

**EFFECTIVENESS OF PARTICIPATORY MONITORING AND EVALUATION ON
ACHIEVEMENT OF COMMUNITY-BASED WATER PROJECTS IN CHAMWINO
DISTRICT, TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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EXTENDED ABSTRACT

Participatory Monitoring and Evaluation (PM&E) is increasingly becoming critical worldwide. In Tanzania like other countries in Sub Saharan Africa, community participation in monitoring and evaluation in development projects including water projects has been top on the development agenda. Nevertheless, the extent of effectiveness of PM&E in influencing achievement of community-based water projects remains unclear. To that effect, the general objective of this study was to determine effectiveness of PM&E on achievement of community-based water projects. The study employed sequential exploratory cross-sectional research design with two phases. In this design, qualitative data, using key informant interviews and Focus Group Discussions (FGDs), were first collected and analyzed and the results were used to refine questionnaire used in the second phase of data collection that adopted a household survey. A random sample of 120 water users including 53.3% females were involved in the survey. Qualitative data were analyzed using content analysis while quantitative data were analyzed using SPSS. A Summated Index Scale was used to measure the extent of water users' participation in monitoring and evaluation, level of achievement of water project objectives and effectiveness of participatory monitoring and evaluation in influencing achievement of community-based water projects. In addition, Chi-square test was used to measure association between level of participation and level of achievements of water project objectives. The results show that PM&E was effective in ensuring achievement of long community-based water projects by allowing more space for primary beneficiaries through decision-making power in the management of water projects. Furthermore, the results showed that among of the strategies available in PM&E was establishment of responsible structures for project supervision such as Village Water Committees, Community Water Supply Organizations

(COWSOs) and capacity building. The results demonstrated that 53.3% of the respondents showed high level of participation in monitoring and evaluation (M&E). In addition, the results showed that PM&E was constrained by various challenges such as lack of knowledge among community members in implementation of M&E and poor leadership in the village in facilitating community participation. Furthermore, the results revealed that there was statistically significant difference in association between extent of overall participation in monitoring and evaluation and extent of objectives achievement ($P < 0.05$). The study concludes that PM&E is a tool for ensuring long term achievement of community-based water projects through promoting community empowerment hence creates sense of ownership of development projects among stakeholders. The study recommends sensitization of awareness of importance of PM&E in implementation of water projects at a local level is needed. The study also recommends further empirical research to determine factors affecting enhancement of human capacities in managing water projects at a local level. This will be worth for water policy planning and implementation.

DECLARATION

I, **SOPHIA A. MGOBA** do hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

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The above declaration is confirmed by:

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Dr. Samwel J. Kabote

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Date

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DEDICATION

To my mother (Veneranda Mgoba), for her immense sacrifices and prayers throughout my studies. To my uncle Raymond for giving me the reason to fight. You hold a special place in my heart. I love you.

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LIST OF ABBREVIATIONS AND ACRONYMS

COWSCOs	Community Water Supply Organizations
FGDs	Focus Group Discussions
FYDP	Five Years Development Plan
GIS	Geographical Information System
GPS	Geographical Positioning System
LGA	Local Government Authority
M&E	Monitoring and Evaluation
NGO	Non-governmental organizations
PAR	Participatory Action Research
PM&E	Participatory Monitoring and Evaluation
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Sciences
URT	United Republic of Tanzania

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Globally, there is a growing concern that monitoring and evaluation should be participatory to promote opportunities for development and accountability (Matsiliza, 2012). This has emerged as a means of putting people in the efforts of development in order to share control and benefits over development initiatives and resources (Theron, 2008). Participatory Monitoring and Evaluation (PM&E) as a single concept, offers new ways for strengthening learning and change at community, project and institutional levels. This has been used for various purposes, including project planning and management, strengthening and learning, understanding and negotiating stakeholder interests, and assessment of project outcomes and impacts (Njuki *et al.*, 2013).

Participatory monitoring and evaluation has gained prominence over traditional approaches in developing countries especially in Africa (Chinnadurai, 2012). Tadesse *et al.* (2013), in their studies conducted in Central Ethiopia, confirmed that community participation in planning and implementation was successful while it was not successful in monitoring and evaluation of water supply schemes. Moreover, Bakker (2013) reported that project monitoring and evaluation conducted in African countries including South Africa does not involve beneficiaries, and it is driven by activists and donor demands. As such, it results into poor achievement of the projects' objectives, implying that PM&E is key for improving project outcomes.

In Tanzania, there is an increasing emphasis on how stakeholders' participation in monitoring and evaluation is a critical component in project management. For instance,

development programmes, policies and the Tanzania Development Vision 2025 emphasize adoption of participatory approaches in the development process including project management. Nevertheless, participation of local communities in development projects, especially in monitoring and evaluation remains questionable for different reasons. For instance, according to Migiro and Dlamini (2016), organizations and projects consider PM&E as a donor requirement hence implement project M&E just to meet demands and pressure from funding agencies rather than as a measure to influence projects' achievements.

The Government of Tanzania and the donors have been committing resources including money on clean and water supply projects, especially in rural areas for many decades since independence (URT, 2013). However, the achievement of community-based water projects remains a big challenge. For instance, it is reported that 46% of water supply projects in rural areas are not functional (Jiménez and Pérez-Foguet, 2010), which definitely questions water projects' achievement.

The concept of PM&E revolves around various participatory research history, including Participatory Action Research (PAR), Participatory Learning Action and Participatory Rural Appraisal (Estrella and Gaventa, 1998). Scholars define the concept of PM&E differently. For instance, the World Bank defines PM&E as a process through which stakeholders at various levels engage in monitoring and evaluation, share control over the content, process and results of the monitoring and evaluation activities for corrective actions (Njuki *et al.*, 2010; Kusek *et al.*, 2005). Others like Ondieki and Matonda (2013) define PM&E as a management tool that helps people improve their efficiency and effectiveness. It is also considered as a learning process that helps participants increase

their awareness and understanding of the various factors that affect their lives by increasing people's control over the development process (Estrella, 2000). In addition, The World Bank (2010) states that PM&E is an active engagement and judgment process through which stakeholders at different levels engage in monitoring and evaluation of an intervention or a program.

Although the concept of PM&E is defined differently, the definitions coincide in that they refer to people's participation and learning as drivers of development and as an opportunity that contribute to learning at different levels. Even though, existing definitions differ due to the problem of poor clarification of the concepts of monitoring, evaluation and participation. As such, some authors view PM&E as a tool for managing development interventions while others consider it as a fundamental approach to development process for building local people's skills and knowledge.

This study defines PM&E as a process whereby primary beneficiaries of community-based water projects participate in tracking projects' progress through designing tools for data collection to track progress of projects' indicators, data collection, analysis and interpretation of observed information for joint decisions to improve project outcomes. Primary stakeholders are active participants' in the process of monitoring and evaluation and not just sources of information; there is capacity building of local people to analyze, reflect and take action and joint learning of stakeholders at various levels of project implementation, monitoring and evaluation. A major question addressed in this study is whether PM&E is effective in terms of influencing achievement of community-based water projects' objectives.

In the context of this study, the concept of achievement of the projects' objectives refers to the extent to which projects' objectives are accomplished. The concept is also referred to

as a way projects perform and the extent to which water related problems are solved to produce intended results. Therefore, PM&E is effective if it satisfies water users' needs by achieving projects' desired objectives (Haider *et al.*, 2014). The concept of community-based water project refers to projects which actively include beneficiaries in their planning and management. Even if the project is under the support of donors, after completion of the project beneficiaries are in charge of daily implementation, supervision and monitoring. Therefore, community-based water projects are projects where communities have direct control over key project decisions as well as the management of investment funds (Dewan *et al.*, 2015). This is manifested in the nature of community participation in managing development projects and its implication on achieving projects objectives (Chirenje *et al.*, 2013).

1.2 Problem Statement

In Tanzania, Chamwino District is among the districts which continue to benefit from donor funded and government supported water projects. Some initiatives have been done by the Government of Tanzania to solve the continuing inadequate water availability experienced by most of the communities in rural Tanzania including Chamwino. The initiatives include promoting issues on water governance, mitigation for climate change and capacity building activities on water management. However, the efforts have not been successful. For instance, only 57.1% of the water points in Chamwino District are functioning (URT, 2014). This information questions the achievement of objectives of water projects in the district that include strengthening capacity of water users in managing community-based water projects, increasing water availability, reducing time used to fetch water for domestic use and ensuring that water points are functional (URT, 2014; Good Neighbors International, 2017). Previous studies (Jiménez and Pérez-Foguet, 2010; Kusak and Rist, 2001; Haider *et al.*, 2014; Mfinanga and Kaswamila, 2014) have reported absence

of long-term achievement of water projects objectives because of different reasons like ineffective beneficiaries participation in M&E practices, poor water committees empowerment for managing properly water projects, ineffective M&E system due to inadequate allocation of funds and poor technology for water services delivery. However, the extent of effectiveness of PM&E in influencing achievement of community-based water projects remains empirically unclear (Muriungi, 2015; URT, 2015). This raises a need to examine effectiveness of PM&E on achievement of community-based water projects in Tanzania.

1.3 Justification

Participatory Monitoring and Evaluation (PM&E) for community-based water projects is needed to ensure that local communities are participating in managing projects as their own to ensure sustainability, which will help in solving the problem of poor achievement of water projects in the long run. Moreover, integrating PM&E is essential for improving achievement of development interventions through improving capacity building and promoting accountability and transparency (Sangole *et al.*, 2014). The findings of this study will contribute to increase knowledge of PM&E for government, non-governmental organizations and other development stakeholders in managing community-based water projects which will contribute to attainment of the Tanzania Development Vision (2025) and Sustainable Development Goals (SDGs) in ensuring sustainable availability of clean and safe water to the people for improved livelihoods.

1.4 Objectives

1.4.1 General objective

The overall objective of this study was to determine effectiveness of PM&E on achievement of community based water projects in Chamwino District, Tanzania.

1.4.2 Specific objectives

The specific objectives were to:

- (i) Assess strategies and activities used in participatory monitoring and evaluation of water projects
- (ii) Establish levels of people's participation in monitoring and evaluation
- (iii) Assess factors that affect participatory monitoring and evaluation practices in community-based water projects
- (iv) Establish levels of achievement of project objectives, and
- (v) Determine the influence of participatory monitoring and evaluation on achievement of water projects' objectives

1.5 Research Questions

The study was guided by the following research questions:

- (i) What activities do local people do in the community-based water project?
- (ii) How and to what extent the local people are involved in the community-based water projects?
- (iii) What factors affect participatory monitoring and evaluation in the community-based water projects?
- (iv) To what extent do water projects achieve their objectives?
- (v) To what extent does participation of the local people influence achievement of project objectives?

1.6 Conceptual Framework

The study hypothesizes that the achievement of community-based water projects depends on effectiveness of PM&E. The concept of PM&E in water projects comprises of both governance structures including Village Water Committees, Village Councils, and Community Water Supply Organizations (COWSOs) which are responsible for daily supervision and management on behalf of community members and activities like capacity building, facilitation of ongoing community meetings, community participation on paying for water services and contribution for operation and maintenance costs. Participatory Monitoring and Evaluation is about strengthening primary stakeholders' involvement as active participants in interventions by them taking the lead in tracking and analyzing progress towards jointly agreed results and deciding on corrective actions (Matsiliza, 2012).

Effectiveness of PM&E is determined by performance of the established governance structures that is of Village Water Committees, Village Councils, and Community Water Supply Organizations (COWSOs) and involvement of primary stakeholders in different stages of designing and planning M&E. Figure 1 shows three components: M&E activities that local people participate, Strategies for PM&E and socio-economic factors which serve as background variables to the PM&E and the independent variables that influence achievement of water project objectives. The achievement of water project objectives as an outcome of effective PM&E serves as the dependent variable. Water project objectives comprises of the following attributes: increasing water availability, strengthening capacity of local communities to manage water projects, improving functionality of water points and reducing time spent by women and girls to collect water (URT, 2014; Good Neighbors International, 2017) . Nevertheless, other factors such as implementer and source of funding (government or NGOs), trained community resource persons responsible for repairing water pumps, availability of repair parts and period since implementation began may affect PM&E in achieving related project objective.

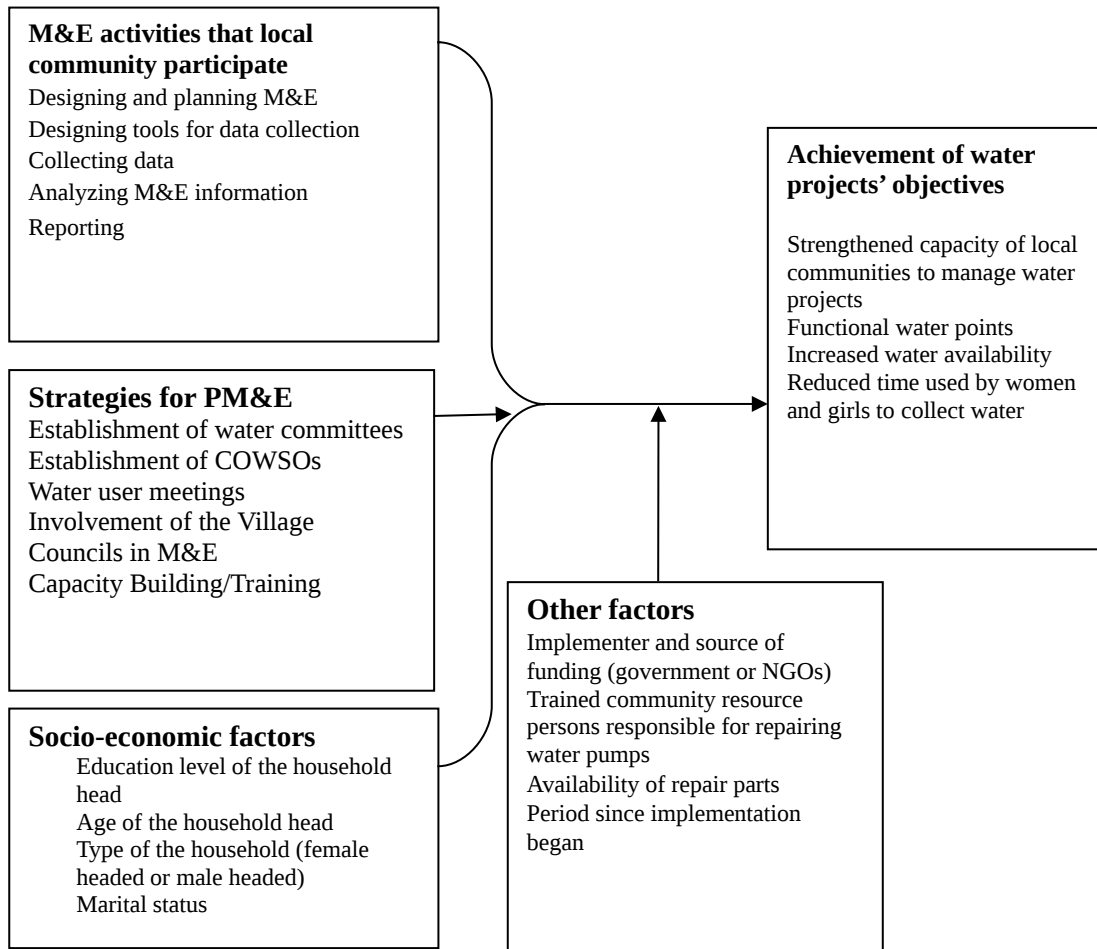


Figure 1: Conceptual framework on relationship between PM&E and achievement of water projects

Source: Authors' construct

1.7 Theoretical Underpinning on Participatory Monitoring and Evaluation

Participatory approaches are essential and integral part for the success of any development intervention as it helps foster a sense of ownership and at the same time promotes meaningful development at a grass root level (Parkinson, 2009). This study adopted two theories: participatory theory and theory of change. The participatory theory aims at involving stakeholders in all stages in development initiatives. The theory was developed by Arnstein during 1970's arguing that project beneficiaries who participate in the project activities are empowered to demand services, develop a sense of ownership of the project and a sense of belonging to the project (Cornwall, 2008). Bal *et al.* (2013) emphasize that

failure of involving stakeholders in development projects makes lack of ownership which leads to poor performance of the projects. Furthermore, participatory theory recognizes local knowledge and participation of local actors, promoting decentralization in decision making bodies and influence acceptance and performance of project. The theory was used to guide the research/study in terms of variable to be measured during the study. The variables of participation and effectiveness have been adopted from this theory because the theory is promoting participation in decision making and means for effective accomplishment of project aims hence there is better chance for local community to participate in monitoring and evaluation process and accomplishment of water projects objectives

The theory of change explains how an intervention is expected to lead to intended impacts or outcomes (Mbiti and Kijura, 2015). This was developed during 1990's by Aspen Institute explaining how and why an initiative works. The theory suggests that, understanding what the project is trying to achieve, how and why, project beneficiaries, project staffs and evaluators will be able to monitor and measure the desired results and compare them against desired objectives. The theory of change inspires and supports innovation and improvement in programmes (Jacobs *et al.*, 2010).

The theory advocated that, benefits of theory of change including, moving stakeholders from being passive collectors and reporters of information to active users of information for system planning and service delivery for better performance of project (INSP, 2005). Corlazzoli and White (2013) also add that, applying the theory of change in running the project or programme will provide an opportunity to ensure that all key stakeholders share a common understanding on how change is expected to occur and their contribution in that change. The study adopts Theory of Change since the theory guides way of thinking about

how monitoring and evaluation strategies will contribute to achievement of intended objectives.

The study adopts both theories since they are suitable to analyze PM&E. The theories urged that effective participation of beneficiaries create sense of ownership and build capacity which results to better performance of projects by achieving the desired objectives. Furthermore, the theories promote decentralization of decision making which makes better chance for beneficiaries to participate in monitoring and evaluation. The study adopts Participatory Theory and the Theory of Change since the theories give social context realities into great position to influence performance of water projects through promoting participation of local actors.

1.8 Organization of the Dissertation

This dissertation adopts publishable manuscript format, and it is organized in four chapters. Chapter one covers the introduction which includes the problem statement and justification, objectives and research questions, theoretical framework and conceptual framework. Chapter two presents the first manuscript on participatory monitoring and evaluation in community-based water projects in Tanzania: Experience from Chamwino District in Dodoma Region while, chapter three presents the effectiveness of participatory monitoring and evaluation on achievement of water projects objectives in Chamwino District, Tanzania and the conclusions and recommendations are presented in Chapter Four.

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CHAPTER TWO

2.0 Participatory Monitoring and Evaluation in Community-Based Water Projects in Tanzania: Experiences from Chamwino District in Dodoma Region

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2.1 Abstract

This chapter examines Participatory Monitoring and Evaluation (PM&E) in community-based water projects in selected villages in rural areas of Chamwino District where community members have control over the projects. The chapter adopted sequential exploratory cross-sectional research design to collect quantitative and qualitative data. A random sample of 120 water users was involved where by 53.3% were women. Descriptive statistics, Mann Whitney U Test and Chi-square Test were used to analyze quantitative data while qualitative data were subjected to content analysis. The results show that one of the strategies for PM&E were establishment of responsible structures for project supervision including Village Water Committees and Community Water Supply Organizations (COWSOs), Water Agents and capacity building. The results also show that 53.3% of the respondents showed high level of participation in monitoring and evaluation (M&E). However, non-government projects showed higher participation relative to governmental projects due to number of factors including good communication among project initiators

and community members. In addition, the results showed that PM&E was constrained by various challenges such as lack of literacy among community members in implementation of M&E; poor leadership in the villages in facilitating community participation and poor information collected on the progress of the project. Moreover, the results showed statistically significant difference in association between strategies and activities in PM&E and level of participation in M&E ($P < 0.05$). The chapter concludes that implementation of PM&E in water projects was high though challenging hence recommends efforts among water stakeholders from public and private sectors in addressing the challenges that exist in the implementation of PM&E.

Keywords: Participation, Community, Water Projects, Monitoring, Evaluation.

2.2 Introduction

Globally, the use of Participatory Monitoring and Evaluation (PM&E) has increased in international development and community-based projects. This helps primary stakeholders to reflect on changes happening during implementation of development interventions that limit their self-development and self-determination (Goto, 2010). According to Von-Korff *et al.* (2012), PM&E in community-based water projects allow community to control projects and makes important decisions and be responsible for daily monitoring, supervision and operation of projects to ensure achievement of intended project objectives. The effectiveness of PM&E in water project is influenced by many factors. For instance, in developing countries like Tanzania, trend is influenced by poor functionality of water projects that indicate poor sustainability. Ika and Thuillier (2012) reported that almost all of the funds for rural water supply development in Africa are dedicated to communal water points, yet an estimated 36% of these are not operating. This is associated with poor community participation in Monitoring and Evaluation (M&E) despite presence of professionals such as water engineers, technicians and financial assistance provided

through external and internal financial sources (Harvey and Reed, 2007). Nevertheless, information on what activities community members should perform, strategies to ensure active participation in M&E and association between these strategies and activities is not explored sufficiently.

Participatory monitoring and evaluation is defined as the process of involving primary beneficiaries to decide what should be monitored and evaluated, select indicators for doing so, organize the collected information and analyze and interpret data (Vernooy *et al.*, 2003). Thwala (2010) reported four levels of participation in M&E in which beneficiaries can participate. These levels are information sharing, consultation, decision making and initiating action. During information sharing stakeholders participate by providing necessary information concerning project implementation and progress. This form of participation is traditionally referred to as top-down (Conrad and Hilchey, 2011). Consultation and decision making are kind of collaborative type of participation in which beneficiaries are represented by group of leaders in the high level of management. For instance, in community-based water projects structures such as Water users Committee, Water users Association and Community Water Supply Organizations (COWSOs) usually represent views and interest of the communities in the high level of management. Participation in initiating action is an active participation through involving community in every stage of monitoring programs, communicating the results and taking actions. In this case, the role of the expert is to advise and guide community groups rather than setting agendas (Carr *et al.*, 2012).

In Tanzania, there has been continuous interest of involving primary stakeholders in M&E in development projects. The government incorporates aspects of PM&E in national strategies, national planning, policies and programs (URT, 2012). For example, the

Government of Tanzania through Tanzania Five Year Development Plan (FYDP, 20016/2021) underscores on participation of actors in M&E in order to rationalize coordination and organization for effective implementation as well as in monitoring and evaluation. In addition, The Tanzania National Water Policy (2002) underscores importance of PM&E in water projects to promote community's ownership of water projects that can contribute to performance and sustainability of the projects. Similarly, three studies conducted by Mandara *et al.* (2013); Cleaver and Toner (2006) and Jiménez and Pérez-Foguet (2010a) underscore importance of community participation in M&E of water projects as a means to ensure achievement and sustainability of water projects. Thus, understanding specific strategies, activities performed by communities and level of participation in M&E is critical to inform development actors who can create an enabling environment for PM&E.

Literatures further show that implementing PM&E in community-based water projects is not an easy task. There are factors that affect PM&E. For example, Sanginga *et al.* (2010) ascertain that for a community to control projects, it must acquire administrative and management skills. Lack of skilled personnel and inadequate capacity building activities are among the challenges for community participation in M&E. In addition, Adeniyi and Dinbabo (2016) reported that project beneficiaries cannot participate without adequate resources, financial, human and technical to support them. This implies that unless resources have been allocated for PM&E initiatives, participation of project beneficiaries is likely to be a myth. Moreover, empirical evidence suggests that there is a strong linkage between source of funds and applicability of PM&E. For instance, a study conducted by URT (2015) and Cullen and Coryn (2011) reported that there is strong relationship between source of funds and implementation of participatory approaches in M&E. Most of projects

which are under support of international donors tend to have high level of participation than those under government. This implies differences in emphasis of PM&E.

Although literature acknowledges the importance of PM&E in achieving objectives of community-based water projects (Sangole *et al.*, 2014), little is known about strategies and activities used in PM&E to ensure effective participation of primary stakeholders, level of participation in M&E as it involves numbers of activities to be one in each stage of M&E, and challenges related with implementation of PM&E. Understanding the situation of PM&E in community-based projects in Chamwino District remains vital since it informs various stakeholders on the existing relationship between PM&E and the local community. This chapter is guided by the following research questions: How and to what extent are the local people involved to ensure active participation during implementation of community-based water projects? What activities do they do?, What factors affect participatory monitoring and evaluation in the community-based water projects?. The answers to these questions provide comprehensive knowledge about PM&E and factors affecting implementation of PM&E water projects in the study area. The chapter is organized into four sections. Section one introduces the chapter and uncovers the research issue. Section two presents the methodology used while section three is devoted to results and discussion. Conclusions and recommendations are presented in section four.

2.3 Methodology

2.3.1 Study area

This study was conducted in Chamwino District, Dodoma Region (Figure 2.1). Chamwino District is located at latitude 6° 15' South, longitude: 35° 42' East. The altitude ranges from 1000 to 1500meters above sea level (Mayaya *et al.*, 2015). The district has a dry Savannah

type of climate, characterized by a long dry season. The minimum temperature is 19°C (June- July) while the maximum is 35° C (August to December). The district covers an area of 8056 square kilometers and has a population of 330 543. Administratively, the district is divided into 5 Divisions, 28 wards with a total of 77 villages (URT, 2014). The mean annual rainfall is 500mm which falls between December and March and hence the District is vulnerable to water scarcity (Mtupile and Liwenga, 2017). The district was selected because there is poor achievement of community-based water projects objectives implemented by the government and NGOs (URT, 2014).

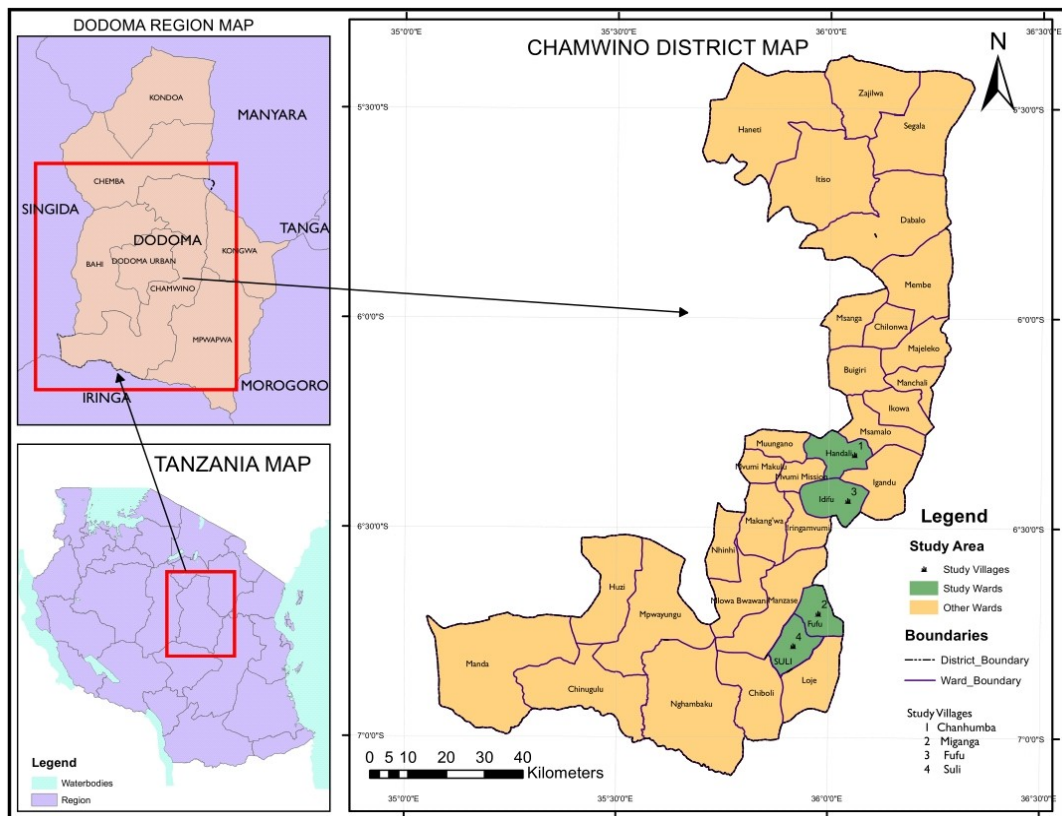


Figure 2.1: Map of Chamwino District showing study villages

2.3.2 Research design

The study employed sequential exploratory cross-sectional research design with two phases. The first phase involved collection and analysis of qualitative data, and the results of this phase were used to refine questions for the second phase. The second phase involved collection of quantitative data through household survey using a structured

questionnaire. Focus Group Discussions (FGDs) and key informant interviews guided by a checklist of items were used to collect qualitative data.

The study population encompassed water users in the study sites. The multistage sampling procedures i.e. purposive and random sampling techniques were involved to select four villages based on various criteria including presence of community-based water project and degree of collective action arrangements in managing, supervising and monitoring projects. The villages were Chanhumba, Miganga, Fufu and Suli from Handali, Idifu, Fufu and Suli wards respectively.

The selected villages constituted some areas for the Water Mission project, Good Neighbors- Tanzania water project and Government water projects. The overall aim of these projects is to increase clean and safe water availability to local communities. This can be achieved by strengthening capacity of local communities to manage water projects and ensuring long term function of water points (Good Neighbors International, 2017; URT, 2014). In each village, 30 respondents were randomly selected making a sample size of 120 respondents. This sample size is appropriate because it allows statistical analysis leading to a reasonable conclusion (Bailey, 1994).

One focus group discussion was conducted in each division making a total of two FGDs. In order to get different experiences on project M&E, sex, and leadership were the criteria used to select FGDs participants. FGDs involved one Village Water Committee and one Community Water Supply Organization (CHANHUMBA). Each FGD comprised 8-10 participants. The proportion of women FGDs participants ranged from three to five in each group. Women were involved in FGDs because they are responsible to collect water for domestic uses in many communities in Africa. The information gathered during FGDs captured background of the projects, community participation and activities done during

project implementation, institutions responsible for daily implementation of the water project, importance of community participation in achieving project objectives, achievements of the project objectives and factors that hinder effective community participation.

The Village Executive Officers (VEOs) from each village; District Water Engineer; Senior Technician and two project officers (Monitoring and Evaluation) were involved as key informants. The key informant interviews were conducted to obtain information about strategies to ensure that water users are involved in implementing water projects; activities water users participate in implementing the water projects; objectives of the water projects and how each of the objective has been achieved with evidences; issues that affect involvement of the water users in the project implementation. The key informants were selected based on the fact that they were well informed and responsible for daily project monitoring, supervision and evaluation. In addition, household survey guided by a questionnaire was used to collect quantitative data on demographic characteristics and the situation of project in the selected villages. The situation of project included PM&E strategies and activities, participation of community members in M&E, factors affecting PM&E, level of achievement of project objectives.

2.3.3 Data analysis

Content analysis was used to analyze qualitative data by summarizing field data based on objectives of the study. The quantitative data were analyzed by using Statistical Package for Social Sciences (SPSS) by computing descriptive statistics to obtain frequencies and percentage distribution of the responses. A Summated Index Scale was used to measure the extent of levels of people's participation in M&E. A total of 10 statements were used to measure the extent of levels of people's participation. Every respondent was asked to respond whether he/she strongly disagreed (1 score), disagreed (2 scores), neutral (3 scores), agreed (4

scores) or strongly agreed (5 scores) on each item of the scale. The median was used as a cut-off point between low, medium and high participation. The scores below the median represented low extent of participation, the median represented medium and the scores above the median represented high. Overall, 10 to 29 scores represented low participation, 30 scores represented medium participation and 31 to 50 scores represented high participation.

Reliability analysis was done so as to assess internal consistence of the scale. In this study, the extent of level of participation in M&E had acceptable internal consistency with a Cronbach's alpha value of 0.913. According to George and Mallery (2003), an alpha value of 0.7 and above is acceptable. The Mann Whitney U test was used to compare the median differences between the overall participation of male and female. The test is useful to assess statistically significant differences for ordinal dependent variable by a single dichotomous independent variable (Pallant, 2007). Cross tabulation and Chi-square test were used to assess associations between strategies and activities and level of participation. Moreover, P-value ($p < 0.005$) was used to assess the level of statistical significance on associated variables.

2.4 Results and Discussion

2.4.1 Respondents' socio-economic characteristics

Table 2.1 presents respondents' characteristics. The results show that 53.3% of the respondents were females. Women are expected to be participating more in preserving and maintaining water projects around their community as they are the ones responsible for daily water fetching. Therefore, women views on issues concerning participation in monitoring, supervision and maintaining water projects was important. The results also show that 49.2% and 50.8% of the respondents were household heads and spouses respectively. In addition, 86.7% of the respondents depended on farming activities as their

main source of livelihood followed by 6.79% who depended on livestock keeping. This implies that majority of the respondents were smallholder farmers.

Table 2.1: Respondents' socio-economic characteristics (n=120)

Sex	Chanhumba (n=30)	Miganga (n=30)	Fufu (n=30)	Suli (n=30)	Total (n=120)
Male	15(50)	12(40)	15(50)	14(46.7)	56(46.7)
Female	15(50)	18(60)	15(50)	16(53.3)	64(53.3)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Relationship to the household head					
Head of household	16(53.3)	13(43.3)	17(56.7)	13(43.3)	59(49.2)
Spouse	14(46.7)	17(56.7)	13(43.3)	17(56.7)	61(50.8)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Main source of income					
Farming	27(90)	28(93.3)	27(90)	22(73.3)	104(86.7)
Livestock keeping	1(3.3)	1(3)	0(0)	6(20)	8(6.7)
Small scale business	1(3.3)	0(0.0)	3(10.0)	0(0.0)	4(3.3)
Employee in the public sector	1(3.3)	1(3.3)	0(0.0)	2(6.7)	4(3.3)
Total	30(100)	30(100)	30(100)	30(100)	120(100)

Note: Numbers in brackets are percentages

The findings show that 96.7% of respondents were married (Table 2.2). With regard to the respondents' education level, 86.7% of the respondents held primary education. This implies that majority acquired basic primary education critical for development at the household and national level at large.

Marital Status	Chanhumba (n=30)	Miganga (n=30)	Fufu (n=30)	Suli (n=30)	Total (n=120)
Married	28(93.3)	29(96.7)	27(90)	29(96.7)	113(96.7)
Single	1(3.3)	0(0)	1(3.3)	0(0)	2(1.7)
Widower	1(3.3)	1(3.3)	2(6.7)	1(3.3)	5(4.2)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Education Level					
No formal education	0(0)	1(3.3)	2(6.7)	0(0)	3(2.5)
Primary education	26(86.7)	27(90.0)	23(76.7)	28(93.3)	104(86.7)
Secondary education	3(10.0)	1(3.3)	5(16.7)	2(6.7)	11(9.2)
Tertiary education	1(3.3)	1(3.3)	0(0.0)	0(0)	2(1.7)
Total	30(100)	30(100)	30(100)	30(100)	120(100)

Table 2.2: Respondents' marital status and education level (n=120)

Note: Numbers in brackets are percentages

The results show that the mean age of the respondents was 38 years. This indicates that majority of the respondents were young adults who are potential workforce to participate in socio-economic development activities. Furthermore, the findings show that the mean number of persons per household was 5.09 (Table 2.3). This number is above 4.9 persons reported at the national level (URT, 2012). Extended family and preference of having large number of children as source of cheap labour are among the reasons which contribute to large number of people at household level in Tanzania and Africa in general.

Table 2.3: Descriptive statistics on respondents' characteristics (n=120)

Category	Minimum	Maximum	Mean	Std. Deviation
Actual age of respondent	25	60	38.41	7.672
Actual number of Household	2	10	5.09	1.561

2.4.2 Water project information

Table 2.4 presents water project information reported by the respondents including types of water projects existed in the communities and sources of water for the project. Overall, 61.7% of the respondents reported existence of solar powered water borehole. This is due to climatic nature of the study area, which is semi-arid hence with short period of rainfall and a long dry period that allows availability of large amount of sunlight to ensure daily operation of the solar powered projects (Deus *et al.*, 2013). Moreover, 100% of the respondents reported that the projects depended on groundwater (well drilled ground water) as source of water. 57.5% of the respondents showed a sense of ownership towards projects as they indicated that projects were owned by the community members.

Table 2.4: Description of water project information (n=120)

Category	Chanhumba (n=30)	Miganga (n=30)	Fufu (n=30)	Suli (n=30)	Total (n=120)
Water projects existing in the community					
Mechanized scheme (electrical/diesel engine)	0(0)	30(100)	15(50)	1(3.3)	46(38.3)
Solar Powered Water Borehole	30(100)	0(0)	15(50)	29(96.7)	74(61.7)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Source of water for the project					
Groundwater (well drilled groundwater)	30(25)	30(25)	30(25)	30(25)	120(100)
Mode of ownership of the project					
Owned by community members	30(100)	0(0)	16(53.3)	23(76.7)	69(57.5)
Owned by non-governmental organization	0(0)	0(0)	7(23.3)	5(41.7)	12(10)
Owned by government	0(0)	30(100)	7(23.3)	2(6.7)	39(32.5)
Total	30(100)	30(100)	30(100)	30(100)	120(100)

Note: Numbers in brackets are percentages

2.4.3 Participatory monitoring and evaluation strategies

The overall strategy which was used was establishment of Village Water Committees which was reported by 54.6% of the respondents. This strategy was reported more in the government projects. Another strategy was establishment of Community Owned Water Supply Organizations (COWSO) which was reported by 37% of the respondents (Table 2.5). This is in line with Tanzania National Water policy of 2002 which underscores establishment of COWSOs as a strategy for implementation of water policy objectives (URT, 2002). The overall responsibilities of the established structures were to oversee implementation of the water projects bylaws, norms and values, provides financial report to water users timely and facilitates water users to contribute money for maintenance and water services delivery. This was in line with qualitative results reported by key informant from non-governmental project that:

“To ensure long term achievement of water projects, we introduced Village Water Committee in each village where projects are implemented. Through

these committees it is easy to promote community participation as leaders from these committees are elected by their fellow community members hence it is easy for them to work as one group and ensure projects' sustainability” (Monitoring and Evaluation Officer, at Goodneighbor Tanzania, October 19, 2018).

The quotation above justifies the importance of this strategy on promoting transparency, participation and accountability in managing and implementing water projects. Furthermore, a key informant from the Local Government Authority (LGA) reported that:

“For government projects, we are in the process of transforming the village water committees into Community Water Supply Organizations (COWSO) that will be legally recognized at least in every ward in the district so that they can monitor and manage water projects themselves after completion of these projects” (District Water Engineer, at Chamwino District Council, October 17, 2018).

Table 2.5: Respondents responses on established structures for water project monitoring and evaluation (n=120)

Strategy	Government (n=59)	Non-governmental organization(n=61)	Total (n=120)
Village water committees	47(79.7)	18(30)	65(54.6)
Community water supply organizations	8(13.6)	37(60)	45(37)
Non-governmental organizations	0(0)	4(6.7)	4(3.4)
Village councils	4(6.8)	2(3.3)	6(5)

Note: Numbers in brackets are percentages

Establishment of water agents and capacity building were also strategies reported by 67.5% and 51.7% of the respondents respectively as shown in Table 2.6 to ensure local communities participation on issues of monitoring and evaluation in the water project. This was common for governmental and non-governmental funded projects.

Table 2.6: Respondents responses on establishment of water agents and capacity building (n=120)

Category	Response	Government (n=59)	Non-governmental organization(n=61)	Total (n=120)
Water agent responsible for operation and management of project	Yes	37(62.7)	44(72.1)	81(67.5)
	No	22(37.3)	17(27.9)	39(32.5)
Total		59(100)	61(100)	120(100)
Arrangement for capacity building in the community	Yes	13(22)	49(80.3)	62(51.7)
	No	46(78)	12(19.7)	58(48.3)
Total		59(100)	61(100)	120(100)

Note: Numbers in brackets are percentages

During FGD at Chanhumba village participants reported that in order to ensure people's participation in implementing water projects, the projects are managed and operated under Village Water Agents. These village water agents must be members of in the communities. S/he is selected by the community members themselves based on the terms and conditions that have been put in place. His/her main duties are collecting water revenues from water points, providing daily cleanliness at water point and collecting data on number of people fetching water and amount of money collected, reporting on number of water points not function and reading water meters.

Comparing responses between governmental and non-governmental projects, the results show that 80.3% of the respondents in non-governmental projects reported capacity building activities that are taking place within project implementation. This is because there is close supervision on feedback giving to communities after training. During FGD in Suli village participant reported that:

“We never had a trained plumber before this project who had been responsible for repairing water pumps and other spares. We used to wait for an officer from the government to come and repair them which usually took a lot of days. The situation now is different as we have our own plumber in the village and every village member is aware of his presence” (FGD participant, at Suli Village, October 15, 2018).

This was also acknowledged by one of the key informants that:

“It is hard to train everybody in the community, so we usually work closely with community representatives who are members of COWSOs and Water Committees. We do capacity building by providing training in different aspects. The given trainings are about: operation and maintenance i.e. water meter reading for transparency, repairing water pumps to ensure daily functionality of water points; financial management i.e. record keeping for all revenues that are generated from selling water and expenses” (Project Officer, at Water Mission Tanzania, October 22, 2018).

These results are in line with one of the key principles of PM&E which is learning through building the capacity of project partners and intermediaries from the local population to reflect, analyze and take action (Njuki *et al.*, 2009).

For the case of government projects, 78% of respondents reported no arrangement for capacity building in the community. This result affirms with information provided by key informant that:

“For most of our government water projects, issues of capacity building is still a little bit challenging. We all depend on one senior technician to rotate in all village in the district for matters on repayments. Even in villages, there are no experts they all depends on this technician” (Water Technician, at Chamwino District Council, October 17, 2018).

2.4.4 Participatory monitoring and evaluation activities

Table 2.7 presents different types of activities performed by water users during project monitoring and evaluation. The results show that 95% of the respondents participated through paying for water services. Other activities include: contributing to capital and operation and maintenance costs and supervising and monitoring project revenues. This is in line with the qualitative results. For instance, FGD in Chanhumba village reported that:

“Through paying for water services has made us to participate in a way that we contribute in long term function of these water projects as we see that it is our own money that is used for daily operation of water points” (FGD participant, at Chanhumba Village, October 11, 2018).

With regard to the situation on paying for water services, one of the key informants reported that:

“paying for water services promotes ownership as for me when I pay for these services I see my money makes the project operate hence made me to be conscious on issues of revenues and expenses” (Village Executive Officer, at Miganga Village, October 13, 2018).

This is linked to project sustainability due to a greater sense of ownership and responsibility for project activities by stakeholders. This implies that stakeholders are willing and able to mobilize and commit local resources to continue some or all of the project activities even the external support has ended.

Table 2.7: Respondents responses on monitoring and evaluation activities performed by water users in water projects (n=120)

Category	Response	Government	Non-governmental organization	Total
Paying for water services delivery	No	1(1.7)	5(8.2)	6(5)
	Yes	58(98.3)	56(91.8)	114(95)
Providing labour and materials	No	50(84.7)	27(44.3)	77(64.2)
	Yes	9(15.3)	34(55.7)	43(35.8)
Contributing to capital and operation and maintenance costs	No	8(13.6)	9(14.8)	17(14.2)
	Yes	51(86.4)	52(85.2)	103(85.8)
Forming and electing water user committees	No	46(78)	16(26.2)	62(51.7)
	Yes	13(22.0)	45(73.8)	58(48.3)
Supervising and monitoring project revenues	No	24(40.7)	16(26.2)	40(33.3)
	Yes	35(59.3)	45(73.8)	80(66.7)
Repairing water pumps	No	50(84.7)	35(57.4)	85(70.8)
	Yes	9(15.3)	26(42.6)	35(29.2)

Note: Numbers in brackets are percentages

Furthermore, considering monitoring and evaluation practices, the findings (Table 2.8) show that 93.3% of respondents reported that field visit and conducting meetings on project progress were the most M&E practices that were conducted in both governmental and non-governmental water projects. This means that when visits and meetings are conducted they help to make sure that project activities are implemented as planned. For instance, Mugambi and Kanda (2013) ascertain that the most effective way to do monitoring and evaluation is through field visit and meetings with the people running the project, meetings with the participants, and observing how activities are implemented. One of the key informants reported that:

“One way we do this is through follow up visits to communities at routine times. In these visits, we carry out several activities, such as assisting the local Water Committee with any challenges they face, as well as water quality testing, and speaking with beneficiaries. In addition, we also collect monthly summary reports from the water system operator that helps us to know how many people are buying water from the system, as well as monthly expenses”(Monitoring and Evaluation Officer, at Goodneighbor Tanzania, October 19, 2018).

The quotation above implies that conducting field visits during monitoring and evaluation is essential for any community-based interventions. They can provide necessary evidence to confirm results and progress of the project (Luyet *et al.*, 2012).

Table2. 8: Respondents responses on M&E practices (n=120)

M&E Practices	Response	Government	Non-governmental organization	Total
Field visit and conducting meetings on project progress	Yes	54(91.5)	58(95.1)	112(93.3)
	No	5(8.5)	3(4.9)	8(6.7)
Total		59(100)	61(100)	120(100)
Providing reports on project's progress	Yes	8(13.6)	30(78.9)	38(31.6)
	No	51(86.4)	31(37.8)	82(68.3)
Total		59(100)	61(100)	120(100)
Participatory Rural Appraisal in village	Yes	8(13.6)	19(31.1)	27(15.3)
	No	51(86.4)	42(68.9)	93(50.8)
Total		59(100)	61(100)	120(100)

Note: Numbers in brackets are percentages

2.4.5 Respondents' responses on level of participation in monitoring and evaluation in water projects

Table 2.9 presents respondents' responses on level of participation in monitoring and evaluation. Combining the columns for strongly agree and agree, the results show that 95% and 100% of the respondents were involved in paying water fees from government and non-government projects respectively. Based on the same columns, the results also show that 88.1% and 93.4% of the respondents were involved in contributing to capital, operation and maintenance costs respectively from government and non-government project.

Table 2.9: Respondents' responses on level of participation in monitoring and evaluation (n=120)

Statement	Project	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Involved in designing M&E Framework	Government	34(57.6)	11(18.6)	6(10.2)	6(10.2)	2(3.4)
	Non-governmental	5(8.2)	25(41.0)	2(3.3)	27(44.3)	2(3.3)
Involved in designing tools for data collection to track progress of water projects	Government	43(72.9)	9(15.3)	1(1.7)	4(6.8)	2(3.4)
	Non-Government	5(8.2)	10(16.4)	1(1.6)	43(70.5)	2(3.3)
Involved in data collection	Government	31(52.5)	12(20.3)	3(5.1)	13(22)	0(0.0)
	Non-governmental	5(8.2)	6(9.8)	1(1.6)	49(80.3)	0(0.0)
Involved in analyzing information	Government	28(47.5)	16(27.1)	0(0.0)	10(16.9)	5(8.5)
	Non-governmental	5(8.2)	4(6.6)	9(14.8)	41(67.2)	2(3.3)
Involved in meetings to receive feedback about status of project implementation	Government	28(47.5)	8(13.6)	5(8.5)	18(30.5)	0(0.0)
	Non-governmental	0(0.0)	0(0.0)	1(1.6)	59(96.7)	1(1.6)
Involved in meetings to make decisions on issues related to project	Government	31(52.5)	7(11.9)	4(6.8)	16(27.1)	1(1.7)
	Non-governmental	0(0.0)	3(4.9)	5(8.2)	50(82.0)	3(4.9)
Involved in electing water committee leaders	Government	8(13.6)	25(42.4)	0(0.0)	22(37.3)	4(6.8)
	Non-governmental	0(0.0)	0(0.0)	7(11.5)	53(86.9)	1(1.6)
Involved in providing labour and materials	Government	4(6.8)	30(50.8)	6(10.2)	16(27.1)	3(5.1)
	Non-governmental	0(0.0)	1(1.6)	4(6.6)	50(82.0)	6(9.8)
Involved in paying water fees	Government	1(1.7)	2(3.4)	0(0.0)	8(13.6)	48(81.4)
	Non-governmental	0(0.0)	0(0.0)	0(0.0)	28(45.9)	33(54.1)
Involved in contributing to capital, operation and maintenance costs	Government	7(11.9)	0(0.0)	0(0.0)	35(59.3)	17(28.8)
	Non-governmental	0(0.0)	4(6.6)	0(0.0)	28(45.9)	29(47.5)

Note: Numbers in brackets are percentages

Based on these results, there was high community participation in non-governmental projects compared to government projects. This is due to a number of factors including good communication among project initiators and community members, high implementation of capacity building initiatives, presence of enabling environment such as

proper water infrastructures and financially support and good governance and accountability. The same reasons were reported during FDGs in Chanhumba village where participant reported that:

“This project is ours. Everything we do, decide based on our decisions. We have very close relationship with our donors in terms of communication and close supervision. They are very active in responding in our project problems once reported. This gives us a morale to participate in implementing project”
(FGD participant, at Chanhumba Village, October 11, 2018).

The same reason was also reported by a key informant:

“As for me, I have been given basic training on how to repair minor water pumps problems. This helps to ensure continuous participation in maintenance of water infrastructure as we take responsibilities ourselves”
(Member of COWSCO, at Chanhumba Village, October 11, 2018).

This implies that majority of project beneficiaries were participating on the level of consultation and active participation. These types of participation involve offering options, listening to feedback and decision together by encouraging others to some additional ideas and options (Sulemana *et al.*, 2018).

In addition, the results on Table 2.9 show existence of passive participation (they did not plan, organize, coordinate or do the actual work on some of monitoring and evaluation activities) on the columns of strongly disagree and disagree. The results show that more than 50% of the respondents from government projects were not involved in designing M&E framework; involved in designing tools for data collection to track progress of water projects; not involved in data collection, not involved in analyzing information, not involved in meetings to receive feedback about status of project implementation and not involved in meetings to make

decisions on issues related to project respectively. This indicates poor community participation in government projects. This was also reported during FGD conducted in Suli Village where participants stated that:

“We were only given template by our project initiators for filling in only data. We were given only training on how to fill them in but did not participate in planning and designing them” ” (FGD participant, at Suli Village, October 15, 2018).

Moreover, during key informant interviews, it was reported that:

“For most of our government water projects, most of orders are coming from the top management and there is a lot of bureaucracy which make people to loose morale of participation as most of time they will say we only wait for the government to take their actions... for example issues for repairing water pumps in the villages implementing government projects that took more than 5 months for them to be repaired due to bureaucracy” (Village Executive Officer, at Miganga Village, October 13, 2018).

This indicates that the level of stakeholders’ participation in M&E was limited to being informed what had already been decided by other key players which implied passive participation by consultation in government funded projects (Ondeki, 2016).

2.4.6 Overall participation in monitoring and evaluation

Overall, extent of participation in monitoring and evaluation is shown in Figure 2.2. The findings show that 53.3% of the respondents showed high participation in monitoring and evaluation followed by 31.67% of the respondents who showed low participation. However, participation was lower in governmental projects relative to non-governmental projects.

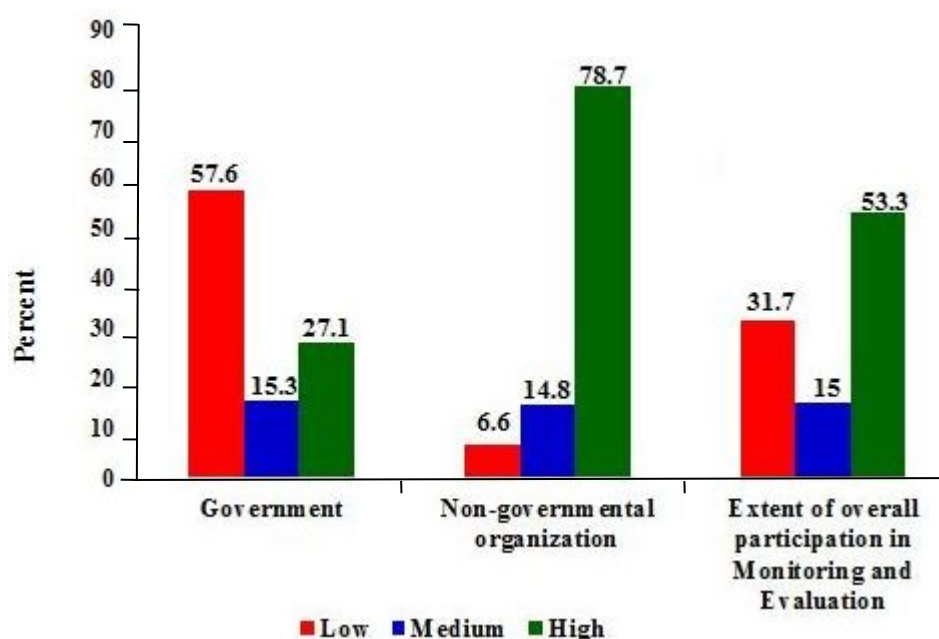


Figure 2.2: Extent of overall participation in monitoring and evaluation

Table 2.10 presents male and female responses about participation in monitoring and evaluation by type of projects. Using the Mann Whitney U test, the results show that there was no statistical significant ($P > 0.005$) difference on the extent of participation between male and female respondents in governmental water projects. This shows that both male and female did not participate fully in M&E in governmental water projects.

Table 2.10: Participation by respondents' sex (n=120)

Responses on: Level of participation on M&E	n	Median	U	Wilcoxon W	Z	P-value
Government projects						
Male	28	23	1384.00	3464.00	-2.170	0.608
Female	31	15				
Non-governmental projects						
Male	28	36	490.50	2260.50	-6.947	0.000
Female	33	35				

The results also show that there was statistical significant ($P = 0.000$) difference between male and female respondents on the extent of participation in M&E in non-governmental water projects. Males showed higher participation than female. This indicates that men in

non-governmental projects play an important role in provision, management and safeguarding of water services. These results are in line with information reported during FGDs in Chanhumba village where female participants said that:

“Despite having number of women in institutional bodies, our level of participation is still low because of having a lot of house responsibilities to take care of. Most of time we are represented by our husbands” (FGD participant, at Chanhumba Village, October 11, 2018).

The quotation above implies that there is poor consideration of gender issues in monitoring and evaluation. The incorporation of the gender perspective in M&E process is not easy. It is weakened in development practice mainly due to low awareness on gender issues in M&E although as it is a key tool for accountability, learning and improvement in relation to achievement of development projects (Espinosa, 2013).

2.4.7 Factors affecting participatory monitoring and evaluation in water projects

Table 2.11 presents respondents responses on factors affecting participatory monitoring and evaluation. Generally, the results show that participatory monitoring and evaluation was affected by various challenges, which hinder effective participation of project beneficiaries for governmental and non-governmental water projects.

Table 2.11: Factors affecting participatory monitoring and evaluation in water projects (n=120)

Challenges	Response	Government	Non-governmental organization	Total
Low budgetary allocation in M&E practices	Yes	12(20.3)	51(83.6)	63(52.5)
	No	47(79.7)	10(16.8)	57(47.5)
Total		59(100)	61(100)	120(100)
Shortage/absence of technical and professional staffs of M&E	Yes	44(74.6)	6(9.8)	50(41.7)
	No	15(25.4)	55(90.2)	70(58.3)
Total		59(100)	61(100)	120(100)
Lack of literacy among community members in implementation of M&E	Yes	53(89.8)	16(26.2)	69(57.5)
	No	3(5.1)	45(73.8)	51(42.5)
Total		59(100)	61(100)	120(100)
Poor information collected on the progress of the project from village water committee	Yes	53(89.8)	55(90.2)	108(90)
	No	6(10.2)	6(9.8)	12(10)
Total		59(100)	61(100)	120(100)
Poor leadership in the village in facilitating community participation	Yes	53(89.8)	49(80.3)	102(85)
	No	6(10.2)	12(19.7)	18(15)
Total		59(100)	61(100)	120(100)

Note: Numbers in brackets are percentages

The results show that 90% and 85% of the respondents reported poor information collected on the progress of the water projects from village water committees and poor leadership in the village in facilitating community participation as main challenges for participation respectively. This was in line with information provided with key informant who reported that:

“Lack of good leadership within communities is among of the big challenges. We usually work direct with leaders from village water committees and village councils. They are responsible for giving us progress report weekly and monthly. Unfortunately, some of the reports are not well written. Other important information on project progress that we share with them during meetings and trainings are not given back to the communities” (Monitoring and Evaluation Officer, at Goodneighbor Tanzania, October 19, 2018).

These results are in line with Maluka (2013) who argues that good leadership practices including personal initiatives of leaders, effective supervision mechanisms, commitment of the teams, are central for the implementation, monitoring and evaluation of any development intervention. In addition, absence of good leadership results into poor commitment on implementation of development interventions hence poor results (Mwangi *et al.*, 2015).

Lack of literacy among community members in implementation of M&E was another factor reported by 57.5% of the respondents (Table 2.11). During FGDs in Suli village participants reported that:

“Some community members do not know how to read and write, that is why even preparing projects report is a problem” (FGD participant, at Suli Village, October 15, 2018).

The above quotation is supported by Kamara and Muturi (2017) who argued that education level is the key element for successful and effective monitoring and evaluation of projects, because it help stakeholders to understand what they are supposed to do and why they are doing so. Kilewo and Frumence (2015) observed that low education impacts monitoring and evaluation activities to be conducted successfully due to inadequate knowledge, capacity, skills and management expertise to conduct M&E.

The results also show that 52.5% of the respondents reported low budgetary allocation in M&E activities as one of challenges the (Table 2.11). This was also reported during FGDs especially in Suli Village that:

“Non availability of motivation (financially) to community members who

volunteers themselves for daily management and monitoring of water projects hence reduce morale for management” (FGD participant, at Suli Village, October 15, 2018).

Based on the above quotation, it is clear that there is low budget allocation in monitoring and evaluation. This was also reported by Mulwa (2006) such that PM&E are usually time consuming and costly. The processes are very expensive and require adequate budget. Due to lack of enough funds in many projects, PM&E is one of the processes that are usually underfunded.

Shortage or absence of technical and professional staffs of M&E was also reported by 41.7% of the respondents in (Table 2.11). This was in line with information provided by one of the key informants that:

“we don’t have specialists of M&E completely, most of time we use water engineers and technicians who act as supervisors of the project, and they are enough to fulfill daily supervision” (District Water Engineer, at Chamwino District Council, October 17, 2018).

Lack of essential human and institutional capacity in M&E is among of factors that hinder from achieving development goals and sustainability of water projects (Gathiru, 2014). In addition, the period under project implementation was reported as another factor that affected PM&E. One of the key informants reported that:

“Our water projects are of the long period of time. For example the government project of Migaga village was initiated in 1990’s and up to now no changes took place in water system in general (no changes of equipment of the main water supply equipment)”(Village Executive Officer, at Miganga Village, October 13, 2018).

Time dimension is among of factor that has great impact on community participation in project implementation. Participation tends to decrease with projects of long period of time compared to those with short period.

Based on other studies by different authors, the factors affecting PM&E have been classified into groups like social, political, capacity development and economic challenges. For instance, Muriungi (2015) and Lopez-Acevedo *et al.* (2010) classified the basic factors that affect PM&E into economic, social and political. The economic factors include lack of funds to conduct M&E, source of fund either is government or international donors, procurement process. The social factors include inadequate knowledge, skills and competence required for those aspiring and performing duties related to M&E; lack of relevant data/information sources; nature of community in which the project is implemented; and poor community mobilization and creating awareness on the importance of community beneficiaries’ involvement in project monitoring and evaluation. Political factors include poor political will among leaders in implementing PM&E; lack of transparency and accountability in leadership and corruption among leaders. Besides this, Wong (2012) added technology as another factor that affects PM&E. This includes adoption of modern technology such as Geographical Positioning System (GPS), Geographical Information system (GIS) and mobile technology in monitoring and evaluation in collecting and dissemination of information.

Table 2.12 presents association between strategies and activities in PM&E and level of participation in M&E. It indicates which activities and strategies have significant relationship with level of participation hence when those activities and strategies will not be implemented, it will affect level of participation in M&E. Using Chi-square Test, the results showed statistically significant association among forming and electing water user committees; supervising and monitoring project revenues; repairing water pumps; water agent responsible for operation and managing project; capacity building in the community and involvement in water committees meetings ($P < 0.005$) in relation to level of participation.

This can be associated with various factors. For instance, with absence of water agent, water user committees and COWSOs may lead to low participation because communities usually are represented by the leaders. The main tasks of these leaders were to work and on behalf of their fellow community members while responsible for supervising project revenues and expenses. However, they have to provide report in meetings where community members will hear progress on revenue and expenses and other important agendas. This promotes transparency and accountability hence influence high participation. Furthermore, a study conducted by Marks and Davis (2012) underscores this by reporting that high participation of community members in forming and electing water user committees; supervising and monitoring project revenues is associated with expectations of members to be assisted in improving the collection efficiency of project revenues; operating and maintain the public taps in their respective villages while protect and conserve the water projects.

Table 2.12: Association between strategies and activities in PM&E and level of participation in M&E (n=120)

Practices	n	Chi-square	Df	Phi	P-value
Activities					
Level of participation and paying for water services delivery	120	1.246	2	0.143	0.292
Level of participation and providing labour and materials	120	4.233	2	0.188	0.120
Level of participation and contributing to capital and operation and maintenance costs	120	2.783	2	0.152	0.249
Level of participation and forming and electing water user committees	120	26.985	2	0.474	0.000
Level of participation and supervising and monitoring project revenues	120	20.347	2	0.412	0.000
Level of participation and repairing water pumps	120	10.475	2	0.295	0.005
Strategies					
Level of participation and water agent responsible for operation and managing project	120	31.815	2	0.515	0.000
Level of participation and structures listed working with community-based water projects	120	50.462	2	0.648	0.000
Level of participation and capacity building in the community	120	58.814	2	0.700	0.000
Level of participation and involvement in water committees meetings	120	62.896	2	0.721	0.000

2.5 Conclusions and Recommendations

The main objective of this chapter was to examine Participatory Monitoring and Evaluation (PM&E) situation in community-based water projects in rural areas of Chamwino District including strategies and activities used in PM&E, level of participation in PM&E and factors affecting PM&E. Based on the results and discussion, the study concludes that there is association between strategies and activities used in PM&E and level of participation. In addition the study concludes that participation of men in M&E is higher relative to that of women. Furthermore, participation in M&E was high in non-governmental funded projects than in governmental funded projects. Moreover, implementation of PM&E in water

projects is faced with many challenges, depending on the project initiator, its potentiality is threatened by source of project funds (government or donors), lack of literacy among community members in implementation of M&E, poor information collected on the progress of the water projects from village water committees and poor leadership in the village in facilitating community participation.

Based on the summary of the findings of the study, the chapter recommends that, for government and non-governmental organizations to promote implementation of PM&E in water projects they should consider to strengthen capacity building initiatives at local level. This will enhance institutional and human capacity for improved performance. Secondly, different water stakeholders including local government should put more effort in addressing the challenges that squarely affect PM&E.

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CHAPTER THREE

3.0 Effectiveness Participatory Monitoring and Evaluation on Achievement of Community-Based Water Projects in Tanzania: A case of Chamwino District in Dodoma Region

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3.1 Abstract

While the government of Tanzania is struggling to implement water projects in many parts in the country, Participatory Monitoring and Evaluation (PM&E), which is critical for achievement of projects' objectives is at an infancy stage. This study determines effectiveness of PM&E on achievement of community-based water projects including extent of achievement of water projects' objectives. The study adopted sequential

exploratory research design to collect quantitative and qualitative data. A random sample of 120 water users was involved whereby 53.3% were women. Focus Group Discussions (FGDs) and key informant interviews were used to collect qualitative data. Descriptive statistics and Kruskal-Wallis H Test were used to analyze quantitative data, while qualitative data were subjected to content analysis. The results show that overall, 51.7% of the respondents reported achievement of community-based water projects' objectives except capacity building of the local communities. In addition, PM&E was effective in achieving water projects' objectives. There was statistically significant difference in responses between low, medium and high effectiveness of PM&E ($P \leq 0.05$). Majority reported high effectiveness, more so for non-governmental projects. The study concludes that PM&E was effective in helping achievement of community-based water projects. Therefore, it recommends adoption of PM&E in community-based water projects to improve achievement of the projects. Focus should be on capacity building of the local communities so that they can manage water projects themselves in absence of external experts. This is a policy issue that needs serious efforts at all levels of the government to enhance sustainability of community-based water projects.

Keywords: Monitoring, Evaluation, Water, Projects, Achievement.

3.2 Introduction

Currently, achievement of water projects' objectives is considered one of the pressing issues in development because, in Africa, most water projects do not deliver as expected. In Sub Sahara African countries, issues on achievement of water project as a degree to which infrastructure provides the services to meet communities' expectations has gained momentum in the previous one decade (Radivojevic *et al.*, 2008). Achievement of water projects is defined as a degree to which water objectives have been achieved. In this article, water projects objectives include strengthened capacity of local communities in water

management, proper and efficient functionality of water projects, improved water availability and reducing time used particularly by women and girls to fetch water for domestic use.

Development aid commitment for water and sanitation projects has increased by 30% to over USD 10.9 billion in 2012, from USD 8.3 billion in 2010 (WHO, 2012). However, problems attributed to poor achievement of water projects are on the increase especially in developing countries. Literature including Kanda *et al.* (2016) and Gebrehiwot (2006) show that poor achievement of water projects' objectives is a common problem among Africa countries. As soon as the funders close the project most of the water projects fail to achieve the intended objectives in providing communities with safe water and functioning of water projects' infrastructures. This is largely contributed by, among other things, inadequate monitoring and evaluation skills among stakeholders due to poor capacity building on issues of monitoring and evaluation (United Nations, 2015).

Literature increasingly recognizes that participation of primary beneficiaries in monitoring and evaluation (M&E) of community-based water projects is fundamental in enhancing achievement of water projects. According to the World Bank (2010), Participatory Monitoring and Evaluation (PM&E) offer new ways to assess and learn from change that is more inclusive, echoing the realities and hopes of those most directly affected by an intervention. The importance of PM&E in ensuring achievement of water projects objectives is acknowledged in many countries. For instance, a study conducted by the World Bank in 2010 in 121 rural water supply projects in 49 countries in African, Asia and Latin America demonstrate that communities' involvements in all stages of project cycle

including monitoring and evaluation, contribute to effectiveness of the projects and a feeling of empowerment for the communities.

In Tanzania, like other countries in the world, the National Water Policy of 2002 aims at improving provision of clean and safe water supply and promotion of improved hygiene and sanitation in rural areas by insisting on participatory approaches in water projects to promote community's ownership of water projects resulting into improved achievement and sustainability of the projects (URT, 2012). In addition, different studies conducted in Tanzania about community participation in water projects reveal that among of the factors that lead to poor achievement of water projects is poor monitoring and evaluation of the projects (Mfinanga and Kaswamila 2014; Jimenez Fernandez de Palencia and Perez-Foguet 2012; Kifanyi *et al.*, 2013; Mandara *et al.*, 2013; Masanyiwa *et al.*, 2015). If beneficiaries were part and parcel of issues of monitoring and evaluation, it could be easy to identify related problems at early stages of project implementation and come up with solutions for the problems (Sherman and Ford, 2014). This could have made better chances for the good achievement of water projects by creating good environment for achieving desired goals and objectives. The use of PM&E approach is important for guiding local decision-making, promoting implementation of effective interventions and addressing emerging issues in the course of implementation (Kariuki, 2014). This chapter seeks answers to the following questions: (i) to what extent do community-based water projects achieve their objectives? And, (ii) to what extent PM&E influence achievement of project objectives? This chapter is organized into four sections including introduction, methodology, results and discussion, and finally conclusions and recommendations.

3.3 Methodology

3.3.1 Study area

This study was conducted in Chamwino District, Dodoma Region (Figure 3.1). Chamwino District is located at latitude $6^{\circ} 15'$ South, longitude: $35^{\circ} 42'$ East. The altitude ranges from 1000 to 1500 meters above sea level (Mayaya *et al.*, 2015). The district has a dry Savannah type of climate, characterized by a long dry season. The minimum temperature is 19°C (June- July) while the maximum is 35°C (August to December). The district covers an area of 8056 square kilometers and has a population of 330 543. Administratively, the district is divided into 5 Divisions, 28 wards with a total of 77 villages (URT, 2014). The mean annual rainfall is 500mm which falls between December and March and hence the District is vulnerable to water scarcity (Mtupile and Liwenga, 2017). The district was selected because there is poor achievement of community-based water projects objectives implemented by the government and NGOs (URT, 2014).

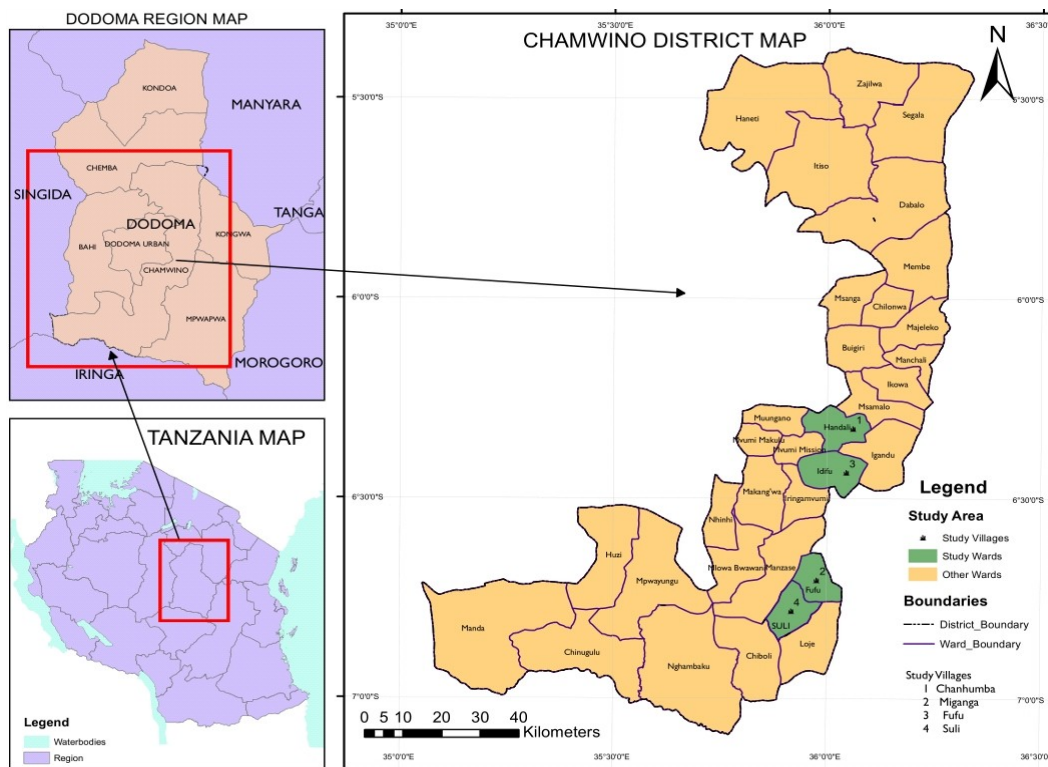


Figure 3.1: Map of Chamwino District showing study villages

3.3.2 Research design, sampling and data collection techniques

The study employed a sequential exploratory cross-sectional research design that allows data collection at a single point in time and it is most appropriate for sample descriptive interpretations as well as determination of relationships between and among variables (Babbie, 2007). Time limit and resource available for data collection led to the adoption of cross-sectional research design in this study (Casley and Kumar, 1988). The study population was water users in the study sites. The sampling procedures involved purposive selection of four villages based on presence of community-based water projects and degree of collective action arrangements in managing, supervising and monitoring projects. The villages were Chanhumba, Miganga, Fufu and Suli from Handali, Idifu, Fufu and Suli wards respectively (Figure 3.1). In each village, 30 water users were randomly selected making a sample size of 120 for the survey. This sample size is appropriate because it allows statistical analysis leading to reasonable conclusions (Bailey, 1994).

Data collection methods included water users' survey, Focus Group Discussions (FGDs) and key informant interviews. Quantitative data were collected using a structured questionnaire. One FGD was conducted in each division making a total of two FGDs. FGDs involved one Village Water Committee and one Community Water Supply Organizations (COWSO). In order to get different experiences on project M&E, sex, and leadership were used to select FGDs participants. Each FGD comprised 8-10 participants. The proportion of women FGDs participants ranged from 3 to 5 in each group. Women were involved in FGDs because, like other African societies, they are responsible to collect water for domestic use in most communities Tanzania. FGDs and key informant interviews were used to explore information on background of the projects, types of projects existing in the communities, community participation and activities done during project implementation, institutions responsible for daily implementation of the water project, achievements of the project objectives and importance of community participation in achieving project objectives. The key informants were selected based on the fact that they were well informed and responsible

for daily project monitoring, supervision and evaluation. In addition, water users' survey guided by a questionnaire was used to collect quantitative data on demographic characteristics and the situation of project in the selected villages, level of achievement of project objectives and the extent to which PM&E influence achievement of water projects' objectives.

3.3.3 Data analysis

Content analysis was used to analyze qualitative data by summarizing field data based on objectives of the study. The quantitative data were analyzed by using Statistical Package for Social Sciences (SPSS) by computing descriptive statistics to obtain frequencies and percentage distribution of the responses. A Summated Index Scale was used to measure the extent of achievement of water projects objectives and the influence of PM&E on achievement of water projects. A total of 4 statements were used to measure the extent of achievement of water projects objectives while a total of 16 statements were used to measure the extent of influence of PM&E on achievement of water projects. Every respondent was asked to respond whether he/she strongly disagreed (1 score), disagreed (2 scores), neutral (3 scores), agreed (4 scores) or strongly agreed (5 scores) on each item of the scale. The median was used as a cut-off point between low, medium and high achievement of water projects objectives and the influence of PM&E on achievement of water projects. The scores below the median represented low extent, the median represented medium and the scores above the median represented high achievement.

Reliability analysis was used to assess internal consistence of the scale. In this study, achievement of water projects objectives and the influence of PM&E on achievement of water projects showed acceptable internal consistency with a Cronbach's alpha value of 0.860 and 0.958 respectively. According to George and Mallery (2003), an alpha value of 0.7 and above is acceptable. The Kruskal Wallis H Test was used to determine whether there was statistically significant difference between influences of PM&E on achievement of water projects based on type of project. The test is a non- parametric statistic useful in determining significant differences for more than two independent

groups for ordinal dependent variable (Pallant, 2007). Cross tabulations were used to compare the extent of effectiveness between government and non-government projects. Chi-square test was used to determine whether there was statistically significant difference on influence of PM&E in achieving water projects objectives.

3.4 Results and Discussion

3.4.1 Respondents' socio-economic characteristics

Table 3.1 presents respondents' characteristics. The results show that 53.3% of the respondents were females. This enabled to capture females' views on issues concerning participation in monitoring, supervision and maintaining water projects. Involving large number of female water users was crucial because they are the ones responsible for collecting water for domestic uses. The results also show that 49.2% and 50.8% of the respondents were household heads and spouses respectively. In addition, 86.7% of the respondents depended on farming activities for their livelihoods.

Table 3.1: Respondents' socio-economic characteristics (n=120)

Sex	Chanhumba (n=30)	Miganga (n=30)	Fufu (n=30)	Suli (n=30)	Total (n=120)
Male	15(50)	12(40)	15(50)	14(46.7)	56(46.7)
Female	15(50)	18(60)	15(50)	16(53.3)	64(53.3)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Relationship to the household head					
Head of household	16(53.3)	13(43.3)	17(56.7)	13(43.3)	59(49.2)
Spouse	14(46.7)	17(56.7)	13(43.3)	17(56.7)	61(50.8)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Main source of Income					
Farming	27(90)	28(93.3)	27(90)	22(73.3)	104(86.7)
Livestock keeping	1(3.3)	1(3)	0(0)	6(20)	8(6.7)
Small scale business	1(3.3)	0(0.0)	3(10.0)	0(0.0)	4(3.3)
Employee in the public sector	1(3.3)	1(3.3)	0(0.0)	2(6.7)	4(3.3)
Total	30(100)	30(100)	30(100)	30(100)	120(100)

Note: Numbers in brackets are percentages

In case of the respondents' marital status and education levels, the results show that 96.7% of the respondents were married. Out of married couples, 96.4% were males (Table 3.2). With

regard to the respondents' education level, 86.7% of the respondents held primary education. This implies that majority acquired basic primary education critical for development at a household and national level at large.

Table 3.2: Respondents' marital status and education level (n=120)

Marital Status	Chanhumba (n=30)	Miganga (n=30)	Fufu (n=30)	Suli (n=30)	Total (n=120)
Married	28(93.3)	29(96.7)	27(90)	29(96.7)	113(96.7)
Single	1(3.3)	0(0)	1(3.3)	0(0)	2(1.7)
Widower	1(3.3)	1(3.3)	2(6.7)	1(3.3)	5(4.2)
Total	30(100)	30(100)	30(100)	30(100)	120(100)
Education Level					
No formal education	0(0)	1(3.3)	2(6.7)	0(0)	3(2.5)
Primary education	26(86.7)	27(90.0)	23(76.7)	28(93.3)	104(86.7)
Secondary education	3(10.0)	1(3.3)	5(16.7)	2(6.7)	11(9.2)
Tertiary education	1(3.3)	1(3.3)	0(0.0)	0(0)	2(1.7)
Total	30(100)	30(100)	30(100)	30(100)	120(100)

Note: Numbers in brackets are percentages

The mean age of the respondents was 38 years. This indicates that majority of the respondents were young adults who are potential workforce to participate in socio-economic development activities. Furthermore, the results show that the mean number of persons per household was 5.09 (Table 3.3). This number is above 4.9 persons reported at a national level in Tanzania (URT, 2012). The preference of having large number of children as a source of cheap labour is among the reasons that contribute to large household size in Tanzania and elsewhere in Africa.

Table 3.3: Descriptive statistics on respondents' age and household size (n=120)

Category	Minimum	Maximum	Mean	Std. Deviation
Actual age of respondent	25	60	38.41	7.672
Actual number of household	2	10	5.09	1.561

3.4.2 Responses on levels of achievement of water projects' objectives

The community-based water projects had four objectives as shown in Table 3.4. Overall, responses for government and non-governmental projects, show that community-based water projects achieved objectives on functionality of water points, increasing water

availability and reducing time spent among women and girls to collect water for domestic use in the villages. This is in line with government efforts to reduce distance between households and water points. Qualitative data also showed an increase of water availability compared to the situation before establishment of the community-based water projects. There was reduction of time used to fetch water as indicated in the quote below:

“Eight water points have been repaired by the initiatives of the community members in the villages which contribute to water availability... time used by woman and girls to fetch water has been reduced for about 70%” (FGD participant, at Chanhumba Village, October 11, 2018).

Table 3.4: Degree of achievement of water project objectives (n=120)

Statement	Project	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Extent of achievement of capacity building of local communities to manage water projects	Government	32(54.2)	19(32.2)	3(5.1)	4(6.8)	1(1.7)
	Non-governmental	7(11.5)	31(50.8)	3(4.9)	18(29.5)	2(3.3)
Extent of achievement of functionality of water points	Government	8(13.6)	18(30.5)	3(5.1)	29(49.2)	1(1.7)
	Non-governmental	17(14.2)	39(32.5)	3(2.5)	58(48.3)	3(2.5)
Extent of achievement of increasing water availability	Government	0(0.0)	25(42.4)	3(5.1)	30(50.8)	1(1.7)
	Non-governmental	0(0.0)	6(9.8)	4(6.6)	48(78.7)	3(4.9)
Extent of achievement in reducing time spent by women and girls to collect water for domestic use	Government	0(0.0)	15(25.4)	3(5.1)	11(18.6)	30(50.8)
	Non-governmental	0(0.0)	2(3.3)	0(0.0)	18(29.5)	41(67.2)

Note: Numbers in brackets are percentages

The results also show that governmental and non-governmental water projects did not achieve capacity building of local communities which is one of the projects' objectives, to

manage water projects (Table 3.4). This is associated with inadequate skills and knowledge and competence for local communities to perform managing duties. Lack of capacity among local communities to manage community-based water projects can jeopardize sustainability of water project. The overall achievement of community-based water projects is shown in Figure 3.2. Overall, 51.7% of the respondents reported high achievement of community-based water projects' objectives. There was a difference between governmental and non-governmental projects in terms of achieving their objectives. Non-governmental projects showed higher achievements relative to governmental projects.

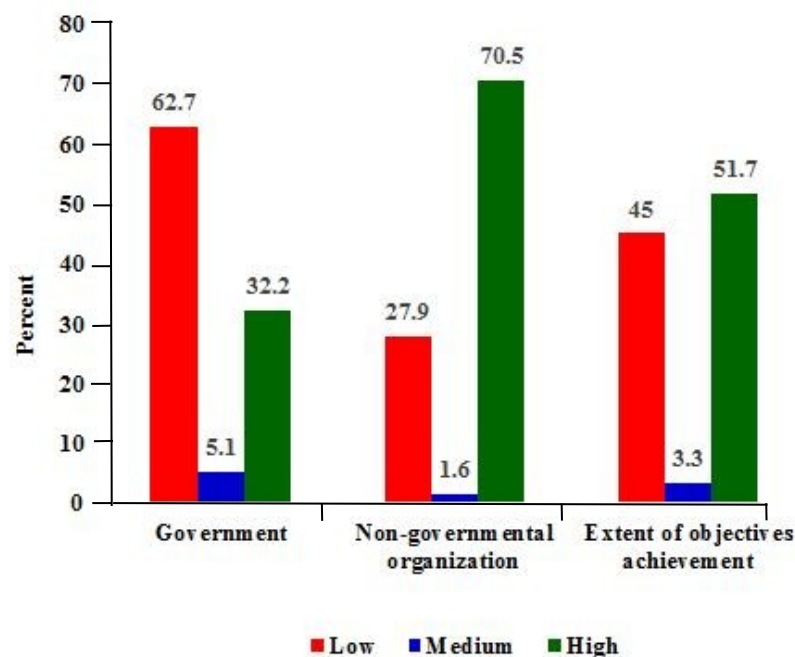


Figure 3.2: Overall achievement of water projects

3.4.3 Responses on the effectiveness of participatory monitoring and evaluation (PM&E) on achievement of water projects objectives

Table 3.5 presents degree of effectiveness of PM&E in influencing capacity building of local communities to manage community-based water projects. Overall, the columns for disagree and strongly disagree for government projects show that involvement in meetings to receive feedback about status of water project implementation, meetings to make decisions on issues related to water projects, involvement in paying water fees and

involved in repair of pumps were not effective in terms of promoting capacity building of local communities to manage community-based water projects. During key informant interviews in Miganga Village, a key informant reported that:

“...we appreciate the government commitment in providing water services in our village. But we depend almost everything on them in terms of managing water project...” (Chairperson of village water committee, at Miganga Village, October 13, 2018).

Based on these results, efforts are required, in terms of PM&E to build capacity of the local communities so that they can manage community-based water projects after end of external support to enhance sustainability.

Table 3.5: Influence of PM&E on capacity building of local communities to manage community-based water projects (n=120)

Statement	Project	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Involvement in meetings to receive feedback about status of water project implementation has created awareness on water management	Government	4(6.8)	47(79.7)	1(1.7)	6(10.2)	1(1.7)
	Non-governmental	10(16.4)	22(36.1)	3(4.9)	13(21.3)	13(21.3)
Involvement in meetings to make decisions on issues related to water project enhanced awareness capacity in water management	Government	6(10.2)	31(52.2)	2(3.4)	19(32.2)	1(1.7)
	Non-governmental	15(24.6)	7(11.5)	5(8.2)	32(52.5)	2(3.3)
Involvement in paying water fees sensitizes strongly on managing water projects	Government	31(52.5)	4(6.8)	1(1.7)	8(13.6)	15(25.4)
	Non-governmental	8(13.1)	6(9.8)	3(4.9)	41(67.2)	3(4.9)
Involvement in repair of pumps has led to participation on water project management	Government	6(10.2)	30(50.8)	1(1.7)	7(11.9)	15(25.4)
	Non-governmental	13(21.3)	4(6.6)	4(6.6)	34(55.7)	6(9.8)

Note: Numbers in brackets are percentages

On non-governmental water projects, more than 50% of the respondents in agree and strongly agree columns combined showed that involvement in meetings to make decisions on issues related to water projects, involvement in paying water fees and involved in repair of pumps contributed to achieving capacity building of local communities to manage community-based water projects. However, this does not suffice to argue that non-governmental water projects were able to build capacity of local communities to manage water projects.

Figure 3.3 shows overall effectiveness of PM&E in influencing capacity building of local communities to manage community-based water projects. The results show that 50.8% of the respondents showed high extent of effectiveness of PM&E in influencing capacity building of local communities to manage community-based water projects in their respective projects. This is attributed to efforts of non-governmental water projects that constantly gave feedback to the communities and also introduced water fees. Generally, PM&E enhance management of water projects by community members themselves. This is important because the challenges affecting water projects can be solved by community members themselves if they have the capacity to do so (Farrelly and Brown, 2011).

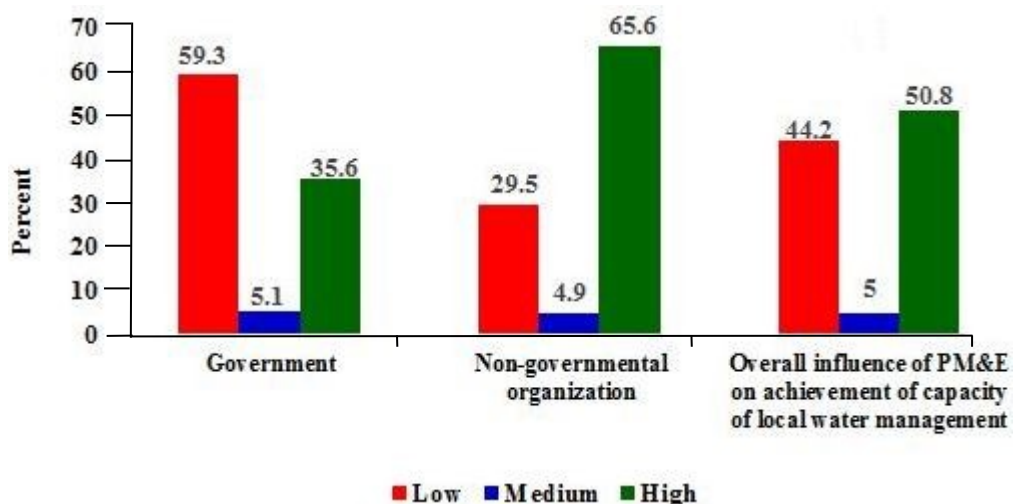


Figure 3.3: Overall effectiveness of PM&E in influencing capacity building of local communities to manage community-based water projects.

Respondents' response on effectiveness of PM&E in ensuring functionality of water points is presented in Table 3.6. Based on the columns for agree and strongly agree for both projects, the results show that involvement in meetings to receive feedback about the project from implementers, involvement in paying water fees and involvement in repairing of water pumps led to functionality of water points. Literature including Anthonj *et al.* (2018) show that community involvement in water payment and fees collection, maintenance of water pumps and managing water points is one of the factors associated with ensuring water point functionality. This implies that water points managed by local communities are more functional than those managed by external members.

Table 3.6: Influence of PM&E in ensuring functionality of water points (n=120)

Statement	Project	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Involvement in meetings to receive feedback about the project from implementers has created awareness on how to improve function of water project	Government	6(10.2)	5(8.5)	1(1.7)	42(71.2)	5(8.5)
	Non-governmental	5(8.2)	7(11.5)	0(0.0)	46(75.4)	3(4.9)
Involvement in meetings to make decisions on issues related to project enhanced functionality of water projects	Government	6(10.2)	42(71.2)	5(8.5)	5(8.5)	1(1.7)
	Non-governmental	2(3.3)	24(39.3)	2(3.3)	26(42.6)	7(11.5)
Involvement in paying water fees sensitizes strongly on promoting functionality of water projects	Government	10(16.9)	19(32.2)	1(1.7)	25(42.4)	4(6.8)
	Non-governmental	5(8.2)	4(6.6)	0(0.0)	27(44.3)	25(41.0)
Involvement in to repairing of water pumps has led to functionality of water projects	Government	4(6.8)	19(32.2)	10(16.9)	25(42.4)	1(1.7)
	Non-governmental	11(18)	6(9.8)	0(0.0)	24(39.3)	20(32.8)

Note: Numbers in brackets are percentages

Figure 3.4 shows overall influence of PM&E in ensuring functionality of water points. The results show high influence of PM&E. This shows that PM&E has high influence of ensuring functionality of water points. This can be associated with transparency and accountability on

how to repair water points. Non-governmental water projects were more effective than governmental projects.

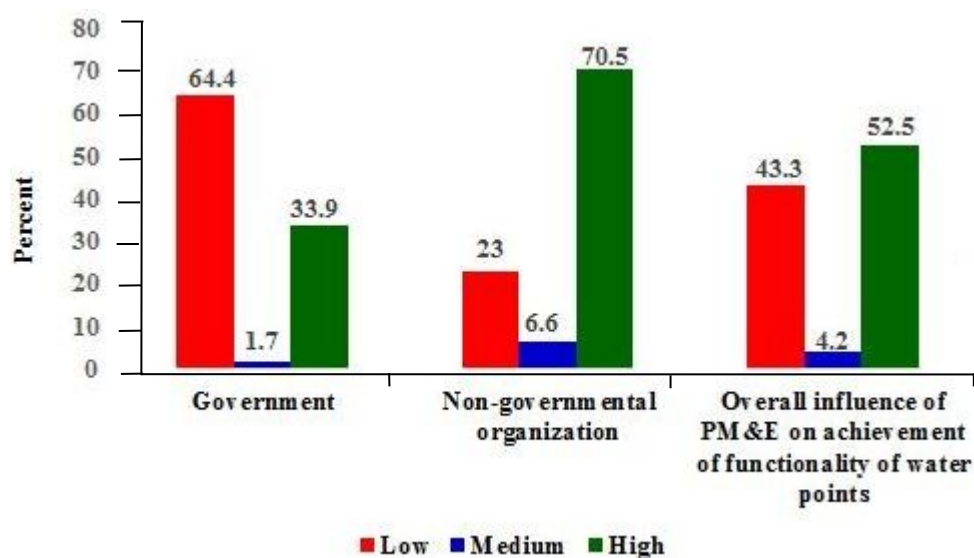


Figure 3.4: The overall influence of PM&E in ensuring functionality of water points.

The results also show that PM&E enabled water availability through involvement in meeting to receive feedback about status of water project implementation, involvement in meetings to make decisions on issues related to water projects, involvement in paying water fees and involved in repairing water pumps in non-governmental projects (Table 3.7). This is attributed to adoption of project management practices in most development projects funded by non-governmental organizations including community-based water projects (Golini *et al.*, 2015).

Based on columns of strongly disagree and disagree of government project, 50.9% and 74.6% of the respondents reported that involvement in meeting to receive feedback about status of water project and involvement in meeting to make decisions on issues related to water project were not effective in achieving water availability. This was in line with information provided during FGDs that although sometimes beneficiaries were involved in meetings concerning water projects, final decisions were largely made at district level. As reported by Tan *et al.* (2012), the results of this study imply poor effectiveness of PM&E in

involving local communities in decision making of community-based water projects in governmental relative to non-governmental funded projects.

Table 3.7: Influence of PM&E in ensuring water availability (n=120)

Statement	Project	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Involvement in meetings to receive feedback about status of water project implementation has promoted awareness on ensuring water availability	Government	5(8.5)	25(42.4)	0(0.0)	14(23.70)	15(25.4)
	Non-governmental	6(9.8)	2(3.3)	3(4.9)	46(75.4)	4(6.6)
Involvement in meetings to make decisions on issues related to project enhanced water availability	Government	5(8.5)	39(66.1)	0(0.0)	14(23.7)	1(1.7)
	Non-governmental	9(14.8)	11(18.0)	0(0.0)	24(39.3)	17(27.9)
Involvement in paying water fees sensitizes strongly on ensuring availability of water projects	Government	6(10.2)	11(18.6)	0(0.0)	25(42.4)	17(28.8)
	Non-governmental	5(8.2)	1(1.6)	0(0.0)	28(45.9)	27(44.3)
Involvement in repairing of water pumps has led to water availability	Government	6(10.2)	25(42.4)	0(0.0)	11(18.6)	17(28.8)
	Non-governmental	9(14.8)	1(1.6)	0(0.0)	16(26.2)	35(57.4)

Note: Numbers in brackets are percentages

Overall, the extent of effectiveness of PM&E on achievement of water availability is shown in Figure 3.5. The results show that 63.3% of the respondents showed high influence of PM&E in enhancing water availability. This is attributed to non-governmental water projects in which PM&E was effective relative to governmental community-based water projects. Participation of primary beneficiaries in managing water projects ensures security for daily operation of water points hence promotes water availability (Brown *et al.*, 2012).

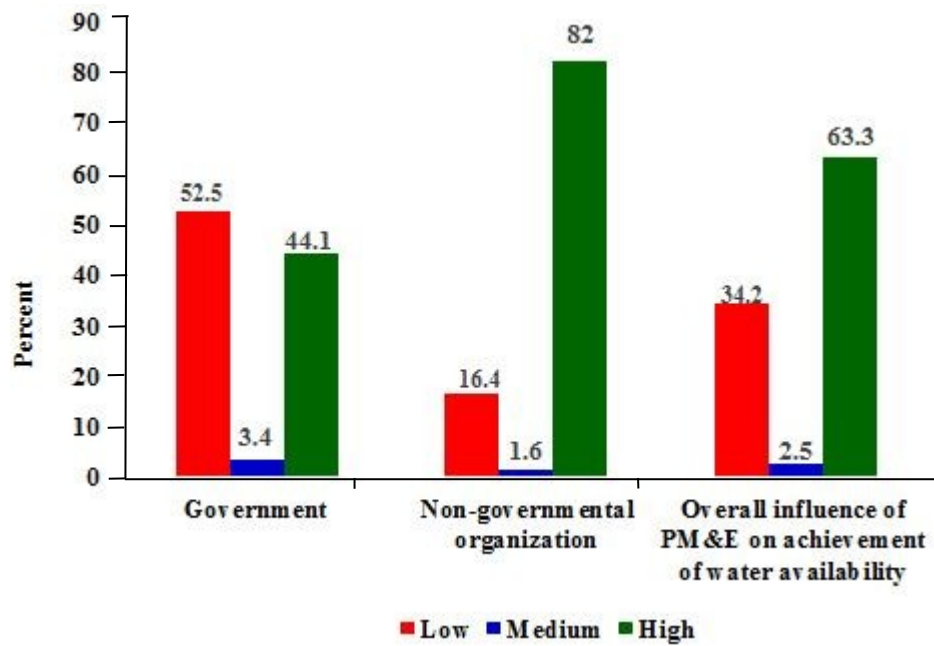


Figure 3.5: Extent of influence of PM&E on achievement of water availability

Table 3.8 presents respondents' responses on effectiveness of PM&E in reducing time used by women and girls to collect water. Overall, the columns for agree and strongly agree for both government and non-governmental projects show that involvement in meeting to receive feedback on progress of water project implementation and involvement in meeting to make decisions related to water project reduced time used by women and girls to collect water for domestic use. However, based on column of strongly disagree and disagree of government project, 59.3% and 70% of the respondents reported that involvement in paying water fees and involvement in repair of pumps did not reduce time used by women and girls to collect water. This is because of dependency on technical support from government officers in fixing project problems, which most of time take long time to be solved. Hence during the waiting period women spent many hours to fetch water. This can also be explained that local communities did not participate fully in repairing water pumps used in water points in government projects. This was a responsibility of government officers.

Table 3.8: Influence of PM&E on reducing time used by women and girls to collect water (n=120)

Statement	Project	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Involvement in meetings to receive feedback about status of water project implementation has created awareness on reducing time used by women and girls to collect water	Government	2(3.4)	27(45.8)	0(0.0)	28(47.5)	2(3.4)
	Non-governmental	8(13.1)	1(1.6)	0(0.0)	18(29.5)	34(55.7)
Involvement in meeting to make decisions related to water project facilitated in reducing time used by women and girls to collect water	Government	0(0.0)	2(3.4)	2(3.4)	28(47.5)	27(45.8)
	Non-governmental	8(13.1)	5(8.2)	0(0.0)	19(31.1)	29(47.5)
Involvement in paying water fees sensitizes strongly on reducing time used by women and girls to collect water	Government	31(52.5)	4(6.8)	1(1.7)	8(13.6)	15(25.4)
	Non-governmental	6(9.8)	5(8.2)	0(0.0)	18(29.5)	32(52.5)
Involvement in repair of pumps has led to reducing time used by women and girls to collect water	Government	6(10.2)	30(50.8)	0(0.0)	7(11.9)	15(25.4)
	Non-governmental	2(3.4)	5(8.2)	0(0.0)	17(27.9)	37(60.7)

Overall, the extent of effectiveness of PM&E on reducing time used by women and girls to collect water is shown in Figure 3.6. The results show that 64.2% of the respondents showed high effectiveness of PM&E in reducing time used by women and girls to collect water for domestic use. The effectiveness was higher for non-governmental compared to governmental water projects. This is because non-governmental funded water projects engage communities in managing water projects. Allowing communities' participation in managing water projects promotes accountability in ensuring daily operations of water points that allow project sustainability hence lead to reduction of time spend by women in collecting water (Artyushevskaya, 2014).

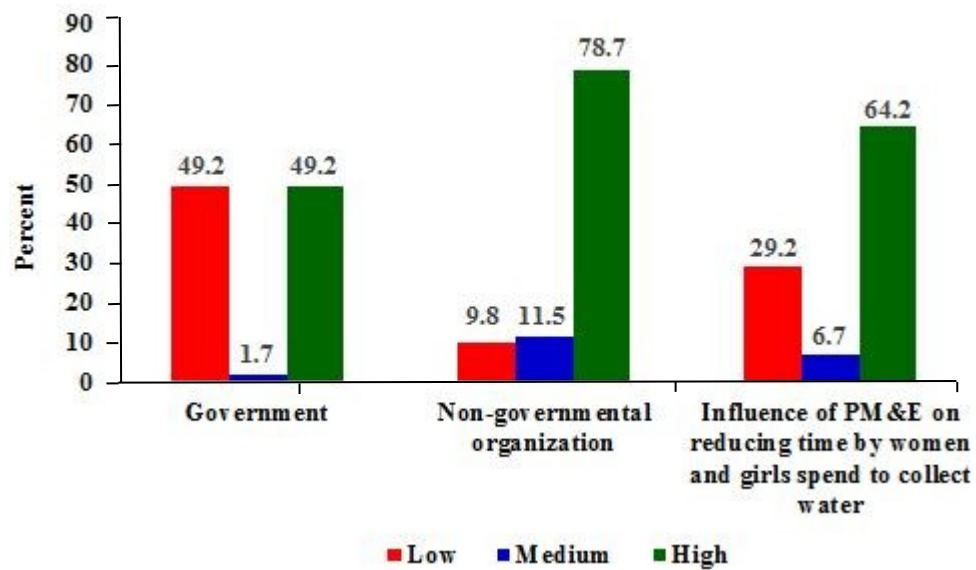


Figure 3.6: Extent of influence of PM&E on achievement of reducing time used by women and girls to collect water

3.4.5 Overall influence of PM&E on achievement of community-based water projects

Table 3.9 presents differences of effectiveness of PM&E on achievement of community-based water projects based on low, medium and high categories. Using the Kruskal Wallis H Test, the results show that there was statistically significant difference in effectiveness of PM&E for governmental and non-governmental water projects ($P \leq 0.05$). This shows that effectiveness of PM&E in achievement of community-based water projects differed based on three responses: low, medium and high. This implying majority reported high effectiveness of PM&E. Literature shows that such results are determined by various factors including the way local communities are involved during project implementation, monitoring and evaluation (Mthoko and Khene, 2018).

Table 3.9: Overall Influence of Participatory Monitoring and Evaluation on Achievement of Community-Based Water Projects (n=120)

Category	n	Median	Chi-square	Df	P-value
Government					
Low	35	12			
Medium	3	15	34.883	2	0.000
High	21	18			
Total	59				
Non-governmental					
Low	18	14			
Medium	3	16	45.172	2	0.000
High	40	18			
Total	61				

This is in line with information provided by key informant who reported that:

“Community participation is linked to source of project fund. For us, community participation lead to project sustainability due to a greater sense of ownership and responsibility for project activities by beneficiaries” (Project Officer, at Goodneighbor Tanzania, October 19, 2018).

This implies that stakeholders are willing and able to mobilize and commit local resources to continue some or all of the project activities even when the external support has ended hence will lead to achievement of project objectives (Aaltonen and Kujala, 2010). This was also reported in FGDs that community participation in M&E was effective in achievement of water projects.

“There is continuous functionality of water points as water users themselves taking responsibilities of repairing them through their initiatives even if it’s not technically, but through raising up their voices to responsible people” (FGD participant, at Chanhumba Village, October 11, 2018).

3.5 Conclusions and Recommendations

The main objective of this chapter was to determine effectiveness of Participatory Monitoring and Evaluation (PM&E) on achievement of community-based water projects. Based on the results and discussion it is concluded that water projects, more so non-governmental projects achieved targeted objectives in maintaining water points functional; increasing water availability and reducing time spent by women and girls to collect water for domestic use. However, capacity building, one of the water projects' objectives, was not achieved by governmental and non-governmental projects. Secondly, overall, effectiveness of participatory monitoring and evaluation on achievement of community-based water projects was high, more so in non-governmental water projects. Adoption of PM&E for governmental community-based water projects is recommended to improve achievement of the projects. Focus should be on capacity building among local communities so that local communities can manage the projects in absence of external support. This is a policy issue that needs serious efforts at all levels of the government to enhance sustainability of community-based water projects.

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CHAPTER FOUR

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

4.1.1 Participatory monitoring and evaluation strategies and activities

The first objective of this study was to assess strategies and activities used in participatory monitoring and evaluation of water projects in Chamwino District. The results showed that strategies used in PM&E are most associated with establishment of water structures for project supervision such as Village Water Committees and Community Water Supply Organizations (COWSOs), Water Agents and capacity building. In addition, the most activities implemented during PM&E in water projects include supervision and monitoring of project revenues, repairing water pumps, paying for water services, contribution of capital and operation and maintenance costs and forming and electing water user committee.

4.1.2 Levels of people's participation in monitoring and evaluation

The objective number two was to establish levels of people's participation in monitoring and evaluation. The study concludes that there is higher participation in M&E in non-government water projects relative to government water projects. Men participated more compared to women because most of the decisions concerning project matters are made by men hence discouraging women to participate actively due to lack of decision-making power.

4.1.3 Factors that affect participatory monitoring and evaluation practices in community-based water projects

The third objective of this study was to assess factors affecting implementation of PM&E in community-based water projects. The study concludes that factors affecting PM&E

include social factors, financial factors, technological factors and political factors. In addition, the source of fund and time in which the projects have been implemented had impact on implementation of PM&E.

4.1.4 Levels of achievement of project objectives

The fourth objective was to establish the levels of achievement of water project objectives. The study concludes that achievement of community-based water projects was high due to implementation of appropriate stakeholder engagement, management and communication strategies that create sense of ownership among stakeholders over the projects.

4.1.5 Effectiveness of participatory monitoring and evaluation on achievement of water projects' objectives

The last specific objective of this study was to determine effectiveness of participatory monitoring and evaluation on achievement of water projects' objectives. The chapter concludes that PM&E showed significant contribution on achievement of water project achievement. In addition, the study concludes that there was significant relationship between participation of beneficiaries in M&E and achievement of water projects objectives. The influence of PM&E on achievement of community-based water projects was high in non-government water projects relative to government water projects because of higher level of participation of beneficiaries in monitoring and evaluation.

4.2 Recommendations

Based on the above conclusions the study recommends the following:

- (i) The District Authorities and other water stakeholders should establish mechanism on how to make water users participate effective and have more power and control over implementation of strategies and activities in PM&E.
- (ii) The study recommends gender mainstreaming in water resources management. This will help to include women concerns and experiences in monitoring and evaluation of water projects.
- (iii) Water policy makers in cooperation with other water development agencies should establish initiatives to eliminating the challenges that constraints implementation of PM&E.
- (iv) The study also recommends that the local government should develop appropriate stakeholder engagement strategies in water project. Since the experience has shown to be more effective in non-governmental funded projects in achieving water projects objectives.
- (v) Nevertheless, the study recommends that establishment of COWSOs where there are village councils and village water committees.

4.3 Areas for Further Study

The study suggests that further empirical research has to be conducted in order to determine the factors affecting enhancement of human capacities in managing water projects at local level. The study will generate knowledge for policy planning and implementation process related to participatory monitoring and evaluation.

APPENDICES

Appendix 1: Questionnaire for Individual Survey

Section A: Background Information

Respondents' Demographic and Socio-economic Characteristics

Questionnaire No..... Date of Interview.....

DivisionWard.....
Village.....

Hamlet.....

1. Name of respondent.....
2. Relationship to the HH Head..... [1=Head of Household, 2=Spouse, 3=Son, 4=Daughter, 5= Others (specify).....]
3. Age of the respondent.....years
4. Sex of respondent..... [1= Male, 2= Female]
5. Marital Status of Respondent..... [1= Married, 2= Single, 3= Divorced, 4= Widowed/Widower, 5= Others (specify).....]
6. Level of education of respondent..... [1= No formal education, 2=Primary education, 3= Secondary education, 4= Tertiary education]
7. Main occupation of the respondent

S/N	Main Occupation	
(i)	Farming	
(ii)	Livestock keeping	
(iii)	Small scale business	
(iv)	Employee in the public sector	
(v)	Employee in the private sector	
(vi)	Others (specify)	

8. What the total number of people in the household?.....

9. Who is the head of household?[1= Male, 2= Female]

Section B: Water Project information

10. What water project exist in the community?

- (i) Mechanized scheme [electrical/diesel engine] []
- (ii) Solar powered Water borehole []
- (iii) Community water well []
- (iv) Others (specify).....

11. What is the source of water of the mentioned project above?

- (i) Groundwater []
- (ii) Ponds []
- (iii) Rainy water []
- (iv) Others (specify).....

12. What is the mode of ownership of the project?

- (i) Owned by the community member) []
- (ii) Owned by non-governmental organization) []
- (iii) Owned by government []

13. How long since the water project began?

- (i) 0-1year []
- (ii) 2-5 years []
- (iii) 6-10 years []
- (iv) More than 10 years []

14. Does the water project provides enough water to satisfy your daily household uses?

- (i) Yes [] (ii) No []

Section C: Strategies and Activities for Participatory Monitoring and Evaluation

15. Are you involved in any of the community based water project mentioned in Qn 10?

(i)Yes [] (ii) No []

16. If the answer is yes in Qn. 11, what activities do you perform?

(i) Paying for water services delivery []

(ii) Providing labour and the materials []

(iii) Contributing to capital and operation and maintenance costs []

(iv) Forming or electing water user committees []

(v) Others (specify).....

17. Are you aware of the M&E practices of water projects in your village?

(i)Yes [] (ii) No []

18. If YES which among the following M&E practices you often applied in your village?

(i) Field visit and conducting meetings []

(ii) Providing Annual Reports on project's progress []

(iii) Participatory Rural Appraisal in village []

(iv)Others (specify).....

19. Which of the structures listed below work with community based water projects in this area?

(i) Village Water committees []

(ii) Community Water Supply Organizations []

(iii) Non-governmental organizations []

(iv)Village Councils []

(v) (Others (specify).....

20. Was there any established structure responsible for water issues in the village before community-based water projects?

(i)Yes [] (ii) No []

21. If, Yes in Qn 14 which one among the following?
- (i) Village Water committees []
 - (ii) Community Based Water Supply Organizations []
 - (iii) Village Council []
 - (iv) Others (specify).....
22. Is there any water agent who is responsible for operating and managing water project?
- (i)Yes [] (ii) No []
23. If No in Qn 17, who is responsible for operating and managing water project?
- (i) Village Water committees []
 - (ii) Community Based Water Supply Organizations []
 - (iii) Village Council []
 - (v) Others (specify).....
24. How often are you involve in the village water committee meetings?
- (i) Once per month []
 - (ii) Once after every three months []
 - (iii) Once per year []
 - (iv)None []
 - (v) Others (specify).....
25. Is there any arrangement for capacity building from anyone in the community on how to manage your project?
- (i) Yes [] (b) No []

Section D: Participation in the Community Based Water Project

26. In each of the following statements please indicate if you are participating or not. Then show the extent of participation or involvement.

S/No	Statement	Strongly Disagree (1)	Disagree (2)	Not Sure (0)	Agree (3)	Strongly Agree (4)
i	Involved in designing M&E framework					
ii	Involved in designing tools for data collection to track progress of water projects					
iii	Involved in data collection					
iv	Involved in analyzing information					
v	Involved in meeting to receive feedback about status of project from implementation					
vi	Involved in meetings to make decisions on issues related to the project					
vii	Involved in electing water committee leaders					
viii	Involved in providing labour and materials					
ix	Involved in paying water fees					
x	Involved in contributing to capital and operation and maintenance costs (repairing water pumps)					
xi	Involved in meetings to receive financial report on project revenue and expenses					
xii	Other (Specify)					
	Sub total					
	Grand total					

Section E: Factors that affect Participatory Monitoring and Evaluation

27. Who is implementing the project?

(i) Government []

(ii) Non-governmental organization (specify name)
[]

28. Does the implementer mention above in Qn 26 work together with community?
 [1= Yes, 2=No]

29. Who is responsible for supervising and monitoring the above mentioned village water projects?

(i) Village government (water users committee/COWSCO []

(ii) Officers from District Council []

(iii) Officers from Non-governmental Organization []

(iv) Others (specify).....

30. What is the general condition of Monitoring and Evaluation of water projects in the village?

(i) Good []

(ii) Fair []

(iii) Bad []

31. Are there any challenges in implementing M&E practices in water projects in the village?

(i) Yes [] (ii) No []

32. If YES in Qn 31, which among the following could be the possible challenges?

(i) Low budgetary allocation in M&E practices []

(ii) Shortage /absence of technical and professional staffs of M&E []

(iii) Low level of stakeholder (community) participation in implementation of M&E []

- (iv) Limited role played by the government with regard to M&E regulation []
- (v) Poor information collected on the progress of the project from village water committees []
- (vi) Others (specify)

33. Is there any trained community resource person responsible to repair water pumps (if any)?

- (i) Yes [] (b) No []

34. If the answer is no in Qn 28, who is responsible for repairing water pumps?

- (i) Officers from District []
- (ii) Officers from Non-governmental organization []
- (iii) Private individuals []
- (iv) Others (specify).....

Section F: Extent of Achievement of Project Objectives

35. The following question is intended to investigate the extent which each of the following project objectives has been achieved. Thus, you are required to indicate whether project have achieved or not the intended objectives (1= Yes, 2=No). After that, you are required to respond by choosing one of the indicated levels of achievement for a particular statement. Afterward, in each objective indicate the extent of achievement.

S/No	Project Objective	(1=Yes 2= No)	Extent of achievement (5=Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1=Strongly Disagree)
1	Capacity building of local communities to manage water projects		
2	Functionality of water points (pumps)		
3	Increased water availability		
4	Reduced time spent by women and girls to collect water for domestic use		
	Sub Total		
	Grand Total		

Section G: Influence of Participatory Monitoring and Evaluation on achievement of Water Project Objectives

36. The following question is intended to investigate the extent in which involvement in PM&E has contribute in achieving water project objectives. Thus, you are required to indicate whether it has contributed on not in achieving the intended objectives. (1= Yes, 2=No). After that, you are required to respond by choosing one of the indicated levels of achievement for a particular statement

a) Capacity building of local communities to manage Community Based Water Projects

S/N	Statement	(1= Yes 2= No)	Extent of achievement (5=Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1=Strongly Disagree)
i	Involvement in meetings to receive feedback about status of water project implementation has created awareness on water management		
ii	Involvement in meetings to make decisions on issues related to project enhanced capacity in water management		
iii	Involvement in paying water fees sensitizes strongly on managing water projects		
iv	Involvement in repair of pumps has led to participation on water project management		
	Sub total		
	Grand total		

(b) Functionality of water point

S/N	Statement	(1= Yes 2= No)	Extent of achievement (5=Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1=Strongly Disagree)
I	Involvement in meetings to receive feedback about the project from implementers has created awareness on how to improve function of water projects		
Ii	Involvement in meetings to make decisions on issues related to project enhanced functionality of water projects		
Iii	Involvement in paying water fees sensitizes strongly promoting functionality of water projects		
Iv	Involvement in repair of pumps has led functionality of water projects		
	Sub total		
	Grand total		

(c) Increased water availability

S/N	Statement	(1= Yes 2= No)	Extent of achievement (5=Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1=Strongly Disagree)
i	Involvement in meetings to receive feedback about status of water project implementation has promoted awareness ensuring water availability		
Ii	Involvement in meetings to make decisions on issues related to project enhanced water availability		
Iii	Involvement in paying water fees sensitizes strongly on ensuring availability of water		
Iv	Involvement in repair of pumps has led to water availability		
	Sub total		
	Grand total		

(d) Reduced time used by women and girls to collect water

S/N	Statement	(1= Yes 2= No)	Extent of achievement (5=Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, 1=Strongly Disagree)
I	Involvement in meetings to receive feedback about status of water project implementation has created awareness on reducing time used by women and girls to collect water		
Ii	Involvement in meetings to make decisions on issues related to water project facilitated in reducing rime used by women and girls to collect water		
Iii	Involvement in paying water fees sensitizes strongly on reducing time used by women and girls to collect water		
Iv	Involvement in repair of pumps has led to reducing time used by women and girls to collect water		
	Sub total		
	Grand total		

THANK YOU FOR YOUR COOPERATION

Appendix 2: Check list for Key Informants (Non-governmental organization officers, government officials)

1. What strategies do you use to ensure that water users are involved in implementing water projects?
2. What activities do water users participate in implementing the water projects?
3. What are the objectives of your water project?
4. To what extent each of the objective has been achieved? Please provide evidence of achievement of each objective
5. What issues affect involvement of the water users in the project implementation?
How?
6. What changes have been occurred in each project objective following involvement of the water users in project implementation?

Appendix 3: Checklist for Focus Group Discussion (Water community based committee leaders and water users association)

1. What community based water projects are implemented in this village?
2. What activities do water users participate in implementing community based water projects?
3. Who is responsible to implement the community based water projects in this village?
4. What other stakeholders/structures are involved in implementing the projects?
5. How each of the stakeholders mentioned in Qn 4 involved in the implementation of the project (explore the roles and achievement so far)?

Appendix 4: Reliability analysis on level of participation in monitoring and evaluation

Statement	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Involved in designing M&E Framework	29.73	65.374	.724	.901
Involved in designing tools for data collection to track progress of water projects	29.62	61.446	.828	.894
Involved in data collection	29.36	62.568	.827	.894
Involved in analyzing information	29.30	62.632	.802	.896
Involved in meetings to receive feedback about status of project implementation	29.00	62.218	.891	.890
Involved in meetings to make decisions on issues related to project	29.11	61.408	.893	.890
Involved in electing water committee leaders	28.76	68.050	.731	.902
Involved in providing labour and materials	28.75	67.819	.758	.900
Involved in paying water fees	27.51	82.639	.803	.932
Involved in contributing to capital, operation and maintenance costs	27.98	77.109	.221	.926
Reliability Statistics				
Cronbach's Alpha				N of Items
.913				10

Statement	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Total Correlation	Cronbach's Alpha if Item Deleted
Extent of achievement of capacity building of Local communities to manage water projects	10.21	9.175	.626	.854
Extent of achievement of Functionality of water points	9.45	8.317	.718	.817
Extent of achievement of increasing water availability	9.00	9.445	.766	.807
Extent of achievement in Reducing time spent by women and girls to collect water for domestic use	8.47	8.016	.743	.806
Reliability Statistics				
Cronbach's Alpha				N of Items
.860				4

Statement	Scale Mean if Deleted	Item Scale Variance if Deleted	Corrected Total Correlation	Item-Cronbach's Alpha if Deleted
Involvement in meetings to receive feedback about status of water project implementation has created awareness on water management	48.67	256.695	.501	.959
Involvement in meetings to make decisions on issues related to water project enhanced awareness capacity in water management	48.44	245.963	.787	.954
Involvement in paying water fees sensitizes strongly on managing water projects	48.28	235.092	.848	.953
Involvement in repair of pumps has led to participation on water project management	48.16	244.034	.728	.955
Involvement in meetings to receive feedback about the project from implementers has created awareness on how to improve function of water project	48.35	252.952	.642	.957
Involvement in meetings to make decisions on issues related to project enhanced functionality of water projects	48.74	257.756	.562	.958
Involvement in paying water fees sensitizes strongly on promoting functionality of water projects	47.93	244.557	.729	.955
Involvement in to repairing of water pumps has led to functionality of water projects	48.15	238.582	.848	.953
Involvement in meetings to receive feedback about status of water project implementation has promoted awareness on ensuring water availability	47.84	246.622	.754	.955
Involvement in meetings to make decisions on issues related to project enhanced water availability	48.28	249.264	.630	.957
Involvement in paying water fees sensitizes strongly on ensuring availability of water projects	47.59	242.244	.773	.954
Involvement in to repairing of water pumps has led to water availability	47.63	236.220	.844	.953
Involvement in meetings to receive feedback about status of water project implementation has created awareness on reducing time used by women and girls to collect water	47.68	239.764	.863	.953
Involvement in meetings to make decisions related to water project facilitated in reducing time used by women and girls to collect water	47.79	240.771	.840	.953
Involvement in paying water fees sensitizes strongly on reducing time used by women and girls to collect	47.68	244.470	.767	.955

Statement	Scale Mean if Deleted	Item Scale Variance if Deleted	Corrected Total Correlation	Item- Cronbach's Alpha if Deleted
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Involvement in meetings to make decisions on issues related to project enhanced water availability	48.28	249.264	.630	.957
Involvement in paying water fees sensitizes strongly on ensuring availability of water projects	47.59	242.244	.773	.954
Involvement in to repairing of water pumps has led to water availability	47.63	236.220	.844	.953
Involvement in meetings to receive feedback about status of water project implementation has created awareness on reducing time used by women and girls to collect water	47.68	239.764	.863	.953
Involvement in meetings to make decisions related to water project facilitated in reducing time used by women and girls to collect water	47.79	240.771	.840	.953
Involvement in paying water fees sensitizes strongly on reducing time used by women and girls to collect	47.68	244.470	.767	.955

Statement	Scale Mean if Deleted	Item Scale Variance if Deleted	Corrected Total Correlation	Item-Cronbach's Alpha if Deleted
Involvement in meetings to receive feedback about status of water project implementation has created awareness on water management	48.67	256.695	.501	.959
Involvement in meetings to make decisions on issues related to water project enhanced awareness capacity in water management	48.44	245.963	.787	.954
Involvement in paying water fees sensitizes strongly on managing water projects	48.28	235.092	.848	.953
Involvement in repair of pumps has led to participation on water project management	48.16	244.034	.728	.955
Involvement in meetings to receive feedback about the project from implementers has created awareness on how to improve function of water project	48.35	252.952	.642	.957
Involvement in meetings to make decisions on issues related to project enhanced functionality of water projects	48.74	257.756	.562	.958
Involvement in paying water fees sensitizes strongly on promoting functionality of water projects	47.93	244.557	.729	.955
Involvement in to repairing of water pumps has led to functionality of water projects	48.15	238.582	.848	.953
Involvement in meetings to receive feedback about status of water project implementation has promoted awareness on ensuring water availability	47.84	246.622	.754	.955
Involvement in meetings to make decisions on issues related to project enhanced water availability	48.28	249.264	.630	.957
Involvement in paying water fees sensitizes strongly on ensuring availability of water projects	47.59	242.244	.773	.954
Involvement in to repairing of water pumps has led to water availability	47.63	236.220	.844	.953
Involvement in meetings to receive feedback about status of water project implementation has created awareness on reducing time used by women and girls to collect water	47.68	239.764	.863	.953
Involvement in meetings to make decisions related to water project facilitated in reducing time used by women and girls to collect water	47.79	240.771	.840	.953
Involvement in paying water fees sensitizes strongly on reducing time used by women and girls to collect	47.68	244.470	.767	.955

