FACTORS CONTRIBUTING TO POOR COMMUNITY PARTICIPATION IN MANAGEMENT OF WATER RESOURCES: A CASE OF MUNGONYA SUB-CATCHMENT IN KIGOMA DISTRICT, TANZANIA

FACTORS CONTRIBUTING TO POOR COMMUNITY PARTICIPATION IN MANAGEMENT OF WATER RESOURCES: A CASE OF MUNGONYA SUB-CATCHMENT IN KIGOMA DISTRICT, TANZANIA

By

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A Dissertation Submitted to the Institute of Development Studies in Partial/Fulfillment of the Requirements for the Award of the 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 "***Factors Contributing to Poor Community Participation in Management of Water Resources: A Case of Mungonya Sub-catchment in Kigoma District Council"*** in partial/fulfillment of the requirements for the award of Master of Science in Development Policy (MSc. DP).

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DECLARATION

I, **Bona J. Mremi,** 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.

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Date_____

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DEDICATION

This dissertation is dedicated to my beloved son-“Hans-God’s Gift” and my lovely daughter “Maria”.

LIST OF ACRONYMS AND ABBREVIATIONS

BWB	Basin Water Boards
CC	Catchment Committee
DED	District Environmental Department
DWE	District Water Engineer
EC	Environmental Committee
GoT	Government of Tanzania
ISF	*Ingenieria Sin Fronteras* (Engineers Without Borders)
IWRM	Integrated Water Resources Management
IWRMD	Integrated Water Resources Management Plans and Development
JGI	Jane Goodal Institute
JUWAMAM	*Jumuiya ya Watumia Maji Mungonya* (Mungonya Water Users Association)
KDC	Kigoma District Council
LTB	Lake Tanganyika Basin
LTBWB	Lake Tanganyika Basin Water Board
LTBWO	Lake Tanganyika Basin Water Office
LUP	Land Use Plan
NAWAPO	National Water Policy
NGOs	Non-Governmental Organizations
NSGRP	National Strategy for Growth and Reduction of Poverty
NWB	National Water Board
NWSDS	National Water Sector Development Strategy
MDG	Millennium Development Goals
PRA	Participatory Rural Appraisal
PVC	Chlorinated Polyvinyl Chloride Pipes
SWM	System Water Management
TACARE	Lake Tanganyika Catchment Reforestation and Education
TVA	Tennessee Valley Authority
UNESCO	The United Nations Educational Scientific and Cultural Organization

URT	United Republic of Tanzania
USA	United States of America
USIP	United State Institute of Peace
VC	Village Chairman
VEOs	Village Executive Officers
VLUM	Village Land Use Management
WEOs	Ward Executive Officers
WRM	Water Resource Management
WRMA	Water Resources Management Act
WUAs	Water User Associations
WC	Water Committee
WUGs	Water User Groups

ABSTRACT

The study investigated factors that contribute to poor community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment. Specifically, the study focused on the nature of participation in WRM among Mungonya community members, the level of knowledge and perceptions of Mungonya community members about WRM contributing to poor community participation in WRM, individual factors contributing to poor community participation in WRM and the institutional factors contributing to poor community participation in WRM. The study was done in four villages in Kigoma District Council. A descriptive case study design was used to get a sample size of 140 respondents. However, by the end of data collection, the study managed to analyse 130 questionnaire and 6 interview guides from key informants. Both purposive and stratified random sampling techniques were employed in sample selection. The study used a questionnaire, interview checklists, Focus Group Discussions (FGDs) guide, observation checklist and documentary review methods of data collection. Quantitative data were analysed descriptively using measures of central tendency including frequencies, percentages, mean and standard deviation using the Statistical Package for Social Sciences (SPSS) version 20, and presented by using tables and figures. Qualitative data were analysed by using content analysis technique.

The study found that there was a relatively low level of community participation in WRM in the Mungonya Sub-catchment by 55.4%. This is a surprising finding considering the many efforts at both policy and practice level from the national government offered to the local governments to conserve local water resources. The nature of community participation in WRM from being more voluntary than policy tied was found to be a leading factor that contributes to this problem. This in turn, demonstrates a disparity between the established Water Resources Management Act of 2009 at the national level and its actual implementation at lower levels of the society such as in water catchment resources where the effective community participation culture is yet to be entrenched despite having a fair level of knowledge in WRM. Several stereotypical images such as: water is a free gift given by God; and water is an infinite resource was among the individual factors that had some implication on the willingness to practice in WRM. The study also observed a number of individual factors that contributed to a relative low level of community participation in Water Resource Management (WRM). The study concludes that there is indeed a need to reverse WRM practices from being more voluntary to a policy tied practice that accommodates both individual and institutional factors. The study offers several recommendations including provision of training and sensitization to raise community consciousness and awareness of environment and WRM as well as allocate sufficient budget to LTBWB for it to play its required roles.

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CHAPTER ONE

PROBLEM SETTING

1.1 Introduction

Different practitioners, policy makers, researchers as well as scholars have been contemplating on how to manage water resources for both individual and national development. Human activities have been pointed out to be major threats to the sustainability of water resources (UNESCO, 2004). There is a great demand for the community to participate in Water Resources Management (WRM). This calls for studies to explore the controversies of community participation in WRM. This chapter is comprised of the background to the problem of the study, statement of the problem, research objectives and research questions. The chapter also covers the significance of the study, the delimitation and the organization of the study.

1.2 Background to the Problem of the Study

Over the last two decades the issue of Water Resource Management (WRM) has gained scholarly attention bearing to future dramatic changes on its availability (Agarwal, Cheret & Poblette 2000). This is because water is one among the most important and essential natural resources (Dei, 2011; Mollinga & Gondhalekar, 2012). Additionally, water is an essential resource to life, a fundamental human right and very useful to meet the ever increasing demand for cultivation, domestic use, industrial use and sustenance of aquatic environment (Dei, 2011).

Despite the importance of water resources, there is strong evidence from the globe (Shabman & Scodari, 2012); Sub-Saharan Africa (Agarwal, *et al*., 2000) as well as from Tanzania's context (Kashaigili, 2010; Mwageni, 2017) which demonstrate poor community participation in Water Resources Management (WRM). While several contexts and issues have been explored such as levels of participation (Mokiwa, 2015), institutional support in WRM (Ong'or, 2014: Dei, 2011) and emerging conflicts in WRM (Mwageni, 2017), there was a great need to understand factors that contribute to poor community participation in WRM in Mungonya Sub-catchment.

Conceptually, the notion of Water Resources Management (WRM) has undergone constant conceptual transformations. According to Global Water Partnership (GWP), 2000) management of water resources meant the process whereby there was a coordinated management and development of water as a resource with inclusion of other related natural resources including land in order to maximize social and economic welfare an equitable basis without compromising the sustainability of the vital ecosystems.

This entails that the WRM within the realm of Integrated Water Resources Management (IWRM) is some sort of holistic approach that calls for adding value to the water as a resource to achieve social and economic development of the people. It also aimed at incorporating all other aspects including environment in which water was found to achieve effectiveness over competing uses thus reduce unnecessary water use conflicts. This kind of approach in managing water resources did not ignore the obligation of making sure that stakeholders at all levels understood the notion and participated fully in the process.

In the words of UNESCO (2009), Water Resource Management (WRM) entailed integrated approaches and mechanisms to protection and conservation of water sources, as well as optimization of water use, supply and control in time and space in response to immediate needs of people without compromising the future users of water. Mollinga and Gondhalekar (2012) further added that the idea of WRM revolved around the issue of freshwater management for agriculture, drinking water, sanitation, industrial use, navigation, hydropower and ecosystem services related to ecological sustainability of wetlands, lakes, rivers, and other waterscapes. In this study, however, WRM should be understood as the strategic approach in managing water resources considering water availability for all uses for the current and future generations through making sure that sectoral and stakeholders at all levels played their integral role in an integrated manner to achieve overall objectives for the whole.

Historically, the practice of WRM dates back to the time of Franklin Roosevelt, the 32nd president of United States of America (Shabman & Scodari, 2012). During that time, the president invented mechanisms to rescue the country's economy using water and land

resources of the Tennessee Valley. In the words of Snellen (2004), it is pointed out that, with this project flood was controlled, hydroelectric power was produced, navigation activities were reinitiated, erosion was controlled and the reclaimed land opened up chances for irrigation agriculture. The Tennessee Valley Authority (TVA) was one of the vivid evidence that water could serve as an economic resource and asset that needs to be conserved, protected, sustained and managed in its exploitation practices (Snellen, 2004). In fact the Tennessee Valley Authority integrated different approaches to WRM. It thus facilitated promotion and coordination of development and management of not only water but also related natural resources including land and other natural resources for the sake of maximizing the resultant economic and welfare of the society in an equitable manner devoid of indulging the sustainability of vital ecosystems (UNESCO, 2009).

To date, the common notion related to what happened in USA is called an Integrated Water Resources Management (IWRM) applicable in different parts of the world. Similarly, other nations found a great deal in dealing with the management of water resources in their respective countries but also at global level. The Dublin World Water Conference justified the need for investing in international engagement in WRM (UNESCO, 2009). There were four key principles of integrated water resources management which emerged from the Dublin World Water Conference of 1992 of which popular awareness, understanding and participation in all stages were paramount. Though the notion of Integrated Water Resource Management started to enter into the world politics in 1977 during the first Global Water Conference in Mar del Plata, it was not until after the Agenda 21 and the World Summit on sustainable Development in 1992 in Rio that it gained an extensive fame on the headlines (UNESCO, 2009).

The IWRM was a broad and cross-sectors practice adopted by nations, the key players in water management for the sake of improving and sustaining the supply of water, manage wastewater and mitigate pollution (UNESCO, 2009). The second key principle of the IWRM approach adopted states that: *"Water development and Management should be based on participatory approach involving users, planners and policy makers at all levels* (UNESCO, 2009:3)*"*. The declaration created a base of recognizing and

involving water stakeholders in water the management strategies. In our case the community residing around water resources is a primary stakeholder. There was a general experience that in some places the inadequate supply of water has lead to intensive civil conflicts (Agarwal, *et al.,* 2000). The United States Institute of Peace (USIP, 2007) asserted that violent protest broke out over the distribution of water in Pakistan and Bolivia. The USIP (2007) cited UN that 1.1 billion of people live without clean drinking water, one third of the world's population experience high water stress, 3,900 children died every day from water born diseases, women walked over 500 meters in search of water. This was due to loss of water sources hence water depletion. Development around the globe and at local contexts challenged governments, decision makers and stakeholders to rethink on how to deal with water as a resource in danger (UNESCO, 2009).

As observed by Bouman (2011), human activities have had massive impact on the degradation of water resources thus leading to their depletion. In Ghana and Kenya for instance, different anthropogenic activities entrenched on water resources like the introduction of hydroelectric power, agriculture, mining, fishing and other domestic activities. Other scholars opined that management of water resources was further complicated by chemicals which pollute water, making it less potential for contributing to socio-economic development of the society (Agarwal, *et al*, 2000; Ong'or, 2014; Gupta, 2001). Increasing rate of population growth added pressure on water demands in terms of quantity and quality of water supply and management.

Today, there are various regulations and initiatives put in place to enforce practices for sustainable use of water resources but these regulations and laws were far from being adequately adhered to by people (Dei, 2011). Implicitly the observations made by these scholars revealed that the integration of community role in managing water resources is relatively poor. Adhering to the IWRM principles, Tanzania deliberately encouraged an interrelated collaboration between governments, water communities and other stakeholders on water conservation and use. The IWRM calls for the deliberate coordination among ministries, departments, NGO's dealing with water and environment, participation of the individual person and the entire community. In

Tanzania, the practice of IWRM bound different actors and sectors (URT, 2015). It also called upon the need to integrate different sectors of economy such as agriculture, land use, mines, forestry, fishing, energy and other related sectors that benefit from the water resources. Water Users Associations have since then been involved in the basin to develop different mechanisms to rescue water resources.

Over time, the Government of Tanzania (GoT) strived to secure water resources through the enactment and amendments of its policies and laws pertaining to management of water resources. The GoT issued the National Water Policy (NAWAPO) in 2002 to replace the NAWAPO of 1991 which failed to open up more chances for the community to participate in management of water resources (URT/MW, 2014; Van Eijk, 2012). Similarly, the implementation of NAWAPO 2002 was then facilitated by the new Water Resources Management Act No 11 of 2009 (WRMA, 2009) which equally replaced the Water Utilization Act No 42 of 1974. WRMA of 2009 served to decentralize water authorities into river basin management under which community participation was key priority (URT, 2013). Practically, the WRMA, 2009 stated the need to establish water resources management entities such as Basin Water Boards, Catchment & Sub-catchments Water Committees and Water User Associations (WUA). The policy and legal statements went together with various efforts to sensitize societies surrounding basins, catchment or sub-catchment areas as well as other water sources (Mbaruku, 2016).

Several initiatives have been put in place by the GoT and other WRM agencies like Jane Goodal Institute (JGI) and the Spanish Organization called Ingeneria Sin Fronteras (ISF) in a partnership with the Kigoma District Council to enhance community's awareness on management of Mungonya Sub-catchment (ISF, 2008). In addition, the Lake Tanganyika Basin Water Office, the custodian for WRM in the Lake Tanganyika Basin has instituted a participatory formation of Water Users Association (WUA) and Water User Groups (WUGS) of which community members were the responsible stakeholders (URT, 2013). Unfortunately, neither the WUA nor the community members have impacted positively so far in WRM (Mbaruku, 2016; URT, 2013). Several detrimental activities to WRM like irrigation farming, construction of pit latrines, fishing ponds,

bricks making, fire burning, sand mining, deforestation and other domestic related uses of water are still conducted in the basin, and to be precise within sixty meters along the river (URT, 2015). Uncontrolled water diversions are massively prevailing around the Mungonya Sub-catchment. All these anthropogenic activities result into water pollution with terrible consequences to the environment and water quality and supply service deficiencies. Bearing those observations, this study explored factors that contribute to poor community participation in WRM in Mungonya Sub-catchment.

1.3 Problem Statement

The increased trend of poor community participation in Water Resources Management (WRM) has been a recurring problem in Tanzania's water sub-catchments including that of Mungonya Sub-catchment found in Kigoma District (Mbaruku, 2016). Since 2008, several initiatives have been done at both policy and practice level by the Government of Tanzania and Non-governmental Organizations. Some of the Non-governmental Organizations included Ingeneria Sin Fronteras (ISF) and the Jane Goodal Institute (JGI) operating within the Mungonya sub-catchment on Water Resource Management (WRM). Amongst others, both ISF and JGI facilitated a number of training, sensitization and mobilization of various strategies to improve community participation in managing water resources in their areas. It was expected that the water resources would be well and sustainably managed through active community participation to achieve the IWRM.

Instead, the water resources degradation had continued to a larger extent than it was before. Notably, Lake Tanganyika that largely depends on the waters from upstream sources including Mungonya Sub-catchment sub-catchment was still under increasing pressure of depletion (LTBWB, 2015). Several detrimental activities to WRM like irrigation farming, construction of pit latrines, fishing ponds, bricks making, fire burning, sand mining, deforestation and other domestic related uses of water are still conducted around Mungonya Sub-catchment thus degrading water quality and the sustenance of water source.

Despite implementation of various national water legislations and interventions, neither the water user entities in the Mungonya Sub-catchment nor the legislations in the area had brought remarkable improvements. The existed discrepancy between the efforts of the government and other WRM agencies on one side and the community reaction towards WRM practices on the other side that raised concern on the participation of the community. Different studies attempted to describe ways that community members should be involved (Dei, 2011; Mwageni, 2017; UNESCO, 2009). The present study sought to understand why there was poor community participation in WRM for the Mungonya sub River. In the attempt to uncover the unknown about reasons for poor community participation, the study specifically, identified the nature and level of community participation in WRM, find out the level of knowledge and perceptions about WRM, examined individual factors that contributes to poor community participation in WRM as well as assessed institutional factors that contribute to poor community participation in the Mungonya Sub-catchment.

1.4 Objectives of the Study

1.4.1 General objective

The general objective was to explore factors that contribute to poor community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment located in Kigoma District

1.4.2 Specific Objectives

Specifically, this study sought to:

i. Identify the nature and level of community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment,
ii. Find out the level of knowledge and perceptions about WRM that contributed to poor community participation in WRM among Mungonya community members,
iii. Examine individual factors that contributed to poor community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment,
iv. Assess institutional factors that contribute to poor community participation in WRM in the Mungonya Sub-catchment.

1.5 Research Questions

The study was guided by four specific research questions, namely:

i. What is the nature and level of community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment Sub-Catchment?
ii. What is the level of knowledge and perceptions about WRM that contributed to poor community participation in WRM among Mungonya community members?
iii. What are individual factors that contribute to poor community participation in Water Resource Management (WRM) in the Mungonya sub-catchment,
iv. To what extent are factors from institutions responsible for water management fuel poor community participation in WRM in the Mungonya Sub-catchment?

1.6 The Significance of the Study

Literally, the significance of a study entails what new knowledge or developments are the research questions of this study going to generate. The study has both the theoretical and practical significance, w hich have been categorized into: contribution to the body of knowledge; calls for a review of a Water Resources Management Act No 11 of 2009; and informing the water user entities in the sub-catchment for enhancing remarkable improvements.

1.6.1 Contribution to the Body of Knowledge

Since this study is informed by four objectives, the significance of a study will be informed by several issues emanating from those four objectives that sought to understand factors that contribute to poor community participation in Water Resource Management (WRM). As such the study has contributed body of knowledge on WRM in Mungonya Sub-catchment sub-catchment.

1.6.2 Contribution for a Review of a Water Resources Management Act No 11 of 2009

Second, examining the extent to which both, individual and institutional factors contributes to poor community participation in WRM in the Mungonya sub-catchment,

enhanced towards understanding policy and practice nexus. The study has been able to understand several raised stereotypical images such as: water is a free gift given by God; and water cannot be finished were among the individual factors that had some implication on the willingness to practice in WRM. It also helped towards understanding individual

factors that contributed to a relative low level of community participation in Mungonya Water Resource Management (WRM) such as lack of personal commitment, unwillingness to support WRM, ignorance and low education level as well as several institutional factors such as poor enforcement and implementation of the laws and by-laws, the inability of leaders to mobilize and manage human resources in WRM entities, as well as lack of financial support from the government.

1.6.3 Contribution to Water User Entities in the Sub-catchment

The findings of this study are expected to empower various stakeholders including water user entities in the sub-catchment, researchers, civil societies as well as policy makers on the empirical aspects related to WRM through proposing community awareness building strategies for improving water resources.

The study was expected to meet the needs of the international goals of ensuring that water users and stakeholders are well vested with knowledge of the community that might take part in WRM meanwhile benefiting from the water resources with limited hazards to water resources.

UNESCO (2009) report showed the intergovernmental joint efforts on water resource management was linked to IWRM in that governments were urged to implement policies which facilitate the attainment of the following development issues: i) sustaining a healthy aquatic environment, ii) Foster collaboration in the management of freshwater and coastal water, iii) Ensure sustainable water infrastructure iv) Promote collaboration in the management of land and water. In addition, the findings of the study were expected to fill the gap in knowledge on how to improve community involvement and participation in water management programmes.

1.7 Delimitation of the Study

Basically, the delimitation of this study revolves around three issues. These are: the coverage area where the study was undertaken, unit of analysis, the theory that informs the study, as well as the methodological issues such as research design utilised, sampling and sample size, and the time de-limited towards generating the study's findings. In terms of the coverage area, this study delimited itself on the search for the factors contributed to poor community participation in water resource management in Kigoma District particularly in Mungonya Sub-catchment. It also delimited in individuals engaged in several: Water Users Associations, village leaders of Mwandiga, Kibingo, Kiganza, Bitale, Kagongo, Bubango, Chankele, Mgaraganza, as well as their villagers at large. As such, it was easily to collect and measure data for this study.

The scope of the study also revolved around the functional theory of community participation propounded by Wilcox (2001). According to the theory, several aspects were studied such as: Knowledge and information, consultation, decision making, activity and supporting the community inform the levels of community participation in a given intervention. Other aspects included the initiation and process, control, power and purpose, the role of the practitioner, nature and level of stakeholders and community participation, partnership, commitment, ownership of ideas, as well as confidence and capacity. Consequently, this study utilized only four aspects to explore the unknown. Those include: nature and level of community participation, knowledge of community, individual as well as institutional factors contributing to their poor participation in WRM in Kigoma District Council.

Further, in terms of methodological issues, the generated study's findings are in consonance with the descriptive research utilized with a case study design. Its essence was to explore the case. Moreover, the generated study's findings are confined from 110 study respondents sampled through both, probability and non-probability sampling techniques. In the same vein, the study's findings have been generated between 2017 and 2018, and thus the scope of the study revolved at those years.

1.8. Limitations of the study

The time for data collection was the main limitation. While only three months were set aside for data collection, and thus interviews were carried till late hours, it was difficult for most respondents from that community to honour their appointments because of other competing work responsibilities. As such most of the interviews were rescheduled to their convenient time. Another limitation is the fact that the study was basically conducted in Mungonya Sub-catchment which forms part of the large area of the Lake Tanganyika Water Basin. Tanzania has nine basins, therefore the study could suffer from the validity of generalizations of its findings. The documentary review therefore used to help justifying the validity of the findings of the study. The third limitation was on the population representativeness since the respondents provided answers basing on their personal experiences, motives and willingness to speak the facts. It would be hard to generalize the population behaviour basing on few individuals contributions. The study therefore serves to pave the way to new knowledge about what happens in a locality and invite other scholars to venture into more details about reasons for poor community portion on WRM.

1.9 Organization of the Dissertation

The study is composed of six chapters. The first chapter sets the background of the study, problem statement, objectives, scope and the significance of the study. The second chapter covers literature review, both theoretical and empirical. Under theoretical review concepts are defined and the theory guiding the study is presented. The empirical review of other scholarly works related to the study is then presented. A conceptual framework of the study is presented at the end. The third chapter covers research methodology of the study. The fourth chapter presents the results and findings by objectives. The fifth chapter discusses the findings. Lastly, chapter six presents the summary conclusions, and policy implications of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides both, the theoretical and empirical literature review in line with the study's objectives. Sub-section 2.2 presents the theoretical perspectives of the study including definitions of terms, an overview of the problem, as well as the theory that informs the study. While, sub section 2.3 critically analyses the empirical literature drawn in line with the study's objectives, sub section 2.4 provides the conceptual framework of the study. The last part, sub section 2.5, provides a summary of the chapter which centers at filling the knowledge gap by the study.

2.2 Theoretical Literature Review

2.2.1 Definition of Concepts

The main concepts that have been operationalised in this study include community participation approaches, Water Resource Management (WRM) and Water resources management entities. Each of the concepts forms a foundation for creation of a variable useful for the study.

2.2.1.1 Community Participation Approaches

Prior to treating the mega concepts of community participation approaches, the terms community, and participation were treated separately. Community could be differently defined. It is a group of people living within the same geographical setting and share some common interests or goals though may differ in some level of preferences (Ong'or, 2005). A sociologist Charles Abrams (1960) defined a community as a mythical state of social wholeness in which each member has his place and in which life is regulated by cooperation rather than by competition and conflict. This definition is less valid to our practical experiences, since conflicts and competitions may form part of the community character with the goal of attaining the highest good. In this study, it should therefore be understood that a community is a group of people living together

within a given area whose actions and behavior and conduct are dictated by the social milieu with the aim of attaining the common goal and or objectives. Thus, the community which is referred to is Mungonya Sub-catchment forming the Mungonya community.

The concept of community participation in development is holding a vital position in recent decades (Water Aid, 2011). Many scholars have strived to explain the concept that makes it hard to underpin the meaning of the concept in a single phrase. Marijani (2017) for example, defined community participation as the strategy of involving the local people in design, management and implementation of projects that directly affect the livelihood of the people around. Government and Non Governmental Organizations interventions are implied here. In other words, this study concurred with the definition by Quin *et al*, (2011) assert that, community participation entails the level at which the people in the surrounding community take part in different aspects of social-economic development programmes worthy for their benefits. It includes ways that could affect community members like in our case expressed demand for managing water resources and involvement in selection of the technology or means of WRM. Other ways in which community members can take part in development programmes are involvement in decision making on matters affecting their daily livelihood and labour provision as well as willingness to contribute capital for operational and maintenance costs. This is similar to the argument by Anderson and MacFarlane (2010) who contend that community participation is perceived active when things are done with the people rather than doing for or to the community members. The approach of doing things for or to the people diminishes the emotional commitment of people hence insignificant output of the participation goals

The general understanding of community participation therefore implies all steps used to bring closer the local people in the entire process of initiating, designing and implementing a programme that directly affects them. It implies giving control of affairs and decisions to the community on matters of concern to its life. Gifford, Neathey and Loukas (2005) and SMARTe (201) argue that the philosophy beyond the practice of community participation approaches is to impart a sense of mutuality between

stakeholders, create sense of ownership and respect that the community feelings were to be honored and empowered. The community participation approaches normally reflect the strategies and aspects to which people do take part in running a programme or project.

It has been propounded that community participation can take place as either top-down or bottom-up processes (Stukas & Dunlap, 2002). Stukas and Dunlap (2002) further explained that in practice the two approaches differ in the degree of power and control, direction and the quality of information flow and ownership roles. The top-down community participation is commonly perceived to be under supervision of the government in the design and implementation of the programme whereas in the bottom-up approach it is the community which possess the ideal design and implementation of the project or programme. The later is considered to be appropriate as community becomes aware from introduction of the projects/development programme to evaluation and distribution of benefits. Being aware of the whole cycle increases the community's commitment in all steps of the programme.

Together with the approaches used in involving the community, there are also different levels with which the community members are perceived to participate. In the words Wilcox (2001) the levels of participation are classified into three types. The first level of participation includes aspects of information, consultation, decision making, activity and supporting the community. The second level involves aspects of initiation and process, control, power and purpose. Third level of community participation is linked to the role of the practitioner, stakeholders and community. It considers elements of community partnership, commitment, ownership of ideas, as well as confidence and capacity.

2.2.1.2 Water Resources Management

According to Water Aid (2011) Water Resource Management (WRM) came up as a mechanism to move away from traditional sub-sector approach to provision, to a greater and holistic approach to water management. The need to engage in management of water resources is also driven by the continuous falling of water tables, ground water

pollution, and serious problems of water quality. Another reason was due to increased demand for water by different water sectors and sub-sectors thereby posing challenges of effectively providing drinking water and sanitation services to poor people in urban and rural areas (Water Aid, 2011).

In connection to water resource management, the other practice was about the sustainable water management which comprises a critical component of sustainable development. It accounted for similar issues as sustainability of water, calls for the need to meet the present demands of water users without compromising the future supply, ecosystem management and aquatic environment. Both WRM and SWM sought to respond to the principles of Integrated Water Resource Management (IWRM) namely

> "*water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels play a central role in the provision, management and safeguarding of water*" (UNESCO,2009: p27).

2.2.1.3 Water Resources Management Entities

In Tanzania the entities related to WRM are hierarchical starting from the level of the nation, basin, catchment, district and finally in the community (URT, 2002). The study is more concerned with the interface between the basin level and community level. The WUA is the WRM operating entity in local community level. It is the lowest entity for management of water resources responsible for mediation of conflicts among groups of users in the area of jurisdiction, (URT, 2002). Characteristically, WUAs are composed of local community members located in a village or villages and water users from different user groups in which they work together to conserve, protect and manage water resources (Lenton, 2009).

2.2.1.4 Mungonya Community

The Mungonya community members were part of the beneficiaries who participated in water resources management training and sensitization initiatives. These initiatives were facilitated by the Government and other WRM agencies like Jane GoodalI Institute (JGI) in collaboration with the Kigoma District Council. The focus was to conserve and

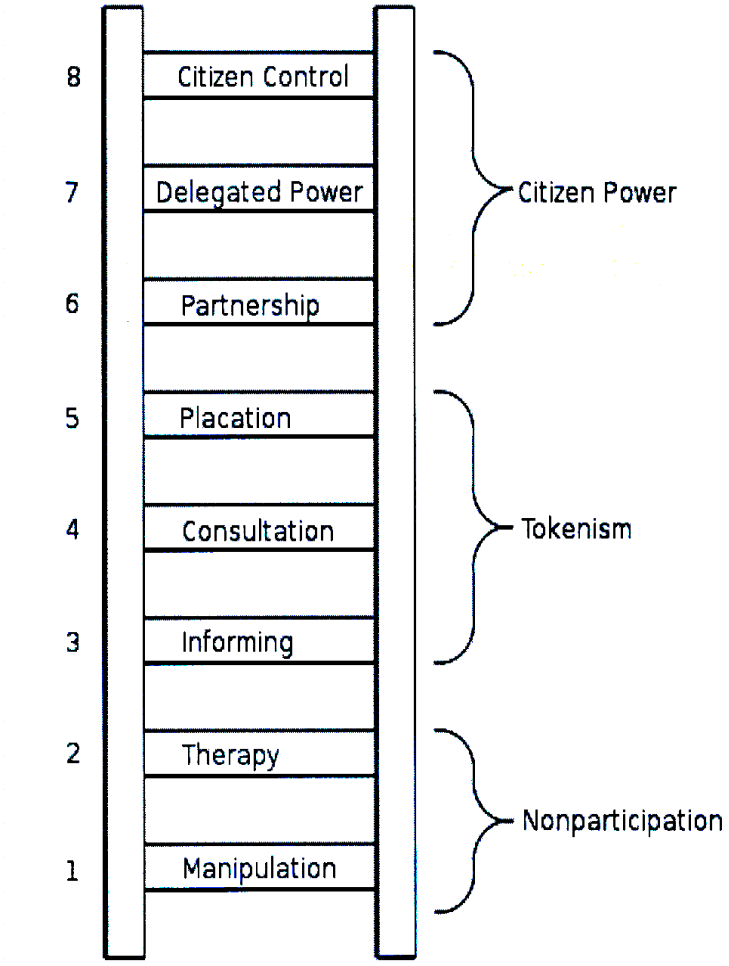
protect the Mungonya water resources from more degradation. With the land use plan in place, land users were categorized according to uses through community meetings (URT, 2008). It was within the same period when the Spanish organization called *Ingeneria Sin Fronteras* (Engineers Without Borders) in a partnership with the Kigoma District Council carried out a community's awareness focusing on management of Mungonya Sub-catchment where the intake of their water project was located (ISF, 2008). In addition, the Lake Tanganyika Basin Water Office, the custodian for WRM in the Lake Tanganyika Basin has instituted a participatory formation of Mungonya Water Users Association (JUWAMAM) and Water User Groups (WUGS) of which Mungonya community members were the responsible stakeholders (URT, 2013). Unfortunately, the Water User Associations (WUA) together with the community members have not impacted positively in so far as the WRM practices are concerned (Mbaruku, 2016; URT,2013). Several detrimental activities to WRM like irrigation farming, construction of pit latrines, fishing ponds, bricks making, fire burning, sand mining, deforestation and livestock keeping have been continuing to a large extent in and within 60 meters from the river banks.

2.2.2 Functional Theory of Community Participation

This study was guided by one functional theory of community participation propounded by Wilcox (2001). Wilcox offered a guide to effective community participation; he introduced ten issues that could pave way to community participation. He developed his ideas from the ladder of citizen participation that was propounded by Arnstein in 1969 and it shows various levels of community participation from non to active participation. For Arnstein, there were eight stages in the ladder on which the highest stage of participation was attained when the community has control over the program and feel sense of ownership of the project. From the perspective of this ladder as seen in the figure 2.1, he came up with a new approach of explaining and enforcing community involvement through the adoption of ten ideas. In the view of Wilcox, the first level of participation includes aspects of information, consultation, decision making, activity and supporting the community.

The following steps are like the initiation and process, control, power and purpose, the role of the practitioner, stakeholders and community, partnership, commitment, ownership of ideas, as well as confidence and capacity.

Figure 2.1: Citizen Ladder of participation



Source: Arnstein (1969)

In the initiation process professionals are involved with the community in some levels where members are prepared to take part in the continuation process. The originator should see ways and degrees of control that people should have in decision making. The issue of power and purpose also should find out on division of power depending on the purpose of the programme. It is the role of the practitioner to oversee the participation

process as well as fund the programme by finding way of scaling the level of stakeholder and community. In the partnership stage, the analysis has to be made to study simulation of interests among stakeholders. Partners may differ in the level of skills, income level and confidence, but they together have to relate under mutual trust and share the commitments. In the end of all these, the originator should engage stakeholders for them to feel the sense of ownership of the programme ideal.

2.2.3 Policy and Legal Strategic Frameworks for Water Resource Managements

In Tanzania, the government undertook the entire process of regulating and directing management of water resources through the use of water related policies and legal frameworks. The NAWAPO (2002) sets the basics for frameworks used to implement WRM practices. In fact the policy seeks to align with the objectives of Millennium Development Goals (MDGs) 2000-2015, the Sustainable Development Goals for 2030 and Tanzania Development Vision of 2025. The NAWAPO objectives are linked with the National Strategy for Growth and Reductions of Poverty (NSGRP) (URT, 2015). The National Water Sector Development Strategy (NWSDS) 2006-2015 is set to harmonize with other sub sectors related to use and management of water such as sectors of energy, agriculture, industry, mining, environment and fishery.

The existence of NAWAPO and NWSDS has enabled other minor institutions which seek to facilitate management of water resources. These institutions or entities are like National Water Board (NWB), Basin Water Boards (BWB), Catchment Committees (CC), and Water Users Associations or groups. All these entities are hierarchically organized and all are coordinated by the Ministry of Water. These institutional frameworks are responsible for regulating, managing resources and operationalising the water resources. The study sought to stress on ways used to manage resources. According to NAWAPO (2002) and NWSDS the Water Resource Management roles includes all activities relating to water planning, allocation and management (URT, 2015). The Water Resources Management Act of 2009 calls for the need to manage water resources with the justifications that water is a runaway resource the depletion of which compromises the loss of biodiversity in the aquatic ecosystems.

2.2.4 The Place of Lake Tanganyika Basin Water Board

In the Lake Tanganyika basin, there are also a number of entities that work in hand with the Ministry of Water and National Water Board to regulate and control the supply of water, sanitation and management of water resources. The major entity in the basin is called the Lake Tanganyika Basin Water Board (LTBWB). This was established in early 2004 but gained much power with the effect of the enacted Water Resources Management Act of 2009. The Act was introduced in order to facilitate sustainable management and development of water resources and improvement of participation of stakeholder and the general public (URT, 2009, URT 2015). At local level the LTBWB performs the legal responsibilities of monitoring and assessment of water resources, protections, enforcement and permissions for water users, implementation and coordination of Integrated Water Resources Management Plans and Development (IWRMD) and provision of technical support for trans-boundary water resources management. Other roles are to conduct research and planning as well as the resolution of conflicts (URT, 2015). Briefly speaking, the LTBWB is mainly the basin regulator and resource manager with authority to operate other functions like selling water to other users (URT, 2015).

2.3 Empirical Literature Review

This section reviews empirical literature which would help to provide some light on community perceptions about WRM, capacity of institutions and legislations to enhance WRM and issues relating to poor community participation in WRM.

Mwageni (2017) conducted a study on the empowerment of local communities on water governance and the sustainability of water supply projects. The study was conducted in Morogoro and Njombe rural districts in Tanzania. Through the study, failures of the local communities to sustain the water supply projects were observed. The study had four specific objectives: identification of strategies used by institutions in reaching the communities for awareness creation; examination of community actions on water issues evoked from the awareness created by the institutions; the third objective was to determine response given by district and village governments in addressing water issues

and finally; and to establish the extent to which the whole process of engaging institutions to empower local communities in water governance improved water supply and its sustainability. It was a descriptive study with mixed methods with 272 respondents. It was revealed by the study that different stakeholders were involved in empowering community awareness on governance of water supply projects. There were multiple means through which information was disseminated such as through the use of radios, churches, posters and mosques. Under this study, community consciousness was found to be more than 72% of the members. The community awareness was ushered by the help of community by laws formulated at the district level. Such public actions resulted to improvement of water governance at local level and water supply by instituting water schemes. The district councils were less involved in addressing water supply issues hence jeopardizing community empowerment efforts. For the schemes that were initiated by the community, people consciousness rose up to 100%, while schemes initiated by donors malfunctioned by 100%. The study concluded that the established schemes for community empowerment from community initiatives were more sustainable while those started with donors' financial support were less sustainable. These results implied that community needs to be encouraged to establish and maintain their own schemes without being over dependent on development partners.

Mbaruku (2016) assessed the river health using physico-chemical parameters and macro-invertebrates in Mungonya Sub-catchment in Kigoma District. It was a quantitative study that used experimental design and mostly laboratory activities were used to assess water quality. Mungonya Sub-catchment was observed to experience distortion of its water quality due pollution caused by irrigation, washing, bathing, brick making, grazing and sand mining along the basin. The study found that there was a significant increase in irrigation and settlement land cover from 2013 to 2016 which influenced the changes in water quality parameters. Despite the changes in water quality status of the river, it is still acceptable except for feacal coli-forms which is in average. The study recommended that further interventions be done to improve means for controlling and mitigating further pollution of the river. The study further insisted LWTB to implement the already developed IWRMD Plans in 2015 with inclusion of Managing and protecting Mungonya Sub-catchment from more degradation. The study

showed that Mungonya Sub-catchment faced serious challenges as much as water resources management practices are concerned. It also showed that the Mungonya communities still practice anthropogenic activities around restricted watersheds and catchment areas. It was in this vein that the present study sought to understand why this happens while there have been a number of interventions to involve the community in matters pertaining to water resource management.

Dei (2011) conducted a study in Ghana entitled "Water Resource Management for Social-Economic Development in Pru and Atebu-Amanten districts". The study point out that Ghana has a number of water related legislations but the population does not seem to adhere to. The research assessed the level of application and adherence to water resources regulations for sustainable socio-economic development in Brong Ahafo region. Water sources are polluted by the use of toxic chemicals due to anthropogenic activities taking place by people living around river basins and catchments. The study used a case study design with questionnaire method that was administered to 93 respondents who were randomly selected. It was observed that about 86% of people derived their livelihoods from the water resources in the area whether directly or indirectly. It was also found that water legislation was regulated by the Water Resource Commission but these laws were found to have less influence on people to regulate their activities in line with the practice friendly to water resource management. The legislations were also found to have scarcely empowered the surrounding community in the WRM practices.

Ong'or (2005) conducted a study on "Community participation in Integrated Water Resource Management" in Kenya. The Lake Victoria Basin was taken as a case for the study. The study sought to discover the participation approaches used to enable community along the basin in the management of watershed resources in the side of Kenya. The study was mainly a desk research with the use of stakeholder analysis method to evaluate the role and interest of each group of the community in the participation for watersheds resources management. According to Ong'or (2005), watershed management in the Lake Victoria Basin involved primarily the integrated approaches for sustainable development and management of resources for bearing on

the anthropogenic activities such as farming, papyrus harvesting, irrigation, pottery and brick making, meanwhile conserving the resources. The most essential findings of the study was that, in Kenya, a deliberate shift of research and technological innovation in water resources management to farmers and fishers has greatly impacted in assuring the management of the resources together with facilitating the people to benefit from the wealth of the natural resource along the lake basin. Ong'or (2005) recommended that:

> "*It is important that integrated watershed management aims at minimizing the deterioration of ecosystems and improve productivity through the participation of local residents. Community participation in all these processes would ensure that there is continuity in the governance structure of these watersheds for sustainable productivity"*. Ong'or (2005:p158)

Ong'or's (2005) methodological design, findings and recommendations paved the way for my study.

Heyd and Andreas (2004) conducted a research on "Participation of the Local People in Water Management". The study was done in Mae Sa Watershed in Northern Thailand. The study strived to know how local people have been participating in the management of watersheds. The study used a Participatory Rural Appraisal (PRA) design and mainly semi structured interviews and focus group discussion methods for data collection were employed. It was found that, it was hard to evaluate indicators for people's participation due to the fact that participation has varied levels and hence any level would imply that people participate in the programme. They however found that participation implied four stages which are information gathering, information dissemination, consultation and participation. These stages are not as linear as they are mentioned but iterative. Hence, it was hard to distinguish from one stage to the other. In their literature reviews, they found participation has other forms which range from passive participation, information delivery, consultation, material benefit, functional involvement, interactive participation and self–mobilization. The passive participation is the lowest level of participation and the interactive and self-mobilization is the highest level of participation where people have the control or ownership over local decisions and have a stake in maintaining the structures and practices.

2.4 Gaps in Literature

The reviewed literatures have provided much information concerning the situation of many water resources. Every author asserted that anthropogenic activities were found detriment the efforts towards WRM. Dei (2011) for instance attested that citizens did not abide to water legislations that were put forth. Mwageni (2017) added further that due to failures observed in Tanzania pertaining to management of water supply sources and project, there was greater demand to raise community awareness on how to empower them on alternative means to participate in management of water projects. Other studies shed light on the levels of community participation in WRM (Heyd & Andreas, 2004). These literatures have also contributed great deal on the methods to be employed for present study. However, the study expected to gain light on why community participation was still poor despite the elaborated efforts and legislative inputs to make the community stand at the centre of WRM? There were no clear explanations on the increased practice of human activities at the expense of WRM, hence the present study sought to intervene at such delicate point to get informed on what happens about community participation process that wrongs the community to actively take part in WRM.

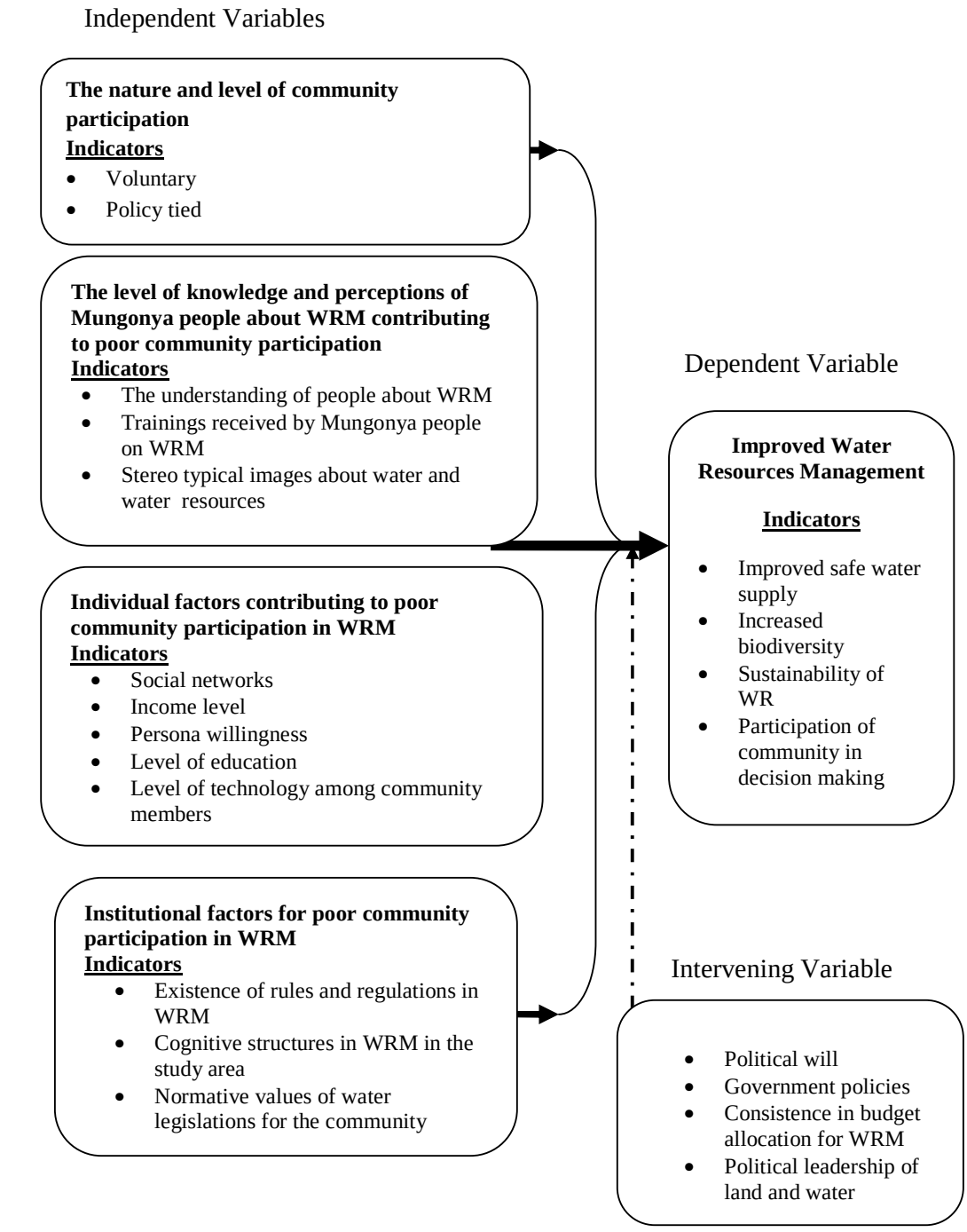
2.5 Conceptual Framework

Figure 2.2 presents the conceptual framework for analysis of community participation in WRM. The Conceptual Framework starts with the view that community participation is a function of nature, which can be voluntary or policy tied; community awareness which can be indicated by people's understanding of the WRM programme, technical capacity on WRM and perception of the WRM. It also involves community roles which can be measured by social networks, income levels, personal readiness, level of education and technology; and institutional factors such as existence of rules and regulations, cognitive structures, normative values of water and legislation of the community.

The impact of the four mentioned variables (nature, awareness, individual and institutional factors) will depend on political will and government policies, consistence of government budget allocation and political leadership as an intervening variable.

And the extent to whether or not WRM is improved will be indicated by status of water supply and biodiversity, WRM sustainability and participation of community members in decision making.

Figure 2.2 Conceptual Framework



Source: Model modified from Mburu, 2015

2.6 Summary of Chapter Two

This chapter reviewed the literature on community participation and tried to link it with the WRM in Tanzania. The overall assessment of empirical debates and studies has succeeded in documenting a number of key shortcomings in the literature of community participation in WRM in the local settings. As such, they have made important contributions to our understanding of measures and mechanisms for enhancing management of water resources. Despite these achievements, little is known about factors that contributed to poor community participation in WRM. This study strove to fill that gap of knowledge.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents and discusses the methodology that guided the study. The methodology discusses not only the choice of the area, design, and tools, but also the justification for the choice. In terms of structure, the chapter is organized into: the research design (sub-section 3.2), area of the study (sub-section 3.3), as well as sample size selection and sampling techniques (sub-section 3.4). The study also explains types of data and data collection methods; data processing and analysis methods as well as the ethical considerations adhered to in the entire process of data collection. Summary of the chapter is given at the end.

3.2 Research Design

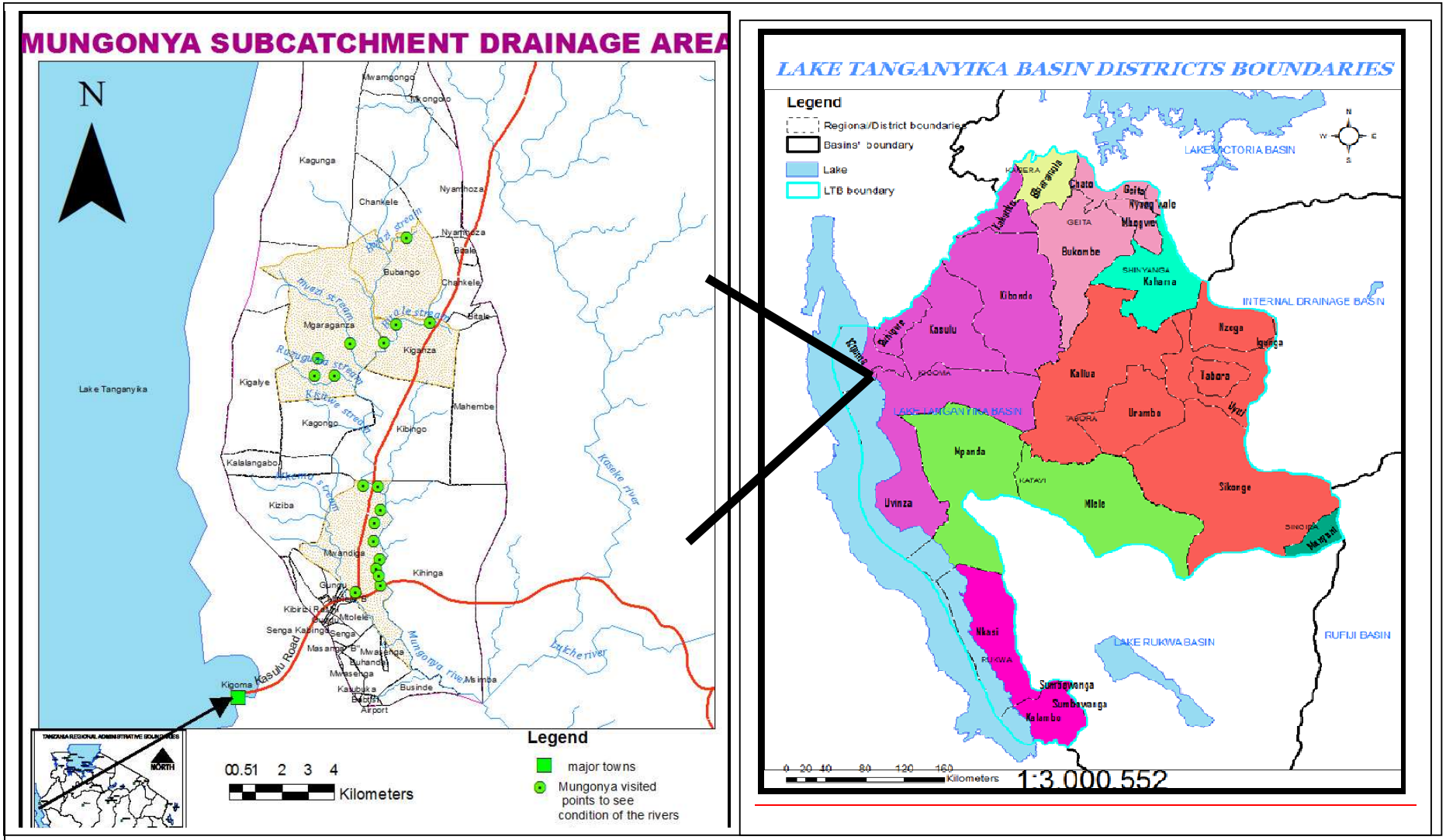
The study utilized a descriptive case study research design. A case study research design is an empirical inquiry that served to investigate a contemporary phenomenon with its real-life context. It also helps the researcher to understand the demarcations that exist between the phenomenon and the contextual evidence (Dei, 2011). The selection of a case study design was due to its capacity to accommodate different methods of data collection. Though case study was perceived to be based on qualitative studies, scholars have agreed that case study design was also useful for quantitative methods (Gillham, 2000). The design also allowed the use of multiple methods of data collection and analysis, and it pushed the researcher to go beyond the common understanding of the behavioural conditions of the community under investigation. Gillham (2000) further suggested that a qualitative researcher using a case study seeks for a deeper understanding starting from how people understand themselves or their settings, what lies behind the more objective evidence. Given (2008) asserts that case study research facilitates to understand the underlying reasons behind the facts which could not speak for themselves but through analysis of people's feelings or perceptions and experiences of what is real happening.

The study was mainly intended at collecting narrative (qualitative) information, but there were some numeric (quantitative) data. It therefore fell under mixed approach research. The mixed approach research facilitated to overcome the limitations of other methods from either qualitative or quantitative data as to neutralize the biases of a single method. Creswell (2009) suggests that the mixed approach is appropriate when all kinds of data are needed to be gathered. There was triangulation of methods for data collection hence the need to select a mixed approach. The community of people living around Mungonya Sub-catchment was expecting to give out their opinions regarding their poor participation pertaining to WRM in their surroundings.

3.3 Area of the Study

The selected site for the study was Mungonya Sub-catchment which is located in Kigoma District in Tanzania. Kigoma Region is found in the western side of Tanzania between longitudes 29^{o} 35′and 34^{o} 00′ East of the Greenwich meridian and latitudes 2^{o} 45″ and 8^{o} 45′ South of the Equator. It is a river surrounded by about 41,300 people (URT, 2012). The underlying reason behind the selection of Mungonya Sub-catchment was due to its peculiarity pertaining to human activities that are undertaken in the restricted areas regardless of the interventions made. The study area was also selected because there are no similar published studies apart from the study by Mbaruku (2016). Moreover, the assurance to have easy access to people in the course of data collection as the researcher had been interacting with the community during a number of interventions on water resource management training was another reason for the choice.

Figure 3.1: Location of the Study Area



3.4 Population, Sample Size and Sampling Techniques

3.4.1 Population

The target population for the study was composed of, villagers, leaders from WUAs, Water Committees (WC), Environmental Committee (EC) or Village Land Use Management Committee (VLUM), Community Owned Water Supply Organizations (COWSOs), Village Leaders and Ward Leaders, LTBWB staff, District Water Engineer's (DWEs) office, District Environmental Department (DEP), District Community Development Department (DCDD) and the representatives from the NGOs involved in WRM.

3.4.2 Sample Size

The sample size of the study was estimated to be composed of 140 study participants. However, by the end of data collection, the study managed to reach only 136 respondents. Of those respondents, 130 filled the questionnaire and 6 responded by filling the interview guide. The attainment of this sample size was based on the indications of the representative's population responsible for WRM in Mungonya Sub- catchment. The target population for the study was composed of the villagers, leaders from WUAs, Water Committees (WC), Environmental Committee (EC), Village Land Use Management Committee (VLUM), COWSOs, Village Leaders, Ward Leaders, staff from LTBWB, District Water Engineer's (DWEs), DED's, DCDD's offices and the representatives from the NGOs found in Mungonya but involved in the issue of WRM. Table 3.1 demonstrates the distribution of the sample size

Table 3.1: Respondents Population and Sample Size Distribution

s/n	Target population	Designed sample size	Attained Sample size
1	Village Chairpersons	4	4
2	Village executive officers(VEO)	4	4
3	Staffs from the DWEs, DEDs, DCDDs offices of Kigoma District Council	22	20
4	Staffs from LTBWB	34	32
5	Representatives from NGOs involved in WRM	28	28
6	Representative leaders of WUA, COWSOs/**WCs** and EC/VLUM	18	18
7	Households members	30	30
	Total	**140**	**136**

Source: Field Data, 2018

3.4.3 Sampling Technique

The Mungonya Sub-catchment is surrounded by eight villages with only one Water Users Association having representatives from all villages (Mbaruku, 2016). The study made use of non-probability and probability sampling techniques which are purposive sampling and stratified random sampling methods. The purposeful sampling technique was used to select the four villages out of eight for the sake of taking the representative sample and the household's members from each of the four villages. The village chairpersons, village executive officers, staffs from the District Water Engineer's office and LTBWB office, District Environmental and District Community Development Department were also purposefully selected. Moreover, staffs from related NGO's were also selected under purposive sampling. The stratified random sampling was used to select representatives from WUA's, WCs, VLUM), (COWSOs) and heads of households who were involved in FGDs and individual interviews

3.5 Sources and Methods of Data Collection

The nature of the specific objectives and the approach of the research have basically helped to define the nature of data to be collected as well as the methods to be used. In order to obtain narrative data, the study collected both primary and secondary data. The primary data were attained through interview and FGDs whereas the documentary reviews facilitated the collection of secondary data.

3.5.1 Interview Method

The study sought to employ the semi-structured interview to six individuals for the sake of harnessing the meaning of the central themes in the real context over the subject under study. Cohen, Lawrence and Morrison (2000) asserted that the interview method is a particular medium for enacting of evoking people's knowledge or opinions about issues taking place in the society. The reasons behind conduct of anthropogenic activities in this regard were explained by key respondents and thus the researcher came up with new knowledge about the reality.

The study used the semi-structured interview to six individuals to harness the meaning of the central themes in the real context over the subject under study. The key informants for the interview included 4 VEOs from the 4 sampled villages and 2 WUA members to represent all villages in the Mungonya Sub-catchment from the river source to where enters into the main river, the Luiche River at Mwandiga and then into the Lake Tanganyika. However the expectation of the study was to reach 10 respondents.

3.5.2 Focus Group Discussion (FGD) Method

It is a qualitative method of data collection which involves respondents ranging from six to eight members under the facilitation of a moderator (Creswell, 2014). The study adopted the use of FGD because it provided greater scope for respondents to interact while sharing their views. The participants in the focus group discussion may differ in opinions about the same thing hence the researcher was exposed to a comparative understanding of reality and the created meaning about the same phenomenon. The study conducted four focus group discussions one in each of the four villages. In the design the participants of focus group discussions were 3 members of RUKUNDO COWSO, 5WUA members, 3 Water Committee (WC) members, 3 Land Use Plan Committee/VLUM members, 15 household members and 4 Environmental Committee (EC) members. The plan was met by 93% since many participants respondents belonged to different water and environment related committees and associations such as Village Land Use Management teams. In a nutshell, the number of participants varied from one village to another such that there were 6 participants in Mwandiga, 6 from Mgaraganza, 8 from Bubango and 7 from Kiganza villages.

3.5.3 Observation Method

Given (2008) defines an observational method as a means for collecting impressionable data of the world using all of one's senses, particularly through looking and listening in systematic and purposeful way in order to learn about a phenomenon of interest. The method is well suited when employed with other methods like interview or documentary analysis (Baker, 2006). The study made use of qualitative observation technique to explore the state or condition of the environment and water resources around Mungonya

sub-catchment meanwhile other methods were used like interview and focus group discussions. Different kinds of anthropogenic activities, the degradation or erosion condition of the water sources are among the aspects that were observed. A number of photographs were taken for further analysis.

4.5.4 Questionnaire Method

The study administered 130 questionnaires to staff members from the LTBWB and, Kigoma District Water Engineer's (DWE) offices, District Environmental Department, District Community Development Department, NGOs involved in WRM in Kigoma District Council. Other respondents to the administered questionnaire included Ward Executive Officers (WEOs), VEOs, and representatives from different committees at community level. The need was to get their contribution on the first and the second research objectives. A semi-structured questionnaire included a likert scale gauging from 1= strongly disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= strongly Agree that was used to facilitate the analysis and easy response of the respondents.

3.5.5 Documentary Review

In this study secondary data were needed to supplement the information from the primary sources. Best and Khan (2006) defines documentary review as the method of data collection that involved derivation of data from already written writings. The documents under review were mainly those concerned with community involvement/participation in management of water resources, Tanzania Water policy, legislative acts and declarations on water resource management as well as National and LTBWB reports about water resources in Mungonya Sub-catchment and other areas around Kigoma region.

3.6 Data Processing and Analysis

Since the study utilized both quantitative and qualitative data, a sequential data analysis was preferably used. In the sequential data analysis, qualitative data analysis preceded the analysis of quantitative data. This is because the qualitative data analysis started as early as the beginning of data collection. The findings obtained from the early data analysis acted as a guide to the subsequent data collection.

In this study, qualitative data analysis was analyzed through narrative content analysis method. Data collected by interview method as well as focus group discussion were subjected to content analysis method. The content analysis was the qualitative method used to analyze the qualitative data that involves coding, reduction and interpretation of texts and present them in themes and cases (Newman, 2003). Moreover, content analysis can be used to produce either a quantitative description of the content in a text or a qualitative description of the content in a text in a process of revealing meanings and discover in-depth insights of content in a different way (Newman & Robson, 2009:p21). Textual narratives were manually transcribed from oral sources and then organized into different categories depending on the nature of the responses to suit the need of a specific objective. Themes and cases were developed from the coded categories following the Content Comparative Analysis Techniques.

Apart from qualitative data analysis, this study further employed quantitative data analysis. The quantitative data for this study were basically analysed descriptively using measures of central tendency such as mean and standard deviation through a Statistical Package for Social Science (SPSS) version 20, and presented by using tables and figures with frequencies and percentages respectively for inferences using MS Word.

3.7 Research Ethics

The study followed the ethical standards for conducting an academic research. The researcher asked for the research clearance letter from Mzumbe University. The researcher significantly sought for the respondents' informed consent. The respondents were allowed the choice of remaining anonymous (even to the researcher) throughout the study so as they may be assured of their privacy. The researcher also ensures confidentiality to respondents who wished to conceal some information.

3.8 Summary of Chapter Three

This chapter has presented and justified the utilization of the research design, the area of study, study population, sample size and sampling techniques, the methods and instruments of data collection, data processing as well as data analysis. As such, it has made important contributions towards understanding the nature of the problem related to poor participation in WRM.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents and analyses data from a study on factors that contribute to poor community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment located at Kigoma District Council. The objectives of this study were four folds: first, identify the nature and level of community participation in Water Resource Management (WRM), second, find out the community level of knowledge and perceptions about WRM examine individual factors that contribute to poor community participation in WRM as well as assess institutional factors that contribute to poor community participation in WRM.

The presentation and analysis of data is organized under seven main sections: Section 4.2 provides socio-demographic characteristics of respondents; Section 4.3 identifies the nature and level of community participation in WRM; section 4.4 finds out the community level of knowledge and perceptions about WRM. While section 4.5 examines individual factors that contribute to poor community participation in WRM, section 4.6 analyses the institutional factors that contributes to poor community participation in WRM. The last part, section 4.7 provides the summary of the chapter.

4.2. Socio-Demographic Characteristics of the Respondents

In the attempt to describe the socio-demographic profiles, the study categorized respondents into two groups depending on the nature of participation. The first group is composed of respondents who answered questionnaire and the second group includes respondents who took part in interview and focus group discussion. Table 4.1 summarizes the social demographic characteristics of the study respondents who participated in the study through questionnaire method. Each of the respondents had a different work positions but related to the water sector and specifically involved in issues of WRM. Respondent's characteristic considered age, sex, education level, marital status and occupation with an idea that they are likely to have influencing WRM practices.

Table 4.1: The Socio-Demographic Characteristics of the Respondents (N=130)

Characteristics		No. of Respondent	Percentage
Sex	Male	94	72.3
	Female	36	27.7
	Total	**130**	**100.0**
Age	Below 20 years	0	0.0
	20–29 years	14	12.6
	30-39 years	40	30.7
	40-49 years	40	30.7
	50 years and above	36	27.0
	Total	**130**	**100.0**
Marital Status	Married	104	80.0
	Single	26	20.0
	Total	**130**	**100.0**
Education level	Never attended school	0	0.0
	Primary Education level	0	0.0
	Secondary Education level	0	0.0
	College(Certificate or Diploma)	36	27.7
	Undergraduate Degree	42	32.3
	Postgraduate Degree	52	40.0
	Total	**130**	**100.0**
Work experience	Below 5years	36	30.0
	6-12years	66	50.0
	13-20years	14	10.0
	21 and above	14	10.0
	Total	**130**	**100.0**

Source: Field Data, 2018

The findings in Table 4.1 show that there was an even distribution of respondents by age among generations but there were no respondents under 20 years. This implies that the sector is dominated with people of mature age and 80% of the respondents are exhibit marital responsibilities. With regard to education level, 40% of the respondents had a post graduate and the rest had either a bachelor degree or college certificate. This was an impressive finding since education level of a person serve to reflect the criticality of the opinions provided in the rest of questionnaires. Another impressing finding was the work experience of respondents which was found to be higher for a group between 6-12 years

by 50%. Generally the findings were impressive but with some little shortcomings as there was little representation of opinions from the female sex.

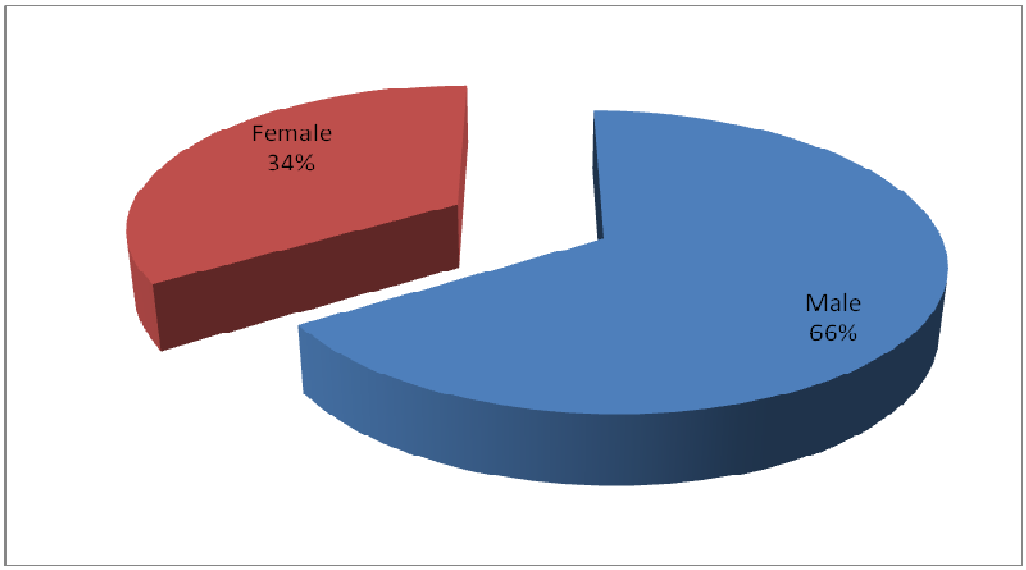
4.2.1 Demographic Characteristics of Respondents in Interview

On the other hand, the demographic characteristics of respondents in interview method were categorized into sex, age, and education level and occupations status. There were six respondents who were key interview informants. Their social demographic profiles are explained as follows;

4.2.1.1 Characteristics of Respondents by Sex Representation

Respondents were required to fill in the interview guide at individual level where by sex was among the variable that was considered in the social demographic characteristic. The results are presented in figure 4.1.

Figure 4.1: The Profile of Respondents by Sex



Source: Field data, 2018

The results shown in figure 4.1 demonstrate that male respondents were 66% and female were 34% which shows that males were dominant in participating in the study. It should be considered that six (6) study respondents were involved in interview method. The fact is that men respondents were many because the study target population was mostly made from different committees and institutions; Water Users Association (WUAs), Water Committees (WCs), Village land Use Committees (VLUM), Community Owned Water Supply Organizations (COWSOs) and Environmental Committee of which men were many. However the information that was obtained met the needs of the study regardless of the discrepancy between the two sides.

4.2.1.2 Distribution of Respondents by Age

The age distribution was sought from respondents. The categorization of respondents according age group was done in five groups as presented in table 4.2.

Table 4.2: Distribution of Respondents by Age

Age	Frequency	Percentage
Below 20 years	-	-
20–29 years	-	-
30-39 years	2	34.0
40-49 years	1	16.0
50 years and above	3	50.0
Total	**6**	**100.0**

Source: Field data, 2018

The large proportion of respondents aged 50 years and above comprised of 50% of all respondents. The representation in terms of number decreased as per decreasing age group. This portrays the kind of social setting which is basically a traditional society where aged people are the spokesmen of the rest. Aged people are also likely to have a good history and experience of WRM in their communities.

4.2.1.3 Education Level of Respondents

The study found that the education level of respondents was primary education. Implying that, the large proportion of habitants residing around the villages attended primary

education. The primary education level enables people to play a good role in rescuing the endangered water resources if they are willing and committed.

4.2.1.4 The Occupation Status of Respondents

Respondents were also asked to fill in their occupations in each of the individuals' interview sheet. The search for the occupation status intended to understand the dominant activity for income generation in the villages. Occupation wise, participants revealed to be essentially farmers. The farmers professed to be using a hand hoe to cultivate cassava, maize, palm trees and other vegetable crops. It entails the rudimental technology of farming. Moreover, they practice a rotational farming system which is a characteristic feature of a subsistence agriculture whereby farmers experienced subsistence farming. That could as well serve to predict their income level, level of technology used in agriculture and other attributes that would subject Mungonya Sub-catchment sub catchment into more degradation.

Finally the study conducted four focus group discussions, one in each village. In each of the group, participants were varying from six to eight in number. In general respondents were representatives from different committees found in the villages apart from few heads of households who were influential individuals in the village. In brief majority of participants were WUA members, followed by WC and EC members. These respondents were found to engage in subsistence farming activities as their means of income generation.

4.3 The Nature and Level of Community Participation in WRM Project

The first objective of the study intended to identify the nature and level of community participation in Water Resource Management (WRM) in the study area. To be more precise, this objective was divided into two subsections; level of community participation and nature of community participation.

4.3.1 The Level of Community Participation in WRM

In order to identify the level of community participation, a scale of 1:3 was used; (1=low level of community participation (0-39 percent), 2= fair level of participation (40-69

percent) and 3= high level of community participation (70-100 percent). Respondents were asked to rank their choices by stating the level of participation using the given scale. Table 4.3 summarizes the findings on levels of community participation in WRM.

Table 4.3: The Level of Community Participation in WRM Project (N=130)

Level of Participation	Frequency	Percent
Low participation	72	55.4
Fair participation	32	24.6
High participation	26	20.0
Total	**130**	**100.0**

Source: Field data, 2018

Table 4.3 shows that 55.4% respondents were ranked to have a low level of participation. The table also shows that there was a relatively low level of community participation in Water Resource Management (WRM) in the Mungonya sub-catchment. The 24.5% of respondent of the questionnaire opted for fair participation of the Mungonya community in WRM while high level of participation was ranked by only 20% of all respondents.

4.3.2 The Nature of Community Participation in WRM

In order to determine nature of community participation in the management of Mungonya Sub-catchment, people's opinions were used. Respondents were asked to explain on what ways do they take part in management of water resources. Whether the law or bylaws urged them to participate or it was based on personal willingness to participate in the process of WRM. Based on the interview and Focus Group Discussions, respondents had the following statement:

> *"I have never seen a policy that stops us from utilizing the water resources. As such, we voluntarily engage to protect our water resources based on our preferences"* (Interview, transcript 2)

The study found out about the nature of community participation is that the people of Mungonya community were participating voluntarily as they were tied with neither policy nor law. The personal willingness to take part in management of water resources was not backed by policy, laws or bylaws. This in turn, demonstrates a disparity between established water policy and act at the national level and its actual implementation at lower levels of the society such as in water catchment resources where the effective

community participation culture is yet to be entrenched despite having a fair level of knowledge in WRM.

4.4 Knowledge and Perceptions of Mungonya Community Members in WRM

The second objective of the study was meant to learn about the knowledge and perceptions necessary for its people to take part in WRM. Data were collected by the use of three methods mainly questionnaire, interview and FGDs. The quantitative results were as presented in figure 4.1, while the qualitative results were described in cases. Two themes were developed, the first demonstrated the understanding of Mungonya community members about WRM, and the second describes community member's skills attained through capacity building on WRM.

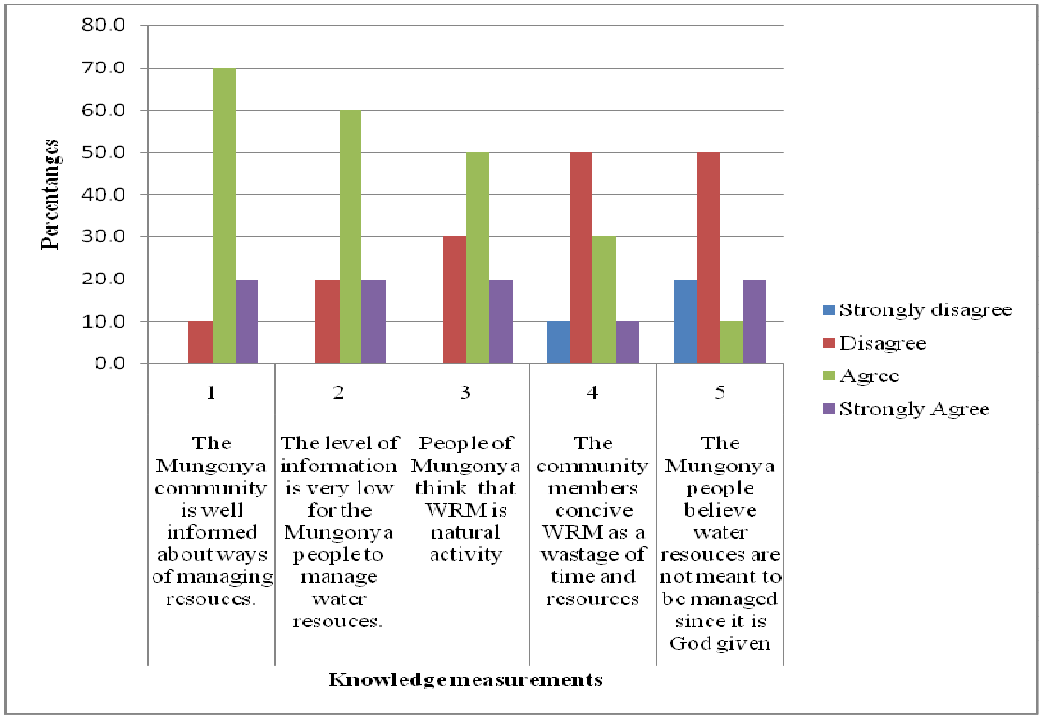
Theme1. Understanding of WRM according to Mungonya Community Members

The understanding of a phenomenon was learnt to be achieved through collection of opinions, convictions and beliefs of people on WRM. The findings are descriptively presented then followed by the narrative information.

4.4.1 Respondents Knowledge on WRM

One hundred and thirty respondents were provided with five propositions which sought to measure their opinions as to whether people residing at Mungonya real understand essentials of WRM. The first proposition was on whether Mungonya community is well informed on ways for WRM; the second was the level of information was very low for people to manage water resources, the third was people in Mungonya think that WRM is a natural activity; the fourth was the community members conceive WRM as wastage of time and the fifth and last was the Mungonya people believe that water resources are not meant to be managed since it is God given. The results were as presented in figure 4.2.

Figure 4.2: Knowledge on WRM among People in Mungonya Community (N=130)



Source: Field Data, 2018

With regard to the results portrayed in Figure 4.2, respondents agreed by 70% that people were well informed about ways to manage water resources and at the same time they accepted by 60% that the information level was very low for the Mungonya people to manage water resources. About half of respondents equivalent to 50% opined that people in Mungonya think that WRM is a natural activity which equally explains that people have little knowledge of WRM. However, the statistical results disagreement of respondents by 50% regarding the two claims that the Community members conceived WRM as wastage of time and the belief that water resources are not meant to be managed since it's a God given gift. In respect to the controversies demonstrated by respondents, it was clearly found that the Mungonya community had an average understanding of WRM that could be equivalent to 55% by considering the percentage average of given responses.

Case A: Perception of People about WRM in Mwandiga Village

The narrative information collected from respondents during interview and FDG at Mwandiga village provides a synopsis of what people perceive about WRM. One of the respondents narrated that: The concept of WRM was critically summarized with inclusion of all ideas from other respondents from all villages under study. One the interview guide respondents gave out the following statement:

> *"Water Resources is about all sources of water including river, dams, springs, wells and natural environments around water sources;"*(Interview, transcript 1)

Respondents have a clear understanding about all sources of water in their village, though the perception of the WRM was not clearly revealed.

In the FGD discussion, members were not left behind in waving their ideas and knowledge concerning to WRM. One of the FGD respondents came with an idea asserting that:

> *"WRM implies the states of human beings taking care of water resources for the sake of maintaining and keeping the resources from becoming dirty for sustainable use."(*FGD, transcript 5)

The respondent's ideas from FGD implies that they were aware of harmful human activities continuing around water sources including Mungonya Sub-catchment and that there is indeed a need to protect them from pollution. The statement also shows that the community members understand their position in protection water resources from unfriendly activities for sustainable use. But the water resources around their areas are undergoing serious degradation.

In trying to arrive into a more precise conception, one of the interview respondents further summarized on what WRM connotes and had this to say:

> *"Water Resources is about all sources of water including river, dams, springs, wells and natural environments around water sources; planning, conservation and protection of water resources from pollution from human activities with the help of enforcement of developed laws for sustainable use."* (Interview, transcript 5).

Taking that as a basis for talking about WRM resource management, respondents portrayed a sense of understanding of what WRM implies. In such a case WRM was about issues concerning all sources available, planning, conservation and protection of the environment and water resources with the help of laws that are created and enforced. Such narrative conceptualization attests that people are aware of WRM in a greater extent. In other words, the respondents had a high theoretical understanding of WRM. The practicability of this understanding is what brings questions regarding the situation of water resources including Mungonya Sub-catchment which is at risk.

These findings are generalized to other three villages since the results were found to be similar. However, one of the respondents who is also a leader in one of the villages expressed something a bit surprising. He had this to express;

> "*People in our locality believe that rivers are gift from God, so they cannot trouble themselves on matters of water use and conservation for the Mungonya Sub-catchment. They can volunteer do dig ditches, contribute for construction of water supply pipes but not protecting the river resources"* (Interview, transcript 1).

This is contrary to the responses given in the quantitative results particularly on propositioning that claims 'Mungonya people believe water resources are not meant to be managed since it is God given" (refer figure 4.1). In the figure respondent disagreed with the claim by 50%. Basing on religious faith that it is right to believe in God, but faith does not exclude human activity to sustain nature. This implies that the holding such perceptions on WRM would signify little knowledge of scientific reality and ignorance of faith which could have been delivered from low level of education.

Theme 2: WRM Skills Acquired by Mungonya Community Members from Capacity Building

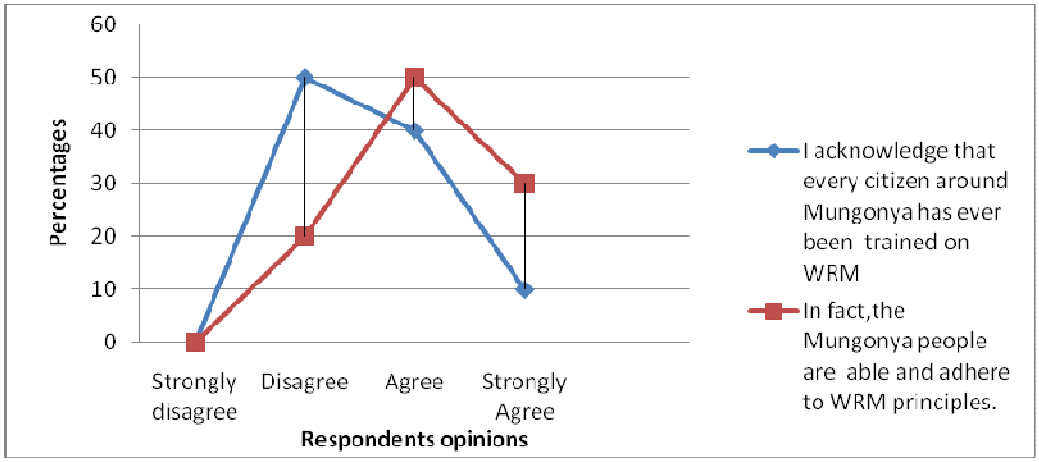
Having knowledge and skills are two sides of the single coin. While the first aspects of knowledge acquaintance were impressively found to be present among people in Mungonya community, there was still a need to understand whether people have practical skills which could enable them to participate in management of water resources. To make it clearer, the study sought to investigate on kinds of capacity building training, and how frequent of sensitization has been offered to community members that enabled them to

practice principles of WRM. Figure 4.2 presents the findings on the skills acquired by people in Mungonya community.

4.4.2 Whether Mungonya People have Potential Skills to Manage Water Resources

Respondents were asked to reveal if the community members have ever received any training and whether they do have plausible ability to accommodate the demands of WRM. The quantitative statistical analysis was then presented in percentages and the results are displayed in figure 4.3.

Figure 4.3: Skills Possessed by Mungonya People on WRM (N=130)



Source: Field Data, 2018

Figure 4.3 shows that 50% of respondents disagreed that every member of the community was trained on how to manage water resources. However, another 50% agreed that Mungonya people are able and adhere to WRM principles. According to these results it can be argued that not every member of the community had ever received training on water resources management but possessed average skills that enabled them to manage water resources. This could be translated to 50% of the community members.

Case: B. Training and Sensitization in view of Skill Building for WRM in Kiganza Village

In Kiganza village, respondents expressed to have received training on WRM. Impressing results were found from the narrative information shared by respondents. One of the FGD study respondent came out with alarming statement that:

> *"I remember I was trained in 2008 on how to animate people stop cultivation in water sources and avoid them to cut trees in the forests. Moreover, there are rare chances that we got training but personally I attended a seminar on management process as member of WUA in 2013 conducted by LTBWB and on tree planting in 2016 by TACARE MIBOS* (FGD, transcript 4).

The statement shows that training was not generalized to the entire community. Only those people involved in committees related to water and environment had chances to get capacity building training from different agencies such as the LTBWO, Kigoma District Council, TACARE and other stakeholders who intervene on matters of forest and WRM (Interview, transcript 3).

Moreover, there was a mention for the need for more training sessions that could include many villagers including pupils in primary and secondary schools. This suggestion was put across by an interview respondent who had this to say;

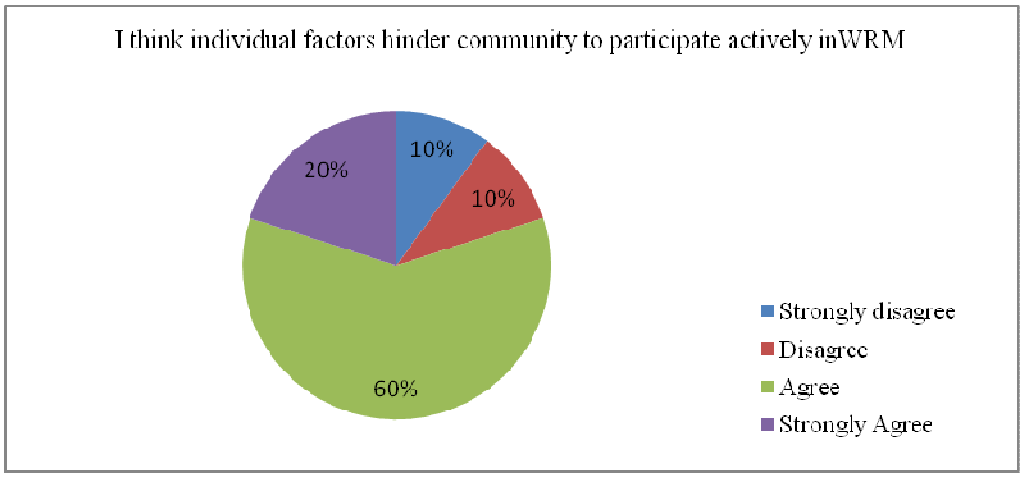
> *"What we need is sensitization and enforcement of bylaws, the training is not common to citizens like me as most of seminars focus on educating committee members and some of the special groups like youth"*(Interview, transcript 4).

Summarizing the results from respondents, the study found that people have acquired general knowledge and skills necessary to participate in WRM. Few individuals had chances to improve their skills through training since they formed part of representatives in the village as WUAs, WC, EC or COWSOs. The study found that whole issue of WRM in the surrounding implied conservation, protections and maintenance of water resources for the sustainable use of water resources and improving bio diversity.

4.5 Individual Factors Contributing to Poor Community Participation in WRM in the Mungonya Sub-catchment

The focus of the third objective was to establish individual factors which culminate poor community participation in the management of water resources. Quantitative analysis put forward seven propositions to solicit the general proposition that individual factors do hamper community participation in WRM. In the first place, respondents were asked to give out their general view points as to whether individual factors hinder the Mungonya community member from participating actively in WRM. Figure 4.4 portrays the answers from the respondents.

Figure 4.4: Role of Individuals in Damaging Community Ability to take part in WRM (N=130)



Source: Field Data, 2018

It was evident that 60% of respondents believed that individual factors may culminate to poor community participation in WRM. That being the case the next activity was to establish factors which determine poor participation in WRM among the community members.

Theme.3 Determinant Factors for Poor Community Participation in WRM in Mungonya Sub-catchment

Aspects like personal commitment activism, education and income level, willingness to participate and the level of technology were measured at individual level to understand how they are responsible for poor community participation in WRM. Table 4.4 provides the statistical results on the determinants of poor community participation in WRM the total of the frequency and percentages is taken by addition in the row of each proposition.

Table 4.4: Determinant Factors for Poor Community Participation in WRM (N=130)

Scale of responses ⇨	Strongly Disagree		Disagree		Agree		Strongly Agree		Total	
Propositions	**F**	**%**	**f**	**%**	**f**	**%**	**f**	**%**	**F**	**%**
In fact the individual commitment and activism is very necessary to make a community participate actively in WRM					66	50.7	64	49.3	130	100
The low level of education of a person may contribute to poor community participation in WRM					91	70	39	30	130	100
Community participation in WRM can be improved by personal social behavior.			13	10	52	40	65	50	130	100
The individual income level determines one's ability to take part in community participation in WRM.			13	10	78	60	39	30	130	100
There is low level of technology and innovation for people to participate in WRM.					78	60	52	40	130	100
The lack of personal willingness to collaborate with others may influence poor community participation in WRM					104	80	26	20	130	100

Source: Field Data, 2018

Table 4.4 shows that individual commitments and activism are necessary to make a community to participate actively by 97%, Low level of education of an individual may contribute to poor community participation in WRM by 100%, the personal social behaviour enhance community participation in WRM by 90%. In addition the individual income level was determinant by 90%, and the lack of personal willingness to collaborate with others was found to influence community participation by 100%. Taking the sum of

results for agree and strongly agree, there are some factors which scored 100% of vote to mean that they play a strong role in influencing the individual members of the community to participate in WRM either poorly or strongly.

The qualitative information gathered through interviews and focus group discussions demonstrated the improper behavior of people that manifested to poor participation in WRM. People were found cultivating by the river side, palm oil extraction factories, making gardens, making of bricks and cutting tree in area which are reserved or places which are within 60 meters from the water sources. Two cases were used to portray the existing problem of poor community participation in WRM. These are described in the coming sections. It was found across all interviewees that community members had bad behavior or malpractices which diminish the ideal of WRM in different villages along the Mungonya Sub-catchment.

4.5.1 Human Practices in Evidencing Poor Community Participation in WRM

In the efforts to understand about influence of individual factors on community participation the study derived two minor cases from two different villages. The first case was taken from Mgaraganza village. Village members showed to have good use and respect of the water resources. To some extent the respondents expressed that people are willing to take part in practicing WRM. This was due to strong commitment of the village leaders particularly the chairman of the village. A single exception was found to some individuals who were engaged in activities around the forbidden zone.

Case C: Anthropogenic Activities around Mungonya Sub-catchment at Bubango village

The second case was taken from Bubango village. Bubango village is found in the upstream of Mungonya Sub-catchment. Its position of altitudes entails that the effect of any activity performed in the river is shared with the rest of the villages in the downstream. One of the respondents in the interview guide had this to say:

> *"Leaders do not bother to restrict people from destroying the Mungonya Sub-catchment, bathing and farming activities are continuing around the river. Worse enough, palm oil extraction factories have been installed, LUP is already approved, and byelaws are developed but no enforcement from village leaders since they get carrot from the owners. Politicians*

> *sometimes mislead people in their speeches during meeting. Also VLUM is there carrying out regular inspections of Mungonya Sub-catchment with its sources but threatened by law violators and leaders who do not offer cooperation"* (Interview, transcript 4)

Contrary to Mgaraganza village, people in Bubango village were found to have less concern about the management of water resources. In both of the two cases, respondents asserted that individual persons like politicians and other notable citizens could lob or mislead the rest of community member not to participate well in WRM as well as not taking part in other development activities. The water sources are in danger because of negligence by both community members and leaders as they do not enforce available laws. Anthropogenic activities were evidenced through observation and they are demonstrated in figure 4.5 which depicts some of the activities within 60 meters conducted by some individuals from communities.

Figure 4.5: Palm Oil Extracting Factories within 60 meters from Mungonya Sub-catchment in Bubango Village

NB: Arrows indicate the position of Mungonya Sub-catchment

Source: Field data, 2018

Figure 4.5 attests what respondents explained about the anthropogenic activities taking place in the reserved zones. Palm oil extracting factories were the evidence of the individual negligence of the laws and byelaws developed from the Land Use (LUP), Water Users Association as the WRM operating entity at lowest level in the communities and the VLUM responsible for the environment and Land Use Management.

4.5.2 Current Situation of Water Resource Management in Mungonya Sub-catchment

The study went on investigating the adverse practices conducted in river Mungonya. Findings from interview, focus group and observation methods were found to conform in that, the depth of the river decreased along the villages from upstream to downstream due to massive sedimentation of degraded soil, agricultural practices were excessively devastating the quality and quantity particularly in dry season. These observed facts were presented in cases taking the Mgaraganza as exemplary of village individuals who are undertaking anthropogenic activities hence jeopardizing the conditions of the river regardless of their effective leadership.

Case D: Condition of the Mungonya Sub-catchment after Adverse Human Activities at Mgaraganza Village

It was an impressing situation that was found in Mgaraganza village. This is the statement from one of the interview respondent who is also the village leaders that:

> "*Individual commitment and social behavior could either serve to make the community participate in WRM actively or poorly. As a leader, I am in the front line in combating all kinds of misbehaviour in WRM through fines, initiate village leaders and meetings with committees including VLUM with WC, EC and WUA representatives in the village to counter the challenges limiting WRM in the village. I acknowledged the VLUM for doing a good work as it has a good mix of all sectors. I confirm to have a good people who understand the essence of collaboration and participation in development activities. I also assert that individuals who violate the laws are there due to inadequate knowledge or negligence" (*Interview, transcript 6)

This implies that the individual village leader can influence individuals in the community to behave positively towards WRM. The village was also impressing due to its approach of IWRM which insist on people's participation that was practiced unknowingly.

The FGD had something to evidence that still there are individuals who are still practicing human activities around Mungonya Sub-catchment regardless of the actions taken by village leaders against them such as penalization. One of the statements from the respondent was that:

> *"Yet there are few individuals with farms, zero distance from the river banks and the village leaders have to take further steps to force them to stop killing water sources". I think education is important"* (FGD, transcript 2)

This is evidenced by one of the FGD respondent who was observed to have been practiced fish farming within 60 meters from the Mungonya Sub-catchment. Figure 4.6 reveals.

Figure: 4.6: Illegal Water Abstraction from Mungonya Sub-catchment for Fish Farming in Mgaraganza Village

Source: Field Data, 2018

Through observation the villagers were found to illegally abstract water from the river in different ways. For example Chlorinated Polyvinyl Chloride Pipe (PVC) of four inches was found to be connected from Mungonya Sub-catchment to the fish ponds. And when the owner was asked to tell why he conducts such activities in the prohibited area, the respondent had this to say:

> *"I do not do any damage to the water sources, I cultivate palm tree which serve to keep the place green and as for the fish ponds I don't use any chemicals or pesticides to the fish ponds apart from feeding them only. I will leave them to die naturally"* (Interview, transcript 6).

Respondents drew conclusion that it is sometimes hard to change individual's behavior all over a sudden since it is not easy to identify the factors behind his/her behavior. Continuous sensitization will unveil new knowledge thus the practice will cease over time.

Together with the observation method, the participants of FGD expressed that there are some people who are washing, bathing and do some traditional sacrifices in the Mungonya Sub-catchment whereby animals are slaughtered with blood being poured into the river for what they called chasing out maledictions. Unknowingly they spoiled the quality of water which has to be used for other purposes elsewhere (FGD Transcript, 2). Trees were cut down around the river hence destroying the river banks with its natural environment. The depositions of the eroded alluvial soil and the decrease of the river depth were also mentioned to portray and worsen the condition of the river. One of the Respondents in FGD had this to say:

> "*The activities done in the river and its surrounding have greatly changed the river as we see it today. Currently the river banks are all destructed. We have essentially remained with only 40% of water. The river banks are degraded due to agriculture in the upper stream and the banks are full of alluvial soil*" (FGD, transcript 2).

This evidence justifies the individual behavior in contributing to poor community participation in WRM in the Mungonya Sub-catchment sub catchment. Damages that are happening in the Mungonya Sub-catchment start at individual level.

Figure 4.7: Degraded River Banks Resulting from Bad Practices of Individuals in Mungonya Sub-catchment

Source: Field data, 2018

With reference to respondents' experiences and the observations made in the river in Mwandiga village, it was found that individual behavior could cause poor community participation in WRM. The anthropogenic activities done in the reserved areas by individuals proved the fact that there was lack of commitment and willingness to adhere to the principles of WRM. However, respondents added that poverty, negligence, poor knowledge and quarrelsome behaviour were exhibiting among people residing at Mgaraganza village hence diminishing the good will of the village leaders in protecting and conserving the environment and water sources.

4.6 Institutional Factors Contributing to Poor Community Participation in WRM in Mungonya Sub-catchment

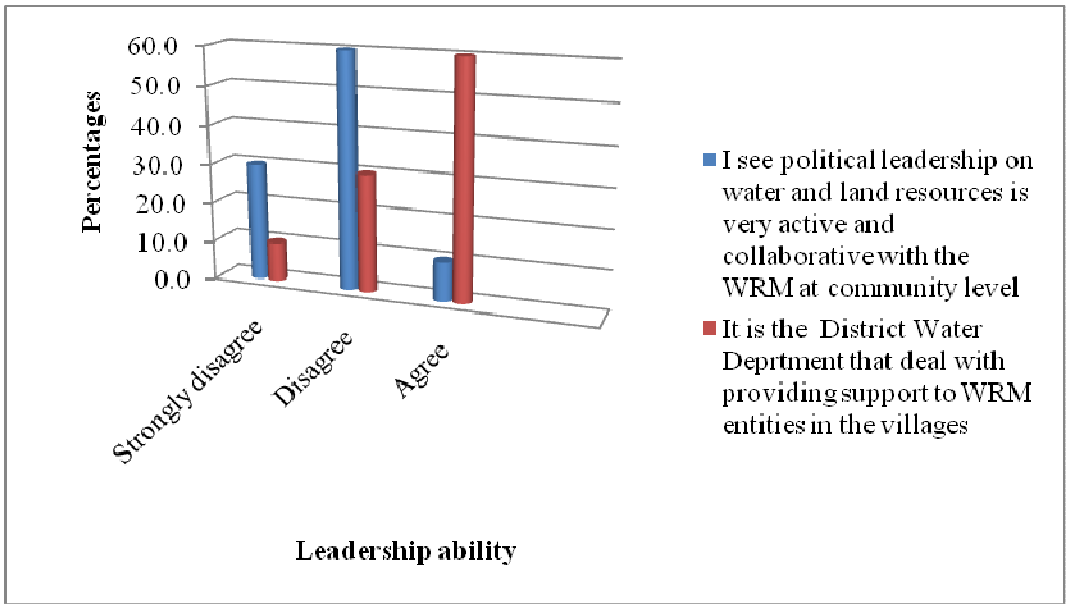
The fourth objective was to examine the position of institutional factors in failing the community members in Mungonya Sub-catchment to take part in WRM practices. The indicative variables that were used to study this objective were: assessment of personnel inability to mobilize and manage human resources, irrelevance of water legislations for the community, ineffective engagement of WRM entities (WUAs) and lack of financial

support for WRM projects. It was found that these factors contributed to poor community participation in WMR in Mungonya Sub-catchment. In the need to ascertain about them, the researcher conducted a descriptive analysis from questionnaire data and there after sought in-depth information from respondents through qualitative data methods.

4.6.1 The Question of Personnel Ability to Mobilize and Manage Human Resources

The study sought to investigate on the ability of leaders in Mungonya Sub-catchment area in fostering the awareness and willingness of the community to participate in WRM. The focus was mainly directed towards the LTBWB, the community leaders, government water related departments and any other intervening departments and agencies in Kigoma District. Figure 4.8 provides a result summary of the descriptive analysis.

Figure 4.8: Inability of Leaders to Mobilize the Community for WRM (N=130)



Source: Field Data, 2018

It was found that the leadership at the village level was perceived to be inactive by 60% in mobilizing people to participate in WRM in the community. The District Environmental Department was perceived to be active by 60% implying that leaders in the district council had greater ability to mobilize the community in villages to participate

in WRM while village leaders were less able to mobilize their people. The respondent from the qualitative data revealed the statement that:

> *"Thanks to the support given by District Environmental Department (DEP) of KDC that worked with WRM entities in the village to mobilize communities take part in management of water resources"(*Interview, transcript 1&4)

Further, statistical findings got support from the qualitative respondents who mentioned about the problem of leadership in their respective villages. Respondents through their interview guide had this to express as evidence of poor leadership ability:

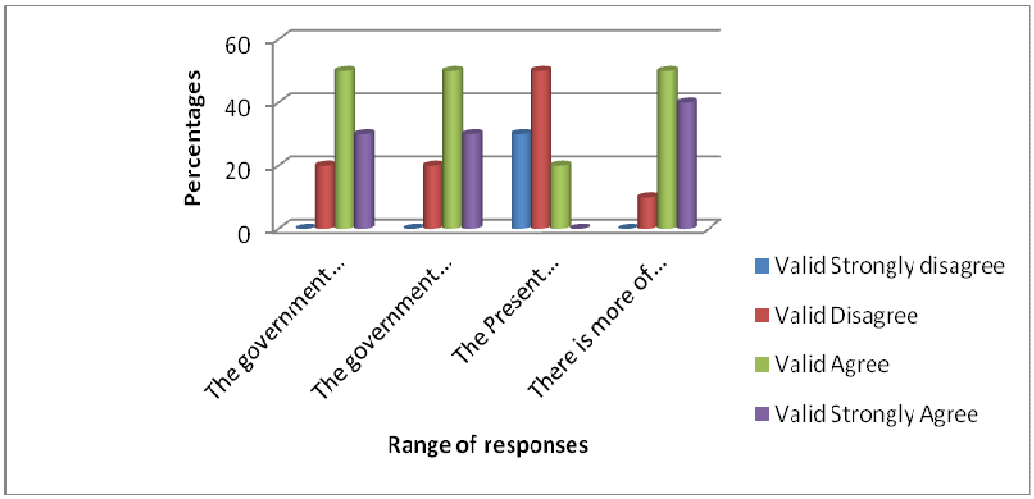
> *"Leaders in power did not work well to enforce laws properly on environmental conservation and nearby the river….some of the chairpersons fail to be strong as they fear to lose their posts during the next general election. There are no meetings because the village government has dissolved after becoming a small town and we even don't have the bylaws"* (Interview, transcripts 1&4)

There was enough evidence that lack of strong leaders to mobilize people in WRM was a big issue that resulted to poor community participation.

4.6.2 Irrelevance of Water Legislations for the Community to Participate Actively in WRM

Having found that leadership inabilities limit community participation on WRM, the next step was to find out what about the laws and regulations. Are these legislative documents relevant enough to inform and motivate change of behavior for the community to take part in WRM? Figure 4.9

Figure 4.9: Water Legislations Disposition on Community Participation in WRM (N=130)



Source: Field Data, 2018

In the figure 4.9 the results demonstrate that respondents agreed by 50% on three propositions regarding the government policies on water sector which are: the government policies of the water sectors regarding WRM are well and clearly stated, the government policies on water sector support the need for the community to take part in WRM but also there is more of documentation and declaration than implementation. Respondents disagreed by 50% the contention that the present national water policy is outdated in making the community willing to support WRM activities.

With these results it was found that the policies and laws were regarded to be relevant and still up-to-date by 50% but the only problem was on the implementation level. These findings amount to the question of governance of public policies and legislations of water sector by leaders from the grassroots to the national level is poor.

The narrative data asserted the statistical findings in that the major problem was found to be poor enforcement of laws and bylaws to a greater extent across all villages from which data were collected. Weakness on law enforcement was also revealed by low legal awareness on WRM, negative perceptions of the bylaws hence no observance of law. Many respondents didn't understand the mother law; they expressed to be a bit informed

about the bylaws created in their villages. The weakness of enforcement made community members to conceive bylaws to be inactive. In the course of focus group discussions one of the participants had this to say:

> *"We don't know the law the water Act of 2002, the land act neither the environmental Act on WRM. However few of us know about the bylaws. The bylaw forbids to bath in the river and if you cut a tree you must replace it but these statements are just in theory not in practice"* (FGD, transcript 4).

Basing on the two perspectives of results, it was evident that the existence of relevant laws and bylaws was not sufficient to impact on the community to participate on WRM. The major problem was on the implementation of the laws and bylaws. The implementation would first mean to make people aware of the mother laws on WRM alongside the bylaws drawn from them and then proceed to enforcement of the laws and bylaws in the villages.

4.6.3 Ineffective Engagement of WRM Entities Limit Community Participation

There existed some formal entities in water sector which are legally facilitated by the government. These entities were formed at different levels; the basin authority for instance functions at the zone level. The LTBWB is based on the Tanganyika Lake Zone. There are different other water and environment entities at either ward or village levels in which their formation is facilitated by the basin or other partner agencies. These include Water User associations (WUAs), Water Committees (WC), Community Owned Water Supply Organizations (COWSOs) and Environment Committees (EC). Others related to these are Village Land Use and Management Committees (VLUM). However the study was mostly interested to learn about the WUAs, WC, EC/ VLUM and COWSOs which tend to intervene in a special manner with the LTBWB in the process of managing water resources.

Respondents were asked to provide their views regarding the existence of such entities, their relevance and the perceived nature of interactions between the minor entities with the major basin authority. It was the assumption of the study that understanding of their existence, effectiveness and interaction among entities would reflect their ability to

influence participation of the community in WRM. The table 4.5 summarizes the responses from the descriptive analysis.

Table 4.5: Respondents Views about the Effectiveness and Interactions of WRM Entities

Propositions → / **Range of Responses ↓**	**1st** I think the institutions in places are appropriately vested with ability to influence WRM practices		**2nd** There are well established entities for managing water resources at the village level		**3rd** These entities are established by the community members themselves		**4th** The WUAs,WC/COWSOS and VLUM and environment Committee work mutually in WRM at community levels		**5th** The WUA's are supported by the LTBWB	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**f**	**%**
Strongly disagree	-	-	39	30.0	26	20.0	13	10.0	13	10.0
Disagree	52	40.0	39	30.0	39	30.0	52	40.0	65	50.0
Agree	65	50.0	39	30.0	39	30.0	52	40.0	39	30.0
Strongly Agree	13	10.0	13	10.0	26	20.0	13	10.0	13	10.0
Total	**130**	**100**	**130**	**100**	**130**	**100**	**130**	**100**	**130**	**100**

Source: Field Data, (2018)

Table 4.5 reveals an even distribution of respondents' answers across questions whereby the range of agreement and disagreement was very small. In such a case the findings were then explained in terms of the cumulative results of the percentages. Sixty percent (60%) of respondents agreed with the first proposition and dis-agreed the second proposition by 60%. The third and fourth propositions were found to have equal points between the agreed and disagreed by 50% respectively. The fifth proposition was refused by 60% by the respondents. The results implied that the entities existed in different localities, some are formed by communities and others were not formed by the community members, and that their effectiveness varied from one village to another. In addition, the disappointing finding was that LTBWB did not provide support to the WUAs which were even formed under their facilitation.

The findings from the interviews pronounced a very alarming note about the Mungonya WUA. The six interview key informants expressed that they were informed about the formation of WUAs but they never knew of its functions, and some did not even know

the members of such associations in their very villages. Qualitative data from Kiganza and Mwandiga villages were summarized by one of the respondents who opined that:

> *"The practicability of WUAs is very poor. They don't perform well their duties and responsibilities here in the village. As for us here, I know that there are some responsibilities to perform as a WC, but I don't know for the part of WUAs, I am informed of its formation process"* (Interview, transcript 4).

The findings showed that Mungonya Water Users Association was ineffective and one of the major reasons was due to the poor support the association gets from the LTBWB but also there was poor interaction between the WUA itself and the rest of the committees.

4.6.4 Roles and Responsibilities of some WRM Entities in Mungonya Sub-catchments

The need to establish the roles and responsibility of some of the related WRM entities was backed by the said problem of lack of collaboration among the entities. The study sought to understand whether these entities have to relate in anyhow and if that was the case, then it was easy to understand the reason for the infectiveness of the entities in influencing the communities to participate in management of water resources. These findings were gathered from the narrative data. The selected entities to learn about their roles were WUAs, WC/COWSOs, and VLUM/EC. Table 4.4 presents the roles of each of the entities.

Table 4.6: Community Perceptions of the Roles of Mungonya WUA, WC/COWSOs, VLUM/EC

s/n	Entities	Roles and responsibilities	Sources
1	WUAs	➢ To make sure that water sources are protected and sustained to avoid and destructions ➢ To ensure water security by planning on proper usage of water for farmers. ➢ To ensure that cutting of trees is stopped. ➢ To control and ensure hygienic condition of the water sources and the environmental conservation ➢ To collaborate with the government in facing the impending challenges of environment and water. ➢ To inspect the sources of water by conducting transect walks in the forest, water sources, in farms as to survey on the status of environmental conservation. ➢ To educate water users ➢ To report on the status/condition of water sources	Interview, transcripts (1,3,5) FGD, transcript (1,4)
2.	WCs/COWSOs	➢ To protect the entire water network and its infrastructures. ➢ collect tariff in every month, ➢ to take charge of water supply project and maintenance ➢ to conduct revenue and expenditure meetings ➢ To design map or check on the water supply chain to ensure no wastage of water. ➢ to identify the water users and plumbers	Interview, transcripts (1,3,5) FGD, transcript (1,4)
3.	VLUM/EC	➢ To take charge of issues of environment, forest and water sources by providing information to watchmen. ➢ To inspect the sources of water three times per month, control leakage and improve tree plantations ➢ To discourage the use of shifting cultivation, avoid grazing of animals in reserved areas, ➢ To stop cultivation in mountains or hills and check on use of firewood. ➢ Deals with the plan of land uses and reserved areas	Interview, transcripts(3,6) FGD, transcript (2,3) Interview, transcripts (3,6) FGD, transcript (2,3)

Source: Field Data, 2018

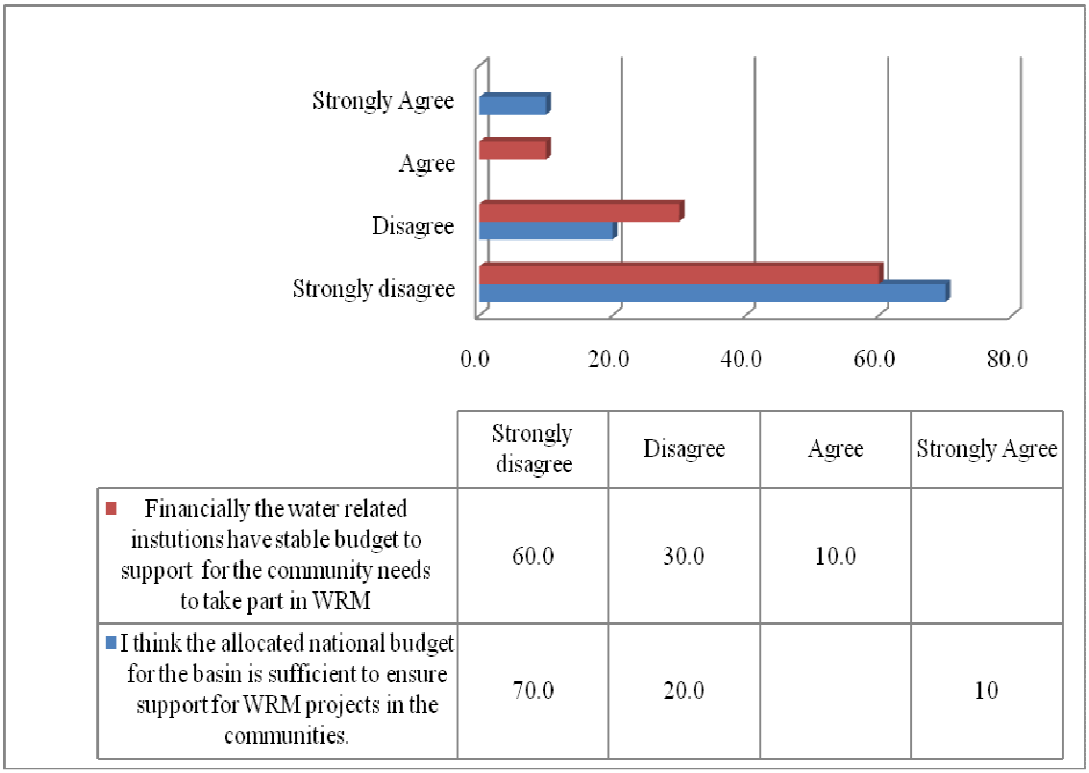
As Table 4.6 shows, it was found that the roles of these water entities were intrinsically related and some work almost on the same grounds. The findings imply there is a need of collaboration among them and the LTBWB as the major entity to provide constant support to the small entities particularly the WUAs which have been formed under their

facilitation. Another observation made was that members of Mungonya WUAs and VLUM had no allowances given, and were in constant threats from community members who misused the land and damage water resources. These members have no government powers despite their legal recognition in the village.

4.6.5 Lack of Financial Support for WRM Projects

The other problem that was sought to be inquired was about allocation of funds for the basin authority and the rest of the related entities to conserve water resources. The study assumed that inadequate budget allocation and disbursement resulted to poor community participation on WRM. The concern was on the national budget allocation for the basin to facilitate the rest of the entities within its reach. Figure 4.10 describes the statistical results pertaining to availability of funds.

Figure 4.10: LTBWB Budget Allocation for WRM Project (N=130)



	Strongly disagree	Disagree	Agree	Strongly Agree
Financially the water related instutions have stable budget to support for the community needs to take part in WRM	60.0	30.0	10.0	
I think the allocated national budget for the basin is sufficient to ensure support for WRM projects in the communities.	70.0	20.0		10

Source: Field Data, 2018

In Figure 4.10, respondents disagreed with the two propositions unanimously by 90% respectively. The results indicated that the LTBWB failed to perform its required activities and roles due to financial shortage hence poor performance which affected the communities to participate in WRM. A Participant from one of the FGDs forward the opinion that:

> *"WRM entities do exist but perform very poorly due to a number of difficulties. The Basin Water Board has very low support to WUAs due to the fact that financially the LTBWB does not have that capacity and the Local Government at the district level does not have any contribution to water resources management, different from the demands of the policy and legislation"* (FGD, transcript 4).

4.7 Summary of the findings

In this chapter the findings of the four specific objectives were presented. However, prior to the presentation of the findings by the specific objectives, the study presented results for socio-demographic characteristics of the participants involved in the study. The demographic profiles of respondents varied greatly in terms of sex representation and education level between the respondents for questionnaires and those for interviews and focus group discussions put together.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

The chapter deals with the discussion of the findings based on specific objectives. In brief the study wanted to identify the nature and level of community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment, find out the level of knowledge and perceptions about WRM that contributed to poor community participation in WRM among Mungonya community members, examine individual factors that contributed to poor community participation in Water Resource Management (WRM) in the Mungonya sub-catchment and assess institutional factors that contribute to poor community participation in WRM in the Mungonya sub-catchment

5.2 Social Demographic Profiles of the Respondents

The demographic aspects considered in the study were sex, age, marital status, education level, occupation and work experience. It is worth to note that, participants were divided into two groups one comprised of those who answered questionnaire and the other one were respondents who took part in interviews and Focus Group Discussion. In this discussion the two groups are merged for comparative purposes.

5.2.1 Respondents Profile

The sex representation of respondents of the quantitative data was found to be imbalanced since male were 94 and female were 36 women making the sum of 136 with inclusion of 6 individuals who responded to the administered interview guide. The fact behind this desrepancy was due to the most of the study respondents were selected using purposive sampling selection and majority for example of the representatives of different committees are men. This is equally applied to the technical respondents from LTB office, KDC, NGO's that most of the professionals are mens In reality, this statistical finding contradicted the population characteristics of the Kigoma Region in sex proportion. According to the strategic plan of Kigoma Region female are reported to surpass males in number (URT, 2013). However, traditionally, male are regarded to have

more chances to participate as majority were heads of families and played the leadership positions.

5.2.2 Age Profile of the Respondents

The categorization of the age groups began from 20 years, 20-29, 30-39, 40-49 up to 50 and above. The participants were found to increase in number with the increase in age group to have middle ages ranging from 40-49 to 50 and above. There was no respondent under twenty years and in fact few less than 5% were belonging to the group aged 20-29.This implied that respondent were adults and very well disposed with knowledge and experience of the situation of the river. Having people with mature age was a success for the study because the opinions and shared experiences reflect the population conception of WRM.

5.2.3 Marital Status of the Respondents

The study found that over 80% of research participants were married. The marital status serves to describe the sense of responsibility and social stability of the individual in a community. According to the age groups presented it was common for the individuals to possess a wife or husband and children. Most people exhibiting family responsibilities are sought to engage in different social economic activities. The marital status therefore served to predict the kind of social activities the community members' perform in relation to WRM.

5.2.4 Education Level of the Respondents

There was a huge gap between the two groups of respondents with regard to level of education. The questionnaire respondents had higher level of education and about 90% of them were university graduates with either a bachelor degree or postgraduate. On the other hand the participants in interview and focus group discussions had primary education. These findings reflect the division that exists in level of income and world view points in as far as natural resources and WRM management was concerned. The respondents with high level of education were all employed people working in either public sector or private sector hence exhibiting high income levels. The respondents who

had primary level of education were very found to engage in agricultural activities with indicators of low level of income.

5.2.5 Respondent Characteristics by Occupations and Work experiences

The study found that questionnaire respondents worked as engineers, technical professionals in land, nature conservation and water and forest resources in LTBWB, DWEs, DEDs, DCDDs or other non-Governmental Organizations. Majority of them had a working experience of 6-12 years. This signified that they had enough information to give pertaining to the practice of WRM in the perspective of the community members in Mungonya sub-catchment. On the other side, qualitative research participants were peasant farmers with some mixed activity of business for income generation. Many of them had been involved in agriculture for more than 5 years hence being aware of the environment and resources surrounding the Mungonya Sub-catchment valley. The occupation status was studied to help the researcher predict the kind of social-economic activities undertaken in the area and the level of technology used for the realization. It was evident that the peasant farming was pure indication of subsistence agriculture where a farmer produces mainly for consumption and very little for sells. The technology used for agriculture was a hand hoe which implied low level of technology. Putting these observations together the study discovered that people in Mungonya sub-catchment exhibited poverty conditions. The findings were attested by the report given by Kigoma Region analysis of social economic condition of the people in the region. The report portrayed that 90% of people in Kigoma region practiced subsistence agriculture with very rudimentary technology hence still living under poverty condition (URT, 2013).

5.3 The Knowledge and Perception of Mungonya Community Members on WRM

In this study the indicator variables of reference were the understanding of the phenomenon WRM, experience of training for capacity building and the skills that enabled people to undertake WRM. Generally, findings generated from Statistical analysis demonstrated that people in Mungonya were informed about the practices of WRM by 70% and showed an understanding of water resources and WRM by 55% which

implied a moderate level of understanding WRM. Less than 50% percent of individuals had the opportunity to be trained and sensitized for the WRM. Those who were in leadership position particularly in water or environmental committee were the one who profited from training sessions offered by different agencies like TACARE, KDC and LTBWB . The study further found that 50% adult individuals in Mungonya community had basic skills for WRM.

The narrative findings provided support to the statistical findings. Respondent demonstrated a good theoretical understanding of the concept WRM. People understood WRM as all water sources including rivers, dams and all environments around sources; planning, conservation and protection of the water resources and their surrounding environment with the help of laws that are created and enforced for the sake of maintaining of water resources for the sustainable use of water resources and improving biodiversity. The respondent considered the position of the community members in the management of water resources for sustainable use. These findings were similar to what other scholars defined WRM. Ong'or (2014) for instance understood WRM as the management of surface and subsurface water in terms of quality and quantity and the environmental perspective using multidisciplinary and participatory approaches. Jaspers (2003) accorded that WRM implied the means to conserve water and environment while focusing on the needs of the society at large with regard to consumption and land use for present and future hence emphasis is to be put on sustainability.

5.3.1 The Importance of Community Awareness and Skills on WRM

The possession of knowledge and skills of WRM by community members was found to create a basis of investigation for the study. The understanding of the WRM was expected to be reveled in skills and abilities of the community members to take part in management of water resources. Bell, (2001) commended that community awareness on water resources is essential for the sustainable management of water resource. It is believed that the culture of management of water resources in proportional to the acquired knowledge and skills necessary to influence individual to have an art and desire to conserve the environment (Muginya, 2013). The Mungonya community members in the study were found to have both knowledge and skills on water resources management.

The next step would be to understand the art of practice of which literatures portrayed that the practice of WRM in the area was very poor (Mbaruku 2016). It was under this antagonistic disposition that the study proceeded with other objectives to learn on factors for poor community participation on WRM at individual and institutions levels.

5.3.2 An Expression of Seed for more Training and Sensitization on WRM

In the narrative information, some people perceived Water resources to be God given gift hence no need to trouble for management. This attitude was found to have implication on willingness to manage water resources. Moreover it portrayed the level of ignorance and misleading belief about natural resources and personal responsibility. The findings reflect as well the low level of education exhibited by the persons holding such conceptions regardless of the hazards facing the Mungonya Sub-catchment at the moment. The training was not accorded to all members of the community. Participants suggested for the need for more sensitization and awareness, since last trainings had been done in 2015. Moreover, they wished that all people including pupils could get chance to be sensitized by professional personnel. Education provision on WRM was found to be very instrumental for the community members to know better about their relationship with WRM agents like the LTBWB (reference).

5.4. The Individual Factors Contributing to Poor Community Participation in WRM

Based on the findings presented in section 4.4 showing 60% of respondents agreed with the contention that individual factors may culminate to poor community participation in WRM. It was further statistically analysed that respondents strongly agreed with the assumed propositions that lack of strong individual commitments and activism for WRM, problem of personal social behavior, personal willingness to collaborate with others, low level of technology and innovation of people and low level of education (ignorance) of an individual were the main factor hindering the Mungonya community to actively participate in WRM.

Similarly, the statistical findings concurred with the qualitative findings conducted through interviews and focus group discussions. In addition, the demographic

characteristics analysis was very useful in this regard since the representatives of the population were found to have low education level, applied a rudimentary technology for production and occupation wise they engaged in peasant agriculture. Such elements shaded the way of conceptualizing individual behavior and willingness to support WRM principles. The Mungonya people were painted to posses some anti-social behavior such as argumentative, ruthless, negligent and contemptuous, pride and quarrelsome. It was hard to imagine that even in some aspects people depend on superstitious and witchcraft powers they possessed to threaten the lives of the leaders once they are told to stop misusing water resources.

Another observation was that cultural factors such as beliefs and customs were as well propounded to diminish community willingness to participate in WRM. Rivers and natural forests were regarded to be the best surrounding for rituals and sacrifices for witchdoctors. The Bubango strategic Plan served to assert on the existence of beliefs on witchcrafts and superstitions attributed to human attacks and loss of life (URT, 2008).

5.4.1 The Conflict of Interests over Water Resources and WRM

It was found that people living in the villages surrounding the Mungonya sub-catchment had difficulties with WRM. There are different anthropogenic activities that were reported to be undertaken in the reserved area (60meters from the river) such as agricultural activities, bricks making, grazing, installed palm oil extracting factories, bathing and washing of clothes. People have gone to invest into these areas due to the fertility of the soil, wetland and the easy access to water resources. However, the Environmental protection Act No.20 of 2004 and the Water Resources Management Act No 11 of 2009 together strictly prohibit any human activity execution within 60 meters from the water source (URT, 2009). When people are poor and less accommodated in terms of technology and education the great risk is lack of plausible alternatives to their problems.

The easiest solution is to take the front option which looks promising despite its aftermaths. This idea inhales a congruent support from the study of Ong'or in Kenya, whereby to resolve the two problems of community needs support and WRM demands

the government invented deliberate research and technological innovations to integrate farmers and fishers on management of water resources. In the mean time, the community enjoys the fruits of the resources surrounding them. Literatures provided a sense of call for the government leaders at all levels to facilitate community members on how to take part in WRM without deteriorating their individual interests of raising income and productivity.

Another dilemma that contributed to poor community participation was political leadership. The village chairmen, auxiliaries and the ward councilors were believed to abstain from confronting destructive people on WRM due to fear of losing votes in the next general elections. Politicians were highly found to be influential people on this regard with a good number of supporters. It became hard for a leader to choose between being an activist for WRM and laisser-faire leader who can finally win the votes of the majority. The existed dilemma were open demonstration of conflicts of interest between the individual knowledge and skills on WRM practices and the search for personal benefits and fame in the community at the expense of natural and water resources.

5.5 Institutional Factors Contributing to Poor Community Participation in WRM

In the course of the study it was found that lack of personnel ability to mobilize and manage human resources was inactive by 60%. Water legislations and policies were relevant and practical by 50% though, the problem remained on poor implementation and enforcement of laws and by laws. The other factors were the Ineffective engagement of WRM entities (WUAs and VLUM) that limited community participation and Lack of financial support for WRM projects was found to be major bottleneck by 90%. Summing up these findings the problem of leadership seemed to weaken implementation and enforcement of laws. Talking about law enforcement here, the study referred to imparting legal awareness to local community members, influencing their perceptions and then behavior at large.

Referring to the result of interview and focus group discussion respondents showed that leaders were not committed and highly political oriented. No meetings were conducted to

avoid blames and questions from community members. However, with regard to enforcement of laws and by laws the narrative information revealed that there were many declarations which could not be implemented. The community members had simple perception of laws and bylaws that made them to despise their usefulness hence hampering them from abide to the bylaws made in the respective villages. Dei(2011) was also quoted in the empirical review of the study saying that in Ghana the water sector has amended Acts and regulation for WRM but people do not adequately adhere to the them due improper enforcement. In Kenya, Ong'or (2005) observed almost similar trends that there is poor observation of water and environment laws and regulations in communities around Lake Victoria. The study conducted by Muginya (2013) in Little Ruhaha river basin came out with similar findings that people have low legal awareness to the extent that they wonder why are they to be bothered when undertaking their activities around the river valley whereas even their fore fathers have been doing similar things. The documentary support served to make a simple deduction that leadership problem on law enforcement is yet to be mitigated in many areas in sub-Saharan countries.

5.5.1 Poor Collaboration between WRM Entities (WUAs and LTBWB) and its Aftermaths

The table 4.5 and figure 4.9 presented results which mutual explains each other. It was found that WUAs are not supported by LTBWB and more else the collaboration between water and environmental committees was weak. The WRM entities are the instrumental organs which are formed to influence behavior of the individual in the communities regarding management, conservation and protection of water resources. The Lake Tanganyika Water Basin is the major operating public organization which is supposed to facilitate and work closely with the WUAs representatives in the basin for ensuring proper utilization of water resources. Village member are not supposed to abstract water resources without permit from the Board. But how could that network be strong without support?

The statistical findings demonstrated that the weakness of the Board mainly based on financial shortages since the government does not provide enough budgets to run the Board duties as per its requirements. The effect of this poor collaboration contributed to

ineffectiveness of water resources management entities and hence poor community participations on WRM. People in the villages continued with illegal and random abstraction of water resources, blocking river waters and installing factories with machines for palm oil extraction fearlessly because the instruments are weakened. In the narrative data the members of WUAs were reported to be harassed by threats and coning due to their being less empowered to take care of the WRM. It is under this juncture that the study of Mwageni (2017) found space to investigate on empowerment on water governance whereby extensions services provided by the government or other non-profit organization would serve to empower water consumer entities on sustainability of water resources governance. Failures of the LTBWB to provide sufficient support to WUAs make it hard for them to conduct extension services to community members hence deterioration of water resources.

5.5.2 Need for the Government Support on WRM in Mungonya Sub-catchment

The LTBWB was reported to be weak in realizing its roles due to poor allocation of budget. The study found that the LTBWB is currently facing inability to conduct different sensitizations and monitoring of water resources. The lack of financial support proves the existence of poor political will of the government on facilitating agents to implement WRM activities from the regional level to the grassroots in the villages. The findings were also similar to the study done by Muginya (2013) who found that the government provided little amount of funds to support irrigation activities in Little Ruhaha river valley. The irrigation scheme was determined to be the one of the means to improve management of water resources in the area.

CHAPTER SIX

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

6.1 Introduction

This chapter presents a summary of the study, its findings and discussions. The presentation of the summary would lead to drawing of the conclusion of the study depending on the findings, and then proceed to analysis of policy implications related to the study. Finally, the study also presents some recommendations, limitations of the study and suggests areas for further research.

6.2 Summary of the Study Findings

The study explored factors contributing to poor community participation on Water Resources Management in Tanzania. The Mungonya Sub-catchment in Kigoma District Council was taken to be the case for the study. Four specific objectives were developed to answer the general objective. Specifically, the study explored the following objectives: Identify the nature and level of community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment; find out the level of knowledge and perceptions about WRM that contributed to poor community participation in WRM among Mungonya community members; examine individual factors that contributes to poor community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment, as well as assess institutional factors that contribute to poor community participation in WRM in the Mungonya Sub-catchment.

The study made a thorough review of both theoretical and empirical literatures on WRM and community participation with the focus on informing the specific objectives. The Functional theory of Community Participation according to Wilcox (2001) was adopted to explain the relationship between variables but also understand the mode of participation that communities had experienced. The case study design was used to facilitate achievement of specific objectives. 140 respondents guided the findings of the study of which 136 respondents were reached. The study utilized both, purposive and stratified sampling techniques to select a sample for this study. It also utilized

questionnaire, interview and focus group discussion, observation and documentary review methods for data collection.

The quantitative data were descriptively analysed to get percentages and frequencies whereas the qualitative data were analysed using the content analysis. The results were presented in tables and charts, line graphs and bar graphs. The findings of the study were then presented and discussed in accordance with specific objectives.

6.2.1 Community Participation in WRM

According to the first objective, there was a relative low level of community participation in Water Resource Management (WRM) in the Mungonya Sub-catchment sub-catchment. Further, the study found out that the nature of community participation was more voluntary than policy tied. This in turn, demonstrates a disparity between established environmental policy and act at the national level and its actual implementation at lower levels of the society such as in water catchment resources where the effective community participation culture is yet to be entrenched despite having a fair level of knowledge in WRM

6.2.2 Community Level of Knowledge and Perceptions about WRM

In the second objective the findings showed that people in Mungonya understood WRM by 55%. The statistical findings were supported by respondents from interview and focus group discussions. Participants conceived WRM to be all about issues concerning planning, conservation and protection of the environment and water resources with the help of laws that are created and enforced. The study found that the whole issue of WRM in the surrounding implied conservation, protections and management of water resources for their sustainable use and nourishing surrounding habitats for biodiversity's livelihood. However, some perceived water resources to be God given gift hence and that no need trouble for their management. This understanding was found to have implication on willingness to manage water resources.

On WRM training, few individuals had chances to improve their skills through training since they formed part of representatives in the village as WUAs, WC/COWSOs, EC or VLUM. In other words, not all members of the community got chance to be trained on WRM though, they had some little skills that enabled them to manage water resources. It was found that only those who belonged to one of the committees or associations had the opportunity to be trained. Respondents mentioned the need for more training and sensitization since last training had been done in past three years. Moreover, they wished that all people including pupils could get chance to be sensitized by professional personnel.

6.2.3 Individual Factors Limiting Community Members from Participating on WRM

The third objective revealed that 60% of respondents perceived that individual factors may culminate to poor community participation in WRM. These factors were the lack of personal willingness to collaborate with others, low level of technology and innovation for people to participate in WRM and low level of education (ignorance). Other identified factors were low individual commitments and activism for WRM and problem of personal social behavior. In the interviews, FGD and observation, people were found to be ruthless, negligent, contemptuous, pride and quarrelsome in behavior. Others used their superstitious powers to threaten the lives of the leaders (WUA, EC, WC, and VLUM) representatives. Generally individual factors pulled the community to take part in conserving, protecting and managing the environment and water sources. People conducted anthropogenic activities in the areas within 60 meters from the water resources which are legally considered as reserved zones. Together with the individual factors, the narrative information found that culture and tradition of the people was also a factor for poor community participation on WRM. Rivers and forest are considered to be best places for traditional believers for witchdoctors to perform their rituals and sacrifices at the expense of the wastage of water resources due to pouring of animal blood and bathing medicines in the river.

6.2.4 Institutional Factors Limiting Community Members' from Participating in WRM

Several institutional factors were found to contribute towards poor community participation in WRM in Mungonya sub-catchment. Among institutional factors that were found to exacerbate poor community participation was lack of personnel ability to mobilize and manage human resources. This was inactive by 60%. Poor implementation and enforcement of laws and bylaws apart from the fact that laws and bylaws were considered to be relevant by 50%. People were less informed of the mother laws and even the bylaws. Another institutional factor was ineffective engagement of WRM entities also limited community participation. Lack of support from the LTBWB was the result of poor performance of WUAs

Other observation made was that, members of WUAs and VLUM had no allowances given, and encountered constant threats from community members who misused the land and water resources around the environment. These members have no government powers despite their legal recognition in the village. Lack of financial support for WRM projects was found to be major bottleneck by 90%. It was found that the LTBWB fails to perform its required activities and roles due to financial shortage hence poor performance thus affecting the communities to participate on WRM. The poor political will of the government was termed to be the underlying reason for the insufficient allocation of budget to LTBWB hence weakening the facilitation capacity of the water entities in influencing community to take part in WRM.

6.3 Conclusion

Based on the study findings, the study concludes that there is indeed a need to reverse a WRM practices from a more voluntary to a policy tied that accommodates both, individual and institutional factors. The conclusion is made on the basis of various inputs from the four specific objectives. Amongst others is the fact that it was evident that the Community members around Mungonya sub-catchment were aware of the practices of WRM despite little training and sensitization programmes offered to representatives of water and environmental entities. People were moderately enabled with skills necessary

for management of water resources. Further, the failure of their participation is neither related to insufficient nor poor acquisition of knowledge and skills in WRM. There are poor attitudes and beliefs towards water and other natural resources implied little understanding of people about nature and WRM.

Moreover, there exist a number of individual factors which cause or lead to poor community participation on WRM. These factors were lack of personal willingness, improper and risk behavior like contempt, pride and other irresponsible behavior. In the same parameter, institutional factors for WRM were found to be ineffective and dormant. Leadership problem and ineffectiveness of water entities together with lack of financial support from the government culminated to poor enforcement of laws and bylaws hence deteriorating the ability and willingness of the community to participate on WRM.

6.4 Policy Implications and Recommendations

The knowledge and skills of Mungonya people was found to be moderate with varying attitudes and beliefs hence affecting individual behavior and attachment to matters concerning WRM. There is need to improve the level of awareness of people on WRM, through public meetings and seminars for the sake of awakening their consciousness about the real situation of the water resources and the roles they have to play as stakeholder of the Mungonya Sub-catchment. The identified individual factors are emanated from poverty level, personality characteristics, culture and beliefs. All of these aspects are essential to be noted by policy makers for them to identify plausible ways of influencing individuals to act in a way that facilitate community participation. Appropriate interventions should be made to alleviate poverty, introducing new technology, improving per capital income and management of land and water resources.

The community is an organization of people that posses some common goals and normally may have shared historical backgrounds. The policy makers are to bear in mind of the diversities of people while instituting different bodies or organizations which deal with influencing human behavior. The mentioned weakness of the institutional factors like leadership, poor law enforcement, poor collaborations of water entities and lack of financial support could be thought in the broader perspective of human capital development problem that intrinsically seen to reside among the Mungonya people.

Apart from creation of institutions, decision makers should not take for granted the need of training leaders and followers in the grassroots starting from the community level.

6.5 Suggestions for Further Research Areas

The completion of this study is not an end in itself; it paves a way for other researchers to learn more about community behaviour, culture and tradition with reference to their willingness to participate on WRM. It would be worth to conduct an in-depth qualitative study on the ability of WUAs leaders to influence community participation in WRM. Another proposed study could be conducted on the opportunity cost of community participation on WRM versus income earning.

REFERENCES

Agarwal, A.Angeles, M.S.Cheret, I. and Poblette, S.D.(2000). *Integrated Water Resource Management.* Global Water Partnership: A Technical Advisory Committee. Stockholm.

Anderson, E. and McFarlane, J. (2010) .*Community as Partner: Theory and Practice in Nursing (6th ed).* New York: Lippincott Williams & Wilkins.

Bakker, S. (2006). *An Uncooperative Commodity: Privatizing Water in England and Wales.* Oxford: Oxford University Press.

Baker,L.M.(2006).*Observation: A complex Research Method.* Library Trends, 55(1,,171-189.

Bell, R. (2001). Capturing benefits from water entitlement trade in salinity affected areas: A role for trading houses? *Aust. J. Agric. Resource. Econ. Soc.* 2002, *46*, 347–366.

Best,J.W. and Khan, J.V.(2006).*Research in Education*(10th ed).Boston: Pearson Education Inc.

Bouman, E. (2011). *Rationalization of Drilling Operations in Tanzania: Review of the Borehole Drilling Sector in Tanzania.*

Cohen, L. Manion, L. and Morrison, K. (2000). *Research Methods in Education.*(5th ed). London: Taylor and Francis Group.

Creswell, J. (2009). *Education Research; Planning, Conducting and Evaluating Quantitative and Qualitative Research.* (3rd ed). Upper Saddle: River Pearson.

Creswell, J.W. (2014).*Research design: Qualitative, Quantitative, and Mixed Methods Approaches.* 4th ed. London: Sage Publication.

Dei, D. (2011). “Water Resource Management for Socio-Economic Development. A Case study of Pru and Atebubu-Amenten districts, Ghana”. *A Thesis submitted to the school of Graduate Studies Nkwame Nkrumah University.*

Gifford, J. Neathey, F. and Loukas, G.(2005). *Employee Involvement,* information, Consultation and Discretion. Institute for Employment Studies. http://www.employment-studies.co.uk

Gillham, B. (2000). *Real World Research: Case Study Research Methods*. Continuum: New York .

Given, L. M. (ed). (2008). *The Sage encyclopedia of qualitative research methods*. New Delhi : SAGE Publications.

Global Water Partnership (GWP), (2000).**“**Integrated Water Resources Management.”*Technical Advisory Committee (TAC) Global Water Partnership***.**SE -105 25Stockholm, Sweden.

Gupta,A.D.(2001). “Challenges and Opportunities for Water resources management in southwest Asia”. *Hydrological Science Journal.*46:6,923-935,DOI.

Heyd,H. and Neaf,A.(2004). “*Participation of local People in Water Management: Evidence from The Mae Sa Watershed,* Northern Thailand”. *EPTD Discussion Paper* no.128.

Hoffet,N. Daoud,I.Alary,V.Tourrand,J .F Moselthy, N.(2011) *Participation,* power and sustainable Water Resource Management, A Case of the Rainfed Desert Region of Matruh,Egypt. Cairo

Ingeneria Sin Fronteras (ISF), (2008). *Report on RUKUNDO COWSO Formation in Chankele - Bubango Villages*. Kigoma, Tanzania.

Jaspers, F.G.W. (2003). “Institutional arrangements for Integrated River Basin Management”. *Water Policy No.5. Journal of the World Water Council.* Alexandra U.S.A., pp.77-90.

Jupp, V. Ed. (2006). *The sage Dictionary of Social Science Research Methods*. New Delhi: Sage Publications.

Kashaigili, J. (2010). *Assessments of Groundwater availability and its current and potential use and Impacts in Tanzania.* Report prepared for the International Water Management Institute (IWMI).Sokoine University of Agriculture.

LTBWO. (2015). *Mungonya Sub-catchment Demarcation Report.* Kigoma, Lake Tanganyika Basin Water Office.

Lenton, F.(2009)Delivering sustainable urban water management: A review of the hurdles we face. *Water Sci. Technol.* 2009, *59,* 838–846.

Marijani,R.(2017). Community Participation in the Decentralized Health and Water Services Delivery in Tanzania. *Journal of Water Resources and Protection.* Vol. 9.637-655.

Mbaruku, S. (2016). "Assessment of River Health Using Physico-Chemical Parameters and, Tanzania. Macroinvertebrates: A Case study of Mungonya Sub-catchment in Kigoma*". A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Integrated Water Resources Management of the University of Zimbabwe*. Harare.

Mburu,C.W.(2015). *Factors Influencing Implementation of Selected Donor Funded Projects in Kenya: The Case of World Vision Isiolo County, Kenya*. University of Nairobi.

Mokiwa, J. (2015). "*Community Participation in Water Resources Management: A Case of Saaki Water Spring in Hai District, Tanzania."* A thesis submitted in Partial Fulfillment of the Degree of Master in Development Policy of the Mzumbe University. Morogoro, Mzumbe.

Mollinga .P. & Gondhalekar, D.(2012). *Theorizing Structured Diversity: An Approach to Comparative Research on Water \resources Management*. ICCWaDS Working Paper.No.1.

Muginya, G.M. (2013). Impact of rock catchments on water resources of Kitui District. In: P*roceedings of the Second National Conference on Rainwater Catchment Systems in Kenya*. Nairobi, Kenya, pp. 225–236.

Mwageni, T.O. (2017). "Community Empowerment in Water Governance and its Contribution to Water Supply Sustainability: The Case of Morogoro and Njombe Rural Districts, Tanzania." *Phd Thesis. Mzumbe University*.

Newmann, W. and Robson, L. (2009) *Social Research Methods: Qualitative and Quantitative Approaches.* 5th ed. New York: Pearson Education

Ong'or D.O. *et.al.* Ed. (2014). Community conservation Initiatives: Towards livelihood security in the Lake Victoria Basin. *Issues, problems and opportunities.* A proceeding report.

Ong'or, D.O. (2005). *Community participation in Integrated Water Resource Management: The Case of the Lake Victoria Basin.* FWU, Vol.3, Topics of Integrated Watershed Management-Proceedings summer school.

Quin,A.,Berit,B and Jellan,K.(2011). *How to "Walk the Talk": The Perspectives of Sector Staff on Implementation of the Rural Water Supply in Uganda. National Resources Forum*,35, 269-282. http://doi.org/10.1111/j.1477-8947.2011.01401.x

Russo,T. Alfredo, K. and Fisher, J. (2014). *"Water: Sustainable Water Management in Urban, Agricultural, and Natural Systems." Water* 2014, *6*, 3934-3956; doi: 10.3390/w6123934.

Rutta, E.(2013). *Current and Emerging Youth Policies and Initiatives with a Special Focus and links to Agriculture Tanzania (Mainland)* Case Study Draft Report Food, Agriculture and Natural Resources Policy Analysis Network. April 2012

Shabman, L. and Scodari, P,(2012). *Towards Integrated Water Resource Management: A Conceptual Framework for U.S Army Corps of Engineers Water and related Land Resources Implementation Studies.*2012-VSP-01.Visiting Scholar programme.

SMART-e.org. (2010). Community Involvement. Retrieved: http://www.smarte.org/smarte/dynamic/resource/sn-risk-assessment.xml.pdf.

Snellen, R.(2004). *Tapping unsustainable groundwater stores for agricultural production in the high plains aquifer of Kansas,* projections to 2110. *Proc. Natl. Acad. Sci. USA* 2003, *110*, E3477–E3486.

Stukas, A.A and Dunlap, M.R.(2002). Community Involvement: Theoretical Approaches and Education Initiatives. *Journal of Social Issues, 58: 411–427. doi:10.1111/1540-4560.00268.*

Uemura, M.(1999). *Community Participation in Education:* What do we know? World Bank.

UNESCO.(2004). *An Overview of Selected policy documents on water resources Management that contributed to the design of HELP* (Hydrology for the Environment, Life and Policy).International Hydrological Programme. Paris.

UNESCO. (2009). Integrated Water Resources Management in Action**.** *DHI Water Policy and UNEP-DHI Centre for Water and Environment*. Paris.

United State Institute of Peace (USIP) (2007). *Natural Resources, Conflict and Conflict Resolutions.* Washington DC.

URT. (1998, December). *Kigoma Region Socio-Economic Profile.* The planning Commission Dar es Salaam and Regional Commissioner's Office, Kigoma, Tanzania.

URT, (2002). *National Water Policy; Ministry of Water and Irrigation*. Dar es Salaam.

URT, (2008). Land *Use Plan for Chankele Village, Bitale Ward, Mahemebe Division 2008-2028. Kigoma District Council*, Kigoma.

URT, (2009). *Water Resources Management Act-Tanzania:* Constitution of the United Republic of Tanzania.

URT, (2013). *The Mungonya WUA Formation Report: The Lake Tanganyika Basin Water Board,* Kigoma

URT, (2014). "Lake Tanganyika Basin Water Board". Integrated Water Resources Management and Development Plan for the Lake Tanganyika Basin. *Part 1 Main IWRMD Plan for the Lake Tanganyika Basin United Republic of Tanzania Ministry of Water*. March 2014.

URT, (2015). "Part 1: Main Integrated Water Resource Management and Development Plan for The Lake Tanganyika Basin Main IWRM Plan for LTBWB (Vol. 2014). Kigoma, Tanzania.". *Ministry of Water*.

URT, (2015a). *Integrated water resources management and development plan for the Lake Tanganyika basin-Luiche Sub-basin.* (Vol. 2014). Kigoma, Tanzania.

URT. (2012). *Population and Housing Census Population.* Tanzania.

Van Eijk, D.(2012). The Impact of Decentralization on Poverty in Tanzania. *Amsterdam University Press, Amsterdam*

WaterAid in Nepal (2011). *Policy guidelines-Water resource management.* It can be retrieved from website– www.nepal.wateraid.org.

Wilcox, D. (2001). *"Community Participation and Empowerment: Putting Theory into Practice". PLA Notes CD-ROM 1988-2001*.London.

APPENDICES

APPENDIX I: RESEARCH BUDGET

List of activities	**Approximated Expenses**
Proposal Writing(internet, stationeries & transport)	200,000
Data collection	250,000
Data analysis	250,000
Report writing	400,000
Final dissertation	200,000
Other expenses	150,000
Total =	**1,450,000/=**

APPENDIX II: RESEARCH WORKPLAN

	Work Plan (Gantt Chart)											
Activity/Time	**Jun-17**	**Jul-17**	**Aug-17**	**Sep-17**	**Oct-17**	**Nov-17**	**Dec-17**	**Jan-18**	**Feb. 18**	**Mar-18**	**Apr-18**	**May18**
Formulating Research Title and Area of Study												
Writing Historical perspective of contemporary problem												
Statement of the Problem												
Formulate Research Questions												
Literature Review												
Formulate Research Methodology												
Write up of entire Research Proposal												
Negotiate Access												
Data Collection												
Data Analysis												
Write First Draft												
Write Second Draft												
Write Final Draft												
Dissertation Due												

APPENDIX III: OBSERVATION SCHEDULE/CHECKLIST

FORM NO. ……. Date of the Interview ……

Name of the village: ……..

I am very pleased of you and the time you have given to facilitate this interview. I am called Bona Mremi, A student of Mzumbe University. I hold this interview as a way of attaining my academic research for the *Degree Master in Development Policy*. I would like you to be assured of my confidentiality and secrecy for any of the information you are going to provide.

The interview seeks to collect information on the "***Factors Contributing to Poor Community Participation in Management of Water Resources: A Case of Mungonya Sub-catchment in Kigoma district council***". The observation exercise is expected to take at least 1:00 hour in each village.

1. Record the environmental condition of the water sources
2. Look for the presence of any activities carried in restricted areas.
3. Check if there is any part of land eroded or degraded
4. Check for the area well preserved for water resources if any.

APPENDIX IV: QUESTIONNAIRE FOR GOVERNMENTAL, NON GOVERNMENTAL ORGANIZATIONS AND OTHER STAKEHOLDERS

I would like to request you to fill in this questionnaire sheet. The questionnaire is made to facilitate responses for the study on the ***Factors Contributing to Poor Community Participation in Management of Water Resources: A Case of Mungonya Sub-catchment in Kigoma district council***". I appreciate for your participation, and I further assure you with my esteemed confidentiality and protection. The answers given will only be used for this academic purpose and not otherwise.

I beg for your honesty and objectivism in answering this questionnaire. Please put a tick (√) to the most correct answer among other.

The questionnaire is expected to take at least 10 Minutes.

Section I: Demographic information

Tick the appropriate box

1. What is your sex?
    i) Male ( )
    ii) Female ( )
2. How old are you?
    i) 20-29
    ii) 30-30
    iii) 40-49
    iv) 50 and above
3. What is your marital status?
    i) Married
    ii) Single
    iii) Divorced
    iv) Widow or widower
4. Tell about your position in this organization?

……..

5. What is your education level?
    i) Primary ( )

ii) Secondary ( )

iii) College (Certificate or Diploma) ( )

iv) University (Degree) ( )

v) Postgraduate (Degree) ( )

6. How long have you been in the position?

i) Below 5 years ( )

ii) 6-12 years ( )

iii) 13-20 years ( )

iv) Above 21 years ( )

II. Section II: Capacity of institutions and regulations in influencing Mungonya Community to participate in WRM

Tick to the number of your best answer. Note that: **1=Strongly disagree, 2=Disagree, 3= Agree, 4= Strongly Agree**

No		1	2	3	4
7	The Mungonya community is well informed about ways of managing resources				
8	I appreciate the ability of officers dealing with WRM in mobilizing and managing people of Mungonya				
9	I think the institutions in place are appropriately vested with ability to influence WRM practices.				
10	Financially the institution has stable and active budget to support for WRM projects				
11	There are well established entities for managing water resources at the village level				
12	These entities are created by the villagers themselves				
13	The Water user Associations, water committee, COWSOs and environment committee work mutually in WRM at village level				
14	Each entity is supported by the LTBWB				
15	It is the District Water Authority that deal with providing support to WRM entities in the villages				
16	I think there is a miss in the way we deal with our people toward WRM.				
17	The water legislations and regulation are real practical to the needs of WRM				
18	Water legislations and regulation are responding to the practical needs of the Mungonya people as well				
19	I am convinced that the community respects the established water institutions and legislations voluntarily				

Section III: Individual factors contributing to poor community participation in WRM

		1	2	3	4
20	I think there are other issues to be considered for the community to participate actively in WRM				
21	The personality disorders like that of anti-social behavior could limit the person from participation on WRM				
22	The individual beliefs on natural resources limits active participation to WRM				
23	Low income level of an individual blocks the ability to participate in WRM				
24	Overreliance on water resources for economic gain reduces individual willingness to conserve water resources.				
25	If there are alternative special areas prepared for their agricultural then people would not temper with water resources in the restricted zones.				
26	There is need to invent new ways of income earning for the people to conserve water resources.				

Section IV: The role of political will in support of WRM

		1	2	3	4
27	The government policies on water sector are well and clearly stated regarding WRM.				
28	The government policies on water sector support the need for the community to take part in WRM.				
29	I think the allocated national budget for the water sector is sufficient to support the WRM activities in our area.				
30	I see political leadership on water and land resources is very active and collaborative with the WRM partners.				
31	The present national water policy is outdated in making the community willing to support WRM activities.				
32	There is more of documentations and declarations on WRM than the real implementation activities.				
33	There is poor political will/commitment to deal with the community in WRM.				

APPENDIX V: INTERVIEW GUIDE FOR VILLAGE LEADERS/ WUA MEMBERS

FORM NO. ……. Date of the Interview ……

Name of the village: ……..

Sign of interviewee consent: ……..…….

I am very pleased of you and the time you have given to facilitate this interview. I am called Bona Mremi, A student of Mzumbe University. I hold this interview as a way of attaining my academic research for the *Degree* of *Master in Development Policy*. I would like you to be assured of my confidentiality and secrecy anonymity for any of the information you are going to provide.

The interview seeks to collect information on the "***Factors Contributing to Poor Community Participation in Management of Water Resources: A Case of Mungonya Sub-catchment in Kigoma district council***"." The interview is expected to take at least 1:30 hours.

1. Can you introduce yourself please?
2. What can you tell about your position experience?
3. How long have you been working in this village as VEO? To probe on previous experiences of the community in the village on water resources management
4. What do you understand by WRM? To probe of the history of the WRM practice in the village
5. Can you explain how community members behave towards water resources management? To probe on the reasons behind their behaviors
6. How do you see the condition of Water resources in the village? To probe according to response
7. Did the villagers receive any training on how to deal with the water resources around their village? To probe on the time, their reactions and appreciations, number of training received? /Are people well informed and trained on ways to manage water resources?
8. How do your villagers value water resources? Start with yourself.

9. Are there any activities which risk the management of water resources in your village? To probe on them :(what are they, how? How far has the problem persisted? any measures at village level/ Sub-catchment level?)
10. Are people informed of the laws and regulations regarding the conservation and protection of water resources? To probe on how far? Who informed them?
11. How do people perceive the legislations and regulation regarding WRM?
12. Why do they still conduct human activities in restricted zone? To probe on any individual factor?
13. Does the culture and tradition of the people around friendly to the issue of water resources management? To probe on how or why?
14. Does the community participate in managing water resources? Tell how? To probe on roles of WUAs, and other environmental/water committees.
15. Do you think individual behaviour can influence the community not to responds to the demands of WRM? How is it possible? / Why?
16. What else could be done to encourage each member of the community to participate actively in conserving and protecting water resources?

    This marks the end of my interview, In case you have any further addition or question you are welcome.

Thank you very much for your contribution

APPENDIX VI: FOCUS GROUP DISCUSSION GUIDE QUESTIONS FOR WRM STAKEHOLDERS

FORM NO. ……. Date of the FGD ……

Name of the village: …….. Sign of respondents consent: …….…….

I am very pleased of you and the time you have given to facilitate this interview. I am called Bona Mremi, a student of Mzumbe University. I hold this interview as a means of attaining my academic research for the *Degree* of *Master in Development Policy*. I would like you to be assured of my confidentiality and secrecy for any of the information you are going to provide.

The interview seeks to collect information on the "***Factors Contributing to Poor Community Participation in Management of Water Resources: A Case of Mungonya Sub-catchment in Kigoma district council***". The interview is expected to take at least 1:30 hours.

I. The understanding of water resources management

1. What are water resources? Probe in relation to environment around them.
2. What are the benefits of water resources for the place?
3. What do you know about WRM?
4. What can you say about the condition of water resources in your locality?
5. In what ways do you value the water resources?
6. Are you involved in any activity related to management of water resources? Probe the activities?

II. Community participation in WRM

1. What is the nature of collaboration between you and the LTBWB?
2. How are you involved by the LTBWB in the whole process WRM?
3. How have been concerned about WRM in your locality? Probe trend of activities.
4. What challenges do you meet in WRM?
5. In which ways are you prepared to take part in WRM?
6. How does LTBWB make you part of the WRM stakeholders?
7. How friendly are the laws and regulations of WRM in your daily activities? Considerations of needs assessments.

III. Individual factors contributing to poor water resources management

1. What aspects of WRM practices limit you from being active participants in conserving and protecting water resources in the village?
2. What else do you consider useful for you to participate in WRM?
3. Is your culture WRM friendly?
4. How do you accommodate the demands for WRM with your family needs and wants? To probe on level of technology, income level and need for Arable land and survival.
5. Could personal characteristics contribute to poor community participation in WRM? Probe for justifications(laziness, pride, avoidance, carelessness, charismatic behavior, anti-development)