10. Is there any by-laws that imposed by Rungemba ward concerning water and environment? If yes, what are those by laws
11. How do water policy implemented in your area?
13. What do you say to government to improve water service in your area?
14. As leader what challenges do you face in implementing water projects in your area?