MONITORING CAPACITY OF THE COMMUNITY OWNED WATER SUPPLY ORGANIZATIONS FOR RURAL WATER SUPPLY PROJECTS: A CASE OF MKURANGA DISTRICT, TANZANIA

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF ARTS IN MONITORING AND EVALUATION OF THE OPEN UNIVERSITY OF TANZANIA

2019

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania, a research report titled: **"Monitoring Capacity of the Community Owned Water Supply Organizations for Rural Water Supply Projects: A Case of Mkuranga District, Tanzania"** in partial fulfilment of the requirements for the degree of Master degree of Arts in Monitoring and Evaluation of the Open University of Tanzania

Signature……..…….

Dr. Reguli Baltazar Mushy

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Date……..

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DECLARATION

I**, Juvenal Daniel Mabuli,** do hereby declare that this dissertation is my own original work and that it has not been submitted for a similar degree in any other University.

Signature……..…….

Juvenal Daniel Mabuli

(Student)

Date……..

DEDICATION

I dedicate this work to my family particularly to beloved wife Victoria Wilbard and to my children Jessica and Joel. They have shown extraordinary support to me during the period of studies.

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The completion of this dissertation would not be a reality without great support from different people. I would humbly first express my heartfelt thanks to my supervisor Dr. Reguli Mushy for his great support as a mentor and a teacher during the period of research. Dr. Mushy has given insightful comments and suggestions which at large contributed to best and acceptable quality dissertation report. Many thanks should also go to Mkuranga District Council particularly Water Department for great support in all the period of data collection. This include all the staff at Mkuranga district water department, to mention few; Eng. Idd Pazi, Mr. Hamis Honero and Mr. Abdi Waziri for their consistently and un-tired coordination during the period of data collection. Additional to that, the study would not be reality if COWSO members would not show up. I am so grateful to all COWSO members and all Village Executive Officers including the Village Chairman for their great cooperation in responding to the questionnaire and interview.

In fact there are many people that contributed to the success of my study, including my lectures and fellow students at OUT thus the space is not enough to mention each one therefore I sincerely express my thanks to all of them. Finally, my family was a great pillar to ensure that I successfully archive positive results in all period of my studies. I would therefore express my heartfelt thanks to my wife Victoria and to my beloved children Jessica and Joel for their patience and encouragement while I was busy for studies.

ABSTRACT

The study examined monitoring capacity of the Community Owned Water Supply Organizations (COWSOs) for rural water supply projects. The study specifically examined how water services information/data are being collected or recorded, used and communicated at scheme level. It also examined the awareness of COWSO member to relevant water supply indicators as measure to determine at what extent they know what they are supposed to do. The study also examined the participation of LGA in providing technical assistance to COWSOs as an indication of existence of formal monitoring system at COWSO and LGA. The study involved sample of 90 respondents which include 80 COWSO members from ten (10) COWSOs and ten (10) Village Executive Officers. The findings revealed that monitoring capacity of COWSOs is very poor and is mainly caused by inadequate trainings and lack of monitoring framework at Local Government Authority (LGA). The study recommended that, COWSO being a primary source of monitoring data to water sector, Ministry of Water (MoW) should reform its rural water sector M&E system by doing the following; one, employ professional staff up to COWSO level to assist management of COWSOs in M&E perspective; two, design M&E system (preferably computerized system) with all tools (monitoring plan, data collection tools etc.) and specify performance monitoring indicators. Information will be uploaded into the system by a technical person at COWSO level on weekly basis to reflect the existing situation on ground. The study also recommends LGA to develop monitoring framework to deal with issues more proactively (strategically planned) and not reactively as it used to be.

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ABBREVIATIONS AND ACRONYMS

CEDPA	Centre for Development and Population Activities
COWSOs	Community Owned Water Supply Organisations
DC	District Council
DWE	District Water Engineer
G.R.U.M	Government of the Republic Union of Myanmar
GWI-WA	Global Water Initiative in West Africa
IFAD	International Food and Agriculture Development
IFRC	International Federation of Red Cross
KPI	Key Performance Indicators
km^2	Square Kilometer
LGA	Local Government Authority
M&E	Monitoring and Evaluation
MoW	Ministry of Water
m^3	Meter cubic
NAWAPO	National Water Policy
NORAD	Norwegian Agency for Development Cooperation
PM&E	Participatory Monitoring and Evaluation
Qnr. No.	Questionnaire Number
RAS	Regional Administrative Secretary
RWSSI	Rural Water Supply and Sanitation Initiatives
U.R.T	United Republic of Tanzania
UNDP	United Nations Development Programme

UN	United nations
VEO	Village Executive Officer
VC	Village Chairman
WP	Water Point

CHAPTER ONE

INTRODUCTION

1.1Background to the Research Problem

Water is a valuable resource in the global. Every living creature depends on water for survival. Water is an important resource in the developmental economy due to its valuable use in economic activities such as agriculture, industrial, commercial, domestic etc. Fresh water was declared finite and vulnerable resources for sustaining life and also as an economic good in 1992 Dublin principles (UN-Water, 2018). It is important to note that scarcity and misuse of water resource may cause serious danger in development economy and the environment. The Dublin principles of 1992 in totality direct governments to apply effective management strategies to sustain water resource for sustainable development. This goes in line with application of participatory management approach involving users, planners and policy makers at all levels (United Nation, 2010).

Global water demand has been estimated at about 4,600 km^3 per year and projected to increase by 20%–30% per year by 2050 (UN-Water, 2018).UN emphasized more that, the global demand for water has been increasing at a rate of about 1% per year and it will continue to grow significantly over the next two decades. Industrial and domestic demand is said to increase much faster than other demands. The domestic demand account for about 10% of global water while 70% account for agriculture (UN-Water, 2018). The majority of the growing demand for water is reported to occur more in developing countries because of the emerging economy. The greatest increases in

domestic demand is said to occur in African and Asian sub-regions where is more than triple, and more than double in Central and South America.

Water being such important to life lead the international community to declare it the basic right to every human being. It is the desire of the international community that each people get right to access clean water and sanitation services at affordable price. Resolution 64/292 explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights (United Nations, 2010). The Resolution requested States and international organizations to provide financial resources, facilitate capacity-building and technology transfer to help countries, in particular developing countries, to provide clean, safe, accessible and affordable drinking water and sanitation for all.

The goal number six (6) of the United Nations 2015-2030 Agenda for Sustainable Development also emphasize on access to affordable, reliable, sustainable water supply and sanitation services for all. It address the availability of water and sanitation services, to all people, development of adequate water resource, development of water supply and sanitation infrastructures and economic growth which support investment in water sector.

According to UNDP (2006), people living in the slums of Jakarta, Manila and Nairobi pay 5 to 10 times more for water than those living in high-income areas in those same cities and more than consumers in London or New York. It emphasize more that in Manila, the cost of connecting to the utility represents about three month's income for the poorest 20% of households, rising to six months in urban Kenya.

Water use varies with economic status of the place. The poor economic countries have less uses compared to higher economy countries. According to UNDP (2010), average water use ranges from 200-300 liters a person a day in most countries in Europe to less than 10 liters in countries such as Mozambique. Generally, the emphasis of the International Community concerning water services is that, should be sufficient, acceptable, accessible and affordable to all people and it is the basic right to every human being.

Africa as part of the world had gone various reforms in water sector as well. For example, the Rural Water and Sanitation Initiative (RWSSI) was launched in 2003 as a framework for resources mobilization, investment and development of rural water supply, improved sanitation and hygiene behavior across Africa. RWSSI was established in line with the Millennium Development Goals (MDGs) particularly eradication poverty and hunger. Among other objectives, the RWSSI intended to expand access to safe, affordable, and sustainable water supply and sanitation services to the people of Africa. By the year 2015, the access of water supply services in Africa scored 60% from the baseline of 47% against the target of 70% (RWSSI, 2016). According RWSSI (2016) by December 31, 2015, RWSSI programs and projects had benefited from a total estimated financing of Euro 5.93 billion. However despite of such huge investment still large number of people around 280 million (40%) of the total population living in rural Africa had no access to safe water supply by end of 2015 (RWSSI, 2016).

The established new RWSSI 2016-2025 strategy respond to the challenges of the past strategy and to ensure universal coverage by 2025. According to the RWSSI 2016-

2025 strategy, over 340 million people have no access to basic water supply services while over 547 million people have no access to sanitation services.

The water demand in Tanzania is estimated to increase up to 57m^3 billion per year by 2035 from the current demand of 40m^3 per year against available water of 126m^3 billion per year (URT, 2019). These figures indicate availability of adequate water resources across the country. Water supply sector in Tanzania had gone various reforms since 1930s when water supply was confined to urban areas and farming settlements owned by settlers. The policy by then forced the beneficiaries and local government authorities to contribute 25% and 75% of water supply scheme capital investment costs respectively (U.R.T, 2008). In 1971, the government of Tanzania introduced a 20 year Rural Water Supply Programme (RWSSP) whereby regional water master plan was prepared in order to redress the urban bias in water supply service provision. The 20 years programme aimed at providing access to adequate, safe, dependable water supply within a walking radius of 400 meters from the user by the year 1991. The beneficiaries under this programme were provided water freely under the expenses of the government.

The program was then reviewed in 1985 and revealed that only 46% of the rural population had access to water supply. The midterm evaluation addressed various reasons for poor performance to include non-involvement of the beneficiaries, use of inappropriate technologies, use of a top-down approach, and lack of decentralization as a result of abolishment of local government authorities in 1972 (U.R.T, 2008).

The Government of Tanzania as a result, introduced the first National Water Policy in 1991 to mitigate the problems of water sector identified by review of 1985. According

to (U.R.T, 2008), the 1991 Water Policy among other placed an emphasis on community participation, decentralized management, use of appropriate technologies (i.e. which are affordable, adaptable and acceptable to the beneficiaries), cost sharing for rural water supply and cost recovery for urban water supply. Another review in Tanzania water sector was conducted in 1993 and revealed some shortcomings in the 1991 Water policy. The identified shortcomings were non-involvement of the private sector, involvement of beneficiaries being limited to provision of free labour, inadequacy in legal and institutional framework; and more emphasis was on water supply than water resources management.

Different reforms of Tanzania water sector have led up to adoption of the existing National Water Policy (NAWAPO) in year 2002. NAWAPO 2002 addresses all the shortcomings identified in previous reviews. Among other objectives, the policy emphasize on fully participation of beneficiaries in planning, construction, operation, maintenance, and management of community based domestic water supply schemes in rural areas (U.R.T, 2002). The Policy had led to establishment of laws (Water supply and sanitation act No.12 of 2009), various regulations, programmers and institutions for the sake of accelerating the Tanzania Water Sector. The NAWAPO 2002 and Water supply and sanitation act of 2009 put the obligation of the Central Government to provision of technical and financial support, coordination and regulation of water supply development while the private sector provide support to the communities in planning, design, construction and supply of materials, equipment, spare parts and to support operations in some cases. The new water law No.5 of 2019 has just passed by the parliament to overtake the previous one. The new water law recognized establishment of the Rural Water Supply and Sanitation Authority (RUWASA),

responsible for coordination of investments of rural water supply and sanitation infrastructure and providing some technical support services to the rural community.

Despite of all these reforms done by the Government of Tanzania, the goal of provision of potable water services for all as stipulated by the International community is not yet met at 100%. The Ministry of Water (MoW) of Tanzania in collaboration with various stakeholders had been implementing water projects across the nation to meet target access of 85% in rural settings, 90% in small urban and 95% in large towns and cities by year 2020. For rural water in particular, the policy set a walking distance not to exceed 400m from a household. Up to April, 2019 the percentage of rural population that have access to potable water supply is at 64.8 % (U.R.T, 2019).

Despite of the fact the international community call upon counties to investment in water infrastructure and to practice effective management on water resources, there are management challenges especially in developing countries which result to early failure of water infrastructures. Various challenges had been encountered by MoW including early failure of the water infrastructure as well. For example up to year 2016 the status of water points in rural Tanzania were; Out of 87,062 water points across the country, only 52,595(60.4%) were functional while 28,187(32.4%)were non-functional. Other 6,284(32.4%) were functional but need repair (http://www.nbs.go.tz).

Vietnam (2010) had revealed that many rural water projects failed or need major maintenance within 3-4 years of design life span of 15-20 years. Early breakdown of water systems in Vietnam by then ranged from 40 to 80% of all water supply projects in rural area. This situation was attributed to lack of effective M&E system starting

from planning, supervision of construction and operation of the constructed infrastructure.

In order for the governments to meet the goal of ensuring safe and adequate water to the communities, water sector require huge capital investment not only in infrastructure but also in capacity building. This is based on two facts; one, water as a scare resource in the environment is prone to various type of pollution and two, water resources may be located far from the community or at a point which require advance technology to abstract it and thus require well trained personnel to operate the system. With regard to these facts, governments have no option rather than keep on investing in the water infrastructure parallel to capacity building to facilitate the right of its people to access clean and safe water.

1.2 Statement of the Research Problem

Despite of significant investments in rural water supply, there has been a notable lack of strategic management for rural water schemes. Although it is an obligation of any government to invest in water infrastructures, less attention is put on capacity building. According to Sara *et al.* (1997), the major weaknesses of many governments concerning investments on water infrastructures are: paying more attention in building new facilities than to ensuring the use of existing one, and assume that communities will manage their facilities but do not build the capacity or commitment to do so. This has been the case as well in most of developing counties including Tanzania.

NAWAPO (2002) and the existing water acts and regulations in Tanzania, supports decentralization strategy whereby Community Owned Water Supply Organizations

(COWSOs) are responsible to manage, operate and maintain rural water infrastructure at scheme level. However less effort has been put to capacity building and as a result, COWSOs are not confident to exercise their duties in effective way. This has led to continuous absence of relevant rural water supply service information in water sector particularly at LGA and in turn, LGA demonstrates inadequate efforts to monitor performance of COWSOs.

Mkuranga district in particular, is facing similar problem resulted from inadequate monitoring capacity of COWSOs. Although Mkuranga district has legally register fourteen (14) COWSOs between years 2013 to 2017, there is no progress report submitted to LGA since then. Reporting therefore has been a challenge to all COWSOs. According to Mkuranga district water department, only 15.8% out of 19 audited COWSOs presented their financial records before the auditor during 2017/2018 audit.

It can be said that, Mkuranga district lack frequently updated information on status of operations of rural water supply which result to poor planning on managing COWSOs. In other words, Mkuranga district lack effective system of systematic data collection, analysis and assessment for decision making for rural water supply.

1.3 Objective of the Study

1.3.1General Objective

The main objective of the study is to examine monitoring capacity of the Community Owned Water Supply Organizations (COWSOs) for rural water supply projects.

1.3.2 Specific Objectives

i. To examine routine recording, use and communication of water supply service data
ii. To examine awareness of COWSO on relevant rural water supply performance indicators
iii. To examine LGA participations in providing technical assistance to COWSOs as feedback of communicated information.

1.4 Research questions

i. How water supply service data are recorded, used and communicated?
ii. At what extent COWSO members are aware on relevant water supply success indicators?
iii. At what extent LGA participate to provide technical assistance to COWSO as feedback of the communicated information?

1.5 Significance of the Study

The research meet the needs of the Tanzania 2002 water policy and Water Supply and Sanitation act number 12 of 2009 and the current water supply and sanitation act number 5 of 2019 whereby improvement of rural water supply serve as a vital requirement. The government has an idea that, rural water supply scheme should be managed by the community in all aspects of service delivery, and the role of governments as service promoter rather than provider. The research therefore intends to improve performance of COWSOs to manage and sustain effectively their water supply schemes. It also intend to increase knowledge and skills to the other relevant

rural water supply stakeholders such as Ministry of Water (MoW), Local Government Authorities (LGAs), and the local community to practice M&E as a reflective system for informed decision within water sector.

Findings of the study will be provided to Local Government Authority (LGA) for assisting monitoring of COWSOs. For example Mkuranga LGA shall understand the importance of monitoring and evaluation for rural water supply as well as understanding power of routinely data collection, analysis, uses and communication for evidence based decision. The study results may serve as training guideline at LGAs on best ways to monitor rural water supply. The findings will also help in the designing of feature water interventions as will devise the best monitoring mechanisms for managing rural water projects. It will also promote accountability of LGA and COWSOs in service provision.

Despite the efforts of the government to improve rural water supply management (RWSM) through a participatory approach using COWSO strategy, without adequate monitoring skills, performance of COWSOs remain uncertain. The study therefore is aligned with the existing National policy and water acts which strongly emphasize on participatory approach and decentralization of rural water supply for effective management.

1.6 Scope of the Study

The research is to be conducted in Mkuranga District Council, Coast region, involving the villages within which COWSOs has been established. The research examined monitoring capacity of the Community Owned Water Supply Organizations (COWSOs) for rural water supply projects. The study examined effectiveness of the

monitoring system in terms of data recording, communication and use. It focuses on how the collected information is being used as a reflective process between LGA and COWSOs as well as how this information is communicated for decision making.

1.7 Organization of the Study

The research contain Six chapters, whereas Chapter One covers various items including the Background of the research problem on status of rural water supply, the statement of the research problem, outlining of the research objectives, then Research questions, Justification or rationale of the research to the body of knowledge.

Chapter Two, covers, Conceptual definitions, Theoretical literature review, Empirical literature review (from different studies), Legal frame work, Policy review of Water sector in relation to M&E and COWSOs aspects, research gap left added in the body of knowledge, and Conceptual and Theoretical frameworks that guides study. Chapter Three includes Research philosophy/Paradigm and strategies, Survey population/ area of the research, Sampling design and procedures, Methods of data collection and the Data processing and analysis. Chapter four includes the Analysis and presentation of the findings, Chapter five discusses the findings and Chapter six present Conclusion and recommendations about the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter describes a wide range of literature and ideas related to the study. It is done through review of books, policies, acts, strategies, journals, internet sources as well as articles. The section begins with definition of key terms, theoretical literature review, empirical literature review, research gap and conceptual framework.

2.2 Definition of Key Terms

2.2.1 Monitoring

The term Monitoring in many literatures is defined in context of its application however all of them serve common meaning of routine information gathering, analysis and reflective process. Republic of South Africa (2008), defined monitoring as "A continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing development intervention with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds". IFRC (2011) defined monitoring as a routine collection and analysis of information to track progress against set plans and check compliance to established standards. Monitoring helps identify trends and patterns, adapt strategies and inform decisions for project/programme management.

UNDP (2002) consider monitoring as a continuing function that aims primarily to provide the management and main stakeholders of an ongoing intervention with early indications of progress, or lack thereof, in the achievement of results.

1.2.2 Participatory Monitoring

Participatory methods provide active involvement in decision-making for those with a stake in a project, program, or strategy and generate a sense of ownership in the M&E results and recommendations (World Bank, 2004). In another words, Participatory monitoring involves local beneficiaries in measuring, recording, collecting, processing and communicating information to assist local development project extension workers and local group members in decision-making (Wateshed Management Directorate, 2014). Implementation of COWSOs strategy follows participatory monitoring idea i.e. involvement of local community to monitor operation of water supply scheme.

2.2.3 Evaluation

IFRC (2011) defined Evaluation as "an assessment, as systematic and objective as possible, of an ongoing or completed project, programme or policy, its design, implementation and results. The aim of evaluation is to determine the relevance and fulfillment of objectives, progressive efficiency, effectiveness, impact and sustainability. On the other hand, UNDP (2002) defined evaluation as a selective exercise that attempts to systematically and objectively assess progress towards and the achievement of an outcome. Performance of COWSO strategy should be evaluated often to determine its effectiveness on service provision to facilitate regular improvement.

2.2.4 Indicators

The world bank (2004) define Performance indicators as measures of inputs, processes, outputs, outcomes, and impacts for development projects, programs, or

strategies. It further narrate that when indicators are supported with sound data collection-perhaps involving formal surveys-analysis and reporting, enable managers to track progress, demonstrate results, and take corrective action to improve service delivery (World Bank, 2004). Indicators are quantitative or qualitative criteria for success that enable one to measure or assess the achievement of project objectives (CEDPA, 1994)

Fundamentally, an indicator provides a sign or a signal that something exists or is true. It is used to show the presence or state of a situation or condition (UNAIDS, 2010). In the context of monitoring and evaluation, an indicator is a quantitative metric that provides information to monitor performance, measure achievement and determine accountability. It is important to note that a quantitative metric can be used to provide data on the quality of an activity, project or programme. Some of indicators for water supply include service performance indicators (working supply points, water supply reliability, water consumption, water loss), financial performance indicators (unit cost of water, profit & loss, cash balance, late payments) etc.

2.2.5 Monitoring and Evaluation (M&E) System

IFAD (2002) defined M&E system as the set of planning, information gathering and synthesis, reflection and reporting processes, along with the necessary supporting conditions and capacities required for the outputs of M&E to make a valuable contribution to decision-making and learning. While Monitoring system provides regular information on the degree of achievement of results at a particular point of time, on the other hand evaluation helps to understand questions of cause and effect. Monitoring information are not enough to explain why a particular problem has

occurred or why the intervention is not reaching its planned results. Evaluation is important to answer the question why it occurred, how and so what?

According to (IFAD, 2002) setting up the M&E system is built on the project strategy which is the starting point of the project implementation. The strategy saves as base for project operations to implement activities efficiently and effectively to a series of actual outputs, outcomes and impacts. Actual outputs, outcomes and impacts are then compared with the strategy to derive the differences in order to identify changes in strategy and operations which result to an effective M&E system. (See figure 2.1 below).

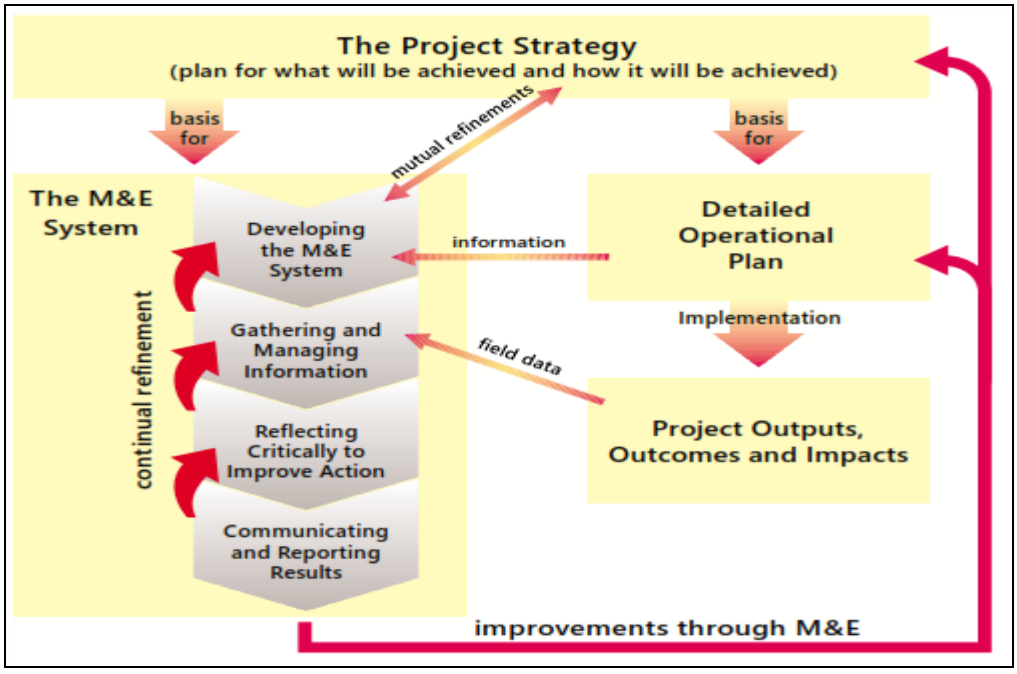

Figure 2.1: M&E System and how it link to the Project Strategy and Operations

Source: IFAD (2002), pp 4-4

2.2.6 Monitoring system

Based on definitions above, a monitoring system is then a combination of plans, processes, tools, staff, equipment and activities, required to serve a common purpose of tracking progress against set plans, checking compliance to established standards to identify trends and pattern, adapt strategies and inform decisions.

In other words, a monitoring system is a combination of processes, tools, staff, equipment and activities, required to collect and analyse data, and report monitoring information to different stakeholders. NORAD (2008) see monitoring as a reporting systems in place for measuring performance at appropriate institutional or organizational levels, ensuring availability of required data sources, agreeing on frequency of monitoring, and having competent personnel to collect information and assess whether desired results are being achieved according to plan and budget. A routine system of recording, collection, analyse, use and communication of water supply information with regular interaction of relevant stakeholders can be termed as a Monitoring system of water supply project.

2.2.7 Community

According to U.R.T (2009), Community is defined as villages who receive their water supply from a common source or one or more water points or a water works. It is a social unit which shares some commonalities such as life style, religion, norms, cultures, values etc. In another words they may have specific characteristic in common.

2.2.8 Community Owned Water Supply Organizations (COWSOs)

COWSOs are bodies legally constituted by the communities to own, manage, operate and maintain water supply and sanitation systems on behalf of all beneficiaries (U.R.T, 2015). COWSO's are rural based organizations. Based on U.R.T (2015), COWSOs strategy is implemented at the district level with the main role of ensuring good monitoring and supervision of water schemes in rural areas for sustainable rural water supply and management.

2.3 Theoretical Literature Review

This part examines different theories regarding the subject of study. The theoretical literature reviews in the existing theories that have been investigated and relate to the present study, in order to develop new ideas or to test the hypotheses. The theories include theory of change, the participatory theory and system theory.

2.3.1 Theory of Change

A theory of change is a description of how an intervention is supposed to deliver the desired results. It describes the causal logic of how and why a particular project, program, or policy will reach its intended outcomes (Gertler *et al*., 2011)

Theory of change illustrates a sequence of events leading to intended results. For a change to take place there must be conditions and assumptions required. Change theory support those conditions and assumptions by making clear the causal logic behind the intervention. It maps the interventions along logical causal pathways. Theory of change can clarify the inputs and activities necessary for the program interventions, the outputs (immediate results) that are delivered, the outcomes (intermediate results) and the impacts (long term results).

Gertler *et al.* (2011) detail different models through which theory of change can be represented such as using theoretical models, logic models, logical frameworks and outcome models, and results chains. Results chain present logical reasonable sequence of changes from inputs, activities, and outputs for which a project is directly responsible and interacts those changes in path towards impacts. Input indicators describe what goes into the project, such as the number of hours of training, the amount of money spent, Material (CEDPA, 1994). Input indicators focus on question like "Are finance, personnel and materials available on time and in the right quantities and quality? (IFRC, 2011). Input Indicator measure the financial, human, and material resources used for a development intervention.

Output Indicators measure effort, or goods and services generated by projects and programmes (UNDP, 2002). It describe project activities such as the number of community workers trained, the number of functional water points, the number of household getting water from water points, number of household affording to pay for water. In other words, Outputs mean the direct result of an intervention activity. It includes goods or services as results of the implementation of activities. IFRC (2011) describe important questions to asses/evaluate the achievement of results at output level such as: Are activities being implemented on schedule and within budget? Are activities leading to the expected outputs? Are outputs leading to achievement of the outcomes?

Outcome indicators measures effectiveness or results in terms of access, usage and stakeholder satisfaction from goods and services generated by projects, programmes, partners and soft assistance (UNDP, 2002). In other words, these are the intermediate

effects of an activity/activities directly related to outputs. They focus on question like are the objective achieved? For water projects, it reflects how life of people changes as a result of availability of adequate safe drinking water. For example increase of house hold income due to available time to participate to other economic activities or improved health due improved sanitation, increased yield in cultivation of vegetables etc.

Impact indicator measure effectiveness or results in terms of the combined effect of a combination of outcome activities that improve development conditions at a national level (UNDP, 2002). Impact indicators measure actual change resulted from an intervention after certain period of time from completion (CEDPA, 1994). They measure changes at goal-level. They focus on the positive and negative changes of an intervention i.e. are there intended or unintended results? For water supply scenario, intended impacts can be life longevity and general well-being.

Based on description above it can be said that, theory of change is applicable to measure the performance of COWSOs in managing the water schemes. It can also be used to measure the performance of LGAs in managing the rural water supply in the sense that the Central government provide an input (project financing) therefore it expect results such as increased access to water services, improved life etc.

2.3.2 Participatory Theory

Participatory methods provide active involvement in decision-making for those with a stake in a project, program, or strategy and generate a sense of ownership in the M&E results and recommendations (World Bank, 2004). Participatory Monitoring and Evaluation (PM&E) focus on strengthening primary stakeholders to be involved as

active participants in interventions. This is to say all relevant stakeholders take the lead in tracking and analyzing progress towards agreed results and deciding jointly on corrective action. Watershed Management Directorate (2014) defined participatory monitoring to involve local beneficiaries in measuring, recording, collecting, processing and communicating information to assist local development project extension workers and local group members in decision making.

IFRC (2011) comply to the above that participatory evaluation is conducted with the beneficiaries and other key stakeholders. Stakeholders at various levels are engaged in monitoring or evaluating a particular project, program or policy, share control over the content, the process and the results as well as engaged in taking or identifying corrective actions. Conventionally, M&E has involved outside experts coming in to measure performance against pre-set indicators, using standardized procedures and tools (World Bank, 2004). However PM&E differs from more conventional approaches as it seeks to engage key project stakeholders more actively in reflecting and assessing the progress of their project up to the results level.

Participatory M&E ensures that local people are active participants and not just sources of information. It enhances stakeholders to monitor and evaluate while outsiders to facilitate. It focus on building stakeholder capacity for analysis and problem-solving and process builds commitment to implementing any recommended corrective actions.

IFAD (2002) elaborate that, PM&E is not just a matter of using participatory techniques for information gathering and analysis rather it involve rethinking on who undertakes and carries out the process and who learns or benefits from the findings.

The stakeholder groups in most cases involved in PM&E include: the end users of project goods and services (men and women at the community level), intermediary organizations such as NGOs, private sector businesses involved in the project and government staff at all levels. PM&E helps to empower, building capacity, enhance sense of ownership among the stakeholders. COWSOs are established and operated based on participatory theory. They are community based organization thus the village community participates in the process of water supply projects through COWSOs.

2.3.3 System Theory

Luhmann (2013) defined system as sums of elements or to consist of elements linked by relations or the interplay of structure and process. Luhmann elaborated further that a system is a productive dynamic network in which all elements depend on, explain and support one another. System theory is a set of unifying principles about the organization, and functioning of systems (Smith-Acuna, 2011). According Luhmann (2013), system approach adds an emphasize on seeing problems in context, looking at how interactions create and maintain problems, and examining the ways that problems can remain constant or change.

The logic behind the Systems theory is that, it comprises of basic components such as “an environment” where the processes happening, “inputs” which serve as energy derived from the environment, “a processor” processing the energy into outputs, “outputs” putting energy back into the environment and “feedback” mechanism from the environment back as energy into the processor. Design of an M&E system should take into account of collecting information from the environment, packaging it in ways

that can be fed into the processor as inputs, then processing the information into specific deliverable outputs, and discharging them back to influence the environment.

According to Laszlo (1972) system is a meaningful whole that are maintained by interaction of their parts. The rural water supply has different players (beneficiaries, NGOs, CBOs, COWSO, LGA, MoW, Central Government, Donors etc.) performing duties together towards achieving the goal of safe and clean water supply to the community. For success of rural water supply, these players must work as a system i.e. a set of elements interlinked each other to archive a desired goal. There must be communication between parties including feedbacks for improving the system. In case of any disorder at any of the element it will affect other elements too. In the context of system theory, COWSOs play a role of a primary feeder (provide input) to the higher systems.

2.4 Empirical Literature Review

There are number of studies in the world that provides framework for the purpose of establishing the relationship between application of M&E tools or practices and sustainability rural water supply projects. The studies are derived from different parts of the world with the basic idea of applications of M&E system for effective management of rural water supply schemes.

2.4.1Recording, Use and Communication of Water supply service data

Data is a term given to raw facts or figures before they have been processed and analysed while data management refers to the processes and systems for how a project/programme will systematically and reliably store, manage and access data (IFRC, 2011). Data is an essential input to M&E system. A well-functioning M&E

system depends on how primary data were collected and managed. For effective M&E system, routine data collection and management should start at lowest possible level. Routine data sources are part of the organization's administrations therefore are also referred to as administrative data sources. Routine data system does not refer data collection only but it also includes data compilation, storage and information flows to decision makers at various levels.

The study conducted by Masuku and Ijeoma (2015), through desk review using secondary data highlighted that, African M&E approach is required in the local rural municipalities due to its complex and diverse set of problems. Lack of M&E approach for the local government in the rural municipalities requires the Participatory Monitoring and Evaluation (PM&E) approach to allow stakeholders, to assess the performance (Masuku and Ijeaoma, 2015). According to G.R.U.M (2016) an integrated data collection and management system from the lowest operational level up to union level needs to be created and maintained. It further stressed out that M&E system should focus on collecting, compiling, analysis and use of the results at all levels of decision-making. Mwendamseke (2010) revealed a greater monitoring gap of water supply schemes at LGA level due to lack proper information records.

The study by Quine (2010), through interviews and document review reveled that, effective monitoring and evaluation can provide support to improve the delivery of rural water services. The researcher identified challenges facing rural water supply in Uganda associated to M&E to include but not limited to inaccuracy of data, infrequent data collection, delay of releasing fund for monitoring activities, low capacity of staff, and putting low weight on monitoring. Some means suggested by Quine (2010) to

eradicate the problems pertaining monitoring of rural water supply were; One, developing monitoring framework at the district level, two, improve "monitoring" of monitoring system, three, link better the release of funds to monitor data and lastly to ensure local actors find monitoring data useful. In order to enforce monitoring correctly and efficiently, actors at all levels should have an interest in monitoring.

U.R.T. (2001) through survey and desk review, revealed major challenges in sectorial Routine Data System (RDS) to include the quality and timeliness of data, and making sure that the data is available in an appropriate format and used in decision-making. In water sector for example, the study recognized that, decisions are often reactive to emerging difficulties rather than proactive based on strategic information as a result of scattered data which are difficult to extract for the purpose of planning and decision-making. Poor match between data generated and data required for use was reported as challenge in water sector M&E system.

According to (U.R.T., 2014) the existing monitoring and information management system for sanitation and hygiene data from village to national level is insufficient to verify the results. However the same U.R.T. (2014) emphasized that, data collection, monitoring as well as information management system is still needed in water sector.

Lucas et al (2004) through document review and interview, revealed that, many countries which are implementing a Poverty Reduction Strategies, adopted the decentralization policy that imply a need of local monitoring systems. The study recommends engagement of Civil Society Organization (CSOs) to monitor poverty at local community level in order to improve transparency and accountability of

government actions. Local communities shall collect primary data direct from the users and so act as feeders to the M&E system.

2.4.1.1 Data use and communication

It is a critical part of the M&E system, linking data collection with its analysis and use (IFRC, 2011). Data communication refers to sharing of data/information that involves a feedback (two sides) although in some case, data may be shared to one side known as “data dissemination”. In order to use data/information for improvement, two way communication of information is a vital need. Information communications include not only formal reports but also communication efforts that seek feedback about interim findings, and discuss what actions are needed (IFAD, 2002). Communication can be affected through different media, e.g. daily, weekly, monthly or quarterly reports or through interment, telephone, meetings etc.

Mwendamseke (2016) through survey, key informant interview, focus group discussion and literature review, point out that, less than 10% of the villages were submitting the reports to LGA. The study discovered that, reports were submitted only in the case of needed assistance from the water departments. It continued that, the rest of the districts where standard formats of report were not available, communities seldom shared information through bank statements, payment slips, receipts and minutes of the Village assembly. The study by Godwin (2018) conducted through interview, questionnaire, direct observation and desk review reveled that, effective data dissemination and communication are determined by a good plan and that communication between stakeholders is vital for project success. Failure to adhere to

the project plan affects communication between the stakeholders and so delays project success.

The study conducted by Hysom (2006) through survey, interview and desk review discovered major challenge of COWSOs to be poor financial management and is the primary correlate to non-functionality of water infrastructure. Poor financial management is related to poor data management (i.e. absence of proper financial records). The study recommends COWSOs to share data regularly with water departments on the status of water supply and their financial performance for regular monitoring. According to Lummens *et al*. (2017) many COWSOs failed timely reporting to the DWE on a quarterly basis although is a provision in their constitutions. Lummens continued that, in practice, the DWE does not receive regular reports from COWSOs, except when they report breakdowns.

U.R.T. (2006) pointed out that monitoring system should engage local people, local government in processes of two way communication. It also emphasis on timely availability and quality data as an important accelerator for an effective monitoring system. According to Jimenez & Pérez-Foguet (2010) inadequate internal information systems is one of weakness which continue to undermine poverty eradication strategy.

On the other hand, some studies conducted have revealed a management gap in water sector particular rural water supply to include inadequate management strategy related to insufficient monitoring skills. Joseph *et al*. (2008) revealed that, monitoring ends upon completion project construction thus projects lack monitoring support during operations and as a result the intended results are not achieved. According to Chowns

(2014) community management of rural water supply is inefficient and ineffective, inequitable and disempowering mainly due to inadequate monitoring skills.

Among other challenges reported by RWSSI (2015) is that, M&E system of water sector in many African countries are weak leading to low data availability and data gaps i.e. they are unable to provide reliable data for sectorial planning and management which led to reactive rather than proactive decisions. Nevertheless, Quin (2010) reveled that despite of all effort taken by Uganda government, a common problem of infrequent data collection led districts and sub-county actors failing carrying out monitoring or correctly report the activities.

2.4.2 Rural water supply performance indicators

Indicators can be quantitative or qualitative criteria for success. It is used to assess the achievement of objectives. Indicator provides a sign or a signal that something exists or is true. Gomme *et al*. (2010) through desk review reveled that M&E systems were adequate at project level but not clear about measurement of high level of results and outcomes of the project. According to the researcher, the M&E of GWI-WA system did not show how the higher level results and outcomes contribute to the achievement of the regional strategy. This means the indicators for achievement of the higher results were not defined during project planning and so there were no unit of measurement to verify the higher results.

Indicators are used to measure immediate and longtime results of an intervention. Water Service providers should be independently monitored to ensure that the performance of service providers is at an acceptable standard. The study conducted in

Brazil by Columbia Water Center (2012), through survey, interview and questionnaire, by use of indicators of sustainability and scalability (improved health, reduced time to access water and increased household income) discovered that, 36% of residents have reported that their health has improved while 65% reported spending more than three hours a day accessing water but after the projects, 93% of residence spends less than 15 minutes to an hour accessing water. The study also recognized a direct income benefit, since for many residents the cost of water decreased, due to the construction of the supply system.

Stephen (2000) though desk review and interview, among other, the evaluation found out that, Key Performance Indicators (KPI's) for water supply schemes indicate the overall health of the schemes. KPI's evaluated were working supply point, water supply reliability, water consumption, water quality, water loses, new connection response time, stock control, unit cost of water, profit and loss, cash balance and late payments. Major lesson learned from this evaluation were concern with training challenge particularly creation of awareness, understanding and appreciation of the importance of the interrelationships between the KPI's. Water committees were advised to develop their own management intervention arising out of interpretation of the various KPI's. Having recorded performance indicators cannot make monitoring and evaluation possible instead putting them into action in participatory way between water committees and other stakeholders is what brings value (Stephen, 2000).

Still (2006) through document review and interview, emphasized that, water service managers must start to monitor the KPI's on their water systems, so that they know whether they are working reliably and delivering the right quantity and quality of

water. The study considers KPI's as a management tool for improving the performance of people, systems, processes and organisations. Without effective monitoring system managers will not be able to say whether the money has been well spent and will not learn from mistakes.

Indicator of functionality can be used to measure status of water infrastructure. The study by Hysom (2006) through survey revealed that only 54% of all public water points were functional (indicator of functionality). According to this study when communal water points and Water points that were funded by Water Aid were compared after two years of project completion, the functionality rate of 45% and 67% respectively across the same areas were observed. Already quarters (25%) of constructed water points were no longer functioning (Haysom, 2006).

According Jiménez & Pérez-Foguet (2010), the functionality of water infrastructure by category in Tanzania were 45.3% of hand pumps, 48.6% of gravity-fed systems and 44.4% of motorized systems. The World Bank Tanzania (2018) reported that, despite of high levels of investment, 40% of all water points do not work, with 20% of them failing in their first year. According to U.R.T (2018) up to December 2017, the government of Tanzania had constructed total of 1,493 water supply projects in rural areas with total 123,888 domestic water points saving 85.2% of rural population. Only 85,286 out of 123,888 domestic water points were functional while 32.2% were not functional (U.R.T, 2018).

2.4.3 LGA Participation in providing technical assistance to COWSO

LGA participation concept is derived from participatory theory. Participatory M&E is about radically rethinking who undertakes and carries out the process and who learns

or benefits from the findings (IFAD, 2002). Participatory methods provide active involvement in decision-making for those with a stake in a project, program, or strategy and generate a sense of ownership in the M&E results and recommendations. It involves stakeholders at different levels working together to identify problems, collect and analyze information, and generate recommendation (World Bank, 2004). Stakeholders have to provide feedback as a result of information/data they grasp from the project.

According to the study conducted by Maritim & Boit, (2019), stakeholder involvement strategy has positive effect on the success of water projects. The study recommends project managers to involve community members in monitoring and evaluation, as well as in planning and budgeting. The study by Mdendemi (2013) through interview and questionnaire revealed that, LGA participate in projects with less involvement of local communities in decision making and planning thus results to failure of projects.

Kayaga (2015) among other factors point out that shortage of funds, ineffective M&E practices and poor stakeholders participation contribute to failure of water projects to provide the expected results. It also point out absence of qualified M&E technical experts at LGA results to poor M&E system for rural water projects.

According to Minyiri & Yusuf (2018) participation in M&E has much less meaning if population members and local stakeholders have not been involved much earlier in the project cycle. The study conducted by Ochieng & Onyango (2019) through descriptive survey design and document review, concluded that stakeholder participation on water and sanitation projects reputes a good image to the services,

builds and solidifies objectives of the water and sanitation projects and realize its weakness and creates room to advice appropriately addressing the problems.

2.5 Research Gap

The empirical studies above emphasis at large on the necessity of application M&E skill as a management tool for success of projects. More emphasize were put on ineffective M&E system in general. Although more problems were discovered in aspects of M&E inputs associated with poor data collection and mismanagement of information, causal factors have not examined. In additional to that, there are also more emphasize on M&E to be practiced at the local level/lower level as an input to higher levels but not much said about how to do it. Challenges for implementing M&E system at lower levels has not given much emphasize. The research gap can thus be seen from the above studies to mention few: Mwendamseke (2016) address week report submission trend of COWSOs but did not asses the cause and how the reports are created at local level. Hysom (2006 address poor financial management resulted from mismanagement of financial records but did not asses how data are recorded and managed. Stephen (2000) highlighted the necessity of using performance indicators to measure results but did not assess the capacity of local management to apply indicators in their operations. Minyiri & Yusuf (2018) address the necessity of stakeholder's participation for project success but did not examine the stakeholder's feedback in relation to communicated information. Maritim & Boit, (2019) reveled that stakeholder involvement strategy has positive effect on the success of water projects but did not asses LGA participation to COWSOs as an important stakeholder in rural water supply. This study therefore comes to fill these gaps through examining data collection, use and management as the primary inputs to monitoring system. The study

also asses awareness of COWSOs on understanding relevant performance indicators for rural water supply as a measure of basic understanding of rural water supply technicalities. The study examine on information utilization and communication between COWSOs and LGAs. Finally the studies examine LGA participation as feedback in relation to the communicated information.

2.5 Conceptual Framework

Conceptual frame work is a logical presentation on causal and effect relationship. According to Jabereen (2009), Conceptual frame work is a network or "plane" of linked concept that together provide a comprehensive understanding of a phenomenon. This mean it build concept based on grounded theory to facilitate understanding. In other words Imelda (2014) address Conceptual frame work to represent an integrated understanding of issues, with a given field of study which enables the researcher to address a specific research problem. It gives a researcher ability to explore and interprets events of the study. It is a way of showing how input variables of the study related to outcomes. It helps the researcher to coordinate research questions with hypothesis or research objectives, literature review, research methods as well as interpretation of results. This means it shows how the researcher understands the field of study including organization of inputs (Independent variables) and the expected results (Dependent variables). Independent variables are predictor variables while dependent are the outcomes.

The concept of this study is built within the context of rural water supply management model based on COWSOs strategy. This looks at monitoring capacity of the COWSOs in managing rural water supply. The research focus on four independent variables

which are; how water supply service data are collected, communicated andused at community level; awareness of COWSO members on relevant water supply performance indicators as a measure of technical knowhow; how the collected information are being used at community level and how are they communicated to LGA for decision making including LGA participation in providing technical assistance to COWSOs as result of feedback of communicated information. Figure 2.2 below presents the relationship between the dependent and independent variables which is the conceptual framework of the study.

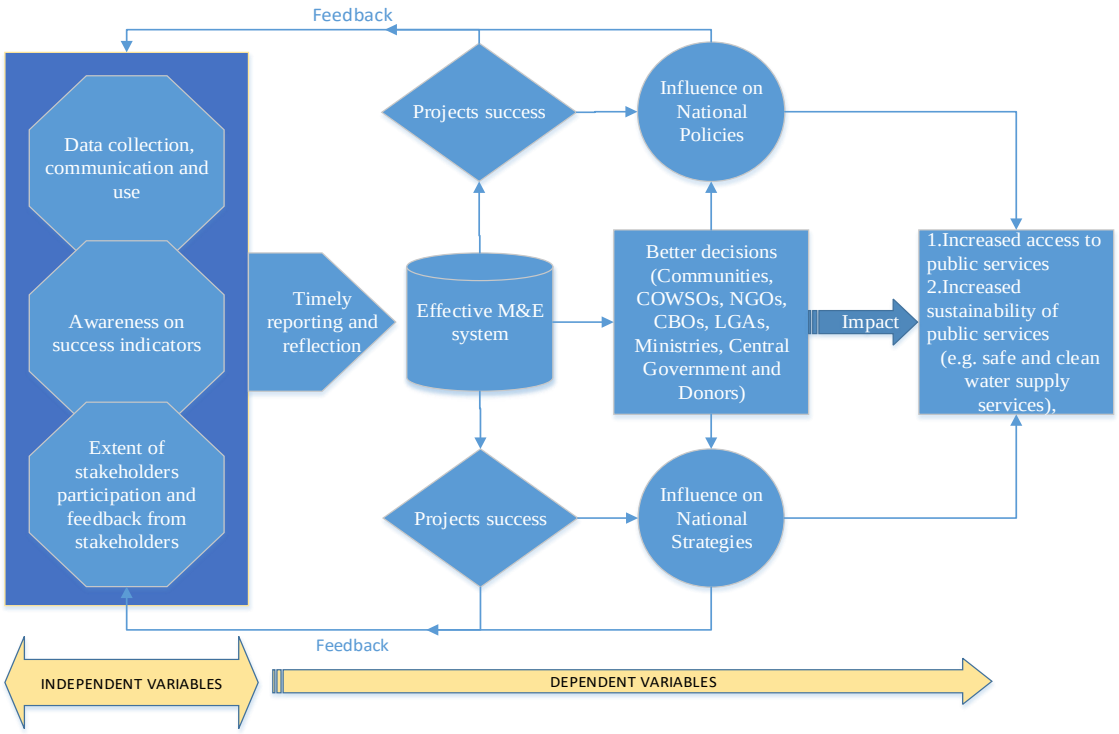

Figure 2.2: Conceptual Framework of the Study

Source: Researcher

The idea of the researcher is well described in the conceptual framework (Figure 2.2 above). Having an effective system of data collection, communication and use based on relevant indicators of success, with fully participation of relevant stakeholders, lead to timely reporting and reflection. Timely reporting and reflection lead to effective

M&E system which results to timely evidence based decisions (better decisions) and success of projects. Success of projects together with evidence based decision influence national policies and strategies which as a whole system results to increased access and sustainability of public services.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter explains systematic way of carrying out the study to responding the research problem. The chapter describe methods and techniques and logic behind applicable to meet the study objective. The Chapter discussed the following areas; Social demographic characteristic of the study area, the study population, research design, sampling design employed data collection methods and techniques, field protocols, data analysis and presentation technique.

3.2 Description of the Study Area

The study was conducted in Mkuranga District Council which is located in Coast Region Eastern part of Tanzania. The district is located at Latitude -7 07' 00" and Longitude 39 12' 00'' (http://www.tageo.com). It is bordered by Indian Ocean to the East, Rufiji District to the South, Kisarawe District to the West and Dar es Salaam city to the North. Area coverage of the District is 2,432 square kilometers of which 1,934km^2 is suitable for cultivation; and 51km^2 is forest reserve area. Total of 1,985km^2 is dry land while 447km^2 is covered by the ocean. The district has about 90 Kilometers of coastline, extending from Temeke to Rufiji districts endowed with coral reefs, mangrove forests, and coastal fisheries. According to 2012 Population and Housing Census survey, Mkuranga District has total population of 222,921 of which 108,024 are male and 114,897are female. The total number of household is 51,447 with average size 4.3 people. The district has total of 25 wards, 125 villages and 477 sub-Villages (Vitongoji).

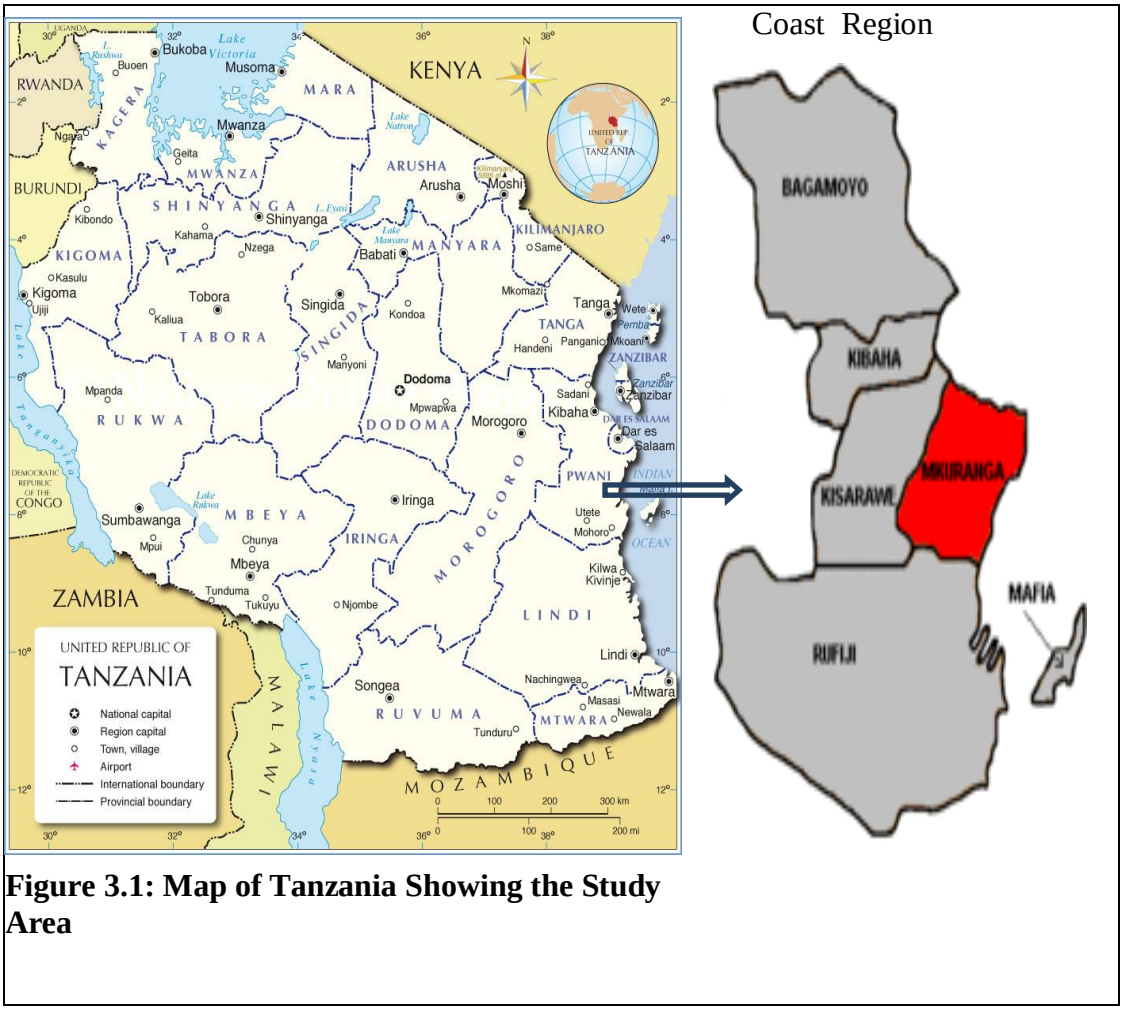

Figure 3.1: Map of Tanzania Showing the Study Area

Source: **https://en.wikipedia.org/wiki/Mkuranga_District**

Based on information from District Water Department, the main water source is ground water through deep and shallow wells. Other water sources are rain water, springs and dams. The actual water demand up to the end of December 2018 was 4,944,925 liters/day. The existing water sources suffice the demand by 73% only. The total number water points are 971 of which 79% are functional and 21% are non-functional. The district has total number of 14 registered COWSOs up to April 2019. (Mkuranga District Council, 2019).

3.3 Study Population

The study cover 10 out of 14 registered COWSOs located in different villages. The study population involves ten (10) members from each COWSO including Village Executive Officers (VEOs) or Village Chairman (VC) when VEO is was not available. Each COWSO has ten (10) members with gender balance i.e. five (5) men and five (5) women. The reason to involve village executives is based on U.R.T (2002) "The National Water Policy'' which shows that COWSOs are not obliged to report to village council but may consult and cooperate with village council for critical issues such as land thus the study intend to get the opinions of the VEOs as they are the one responsible to oversee the overall public services at village level. The study also interviewed the heads of water department and the technical officer responsible to oversee COWSOs in Mkuranga District Council.

3.4 Research Design

The purpose of this study is to examine monitoring capacity of the COWSOs in managing of rural water supply schemes. Based on different types of research designs, this study adopts descriptive research design. According to Kothari (2004), descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual, or of a group. The study describes the characteristic of COWSOs in terms of monitoring of rural water supply schemes. The study use survey strategy in collection of data. According to Saunders *et al.* (2009) survey strategy is usually associated with the deductive approach and therefore tends to be used for descriptive studies. Surveys are economical and allow the collection of a large amount of data from a defined population. Survey strategy is perceived as confident by people and is reasonably easy to explain and to understand. The cross

sectional survey was administered to a group of individuals i.e. members of COWSOs and VEOs only. Set of pre-defined questions (questionnaire) with combination of closed ended and few opened ended questions were be used to collect information from the selected sample of individual.

Survey strategy allows collecting quantitative data which can be analyse quantitatively using descriptive and inferential statistics (Saunders et al, 2009). The study therefore uses both qualitative and quantitative data collection techniques. Qualitative research explores attitudes, behaviour and experiences while Quantitative research generates statistics through the use of large-scale survey research (Dawson, 2002). The study use combination of data collection methods such as questionnaire survey, key informant interview and documentary review. The literature review involved, use of different media such as internet, magazines, journals, reports, and text books.

3.5 Data Sources

The study use both primary and secondary data sources. Primary data were collected directly by the researcher through questionnaires and key informant interview. Secondary data are referred as the information collected from studies that other researchers have made of a subject from various reports, policy, strategies, journals, books, pamphlets and researches report. Libraries and internet are used to access secondary data.

3.6 Sampling Design

According to Dawson (2002), sampling means choosing a smaller, more manageable number of people in the research in order to generalize the results to the whole of the research population. In other words, sampling techniques referred to the systematic

ways of choosing small portion to study from total population. Sampling design is a plan which shows how, where and to whom data will be collected in a given population. In other words it is the way the sample is selected out of the larger population. Sampling can be either random probability sampling or none random probability sampling (Kothari, 2004). This study adopted none random probability also known as purposive sampling method. None randomprobability sampling is the best for this study because the study focused on specific group of interest.i.e. COWSOs members. When referred to operation and maintenance of rural water supply at schemes, COWSOs are the main stakeholders. Since COWSOs are readily available group of individual in Mkuranga district, the researchers use convenience sampling technique. All COWSOs members were invited to participate the unit of analysis study.

3.6.2 Sample Size

Selection of respondents depended on variation of time and cost. This lead to section of few items to represent the whole population. According to Kothari (2004) the selected respondents is technically called a ‘sample’ while the selection process is called ‘sampling technique’.Sample size is the number of items to be selected from the universe to constitute a sample (Kothari, 2004). In other words, Sample size is an element of the population to be studied to represent the entire population. The total population of study contains fourteen (14) registered COWSOs located within 60km radius from Mkuranga District Council headquarter. Ten (10) out of Fourteen (14) COWSOs were selected for study. The selection was made purposively targeting those COWSO which were actively doing operations. Time and financial constraints were

the reason why this study was conducted in ten (10) COWSOs out of 14. Each COWSO has 10 member therefore the study targeted at least eight (8) respondents from each COWSO (10COWSOs 8=80 respondents), equivalent to 80% of the targeted population. The study also targeted one village leader from each study village i.e. VEOs or VCs (10Villages*1=10). The Key informant interview targeted at least 3 staffs at water department among them being the head of the department/DWE and ten (10) village leaders. Total respondents targeted by the study on questionnaire survey were ninety (90) while for key informant interview were thirteen (13).

3.7 Field Protocol and Ethical issues

Field protocol is concern with set of rules and procedures which applied in undertaking the field work i.e. how fieldwork performed especially showing appropriate respect to all authorities including stakeholders affected by the study. A university authentication latter was presented to District Executive Director (DED) to get permission latter to visit the Villages and the respective COWSOs for data collection. The DWE was also informed about the researcher's interest through telephone communication so was aware of it and advised the DED properly concern the authentication letter. All visited villages and respective COWSOs were informed on the interest of the researcher pre-site visit. The visited COWSOs were; Vianzi, Mfurumaro Vikundu, Shungubweni, Kilamba, Timka, Mvuki, Nyanduturu, Mwaki, and Njopeka the researcher use almost 14 days for data collection.

Like all research that involves human subjects, the survey researcher needs to be attentive to the ethical manner in which the research is carried out (Fowler, 1984). The researcher intended to maximize positive outcomes of the research process by

adhering to ethical principles. The ethical principles the researcher used to deal with the respondents include the researcher self-introduction, brief description of the study, assurance of confidentiality of the collected information and allowing voluntarily response to the questions.

3.8 Methods and tools for Data Collection

The data were collected through questionnaire survey, key informant interview and document review. The methods are discussed below.

3.8.1 Questionnaire Survey

Primary data were collected through survey using questionnaire through direct communication with respondents. The questionnaire was sent to the respondents which then filled and returned to the interviewer however some few respondents needed researcher's clarification to some questions. The questionnaire and interview guide tools were used to gather primary data. According to Kothari (2004), questionnaire is a most useful method for collecting primary data. This study thus use structured questionnaire to collect primary data direct from the study population. Reason for adopting a structured questionnaire is due to its simplicity and relatively inexpensive to analyse. Due to the fact that the study was conducted in the village setting where the literacy level is lower compared to towns, both interviewer administered questionnaire and self-administered questionnaire were used. Combination of open and closed ended questionnaire were adopted with much emphasize of closed ended questions.

The questionnaire and key informant guide used aimed to collect both quantitative and qualitative information from respondents. The quantitative information aimed to respond to what is happening at the ground while qualitative information aimed to

seeking views, opinions and perceptions in order to identify why it happened. Itis also meant for having more clarification on the information answered in questionnaire.

3.8.2 Key Informant Interview

The interview was carried in structured way using guide questions. Structured interview use a set of predetermined questions and standardised techniques of recording (Kothari 2004). The information was collected through face to face conversation by meeting key people such as heads of water department (the outgoing and new), COWSO Monitoring Officer at DWE's office and ten (10) VEOs or VCs.

3.8.3 Document Review

Document review helped to develop strong research concept and fill the knowledge gap. Review done through reading the existing literature that related to the research objectives. The reviewed documents include policies, acts, strategies, reports, researches, websites, articles from different journals and various books.

3.9 Data Analysis and Presentation Techniques

After field data collection, the data were organized (formatted), coded, entered into the computer and final checked accuracy and consistence pre-analysis. Most of the collected information in the questionnaire was quantitative data with little narrative information. Few questions which were included in questionnaire that seeking opinion or views from the respondent in writing were treated as qualitative information. Qualitative data in most cases responds to the quantitative information on why it happened. The information were analysed separately in such that quantitative data by use of descriptive and inferential statistic techniques through statistical package

software IBM-SPSS Version 20 and Microsoft excel. Qualitative analysis was done through Microsoft Word 2010. Qualitative data analysis is a very personal process, with few rigid rules and procedures (Dawson, 2002). For this case, analysis of qualitative data was done by carefully identifying noticeable themes, recurring words/ideas and patterns of belief for each response. In line with that, the researcher read and re-read the qualitative information, writing down impressions to find a meaning and pieces of data that respond to the research questions. Qualitative analysis was also done as a continuous process meaning was carried in line with data collection process up to the data analysis stage. Interpretation of data through the SPSS and Microsoft excel resulted to calculation of the frequencies, percentages, central tendencies and sums, as well producing tables, graphs and charts.

3.10 Validity and Reliability

According to Kothari (2004) validity of data refers to quality of data gathering procedures which measure what is supposed to measure. To ensure study validity, the questionnaires were prepared carefully in repeatedly way, pre-tested and was approved by the supervisor before conducting the study. The researcher was collaborative in clarifying any issue of ambiguity in order to minimize bias in responses. Several questions were used to collect information from respondents to respond to the objective of study which also contributed data to be more reliable. It is the opinion of the researcher that the source of data and methods that were applied are worth to justify validity and reliability of the collected information.

3.11 Ethical issues

The ethical issues have been taken care off in this study. The researcher was given approval for data collection through authentication letter from the Open University of Tanzania (OUT). The letter was then submitted to Mkuranga District Council by the researcher through hand delivery. The researcher discussed with the head of Mkuranga district water department concerning on logistics for collecting data from COWSOs as majority of them situated 15-60km from district headquarters. The researcher also organized for preliminary visits to the villages of study to verbally explain the purpose and importance of the study and predict some challenges that would come with data collection. The researched presented to the participants on the type of study, purpose rights to respondents/participants including the issue of confidentiality. All participants were informed that the information is collected for purpose of education and that they have right to withdraw at any time of the study and right to respond to any question they wish to. Data collection tool (questionnaire) was also clearly stated on title that participants information are entitled to high confidentiality and that the participants were not supposed to write the names.

CHAPTER FOUR

FINDINGS

4.1 Introduction

This chapter analyses, present and discusses findings of the study. Based on the nature of the study and the fact that it focused on COWSO members; the sample of 90 respondents (questionnaire), 80 COWSO members and 10 VEOs were enough for statistical analysis and for extracting useful information to cover the study objectives. According Saunders *et al*. (2009), Statistical analyses usually require a minimum sample size of 30. The results are presented in tables, bar charts and pie charts for easy understanding. The qualitative information is presented using boxes for qualitative responses from questionnaire survey or in paragraph with inverted comma and italic fonts for key informant interview responses. The response rate was 83.3%, resulted from 75 respondents out of 90 targeted. The results are presented to reflect the three research questions presented in section 1.4 above.

4.2 Demographic characteristics of respondents

This study collected information from respondents with respect to gender distribution, education level and experience of respondents serving in COWSO. Gender distribution was collected because it requires equal membership representation in COWSOs. Education and experience was also considered important for the performance.

4.2.1 Gender of respondents

Gender balance has performance implication as it is a requirement of the law (both previous Water Supply and Sanitation Act 2009 and the current act of 2019) which demand gender presentation of 50% by 50% in COWSOs. The findings shows that

66.7% of respondents were males while 33.3% were females. Table 4.1 below presents gender distribution of respondents for this study.

Table 4.1: Gender of respondents

	Frequency	Percent
Male	50	66.7
Female	25	33.3
Total	75	100.0

Source: Research Data, (2019)

Although the results shows that majority of respondents were men, still there were good numbers of women implying that gender issue is considered within COWSO. However the gender imbalance as shown by the results may be caused by participation of women in various family matters thus other were not able to respond to questionnaire.

4.2.2 Age of Respondents

Ages of respondents were categorized into four groups; age below 30 years, between 30 to 40 years, 41-50 years and above 50 years. The results as presented in Table 4.2 below revealed that 18.7% of respondent were of age below 30 years, 41.3% belong to age between 30 to 40 years, 21.3% belong to age between 41 to 50 years and 18.7% are above 50 years. This indicate a good mix of age in COWSOs and that majority of members belong to active age (below 50 years) meaning they are able to work efficiently. Age of respondents is presented in Table 4.2 below.

Table 4.2: Age of respondents

	Frequency	Percent
<30 years	14	18.7
30-40 years	31	41.3
41-50 years	16	21.3
>50 years	14	18.7
Total	75	100.0

Source: Research Data, (2019)

4.2.3 Respondents Level of Education

Respondents level of education were categorized into primary, secondary, certificate, diploma and degree. The result reveled that majority (76%) have primary education level, 13.3% are secondary education level, 2.7% are certificate level and 8% have diploma. There were no respondents with degree. The reason for majority to belong to category of primary education may be because majority of COWSOs exist in Village setting where education level is much lower than in townships.

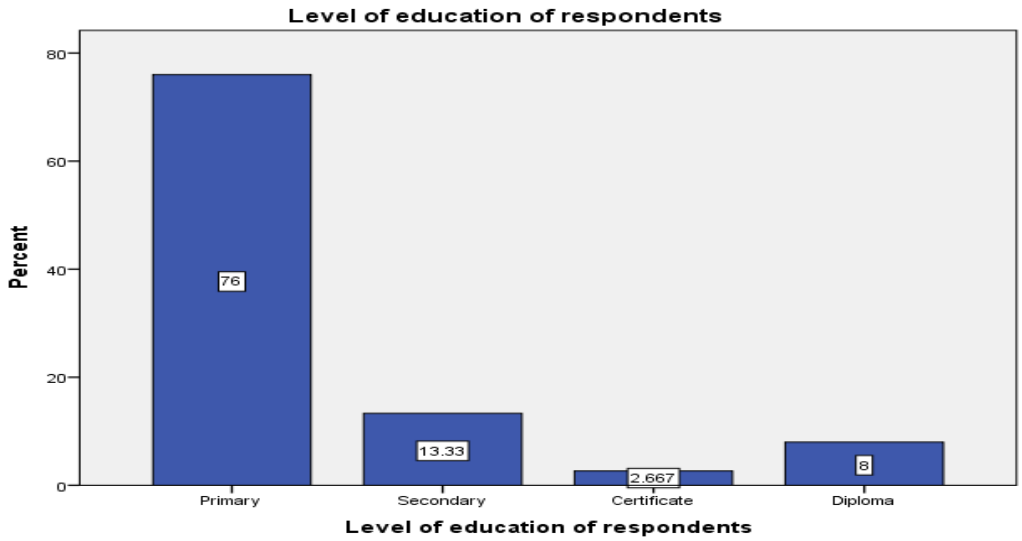

Figure 4.1: Respondent Level of Education

4.2.4 Respondents experience with COWSO

The study categorized respondents experience into three categories; those who have experience less than 2 years, experience two to three years and those with experience more than three years. The reason for such categorization was based on fact that one term of membership in COWSO is three years but a member can be reelected in more than one term depending on performance. The result revealed that 36% have experience less than 2 years, 21.3% have experience between two to three years and 42.7% have experience more than three years. Figure 4.2 below present the results in percentage wise. Generally, the result shows that majority have good experience (more than three years) implying they were reelected after the first term.

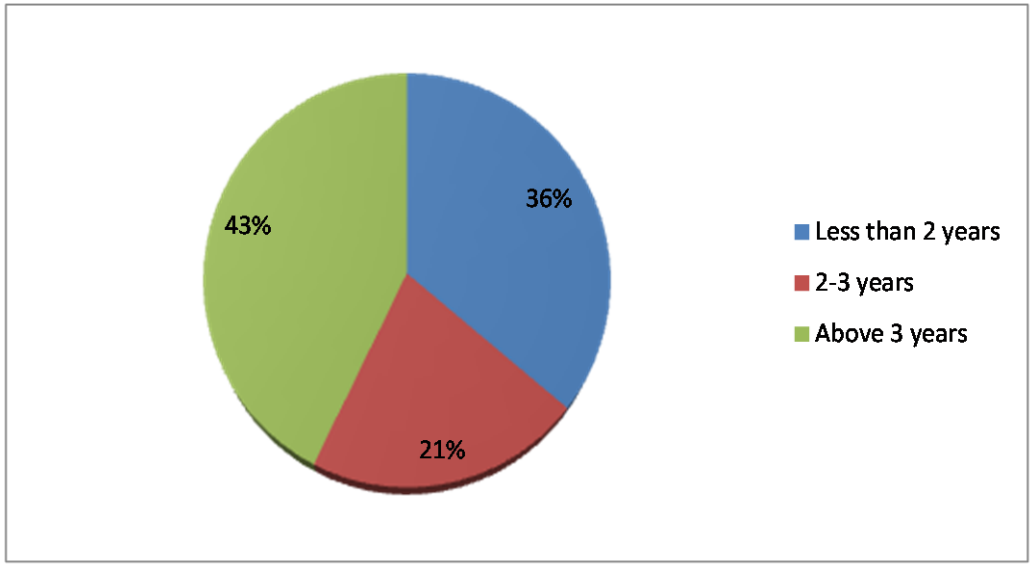

Figure 4.2: Respondents Experience with COWSO

4.3 Routine recording, use and communication of water supply service data

The first objective of the study aimed at examining how water service data are being recorded, used and communicated on routine basis. The researcher sought to measure general understanding of COWSO members on necessity of information/data recording and use. The researcher was in opinion to find out reason for not being aware on information recording and including reason for not to recording and use the information on routine basis. The researcher went further on examining how are the recorded information are being communicated at COWSO level.

4.3.1 Awareness on necessity of data recording and use

The result revealed that only 18.7% know very well the necessity of data recording and use while 38.7% they know little and 42.7% they completely don't know. Figure 4.3 below present the results. Having majority of COWSO member who doesn't know the necessity of recording and use of information imply that majority were not trained. Majority were not trained mainly because they were new comers. This is justified by compering 42.7% who doesn't know necessity of data recording and use with 36% who have experience less than two years. However being a new comer does not nullify the importance of trainings to COWSO members.

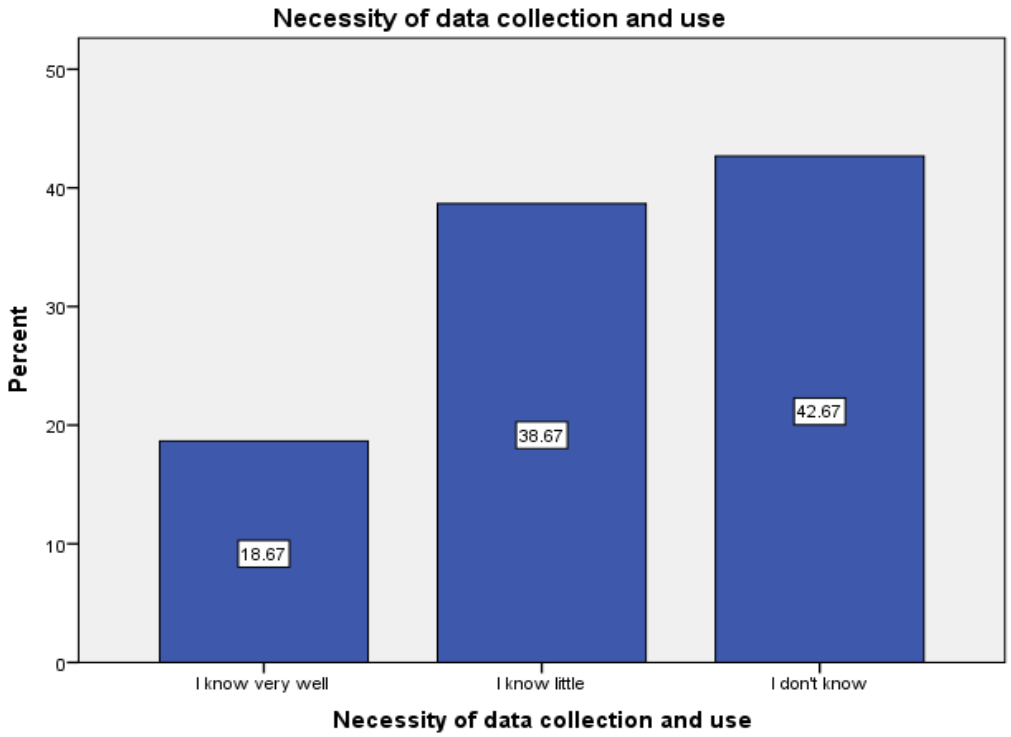

Figure 4.3: Awareness on Necessity of Information Recording and Use

The researcher also sought to find out the reason for little understanding or completely not understanding the necessity of data recording and use of information through three parameters which were; inadequate trainings, awareness of member responsibility and if member are well informed by LGA. The result revealed that 66.7% were not trained, 2.7% responded that they are not accountable to anybody, 6.7% they were not informed by LGA and 24% did not respond to the question may be because they know much on the necessity of data recording and use. The results as displayed in Figure 4.4 below revealed that absence of time to time trainings can be a reason for lack of awareness on data recording and use to majority of COWSO members.

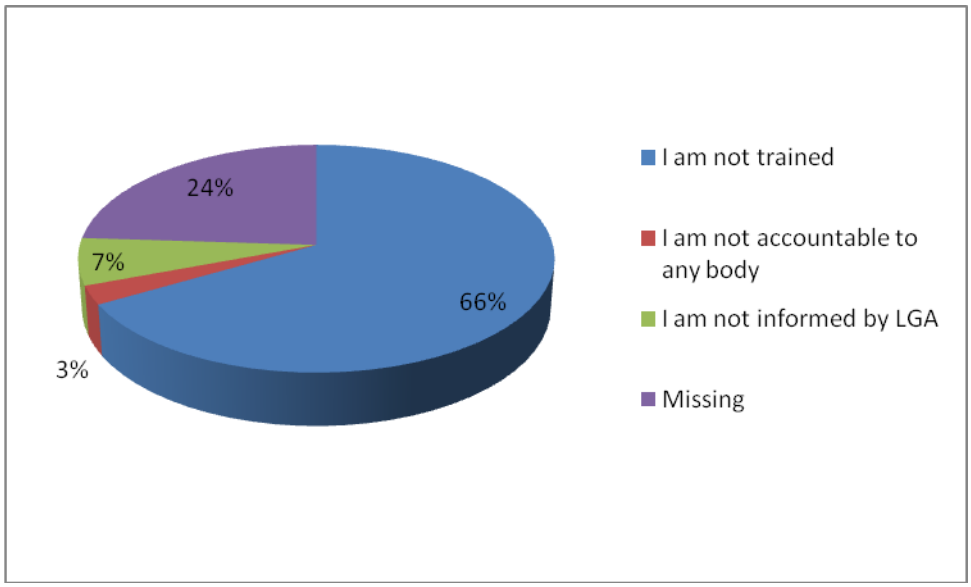

Figure 4.4: Reason for not Knowing Necessity of Data Recording and Use

4.3.2 Status of routine water service data recording and use

The study examined the status of recording and use of water service data as practiced by COWSO in day to day operations. The researcher used categories of yes most often, yes but not often and I don't know to measure status of COWSO to record, store and use water service information. The result revealed that 28% agree that they record information most often while 40% responded that they record but not most often and 32% responded that they completely don't know if COWSO do record information on routine basis. Table 4.3 below presents the results which generally shows that majority of COWSOS does not have a culture to record information on routine basis which indicate existence of unhealthy information communication system.

Table 4.3: Status of COWSO to record information routinely

	Frequency	Percent
Yes most often	21	28.0
Yes but not often	30	40.0
I don't know	24	32.0
Total	75	100.0

Source: Research Data, (2019)

The study also investigated on probable reason for failure or inadequate information recording and use of water service data which seemed to be challenge to many COWSOs. The result as presented in Table 4.4 below revealed that 21.3% agree on fear to display income and expenditure while 70.7% responded to lack knowledge pertaining information reporting (i.e. reading and recording of meter, water sales and expenditure etc.). This imply that majority understand the importance of information recording but they lack know how (they don't know how to do it). Few (5.3%) did not respond to the question. Generally, lack of knowledge which is directly related to absence or presence of inadequate trainings was revealed to be the probable reason for majority of COWSOs failing to record information on routine basis.

Table4.4: Reason for failure of COWSOS to record data/ information routinely

		Frequency	Percent
Valid	Fear to display income and expenditure	16	21.3
	COWSO member does not know how to record meter readings, sales and expenditure	53	70.7
	COWSO member are not responsible to LGA so no need of data records	2	2.7
	Total	71	94.7
Missing	99.00	4	5.3
Total		75	100.0

Source: Research Data, (2019)

4.3.3 Use and Communication of water service information

The study examined how COWSO uses the collected data/information. The researcher use four parameters; use the information as an input to LGA reports, use of information for planning and decision making within COWSO for both as input to LGA reports or use within COWSO planning purposes or whether information are just stored with no use. The results as presented in Table 4.5 below revealed that 4% use the recorded information as an input to LGA reports, 41.3% use them for planning and decision making within COWSO, 45.3% use them for both planning and decision making within COWSO and as an input to LGA reports. This also implies that majority knows the proper use of the recorded information but they lack knowledge on how to use them efficiently.

Table 4.5: How does COWSO use the recorded and stored information?

	Frequency	Percent
Use them as an input to LGA report	3	4.0
Use for COWSO planning and decision making	31	41.3
For both LGA reporting and COWSO planning	34	45.3
Are just stored with no use	7	9.3
Total	75	100.0

Source: Research Data, (2019)

The researcher went further to verify the use of information by examining whether COWSO communicate the collected information to LGA by means of monthly and or quarterly reports. This was done by asking respondents if COWSO does submit monthly or quarterly report to LGA timely. The result as presented in Figure 4.5 below revealed that 37.3% agree that the reports are submitted on time to LGA while 62.7% admit that reports are not submitted to LGA on time which imply there is insufficient use of information for routine reporting.

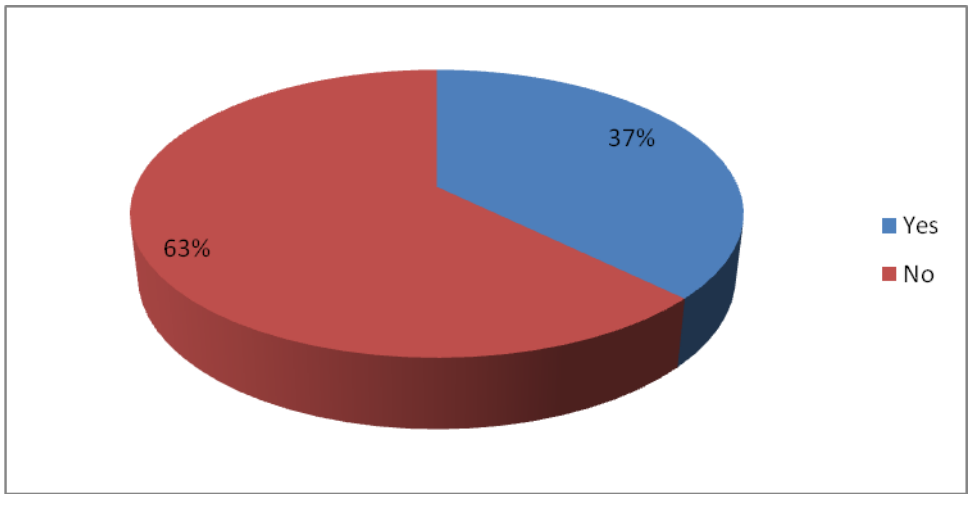

Figure 4.5 Status of COWSO on timely report submission to LGA

The researcher also examined means of communication used by COWSO to report monthly or quarterly to LGA. This was done to verify whether reports are being submitted to LGA in softcopy or hard copy. Three statements were used to measure which are; submission by hand delivery of hard copy, by means of telephone call, or no report submitted to LGA. The results as presented in Figure 4.6 below revealed that 60% responded by hand delivery, 4% through telephone call and 36% admit that there is no report submitted to LGA which imply that 36% of COWSOs do not use the recorded information for reporting to LGA.

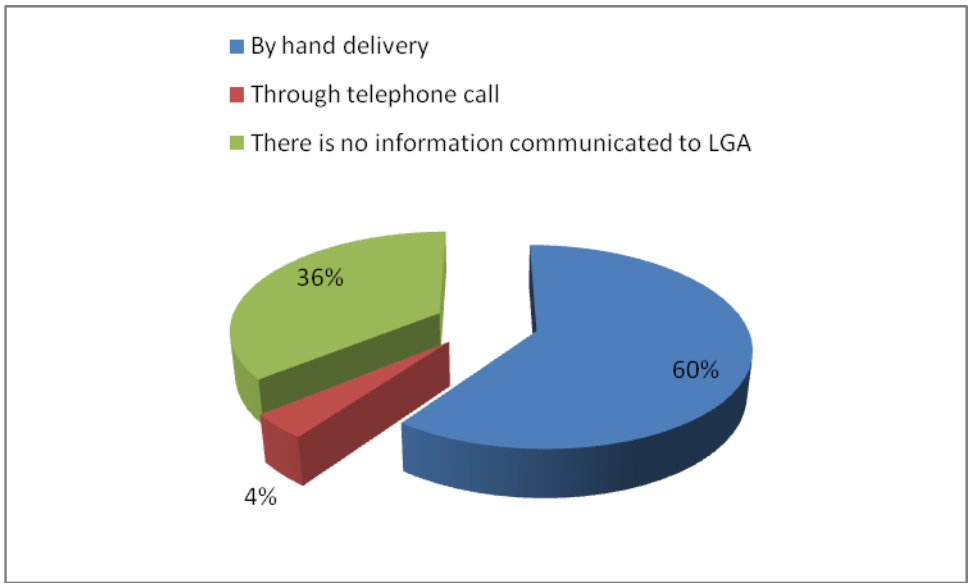

Figure 4.6: Means of Reporting Communication from COWSO to LGA

In order to verify whether COWSOs real understand the importance of routinely reporting to LGA, the researcher envisaged that was important to ask on when the last report was submitted to LGA. The researcher used categories of 0-3 month time to measure whether monthly and quarterly reports are submitted timely, 4-12 months to find whether the delay exceed months or over one year ago to verify whether there

were lack of seriousness for long time or I don't' know to measure awareness of COWSO member on reporting issue. The results as presented in Table 4.6 below revealed that 16% agree that last submission of between 0 to 3 month time meaning they submit on time, 17.3% responded 4-12 months ago, 18.7% responded over a year ago while 48% responded that they don't' know when the last report submitted to LGA. The results when compared to 62.7% of those who admit not to submit report to LGA on time as discussed above can be said that, there is a very low awareness on use and communication of information.

Table 4.6: Status of last report submitted to LGA

	Frequency	Percent
0-3 months ago	12	16.0
4-12 months ago	13	17.3
More than a year	14	18.7
I don't know	36	48.0
Total	75	100.0

Source: Research Data, (2019)

The researcher went further to find out a reason for failure to submit reports timely to LGA. The study sought to use three reasons such as COWSO member being not aware if reporting is their obligation or whether they do not know how to write a report, or whether they do it purposely to hide their weaknesses. The results as presented in Table 4.7 below revealed that 29.3% said they don't know if reporting is the obligation of COWSO, 50.7% responded to lack knowledge on how to write a report and 20% admitted that writing a report may expose their weaknesses a thing which they don't wanted to. The response for this question has justified the lack or inadequate training

as the reason for a very low awareness on recording, use and communication of information.

Table 4.7: Reason for failure of COWSO to submit report timely to LGA

	Frequency	Percent
We don't know if reporting is an obligation of COWSO	22	29.3
We don't know how to write report	38	50.7
Writing a report may expose our weakness	15	20.0
Total	75	100.0

Source: Research Data, (2019)

The researcher wanted to know if the LGA makes a follow up in case of delay or no submission of report in order to ascertain source of problem. The result as presented in Table 4.8 revealed that 42.7% responded yes that LGA do make a follow up, 26.7% responded “no” meaning LGA does not make a follow up while 30.7% responded that they don’t know whether the LGA make a follow up or not. The response for this question also imply that lack of trainings on data/information use and communication is still a major source of insufficient reporting at COWSO level because even though 42.7% admit that there is follow up by LGA, still very few COWSOs (16%) submit report within period of three months. This imply that majority of COWSO have low awareness on reporting probably they lack knowledge on how to write a report. On interview with key personnel one of response was;

“There are too many problems on COWSO. They do not submit progress report at all. We have made great efforts to tell them and until we have written them many letters but they are not doing so. But also the wrong perception they have that they are an

independent entity which is not interfered with anyone else may have contributed to the failure of COWSO to submit progress reports to LGA. I think the new act which has passed this year propose better procedures for supervisor of COWSOs, let's wait we shall see (Senior Water Engineer, Water department-Mkuranga DC)".

Another response was;

"This water committee has no cooperation with the village government at all. Especially, the chairman does not listen to our opinion. If we call them they do not come, even if we ask for a report they don't bring. I think this committee should be dissolved to form another (One of VEOs)."

Table 4.8: Does LGA make a follow up in case or no submission?

	Frequency	Percent
Yes	32	42.7
No	20	26.7
I don't know	23	30.7
Total	75	100.0

Source: Research Data, (2019)

The researcher enquired respondents opinions/thoughtson why LGA does weak or completely not making a follow up to COWSOs when there is delay or no submission of reports. This was aimed at looking whether COWSO member were aware on LGA obligation on reminding and assist them in communicating the information. The researcher on looking on nature of qualitative response recognized that 70% of responses were concerning with insufficient effort applied by LGA to ensure COWSOs are accountable in reporting to LGA. Some of the qualitative responses are presented in Box 1 below.

Box 1: Respondents perception on why LGA does weak or completely not making a follow up to COWSOs in case of delay or no submission of reports

There is no harmony between the committee and the district council (Qnr no.8)
This issue has not been given priority in the district council (Qnr No. 10)
There is less accountability at LGA (Qnr No.15)
Inadequate accountability at LGA (Qnr No. 27)
There is delay reaching of information at the district council (Qnr No. 30)
May be they are overwhelmed with work (Qnr No. 45)
Because they do not understand their obligation (Qnr No. 47)
They do have too many other obligations (Qnr No.66)
They make follow up when they want to do audit (Qnr No. 68)
They don't visit COWSO for a long time (Qnr No. 69)

4.4 Awareness on relevant water supply monitoring indicators

The researcher envisaged that it was necessary to examine the awareness of COWSO members on water supply monitoring indicators. This was done to determine if COWSO member understand what to use to measure performance when they exercise their day to day duties as operators of the water supply scheme.

4.4.1 Awareness on important element to monitor

In order to determine extent of awareness on water supply monitoring indicators, the researcher sought out that COWSO member should identify what is important information to be collected/ recorded on routine basis. The respondent were required to choose the most important information to record routinely between meter reading, water sales and expenditure, operation and maintenance cost or all stated above. The result revealed that 6.7% chose meter readings, 5.3% chose water sales and expenditure, 4.3% operation and maintenance cost while 82.7% chose all the above

implying that majority are aware that both meter reading, water sales, expenditure, operation and maintenance costs records are important to monitor operations of water supply project. Table 4.9 below presents the results

Table 4.9: Type of data that should be recorded routinely

	Frequency	Percent
Meter readings	5	6.7
Water sales and expenditure	4	5.3
Operation and maintenance cost	4	5.3
All the above	62	82.7
Total	75	100.0

Source: Research Data, (2019)

The researcher wanted to know reason for respondents' preferences to this question in order to measure their awareness on water supply monitoring indicators. Out of 75 respondents 66 responded to this qualitative question. Among other reasons 64% of responses were concerned with determining degree of success or failure of the project. Some responses are presented in Box 2 below.

Box 2: Respondents perceptions on reason for their choice on the important data/information to be recorded routinely

To get data and correct references (Qnr No. 2)
Facilitate accuracy and accountability in doing work (Qnr No.5)
To be sure if the committee do the work efficiently (Qnr No.9)
Reading meters so as to know the project expenditures (Qnr No.13)
To know how water is used (Qnr No. 17
To know the project developments (Qnr No.25)
To know revenue and expenditure (Qnr No. 29)
It is important for the community to know the information (Qnr No. 33)
It helps to bring positive changes to us (Qnr No.40)
Important for operation and maintenance of the project (Qnr No. 41)
Both are essential to the operation of the project (Qnr No. 48
Know the revenue, expenditure and do project evaluation keeping records (Qnr No. 54),

The researcher further examined if COWSO members have basic knowledge on important element to monitor for water supply project by testing ability to read and record meter readings. The results as presented in Table 4.10 below revealed that 52% responded they can read and record meter readings while 48% responded that they cannot read or record meter readings which is also emerged from insufficient or lack of trainings.

Table 4.10: Ability to read and record meter readings

	Frequency	Percent
Yes	39	52.0
No	36	48.0
Total	75	100.0

Source: Research Data, (2019)

The above concern is supported by the following response from key informant interview;

"Well done for visiting us. These questions are very good for COWSO members to learn through, even though they always show up in few numbers when they are called to meet together. For example I do not think if there are more than three members who know how to use the meter readings to claim money from a customer, therefore they real need trainings. (One of VC)"

4.4.2 Awareness on water supply success indicators

The researcher used seven important statements representing some relevant indicators for measuring success or failure of water supply project. The idea of the researcher was that, these indicators could also be used to measure COWSO performance therefore wanted to recognize how COWSO member were aware on such indicators. The respondents were required to rate the statements by choosing either of "Strongly disagree", "disagree", "I don't know", "agree and "strongly disagree". The results for each statement are presented in Table 4.11 below. The result revealed that 38.7% strongly agree while 48% agree on "Data/information stored in safe place are important for reference and for management planning". Also 37.3% strongly agree, while 49.3% agree on "Record of meter readings is important to measure amount of water loss and water sold" which implies majority knows the importance of the statements thus are aware of such performance indicators. Other results are summarised in Table 4.11 below.

Table 4.11: Awareness on relevant water supply performance indicators as presented in statements of rating

Statements of rating	Percent				
	Strongly disagree	**Disagree**	**I don't know**	**Agree**	**Strongly agree**
Data /information stored in safe place are important for reference and for management planning	0	0	13.3	48	38.7
Record of meter readings is important to measure amount of water and water sold	0	0	13.3	49.3	37.3
Record of amount of water sold per day is important to measure amount of water consumed	2.7	5.3	16	54.7	21.3
Record of operation and maintenance costs is important to establish unit cost of water	1.3	1.3	10.7	62.7	24
Record of total sales and total expenditure are important to establish profit and loss	0	2.7	5.3	61.3	30.7
Record of Reports submitted from COWSO to Local Government Authority is important for management accountability to LGA	1.3	1.3	13.3	53.3	30.7
Record of number of meetings held between COWSO and the community is important to measure accountability of COWSO to the community	1.3	1.3	16	56	25.3

Source: Research Data, (2019)

The researcher summarised the scores for all seven rating statements for the sake of measuring general and basic awareness on water supply monitoring indicators and the results are presented in Figure 4.7and 4.8 below. The result show that averages of 55% of respondents agree with all statements while average of 30% said they strongly agree. Average 12% respondents responded that they don't know about statements while 2% and 1% said they disagree and strongly disagree with all statements (See figure 4.7 below). This implies that majority (85%) are aware of all seven performance indicators and that are important to be used to measure the performance of the water supply services.

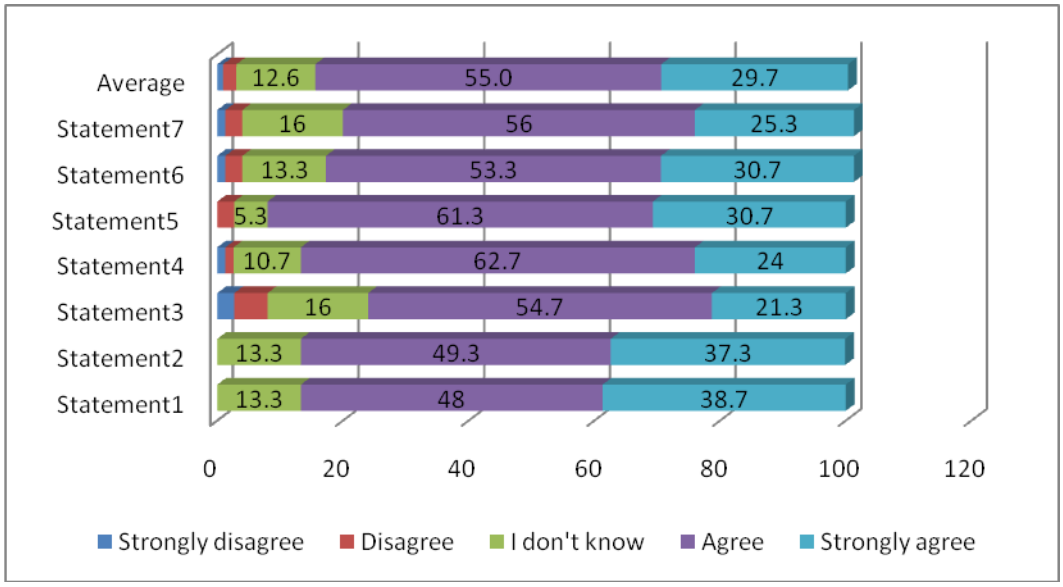

Figure 4.7: Average score statement of rating on water supply success indicators

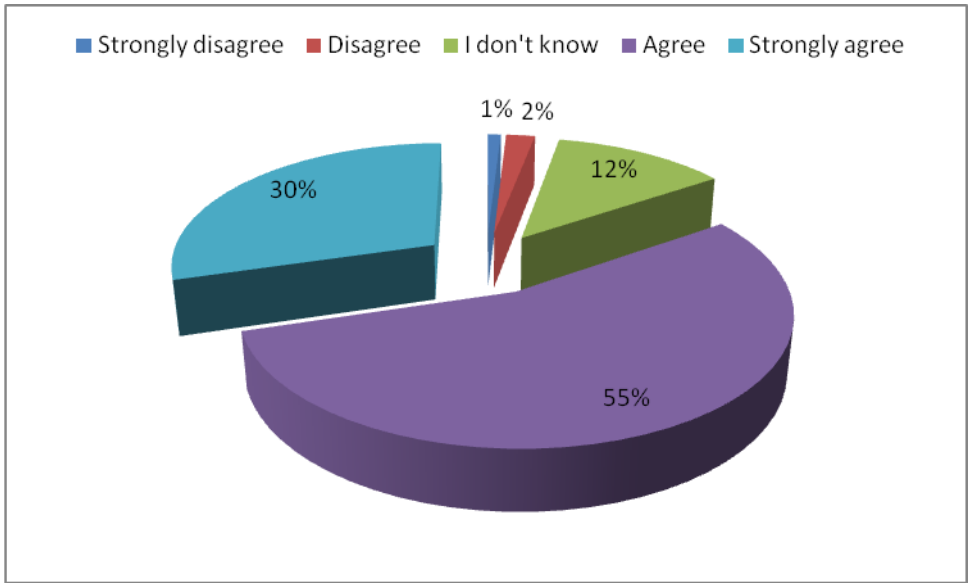

Figure 4.8: Average score on awareness on relevant water supply success indicators

4.5 LGA participation as feedback of communicated information

The objective three of this study ought to examine LGA participation as feedback of communicated information. This aim at measuring degree of activeness in communication of information between the LGA and COWSO.

4.5.1 The extent of LGA participation in monitoring of COWSOs

The researcher ought to find out how LGA is committed to visit and provide technical assistance to COWSOs. The researcher obliged to examine if LGA pay visit to COWSO on routine basis (defined schedule) or random visit (undefined schedule) or when COWSO call after a breakdown or when LGA received progress report from COWSO. This aimed at examining if there is an official routine monitoring system practiced by LGA to ensure COWSOs report efficiently as required. The researcher was in opinion that, systematic participation of LGA to COWSO enhances capacity

building thus better performance in recording and communication of information. The result revealed that 14.7% responded that LGA pay visit to COWSOs on routine basis with defined schedule while 40% responded that LGA visits COWSOs randomly (undefined schedule). Other responses were 17.3% "after COWSO calling due to breakdown" while only 4% responded that LGA pay visits few weeks after receiving COWSO progress report. Some (24%) responded that they don't know if LGA visit COWS which imply they are not aware of LGA visits. The results are well presented in Figure 4.9below.

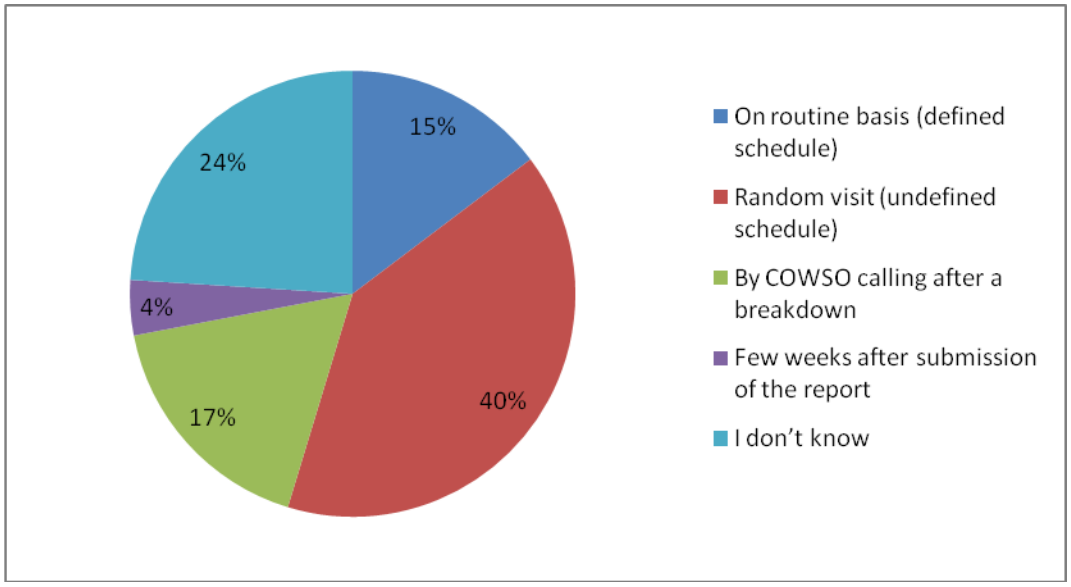

Figure 4.9: How technical personnel from LGA visit COWSOS

The researcher also wanted to know the preference of respondents in ranking the LGA participation to COWSO specifically in provision of technical assistance. The result as presented in Figure 4.10 below revealed that only 8% ranked LGA participation as very good while 32% ranked LGA participation as good and 52% responded that LGA participation is just satisfactory. The results implies that LGA participation to COWSOs is weak and that there is no a defined schedule for visit.

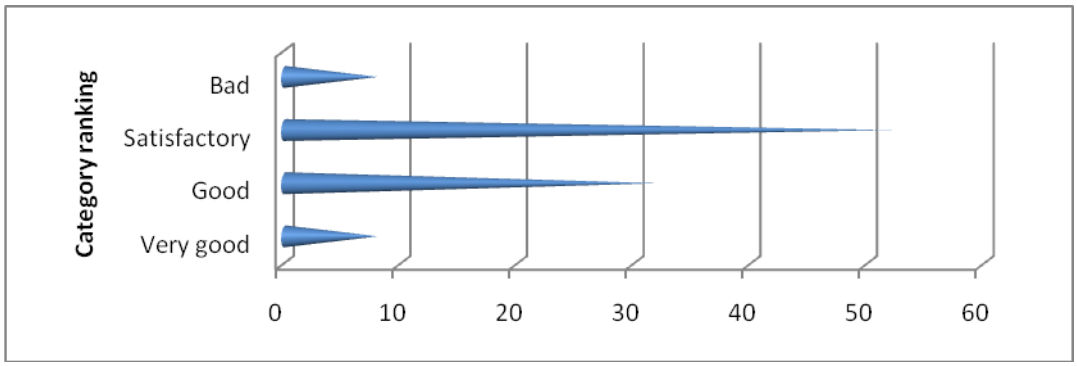

Figure 4.10: LGA participation to COWSO in providing technical assistance

The respondents were required to state the reason for their preference on ranking the LGA to such categories. The results revealed that 67 out of 75 respondents gave out reasons for their preference of ranking. Generally, the results shows that 53.7% of responses were related to agreeing that there is good relationship between LGA and COWSO thus LGA participate in providing technical assistance to COWSO. On the other hand 34.3% of respondents were related to inadequate cooperation between LGA and COWSOs while 11.9% of responses were related to other reasons. Some of these qualitative responses are presented in Box 3 below.

Box3: Respondents perceptions on their preference in ranking the LGA participation to COWSOs

There is relationship but they normally delay to act(Qrn No.9)
They don't come till we call them (Qrn No.16)
They have no specific schedule to visit unless there is a problem (Qrn No.19)
They help us in each technical problem (Qrn No. 22)
Have no specified time of coming (Qrn No.28)
Poor project (Qrn No.30)
Help in the problems of the villagers and the members of the committee (Qrn No. 29)
We have a good relation with LGA (Qrn No. 41)
They do not come to the project so they do not know the problems (Qrn No. 56)
When our machine was not working we call them and they came and fix it (Qrn No. 66)

The researcher also wanted to know the trend of visits paid by LGA technical personnel to COWSO by examine when was the last visit. The result revealed that 33.3% responded the last visit was conducted between 0 to 3 months ago while 17% responded that the last visit was done more 4 to 12 months ago. In additional to that 20% of respondents said the last visit was done more than a year ago while 29.3% said they don't remember when the last visit was done by LGA personal. The results as presented in Figure 4.11 below generally implies that there are no routine visits of LGA to COWSO which also imply to lack formal monitoring plan at LGA. On key informant interview the following was one of response;

"In fact many COWSOs die from poor management. There is misuse of funds within COWSO. These COWSOs require close supervision. You know some villagers went into these COWSO thinking that there was free money, when they found out that no free money, others gave up and withdraw themselves out. Getting these COWSO delegates sometimes is really a problem. Some of them are not cooperative at all. We

fail to visit them often because the budget is very small (Senior Water Technician, Water Department-Mkuranga DC)"

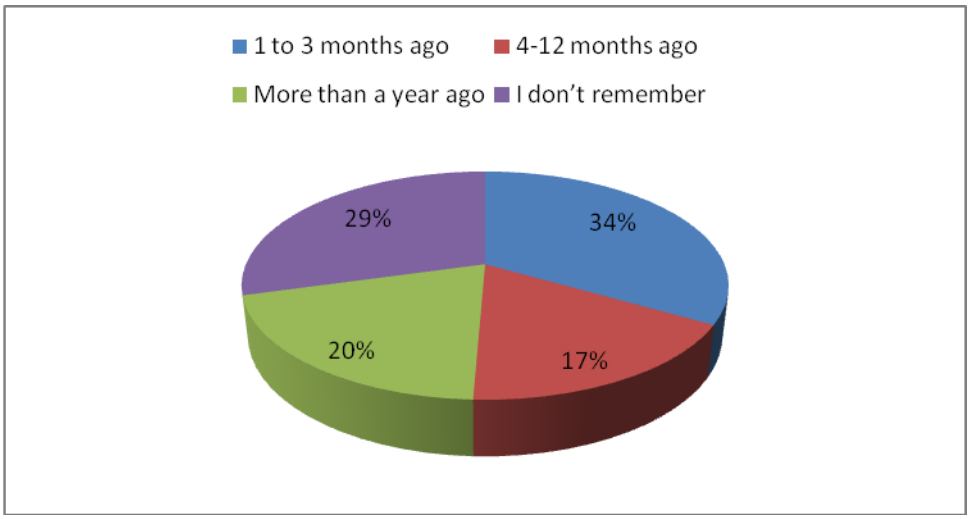

Figure 4.11: Last visit to COWSO by a technical person from LGA

4.5.2 The necessity of LGA participation

The researcher sought out that was important to know whether the LGA participation to COWSO has a positive result or not. This has an effect on information communication between COWSO and LGA in a manner that problem solving would encourage COWSO performance. The researcher therefore wanted to examine if LGA visits helped in solving problems that were communicated either through reports or by telephone call. The results as presented in Table 4.12 revealed that 6.7% respondents responded yes all problems were solved while 57.3% responded yes some problems were solved but some were not. Nevertheless, 10.7% responded that problems were not solved at all while 25.3% responded that they are not sure which also imply poor LGA participation.

Table 4.12: Does the LGA visit respond and solve challenges and problems reported to them?

	Frequency	Percent
Yes all problems are solved	5	6.7
Yes some problems are solved but some are not	43	57.3
Not at all	8	10.7
I am not sure	19	25.3
Total	75	100.0

Source: Research Data, (2019)

The researcher also wanted to know the perception of respondents on necessity of LGA to continue providing technical assistance to COWSOs. This aimed at determining willingness of COWSOs in communicating the information to LGA for technical assistance. The result revealed that only 5.3% show there is no necessity for LGA to continue providing technical assistance COWSOs while 94.7% emphasized that LGA should continue providing technical assistance to COWSOs which imply that COWSO member are willing and need close guidance from LGA.

Table 4.13: Opinion on necessary for technical personnel to assist COWSO

	Frequency	Percent
No, there is no necessity	4	5.3
Yes, it is necessary	71	94.7
Total	75	100.0

Source: Research Data, (2019)

One of the responses from the key informant interview was;

"Monitoring and evaluation in the rural water sector seems to have failed although Monitoring and evaluation is very important. The budget for monitoring is very small and sometimes not quite there. Budget should be increase to make monitoring and evaluation effective. (Water Engineer, Water Department, Mkuranga DC)."

4.6 Inferential analysis of result

The results of the relationship between independent variables and the dependent variables are briefly discussed in this section.

4.6.1 Correlation analysis

Correlation analysis was performed to determine the relationship between understanding necessity of data/information recording and use, routine data/information recording by COWSO, follow up by LGA, ability to read and record meter readings and LGA participation in providing technical support to COWSO on timely submission of reports to LGA (Mkuranga District Council). Pearson Correlation method was used where by Pearson correlation coefficient (r) was used to compare results. The results show that the value of r takes positive direction for both variables. According to Pallant (2011) coefficient of correlation (r) should be between -1 and +1 which measures the strength and direction of leaner relationship between the dependent and independent variables. Also according to Minyiri & Yusuf (2018) when Pearson Correlation r=+0.7 and above it indicates a very strong relationship; r=+0.5 to below 0.7 is a strong relationship; r=+0.3 to +0.49 is a moderate relationship while r=0.29 and below indicates a weak relationship. Where r= 0 it indicates that there is no relationship. The results on relationship between dependent and independent variables

is established and presented in Table 4.14 below. The study findings has shown a positive statistical significant (r=0.325, 0.378; p<0.05) between timely report submission and routine data/information recording by COWSO and follow up by LGA.

Table 4.14 Correlations analysis 1

		Understanding necessity of data/information recording and use	Routine data/information recording by COWSO	follow up by LGA in case of delay or no submission	know how to read and record meter readings	LGA participation in providing technical support to COWSO
COWSO submit monthly or quarterly reports to LGA on time	Pearson Correlation	.212	.325**	.378**	.300**	.287*
	Sig. (2-tailed)	.069	.004	.001	.009	.012
	N	75	75	75	75	75

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Source: Research Data, (2019)

The researcher also used correlation analysis to examine relationship between Level of education and respondent experience with COWSO on understanding necessity of data/information recording and use including ability to read and record meter readings. The results show that there is relationship in negative direction. Pearson/Correlation coefficient (r) for relationship between dependent variable (level of education of respondents) and independent variables (Understanding of data/information recording and use and ability to read and record meter readings) is -0.196 and -0.162 respectively showing there is relationship. The negative sign show direction and not

strength of the relationship (Pallant, 2011). The result also show there is strong relationship between experience and ability to read and record meter reading (r=0.374, p=0.001) which imply at least the experienced have more understanding (See the result in Table 4.15 below).

Table 4.15: Correlations analysis 2

		Understanding necessity of data/information recording and use	Do you know to how to read and record meter readings?
Level of education of respondents	Pearson Correlation	-.196	-.162
	Sig. (2-tailed)	.091	.164
	N	75	75
Respondents experience with COWSO	Pearson Correlation	-.307**	-.374**
	Sig. (2-tailed)	.007	.001
	N	75	75

**. Correlation is significant at the 0.01 level (2-tailed)

Source: Research Data, (2019)

4.6.2 Standard multiple regression analysis

The researcher used standard linear multiple regression to examine the leaner statistical relationship between understanding necessity of data/information recording and use, routine data/information recording by COWSO, follow up by LGA, ability to read and record meter readings and LGA participation on timely submission of reports to LGA. The result in Table 4.16 below revealed that the value of coefficient (R) which is 0.486 indicate a positive leaner relationship between dependent and independent variables. The coefficient of R^2 value was 0.236 presenting how much of

the total variation in the dependent variable (timely submission of report by COWSO) explained by the independent variables (understanding necessity of data/information recording and use, routine information recording by COWSO, follow up by LGA, ability to read and record meter readings and LGA participation in providing technical support to COWSO). The study thus finds out that 23.6% can be described by independent variables in relation to dependent variables. The adjusted value of R^2 (0.181) is lower than R^2 value also indicate relationship between dependent and independent value.

Table 4.16: Standard multiple regression analysis model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.486[a]	.236	.181	.44064

Source: Research Data, (2019)

a. Predictors: (Constant), How do you rank LGA participation in providing technical support to COWSO?, Does COWSO record data/information routinely?, Understanding necessity of data/information recording and use, Does LGA make a follow up in case of delay or no submission?, Do you know to how to read and record meter readings?

b. Dependent Variable: Does COWSO submit monthly or quarterly reports to LGA on time?

4.6.3 Assessing the fit of multiple regression model

The study conducted Analysis of Variance (ANOVA) to examine whether the multiple regression was fit for the data. This helped to determine if timely submission of report can be predicted without relying on understanding necessity of data/information recording and use, routine data/information recording, follow up by LGA, ability to read and record meter readings and LGA participation.The study findings provide F test and the results of ANOVA are presented in Table 4.17 below. The F value (4.274) was significant at $p<0.005$ implying that all the variables in the equation were significant hence the overall regression model is significant. This confirms the fitness of the model hence there is statistically significant relationship between the independent and dependent variables (timely submission of report).

Table 4.17: ANOVA for testing multiple regression model

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.149	5	.830	4.274	.002[b]
	Residual	13.397	69	.194		
	Total	17.547	74			

Dependent Variable: Does COWSO submit monthly or quarterly reports to LGA on time?

ı. Predictors: (Constant), How do you rank LGA participation in providing technical support to COWSO?, Does COWSO record data/information routinely?, Understanding necessity of data/information recording and use, Does LGA make a follow up incase of delay or no submission?, Do you know to how to read and record meter readings?

CHAPTER FIVE

DISCUSSIONS

5.1Introduction

The study aimed at examining monitoring capacity of COWSOs in Mkuranga district in Coast region, Tanzania. The findings of the study are discussed in this chapter in respect to the research questions shown in section 1.4 of this report.

5.2 Water supply service data recording, use and communication

5.2.1 Recording of water supply service data

Proper information/data recording is a basic need for success of projects. Reliable records of information are essential needed for decision making at all levels of management. U.R.T. (2014) emphasized that, data collection and monitoring is needed in water sector. This study has revealed that there is insufficient effort to enforce know how to COWSO members on necessity of routine data recording. Even though 18.7% of COWSO members have proved to understand clearly the necessity of data recording and use, still 38.7% understand little. Nevertheless 32% of COWSO member do not know whether their COWSOs do record information on routine basis, implying that their participation in COWSO activities may be very poor or they real don't know what to do. Although to some COWSOs, do record and use information with positive result, some (40%), record information when they only need to do so. This mean there is no proper system for recording and management of water service information/data at COWSO level. This is also is an indication of presence of poor M&E system in rural water supply sector which correlate to findings by U.R.T (2014), Quine (2010) and Chowns (2014) both emphasized that the M&E system of rural

water supply in developing counties is week, inefficiency and inequitable to measure results. It is difficult to expect good report from someone who doesn't know the necessity of information recording. This might be one of the reasons for poor availability of water service data at higher levels of management in water sectors including the LGA. According to U.R.T (2001) major challenge of M&E system in water sector include the quality and timeliness of data, and making sure that the data is available in an appropriate format and used in decision-making by LGAs. The similar findings were addressed by Hysom (2006) concerning poor financial management that is related to poor data management (i.e. absence of proper financial records). With this situation, it is impossible to have reliable information at LGA as well as at the Ministry level when the primary source of data (COWSOs) is highly disorganized.

According to U.R.T. (2014) the existing monitoring and information management system for sanitation and hygiene data from village to national level is insufficient to verify the results. This means that, the weakness on recording water service information existed for a long period of time which may also be a contributing factor on insufficient performance of rural water supply sector. This study therefore have confirmed that the lack of insufficient water supply monitoring data at large is contributed by mismanagement of the primary source of data (COWSO) which should be treated as primary information tributary to water sector.

The study has also discovered that, less effort is put in capacity building to COWSOs. Total of 66.67% of COWSO members have not been trained neither on data recording nor use. Inadequate investment to capacity building might be also the source of poor and disorganized management at COWSO level thus majority of members are not

aware on what are their day to day responsibilities. Having observed that, most of COWSO member (76%) possesses primary education, regular training is essential requirement. It was observed that even the basic trainings on basic monitoring data such as meter reading is also poor. For example about half (48%) of COWSO do not know how to read and record meter readings. RWSSI (2015) point out that, M&E system of water sectors in Africa is weak leading to low data availability. This study discovered the same that weak system of information management is a result of inadequate capacity building. In such situation it is possible to link poor availability of rural water services monitoring information at LGA and low capacity of monitoring skills at COWSO level.

5.2.1.2 Information communication and use

Use of information is highly depending on communication. Recorded information should be organized and communicated to audiences for use and decision making. Although 45.3% responded that they use recorded information for planning within COWSO and as an input to monthly and quarterly reports for LGA, still 62.7% confirmed that reports are not submitted timely to LGA. Also large number (36%) confirmed that COWSOs does not submit reports to LGA at all. Nevertheless, only 16% agree that the last report submitted within period of up three months, while 48% are completely not aware on issue of reporting to LGA. The study therefore has revealed that, very few COWSO (16%) are real committed on routine use and communicating monitoring information to LGA. In other words only 16% of COWSOs have shown seriousness in communicating reports to LGA on regular basis however the quality of reports/information is not assessed in this study.

The findings of this study can be compared to some few studies such as Mwendamseke (2016) discovered less than 10% of the villages were submitting reports to LGA on regular basis. Mwandamseke also discovered that majority of COWSOs submitted reports to LGA in the case of needed assistance from the water departments. According (Lemmens *et al*., 2017) the DWE does not receive regular reports from COWSOs, except when they report water point breakdowns. This mean there is no formal and regular means of communicating the information between two parties (COWSO and LGA) which correlate to findings of this study as well. From the discussion above, it is therefore obviously that, absence of reliable water services data in water sector particularly at LGAs is related to inadequate monitoring capacity of COWSOs mainly resulted from insufficient investment on capacity building. Over half of COWSO members (50.7%), lack knowledge on how to write a report. It is impossible to demand report from someone who does not have knowledge on how to organize information to produce a report. According to Mwendamseke (2016) failure of COWSO to submit reports to LGA is related to lack of reporting format. This may be related to lack of adequate trainings and close follow up by LGA as reveled by the findings of this study.

Close follow up from LGA is part of capacity building thus inadequate follow-up might also contributed to poor performance of COWSOs. This can be justified through findings of this study where 26.7% said LGA does not make close follow-up and 30.7% said they don't know whether LGA make follow up or not which imply that LGA does not have regular and planned means of communication to COWSO. This also may be attributed to lack proper monitoring system between LGA and COWSOs including poor monitoring plan. According to Godwin (2018) effective data,

dissemination and communication are determined by a good plan. Mkuranga district in particular, lack proper monitoring plan and that is why findings of this study revealed that the existing monitoring is based on reactive and not on proactive mode.

5.2.2 Awareness of COWSO members on relevant water supply success indicators

Indicators are sign that what was planned is done successfully or not. In other words is a unit of measurement. The study aimed at examining ability of COWSO members in understanding relevant water supply success indicators as a measure of awareness of their day to day obligations. The study has discovered that 85% of COWSO member are aware of relevant water supply indicators such as, importance of records for meter readings, water sales, income and expenditures etc. as presented in section 4.4.2 of this report. This is a good signal that majority of COWSO members are aware on what they are supposed do however when compared to findings discussed in section 5.1.1 may be interpreted that COWSOs lack know how which is also related to inadequate trainings as well. According to Stephen (2000) training challenge particularly creation of awareness, understanding and appreciation of key performance indicators were major findings in management of rural water supply at community level. However this was not the case for this study because the study had discovered 85% of COWSO member are aware on importance of relevant success indicators for water supply scheme although almost half (48%) of COWSO member do not know how to read and record meter readings which is the very basic data for management of water supply scheme. This mean that, COWSO members are aware that meter readings are important to establish the amount of water consumed but half of them do not know

how to read and record meter readings which imply they lack know how. This also implies that, government has not invested enough on capacity building to enable these COWSOs to perform better. On other hand, LGA provide insufficient support to COWSOs which in turn lead COWSOs to perform poorly thus inadequate and unreliable water supply monitoring data in water sector.

According to Stephen (2000) having recorded performance indicators cannot make monitoring and evaluation possible instead putting them into action in participatory way between water committees and other stakeholders is what brings value. In other word, COWSO members being aware on performance indicators do not make M&E system work but training them on how to apply those indicators is what makes the system work. The study discovered that although majorities are aware on water supply performance indicators, there is no formal indicators in place neither at LGA not at COWSOs level. For this scenario capacity building to COWSOs on how to develop and apply the water supply service performance indicators has not given a first priority.

5.2.3 Extent LGA participation to provide technical assistance to COWSO as feedback of communicated information

LGA participation is derived from concept of stakeholder's participation which is stated by theory of participatory. LGA as an important stakeholder to rural water supply making a bridge of communication between COWSO and other stakeholders such as ministry, community, central government and donors. This study therefore has revealed that LGA in particular Mkuranga district has not participated sufficiently to enable COWSO to perform their duties effectively. Although 53.7% of respondents

admit that there is a good relationship between LGA and COWSO, only 8% ranked LGA participation at “very good” while 52% ranked the LGA at satisfactory in aspect of providing technical assistance. This indicates presence of dissatisfaction among majority of COWSO member (52%) on assistance provided by LGA to COWSOs. This does not mean that LGA has no cooperation with COWSOs rather it indicates inadequate monitoring which would be shown by an organised system of follow-up. This can also be justified by 40% of respondents who said that there is no defined schedule for visits from LGA which also imply absence of defined monitoring plan at LGA for monitoring COWSOs. The findings of this study justify findings by (Masuku, 2015) that lack of M&E approach for the local government in the rural municipalities requires the Participator M&E approach. It should also be noted that stakeholders participation is part of capacity building therefore promotes success of projects. The findings also correlated to findings by Kayaga (2015) and Ochieng & Onyango (2019) both revealed presence of relationship between effective stakeholder’s participation and success of project and or services.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This Chapter sums up the study key findings and recommend means for current and feature improvement. The chapter narrate in brief on the findings in relation to each objective of the study. It also suggests some means for current and feature improvement to MoW, LGA and COWSO who are the key stakeholders for rural water supply sector. The chapter further suggest areas for feature study.

6.2 Conclusions

The study aimed at examines monitoring capacity of COWSOs in Mkuranga district. Monitoring being a system of routine information gathering, analysis and reflective process, the researcher aimed to answer the following questions in relation to specific objective of the study; How does water supply service are recorded used and communicated? At what extent does COWSO members are aware on relevant water supply success indicators? And at what extent does LGA participate to provide technical assistance to COWSO as feedback of communicated information?. Generally, the study discovered existence of very week monitoring system which resulted from poor application of M&E system at LGA. The system of data recording at COWSO level is very poor. There is no guide on how and what information to record. There is no reporting format as well as COWSO members are not trained on reporting. The system of follow up from LGA is very week which resulted from absence of poor monitoring plan. LGA visits COWSO when there is special

assignment or by call when there is a breakdown. About 49.3% of COWSO members have shown that the last visit by expert from LGA level was done a year ago and some they don't even remember. This shows absence of proper monitoring plan at LGA which would enable capacity building to COWSOs. Despite the fact that the level of education to majority (76%) of COWSO members is primary education, the study observed weak relationship between education level and knowing necessity of recording information as well as ability to read and record meter readings. This proves that the level of education is not a major factor on existence of week monitoring systems instead lack of proper monitoring plan from LGA is a major cause. For example as explained in section 5.1.1.2 that 48% were not aware on when the last report submitted to LGA while 57.4% include those agree that LGA does not make a follow up and those said they don't remember if LGA makes a follow up.

Inadequate training is another factor observed to contribute to poor monitoring system at COWSO level. Existence of large number (48%) of COWSO members who doesn't know how to read and record meter readings reveled absence or insufficient trainings. COWSO member are elected from local community thus have insufficient knowledge on operation of water supply scheme. This has been justified by 66.67% of respondents who said that they have not received any training since they were appointed. Although majority of COWSO member have shown that they understand the meaning of relevant water supply indicators such as records of meter readings, water sales, expenditure etc. the study discovered that majority are not able to practice those indicators in day to day operations. This means they are willing to do but they do not know how to do it.This was also justified by 50.7% who said they do not know how to write reports which imply they were not trained on report writing. This is also

justified by 62.7% who admit to delaying submission progress reports to LGA and 36% who admit there is no report submitted to LGA. In all these scenarios it is therefore expected that the shortage of M&E data at LGA level is resulted from poor monitoring capacity at COWSO level which is also resulted from lack of proper M&E plan at LGA.

6.3 Recommendation

6.3.1 Recommendation to Ministry of Water (MoW)

According to reporting procedures/administrative line, COWSO reports to LGA and LGA to RAS and RAS to MoW. Information flow takes the same route whether is down up or up down. For this case, MoW should realize that their basic source of information is COWSO. In other words COWSO is the lowest unit for rural water supply water sector M&E system. It is thus recommended that, COWSO being a tributary that feed the higher system (LGA, MoW etc.), should be reinforced well for it to yield desired results. In order to improve performance of COWSO, MoW should position technical personnel up to COWSO level. Other public service sectors for example health, education etc. have provided a technical person up to the lowest level (i.e. Village). This is not the case for rural water supply sector where local communities have been used with a very minimum supervision from LGAs. It should be understood that use of local community for COWSO is a good strategy too because it comply with participatory theory, however has to be closely guided by a technical person. The technical personnel will be responsible to guide COWSO members on technicalities such as use of M&E tools in managing the water supply scheme.

Positioning technical personnel at COWSO level still is not enough. In additional to that, Mow should prepare a monitoring system (preferably computerized) which will include all tools for data recording, analysis and reporting. MOW should identify important elements to be monitored including relevant indicators of success. For example the elements to monitor may include bulk meter reading (main meter at reservoir/source), total water sales, total expenditure etc. whereby information has to be entered into the system on weekly basis by the technical person responsible for that particular COWSO(s). In this manner, the system will be able to reflect the existing situation at the ground thus enabling the management at all levels to work on challenges as early as possible. Quick and timely reflective M&E system shall make rural water supply schemes sustainable and archive the desired results based on the fact that the challenges shall be resolved proactively and not reactively.

6.3.2 Recommendation to LGA

Monitoring as a system of reflection requires data. It is difficult to conduct effective monitoring without and organized and systematic way of information gathering analysis and reporting. LGA should identify what to monitor at COWSO and plan how to do it. There should be a plan of elements to monitor at COWSO including their unit measurement (indicators) and a defined schedule of follow up. In other words there should be a monitoring framework at LGA. Say for example bulk meter reading, total water sales, total expenditure, number of functional WP, number of days water received etc. should be reported on weekly basis. These are information are necessary to indicate status of COWSO operations. If COWSO members are well trained and closely guided on how to record these information, LGA may collect them even through mobile communication. In regard to the fact that COWSO members are

elected from mere community, obviously they need closely guidance and time to time trainings to be able to record and report on important monitoring information. A well-organized system of recording and reporting water service information on routine basis (preferably weekly) is what result to proper monitoring system or a system of reflection between LGA and COWSO. This will facilitate proper decisions making during planning thus leading to sustainability of rural water supply projects. It will also facilitate dealing with challenges in proactive rather than reactive mode at LGA level.

6.3.3 Recommendation to COWSO

COWSOS should know that in order to provide better services they must not be detached from LGA. COWSO should work as a sub system attached to LGA for the purpose of archiving a goal of supplying safe and clean water to the community hence should work cooperatively. They should listen and act on instructions from LGA including be free to demanding clarification on any unclear issue. COWSO should be active especially in communicating to LGA for assistance whenever they need. They need to put more pressure on LGA by demanding regular assistances especially trainings. For example if they need assistance on formats for record keeping and report writing they should do so. They should know that proper recording of information and timely reporting them to the higher level, on regular basis, will trigger the accountability of higher authorities (e.g. LGA) to COWSO thus success of rural water supply services.

6.4 Recommendation for further research

The present study aimed at examines monitoring capacity of COWSO for rural water supply projects. However, rural water supply sector is too broad with many research gaps due to lacking of adequate information. In this respect, the researcher on seen the importance of future improvement of rural water management suggested the following studies;

Effect of domestic water meter performance on improving revenue collection in rural water supply. The study should focus on how the technology of water meters effect the revenue collection in rural water supply. It aimed to determine if use of water meters in rural water supply contribute to increase of revenue collection as has been several challenges concerning revenue collection. Finally, there should be a study on effect of community involvement in monitoring of COWSOs performance. Although COWSO is responsible to ensure availability and reliable water supply to the community, village community has to support COWSOs responsibilities through various issues such as timely paying water bills, participating well in community meeting, electing capable and responsible COWSO members etc. The research therefore will aim to examine how communities influence performance of COWSO.

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APPENDICES

QUESTIONNAIRES

Dear Respondent:

This questionnaire is designed to EXAMINE MONITORING CAPACITY OF THE COMMUNITY OWNED WATER SUPPLY ORGANIZATIONS (COWSOs) FOR RURAL WATER SUPLY PROJECTS. The information given out is solely for academic purpose and would be treated as confidential.

COWS Name_____

PART I: Basic Profile of Respondents

Please tick the appropriate cell

1. Sex of respondents: Male ☐ Female ☐
2. Age of Respondent: Below 30 years ☐ 30 – 40 Years ☐

   41–50 Years ☐ Above 51 years ☐
3. Level of education of respondent:

   Primary education ☐ Secondary education ☐

   Certificate ☐ Diploma ☐

   Degree ☐
4. Respondent experience with COWSO

   Below 2Year ☐ 2 – 3Years ☐ Above3Years ☐

Data recording, use and communication

5. Do you know the necessity of data recording and use?

   I know very well ☐ I know little ☐ I don't know ☐

6. If you don't know necessity of data collection and use. What do you think is a reason? ☐

   Because I am not trained because I am not accountable to any body ☐

   Because I am not informed by LGA ☐

7. Does COWSO record data/ information routinely in its operation?

   Yes most often ☐ I don't know ☐

   Not at all ☐

8. If COWSO does not record data/information on routine basis what do you think is a reason?

   Fear of COWSO to display issues such as income and expenditure ☐

   COWSO members does not know how to record meter readings, sales and expenditure ☐

   COWSO members are not responsible to LGA so no need of recording ☐

9. How does COWSO use the recorded and stored information for?

   Use them as an input to LGA reports ☐

   Use for COWSO planning and decision making ☐

   For both LGA reporting and COWSO planning ☐

   Are just stored with no use ☐

10. Does COWSO submit report to LGA on monthly or quarterly basis on time?

    Yes ☐ No ☐

11. How does COWSO communicate information to LGA

By hand delivery of report on quarterly basis ☐

Through Telephone call ☐

There is no information communicated to LGA ☐

12. Do you remember when the last report submitted to LGA? ☐

0 to 3 months ago 4-12 months ago ☐

More than a year ☐ I don't know ☐

13. What do you think is a reason for failure of COWSO to submitting reports to LGA?

Because we do not know if reporting is an obligation of COWSO ☐

We do not know how to write reports ☐

Writing a report may expose our weakness which we don't like ☐

14. Does LGA make a follow up in case of delay or no submission?

Yes ☐ No ☐ I don't know ☐

If No. what do you think is the

reason?.....

.....

Awareness of relevant water supply performance indicators

15. Tick only one type of data that you think should be recorded on routine basis

Meter readings ☐

Water Sales and Expenditure ☐

Operation and Maintenance cost ☐

All the above ☐

State in your opinion why do you choose such type of data……

……

……

……

……

16. Do you know to read and record meter readings (Yes/No)

Yes ☐

No ☐

Please indicate to what extent you agree with the following statements related with some standards of monitoring indicator of water supply system. Put a tick on the cell that best describes your response. Use the following rating scale:

1 = Strongly Disagree 2 = Disagree 3. I don't know

4 = Agree 5 = Strongly Agree

No.	Statements for rating	1	2	3	4	5
17	Data/information stored in safe place are important for reference for management planning	1	2	3	4	5
18	Record of meter readings is important to measure amount of water loss and water sold	1	2	3	4	5
19	Record of amount of water sold per day is important to measure amount of water consumed	1	2	3	4	5
20	Record of operation and maintenance costs is important to establish unit cost of water	1	2	3	4	5
21	Record of total sales and total expenditure are important to establish profit and loss	1	2	3	4	5
22	Record of reports submitted from COWSO to Local Government **Authority is important for management accountability to LGA**	1	2	3	4	5
23	Record of number of meetings held between COWSO and the community is important to measure accountability of COWSO to the community	1	2	3	4	5

Examine LGA participation as result of feedback of communicated information.

24. When the LGA technical personnel visit and inspect COWSO?

On routine basis (defined schedule) ☐

Random visit (undefined schedule) ☐

By COWSO calling after a breakdown ☐

Few weeks after submission of the report ☐

I don't know ☐

25. How do you rank LGA participation in providing technical support to COWSO?

Very good ☐

Good ☐

Satisfactory ☐

Bad ☐

What is the reason for your

answer……

……

……

……

……

……

26. When was the last visit conductedbya person from LGA?

1 to 3 months ago ☐ 4-12 months ago ☐

More than a year ago ☐ I don't remember ☐

27. Does the LGA visit respond and solve challenges and problems reported to them?

Yes all problems are solved ☐

Yes some problems are solved but some are not ☐

Not at all ☐

I am not sure ☐

28. Is it necessary for technical personnel to continue visiting COWSO for technical assistance?

No there is necessity ☐

Yes there is necessity ☐

KEY INFORMANT INTERVIEW GUIDE

1. How do you see performance of COWSOs in provision of rural water supply services?
2. What are the major challenges of COWSOs?
3. What to do to improve performance of COWSOs?