LOCAL INSTITUTIONS AND WATER RESOURCES MANAGEMENT IN URBAN AREAS OF TANZANIA: THE CASE OF MAZIMBU WARD IN MOROGORO MUNICIPALITY

LOCAL INSTITUTIONS AND WATER RESOURCES MANAGEMENT IN URBAN AREAS OF TANZANIA: THE CASE OF MAZIMBU WARD IN MOROGORO MUNICIPALITY

By

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A Dissertation Submitted in Partial Fulfilment of the Requirements for Award of Degree of Master of Science in Development Policy (MSc. DP) of Mzumbe University

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled ***Local Institutions and Water Resources Management in Urban Areas of Tanzania: The Case of Mazimbu Ward in Morogoro Municipality,*** in partial fulfillment of the requirements for the degree of Master of Science in Development Policy (**MSc.DP**) of Mzumbe University.

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DIRECTOR INSTITUTE OF DEVELOPMENT STUDIES

DECLARATION
AND
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I, Hilda Ponsian Seluhinga, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature ……

Date ……

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DEDICATION

I dedicate this work to my parents, relatives, my husband and my son who encouraged me through their prayers in the course due of my study.

ABBREVIATIONS

ADB	African Development Bank
CWRM	Community Water Resources Management
DFID	Department for Foreign and International Development
DFPI	Department for Planning and Infrastructure
DWAF	Department of Water Affairs and Forestry
EC	Economic Commission
ECLAC	Economic Commission for Latin America and Caribbean
GWP	Global Water Partnership
IIED	International Institute for Environment and Development
MORUWASA	Morogoro Urban Water Supply Authority
NAC	National Action Committee
NWP	National Water Policy
OECD	Organization for Economic Cooperation Development
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	The United Nations Development Programme
URT	United Republic of Tanzania
WEO	Ward Executive Officer
WRM	Water Resources Management
WRMA	Water Resource Management Act
WRMS	Water Resources Management Strategy
WSS	Water Supply Sanitation
WUAs	Water User Associations
WUGs	Water User Groups

ABSTRACT

The study explored involvement and participation of local institutions in water resources management in Mazimbu Ward within Morogoro Municipality. The study employed a case study design where data were collected using questionnaires and supplemented by interviews (primary data) from three categories of respondents, namely community members, MORUWASA staffs and local leaders. The data obtained were analysed using SPSS version 6.

The findings revealed that more than Tsh 86,000/= was charged to the community members in getting water pipe per month. Nearly 44% of the community members were using private water tapes from their neighbourhood, who were connected from the main pipes. Public tapes were not operating well as institutions concerned were not repairing them as a time of leakages occurred for about 56%. Further it was reported that 36% of water resources management and protection rules and procedures were not cascaded down to the grassroots level hence rendering community involvement exercise difficult and unpractical at about 64%.

This study recommends providing education to community members; also, water bills to be affordable, water pipes repair and maintenance should be done by the members themselves by organizing or forming a committee which will collect money through visiting one street after another and private water pipes installation should be discouraged. These can enhance the community involvement and reduce the complications that occur due to water scarcity. Therefore, further investigation is needed on local institutions and water resources management in urban areas because still in urban areas local communities are lowly involved in management of water resources. Water tapes are left without repair and the bills given are high, service delivery is not satisfactory and there is bad governance in the distribution of water in urban areas.

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CHAPTER ONE
INTRODUCTION

This chapter focuses on seven areas which include: introduction, background to the problem, statement of the problem, objectives of the study (which includes general objective and specific objectives), research questions, significance of the study and the scope of the study.

1.1 Introduction

In Tanzania, local institutions have the right to manage water resources, protect and use it for social and economic development (Sokile & Van Koppen, 2004). As population and economy grow, water becomes an increasingly scarce valuable resource. The use of water in many areas is still highly inefficient. Therefore, this study provides a detailed assessment of how local institutions in water resource management contribute to local livelihoods in Tanzania with the case study of Mazimbu ward in Morogoro municipality.

1.2 Background to the Problem

Globally, water management has received much attention in recent years due to the trend of decline of the resource. Water resources are important for human survival and for most forms of economic production including agriculture, industrial production and power generation (IIED, 2007; OECD, 2005).

Effective management of water resources is vital for ensuring sustainable development. However, the efforts of water resource management have demonstrated inappropriate practices, especially when compared to water consumption trends in developing countries in general and in sub-Saharan African. The involvement and participation of local institutions in water resources management is important as the community members are the users of the resources. Also it is urged that the involvement of local institutions in water resources management has emerged as a response of the so called water scarcity and dwindling

of resources (Green, 1994). The inefficiencies and conflicts that arise from uncoordinated development of water resources management have stimulated and sustained a number of problems related to health, socio-economic and environment, which need to be addressed. These problems are accelerated and magnified by the countries, communities and individuals who struggle for economic and social development as many development initiatives are affected by water availability. In a world summit on sustainable development which was conducted in Johannesburg South Africa in 2002, it identified water as a key issue to be addressed by heads of states (World Bank, 2002).

Increased demand on water use is attributed by various factors such as population growth and economic development. These have led to increased critical concerns within profound consequences on society stability over water use (OECD, 2005).

1.3 Statement of the Problem

Local institutions have played an important role in facilitating the management of water resources, including: ensuring efficient water distribution, monitoring activities for maintenance of water resources and mobilizing community members to repair damage of water pipes (where necessary), collecting fees from community members, planning about water resources management in a participatory way, designing, monitoring, identifying the scope upon local institutions on how to use water resources accordingly, unifying local water governance, creating options for water resources management (especially at local levels), involving water users, protecting basic human needs and ensuring equitable allocation among different users of water (Hartman *et al.*, 2003).

The National Water policy aims at ensuring that beneficiaries participate fully in all stages of water resources development (National Water Policy, 2002). The policy recognizes the fundamental, but intricate linkages between water and socio-economic development and, further it expounds on the importance of water resources in domestic use, agriculture, mining, livestock keeping, energy, human

health, wildlife, tourism, forestry, navigation and trans-boundary requirements. In view of this, the Policy calls for an Integrated Water Resource Management approach in Tanzania so that "there is equitable and sustainable use and management of water resources for socio-economic development and for the maintenance of the environment" (National Water Policy, 2002).

Although the National Water Policy emphasises, the involvement and participation of local institutions in water resources management in the country, its response is not satisfactory as other community members living far from the catchment areas are not involved. This leads to the problem of water supply in sub-catchment areas and causes the presence of diseases like cholera as well as the occurrence of conflicts over water use among different users (Rajab, 2007). Community members depend on local resources available within their locality, hence, the involvement and participation in decision making is critical for successful water resources management (Knuth & Zanetell, 2004). However, these local institutions are not involved in water resources management, which leads to unpopular development issues in the study area (Agrawal & Gibson, 1999).

Consequently, the involvement and participation of local institutions in water resources management should be the subject of further investigation. Where water resources management by local institutions is little, further effort has been employed to explore how local institutions should be effective in water resources management (Middleton & Tola, 2008).

The study therefore, intended to assess the extent to which local institutions are involved in water resources management as a means to help `community members to benefit from the management of water resources.

1.4 Objectives of the Study

1.4.1 General Objective

The main objective of the study is to examine role played by local institutions in the management of water resources at Mazimbu ward in Morogoro Municipality.

1.4.2 Specific Objectives

The specific objectives for this study were to:

i. Examine the involvement and participation of local institutions in water resources management at Mazimbu ward.
ii. Identify the factors affecting local institutions involvement in water resources management at Mazimbu ward.
iii. Identify the challenges facing local institutions in promoting water resources management at Mazimbu ward.

1.5 Research Questions

i. To what extent are local institutions involved in water resources management?
ii. What are factors affecting local Institutions in water resources management?
iii. What are the challenges and capacity gaps facing local institutions in effectively engaging in the management of water resources?

1.6 Significance of the Study

The findings of the study will help policy makers to design appropriate policies that will ensure water management by local institutions in water resources. Also, the government and other academic institutions will use the research findings in learning and reviewing water use policies made by policy makers by using strategic plans for water resources management through the involvement of local institutions. Furthermore, the findings will be useful in creating awareness of various water resource users. Also, if people are aware of their water resources, it will help them to conserve properly and to benefit from it once they are given education about water

resources management and if they are well involved in planning and decision making.

1.7 Scope of the Study

The study was conducted at Mazimbu Ward, Morogoro Municipality to assess water resources management by local institutions at the ward. An attempt was made to investigate how water resources were managed through involvement and participation of local institutions.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter explores what other people have said about the local Institutions involvement in water resources management. However, there are very few literatures specifically empirical literatures which were found dealing with local institutions and water resources management in urban areas. Nevertheless, the few literatures found could suffix the purpose of this study.

2.1 Definition of key terminologies

2.1.1 Institutions

Institutions for the purpose of this study are considered as rules and regulations. They are understood in providing ways through which people can negotiate their way through the world and in providing rules for action (Leach, *et al.*, 1999).

Institutions are more critical in shaping people's livelihood and the effectiveness in which the poor can influence local development and the delivery of services. Local institutions can both promote the equitable distribution of resources and access of people to their rights or act to exclude certain groups of people from such resource and rights (DFID, 2003).

Additionally, institutions are the channels through which people are represented and through which their needs are articulated. The importance of institutions is recognized in sustainable livelihoods approaches where policies, institutions and processes interact dynamically to shape people's access to livelihood strategies, decision making bodies and influence (Ellis, 2000; Scoones, 1998).

According to North (1992), the term institutions is defined as "the rules of the game", they are "humanly devised constraints that structure political, economic and social interaction" and enable a more secure and orderly interaction.

2.1.2 Urban areas

Gondwe (1984) argue that according to the practice in Tanzania, any centre having a population of 5,000 people and basic social services is termed as an urban area. This definition could be misleading at times, since it does not take into account the incomes of the population and technological developments.

The Demographic Yearbook (2005) defines urban areas as places with some form of local authority or those which are defined by local town plans. An urban area is characterized by higher population density and vast human features in comparison to areas surrounding it. Urban areas are like cities and towns.

Prior to the 1970 population census, the definition of urban areas referred to gazetted areas, which comprised local administrative units with a population of 1000 persons or above. These gazetted areas, each under the jurisdiction of a local authority, were classified on the basis of their urban characteristics. However, for the 1970s census and the 1980s census, the criterion for a minimum population for a gazetted area to be considered as an urban was increased to 10,000 (Khoo, 1986).

As a result, the definition of urban areas used in 1991 census, referred to gazetted areas and their adjoining built up areas with a combined population of 10,000 persons or more. These gazetted areas can cover the entire administrative districts (Khoo, 1992).

2.1.3 Planned and Unplanned Urban Areas

These urban areas can be unplanned or planned. Therefore, unplanned urban areas are considered to be occupied by the poor and by socially deviant persons. The current evidence suggests that these areas are occupied by middle and high income households (Amis, 1983; Msham, 1989).

Briggs, (1991), Mabogunje (1990) and Mwamfupe (1994) argue that planned urban areas have rapid urbanization and has an accelerated urban population growth that

necessitate new consideration of the ways in which the urban development is regulated and services are planned and managed so that the town space provide a liveable and healthful environment for the population living in the urban areas.

2.1.4 Water resources Management

This term has the same connotation as integrated water resources management. Therefore water resources management is a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP, 2000).

Water resources management seeks to address coordinated and balanced way, the needs of local users, current and future beneficiaries, different water uses (such as environmental, agricultural, pastoral and industrial uses), supply and demand factors, social and economic benefits, and other aspects of water management (McGranahan & Satterthwaite, 2004; Maganga, 2002) WRM is based on the Dublin Principles, of which participation of water users in management are important elements.

The Principles agreed at the International Conference on Water and Environment held in Dublin in 1992, are as under:

- Freshwater is a finite and vulnerable resource, essential to sustain life, development, and the environment.
- Water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels.
- Women play a central part in the provision, management and safeguarding of water.
- Water has an economic value in all its competing uses and should be recognized as an economic good.

2.1.5 Water and the Tanzania 2025 Development Vision

The Tanzania 2025 vision aims at achieving a high quality livelihood for its people attain good governance through the rule of law and develop a strong and competitive economy. Its specific targets include:

1) A high quality livelihood characterized by sustainable and shared growth (equity), and freedom from abject poverty in a democratic environment. Specifically the Vision aims at:
   - Gender equality;
   - Universal access to primary health care;
   - Universal access to safe water; and
   - Absence of abject poverty
2) Good governance and the rule of law
3) A strong and competitive economy capable of producing sustainable growth and shared benefits.
4) Adequate level of physical infrastructure.

Water is one of the most important agents to enable Tanzania achieve its Development Vision objectives (both social and economic), such as eradicating poverty, attaining water and food security and sustaining biodiversity. The revised National Water Policy and subsequent reviews and reforms of existing laws, institutional framework and structures are aimed at meeting the objectives of this Vision (NWP, 2002).

2.1.6 Government Water Management Strategy

The government of Tanzania through its Poverty Reduction Strategy paper (PRSP) sets out the medium term strategy of poverty reduction and indicators for measuring progress. Among its objectives is poverty reduction through improving human capabilities, survival and social well being. However, it recognises the heavy dependence of the poor on environment, in particular the household's reliance on environment resources for income generating. Water is considered a key factor in the socio-economic development and the fight against poverty. Deliberate efforts are

therefore needed in the management of the resources in order to sustain the desired pattern of growth and consumption, and to ensure that all the socio-economic activities maximize their capacities, as articulated in the Vision 2025. This entails integrated planning, development and river basin management in support of food security and poverty reduction as well as environmental safeguards (NWP, 2002).

2.1.7 Policy Framework Related to Water use Management in Tanzania

In Tanzania various national policies and institutions have a direct or indirect link to water use management. These policies include the National Land Policy 1997, the National Agriculture and Livestock Policy 1997, the National Livestock Policy 2006, the National Forest Policy 1998, the National Water Policy 2002 and National Environmental Policy 1997. These policies are important in watershed management,water sources management and consequently reduction and management of water use conflicts when completely implemented. They also provide a framework for sustainable management and stakeholders partcicipation. However,the Local Government Authorities Act No.7 of 1982, (District Councils), also empowers District councils and villages to formulate by-laws for management of natural resources including water.

2.1.8 Tanzania National Environmental Policy (1997)

Tanazania National Environmental Policy (1997) stipulates in section 13 of the policy that the reasons for the current deteriorating state of the national environment includes inadequate land and water management at various levels; inadequate financial and human resources (URT,1997). The National Environmental Policy is crucial in management of water in general. The policy stipulates that in urban areas there is a need to provide clean and safe drinking water to local communities, to satisfy other water needs and to protect water sources. Also, in planning and implementing water resources in urban areas need to be done by all community members, not only those who live near water sources, but also those who live far away and the development programmes need to be in an integrated manner and in ways that protect water catchment areas. Moreover, promotion of technology in

urban areas for efficient and safe water use. Institution concerning for appropriate user charges have to reflect the full value of water resources in urban areas.

2.1.9 Weak capacity of institutions to manage water

Colman (1996) argues that local governmnets' performance in developing countries has not been successful in the management of their natural resources, including water, as they face financial capacity and decision making problems in various actions. Obviously, scarce availability of water has been due to poor management and increasing number of abstractions (Huggins, 2000). Hitherto, most of the water related development activities were undertaken on sectoral interests without due consideration to other sectors and associated future impacts hence leading to water use conflicts (Mdemu & Mageyane, 2005).

Paul *et al.,* (2007) found in Uluguru Mountains in Morogoro, that the institutions concerned with natural resources including water management were mainly constrained by lack of adequate financial and human resources and resistance from local people. Munish *et al.,* (2007) noted that community awareness had a direct influence towards wise use and management of natural resources including water.

2.1.10 Concept of water resources management in urban areas

Attempts towards management of water in urban areas have been made in some developing countries. The problems of water management and possibilities for integrated management are examples from a typical developing country which is Tanzania.

Water management in the urban areas of developing countries is beset with a variety of problems. These problems are largely due to lack of sound management. In urban areas, there are two major water systems; the water supply system and the waste water which is sewage system. Very few households in urban areas in developing countries are provided with water borne sanitation systems. The water systems of urban areas in developing countries often break down, thus causing disruption of

service to the communities. When a water supply of a town breaks down, its inhabitants will likely fetch water from unimproved sources like wells. The lack of coordination between the authorities concerned with water management is largely to blame for failures of the water systems (Gondwe, 1984).

2.1.11 Overview of Water Resources Management

Although nearly 70% of the earth is covered with water, only 2.5% of this is freshwater (NWP, 2002). Seventy percent of the freshwater is frozen in ice caps of Antarctica, Arctic and Greenland. The remaining 30% of this freshwater is available as soil moisture which lies in deep underground aquifers as groundwater and as surface water. Only one third of this water is found in lakes, rivers, reservoirs, dams and those underground water sources that are shallow enough to be tapped at an affordable cost.

Tanzania's annual renewable water resources are 89 cubic kilometres or 2,700 cubic meters of water per person in a year. Based on projected population from estimated 33 million in the year 2001 to about 59.8 million by the year 2025, annual average available water per capita will be reduced by 45% to about 1,500 cubic meters per person per year. This shows that the country will face a water stress situation, considering that below 1,700 cubic meters per person per year signifies water scarcity (NWP, 2002).

Over 40% of the world population lives in 263 international water bases. This situation shows that water is essential to life and cuts across every aspect of human development. Savenije (2002) described water as a special resource and it is essential since there is no life without water. Water is scarce, bulky, non-substitutable, complex.

2.1.12 Water and Socio- Economic Development

Water is a basic natural resource for socio- economic development. It is fundamental for various social economic development activities such as industrial production,

irrigated agriculture, livestock keeping, mineral processing, hydropower production, navigation and recreation and tourism (NWP, 2002).

2.1.13 Domestic Water Supply

The present population is estimated at about 34 million, of which 80% live in the rural areas. The projected population in the year 2025 is estimated to double, with 60% living in the rural areas. The growth in population will have a negative impact on domestic water supply and in sanitation and sewerage services if appropriate measures are not taken. Presently water services coverage for municipal and industrial water supply is 73% and for rural water supply is 50%. This coverage in the provision of safe water is undesirably low. In many areas of the dry central part of the country, water is so scarce that even water for personal hygiene cannot easily be found. The people, especially women and children, walk long distances to fetch water. The national economy suffers because of inadequate water supplies to the urban and rural population (NWP, 2002).

According to the National Water Policy (2002) water resources are important to our lives and development, but water is an evenly distributed in time, space, quantity and with great variations in quality. Furthermore, water is a finite and a vulnerable resource. Despite significant investment in the water supply services since the early 1970s, water supply coverage is not satisfactory. The 1991 National Water Policy had set a goal of providing clean and safe water to the population within 400 meters from their households by the year 2002. Today the coverage of water for urban areas is 73% but most urban water supplies are inadequately supplied.

Since the 1991 National Water Policy was launched, many changes have taken place in the sector with major emphasis on active participation of communities, local governments because the central government in services provision diminishes. The main shortfall in the National Water Policy of 1991 can be identified in the implementation strategies, which emphasized that the central government is the investor, implementer and manager of water resources, both in rural and urban areas.

Therefore, the revised water policy of 2002 aimed to develop a comprehensive framework for management of water resources, in which an effective 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. The policy seeks to address participatory approaches for water resources in planning, development and management. Also, the policy lays a foundation for management of water resources (NWP, 2002).

2.1.14 Water Resources Management Challenges and Policy Principles

According to the National Water Policy (2002), Sustainable water development and use implies that the actions of the present generation to develop and use water resources are taken in such a way as to ensure that the present and future generations enjoy the benefits of this vital resource which is water. This entails taking into consideration the following:

1) A minimum water requirement is guaranteed to all humans to maintain human health, and sufficient water is guaranteed to restore and maintain the health, services and functions of ecosystems.
2) Water for food security, energy production and other economic activities is readily available.
3) Water quality is maintained to meet agreed objectives and standards and that human actions do not impair the long term availability of freshwater stocks; ensure that water resources management is financed and raw water priced to promote efficiency, sustainability and equity.
4) Integrated water resources management is instituted.
5) Effective and sustainable strategies are in place to address natural and man made water resources problems.
6) Water resources planning and decision making are participatory involving all users and stakeholders.
7) Water resources data are available and easily accessible to all and an effective infrastructure and information system is in place and operational.

8) Institutional mechanisms exist to resolve conflicts over water resources.
9) Adequate number of motivated and highly skilled professionals is available.

2.1.15 Policy Issues in Water Resources Management

The objective of the policy for Water Resources Management is to develop a comprehensive framework for promoting the optimal, sustainable and equitable development and use of water resources for the benefit of all Tanzanians, based on a clear set of guiding principles (NWP, 2002). The specific objectives of the water resources management are:

1) To develop equal and fair procedures in access and allocation of the water resources.
2) To ensure that social and productive sectors and the environment receive their adequate share of the water resources.
3) To ensure effectiveness and efficiency of water resources utilisation.
4) To promote the management of water quality and conservation.
5) To promote integrated planning and management of water resources.
6) To raise public awareness and broaden stakeholder participation in the planning and management of water resources.
7) To promote regional and international cooperation in the planning, management and utilisation of water.
8) To provide the basis for future institutional framework and legislation for water resources management.

2.1.16 Water and the Environment

Water is critical to the maintenance of the environment. Management of this system is an integral part of water resources management; however there are no procedures and guidelines to ensure sustainability of these important ecological systems. Water resources are part of a management continuum starting from top to bottom. Various land use activities, such as hill slope and deforestation are responsible for soil erosion which contributes to generating sediments that are eventually deposited in dams thereby reducing their storage capacities and hence useful life. High turbidity

levels pollute water and causes costly treatment of water for domestic supply. Water related activities will have to be planned to enhance or to cause least detrimental effects on the natural environment and its health and life giving properties (NWP, 2002).

2.1.17 Water resources planning and development

Water resources management needs to have sustainable plans and development of water resources. Water resources development projects have been sectoral-oriented without due consideration to the demands of other users. This has led to failure to realize the objectives by some of the projects, or face frequent water shortages. Implementation of water resources could have serious negative impacts if no procedures, guidelines and standards are in place to govern it. In addition, planning is one of crucial aspects in water resources management. The various technical and policy issues are incorporated in the development and management plans. For a long time, water resources planning has been sectoral-oriented, regionally based or project specific, resulting in conflicts among users.

In order to have appropriate water utilisation plans the following should be done:

1) Water resources planning to be made in an integrated multi-sectoral approach. The main levels of planning are National, District and Community or User level. In addition, the plans should take into consideration the land use and water environmental linkages.

2) Development of large water schemes including construction of dams, large rainfall harvesting schemes, water intakes, river diversion works, pumping stations, water well drilling, groundwater abstraction and use, and inter-basin water transfers must meet objectives of water resources management, and should be subject to a permit and an Environmental Impact Assessment (EIA).

2.1.18 Regulations governing water resources management in Tanzania

Tanzania has a long history of evolving water management and governance mechanisms (Maganga, 2007; Huggins, 2000). "In pre-colonial time, management of water was an integral part of overall customary laws and behavioural norms of each tribal society. Some of these customs are still in operation while others have been discarded or modified" (Huggins, 2000 p.). Huggins summarized that " most indigenous systems of water management in Tanzania were based on the concept that water for certain, limited uses was free, open access resource while access for other uses was regulated and controlled by specific groups (whether chiefs, elders, clan leaders, or household heads)". Against this, the modern interventions in water management, like the widespread water reforms which are taking place, driven by the idea of Integrated Water Resources Management (IWRM) were superimposed.

Nowadays, Tanzania is experiencing a reform of the water sector like many other developing countries which are implementing Integrated Water Resource Management (IWRM). The approach of the IWRM in Tanzania is also reflected in the new legal policy bodies like the National Water Policy, 2002 and the Water Sector Development Programme 2006-2025 which aims at attaining the objectives of the National Water Policy, 2002. These policies stress on an integrated approach for water management which is participatory, multi-sectoral and multidisciplinary.

Thus IWRM is implemented in order to manage water utilisation by different users, especially, to allocate water rights; legalise, grant, modify and control water abstractions; protect the existing water rights and take defaulters of the Water Utilisation (Control and Regulation) Act, 1974 (Maganga *et al*., 2004).

2.1.19 Financing of Water Resources Management

Water resources management entails a variety of technical, administrative and legal activities that cost money to implement and that must be funded. These activities include water resources exploration, assessment, water allocation, pollution control, monitoring and evaluation, regulation and enforcement, environmental protection,

planning and development, and other cross-sector activities such as catchments management, planning and development. The constraint of inadequate resources has resulted in poor infrastructure in water resources which are important for water resources management. In order to realize the objectives of water resources management, all water uses, especially water use for economic purposes will be charged for. The level of the charges and criteria to be used will be reviewed from time to time (NWP, 2002).

2.1.20 Community water resources management

In rural areas in developing countries, CWRM has generally involved acquisition, operation, maintenance, and management of water resources for domestic uses and irrigation, rather than government provision. Moreover, sustainability of water resources management is dependent upon community commitment, appropriate technology, and long term viability of the resources in urban areas. Also, community planning and management can be scaled up by affected communities participating in watershed problem solving (Smith, 2009).

2.1.21 Options for water resources management

The aim of any water resources management system is to safeguard water security. Water security is a situation of reliable and secure access to water over time. It does not equate to constant quantity of supply as much as predictability, which enables measures to be taken in times of scarcity to avoid stress. Moreover, water resources are dynamic and need to be monitored so that they can be managed effectively. The institutions which are tasked with the responsibility of water resources management can make decisions and invoke measures to mitigate the risk of water scarcity or stress. Water resources management is important because it approaches frequently only address issues of water quality only (Lankford, 2007).

Progress in achieving sustainable water resources management across many low income countries has been slow both, for water users and governments that want to manage water resources in a more sustainable manner. A review of current water

resource management mechanisms, from the perspective of communities and households, suggests that new options for water resources management need to be considered.

2.1.22 Importance of water resources management

Many of the issues faced in water resources management are part of a bigger environmental and socio-economic picture comprising a system of pressures, states and responses. The key pressures driving the system of water resources management are population growth and increased demands for water. Issues associated with the combination of population pressures and practicing agriculture in difficult environments in many countries are intensified by weak governance.

Recently, population growth and the impact it has on issues related to water resources management have tended to be ignored. However, the potential effect that an ever growing global population could have on water supply is no longer ignored. Further complications are caused by population increase which is geographically unevenly distributed. Population density is concentrated in urban areas only. For example, the percentage of Africa's population residing in urban areas is set to rise from the current level of 40%, to greater than 50% by 2030, including the growth of small towns as well as larger cities. Moreover, for many countries in Africa, urban population growth rates will actually be about double the national average. In these countries the incidence of poverty will also increase rapidly as infrastructure and opportunities in urban areas fail to keep up with population growth (Tarwick, 2008)

2.1.23 Attributes for successful water resources management by local users

- Adequate monitoring of water resources and appropriate decision making by local users and district authorities.
- Evolving risk identification, risk management and rule modification.
- Rules relevant to local context.
- Local users have access to decision and engage in consultative committees.
- Culture of openness, cooperation between local users and district authorities.

- Water policy reflects local practices by which local users have a seat at the table where decisions are made.

2.1.24 Achievement in water resources management

It is designed to facilitate better management and use of our urban water resources by ensuring an appropriate level of consideration is given to the total water resources at each stage of the planning system. Most of areas proposed for future development in Tanzania have significant water resources management issues. Integrated water management has been proposed as the most effective way to manage these resources in an urban area development context so as to achieve more efficient and effective use of water and better results for the environment in the urban areas. This better urban water management framework provides a process of achieving better management of urban water through the application of water management via the planning systems of Tanzania (DFPI, 2008).

In all native communities in Tanzania there are customary laws relating to water rights, rules and regulations, and is observed by all. These laws are handed down from generation to generation. Under customary laws, the common notion is that water resources in any community is a resource common to all, subject to community control and not capable of being privately owned. Moreover, at the local government level, it may be observed that customary law on water use can be as important as any written enactment in regulating water resources related activities especially at the level of urban community. A universally accepted principle is that all persons belonging to the community have a right to use water resources passing through the community. The water right is possessed by all; however, subject to reasonable use. Reasonable rights entail ensuring the quality of water is preserved (Goldface, 2008).

2.1.25 Policy background of water management

There is strong links between institutional theories and policies promoting local participation.

> *"…Since common property systems provide long term and grassroots institutions, these systems are the most important for popular participation in development decision making….there is now common evidence from institutions which play a crucial role in economic development (Berkes & Taghi Favvar, 1989).*

During the past decade, there has been a trend for water resources management policies to emphasize the participation of women in the planning and management of water resources in the interests of efficiency and empowerment (UNCED, 1992; UNICEF, 1995). Such involvement is held to improve the effectiveness of water management.

For example, through enhanced operation and maintenance so as to benefit women in terms of their skills and increasing their access to decision making (Naravan, 1995).

Poor people rely more and directly on local natural resources for their livelihoods than other socio-economic groups due to lack of alternative livelihood options accessible to them Rietbergen *et al.,* (2002). That is most of the population heavily dependent on agriculture and livestock for their livelihood. Water availability largely determines when and where development can take place. Effective development and management of water resources is therefore necessary for sustainable development and poverty reduction in Tanzania.

The local communities in Tanzania face serious threats to their livelihood due to a number of factors and processes including abuse of resources and environmental degradation, rapid population growth, HIV/AIDS and poor health, poor governance, unfair resource distribution and gender discrimination. Abuse of resources has taken

the form of deforestation and pollution of water resources Ong'or *et al.,* (2001). These may affect the inhabitants to live under general poverty in Tanzania.

The UN Water Conference of 1977, which was held in Mar del Plata, Argentina, called various international meetings on water resources and the environment which have developed common understanding on how water resources should be managed. Therefore, water is a finite and vulnerable resource which is essential to sustain life, development and the environment. Also, water management and development should be based on a participatory approach involving users, planners and policy makers. Women play a central role in the use, management and protection of water resources and thus should be involved fully in the decision making process. Water has a value in all its competing uses.

In order to attain an equitable, efficient and sustainable water resources management, the Water Resources Management (WRM) should base on socio-economic and water allocation aspects which includes: water as a common use resource whose use will be determined by and have consistence in the laws, the water allocation system that distinguish and separate water use permit, a sufficient supply of water and an adequate means of sanitation as basic human needs (NWP, 2002).

In the institutional framework, water resources management requires an effective institutional set up to perform core functions of water resources exploration, water resources assessment both in quantity and quality, monitoring and evaluation, water allocation and other activities such as catchment management, planning and development. Strong institutional set up will be responsible for enforcement of the water legislation. The system of management must be designed to facilitate the involvement of responsible authorities at different levels and promote autonomy at the local level whereby appropriate, transparent and accountable management information systems are established (NWP, 2002).

More over, the districts should be responsible for planning and development of water resources in accordance with protection and conservation of natural resources in the wards, establishment of by-laws on the management of water resources and conflict resolution in accordance with established laws and regulations.

Also, Water User Associations (WUAs) and Water User Groups (WUGs) are to the lowest appropriate level of management. These Associations will be responsible for local level management of allocated water resources, mediation of disputes among users and between groups within their areas of jurisdiction, participate in preparation of water utilisation plans, conservation and protecting water sources and catchment areas, efficient and effective water use, enforcement of the law and implementation of water rights (NWP, 2002).

The involvement of users associations in water management is in various ways. In certain areas, they have provided a mechanism for allocating water to different users and solving conflicts that arise from the competing uses. While in other areas, they have encouraged excessive extraction of water by organized groups especially where members pay for water as they try to get the maximum from their water rights. It is therefore important that adequate measures are put in place to ensure that WUA help in promoting equitable water distribution among the different users. Given adequate local leadership and commitment, some communities are able to rise above the constraints of poverty and provide viable services which can help disadvantaged people (Meinzen-Dick and Pradhan, 2002).

Apart from encouraging the formation of water user associations, there is a need to ensure that users are not only adequately represented, but also effectively participating in decision making. Devolved governance system is supposed to provide such opportunity, but experience from Uganda shows that users are still left out when it comes to making important decisions.

The formulation of the new Tanzania National Water Policy (2002) was due to the weakness of the 1991 National water policy, particularly, for not addressing community participation. The overall responsibility of water resources management was left with the central government through the then Ministry of Water and Livestock Development. The 2002, National Water Policy underscores the need to have in place an active participation of communities, private sector and local governments in water resources management as the role of the central government in service provision diminishes (NWP, 2002).

The governance of water resources management focuses mainly on the coordination of collective action and collective arrangements. Institutions play an important role in the coordination of water management since they reduce uncertainty and promote coordination and cooperation among individuals. Institutional arrangements normally do shape social interactions and the way a resource is accessed and used.

For many people to access, it is the basis for sustainable livelihoods. When it comes to issues of resource access and sustainable utilization, property rights have been given attention. Property rights involve a social relationship between the right holder, other people and an institution (Meinzen, 2000).

The institutions can be derived from statutory law or customary law. Property holders can assert their rights with the associated enforcement mechanism to control access. These different rights, deriving from customary law are not equivalent. Rights over water use are not usually homogenous ownership rights that permit one to do anything with the resource, but they may rather be considered as bundles of rights that may be held by different local institutions (Meinzen & Nkonya, 2008).

Access to water contributes to the benefit of the community members. In most cases, rights to use water and access irrigation system infrastructure are linked to land rights. Nevertheless, right to water and land does not mean that each member of the community benefits from the resources in the same manner. Therefore, scrutinising

only the layer of rights and laws cannot fully grasp all modes of accessing water. There are other factors which can play an immense role in getting the benefit and enforcing the right to water and therefore need to be considered (Peluso & Ribot, 2003).

The resources in Africa have long been managed under traditional governance systems many of which still functioning at the local level. The indigenous resource management systems are reflected through the way communities organize their lives within their environment in which they lived. Decision making institutions focused on utilizing and managing environmental resources based on the knowledge of the community, and on achieving and maintaining social harmony (Kilahama, 1994). Customary systems of resources management generally run on the principle of community interest rather than individual benefit. However, there are significant gender biases and differentiation according to age amongst most customary systems.

As Christian *et al.,* (2006) emphasises that opportunities for access are facilitated not only by social relations, but also by the geographic location and climate of a place and ecological integrity of the resource's base. This is one of the crucial points since geographical location and biophysical conditions matter when analysing access to water for different uses.

In Legal Regulation of water management in Tanzania, there is a committee and officers at the local level who manage water resources while a Water User Association (WUA) is the institution which encompasses the water users at the local level. The Water Users Associations are obliged to register so as to obtain a water right and manage water for multiple uses at ward level (Hatibu *et al.*, 2004).

Hatibu *et al.,* (2004) strongly criticise the new water rights and fee system. In areas where water fees have already been introduced seems to be having negative impacts like competition and conflicts between water users. Also, there is little understanding of why some people have to pay for a resource which they consider to be of free use.

According to Water Resource Management Act No.11 (WRMA) of 2009, water resources have to be protected, used, developed and managed in ways which take into account various principles such as promoting stakeholders involvement in water resources management at all levels especially by ensuring decentralisation to the lowest possible level of government, consistent with available capacity, facilitating social development and promoting equitable access to water as essential for life and a basic of human life.

Moreover, the WRM Act No.11 of 2009 states that any person exercising powers under this Act or any other written law having a bearing in the provision of water resources management shall strive to promote and have regard to the national water policy in respect to water resources management. Also, every person in mainland Tanzania shall have a duty to safeguard and protect water resources and inform the relevant authority of any activity that may affect the quantity and quality of the water resources significantly. Through various designated institutions, have to manage the water resources for the benefit of Tanzanians where institutions will contribute to the proper management of water resources.

The 2002 National Water Policy and the 2009 Water Resources Management Act provide for stakeholders' participation in water resources management within a decentralised framework. The policy and the Act therefore make provision for the establishment of WUAs (Water User Associations) as a mechanism for stakeholders' participation. The Act defines WUA as comprising any water user from a common resource irrespective of the purpose of that use.

The role of WUAs as spelt out by the Act is as follows: to manage, distribute and conserve water from a source used jointly by the members of the association. Also, it is to acquire and operate any Permit under the provisions of this Act. To resolve conflicts between members of the association related to the joint use of a water resources; to collect water user fees on behalf of the Water Board and to represent

the special interests and values arising from water used for a public purpose, such as in an environmental or conservation area, or for the purpose of managing water.

In addition to the WUAs, the 2009 Act, provides for the establishment of Catchment and Sub Catchment Water Committees whose general functions include to: coordinate and harmonise catchment or sub-catchment integrated water resources management plan; resolve water resources conflicts in the catchment or sub-catchment, and perform other delegated functions by the Water Boards. The formation of the WUAs including their registration and supervision of their activities as well as the establishment of the Catchment or Sub-catchment Water Committees according to the Act is to be facilitated by the Water Board.

The National Water Policy (2002) explains that the community in general plays a major role in the water sector because they are the primary users, guardians and managers of water resources. Participation of both men and women in decision making, planning, management and implementation of water resources management and development will be enhanced. Youth and children as the future managers of water resources have to be involved from the early stages for better management and future sustainability of water resources. Youth and children are to be educated on the management, protection, conservation and development of water resources as they are the facilitators for change.

The Millennium Development Goals are the critical role of water in realising a world which aims by 2015. That is to achieve the following goals: Good governance including people's participation and the devolution of decision making authority and the required resources to the lowest appropriate level. And the need to have a central role for women in planning and managing water services. Also, good water management and infrastructure is vital to bring adequate and sustainable supplies of safe water and sanitation services to poorly serviced communities in urban areas. Cooperation in water resources management, particularly for its sustainable use, is critical. Development agendas and partnerships must recognise the fundamental

roles of sustainable water resources management and the provision of safe drinking water for the future life of people.

Moreover, improving water resources management can facilitate partnerships for global development (Boelee *et al.,* 2006). Therefore, responsible water resources management is vital for the environment and improves the health and well being of everybody in the community.

Nevertheless, much of the competence of local institutions is found in their knowledge about water resources management in the local context, which is important in choosing appropriate solutions. Local knowledge can form a basis of institutional framework for water resources management because local people have a direct interest in improving the quality of life in their community. Consulting with local institutions is important for determining the most appropriate intervention although not only consultation is necessary but also mobilization of the people to be involved, because an open, transparent and participation process is essential if water resources are to be managed in an equitable and sustainable way (Gabriela,2000).

Proper management of water resources is an essential component of social development, poverty reduction and equity and sustainable environmental services. All of these are essential for achieving the Millennium Development Goals. The decisions which are impacting water come from water managers and stakeholders. Leaders in the water sector dealing with water supply and sanitation have been aware for a long time that water is essential to sustainable development, but they do not make the decisions on development objectives and the allocation of human and financial resources to meet them. These decisions are made by leaders in government, who must learn to recognise the role of water in obtaining their objectives (UNESCO, 2003).

The demand for a new approach to water resources management has been heightened by the need to achieve a sustainable balance between use and protection

of water resources despite its shrinking. An integrated approach linking to water management, land use, the environment and human activities and involving cooperative governance by the Government and other stakeholders has been proposed as the logical way forward (DWAF, 2001). For this to become a reality, it is necessary to develop enduring partnerships based on a common approach between the participating institutions.

Regarding to water policy formulation and implementation, as well as institutional arrangements, most of the developing countries face fundamental problems relating to issues like goals and objectives dealing with water resources management (ECLAC, 1998). Both the planning and management of natural resources, including water are the concepts that can not be implemented because they are not properly defined and operationalised.

Managing water effectively requires competent and trusted institutions as well as economically, socially and environmentally sound investments in infrastructure. Water resources planning and management must be linked to a country's overall sustainable development. Better management of water resources at local level needs a support of a sound policy framework (Lenton & Muller, 2009).

It is also recognised that to save the situation of water resources management, a wide range of policy measures have to be adopted. Major policy measures are required to institute better utilization and improvement in management of water resources. In undertaking water resources management, what need to be done is that all water sources should be assessed so that the most suitable and acceptable source can be chosen.

Local governments in Hungary, like those in Tanzania, are responsible for public services such as water supply and sewage management, urban development, and protection of the natural environment. Decentralisation since 1990 has not only devolved more power and responsibility to local governments but has also increased

their number (Pickvance, 2002) since in our country now days the central government has devolved the powers to local governments in the management of water resources. Recent institutional changes; however, have meant that although local authorities can be shareholders or owners in managing water services for their area; they do not always have sufficient shares to influence the service provider and contract for service provision (Hermann, *et al*., 2000).

In Romania the institutional framework, water policy and local government Water legislation and policy is based on the 1996 Water Law, the 1995 Water Strategy, and the 1995 Law on Environmental Protection. Romania's Ministry of Environment and Water Management is the central public authority responsible for the implementation of national policy in environmental protection and water management. This is also important to Tanzania because there is the law for environmental protection and also the ministry of environment is present which deals with the protection of environment in order to have good management of water resources in urban areas. The role of the local government is bringing together the local community, but to achieve this there needs to have better trust and mutual understanding between local authorities and the people they represent.

2.1.26 Water Use Management Plan process

Pre-planning phase: Water resources management committee and sub-committees responsible for the development of the Water Use Management Plan in the specific area are formed. The first role of the committee is to agree upon the proposed principles of water resources management in the area.

Planning phase: The community receives training and conducts water sources inventory within the area, classifying sources in terms of categories such as type, location and flow rate. Water resources are reviewed and assessed by the water resources committee in the area. An assessment of water demand is also carried out. The current proportion of water from water sources used by different users is determined to highlight where water sources are not being fully utilised. Water

resources committees propose a system of water allocation and prioritisation that ensures equity among all water users.

Post planning phase: The Water Use Management Plan is implemented and steps taken to obtain endorsement of the plan within governmental planning schemes. Monitoring and evaluation of the plan is continually conducted via monitoring of water sources. Changing land use that impacts on water use enable the plan to be regularly updated by the sub-committee and changes incorporated where necessary (EC, 1998).

2.1.27 Empirical Literature Review

The literature suggests the relevance of water resources management and water supply and sanitation project, efficiency, effectiveness, equity, sustainability and impact in urban areas (ADB, 2009; Batley, 1996).The relevance entails questioning the usefulness of water supply and sanitation in urban areas; whether its priority, its benefits to the people and also its concord with local context and environment (ADB, 2009; Nickson & Francey, 2003).Efficiency concerns the use of water resources. It measures the relationship between resource inputs and outputs both in operational and financial terms; this means that how water in urban areas is supplied and used by the communities (Nickson & Francey, 2003).

Effectiveness by local institutions in water supply and sanitation (WSS) involves outcomes such as a degree of social mobilization, coverage of supply, regularity of water and tape pressure, water treatment and education about water resources management. According to Nickson and Francey (2003), from the point of view of consumers or customers, effectiveness of water resources management is assessed in terms of: water availability, water quality, involvement and participation and customer satisfaction. Assessment of availability of water includes the average number of hours per day for which water supply is available and also the pressure at which water flows. Water quality is treated as a technical matter and assessed in terms of the degree to which water meets the agreed standards. An alternative

assessment of water supply that is widely referred to in literature (for instance ADB, 2009; URT, 2006; Water Aid, 2002) and adopted under target seven (7) C of the Millenium Development Goals is accessing water from safe, protected or improved source.

As similar expression of quality, it is provided under goal (3) of cluster II of Tanzania National Strategy for Growth Reduction of Poverty. This goal refers to "increased access to clean, affordable and safe water and sanitation..." (URT, 2006 p.). The use of water resources that are protected from contamination by run off water, among effluents is commonly accepted as a proxy for safe and good quality water. Examples of such sources are piped water, protected wells and springs. Unsafe sources characterised by poor quality water include surface water such as traditional dams, lakes and water from tanks and street vendors (Marshall, 2001; Water Aid, 2002). In addition, the literature refers to community perceptions of the quality of water (usability, flow and access to it) as important assessment criteria in water resources management in urban areas (ADB, 2009; Kamiza, 2005; Water Aid, 2003). Customer satisfaction can be assessed by the number of complaints recorded per year. They often concern billing, poor water quality and interruptions to the supply. (Nickson & Francey, 2003; Water Aid, 2002).

Equity focuses on whether intervention addresses the needs of marginalized and poor (Nickson & Francey, 2003; Sohail, 2003; URT, 2009).This emanates from a concern to ensure that the poor have access to affordable clean water and basic sanitation. The most common indicator of equity is coverage of networked water and public standpipes. Nonetheless, Nckson and Francey (2003) caution that low service coverage may not necessarily mean poor supply because the residents may have access to other alternatives such as protected wells and even water supplied by street vendors. They also add that to ensure access of the poor to these vital services various arrangements may be required.

Water is a precious natural resource, vital for life, development and the environment. It can be a matter of life, depending on how it occurs and how it is managed. When it is too little, it can bring destruction and sometimes conflicts. Irrespective of how it is supplied, if properly managed it can be an instrument of economic survival and growth, where at the same time bringing prosperity to all. However, when it is inadequate in either quantity or quality, it can be a limiting factor which can result in low productivity, food insecurity and constrained economic development. Moreover, it is important to note that the issue of water concerns almost everyone in a community. It is also an issue that concerns government and local levels both within and outside the community. Therefore, stakeholders in water supply may literarily mean everybody in a community (Gbadegesin & Olorunfemi, 2007).

New strategies for water resources management are urgently needed to avert severe local water scarcities. A large share of water to meet new demands must come from water saved from existing uses through a comprehensive reform of water policy. Such reform will not be easy, because both longstanding practice and cultural beliefs have treated water as a free good and because entrenched interests benefit from the existing system of subsidies and administered allocations of water. Furthermore, the gains from demand water resources management will be more difficult to achieve than is suggested by much of the literature (Cai *et al.*, 1999).

Moreover, a new era for water management is the increasingly difficult problem facing water resources management all around the world. But from the past to present, there is growth of population and social activities which need more water within this ward. That means water is inevitably becoming scarcer in relation to the demand. This problem becomes even more acute in the fact that the supply and demand for water does vary. Therefore, good solutions to problems are the result of defining as precisely as possible what a problem is, as well as what is not. Nevertheless, the issue of water resource management in the area focuses mainly on water supply and it receives only minimal attention by the local government (Seckler, 1996).

Water has an economic value in all its competing uses and should be recognised as an economic good. It is vital first to recognise the basic right of all human beings to have access to clean water and sanitation of an affordable price. Failure to recognise the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficiency and equitable use and of encouraging conservation and protection of water resources (Koudstaal *et al.*, 1991).

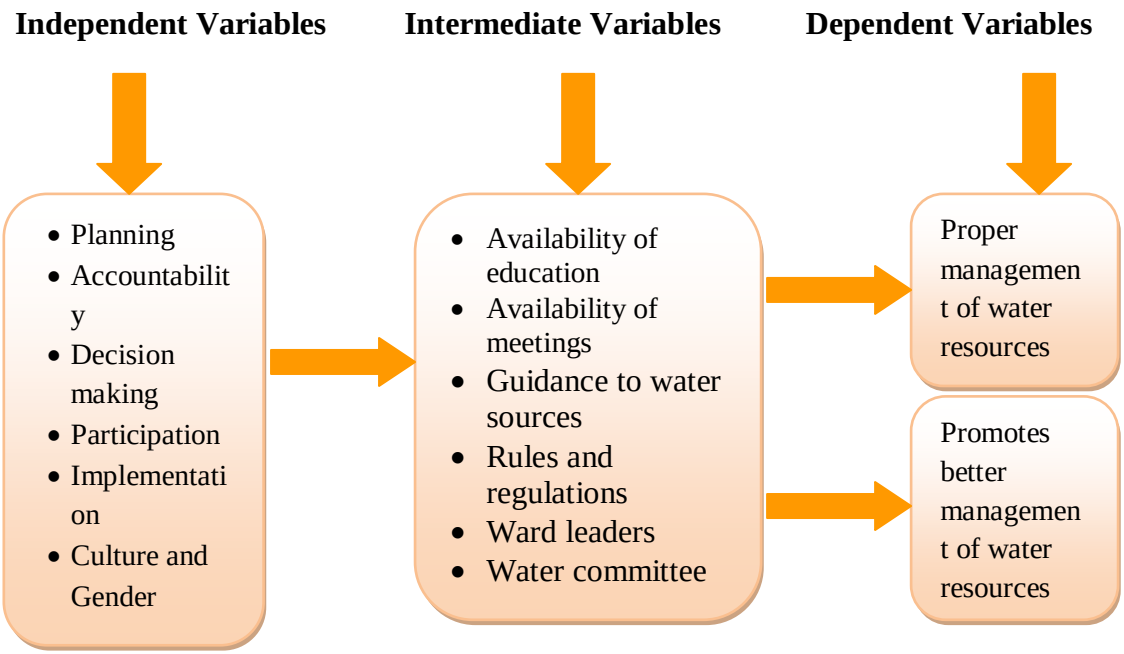
2.1.28 Conceptual framework

This conceptual framework helped the researcher to analyse the relationship between independent variables and intermediate variables which lead to proper management of water resources. The existence of good implementation, decision making, planning, participation, accountability, culture and gender with the availability of education, availability of meetings, guidance to water sources, rules and regulations, ward leaders, water committee will lead to proper management of water resources and promotes good management of water resources.

The theory which supports this framework is modernisation theory which emerged in the 1950s. The major emphasis of this theory is on investment, technology and savings. Therefore, the local government has to invest in water in order to promote water resources management in urban areas. Also, technology is very important to improve the service delivery of water especially for the public tapes which are deteriorated, hence, new machines or modern technology is needed in order to improve the water pipes and reduce the scarcity of water. According to Rostow, the transition from underdevelopment can be described in terms of stages through which all countries must pass. The advanced countries had all passed through the stage of take off into self sustaining growth. The developing countries which are still either in traditional society or the pre-conditions for take off have only to follow certain rules of development. And in order to turn into self-sustaining economic growth especially on management of water resources in urban areas and the principle strategies of development for any take off is mobilisation of people through providing education.

This is on how to conserve the environment especially areas surrounding the water sources, conducting meetings on how to improve the management of water and to follow rules and regulations concerning water management.

Figure 2.1: Conceptual Framework



Adopted from Boelee *et al.*, (2006) and Re-modified by the Researcher 2012.

Water resources management by local institutions necessitates water use which leads to coordination of various activities of water management and accountability at Mazimbu ward. This will be successful only if there is implementation and participatory strategic management. Also, if participation and decision making is improved, the management and use of water resources will be equitable by involving local institutions. Real participation only takes place when local institutions are involved in all levels of decision making. Moreover, as institutions are included in water resources management, they will facilitate more social developments at Mazimbu ward.

Effective water resources management by local institutions will be seen in the ability of water committee and ward leaders to provide an appropriate education. Basing on water management and how it can be used, this is especially to human activities like agriculture which involve the use of water. The purpose of the study is to improve the management of scarce water resources supplies in participating local institutions, with responsive framework for water resources management.

In more practical terms, a basic approach to water resources planning, particularly which aim at assessing water resources management, needs to be based on a key set of information related to water resources management. The study components seek to gather information about availability of water and its quality, including who uses water for what purposes, how the uses and users have been organized and their binding rules at Mazimbu ward.

However, in each country or area, the development and management of water resources takes place in the context of planning and that there is real coordination among all bodies which are responsible for the development and management of water resources.

Every member in a community has the right to get water for domestic use. Policies and regulations in one part or another can affect activities throughout the area if are not imposed well in water resources management. Thus, the decisions need to be formulated in the context of a broad strategy that takes assumptions about the actions of all participants in water resources management. However, it is generally accepted that to manage water resources, there is no any alternative to Integrated Water Resources Management.

Moreover, the water resources management policy insists the active participation of communities and local governments in the role of improving water resources management in urban areas. This is where water is one of the most important agents to enable it achieving its development goals in water management. Also, to provide

participation of stakeholders and the public in implementation of the National Water Policy and other related matters concerning water management.
The decentralisation policy affects the mandate and structure of local authorities which are key actors in water planning and management, structure, roles and responsibilities of the WUA. Community planning and management can be affected by communities themselves participating in water management problem solving.

Indeed, local water management in the area operates in close cooperation with the development planning committees. The committees are responsible for the formulation of local water management policy, preparation of land drainage and water resources allocation plans. They are also responsible for development of water projects in relation to the implementation of the water resources management.

As it is, local authorities are increasingly having their roles extended from delivering water supply and wastewater management. This is to have active involvement in other parts of water management cycle and components of IWRM such as land management, planning and other environmental aspects of water resources management.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter explains how the research was conducted. It provides a detailed analysis of methodologies used in data collection as well as data analysis. According to Delano and Donald (2006), these include: area of the study, research design, population of the study, sample and sampling techniques as well as methods of data collection (questionnaire, interview and documentations).

3.1 Research Design

A research design is basically a chosen plan for achieving a particular study or research and it gives details on the type of data to be collected and the techniques that will be used in data collection. In other words, it constitutes a blueprint for the collection, measurement and analysis of data (Kothari, 1990). On the other hand, a research design is a framework for specifying the relationship among the study variable and plan for selecting the sources and types of information to be used in answering the research question. This study employed a case study design and used descriptive approach to describe phenomena as they exist. It is used to identify and obtain information on the characteristics of a particular problem or issue. Descriptive research goes further in examining a problem than exploratory research, as it is undertaken to ascertain and describe the characteristics of certain issues. The descriptive research design provides description of an individual, a community, a society, an event or of any unit under investigation. In this research design, the data were collected through interviews, observation, questionnaires and so on. Also it helped to gather information related to the current status of water resource management in the area under study and to assess the use of water in urban areas.

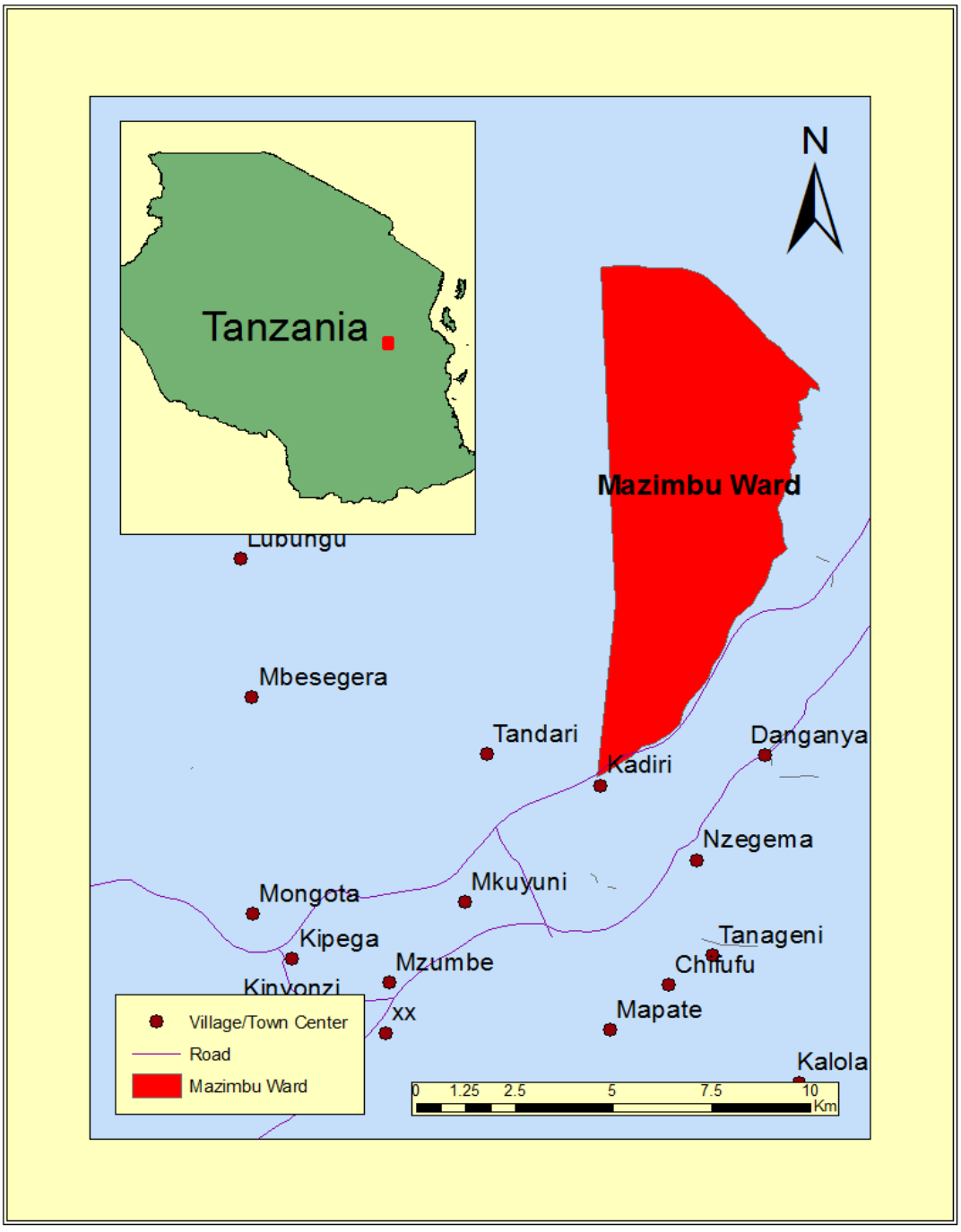
According to Rwegoshora (2006) this type of research is concerned with describing the characteristics of a particular group and it can provide detailed information on a research topic, also it deals with the current problem existing in a certain area.

3.2 Description of the Study Area

The study was carried out at Mazimbu ward which is among 29 wards of Morogoro Municipality. Other wards included *Mwembesongo, Mafisa, Kingolwira, Tungi, Mzinga, Luhungo, Kauzeni, Magadu, Mbuyuni, Lukobe, Mkundi, Kihonda, Chamwino,Kihonda Maghorofani, Mindu, Mazimbu, Uwanja Wa Taifa, Mji Mpya, Saba Saba, Boma, Kiwanja cha Ndege, Sultan Area, Mafiga, Bigwa, Mlimani, Kingo, Kichangani, Kilakala, Mji Mkuu*. Mazimbu ward has a total land area of 18 sq. kms. The major physical features include the famous Uluguru Mountains, which lie in the South eastern part, and Mindu Mountains which lie in the western part.

The study area was selected because of the little involvement of community members in water resources management, problem of water and eruption of diseases such as cholera and diarrhoea. Mazimbu ward was purposeful selected as it exhibited all characteristics of a study area. Although the purposeful sampling techniques applied, also the influence of a researcher played a great role as she resided in the nearby location.

Figure 3.1 Study area Map



Source: Morogoro Municipal Profile, 2012

3.2.1 Economic activities

Major economic activities at Mazimbu ward were subsistence farming, agriculture and livestock. The crops grown were vegetables, fruits, maize, rice, and cassava. According to the data available below shows that only few households kept livestock and many of them practiced indoor livestock keeping or zero grazing.

Table 3.1 Livestock Population

S/no	Type of Livestock	Number of livestock kept
1	Indigenous Cattle	200
2	Dairy cattle	95
3	Goat dairy	9
4	Goat local	140
5	Poultry	1,625

Source: Agriculture and livestock department, 2009

3.2.3 Water Supply

Major source of water at Mazimbu ward was Mindu dam. Mindu dam was found 7kms west of the centre of the town. The total water capacity of the sources was about 61,000m^3 daily, but the estimated quantity of water produced from all sources was approximately 19, 000 m per cubic per day, whereas only about 14,500m per cubic per day was supplied. The then water demand was about 30.000m per cubic per day 65% of the total population was supplied with water through Morogoro Urban Water Supply (MORUWASA) while 5% had their own sources of water, like wells. The rest (30%), especially those who dwelt in the upper of the stream, got water directly from the streams, which were Kigurunyembe, Ngerengere, Vituli and Mambogo.

3.3 Study Population

Mazimbu ward had a total population of 20,778 in the ratio of 49.48%, women (10,280) and 50.52% men (10,498) (Census, 2012). This ward had six streets, namely Boma, Nguzo, Reli, Modeko A, Modeko B and Mazimbu Darajani.

Table.3.2: Human population of Mazimbu ward

S/NO	Street	Population
1.	Boma	10,309
2.	Nguzo	2,780
3.	Reli	1,530
4.	Modeko A	2,533
5.	Modeko B	1,649
6.	Mazimbu Darajani	2,017
Total		**20,778**

Source: Region and District Projection Volume XII, 2009

The streets were selected using simple random sampling by mixing papers well and taking out one piece of paper from the box. This process continued until the required streets were reached because all elements had an equal chance of being included in a sample and it was simple to apply compared to other methods. The streets studied were Modeko A, Modeko B and Nguzo.

Households were selected using simple random sampling by the help of table of random numbers because it is useful when the population is large and it is not biased to any member of the population. Also, it is easy to conduct and it is the simplest of all sampling methods. It is also a fair way of choosing samples in any given population and the researcher is able to select any sample easily because all members are given equal opportunities to be selected. Its formula is $K^{th} = N/n$. Where: K^{th} is observation, N is population and n is a sample size.

The total households in the selected streets are:

Nguzo=637

Modeko A=657

Modeko B=401

$K^{th} = N/n$

637/60=10.6

657/60=10.9

401/60=7

Therefore, at Nguzo and Modeko A, the interview was after 10^{th} household and Modeko B, the interview was after 7^{th} household.

Simple random sampling using table of random numbers was used to select the sample size of 60 respondents (heads of house). Thirty (30) key informants were selected using snowball sampling where the researcher began with few respondents who are known and who met the criteria for the research who in turn gave more new names. This process continued until no more new respondents appeared. Key informants included the ward executive officer (1) and 14 extension officers, 1 Engineer (water distributer) and 14 MORUWASA staff Members and 60 community members who were selected by using purposive sampling.

3.4 Sample Size and Sampling Techniques

The selection of the sample for this study used probability and non-probability sampling techniques. Probability sampling technique used was simple random sampling which was used to get appropriate respondents (heads of house) from the ward. The non-probability sampling technique, particularly snowball sampling was used to select Ward Executive Officer (WEO), street officers, the director of MORUWASA and heads of departments and community members in the ward. The sampling techniques used helped to get correct representation for the required information.

3.5 Types and Sources of Data

3.5.1 Primary Data

3.5.1.1 Interview

This method entailed face to face conversation between the interviewer and interviewee with the aim of gathering the desired information**.** The interview guide was prepared as a tool for data collection. The method was used because it enabled the researcher to understand the respondents when answering questions asked by the researcher. An interview as a tool for data collection was used to those who could not read and write. Also, for those who had no time to fill in questionnaires.

3.5.1.2 Questionnaires

This method is simple to use compared to interview and it is free from bias on the part of the interviewers. It also makes the respondents to be comfortable when answering questions (Kothari 1991). In this study, the researcher used questionnaires to obtain data from the respondents who were not able to be interviewed.

3.5.2 Secondary Data

The secondary data were obtained through reviewing different books, files, reports, articles in order to obtain the relevant information.

3.6 Methods of Data Collection

Since it is inadvisable to rely on a single method of data collection, the researcher used a number of data collection techniques. The nature of the research design determines the data collection method (Kothari 1990). In this study the researcher used both primary and secondary data to gather the information for the purpose of achieving the objective of the study, three methods used were questionnaire, interview and documentary sources.

In order to come up with intended information for the accomplishments of the study objectives, the study used varieties of methodologies in collecting data. That is quantitative and qualitative data from primary and secondary sources, such methods were interview and observations. Some tools were incorporated in data collection, the tools were closed and open ended questionnaires.

3.7 Data Analysis

3.7.1 Data analysis, Interpretation and Presentation

This section deals with the presentation and analysis of findings, the analysis and interpretation of the findings were produced for the purpose of correlating the findings with the prior asked research question. Data were analysed qualitatively and quantitatively. Where as qualitative data were analysed by using content analysis, quantitative data were coded and entered to the SPSS version 6, spread sheet,

cleaned and analysed descriptively to get frequencies and percentages. Charts, tables, computations and comparison between the past and the current situations were made. This was done so as to enable the researcher to answer the research questions and meet the objective of the study from which conclusions and recommendations were drawn.

This process of data analysis depends much on the tabulation of the data collected. Data analysis requires a number of closely related operations such as categories and the application of these categories to raw data through coding, tabulation and drawing statistical inferences (Kothari, 2005).

CHAPTER FOUR
PRESENTATION AND DISCUSSION OF THE FINDINGS

4.0 Introduction

The study aimed at examining the role of local institutions in the management of water resources at Mazimbu Ward. The study explored the extent local institutions were involved in water resources management, factors affecting local institution involvement in water resources management att Mazimbu Ward and challenges and capacity gaps faced by local institutions in effectively engaging in the management of water resources at the Ward. Data were collected from different stakeholders who were expected to provide useful information on water resources management. Categories of respondents in this study included: local officer (WEO), and extension officers, water resources staffs especially water engineer distributers and community members at Mazimbu ward. The respondents involved were from different age groups. The groups of respondents were selected according to their roles in water resources management, distribution (supply) and use. Below are the field results:-

4.1 Streets Involved in the Study

The findings from the study indicated that the number of respondents from each street participated in the survey. The respondents were selected randomly and formed a total of 60 respondents from three streets. Random sampling technique was chosen to enable each member in the streets to have equal chance of being included in the sample. Table 4.1 below shows the distribution of respondents according to streets they hailed.

Table 4.1.Distribution of respondents according to Street of origin

Streets	Frequency	Percentage %
Modeko A	20	33
Modeko B	10	17
Nguzo	30	50
Total	**60**	**100**

Source: Field data (2012)

4.2 Involvement and Participation in Water Resources Management

The study wanted to identify the involvement in water resources management at Mazimbu Ward. The results indicated that more than 66% of the respondents were the community members. These results imply that people at Mazimbu ward were voluntary willing to participate in the study because they faced a lot of barriers to participate and plan in community development activities including water projects. These barriers included: refusal to attend meetings that addressed issue of safe water, discrimination, subordinate roles, weak leadership, lack of mobilization, lack of time and failure to see the benefit of their participation in water resources management. Their participation in water projects could influence the management of water.

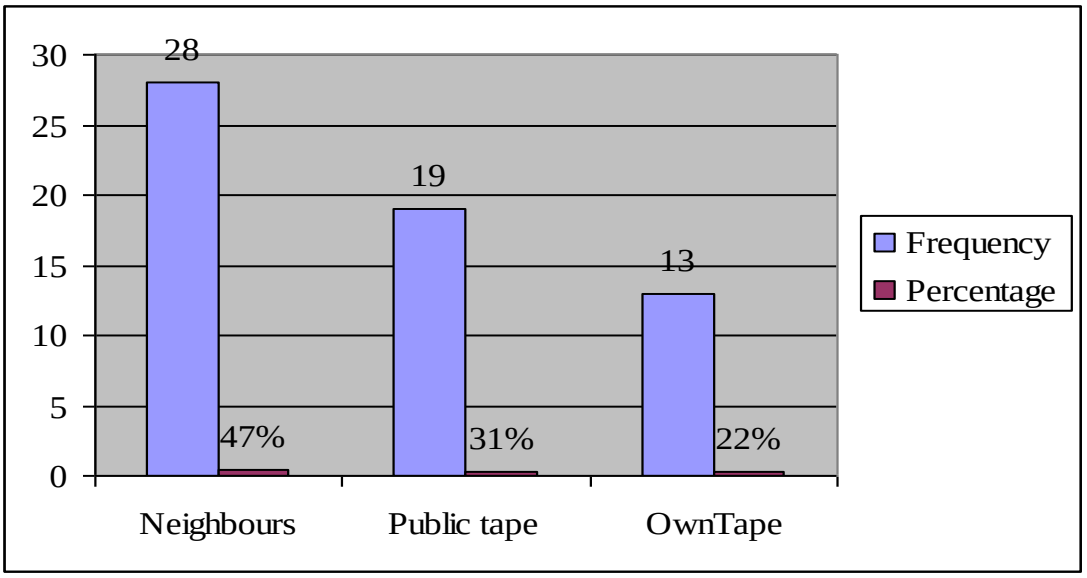
Hence this study afforded them an opportunity to express their feeling on water resources management and how they were neglected despite the great role they play in management of water resources when the issue of water arose. Because of their routine involvement in water collection, community members were generally aware of the breakdowns and leakage of water pipes when they occurred, and they carry out routine preventive maintenance. Further it was verified by the statement made by Vijita (1996) that Water management involved the participatory approach of empowering communities to provide, protect and safeguards their own water sources. Therefore, sufficient water is needed to community members at Mazimbu ward for general domestic purposes especially washing, bathing and water for drinking and cleaning.

4.3 Water Availability

In this study, respondents were asked where they got water for daily uses. The question aimed at identifying the distribution of water to the community members at the ward. It was revealed that 47% fetched water from their neighbourhoods, 31% from the public well and only 22% had tape water at their homes. This indicates that water resources has been commercialised to individuals who have capacity to manage the resources and supply to community members on fee bases while the public main water sources are left without proper administration and are not

repaired on time. Even those who use the public well complained that, the service is not continuous due to system breakdown. Figure 4.1 shows the distribution.

Figure 4.1: Water Availability



Source: Field data, 2012

In obtaining water services, community members incurred costs. Such costs differed from public tape to privately owned ones. During the study at Mazimbu ward, it was noted that, private owned tapes had high user charges compared to public tapes. The cost ranged from Tsh 3,500 per day to 86,000 per month while in public tapes charges were only Tsh 20,000/= per month. Although public tapes had lower user charges, community members preferred private tapes due to reliability on service delivery. They explained that, public tapes had always been in breakdown and it took long time to be repaired and kept the service delivery in line. In the interview, one interviewee had this to say:

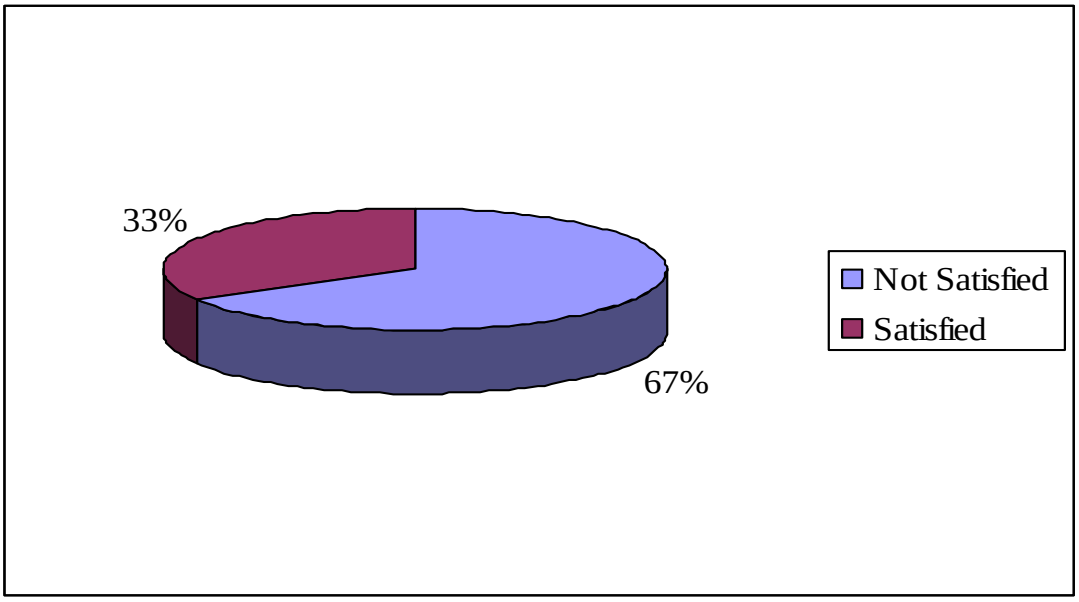
> "*…We pay high user fees and sometimes we do not see any water coming to our area, it leads us to walk long distances to find water for use…*"

Water projects should be planned not only with a cost benefit analysis but on gender analysis to have a bearing on women's inputs and time. Water should be viewed as a public good and not a commodity. Thus cost subsidiary should not be imposed on the consumer. If the user fees of given water project are high, for example, many female headed households may not have the cash or labor to make a contribution to water which they get for use. Therefore, as attempts are made to unequal gender relations in water management, participation should not be at the expense of women.

4.4 Satisfaction level of Water Service Delivery

The researcher wanted to test the level of satisfaction on water services delivery among the community members at Mazimbu ward. Results showed that more than a half were not satisfied and only 33% were satisfied. Community members needed water for multiple uses. If such important service delivery becomes questionable, problems may arise. Figure 4.2 below indicates the level of satisfaction.

Figure 4.2: Level of Satisfaction in Water Service Delivery



Source: Field data, 2012

4.5 Problems Facing Community Members

The participants in the study complained on problems that arose at the time they obtain water from private tapes. The problems mentioned were high user fees, conflict when fetching water, the owners of tapes sometimes close them, inconvenient time of service delivery and unfriendly language used by owners. These discouraged some community members to continue using private tapes in getting water even though the service delivery considered more reliable compared to public tapes. This can be justified by the word of mouth from one of interviewees complained.

> *'...I have no alternative and I don't know when this problem will end. I pay a lot of money to get water, at the same time if I come late the owner closes the tape thus I sleep without water for bathing and drinking too'.*

Beside the complaints out of 60 respondents interviewed 37% said the charges were high, 33% complained about inconvenience of service delivery, 7% said that there were conflicts, 3% said owners closed their water tapes and 20% groaned on language used by the service provider. Table 4.2 indicates the results from field.

Table 4.2: Problems faced by Community Members

Problem	Frequency	Percentage
High water Bills	22	37
Time inconvenience	20	33
Bad language	12	20
Conflict	04	7
Closing tapes	02	3
Total	**60**	**100**

Source: Field data, 2012

4.6 Community involvement in water resources management

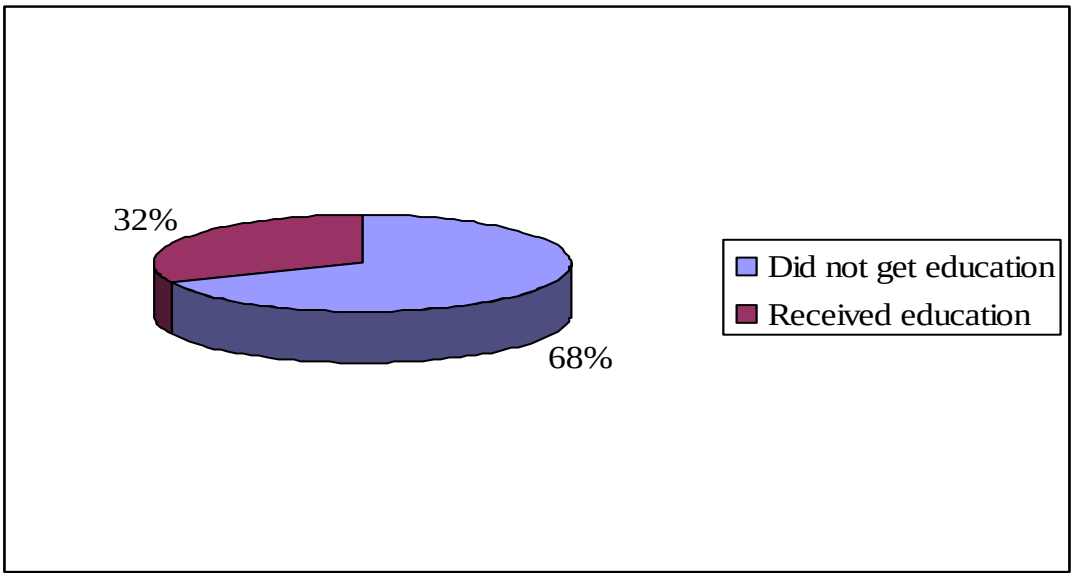
The researcher also wanted to know why the public tapes were not operating well at the ward. In order to identify the reasons behind, respondents were asked if they were involved in water resources management. It was revealed that the level of involvement was low. This was caused by bad management system, Ignorance of the

Community members, unawareness and some of the members were living far away from the water sources. The researcher also went further to determine the source of the problem by asking whether they got education related to water management. The results indicated that more than fifty percent of the community did not get education on water management while 40% agreed to have received education. Lack of education in water management exaggerated the problem and its availability as a scarce resource. The level of involvement was also hampered by gender discrimination. Women were lowly involved in decision making especially during planning about water resources management. As one of the interviewees had this to say:

> "…*One of the respondents argued that, we are not involved in water resources management and no education provided to us and only those who lived near the catchment areas are asked to participate in water planning and use"(Source, One of community members, at Mazimbu ward).*

There are currently no mechanisms by which the community can participate in the planning and management of water and sanitation services. An attempt to form a stakeholder committee to improve management of water reserves on South Tarawa had lapsed due to lack of efforts by all parties. Education, particularly of community in water resources management and campaigns are important elements in improving participation and need to be implemented at all stages of planning. The formation of village water and sanitation committees is an important mechanism for increasing participation at the local level. Figure 4.3 shows the distribution of respondents who got education on water management and those who did not.

Figure 4.3: Respondents who got Education on Water Recourse Management

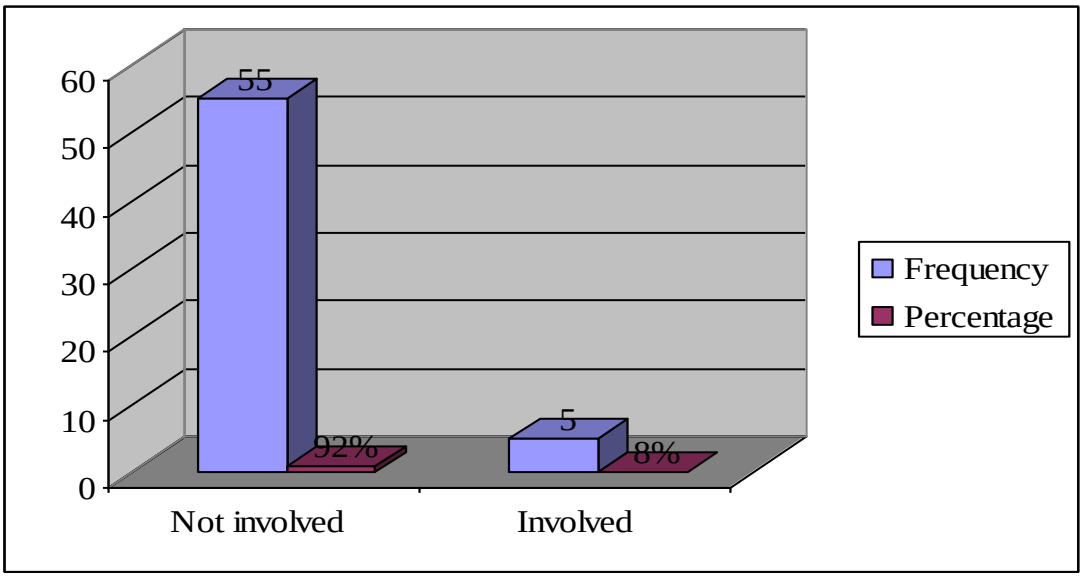


Source, Field data 2012

4.7 Ways to Involve Community Members in Water Resources Management

Besides testing the level of involvement, the researcher wanted to know the ways the community members were involved in water management. They were tested whether they were involved in planning, decision making and implementation. The results indicated that none among these ways were the community members involved. It is justified by the score that only 8% agreed that they are involved in planning, decision making and implementation and 92% respondents said that they are not involved in water sources management. Figure 4.4 indicates the field results.

Figure 4.4: Ways of Involvement

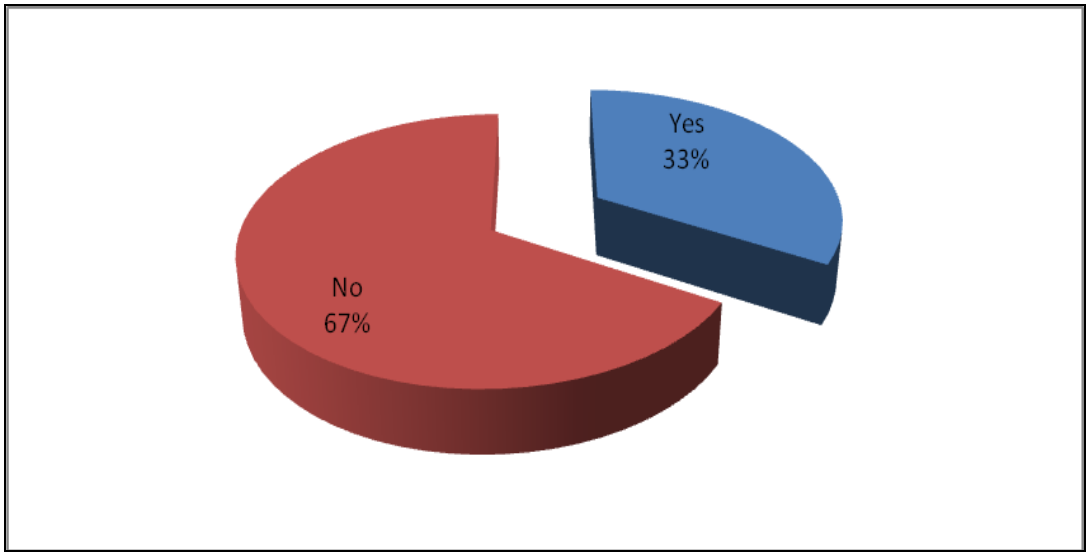


Source: Field data, 2012

4.8 Implementing Water Management and Use

Although community members somehow benefited from the management and use of water, the study also indicated that 67% of respondents said that there were low implementation in management and use of water while 33% said that there was implementation in the management and use of water. Those who argued about implementation, they said that normally the management provides feedback on the management of water during their meetings. However, the majority of the respondents claimed that the management of water does not give them enough service. Figure 4.5 shows implementation in water resources management.

Figure 4.5 Implementation in Water Resources Management



Source: Field data 2012

4.9 Local Government Officers

The researcher interviewed the local government officers to determine strategies in place for water services delivery to the community members at Mazimbu ward. During interview, the ward executive officer said that the Government of Tanzania have set water management policy in both rural and urban areas. The policy clearly states strategies for community involvement in water resources operation and management. Strategies mentioned were provision of education and environmental conservation surrounding the water sources as well as community involvement in planning, decision making and implementation. The Ward executive officer explained that the strategies in place have helped the distribution of water at the ward level.

The government also collaborates with the institution concerned with water management and distribution, in this ward MORUWASA was concerned. The institution had its own policy and procedures on water management and distribution. The community members and local government leaders had to adhere to them to avoid conflict of interest. The policies and procedures for water resources

management were clear and the institution had disseminated to community members. The ward executive officer besides explaining the ways, policies and distribution of water in his area, he admitted that water service delivery at the ward was not satisfactory.

4.10 Factors Hindering Local Institutions Involvement in WRM

In the study, the Ward Executive Officer and extension officers said that there were factors which hindered community members to be involved in water resources management. The study revealed that 39.3% of respondents explained that some of the community members were far away from water sources, 25% explained about low level of education, 15% bad leadership while 16.7% of respondents said that low encouragement was among the factors which hindered institutions to be involved in water resources management and 6% of respondents explained that cultural practices leads to poor water resources management. The results imply that there were some members of the community, who lacked ideas on water resources management due to either low knowledge, or leaders themselves misled them and they did not educate them. As Zwarteveen (1994) argues people lack access to resources, supports and incentives in water management activities. Women need encouragement and support to contribute effectively to water and natural resources conservation efforts. Lack of participation by people in decision making processes in water resources management and lack of awareness of associated by laws and legislation. Also, lack of analysis of the roles and interactions of both men and women in the different policies and programmes related to water management. Table 4.3 shows factors hindering local institutions in water resources management.

Table 4.3 Factors hindering local institutions WRM

Factors	**Percentage %**
Low education	23
Far away from water sources	39.3
Bad leadership	15
Low encouragement	16.7
Cultural differences	6
Total	**100**

Source: Field data 2012

4.11 Ways to Involve Local Institutions in WRM

The study revealed two methods used to involve local institutions in water resources management. The ways identified were: participation and empowerment of local people living along the catchment and sub-catchment areas. The methods aim to enhance water access and safeguard their access to resources at all levels. Also the issue of good governance had a great effect to water resources management as people had to be aware on issues that affected them directly. However, what was evident here was that the level of involvement was quiet inadequate that it did not entail planning and decision making which were the components for successful management of water resources. The findings contradict with various national environmental sector policies and particularly the National Water Policy of 2002. The National Water Policy stipulates that community participation in water resources management should include awareness raising, training, empowering women and men to actively participate at all levels in water programs, including decision making, planning, supervision and management.

> "…*The ward executive officer said my people are not properly involved in water resources management; this may lead to problem of water in some streets, as the result they may suffer from waterborne diseases such as cholera"*

Ostrom (1990) has argued that participation and empowerment in local institutions requires resources and it is only when the communities are involved in water resources management. Community participation through involvement of committees dealing with water management and in decision making process does not necessarily benefit the communities. A formal procedure needs to be followed in engaging community participation in water resources management, this aim to include local people in decision making.

4.12 Challenges Facing Community Members in the Management Of Water Resources

The extension officers said that the most significant challenges facing the community members in the management of water services in improving water resources management were such as shifting of responsibilities from the government to local authorities, unpredictability of law and policy which lead to contradiction in laws and policy, lack of policy integration where different elements of water resources management were managed by different actors and the integration was insufficient, little cooperation (lack of coordinated governance or low water governance) in different systems of governance. Also, there was lack of communication with local communities.

That was the local government was not communicating to communities; therefore, it failed to respond to the needs of the local communities. It had do more than layiing down water pipes and then expect the community to own it, maintain it and pay for it themselves. The local government had to accommodate the needs of local communities and give them a voice in technology choice, levels of service and management structures Even where communities were given institutional space to participate in decision-making, not everyone was consulted. Only the selected few who were literate, the elites, were informed about the water projects, sat on the committees and the end users (who were the majority) were not represented. As Julio (2001) argues that the challenges in water resources management are inadequate water policy, weak and ineffective water authority and institutional arrangements. Also, presence of serious water use conflicts, low water governance, inadequate water law and weak authority which is unable to fulfil its own roles mandated by the law. Moreover, there is lack of appropriate institutional arrangements for people's participation in water resources management. This was said by one of interviewees:

"…There is a lack of coordination between various governments in sufficient water provisions in urban areas. Further, there is sometimes duplication of effort because of lack of planning within the institutions"

4.13 Water Department Staff (MORUWASA*)*

Water department staffs were approached in order to get their opinion on water supply, protection and management. The Morogoro Urban Water Supply and Sanitation Authority (**MORUWASA**) is an entity charged with the overall operation and management of water supply and sanitation services in Morogoro Municipality replacing the former **Urban Water Supply Department**, which operated under the Regional Administration. An institution branch manager was interviewed.

In the interview, the branch manager explained that MORUWASA as an institution is charged with water supply and sewerage in Morogoro municipality. The institution aspires to be a water authority of excellence, dependable, best provider of water supply and sewerage services to the Morogoro Municipality and beyond, and it had its own culture, identity and operational philosophy. While its mission was to provide enough, clean and safe water to the Morogoro Municipal area and to avail environmentally and hygienically acceptable high quality sewerage service in the municipality. Although the institution was not local but it had a role to coordinate with local institutions within the area it operated. It had a role of empowering local individuals in water resources management, distribution, planning and collect water user fees. These findings are in line with assertion by Julio (2001) argues, the water authority has to perform different roles: Promoting and ensuring water users and stakeholders' participation or involvement in planning and decision making process, allocation of water rights, implementing and integrating an information system through different stages in water resources management. Water authority has also to perform a participative leadership where local community needs to be involved. This is very important in a country like Peru, with little tradition of public participation in water resources management. Decision making and conflict on water resources processes must be done at the local level, from the bottom up. Therefore, water authority needs to be close to users and stakeholders as much as possible.

4.14 Complaints from Community Members

The researcher wanted to know if the authority was aware on the complaints from community members. The manager admitted that they had received a lot of complaints regarding water distribution and management from the community members at the ward. These complains were obvious indicator of bad operation and management system of water resources in the area done by MORUWASA staff. Most of the community members complained about water bills they were given from MORUWASA. This was justified by the Branch Manager when he was asked about the complaints. The findings concur with NAC (1999) who assert that a role of institutions is providing rooms to share and communities have to post their complaints to responsible institutions. The form of authority may be important but sometimes is not directly related to the grassroots level or local needs. The water authority conducts coordination function in water resources management, consultation with stakeholders in order to have policy integration, monitoring and evaluation of national policy implementation on water resources management. The authority is mainly responsible for repair and maintenance of water pipes. But, they are not able to repair major breakdowns without getting the necessary tools at district level. They could only attend to minor problems.

> "…*We have received many complaints from the community members about the bills we charge. However, the authority approved, the community members have been complaining that the charges are too high and our services are not reliable. The issue of water supply is complex as it affects many people, once the service is cut off just a minute the community members will complain. Even though there are some weaknesses on our part but the complains imposed have no justifications*

4.15 Involvement of Community Members

In this study, it was revealed that sometimes the community members were not involved in all steps taken by the institution in water resources management. The people at Mazimbu ward lived far away from the water sources. Hence the

institution had ignored them but interestingly, they were concerned with people at Mlimani ward who obviously lived near the sources of water. The findings contradict with the national Water policy of 2002 and good governance which requires every member to be involved in matters that affects them directly in the management of resources.

The institution fulfilled its obligation to the community. However, the increase in population which is unproportion to the resources exaggerated the extent of the problem. Depletion of water resources has increased due to human activities in areas surrounding water sources.

The institution enhanced the water resources management through seminar, workshops and provision of education. The findings a similar to those of Amron (2009) argues that stakeholders' involvement is required because water resources management is usually characterized by involvement of different decision makers operating at different levels. Stakeholder's participation on water resources management could be achieved if there is good communication and coordination among stakeholders in all levels and stakeholders' involvement and participation. In Indonesia stakeholders' involvement and participation in water resources sector has been given attention under institutional and structural reforms at Municipal level. In this connection, bottom up approaches to planning are being very actively promoted. Public consultation is a mandatory requirement for incorporating the various demands and needs of communities and stakeholders (user groups) into the process of planning. Community members shall have equal opportunities to take role in the process of planning, implementation and supervision of water resources management.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter centres around three themes; a summary of the research study, conclusion and recommendations. The conclusion part, centres on the deduction drawn from research findings, literature review and empirical studies. The Last part is recommendations and policy implications which give suggestions based on the results obtained and how it should be done in the improvement of water resources management at Mazimbu ward.

5.1 Summary

The study was conducted to examine the role played by local institutions in water resources management at Mazimbu ward. In order to understand the level of involvement and participation, the study explored the extent of involvement, factors affecting effective participation in resources management and challenges facing the water resources management in the area. The findings indicated that community members at Mazimbu ward were lowly involved, which resulted in most of the public tapes to be out of order. Although the National Water Policy, 2002, emphasise on the local institutions participation in resources management, the same is not done in the area, and even when they are partly involved, it is gender biased and hence no improvements in water resources management in the area. It was learnt that community members were not involved in planning and decision making in water resources management, even though they were first to note when water problem occurred in the area. It is true that local institutions involvement and participation in water resources management was a critical to ensure efficiency availability and reduction on water collector's burden in the community as well as to reduce water crisis. Water was a scarce resource which affected the general livelihood of people; hence the involvement of local institutions would enhance or improve the water resources management.

The study reveale d that local institutions were not involved in resources management due to low education, distance from the catchment areas, bad governance, low encouragement and cultural differences and even corruption among private water suppliers and water authority organization. Most of the people at Mazimbu ward collected water from private tapes at cost while the public tapes were broken down and no one was accountable for repair. Although the policy states that water is a public good, it should be provided freely or at reasonable user fees for every individual to have an access to it, in this area, water resources are commercialised.

At Mazimbu ward, most of the community members collected water from the neighbourhood who had connected water tapes from the main at price. The user fees imposed were high to the extent that some were not able to meet and also there were some complications to get it. The study also identified some challenges in water resources management which included gender, decline of water resources, environmental effects and economic challenges; also the study identified the challenges facing the community members in water resources management like lack of coordinated government, unpredictability of law and policy, lack of communication, lack of policy integration. Hence, water resources management had to involve different users to ensure an effective and efficiency maintenance. The involvement should not be to people living near catchment areas as it has been at Mazimbu ward but also the people at sub-catchment and those who were at the peripheral.

5.2 Conclusions

The institutions concerned with water resources management, protection and supply have rules and procedures for involving the water users. Although these rules and procedures are in place, people at grassroots level are not aware. MORUWASA as an Institution in the region advocates that it has a role to educate and involve community members on the water resources management, protection and supply, but it has never conducted awareness meeting to community members in the area. Even

though rural leaders especially ward executive officers are educated on these rules and procedures either by their ignorance or deliberately they have not delivered the same to the grass root level. These contradictions can be justified by the responses given by three categories of respondents, namely community members, local government officers and the branch manager on behalf of MORUWASA. While the ordinary people complain that the public water delivery is poor, the executive Ward officer and leader of water department explain that the water service is conveniently provided to a satisfactory level. On the other hand, the branch manager admits that they have received complaints from the community member and yet he continues to explain that they provide satisfactory services.

Although there are laws, policies, rules and regulations governing the provision of water supply services to the communities, there is a great need to clarify the roles and responsibilities within government institutions. Better coordination is needed both within government structures, and in the way in which government bodies interact with local communities for provision of water services. Greater coordination is needed to implement the changes required in the rules, regulations and procedure critical to effective coordination. Also, Capacity building is vital at different levels within government institutions, as also within local communities in order to improve the provision and maintenance of water supply services.

People involvement at all steps of planning, decision making and implementation is paramount in both social and economic development. Water policy and Tanzania poverty Reduction strategy paper explains the importance of human capacities development, survival and social wellbeing. The development means of human being has been explained as is heavily dependence on environment in income generation. Hence if resources are not well managed the development activities can lead to depletion of these resources. Clear policies and procedures are highlighted in both rural and urban areas to prevent activities conducted near the sources of water that may lead to environmental degradation. However, the institutions in charge do not deliver the same to the grassroots.

5.3 Recommendations

In order to enhance local institutions involvement in water resources management this study recommends the following:

i) Community members at the grassroots level should be educated on water resources management, protection and uses.

ii) Water supply Institutions should ensure effective supply of water to the community and empower community members on supervision and repair of water pipes once they are damaged.

iii) Water bills should be affordable to ensure every community member is able to access and use public water tapes, as water is an important resources to every one without it problems in terms of health and socio-economics can arise.

iv) Water resources management involvement should not only be to people living near the sources of water, even those living far should be involved. Education on water resources management, protection and uses should be done to all community members in the area where the institution is in charge.

v) The institutions provision of water tapes to individuals should be discouraged, as it has been found that these individuals sell water to community members at high cost and may be deliberately discourages the maintenance of public tapes so as to continue enjoying with their businesses.

vi) The collaboration of Institution for water supply, local leaders and community members is vital in ensuring good management and protection of water resources.

vii) Local communities must participate in all stages of water management, ensuring full involvement of women in view of their crucial role in the practical day to day supply, management and use of water.

viii) Community participation in water resources management should include awareness raising, training, empowering women and men to actively

participate at all levels in water programs, including decision making, planning, supervision and management.

ix) Rules and regulations have to be imposed to local communities especially those who live near water sources.

x) Further investigation is needed on local institutions and water resources management in urban areas due to the fact that still in urban areas local communities are lowly involved in management of water resources. Water tapes are left without repair and the bills given are high, service delivery is not satisfactory and there is bad governance in the distribution of water in urban areas.

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APPENDICES

APPENDIX I:
INTERVIEW 'KIT' TO LOCAL GOVERNMENT OFFICIALS

These interview questions will be asked to the ward executive officer and Extension officers.

1. Do you think the service delivery of water in your ward is satisfying?
2. Do you think local institutions have enhanced the improvement of water supply in your ward?
3. Are the local institutions involved in water resource management?
4. What do you think are the factors which hinder the local institutions to be involved in water resource management?
5. What ways are used to involve local institutions in water resource management?
6. Which challenges are facing community members in water resources management?

APPENDIX II:

INTERVIEW KIT FOR "MORUWASA" OFFICIALS

1. Do your customers satisfied from the service you are providing?
2. How do you know that the customers are satisfied from the service you are providing?
3. How do you assess the local institutions in water resource management in urban areas especially at Mazimbu ward?
4. Is there any approach which is used in water resources management?
5. Do you think your customers are complaining about the bill of water you are providing?
6. In the process of water resources management, is there any stage which you used to involve the community members at Mazimbu ward?
7. If it is there do you involve them effectively?
8. Do you involve community members in decision making about water resources management?

APPENDIX III:

QUESTIONNAIRE FOR THE COMMUNITY MEMBERS

Dear Respondent

This questionnaire deals with the ***Local Institutions and Water Resources Management in Urban Areas of Tanzania: The Case of Mazimbu Ward in Morogoro Municipality***. You are therefore requested to respond to the questions as instructed so as to make this study a success. You are guaranteed that the information you provide herein will be cared with great privacy. The study is very important for partial fulfilment of the requirements for the award of the Degree of Master of Science in Development Policy (MSc.DP) of Mzumbe

Questions

i. How do you get water for use?

……

ii. Do you face any problems when getting water from your neighbors?

……

iii. How much do you pay for water?

……

……

Iv. How do you find the service delivery of water in your ward?

……

……

……

V. Is it satisfactory to you?

a) Yes [ ] b) No [ ]

Vi. What do you think are the factors which hinder you from been involved in water resource management?

……

……

Vii. In which way, are you involved in the water resources management in your area?

……

……

Viii. At what stage of water resources management are you involved?

i) Planning

ii) Decision making

iii) Accountability

iv) Implementation

ix. Do you get any education about water resources management?

Yes [ ] No [ ]

x. Are you involved in providing decisions in water resources management?

Yes [ ] No [ ]

xi. Is implementation in water resources management in your ward done well?

Yes [ ] No [ ]

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I thank you indeed