

**FACTORS AFFECTING SUSTAINABILITY OF WATER SUPPLY  
PROJECT IN THE RURAL AREAS IN TANZANIA: A CASE STUDY OF  
MASWA DISTRICT COUNCIL**


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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
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MANAGEMENT  
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**CERTIFICATION**

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a dissertation titled: *“Factors Affecting Sustainability of Water Supply Project in the Rural Areas in Tanzania: A Case Study of Maswa District Council”*, in partial fulfilment of the requirements for the degree of Master of Project Management of the Open University of Tanzania.

  
.....

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Date

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.....

Signature

.....

Date

**DEDICATION**

To my late father Mathias James Luhamba Madulu.

## **ACKNOWLEDGEMENT**

It is not an easy task to stand tall, but by the grace of God, I am what I am. The accomplishment of this dissertation is the result of tremendous contributions made by many people. First and foremost, my sincere and great appreciation goes to my supervisor Dr Raphael Gwahula, he has been an open mentor, and made my hardwork to be fruitful.

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## ABSTRACT

The study assessed the factors affecting the sustainability of water project services in Tanzania a case of Maswa District in Simiyu Region. The study was guided by the following specific objectives: to assess economic factors affecting community participation in the management of water supply projects, to examine social factors affecting community participation in the management of water supply projects, and to evaluate institutional factors affecting community participation in the management of water supply projects. The study employed mixed research approach; in which case study design was employed. The sample size used was 99 respondents. The study employed a simple random and purposive sampling design. Findings revealed that there was a lack of consensus on the impact of earning status, mixed views on economic status alignment, and differing perceptions regarding community life standards. There was a belief in social well-being and accountability, and a majority agreed that community members are held accountable for their actions. Community collaboration was reported by a majority, but some disagreed or held neutral views, indicating varying levels of engagement. Regarding institutional factors, respondents expressed overall satisfaction with the functioning of the project, although some concerns or challenges were raised. The study concludes that economic, social, and institutional factors all play a role in shaping community participation, but there are varying perceptions and perspectives among community members. The study recommends that there is a need to strengthen social accountability mechanisms within the community to foster a culture of responsibility and transparency. This can be achieved through regular community meetings, awareness campaigns, and the establishment of feedback mechanisms

**Keywords:** *Sustainability, Water Supply Project, Rural Areas, Maswa District Council*

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**LIST OF ABBREVIATIONS**

CBWSO	Community-Based Water Supply Organization
MDC	Maswa District Council
NSGRP	National Strategy for Growth and Reduction of Poverty
NWP	National Water Policy
NWSDS	National Water Sector Development Strategy O&M Operation and Maintenance
RUWASA	Rural water Supply and Sanitation Agency
SPSS	Statistical Packages for Social Scientists
URT	United Republic of Tanzania
VEO	Village Executive Officer
WEO	Ward Executive Officer
WPPM	Water Planning Project and Management
WSDP	Water Sector Development Program



## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Chapter Overview**

This chapter consists different parts including background to the study, statement of the problem, general and specific objectives, research questions, significance of the study, limitations and delimitations of the study.

#### **1.2 Background of the Study**

Community Based Projects (CBPs) play a pivotal role in addressing common challenges and fostering development within communities. These initiatives encompass a range of projects designed to tackle diverse issues, including ensuring access to clean water, improving community health, alleviating poverty, promoting human rights and peace, managing natural resources, and adapting to climate change. Such projects hold the promise of bringing lasting solutions and optimism to communities in need, particularly those in rural areas that constitute a significant portion of the population in developing countries (Smith, 2022). While CBPs are intended to be sustainable, the achievement of this goal has encountered considerable hindrances.

Globally, a staggering 750 million individuals lack access to safe water, with approximately one in nine people deprived of this basic necessity. The magnitude of this crisis becomes evident when considering that more than twice the population of the United States faces water scarcity (Brown & Johnson, 2022). The dreadful consequences of inadequate water access are exemplified by the estimated 842,000

annual deaths from diseases caused by insufficient drinking water, sanitation, and hand hygiene. Disturbingly, 82% of those missing improved water sources reside in rural areas, underscoring the pressing issue faced by these communities (Johnson & Kamau, 2022).

Of the Earth's total water reserves, 97% comprises salt water, leaving a mere 3% as fresh water. However, the majority of this fresh water is locked in polar icecaps, while only a fraction – less than 1% – is readily reachable for human use (Johnson & Kamau, 2022). The global volume of stored groundwater is a subject of uncertainty, varying estimates ranging from 15.3 to 60 million kilometers. Groundwater sources contribute around 20% of global water use, with this share progressively increasing, particularly in arid regions. Projections indicate a 50% surge in water withdrawals by 2025 in developing nations and an 18% increase in developed countries. Terrifyingly, over 80% of wastewater globally remains untreated or uncollected, with urban areas serving as significant sources of pollution.

Several Asian countries, including Iraq, Uzbekistan, Pakistan, Turkmenistan, and Syria, struggle with severe water shortages. These shortages are attributed to a complex interplay of environmental, political, social, and economic factors. The United Nations has reported that water use has overtaken population growth over the last century. A warming planet compounds the challenge of ensuring stable and ample water supplies (Harris, 2019). By 2020, aggressive action is imperative to prevent a water shortage crisis in Asia, where over half the continent is comprised of arid regions (Harris, 2019).

Africa faces a similarly dire situation, with the lowest total water supply coverage globally. Around 300 million individuals lack access to safe water, and approximately 313 million lack proper sanitation facilities. These scarcities exact a significant toll on both the health and economic development of African nations (Hassan, & Ngowi, 2023). Despite efforts to achieve Millennium Development Goal targets, progress remains slow, indicating a pressing need for improved water and sanitation solutions (Smieja, 2011). By 2030, estimates suggest that between 75 million and 250 million Africans may live in high-water stress areas, potentially resulting in widespread displacement (Johnson, & Kamau, 2022).

Water supply and sanitation challenges also persist in Tanzania. Despite sector reforms initiated in 2002 and significant budget increases, sustainability remains a demanding issue. Water infrastructure often depreciates without replacement, leading to interrupted supply. While community-owned water supply organizations have been established in rural areas, the question of sustainability persists, tied to factors such as community willingness to contribute to costs, participation, and knowledge and skills (United Nations Development Programme. 2022). The importance of addressing these challenges is emphasized by the vital role water plays in rural communities' survival.

Knowledge of the degree of sustainability and the contributing factors for rural water supply projects is limited. Despite the fact that water is most important for the human being survival still there is low sustainability of water projects in rural areas. Water scarcity is both a natural and a human-made phenomenon (United Nations Development Programme. 2022). There is enough freshwater on the planet for

serving people but it is distributed unevenly and too much of it is wasted, polluted and unsustainably managed. The number of innovations has been made in order to help the community to access safe and clean water for their consumption (Mrema & Nyirenda, 2022). Those innovations include installation of the community water points, enactments of the Tanzania water policy and its regulations, and decentralize water services provision by the local government authorities. These policy and strategies have increased the accessibility of water near by the community members especially in the rural areas where the majority are living. Therefore, it is timely to conduct this study for the assessment of factors affecting water supply in rural areas in Maswa district.

### **1.3 Statement of the Problem**

The Community Based Projects are meant to be sustainable with implication of delivering positive impacts beyond the funding support. Tanzania like other developing countries, have been positively impacted by community-based projects efforts (NBS, 2019). The CBPs are planned for a certain period of time after which they come to an end while the community is expected to continue running the project and make them self-sustaining. While this is expected to be vivid, in Tanzania sustainability of community-based projects is referred as a major issue for many implementing agencies and beneficiaries. Adequate domestic water supply is necessary for a productive life among residents in the world. However, most people have been experiencing acute water shortage due to limited water supply mechanisms in their community (Idd and Nuhu, 2018; Chumbula, 2016). These shortages have exposed local communities to vulnerability to threats such as water

borne disease, waste of time and distance finding water and therefore affect local productivity (United Nations Development Programme. 2022). Despite the substantial resources invested in many districts in Tanzania, such as Maswa District to ensure provision of safe water, still there is a significant number of water points that are non-functional. The total number of water points in Maswa district are 540 where the functional water points are 367 which is equal to 68% and non-functional water points are 173 which is equal to 32% (NBS, 2021).

Water projects sustainability is important because the projects which lack the proper sustainability will increase the shortage water which will leads to the outbreak of water borne diseases like cholera and typhoid. However, it will reduce the economic production and development because the time that is spent in looking for water from the close distance place will be used to find water from the far distance places because of the destruction of the water projects which are close with the community (United Nations Development Programme. 2022).

The rate at which rural areas in Maswa are supplied with water varies from one place to another, but most rural areas in Tanzania face a similar challenge especially on the sustainability of the water services supplied through these projects in Maswa district where this study is expected to be conducted, there are several efforts in supplying piped water. Statistics indicates that, in some wards like Sangamwalugesha, Lalago and Sayusayu in Maswa district, the number of un-functional water points is even alarming which resonates at the rate of 9, 12 and 16 respectively among the available water points amounting to 14, 16 and 16 for those wards respectively, The

percentage of non-function water point in Sangamwalugesha is 64%, Lalago is 75%, and Sayusayu is 0%. However, the use of local community decision-making and capacity to direct and define the character of an intervention is notably encouraged by participatory theory. It is through this rate of dysfunctional water points this study is going to be conducted trying to address the question of sustainability of water supply in rural communities amidst public private partnership (PPP) program which insists community participation in development programs to increase their sustainability (United Nations Development Programme. 2022).

#### **1.4 Objectives of the Study**

Research objectives categorized into two categories namely; general objective and specific objectives.

##### **1.3.1 General Objective**

The general objective of this study was to assess the factors affecting sustainability of water project services in Tanzania specifically Maswa District in Simiyu Region.

##### **1.3.2 Specific Objectives**

The study specifically guided by the following research objectives

- i) To assess economic factors affecting community participation on the management of water supply project.
- ii) To examine social factors affecting community participation on the management of water supply project.
- iii) To evaluate institutional factors affecting community participation on the

management of water supply project.

#### **1.4 Research Questions**

The study was guided by the following research questions

- i) What are the economic factors affecting community participation on the management of water supply project?
- ii) What are the social factors affecting community participation on the management of water supply project?
- iii) What are the institutional factors affecting community participation on the management of water supply project?

#### **1.5 Significance of the Study**

The study is about sustainability of rural water supply project in Tanzania, a case of Maswa District in Simiyu Region. Therefore, this study is important in; Firstly, exploring the specific measures to reduce water shortage in Tanzania, specifically, Maswa district.

Secondly, the study will also benefit the community members who are the beneficiaries of water projects by ensuring sustainability of water in the district.

Thirdly, the findings will pave way for improvement in the implementation of projects something which will make them sustainable and beneficial to the community members.

Fourthly, the researcher will also benefit from the study as the study will assist in meeting the requirements of the award of Master of Project Management of Open University of Tanzania.

### **1.6 Scope of the Study**

The scope of this study revolves around the sustainability of Community Based Projects (CBPs), with a particular focus on water supply projects, in Tanzania, notably in Maswa District. Community-based projects are designed to deliver long-term positive impacts beyond their initial funding support, and their sustainability is of paramount importance. In Tanzania, like many other developing countries, community-based projects have played a significant role in addressing various societal needs.

### **1.7 Organization of the Chapters**

The study is structured into several chapters and subsections, each contributing to a comprehensive understanding of the research topic. Chapter one serves as an introduction to the study, encompassing key components such as the study's background, the statement of the problem, research objectives, research questions, significance of the study, and an outline of the research organization.

Chapter two provides a thorough review of relevant literature, covering aspects like the definition of terms, theoretical and empirical literature review, and the conceptual framework that underpins the study.

Chapter three is dedicated to research methodology and design. It begins with an



introduction, followed by discussions on research measurements, data collection design, research paradigm/philosophy, research methods and approaches, data types, the study area, population, sample, sample size, sampling procedures, and the reliability and validity of data. This chapter also addresses data management, editing, coding, tabulation, data analysis methods, and the expected results of the study.

Chapter four delves into the analysis of collected data and offers a platform for discussing the research findings and their implications. The final chapter, chapter five, provides a summary of the study's key findings, conclusions drawn from the research, and practical recommendations based on the study's outcomes.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Chapter Overview**

This chapter presents the literature reviewed for this study. The chapter covers theoretical and empirical review of literature. The empirical review assessed studies on sustainability of water project services. The last part of the section presents the conceptual framework.

#### **2.2 Conceptual Definition of Key Concepts**

##### **2.2.1 Concept of Sustainability**

The term "sustainability" originates from the Latin word "sustainer" (Smith, 2022). The word "sustain" encompasses notions of "maintaining," "supporting," or "enduring." Since the 1980s, the term "sustainability" has predominantly been associated with the idea of ensuring the enduring well-being of humanity on planet Earth. This perspective has led to the widely cited definition of sustainability within the framework of "sustainable development" (Brown & Johnson, 2022). In this study, sustainability entails progress that fulfills present-day requirements while safeguarding the ability of future generations to fulfill their own needs with regard to water supply.

##### **2.2.2 Concept of Rural Area**

A rural area is a geographical region situated beyond the confines of cities and towns. Characteristically, rural areas exhibit a sparse population density and consist

of modest settlements (Brown & Johnson, 2022). In this study, rural area will refer to an area situated beyond the confines of towns and cities boundaries.

### **2.2.3 Concept of Water Supply**

Water supply involves the provision of water, typically facilitated by public utilities, commercial entities, communal initiatives, or individuals, often through a network of pipes and pumps. It's important to distinguish irrigation, which is treated separately. In the context of Tanzania, certain trends have been observed: a decline in access to improved water sources during the 2000s, particularly in urban regions; relatively consistent access to some form of sanitation, hovering around 93% since the 1990s; intermittent availability of water; and generally subpar service quality (Johnson, & Kamau, 2023). Many service providers struggle to cover their operational and maintenance expenses due to inadequate tariffs and inefficiencies. Notable regional disparities exist, with Arusha and Tanga emerging as the most proficient utilities.

In response, the Tanzanian government initiated a comprehensive sector reform process in 2002. This endeavor culminated in the adoption of an ambitious National Water Sector Development Strategy (NWSA) in 2006. The NWSA emphasizes integrated water resources management and the expansion of both urban and rural water supply networks. A shift towards decentralization has resulted in the transfer of responsibilities for water and sanitation services to the Rural Water Supply and Sanitation Agency (RUWASA). These services are now overseen by 90 urban utilities and Community-Based Water Supply Organizations (CBWSOs) in rural areas, guided by the Water Supply and Sanitation Act of 2019.

#### **2.2.4 The Concept of Project**

A project is a meticulously planned endeavor designed with a distinct objective, such as the acquisition of information or the creation of something novel. Typically, projects demand a substantial investment of time and resources and entail methodical and deliberate efforts extended over an extended duration (Kerzner, 2013). In this study, project will refer to a planned scheme that is designed with different objectives to achieve sustainability of water supply in rural areas.

### **2.3 Theoretical Review**

The study employed two theories (the theory of participatory and the theory of change) where the participatory theory stands as the main theory and the theory of change act as the supporting theory.

#### **2.3.1 The Participatory Theory**

The concept of participatory theory was formulated by Buchy (2000). This theory extensively addresses community-based projects, positing that the active involvement of key stakeholders in a given project can significantly amplify its enduring impact. In a parallel vein, Hassan & Ngowi, (2022) defines participation as the comprehensive engagement of the local populace and, occasionally, additional stakeholders in the conception, content, and execution of programs or policies aimed at altering their lives. This definition is grounded in the belief that citizens are sufficiently empowered to shape their own destinies.

As a result, the participatory theory underscores the value of collective engagement among all stakeholders, particularly emphasizing the utilization of local

communities' decision-making process and capabilities to guide and delineate the character of an intervention.

A potent asset of this theory lies in its widespread recognition, bordering on an honorary status, which occasionally leads to its casual use devoid of a profound understanding. This casual application can lead to its misuse, reducing it to a tool for instrumental purposes rather than fostering genuine transformative change. To classify the varying degrees of participation, several typologies have emerged to illustrate the continuum.

However, the theory is not immune to shortcomings. Despite its numerous merits, the participatory theory is limited by the contextual specificity of its methodologies. Critics contend that participation imposes unrealistic demands on individuals, who often contend with more immediate and pressing obligations.

In due regard, the participatory theory, originated by Buchy and further elucidated by Jennings, underscores the pivotal role of stakeholder engagement, particularly within local communities, in catalyzing meaningful project outcomes. While its acknowledgment is a strength, its potential misappropriation and contextual constraints present challenges to its effective implementation.

### **2.3.2 Theory of Change (TOC)**

The concept of the Theory of Change was pioneered by Weiss (2005). This theory delineates the requisites of projected beneficiaries and the strategies that facilitate their fulfillment. These strategies form a framework for establishing links between an

organization's mission, project strategies, and tangible outcomes. Simultaneously, they interconnect project implementers, the enacted strategies, and the ultimate project results. The Theory of Change elucidates fundamental aspects of project sustainability, outlining prescribed actions, essential strategies for achieving enduring project effects, and the desired outcomes. Employing the Theory of Change in the execution of community-based projects provides an avenue to ensure a shared comprehension of anticipated outcomes and the contributions of project staff, the community, and other pivotal stakeholders toward effecting this change (United Nations Development Programme, 2023).

Moreover, the Theory of Change guided the researcher in comprehending the variables and factors that determine the project's sustainability within the research domain. By acquiring this crucial knowledge, the researcher is empowered to gauge the project's outcomes and juxtapose them with the original intentions, thereby identifying relative changes. Consequently, this study conscientiously embraced the Theory of Change as the foundation for assessing the sustainability of diverse projects in the study area, primarily by examining projected results and the resultant impact.

Strengths of the theory: The Theory of Change is particularly advantageous for research projects, as research often exerts influence on policy and practice through nonlinear, iterative trajectories. Deliberating how research evidence might be communicated, adopted, and implemented by stakeholders in varying national contexts from the outset can bolster the design of the entire research process and

optimize its potential for generating impact.

Weaknesses of the theory: There is a possibility of the Theory of Change becoming overly simplified, excessively intricate, or conceptually flawed, with arrows connecting conceptual elements in ways that may not be feasible. Furthermore, the theory might unveil challenging or unexpected findings.

## **2.4 Empirical Review**

### **2.4.1 Social Factors**

Kaminyonge (2018) conducted a study aimed at assessing citizen participation in decision-making through village statutory meetings within the local government authorities of Tanzania, focusing on the case of the Mbarali District Council. The study's findings revealed a noticeable deficiency in citizen engagement when it comes to decision-making. This shortfall predominantly stems from the irregular and inadequate scheduling of statutory meetings across many villages. Furthermore, a range of other factors were identified as barriers to community involvement in decision-making processes. These encompass a lack of awareness regarding the significance of attending statutory meetings, deficiencies in leadership, and a dearth of constructive feedback from higher administrative tiers. These challenges collectively contribute significantly to the limited community participation observed in village statutory meetings.

World Bank (2015) conducted a study that unveiled the utilization of community participation as an instrumental strategy in the implementation, operation, and management of rural water supply projects, aimed at fostering overall development.

A specific instance of this approach can be observed in Yemen, where a study conducted by the World Bank in 2004 highlighted the success of projects in rural areas that were undertaken by the Food and Agriculture Organization (FAO) using a community participation framework. This approach resulted in the successful operation and maintenance of these projects over a span of 23 years. Yemen stands out as a noteworthy exemplar among various nations, particularly in the realm of rural water supply projects, for effectively embracing and executing the principles of community participation over the past three decades.

Boru (2017) conducted a study focusing on the factors influencing community ownership of water projects within rural areas of Kenya. The study's findings indicated a noteworthy correlation between successful project implementation and effective community leadership. Additionally, the study emphasized that maximal engagement of community leadership is essential for ensuring the sustainability of rural water supply projects, particularly in terms of operation and maintenance.

As per FAO's findings (2018), development within rural areas is propelled by community participation facilitated through efficient communication. Communication serves as a tool to enhance the quality of decision-making, community mobilization, and overall awareness. It also plays a pivotal role in knowledge-sharing and influencing positive changes in lifestyle patterns.

#### **2.4.2 Economic Factors**

In June 2010, a research paper authored by Prof. Deepti et al. in Indonesia delved



into the subject of water supply and sanitation for low-income communities. The project's focus was on enhancing water supply and sanitation conditions within some of Indonesia's most impoverished rural communities. The initiative aimed to provide improved access to safe and reliable water supply and sanitation facilities, coupled with hygiene and sanitation education, with the overarching goals of enhancing community health and productivity. To ensure comprehensive involvement, community participation was actively encouraged throughout all project phases, encompassing design, implementation, and maintenance (United Nations Development Programme 2022).

A mid-term review of the project reported a satisfactory level of consumer contentment with aspects such as water supply quality and quantity, system functionality, system management, and planning decisions. The project yielded substantial progress in water access for rural communities, extending its impact to over 3 million people in 1,999 villages across Indonesia. Notably, water accessibility saw remarkable improvement in all targeted villages, significantly reducing the time and effort required to fetch water, particularly in challenging terrains.

The contemporary landscape of water resource management is marked by mounting pressures on water resources, escalating interdependencies among users, the uncertainties linked to climate change, the integration of modern precision technology, and the escalating demands for dependable water services. These factors contribute to the increasing complexity of water resource management. Consequently, a crucial query emerges: How can stakeholders be best equipped to

manage water demands amid intensifying competition and interdependency? This concern holds particular significance for agriculture, which ranks as the largest global water user, grappling with the task of securing adequate water resources to meet the needs of a growing global population and effectively managing the ecological consequences of its practices (Mrema, & Nyirenda, 2022).

In line with a decentralized approach, the National Water Policy (NWP) of 2002, the National Water Sector Development Strategy for 2006-2015, and the Water and Sanitation Act of 2009 laid the groundwork for devolving the management of (rural) water points. The Water and Sanitation Act of 2009 vested ownership of rural water facilities and resources at the grassroots level, within the communities (SNV, 2012). The responsibility for management was designated to a Community-Based Water Supply Organization (CBWSO). The water policy mandated that CBWSOs be registered with the District Council, which retained a regulatory role. While larger capital investments were the responsibility of the district, CBWSOs assumed accountability for minor investments, such as repairs and maintenance costs. Consequently, a mechanism for collecting funds for water services from the users was established (URT, 2002). The underlying principle behind this fund collection was to ensure that water supply infrastructure is promptly and effectively repaired and maintained, thereby guaranteeing continued service provision and the sustainability of service delivery (Mrema, & Nyirenda, 2022).

### **2.4.3 Institutional Factors**

In 2017, Sarvaes and Liu conducted a study highlighting the pivotal role of

communication as a mediating or central factor that contributes to and facilitates societal development. Effective communication is shown to catalyze the transformation of individuals within society, shifting them from a self-centered, deficit model of development towards a collective and community-focused model of appreciation and participation.

In 2018, Baboon's research centered on community participation within the context of policy formulation and implementation in Mauritius, specifically examining the Port Louis local government authority. The study employed various data collection instruments, including interview questions, observation schedules, and survey questionnaires. The findings underscored the significance of community participation in policy formulation and application as a key driver of public service prosperity in Mauritius. However, it was revealed that community participation within local government authorities faces substantial constraints due to existing control mechanisms. Additionally, the study illuminated the limited extent of community involvement at the Port Louis local government authority.

A separate study conducted by Shayo in 2018 emphasized the essential nature of managing organizational resources in rural development projects for successful project implementation. The management of resources, as highlighted by Dukeshire and Thurlow (2002), necessitates collaboration between project facilitators and community leadership to foster good governance and transparency.

## **2.5 Research Gap**

The existing studies have shed light on various social factors that influence community participation in water project management. Kaminyonge (2018) identified challenges such as the lack of timely statutory meetings, awareness, leadership weaknesses, and feedback mechanisms that hinder citizen participation in decision-making. However, there is a research gap in understanding the potential interplay between social cohesion and community participation. While challenges have been identified, there is a need to investigate how social cohesion within communities can either facilitate or hinder community involvement in decision-making processes. Exploring the role of social networks, trust among community members, and social capital in shaping participatory practices can offer a deeper understanding of the dynamics that affect community engagement in water project management (Kaminyonge, 2018).

Additionally, the studies mention the importance of effective communication in facilitating community participation (FAO, 2018). However, further research could delve into the effectiveness of different communication strategies in encouraging and sustaining community involvement. Understanding which communication methods are more successful in reaching different demographics within the community and how information dissemination can be tailored to address local needs and preferences would be beneficial for enhancing community participation in water projects (FAO, 2018).

Furthermore, while the studies provide insights into community leadership's role in

successful project implementation (Boru, 2017), there is a research gap in understanding how leadership structures and processes can be strengthened to promote sustainability. Investigating the factors that influence community leadership's capacity to effectively manage and maintain water supply projects would be valuable in developing strategies to maximize community involvement in the operation and maintenance of water projects (Boru, 2017).

Addressing these research gaps contributed to a more comprehensive understanding of the social dynamics that impacted community participation in water project management. The findings informed the design of targeted interventions and strategies that aimed to promote more effective and inclusive community engagement, with the ultimate goal of improving the sustainability and impact of water projects in Maswa District.

## **2.6 Conceptual Framework**

The sustainability of rural water supply in Maswa District is influenced by a multitude of factors. For the purpose of this study, three distinct factors have been conceptualized and intertwined with sustainability: community participation, community awareness and willingness to contribute to the water management fund, and the community's capacity to manage the water supply project effectively.

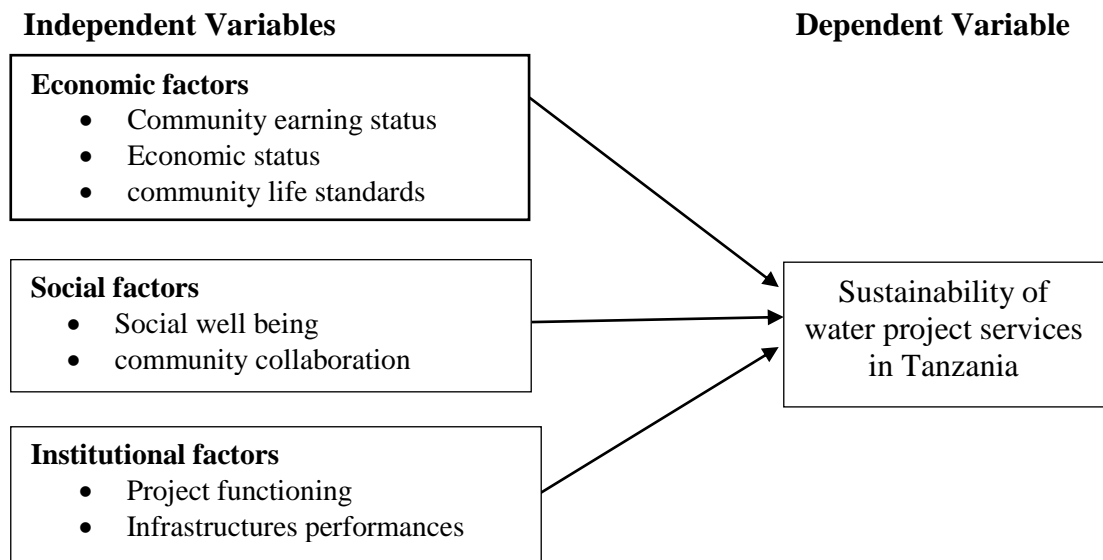
Community participation emerges as a pivotal determinant in ensuring the sustainability of rural water supply. Its significance lies in fostering a sense of ownership and, consequently, commitment to the project. When rural communities

are actively engaged throughout the project's lifecycle, starting from its planning stages and extending to evaluation, a profound understanding and connection to the project develop. The process of participating in decision-making cultivates a sense of ownership and emotional investment, which in turn, holds immense importance for long-term sustainability.

The awareness and willingness of community members to contribute to the water supply fund stands as a crucial pillar of project sustainability. If community members lack awareness or are unwilling to contribute to the project's financial upkeep, the viability of sustainability becomes questionable. Even minor repairs to water infrastructure may become untenable, potentially leading to the project's downfall.

The community's capacity to manage the water supply project encompasses a range of factors, including knowledge and skills in areas like plumbing and related tasks such as metalwork, prevalent within the project area. When such expertise is accessible within rural communities, it facilitates effective maintenance of water infrastructure. The presence of these skills enables prompt intervention whenever issues arise, thereby ensuring the ongoing functionality of the water supply project.

A schematic diagram visually illustrates the intricate relationship between the sustainability of rural water supply and other interrelated variables. This comprehensive framework underscores the multifaceted nature of factors that collectively contribute to the enduring success of water supply initiatives in Maswa District.



**Figure 2.1: Conceptual framework**

**Source:** Researcher (2023)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Chapter Overview**

This chapter presents the research design and methodological approach that will be employed in this study. The sections found in this chapter includes: study approach, design, study area, study population, sampling, data collection methods and instruments, data management, analysis and interpretation as well as ethical issues.

#### **3.2 Research Philosophy**

The research methodology employed a pragmatic approach, chosen for its flexibility and practicality in data collection and utilization. Pragmatism underscores the value of employing diverse methods and approaches to comprehensively address the research problem within a real-world context.

The decision to adopt a pragmatic stance was driven by the recognition that this approach would yield effective exploration and comprehension of the study's intricacies. Rather than adhering rigidly to positivism or realism, pragmatism permitted a blend of quantitative and qualitative methodologies, complemented by personal insights and observations. This multifaceted approach facilitated a holistic grasp of the social dynamics influencing community involvement in water project management (Kothari, 2016).

Embracing pragmatism enabled the researcher to source data from multiple angles and perspectives, encompassing community members, local leadership, and other



stakeholders invested in water projects. This approach further empowered the researcher to incorporate practical considerations into the formulation of interventions and strategies, fostering robust and inclusive community engagement. In essence, the pragmatic approach yielded actionable findings that informed decision-making, enhancing the sustainability and efficacy of water projects in Maswa District.

### **3.3 Study Approach**

The research study employed a mixed methods approach, chosen due to the recognition that neither quantitative nor qualitative methods alone could adequately capture the multifaceted factors impacting the sustainability of water project services in Tanzania, particularly within the context of Maswa District in the Simiyu Region. The utilization of both methodologies was deemed necessary to comprehensively address the research problem, creating a synergistic effect that facilitated a thorough exploration.

By integrating both qualitative and quantitative methods, the study was equipped to delve into every facet of the research problem. This mixed research approach afforded the researcher the opportunity to collect a wealth of information, encompassing both qualitative insights and quantitative data, thereby yielding a more comprehensive understanding of the intricate issues at play.

Kothari & Gaurav Garg (2014) aptly proposed that research approaches should be combined in a manner that optimally addresses crucial research questions. Indeed,

the mixed methods approach proved instrumental in tackling inquiries that might have remained unanswered when solely relying on either qualitative or quantitative methods. This holistic strategy enabled a more comprehensive elucidation of trends, generalizations, and participants' perspectives, thereby contributing to a deeper comprehension of the subject matter.

The qualitative component of the study empowered the researcher to conduct in-depth exploration and cultivate a nuanced comprehension of participants' thoughts, emotions, and behaviors regarding the factors influencing water project services' sustainability in the specified context. This method was particularly adept at capturing rich and detailed verbal responses, enriching the dataset.

On the other hand, the quantitative approach facilitated the establishment of quantifiable data. This facet of the research entailed the presentation of collected information in the form of frequencies, tables, percentages, and figures, enabling a structured and analytical representation of the findings (Kothari & Gaurav Garg, 2014).

### **3.4 Study Design**

This research study employed a case study research methodology. As highlighted by Cohen et al. (2007:253), the case study approach was chosen to enable the observation of effects within authentic contexts, acknowledging the potent influence of context on both causality and outcomes. Consequently, the case of Maswa was selected as the specific context for examination. Cohen et al. (2007) further validated

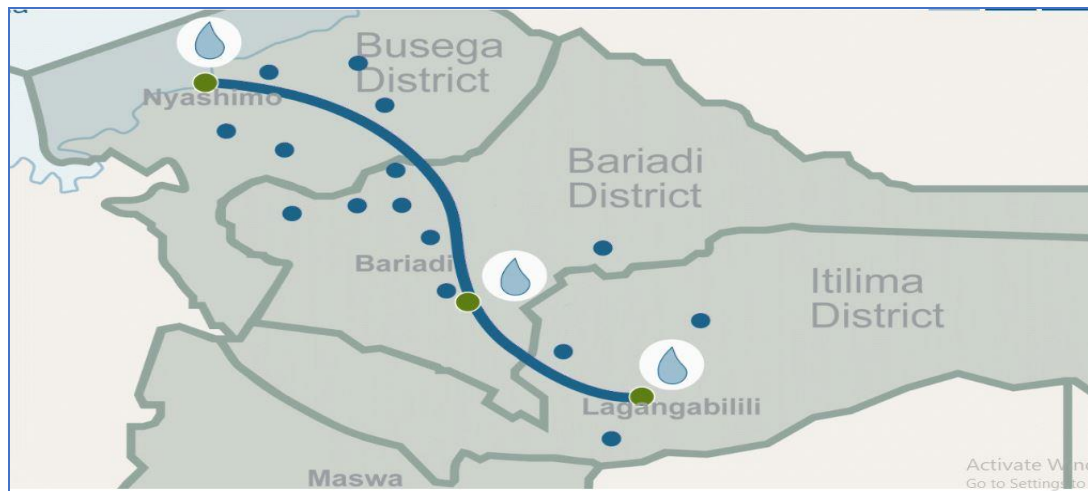
the adoption of the case study approach due to its focus on individual actors or groups, aiming to comprehend their perspectives on various events. Additionally, Schell (1992) endorsed the case study design for its capacity to capture the comprehensive essence of real-life occurrences while investigating the empirical events.

Aligned with this rationale, the research delved into the strategies' planning and implementation within the domain of Maswa District. Through this case study, a comprehensive exploration of the factors impacting sustainability within the district's water project services was undertaken.

### **3.5 Study Area and Context**

The study was conducted at Mswa district council. The district seat was at Maswa. The majority of the residents of Maswa are Wasukuma from the Sukuma tribe and spoke Sukuma along with Swahili. Most of the residents were engaged in the subsistence farming of cotton, rice, sweet potatoes, cassava, millet, or maize.

The study was based on Maswa district because the water projects were not sustainable compared to other districts such as Bariadi, Itilima, and Busega, which had started to implement a big project called "The Simiyu Climate Resilience Project supports the Tanzanian government in its aim to provide 90% of the rural population with enough water by 2025," in contrast to Maswa District, which covered 68% of boreholes (Simiyu Region Profile, 2017).



**Figure 2.2: Study area and context**

Nonetheless, the selection of Maswa as the study location was influenced by considerations of financial and temporal feasibility for the researcher. Furthermore, a scarcity of existing literature addressing the factors impacting the sustainability of water project services in Tanzania, particularly within Maswa District in the Simiyu Region, prompted this specific choice. Additionally, the researchers' familiarity with the study area played a pivotal role in the decision-making process, underscoring the significance of these factors in shaping the data collection process.

### **3.6 Study Population**

The term "target population" pertains to the extensive group from which the researcher aims to draw generalizable conclusions based on the study's outcomes (Kothari, 2004). Specifically, as outlined in the Maswa District Report of 2023, the institution in question encompasses a total of 17,191 employees. Given this substantial number, these diverse groups of participants are anticipated to furnish ample and comprehensive insights into the research problem at hand.

### 3.7 Sample and Sampling Procedures

#### 3.7.1 Sample

Regarding the sample size, a total of 99 participants will be involved in this study. The sample will encompass distinct categories, namely the Water Management Officer, Ward Executive Officers, Village Executive Officer, and Household Members. Opting for a sample size that corresponds to the entire population, in this case, the total population, offers several advantages in terms of efficiency, representativeness, reliability, and flexibility (Kothari, 2004). Furthermore, the chosen sample size has been deemed advantageous due to its facilitation of accessibility, ease of management, and cost-effective data collection by the researcher.

**Table 3.1: Study Participants Distribution**

S/N.	Respondents	Frequency
1.	Water Management Officer	3
2.	Ward Executive Officers	3
3.	Village Executive Officer	7
4	Household Members	86
	Total	99

**Key:** HODs= Heads of Departments.

So the sample sizes of the study will be 99 respondents, the formula suggested by Curry (2006) was employed to get actual sample size as follows:

$$n = N / (1 + Ne^2)$$

Where

n = sample size

N = population size

$e$  = confidence interval (10percent)

The selected villages have an estimated population of 17,191 where the population in those three villages are 4,822, 6,852 and 5,517 respectively. By using Yamane formula, the sample sizes for this study were:

$$n = N / (1 + Ne^2)$$

$$n = 17191 / (1 + 17191 * 0.1 * 0.1)$$

$$n = 17191 / (1 + 171.91)$$

$$n = 17191 / 172.91$$

$$n = 99 \text{ respondent}$$

Therefore, the sample size for this study was 99 who chosen proportionally from the selected employee and house hold.

### **3.7.2 Sampling Procedures**

#### **3.7.2.1 Simple Random Sampling**

In conducting this study, the researcher employed the simple random sampling technique. Consequently, the selection of Household Members was executed through the utilization of simple random sampling. Under this approach, the researcher operated under the assumption that each individual possessed equal and independent probabilities of being included as a sample member. This methodological choice was driven by its notable advantage, as the application of simple random sampling enabled the researcher to acquire comprehensive and detailed insights.

In conducting this study, the researcher made use of the simple random sampling technique as a method for selecting household members to be included in the sample.

The process involved ensuring that each individual within the population had an equal and independent chance of being selected as a sample member.

### **3.7.2.2 Purposive sampling technique**

For the inclusion of Water Management Officers, Ward Executive Officers, and Village Executive Officers in this study, a purposive sampling approach was employed. This methodology, as elucidated by Cohen et al. (2000), is well-suited for specific objectives, as it entails the selection of participants based on their judgment of being representative or possessing particular characteristics. Merriam (1998) further accentuates that purposive sampling is guided not by sheer respondent numbers, but rather by the potential of each individual to contribute substantively to the development of insights and comprehension regarding the phenomenon under investigation (Merriam, 1998).

## **3.8 Data Collection Methods**

The study employed interviews, questionnaire and documentary review as data collection methods that assisted the researcher to achieve the study objectives.

### **3.8.1 Interviews**

The study encompassed interviews with directors, department heads, and staff members. Interviews were chosen as the method of inquiry in order to delve into the participants' emotions, attitudes, and perspectives regarding the research problem. To facilitate this, the researcher devised and employed an interview guide, as advocated by Bryman (2004). Interviews proved advantageous due to their inherent flexibility,

allowing the researcher to adapt the approach, sequence, and incorporate probing questions, thus yielding comprehensive and detailed insights into the research issue. Each semi-structured interview spanned a duration of 40 to 60 minutes. Throughout these interviews, detailed notes were taken, and participant consent was sought and obtained as an essential ethical consideration.

### **3.8.2 Questionnaires**

Household Members, who were part of the sample, actively participated by completing questionnaires. The researcher undertook the task of administering and collecting these questionnaires from the selected participants within the sampled institution. The questionnaires were thoughtfully designed to encompass a combination of open-ended and close-ended questions. Open-ended queries allowed participants to freely express their sentiments and share their personal experiences related to the research issue. Conversely, closed-ended questions provided a streamlined and objective means for participants to swiftly respond.

The distribution of questionnaires was orchestrated during respondents' available leisure time. This approach not only accommodated the participants' schedules but also ensured their comfort and ease during the process. Drawing from the insights of Popper (2004), questionnaires were chosen due to their capacity to efficiently amass a substantial volume of information pertinent to the research problem. These questionnaires effectively captured data aligned with all objectives of the study, thereby contributing to a comprehensive investigation. Respondents dedicated approximately 30-45 minutes to complete the questionnaires.



### **3.8.3 Documentary Review**

The documentary review phase of this study encompassed a diverse array of sources, including reports, published materials such as books, journals, articles, directors' records, and files. This comprehensive examination of existing documents facilitated the researcher in effectively addressing all study objectives. By meticulously engaging in this documentary review, the researcher was able to acquire data that provided insightful responses to the research questions revolving around the focal issue under investigation.

### **3.8.4 Data Measurement**

Data management was a meticulous process that began with the design of data collection instruments. These instruments were translated into Swahili to ensure clarity and ease of understanding for study participants. During interviews, a digital recorder and smartphone were employed to capture audio recordings of discussions with various participants. Note-taking also complemented this process, capturing additional responses and insights (Mason, 2002).

The subsequent data analysis followed a content analysis approach, utilizing both manual and social methods. As described by Cole (1988), content analysis involves the systematic examination of written, verbal, or visual communication messages. After the completion of data collection, recorded interviews were transcribed thematically. Each transcript was thoroughly reviewed, with data being condensed into concise, meaningful units while preserving its quality. Codes and themes were then derived, revealing patterns that illuminated challenges pertinent to procurement

performance in the public sector. This analytical process corresponds with Creswell's six steps of qualitative data analysis (2012), where the researcher derives conclusions in an inductive manner, commencing by analyzing transcribed data to develop overarching codes and themes that provide a comprehensive overview.

Furthermore, certain quantitative data collected through questionnaires underwent analysis using Microsoft Excel. The findings were then presented using visual aids such as figures and frequencies. Unfortunately, the continuation of the paragraph regarding Table 3.2 variables and measurements is missing. Please provide the remaining information if necessary.

**Table 3.1: Variables and Measurement**

No	Variables	measurement
	<b>Economic factors</b>	<ul style="list-style-type: none"> <li>• Community earning status</li> <li>• Economic status</li> <li>• community life standards</li> </ul>
	<b>Social factors</b>	<ul style="list-style-type: none"> <li>• Social well being</li> <li>• community collaboration</li> </ul>
	<b>Institutional factors</b>	<ul style="list-style-type: none"> <li>• Project functioning</li> <li>• Infrastructures performances</li> </ul>
	Sustainability of water project services in Tanzania	<ul style="list-style-type: none"> <li>• social needs</li> <li>• economic development</li> <li>• environmental limits</li> </ul>

### 3.9 Types of Measurement

Measurement refers to the systematic procedure of observing and documenting observations as data (Stacks, 2010). In this study, the researcher adopted a dual approach, employing both parametric and non-parametric methods. This decision was driven by the research's incorporation of both quantitative and qualitative methodologies.

### **3.9.1 Parametric**

The chosen approach for this study is quantitative in nature, focusing on the measurement of quantity or amount, specifically involving numerical and standardized data. As a result, the variables incorporated within the conceptual framework were aligned with this quantitative approach.

### **3.9.2 Non Parametric**

The qualitative approach was employed to explore phenomena related to quality, encompassing attitudes, opinions, and behaviors. This methodology facilitated the examination, explanation, and discussion of concepts and ideas. Likewise, this technique was applied to all variables within the conceptual framework, enabling a comprehensive exploration of the research landscape.

## **3.10 Data Management, Analysis and Interpretation**

The data analysis in this study encompassed both qualitative and quantitative methodologies, conducted in two distinct phases. In the initial phase, qualitative data acquired from interviews and documentary reviews underwent qualitative content analysis, guided by the principles of inductive reasoning inherent to qualitative research. This approach enabled the researchers to grasp social realities in a subjective yet scientific manner. The content analysis process, as delineated by Patton (2002) and Best and Khan (2006), was adhered to. Consequently, content and categories/patterns emerged from meticulous examination and continual comparison by the researcher, culminating in meaningful interpretation.

Specifically, the study primarily adopted the directed content analysis approach, in

conjunction with the three stages of content analysis - preparation, organization, and reporting - advocated by Hsieh and Shannon (2005). Following transcription, coding was undertaken to identify key ideas, themes, and to eliminate extraneous data emanating from the participants. The data was subsequently structured for enhanced comprehension, facilitating the derivation of conclusions and the establishment of patterns within an analytical framework.

The subsequent phase of analysis pertained to data gleaned from close-ended questions. This data underwent a rigorous data cleaning process aimed at detecting incomplete, unengaged, missing, or irrational responses to enhance data quality. Descriptive statistics were then applied to elucidate the demographic characteristics of the respondents, including age, gender, educational level, tenure, positions, and more. This preliminary analysis furnished a foundational understanding before embarking on advanced multivariate analysis computations.

### **3.10.1 Correlation Analysis**

In the context of this study, correlation coefficients were employed as a statistical tool to assess the potential linear relationship between the dependent variable and independent variables. To meet the requirements of multivariate analysis, a preliminary Pearson correlation analysis was conducted before engaging in regression analysis. This preliminary step aimed to ascertain whether there existed any linear associations between the variables, including the dependent (DV) and independent (IDV) variables (Hair et al., 2017).

The formulation of multiple regression models hinged upon several key assumptions

intrinsic to regression analysis. Firstly, it was assumed that a linear and additive connection existed between the dependent and independent variables. This assumption posited that the anticipated value of the dependent variable could be expressed as a linear function of each individual independent variable while keeping other variables constant (Berry and Feldman, 1985).

Additionally, the analysis presupposed minimal to no multicollinearity within the dataset. Multicollinearity, characterized by elevated correlations between independent variables, could introduce instability and unreliability into the estimates of regression coefficients (Berry and Feldman, 1985).

Another critical assumption pertained to the uniformity of error variance, also known as homoscedasticity. This entailed that the dispersion of errors remained consistent across all levels of the independent variables. Departures from homoscedasticity had the potential to lead to biased and inefficient coefficient estimates (Berry and Feldman, 1985).

Lastly, regression analysis assumed a normal distribution for error terms. This assumption implied that the errors associated with the response variables were uncorrelated and followed a normal distribution. Any deviations from this normality could impact the validity of statistical inferences and the precision of predictions (Berry and Feldman, 1985).

To encapsulate, the assumptions underlying regression analysis encompassed aspects such as the linearity and additivity of variable relationships, minimal

multicollinearity, consistent error variance, and the adherence to a normal error distribution (Berry and Feldman, 1985). These assumptions served as the bedrock upon which dependable and accurate regression models were constructed.

### 3.10.2 Regression Analysis

The utilization of multiple linear regression analysis served the purpose of substantiating the impact of multiple variables on the sustainability of water project services in Tanzania. The applicability of multiple linear regression hinges on certain prerequisites, including the fulfillment of a normal distribution among variables and the existence of correlations between the constructs that collectively contribute to the model (Anderson et al., 2016). These conditions are essential to ensure the validity and reliability of the regression analysis results. The overall estimate regression model was as follow:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i$$

Where:

Y = Sustainability of water project services in Tanzania

X1 = Economic factors

X2 = social factors.

X3 = institutional factors

$\beta_0$  = Regression constant

$\beta_1 - \beta_3$  = Regression coefficient in the model

e = Error term

### **3.11 Validity and Reliability**

As stated by Kothari (2004), validity pertains to the accuracy and truthfulness of the data and research findings, while reliability signifies that if the research were replicated or employed by an impartial observer using the same methods, identical outcomes or data would be obtained. In order to uphold both validity and reliability, this study employed a triangulation of methods, with data collection tools undergoing pre-testing prior to actual data collection. To bolster the validity and reliability of the findings, several strategies were implemented. These encompassed the utilization of diverse data sources, member validation, and the application of triangulation. The adoption of triangulation ensured the congruity of the findings by integrating distinct methods of data collection and analysis.

By meticulously attending to the principles of validity and reliability, the study aimed to enhance the credibility and dependability of its outcomes, thereby augmenting the potential for the research to yield substantive contributions to the realm of supply chain management.

### **3.12 Ethical Considerations**

When conducting research involving human participants, ethical behavior encompasses being attuned to the rights of all individuals who could potentially be impacted by the research processes. As highlighted by Bulmer (2008), designing a research project entails a consideration of factors like "informed consent, privacy respect, safeguarding data confidentiality, potential harm to both subjects and researchers, and the avoidance of deceit and falsehood." These elements collectively

constitute the framework of ethical behavior in research.

Given the imperatives of ethical conduct, the researcher took several measures. Firstly, a research permit was procured from Open University, which served as an introduction to the institution and endorsed the researcher's activities. Secondly, during the study, a comprehensive document outlining informed consent was formulated. Each participant was given the opportunity to read, comprehend, and sign this document before engaging in the study, thereby ensuring their voluntary participation. Thirdly, the researcher upheld confidentiality by employing pseudonyms to safeguard participants' identities and by committing not to disclose any identifying details, including in the dissemination of findings. To further preserve anonymity, letters were employed to denote the selected institution.

These ethical safeguards underscored the researcher's dedication to upholding the ethical principles integral to the responsible conduct of research involving human subjects.



## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND DISCUSSION

#### 4.1 Introduction

Based on the research purpose and research questions established in Chapter One, this chapter includes findings, analysis, and debate. The information gathered was about factors that affecting sustainability of water project services in Tanzania specifically Maswa District in Simiyu Region.

#### 4.2 Demographic Characteristics of Respondents

**Table 4.1: Demographic characteristics**

Variable	Category	Frequency	Percentage
Gender	Female	28	31
	Male	62	69
Age	18-25	14	16
	26-33	13	14
	34-41	13	14
	42+	50	56
Education Level	Bachelor degree and above	58	64
	Certificate	7	8
	Diploma	15	17
	Primary education	5	6
	Secondary education	5	6

Table 4.1 presents the demographic characteristics of a specific population, providing insights into gender, age, and education level distributions. In terms of gender, the data indicates that the population consists of 28 females, accounting for 31% of the total, and 62 males, representing 69% of the population.

Regarding age distribution, the table reveals that there are 14 individuals, comprising

16% of the population, falling within the 18-25 age bracket. Additionally, there are 13 individuals in the 26-33 age range, making up 14% of the population. However, the percentages for the next two age categories, 34-41 and 42+ (42 and above), are missing, making it difficult to fully assess the age distribution without knowing the total number of individuals in the population.

As for education levels, the data showcases those 58 individuals, constituting 64% of the population, have attained a Bachelor's degree or higher. Furthermore, there are 7 individuals with a Certificate, accounting for 8% of the population. Unfortunately, the percentages for the remaining education level categories, including Diploma, Primary education, and Secondary education, are not provided, impeding a comprehensive analysis of the education distribution without the knowledge of the total population size.

#### **4.3 To Assess Economic Factors Affecting Community Participation on the Management of Water Supply Project**

To assess economic factors affecting community participation on the management of water supply project, this was the study's initial research goal. Important information was gathered from the sampled respondents through interviews and questionnaires in order to accomplish this goal. The assignment was to respond to the following research question: "What are the economic factors affecting community participation on the management of water supply project? The following are responses from surveys as when respondents were posed the question, their responses were:

### 4.3.1 Community Earning Status

The question regarding access to community earning status in the firm aimed to assess whether it had an impact on community participation in the management of the water supply project. The data gathered from the surveys related to this question are summarized in Figure 4.7.

**Table 4.2: Community earning status**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	40	44.4	44.4
	Disagree	9	10.0	54.4
	Neutral	32	35.6	90.0
	Strongly agree	5	5.5	95.5
	Strongly disagree	4	4.4	100.0
Total	90	100.0	100.0	

**Source:** Field Data, (2023)

According to the figure, the respondents' answers were categorized into five options: Agree, Disagree, Neutral, strongly agree, and strongly disagree. Each category represents a specific number of participants, and the figure provides the frequencies and percentages for each response.

From the data, it can be observed that 44.4% of the respondents agreed that access to community earning status had an impact on community participation in the management of the water supply project. This suggests that a significant proportion of the participants believed that community earning status influenced community involvement.

On the other hand, 10% of the respondents disagreed, indicating that they did not

perceive access to community earning status as having an impact on community participation. Additionally, 35.6% of the participants chose the neutral option, implying that they neither agreed nor disagreed with the statement.

A smaller percentage of respondents, 5.5%, strongly agreed that community earning status influenced community participation, while 4.4% strongly disagreed with this notion.

The distribution of responses provides insights into the perceptions and opinions of the respondents regarding the relationship between community earning status and community participation. It indicates that there is some variation in the viewpoints, with a significant portion agreeing or strongly agreeing, while others either disagreed or had a neutral stance.

These findings suggest the importance of considering community earning status as a potential factor influencing community involvement in the management of the water supply project. It highlights the need for further exploration and analysis to better understand the reasons behind these responses and their implications for the project's success.

#### **4.3.2 Economic Status**

The purpose of this section was to evaluate the respondents' economic status and gather information pertaining to it. The table provided below summarizes the data collected in this regard.

**Table 4.3: Economic status**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	38	42.2	42.2
	Disagree	16	17.8	60.0
	Neutral	27	30.0	90.0
	Strongly agree	5	5.5	95.5
	Strongly disagree	4	4.4	100.0
	Total	90	100.0	100.0

**Source:** Field Data, (2023)

The responses were categorized into five options: Agree, Disagree, Neutral, strongly agree, and Strongly disagree. Each category represents the number of participants who selected that particular response, and the table presents the frequencies and percentages for each option.

Based on the data, it can be observed that 42.2% of the respondents agreed that their economic status aligned with the statements being assessed. This suggests that a significant proportion of the participants perceived their economic status to agree with the criteria under consideration.

On the other hand, 17.8% of the respondents disagreed, indicating that they did not consider their economic status to align with the statements being evaluated. Additionally, 30% of the participants selected the neutral option, suggesting that they neither agreed nor disagreed with the statements regarding their economic status.

A smaller percentage of respondents, 5.5%, strongly agreed that their economic status was consistent with the statements, while 4.4% strongly disagreed with the given criteria.

The distribution of responses provides insights into the respondents' perceptions of their economic status. It indicates that there is some variation in how individuals view their economic circumstances, with a significant portion agreeing or strongly agreeing, while others either disagreed or had a neutral stance.

These findings highlight the importance of considering the economic status of the respondents when examining the subject matter under investigation. It indicates that participants' economic circumstances may have an impact on their perspectives and experiences related to the topic.

### 4.3.3 Community life standards

The purpose of this section was to assess the respondents' perceptions of community life standards. The table provided below summarizes the data collected through surveys.

**Table 4.4: Community life standards**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	35	38.9	38.9
	Disagree	9	10.0	48.9
	Neutral	29	32.2	81.1
	Strongly agree	5	5.5	86.7
	Strongly disagree	12	13.3	100.0
	Total	90	100.0	100.0

**Source:** Field Data, (2023)

The responses were categorized into five options: Agree, Disagree, Neutral, strongly agree, and strongly disagree. Each category represents the number of participants

who selected that particular response. The table presents the frequencies and percentages for each option.

Based on the data, it can be observed that 38.9% of the respondents agreed that the community life standards align with the statements being assessed. This indicates that a significant proportion of the participants perceive their community to have satisfactory life standards according to the criteria under consideration.

On the other hand, 10% of the respondents disagreed, suggesting that they do not consider the community's life standards to be in line with the statements being evaluated. Additionally, 32.2% of the participants selected the neutral option, indicating that they neither agreed nor disagreed with the given criteria.

A smaller percentage of respondents, 5.5%, strongly agreed that the community's life standards met the statements, while 13.3% strongly disagreed with the criteria.

The distribution of responses provides insights into the respondents' perceptions of community life standards. It indicates that there is some variation in how individuals perceive the quality of life within their community, with a significant portion either agreeing or strongly agreeing, while others disagree or have a neutral stance.

These findings highlight the importance of considering the community's life standards when examining the subject matter under investigation. It indicates that participants' perceptions of their community's quality of life may influence their perspectives and experiences related to the topic.

**Table 4.5: Education status**

	Frequency	Percent	Cumulative Percent
Valid	Agree	47	52.2
	Disagree	8	8.9
	Neutral	27	30.0
	Strongly agree	5	5.5
	Strongly disagree	3	3.3
	Total	90	100.0

**Source:** Field Data, (2023)

The responses were categorized into five options: agree, disagree, neutral, strongly agree, and strongly disagree. Each category represents the number of participants who selected that particular response. The table presents the frequencies and percentages for each option.

Based on the data, it can be observed that 52.2% of the respondents agreed that their education status aligns with the statements being assessed. This indicates that a majority of the participants perceive their education status to be in line with the criteria under consideration.

On the other hand, 8.9% of the respondents disagreed, suggesting that they do not consider their education status to match the statements being evaluated. Additionally, 30% of the participants selected the neutral option, indicating that they neither agreed nor disagreed with the given criteria. A smaller percentage of respondents, 5.5%, strongly agreed that their education status met the statements, while 3.3% strongly disagreed with the criteria.

The distribution of responses provides insights into the participants' perceptions of



their education status. It indicates that there is some variation in how individuals perceive their educational achievements and status, with a majority either agreeing or strongly agreeing, while others disagree or have a neutral stance.

These findings highlight the importance of considering the respondents' educational backgrounds and experiences when examining the subject matter under investigation. The respondents' education status may influence their perspectives, knowledge, and understanding of the topic.

By analyzing the data on education status and the respondents' perceptions, the study gains valuable insights into how education may impact their views and attitudes. This information can contribute to a better understanding of the relationship between education status and the subject matter, assisting in the development of tailored approaches and interventions to address specific educational needs and challenges.

#### 4.3.4 Project Infrastructures

This section of the study aimed to assess the participants' perceptions of project infrastructures. The table provided below summarizes the information collected in this regard.

**Table 4.6: Project infrastructures**

		Frequency	Percent	Cumulative Percent
Valid	Agree	34	37.8	37.8
	Disagree	9	10.0	47.8
	Neutral	25	27.8	75.6
	Strongly agree	18	20.0	95.6
	Strongly disagree	4	4.4	100.0
	Total	90	100.0	

**Source:** Field Data, (2023)

The responses were categorized into five options: Agree, Disagree, Neutral, strongly agree, and Strongly disagree. Each category represents the number of participants who selected that particular response. The table presents the frequencies and percentages for each option.

Based on the data, it can be observed that 37.8% of the respondents agreed that the project infrastructures met the criteria being evaluated. This indicates that a significant proportion of the participants perceive the project infrastructures to be satisfactory or in line with the assessment criteria.

On the other hand, 10% of the respondents disagreed, suggesting that they do not consider the project infrastructures to meet the specified criteria. Additionally, 27.8% of the participants selected the neutral option, indicating that they neither agreed nor disagreed with the given assessment criteria.

A notable percentage of respondents, 20%, strongly agreed that the project infrastructures aligned with the criteria, indicating a high level of satisfaction. Conversely, a smaller percentage, 4.4%, strongly disagreed with the assessment criteria, indicating a significant level of dissatisfaction with the project infrastructures.

The distribution of responses provides insights into the participants' perceptions of the project infrastructures. It suggests that there is variation in how individuals perceive the quality and adequacy of the project infrastructures, with a range of agreement, disagreement, and neutral responses.

These findings highlight the importance of considering the participants' perspectives on the project infrastructures, as their perceptions can influence their overall satisfaction and engagement with the project. Understanding these perceptions can assist in identifying areas for improvement and informing decision-making processes related to project infrastructures.

By analyzing the data on project infrastructures and the participants' perceptions, the study gains valuable insights into the strengths and weaknesses of the infrastructural aspects of the project. This information can contribute to better planning, design, and implementation of future projects, ensuring that the infrastructures meet the expectations and requirements of the stakeholders.

#### **4.3.5 Economic Factors Affecting Community Participation on the Management of Water Supply Project**

Mean and standard deviation as measures of descriptive statistics were used to assess economic Factors Affecting Community Participation on the Management of Water Supply Project. Factors which were assessed include, community earning status, economic status, community life standards, education status and project infrastructures Findings were demonstrated on Table 4.7.

**Table 4.7: Descriptive statistics showing employees benefits mean score**

Variable	N	Minimum	Maximum	Mean	Std. Deviation
community earning status	90	1.00	5.00	2.8951	1.11237
economic status	90	1.00	5.00	3.3519	.64483
education status	90	1.00	5.00	3.4136	.85353
project infrastructures	90	1.00	5.00	3.5926	1.03092

Table 4.7 presents descriptive statistics of four variables related to community

participation in the management of a water supply project. The variables assessed are community earning status, economic status, education status, and project infrastructures. Each variable has a sample size (N) of 90. The table provides information on the minimum and maximum scores, the mean score, and the standard deviation for each variable. For instance, the mean community earning status score is 2.8951 with a standard deviation of 1.11237, indicating moderate variability in the community's earning status.

The economic status has a mean score of 3.3519 and a relatively low standard deviation of 0.64483, suggesting less variation in participants' economic conditions. Similarly, the education status and project infrastructures have mean scores of 3.4136 and 3.5926, with standard deviations of 0.85353 and 1.03092, respectively, demonstrating moderate variability in both variables. These descriptive statistics provide valuable insights into the central tendencies and distribution patterns of the variables, aiding in understanding the economic factors influencing community participation in the water supply project management.

#### **4.3.6 To Examine Social Factors Affecting Community Participation on the Management of Water Supply Project**

This was the study's second research goal, which was to examine social factors affecting community participation on the management of water supply project. Important information from the sampled respondents' interviews and questionnaires was gathered in order to accomplish this goal. What are the social factors affecting community participation on the management of water supply project? When

respondents were asked the question in questionnaires, their responses are as follows:

#### 4.3.7 Social well being

This section of the study aimed to evaluate the respondents' understanding of social well-being and their sense of accountability for their actions within the community.

The table provided below summarizes the findings obtained from the study.

**Table 4.8: Social well-being**

	Frequency	Percent	Cumulative Percent
Valid	Agree	37	41.1
	Disagree	8	8.9
	Neutral	28	31.1
	Strongly agree	5	5.5
	Strongly disagree	12	13.3
	Total	90	100.0

**Source:** Field Data, (2023)

The responses were categorized into five options: Agree, Disagree, Neutral, strongly agree, and Strongly disagree. Each category represents the number of participants who selected that particular response. The table presents the frequencies and percentages for each option.

Based on the data, it can be observed that 41.1% of the respondents agreed that individuals are held accountable for their actions in the community. This suggests that a significant portion of the participants believes in the concept of accountability and acknowledges their responsibility for their behaviors and contributions to the community's well-being.

Conversely, 8.9% of the respondents disagreed with the notion of being held

accountable, indicating a divergence in their perspective on individual responsibility within the community. Additionally, 31.1% of the participants selected the neutral option, indicating a lack of strong agreement or disagreement with the concept of accountability.

A smaller percentage, 5.5%, strongly agreed with the concept, emphasizing their belief in individual accountability. Conversely, 13.3% strongly disagreed, indicating a significant rejection or opposition to the idea of being held accountable for their actions in the community.

The distribution of responses highlights the diverse perspectives and beliefs regarding social well-being and individual accountability within the community. It suggests that there are variations in how individuals perceive their role and responsibility in fostering social well-being.

These findings underscore the importance of promoting a shared understanding of accountability and its impact on social well-being. It also indicates the need for interventions and initiatives that promote a sense of responsibility and encourage active participation in community affairs.

By analyzing the data on social well-being and the respondents' perceptions of accountability, the study gains valuable insights into the participants' attitudes and beliefs. This information can contribute to the development of strategies and policies aimed at enhancing social well-being and fostering a sense of responsibility among community members.

### 4.3.8 Community Collaboration

This section of the study aimed to assess the respondents' level of community collaboration. The table provided below summarizes the findings obtained from the study.

**Table 4.9: Community collaboration**

	Frequency	Percent	Cumulative Percent
Valid	Agree	48	53.3
	Disagree	9	10.0
	Neutral	25	27.8
	Strongly agree	5	5.5
	Strongly disagree	3	3.3
	Total	90	100.0

**Source:** Field Data, (2023)

The responses were categorized into five options: Agree, Disagree, Neutral, strongly agree, and Strongly disagree. Each category represents the number of participants who selected that particular response. The table presents the frequencies and percentages for each option.

According to the data, 53.3% of the respondents agreed that they engage in community collaboration. This indicates a significant portion of the participants actively participate and work together with others in their community to achieve common goals and address shared challenges.

On the other hand, 10.0% of the respondents disagreed with the concept of community collaboration, suggesting a lack of engagement or involvement in collaborative activities. This indicates a potential gap in community participation and

the need for efforts to promote collaboration among community members.

Approximately 27.8% of the participants selected the neutral option, indicating a neutral stance or a lack of strong agreement or disagreement with community collaboration. This suggests a range of perspectives among the respondents, with some being neither actively engaged nor opposed to collaboration.

A smaller percentage, 5.5%, strongly agreed with the concept of community collaboration, emphasizing their strong belief and commitment to working collaboratively with others. Conversely, 3.3% strongly disagreed, indicating a strong opposition to community collaboration.

The distribution of responses highlights the varying levels of community collaboration among the respondents. While a significant portion agrees and actively engages in collaborative efforts, there are also individuals who either disagree or remain neutral. This indicates the presence of different attitudes and behaviors toward community collaboration.

These findings underscore the importance of promoting and fostering community collaboration as it contributes to the overall well-being and development of the community. Collaborative efforts can lead to increased social cohesion, resource sharing, and collective problem-solving.

By analyzing the data on community collaboration, the study provides insights into the respondents' perspectives and behaviors in engaging with their community. This



information can guide the development of strategies and initiatives aimed at promoting and strengthening community collaboration.

#### 4.3.9 Negative Social Cultures

Table 4.13 presents the findings related to negative social cultures as reported by the respondents. The table provides information on the frequencies and percentages of the participants' responses to questions regarding negative social cultures.

**Table 4.10: Negative social cultures**

	Frequency	Percent	Cumulative Percent
Valid	Agree	53	58.9
	Disagree	8	8.9
	Neutral	22	24.4
	Strongly agree	4	4.4
	Strongly disagree	3	3.3
Total	90	100.0	

**Source:** Field Data, (2023)

According to the data, 58.9% of the respondents agreed that negative social cultures exist within their community. This suggests that a significant portion of the participants acknowledged the presence of detrimental cultural practices, norms, or behaviors that have a negative impact on social dynamics and relationships within the community.

On the other hand, 8.9% of the respondents disagreed with the notion of negative social cultures, indicating a perception that such negative aspects are not prevalent or significant in their community. This implies a more positive perspective on the

community's social dynamics and suggests that these individuals perceive the community's culture as generally positive and supportive.

Approximately 24.4% of the participants selected the neutral option, indicating a neutral stance or a lack of strong agreement or disagreement regarding negative social cultures. This suggests a range of perspectives among the respondents, with some neither strongly acknowledging nor rejecting the existence of negative social cultures.

A smaller percentage, 4.4%, strongly agreed that negative social cultures are present in their community, emphasizing their strong belief in the prevalence and impact of detrimental cultural practices or norms. Conversely, 3.3% strongly disagreed, expressing a strong opposition to the existence of negative social cultures within their community.

The cumulative percentages in the table indicate the progressive accumulation of responses. By the end of the table, it can be seen that 58.9% of the respondents agreed or strongly agreed with the presence of negative social cultures, while 67.8% either agreed or disagreed with the notion.

The findings from this table highlight the recognition and awareness of negative social cultures within the community. The data provides insights into the respondents' perspectives on the presence of detrimental cultural practices and their potential impact on social interactions and relationships.

#### 4.3.10 Social Factors Affecting Community Participation on the Management of Water Supply Project

Mean and standard deviation as measures of descriptive statistics were used to assess Social Factors Affecting Community Participation on the Management of Water Supply Project. Factors which were assessed include, social well-being, community collaboration and negative social cultures Findings were demonstrated on Table 4.7.

**Table 4.11: Descriptive statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Social well being	90	1.00	5.00	1.2429	.43191
community collaboration	90	1.00	5.00	1.2714	.44791
negative social cultures	90	1.00	5.00	1.3286	.47309

**Source:** Field data, 2023

The provided table presents descriptive statistics for three variables: social well-being, community collaboration, and negative social cultures, based on a sample size of 90 observations. The minimum and maximum values for each variable range from 1.00 to 5.00. The mean scores indicate that the participants' perceptions in all three areas are relatively low, with social well-being having a mean of 1.2429, community collaboration with 1.2714, and negative social cultures at 1.3286.

Additionally, the small standard deviations for each variable (0.43191, 0.44791, and 0.47309, respectively) suggest that the responses are tightly clustered around the mean, indicating little variability in the participants' opinions. These findings suggest that, in the studied context, the community's overall well-being, collaboration, and perception of negative social cultures are generally low, warranting further

investigation to understand the underlying factors influencing these perceptions and to devise appropriate interventions to address the identified issues.

#### **4.4 To Evaluate Institutional Factors Affecting Community Participation on the Management of Water Supply Project**

This research objective was anticipated to evaluate institutional factors affecting community participation on the management of water supply project. To achieve this objective, important data were obtained through questionnaires and interview with the sampled respondents. The task was to provide answer to the following key research question “What are the institutional factors affecting community participation on the management of water supply project? Thus, the followings were obtained:

##### **4.4.1 Project functioning**

Table 4.14 presents the findings related to the respondents' perceptions of project functioning. The table summarizes the frequencies and percentages of the participants' responses to questions regarding the effectiveness and efficiency of the project.

**Table 4.12: Project functioning**

	Frequency	Percent	Cumulative Percent
Valid	Agree	41	45.6
	Disagree	9	10.0
	Neutral	33	36.7
	Strongly agree	4	4.4
	Strongly disagree	3	3.3
Total	90	100.0	

**Source:** Field Data, (2023)

According to the data, 45.6% of the respondents agreed that the project was functioning well. This suggests that a significant portion of the participants perceived the project to be effective and efficient in achieving its objectives and delivering the desired outcomes.

On the other hand, 10.0% of the respondents disagreed with the notion of the project functioning well, indicating a perception that the project was not performing up to expectations or encountering challenges that hindered its effectiveness. This implies a less favorable perspective on the project's overall functioning and suggests the need for improvements or interventions to address the identified issues.

Approximately 36.7% of the participants selected the neutral option, indicating a neutral stance or a lack of strong agreement or disagreement regarding the project's functioning. This suggests a range of perspectives among the respondents, with some neither strongly affirming nor negating the effectiveness of the project.

A smaller percentage, 4.4%, strongly agreed that the project was functioning well, indicating a high level of confidence in the project's performance and outcomes. Conversely, 3.3% strongly disagreed, expressing a strong belief that the project was not functioning adequately or meeting its intended goals.

The cumulative percentages in the table indicate the progressive accumulation of responses. By the end of the table, it can be seen that 45.6% of the respondents agreed or strongly agreed with the project's functioning, while 55.6% either agreed or disagreed with the notion.

The findings from this table provide insights into the respondents' perceptions of the project functioning. The data can be used to assess the project's effectiveness, identify areas for improvement, and inform decision-making processes related to project management and implementation.

#### 4.4.2 Infrastructures Performances

Table 4.15 provides an overview of the respondents' perceptions regarding the performances of the infrastructures. The table summarizes the frequencies and percentages of the participants' responses, reflecting their opinions on the effectiveness and functionality of the infrastructural components.

**Table 4.13: Infrastructures performances**

	Frequency	Percent	Cumulative Percent
Valid	Agree	37	41.1
	Disagree	9	10.0
	Neutral	36	40.0
	Strongly agree	5	5.5
	Strongly disagree	3	3.3
	Total	90	100.0

**Source: Field Data, (2023)**

According to the data, 41.1% of the respondents agreed that the infrastructures were performing well. This suggests that a significant proportion of the participants perceived the infrastructural elements to be effective in meeting their intended purposes and delivering the expected outcomes.

On the other hand, 10.0% of the respondents disagreed with the notion that the infrastructures were performing well. This indicates a perception that the

infrastructures were not functioning as expected or encountered issues that hindered their effectiveness. These dissenting views highlight potential areas of improvement or concern that require attention to enhance the performance of the infrastructures.

Approximately 40.0% of the participants selected the neutral option, indicating a lack of strong agreement or disagreement regarding the performances of the infrastructures. This suggests a diverse range of perspectives among the respondents, with some individuals neither strongly affirming nor negating the effectiveness of the infrastructural components.

A smaller percentage, 5.5%, strongly agreed that the infrastructures were performing well, expressing a high level of confidence in their functionality and performance. Conversely, 3.3% strongly disagreed, indicating a strong belief that the infrastructures were not performing adequately or meeting the desired standards.

The cumulative percentages in the table 4.13 reflect the progressive accumulation of responses. By the end of the table 0.13, it can be observed that 41.1% of the respondents agreed or strongly agreed with the performances of the infrastructures, while 51.1% either agreed or disagreed with the notion.

The findings from this table provide valuable insights into the respondents' perceptions of the infrastructural performances. This information can be used to evaluate the effectiveness of the infrastructural components, identify areas for improvement, and inform decision-making processes related to infrastructure management and development.

### 4.4.3 Leadership Structures

Table 4.14 presents an overview of the respondents' perspectives on the leadership structures within the context of the study. The table summarizes the frequencies and percentages of the participants' responses, providing insights into their opinions and perceptions regarding the effectiveness and efficiency of the leadership within the organization.

**Table 4.14: Leadership structures**

		Frequency	Percent	Cumulative Percent
Valid	Agree	46	51.1	51.1
	Disagree	8	8.9	60.0
	Neutral	18	20.0	80.0
	Strongly agree	15	16.7	96.7
	Strongly disagree	3	3.3	100.0
	Total	90	100.0	

**Source:** Field Data, (2023)

The data reveal that 51.1% of the respondents agreed with the leadership structures in place. This indicates that a majority of the participants expressed a positive perception of the leadership within the organization, suggesting that they believe the existing leadership is effective in guiding and managing the operations of the organization.

On the other hand, 8.9% of the respondents disagreed with the leadership structures. This signifies that a small proportion of the participants held a negative view of the leadership and felt that it was not effective in fulfilling its responsibilities or providing proper direction and support.

Approximately 20.0% of the participants chose the neutral option, indicating a lack



of strong agreement or disagreement regarding the leadership structures. This suggests a diversity of opinions among the respondents, with some individuals neither strongly endorsing nor criticizing the leadership.

A total of 16.7% of the respondents strongly agreed with the effectiveness of the leadership structures. This suggests that a notable portion of the participants held a strong positive perception of the leadership within the organization, highlighting their confidence in the leadership's capabilities and contributions.

In contrast, 3.3% of the respondents strongly disagreed with the leadership structures. This indicates a strong negative sentiment towards the leadership and suggests that these participants believed the leadership was ineffective or lacking in crucial aspects.

The cumulative percentages in the table 4.14 demonstrate the accumulation of responses. By the end of the table, it can be observed that 51.1% of the respondents agreed or strongly agreed with the effectiveness of the leadership structures, while 60.0% either agreed or disagreed with the notion.

The findings from this table 4.14 provide valuable insights into the respondents' perspectives on the leadership structures within the organization. This information can be used to evaluate the effectiveness of the leadership, identify areas for improvement, and inform decision-making processes related to leadership development and enhancement.

#### 4.4.4 Monitoring and Evaluation

Table 4.15 presents the respondents' perspectives on monitoring and evaluation within the organization. The table provides a summary of the frequencies and percentages of the participants' responses, shedding light on their opinions and perceptions regarding the effectiveness and importance of monitoring and evaluation processes.

**Table 4.15: Monitoring and evaluation**

	Frequency	Percent	Cumulative Percent
Valid	Agree	43	47.8
	Disagree	15	64.4
	Neutral	24	91.1
	Strongly agree	5	96.7
	Strongly disagree	3	100.0
Total	90	100.0	

According to the data, 47.8% of the respondents agreed with the monitoring and evaluation practices. This indicates that a significant proportion of the participants expressed a positive view of the organization's monitoring and evaluation processes, suggesting that they believe these processes are effective in assessing performance, identifying areas for improvement, and ensuring accountability.

On the other hand, 16.7% of the respondents disagreed with the monitoring and evaluation practices. This suggests that a portion of the participants held a negative perception of the organization's monitoring and evaluation processes, indicating their dissatisfaction or lack of confidence in the effectiveness of these practices.

Approximately 26.7% of the participants chose the neutral option, indicating neither

strong agreement nor disagreement with the monitoring and evaluation processes. This suggests a diversity of opinions among the respondents, with some individuals having mixed or uncertain views regarding the effectiveness of these practices within the organization.

A total of 5.5% of the respondents strongly agreed with the importance and effectiveness of monitoring and evaluation. This signifies that a small but notable percentage of the participants held a strong positive perception of the organization's monitoring and evaluation practices, emphasizing their belief in the value and impact of these processes.

Conversely, 3.3% of the respondents strongly disagreed with the monitoring and evaluation practices. This suggests a strong negative sentiment towards the effectiveness or relevance of these processes, indicating that these participants believed the organization's monitoring and evaluation efforts were inadequate or ineffective.

The cumulative percentages in the table 4.15 demonstrate the accumulation of responses. By the end of the table, it can be observed that 47.8% of the respondents agreed or strongly agreed with the monitoring and evaluation practices, while 64.4% either agreed or disagreed with the notion.

The findings from this table 4.15 provide valuable insights into the respondents' perspectives on the monitoring and evaluation processes within the organization.

This information can be used to evaluate the effectiveness of these processes, identify areas for improvement, and inform decision-making processes related to performance assessment and accountability.

#### **4.4.5 Institutional Factors Affecting Community Participation on the Management of Water Supply Project**

Mean and standard deviation as measures of descriptive statistics were used to assess institutional Factors Affecting Community Participation on the Management of Water Supply Project. Factors which were assessed include, project functioning, infrastructures performances, leadership structures and monitoring and evaluation. Findings were demonstrated on Table 4.7.

**Table 4.16: Descriptive statistics of customer satisfaction**

	N	Minimum	Maximum	Mean	Std. Deviation
Project functioning	90	4.00	5.00	4.00	1.317
Infrastructures performances	90	4.00	5.00	3.56	1.459
Leadership structures	90	4.00	5.00	3.18	1.454
Monitoring and evaluation	90	1.00	5.00	2.57	1.438

**Source:** Field data, 2022

Table 4.16 presents the descriptive statistics of customer satisfaction for four variables: project functioning, infrastructures performances, leadership structures, and monitoring and evaluation. The data is based on a sample size of 90 observations. For the variable "project functioning," the customer satisfaction scores range from 4.00 to 5.00, with a mean of 4.00 and a standard deviation of 1.317. Similarly, for "infrastructures performances," the scores range from 4.00 to 5.00,

with a mean of 3.56 and a standard deviation of 1.459. The variable "leadership structures" has scores between 4.00 and 5.00, with a mean of 3.18 and a standard deviation of 1.454. Lastly, for "monitoring and evaluation," the scores range from 1.00 to 5.00, with a mean of 2.57 and a standard deviation of 1.438.

The data indicate relatively high satisfaction levels with project functioning and infrastructures performances, while leadership structures and monitoring and evaluation show lower satisfaction levels with higher variability in responses. These findings provide valuable insights into customer perceptions and can help identify areas that may require improvement to enhance overall customer satisfaction.

#### **4.4.6 Assumptions of Multiple Regression**

**Linearity assumption:** This assumption necessitates that the relationship between the dependent and independent variables is characterized by linearity. To verify this assumption, Pearson correlation analysis was employed. The findings indicate a statistically significant and positive linear relationship between the sustainability of water project services in Tanzania and all independent variables ( $p < .000$ ). Moreover, the strength of the positive relationship was notably robust, with economic factors yielding a correlation coefficient of  $r = 0.44$  (90), social factors showing  $r = 0.57$  (90), and institutional factors demonstrating  $r = 0.68$  (90), as illustrated in Table 4.17.

**Table 4. 17: Correlations test showing linearity assumption**

	Economic factors	Social factors	institutional factors	sustainability of water project
Economic factors	1			
	90			
Social factors	.730**	1		
	.000			
	90	90		
institutional factors	-.116	.073	1	
	.141	.354		
	90	90	90	
sustainability of water project	.132	.220**	.775**	1
	.093	.005	.000	
	90	90	90	90
	90	90	90	90

**Normality assumption:** This assumption requires that the errors of the independent variables follow a normal distribution. To assess normality, Skewness and Kurtosis tests were utilized. The results indicated that the errors of all variables were found to conform to the normal distribution criteria, in accordance with the commonly used rule of thumb of  $\pm 2.58$  for Skewness-Kurtosis. The outcomes of this test are presented in Table 4.18.

**Table 4. 18: Skewness and kurtosis coefficients showing normality assumption**

Variable	N Statistic	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Economic factors	90	<b>-.722</b>	.191	<b>.126</b>	.379
Social factors	90	<b>-1.273</b>	.191	<b>2.019</b>	.379
institutional factors	90	<b>-.545</b>	.191	<b>-.130</b>	.379
sustainability of water project	90	<b>.455</b>	.191	<b>-.843</b>	.379

**Autocorrelations assumption:** Autocorrelation refers to the independence of errors between independent variables (Osborne and Waters, 2002). To assess this assumption, the Durbin-Watson statistic was employed, and the results are presented

in Table 4.10. The findings reveal that the variables exhibited minimal autocorrelations, with the Durbin-Watson values falling within an appropriate range (DW=1.5). As Field (2009) highlights, the Durbin-Watson statistic ensures low autocorrelations when its coefficient falls between 1.5 and 2.5.

**Table 4.19: Durbin-Watson Test**

Model	R	R Square	Adjusted R Square	Std. Error	Durbin-Watson
1	.885 <sup>a</sup>	.782	.776	2.13874	<b>1.543</b>

#### 4.4.7 Multicollinearity Assumption

To examine this assumption, the Variance Inflation Factor (VIF) and Tolerance Rate were calculated. The outcomes presented in Table 4.11 demonstrate that the VIF and tolerance values adhere to the commonly accepted rule, indicating a minimal level of collinearity among independent variables. As noted by Stevens (2009), low VIF and high tolerance values are indicative of low multicollinearity. Tolerance coefficients typically range between 0 and 1, while VIF values range between 1 and 10.

**Table 4.20: Multicollinearity assumption**

Variable	Tolerance	VIF
(Constant)		
Economic factors	.611	2.435
Social factors	.831	2.318
institutional factors	.726	3.071
sustainability of water project	.727	4.851

#### 4.4.8 Multiple Linear Regression Analysis

The results from the regression analysis reveal an R-squared value of .782, suggesting that the independent variables account for 78.2% of the variations

observed in the model. Furthermore, the findings indicate that the model achieved statistical significance with a p-value of less than .000, as presented in Table 4.21.

**Table 4.21: Regression model summary**

Model	R	R Square	Adjusted R Square	Std. Error	Sig.
1	.885	.782	.776	2.13874	.000

Moreover, the regression coefficients presented in Table 4.21 indicate that all variables exhibited significant predictive power ( $p < .000$ ) within the model. Specifically, a one-unit rise in Economic factors corresponded to a 1.3-unit increase in the sustainability of the water project. Similarly, a unit increase in Social factors was associated with a substantial 1.8-unit rise in the sustainability of the water project. Furthermore, a one-unit increase in institutional factors was linked to a notable 3.0-unit increase in the sustainability of the water project. Additionally, an increase of one unit in Economic factors combined with an increase of 0.7 units in Social factors contributed to a 1-unit and 0.7-unit rise, respectively, in the sustainability of the water project.

**Table 4.22: Regressions coefficients**

Variable	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	7.697	1.015		7.582	.000
Economic factors	1.346	.250	.313	5.376	.000
Social factors	1.810	.325	.316	5.566	.000
Institutional factors	3.048	.265	.754	11.516	.000
Sustainability of water project	.987	.486	-.212	-2.029	.044

Based on Table 4.22, the following regression model equation was developed;



*From*

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i$$

*Then,*

$$y = \alpha + X1 + X2 + X3\beta_1 + SI\beta_4 + CR\beta_5 + \varepsilon$$

*Hence,*

$$y = 7.7 + 1.3X1 + 1.8X2 + 3X3 + 0.7BO + \varepsilon$$

Where:

Y = Sustainability of water project services in Tanzania

X1 = Economic factors

X2 = social factors.

X3 = institutional factors

$\beta_0$  = Regression constant

$\beta_1 - \beta_3$  = Regression coefficient in the model

e = Error term

## **CHAPTER FIVE**

### **DISCUSSION OF THE FINDINGS**

#### **5.1 Chapter overview**

This chapter provides discussion of the findings based on the specific objectives of the study. The discussion was elaborated by theoretical and literature underpinnings.

#### **5.2 Economic Factors Affecting Community Participation on the Management of Water Supply Project**

Starting with "Community earning status," 44.4% of the respondents agreed that access to community earning status had an impact on community participation in the management of the water supply project. This finding suggests that a significant proportion of the participants believed that community earning status influenced the level of community involvement. The agreement indicates that community members perceive earning status as an important factor in motivating their engagement with the project. Conversely, 10% disagreed, implying that some individuals do not perceive a significant impact of earning status on community participation. The 35.6% who chose the neutral option represent a diverse range of opinions, indicating that there may be a variety of factors at play influencing the respondents' views on this matter.

Regarding "Economic status," 42.2% of the respondents agreed that their economic status aligned with the statements being assessed. This suggests that a substantial portion of the participants felt that their economic situation was in line with the

criteria under consideration. On the other hand, 17.8% disagreed, indicating that a notable percentage of respondents perceived a mismatch between their economic status and the criteria being evaluated. The high proportion (30%) of respondents who chose the neutral option suggests a considerable level of uncertainty or mixed views regarding their economic status, indicating that this is a complex and nuanced issue for many individuals within the community.

Moving on to "Community life standards," 38.9% of the respondents agreed that the community life standards aligned with the statements, while 10% disagreed. The relatively low agreement percentage indicates that a significant portion of the participants did not perceive a strong alignment between the stated standards and their lived experiences. The 32.2% who chose the neutral option further emphasizes the lack of a strong consensus regarding community life standards, suggesting that perceptions may vary widely among community members.

Regarding "Education status," the majority of respondents, 52.2%, agreed that their education status aligned with the statements being assessed. This finding suggests that a significant proportion of the participants perceived their education status to be in line with the criteria under consideration. Conversely, 8.9% disagreed, indicating that a notable minority felt their education status did not meet the criteria. The 30% who chose the neutral option represent a considerable percentage of participants who may have mixed feelings or uncertainties about their education status.

Lastly, in terms of "Project infrastructures," 37.8% of the respondents agreed that the project infrastructures met the evaluation criteria. This indicates that a significant

proportion of participants perceived the project infrastructures as meeting the stated standards. However, 10% disagreed, suggesting that there are individuals who perceive a mismatch between the criteria and the actual infrastructural developments. The 27.8% who chose the neutral option indicate a level of uncertainty or mixed views, while the notable percentages of respondents who strongly agreed (20%) or strongly disagreed (4.4%) suggest that there are strong convictions on both ends of the spectrum.

The study's findings are substantiated by Kaminyonge (2018), who emphasized the significance of citizen participation in decision-making through village statutory meetings within local government authorities in Tanzania, with a focus on Mbarali District Council. The research revealed a lack of citizen participation in decision-making processes, primarily attributed to villages' irregular and inadequate convening of statutory meetings. Additionally, various factors were identified as obstacles to community engagement in decision-making, including limited awareness regarding the importance of attending statutory meetings, leadership deficiencies, and a lack of feedback from higher administrative units. These challenges collectively contribute to a diminished level of community participation in village statutory meetings, ultimately affecting the effectiveness of participatory decision-making processes.

### **5.3 Social Factors Affecting Community Participation on the Management of Water Supply Project**

The data presented in section 4.4.1 focuses on social well-being and accountability

within the community. According to the data, 41.1% of the respondents agreed that individuals are held accountable for their actions in the community. This indicates that a significant portion of the participants believes in the concept of accountability and acknowledges their responsibility for their behaviors and contributions to the community's well-being. On the other hand, 8.9% of the respondents disagreed with the notion of being held accountable, indicating a divergence in their perspective on individual responsibility within the community. Additionally, 31.1% of the participants selected the neutral option, indicating a lack of strong agreement or disagreement with the concept of accountability. A smaller percentage, 5.5%, strongly agreed with the concept, emphasizing their belief in individual accountability. Conversely, 13.3% strongly disagreed, indicating a significant rejection or opposition to the idea of being held accountable for their actions in the community. These findings highlight the diverse perspectives and beliefs regarding social well-being and individual accountability within the community.

Moving on to section 4.4.2, it examines community collaboration. According to the data, 53.3% of the respondents agreed that they engage in community collaboration. This indicates a significant portion of the participants actively participate and work together with others in their community to achieve common goals and address shared challenges. On the other hand, 10.0% of the respondents disagreed with the concept of community collaboration, suggesting a lack of engagement or involvement in collaborative activities. Approximately 27.8% of the participants selected the neutral option, indicating a neutral stance or a lack of strong agreement or disagreement with community collaboration. A smaller percentage, 5.5%, strongly agreed with the

concept of community collaboration, emphasizing their strong belief and commitment to working collaboratively with others. Conversely, 3.3% strongly disagreed, indicating a strong opposition to community collaboration. These findings highlight the varying levels of community collaboration among the respondents and underscore the importance of promoting and fostering collaboration for the overall well-being and development of the community.

In section 4.4.3, the data focuses on negative social cultures within the community. According to the data, 58.9% of the respondents agreed that negative social cultures exist within their community. This suggests that a significant portion of the participants acknowledged the presence of detrimental cultural practices, norms, or behaviors that have a negative impact on social dynamics and relationships within the community. On the other hand, 8.9% of the respondents disagreed with the notion of negative social cultures, indicating a perception that such negative aspects are not prevalent or significant in their community. Approximately 24.4% of the participants selected the neutral option, indicating a lack of strong agreement or disagreement regarding negative social cultures. A smaller percentage, 4.4%, strongly agreed that negative social cultures are present in their community, emphasizing their strong belief in the prevalence and impact of detrimental cultural practices or norms. Conversely, 3.3% strongly disagreed, expressing a strong opposition to the existence of negative social cultures within their community. These findings provide insights into the respondents' perspectives on the presence of detrimental cultural practices and their potential impact on social interactions and relationships.

The study's findings are consistent with those of the World Bank (2015), which underscored the significance of community participation in the implementation, operation, and management of rural water supply projects as a means of fostering development. A specific example highlighted in the study pertains to Yemen, where the Food and Agriculture Organization (FAO) executed numerous projects in rural areas utilizing the community participation approach. Over a span of 23 years, these projects were effectively operated and maintained, serving as a successful illustration of the positive outcomes associated with community engagement. Yemen's adoption and sustained implementation of the community participatory approach, particularly in the context of rural water supply projects, stands as a noteworthy model for other countries to emulate over the preceding three decades.

#### **5.4 Institutional Factors Affecting Community Participation on the Management of Water Supply Project**

The data presented in Table 4.14 provides insights into the respondents' perceptions of the project functioning. The table summarizes the frequencies and percentages of the participants' responses, indicating their agreement or disagreement with the effectiveness and efficiency of the project.

According to the data, 45.6% of the respondents agreed that the project was functioning well. This suggests that a significant portion of the participants perceived the project to be effective and efficient in achieving its objectives and delivering the desired outcomes. This positive response indicates that the project was generally meeting the expectations of the respondents.

On the other hand, 10.0% of the respondents disagreed with the notion of the project functioning well. This implies that these participants believed the project was not performing up to expectations or encountering challenges that hindered its effectiveness. This dissenting view indicates the need for improvements or interventions to address the identified issues and enhance the project's functioning.

Approximately 36.7% of the participants chose the neutral option, indicating a lack of strong agreement or disagreement regarding the project's functioning. This suggests a range of perspectives among the respondents, with some neither strongly affirming nor negating the effectiveness of the project. These neutral responses might indicate a need for further investigation or clarification regarding the project's performance.

A smaller percentage, 4.4%, strongly agreed that the project was functioning well. This group expressed a high level of confidence in the project's performance and outcomes, indicating their belief that the project was successful in meeting its intended goals.

Conversely, 3.3% of the respondents strongly disagreed, expressing a strong belief that the project was not functioning adequately or meeting its intended goals. This group had a critical perspective on the project's functioning and highlighted significant concerns or challenges.

The cumulative percentages in the table demonstrate the progressive accumulation of responses. By the end of the table, it can be seen that 45.6% of the respondents



agreed or strongly agreed with the project's functioning, while 55.6% either agreed or disagreed with the notion. These cumulative percentages provide an overall picture of the respondents' perceptions of the project's functioning.

The findings from this table provide insights into the respondents' perceptions of the project functioning. The data can be used to assess the project's effectiveness, identify areas for improvement, and inform decision-making processes related to project management and implementation. Further analysis and follow-up actions may be required to address the concerns raised by the respondents who disagreed or expressed neutral views.

Moving on to Table 4.13, it presents an overview of the respondents' perceptions regarding the performances of the infrastructures. The table provides the frequencies and percentages of the participants' responses, reflecting their opinions on the effectiveness and functionality of the infrastructural components.

According to the data, 41.1% of the respondents agreed that the infrastructures were performing well. This suggests that a significant proportion of the participants perceived the infrastructural elements to be effective in meeting their intended purposes and delivering the expected outcomes. This positive response indicates a general satisfaction with the performance of the infrastructures.

On the other hand, 10.0% of the respondents disagreed with the notion that the infrastructures were performing well. This indicates a perception that the infrastructures were not functioning as expected or encountered issues that hindered

their effectiveness. These dissenting views highlight potential areas of improvement or concern that require attention to enhance the performance of the infrastructures.

Approximately 40.0% of the participants selected the neutral option, indicating a lack of strong agreement or disagreement regarding the performances of the infrastructures. This suggests a diverse range of perspectives among the respondents, with some individuals neither strongly affirming nor negating the effectiveness of the infrastructural components. These neutral responses may suggest the need for further investigation or clarification regarding the infrastructures' performance.

A smaller percentage, 5.5%, strongly agreed that the infrastructures were performing well, expressing a high level of confidence in their functionality and performance. This group believed that the infrastructures were meeting or exceeding expectations and contributing positively to the overall objectives.

Conversely, 3.3% strongly disagreed, indicating a strong belief that the infrastructures were not performing adequately or meeting the desired standards. This group had significant concerns about the infrastructural performance and highlighted areas that required immediate attention and improvement.

The cumulative percentages in the table reflect the progressive accumulation of responses. By the end of the table, it can be observed that 41.1% of the respondents agreed or strongly agreed with the performances of the infrastructures, while 51.1% either agreed or disagreed with the notion. These cumulative percentages provide an

overall understanding of the respondents' perceptions of the infrastructural performances.

The findings from this table provide valuable insights into the respondents' perceptions of the infrastructural performances. This information can be used to evaluate the effectiveness of the infrastructural components, identify areas for improvement, and inform decision-making processes related to infrastructure management and development.

Moving on to Table 4.14, it presents an overview of the respondents' perspectives on the leadership structures within the organization. The table provides the frequencies and percentages of the participants' responses, offering insights into their opinions and perceptions regarding the effectiveness and efficiency of the leadership.

According to the data, 51.1% of the respondents agreed with the leadership structures in place. This indicates that a majority of the participants expressed a positive perception of the leadership within the organization, suggesting that they believe the existing leadership is effective in guiding and managing the operations of the organization. This positive response signifies general satisfaction with the leadership. On the other hand, 8.9% of the respondents disagreed with the leadership structures. This signifies that a small proportion of the participants held a negative view of the leadership and felt that it was not effective in fulfilling its responsibilities or providing proper direction and support. These dissenting views highlight potential areas for improvement or concerns that require attention to enhance the leadership's effectiveness.

Approximately 20.0% of the participants chose the neutral option, indicating a lack of strong agreement or disagreement regarding the leadership structures. This suggests a diversity of opinions among the respondents, with some individuals neither strongly endorsing nor criticizing the leadership. These neutral responses may indicate the need for further investigation or clarification regarding the effectiveness of the leadership structures.

A total of 16.7% of the respondents strongly agreed with the effectiveness of the leadership structures. This suggests that a notable portion of the participants held a strong positive perception of the leadership within the organization, highlighting their confidence in the leadership's capabilities and contributions. These individuals highly regarded the leadership and acknowledged its positive impact on the organization.

In contrast, 3.3% of the respondents strongly disagreed with the leadership structures. This indicates a strong negative sentiment towards the leadership and suggests that these participants believed the leadership was ineffective or lacking in crucial aspects. These respondents had significant concerns about the leadership's performance and identified areas that required immediate attention and improvement.

The cumulative percentages in the table demonstrate the accumulation of responses. By the end of the table, it can be observed that 51.1% of the respondents agreed or strongly agreed with the effectiveness of the leadership structures, while 60.0% either agreed or disagreed with the notion. These cumulative percentages provide an overall understanding of the respondents' perspectives on the leadership structures.

The study's findings are corroborated by Shayo (2018), who emphasizes the critical importance of organizational resource management in the context of rural development projects, particularly for successful project implementation. This sentiment is reinforced by the perspective put forth by Dukeshire and Thurlow (2002), asserting that resource management should be a collaborative effort involving both project facilitators and community leadership. This approach is deemed necessary to ensure principles of good governance and transparency.

Moreover, the findings presented in the provided table yield valuable insights into the viewpoints expressed by the respondents regarding the existing leadership structures within the organization. These insights hold the potential to serve as a foundation for evaluating the effectiveness of current leadership practices, pinpointing areas that could benefit from enhancement, and influencing decision-making processes related to the development and improvement of leadership practices.

## CHAPTER SIX

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 6.1 Introduction

This study aimed to investigate the factors that affecting sustainability of water project services in Tanzania specifically Maswa District in Simiyu Region. Previous chapters extensively covered various aspects related to factors that affecting sustainability of water project services in Tanzania specifically Maswa District in Simiyu Region Therefore, this chapter provides a comprehensive summary of the study, key findings, conclusions, and recommendations.

#### 6.2 Summary and Findings

Economic factors affecting community participation on the management of water supply project:

**Community earning status:** A significant proportion (44.4%) of respondents believed that community earning status influenced community participation in the water supply project. This finding highlights the perceived importance of earning status in motivating community engagement. However, 10% disagreed, indicating a lack of consensus on the impact of earning status. The neutral option (35.6%) suggests a variety of factors influencing respondents' views on this matter.

**Economic status:** 42.2% of respondents agreed that their economic status aligned with the criteria under consideration. This suggests that many participants felt their

economic situation matched the assessment criteria. Conversely, 17.8% disagreed, indicating a mismatch between their economic status and the criteria. The neutral option (30%) reflects mixed views or uncertainties about economic status, highlighting the complexity of this factor.

**Community life standards:** Only 38.9% of respondents agreed that community life standards aligned with the stated criteria. This indicates a significant portion of participants did not perceive a strong alignment between the standards and their lived experiences. The neutral option (32.2%) further emphasizes the lack of consensus, indicating varying perceptions among community members regarding community life standards.

### **6.2.1 Social Factors Affecting Community Participation on The Management of Water Supply Project**

**Social well-being and accountability:** 41.1% of respondents agreed that individuals are held accountable for their actions in the community. This suggests a belief in accountability and individual responsibility. However, 8.9% disagreed, indicating a divergence in perspectives. The neutral option (31.1%) reflects a lack of strong agreement or disagreement, while the strong agreement (5.5%) and strong disagreement (13.3%) options indicate contrasting convictions.

**Community collaboration:** 53.3% of respondents agreed that they engage in community collaboration, indicating active participation and cooperation. However, 10% disagreed, indicating a lack of engagement in collaborative activities. The

neutral option (27.8%) suggests mixed views, while the strong agreement (5.5%) and strong disagreement (3.3%) options highlight strong convictions on both ends of the spectrum.

**Negative social cultures:** 58.9% of respondents agreed that negative social cultures exist within their community, indicating the presence of detrimental practices or behaviors. However, 8.9% disagreed, suggesting a perception that negative aspects are not prevalent. The neutral option (24.4%) indicates a lack of strong agreement or disagreement, while the strong agreement (4.4%) and strong disagreement (3.3%) options emphasize contrasting beliefs on the prevalence of negative social cultures.

### **6.2.2 Institutional Factors Affecting Community Participation on the Management of Water Supply Project**

**Project functioning:** 45.6% of respondents agreed that the project was functioning well, indicating overall satisfaction with its effectiveness. However, 10% disagreed, highlighting concerns or challenges. The neutral option (36.7%) reflects a lack of strong agreement or disagreement, while the strong agreement (4.4%) and strong disagreement (3.3%) options indicate strong convictions on both ends.

**Infrastructure performances:** 41.1% of respondents agreed that the infrastructures were performing well, indicating satisfaction with their effectiveness. However, 10% disagreed, suggesting areas for improvement. The neutral option (40%) reflects a lack of strong agreement or disagreement, while the strong agreement (5.5%) and strong disagreement (3.3%) options indicate strong convictions.



**Leadership structures:** 51.1% of respondents agreed with the leadership structures, expressing a positive perception. However, 8.9% disagreed, indicating a negative view. The neutral option (20%) suggests a lack of strong agreement or disagreement, while the strong agreement (16.7%).

### **6.3 Conclusion**

In conclusion, the study on the factors affecting community participation in the management of water supply projects revealed several key findings.

Regarding economic factors, community earning status was perceived to have a significant influence on community participation by a majority of respondents. However, there was a lack of consensus, indicating that other factors may also play a role. Economic status showed mixed views, with some participants feeling their economic situation aligned with the criteria and others perceiving a mismatch. Similarly, community life standards were not widely perceived to align with the stated criteria, indicating varying perceptions among community members.

In terms of social factors, there was a belief in social well-being and accountability, with a majority agreeing that individuals are held accountable for their actions in the community. Community collaboration was also reported by a majority of respondents, indicating active participation and cooperation. However, there were some who disagreed or held neutral views, suggesting a lack of engagement in collaborative activities. The presence of negative social cultures was acknowledged by a majority, but again, there were differing opinions on the prevalence of such cultures within the community.

Regarding institutional factors, the project's functioning was perceived positively by a significant portion of respondents, indicating overall satisfaction with its effectiveness. However, there were concerns or challenges raised by a minority. Infrastructure performances also received mixed views, with some respondents expressing satisfaction and others suggesting areas for improvement. Leadership structures were viewed positively by a majority, although there was a notable proportion with a negative perception or a lack of strong agreement or disagreement.

Overall, the study highlights the complex nature of community participation in water supply projects, with multiple factors influencing engagement. Economic, social, and institutional factors all play a role in shaping community participation, but there are varying perceptions and perspectives among community members. These findings can inform the development of strategies and interventions to enhance community participation and ensure the success of water supply projects.

#### **6.4 Recommendations of the study**

Based on the findings regarding the economic, social, and institutional factors affecting community participation in the management of water supply projects, here are some recommendations.

##### **6.4.1 Economic Factors**

Conduct a comprehensive assessment of the community's earning status and economic conditions to identify specific barriers or challenges that hinder participation. This information can help tailor interventions and support mechanisms accordingly.

Explore income generation opportunities or livelihood programs that can improve the community's earning status and financial stability, thereby increasing their motivation and capacity to participate in water supply projects.

Provide transparent information about the financial aspects of the project, including costs, funding sources, and potential benefits. This can help alleviate concerns or misconceptions related to economic factors and encourage community engagement.

#### **6.4.2 Social Factors**

Strengthen social accountability mechanisms within the community to foster a culture of responsibility and transparency. This can be achieved through regular community meetings, awareness campaigns, and the establishment of feedback mechanisms.

Promote and facilitate community collaboration through workshops, training sessions, and joint decision-making processes. Encourage the formation of community-based organizations or committees dedicated to managing and maintaining the water supply project.

Address negative social cultures by implementing awareness programs and initiatives that promote positive behaviors and attitudes. Foster dialogue and inclusivity within the community to challenge harmful practices and promote a supportive and respectful environment.

### **6.4.3 Institutional Factors**

Continuously monitor and evaluate the functioning of the water supply project to identify areas for improvement. Address concerns or challenges raised by the community promptly and transparently.

Regularly assess the performance of infrastructure components and address any issues or deficiencies promptly. Implement maintenance and repair programs to ensure the longevity and effectiveness of the water supply infrastructure.

Foster effective leadership structures by promoting transparency, accountability, and inclusivity. Provide leadership training and capacity-building opportunities to enhance the skills and capabilities of community leaders involved in the water supply project.

### **6.4.4 Overall Recommendations**

Ensure effective communication and information sharing between the implementing organization, project managers, and the community. Transparently communicate the project goals, progress, and potential benefits to encourage community participation and ownership.

Develop tailored strategies and interventions that address the specific economic, social, and institutional challenges identified within the community. Recognize the diversity of perspectives and experiences within the community and design inclusive approaches that accommodate different needs and interests.

Establish long-term partnerships and collaborations with local organizations, stakeholders, and government agencies to leverage resources, expertise, and support for sustainable water supply management. Foster a sense of shared responsibility and collective action among all stakeholders involved.

### **6.5 Areas for Further Studies**

Based on the findings and recommendations, here are five areas for further studies related to the economic, social, and institutional factors affecting community participation in the management of water supply projects:

- i) **Impact of Income Generation Programs:** Conduct a study to assess the effectiveness and long-term impact of income generation programs on community participation in water supply projects. Evaluate the relationship between improved earning status and increased motivation for engagement, as well as the sustainability of income-generating activities.
- ii) **Social Dynamics and Decision-Making Processes:** Investigate the social dynamics within the community and how they influence decision-making processes related to water supply management. Explore factors such as power dynamics, social networks, and cultural norms to understand their impact on community participation and collaboration.
- iii) **Role of Social Accountability Mechanisms:** Examine the effectiveness of social accountability mechanisms in promoting transparency, accountability, and community ownership in water supply projects. Identify best practices and challenges in implementing and sustaining such mechanisms, and explore strategies for enhancing their impact.

- iv) **Community Perception of Leadership Structures:** Investigate the community's perception of leadership structures and their impact on community participation. Assess the role of leaders in facilitating or hindering engagement, and explore strategies for improving leadership effectiveness and inclusivity within the context of water supply management.
- v) **Long-Term Sustainability of Water Supply Projects:** Conduct a longitudinal study to assess the long-term sustainability of water supply projects and community participation. Examine factors that contribute to project continuity, community ownership, and the maintenance of infrastructure over time. Identify challenges and opportunities for sustaining community engagement beyond the initial project phase.

## **6.6 Time frame for the Study**

The official time of commencing the study was November 2021 and the official time of completing the study is June 2023

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## APPENDICES

### Appendix I: Questionnaires

Dear respondent, I am **Nandi Mathias** student at Open University, pursuing a Master's degree of Project Management (MPM) currently undertaking a dissertation as a partial fulfilment requirement for the award. This questionnaire is being conducted to get your inputs on *“Assessment of Factors Affecting Sustainability of Water Supply Project in Rural Areas in Tanzania: A Case Study of Maswa District Council”*

It should not take you more than a few minutes to fill in. You may also call me if you shall require any clarity on the questions, at +255 764768495 Please feel free to provide precise answers to any of the provided questions in more detail.

If it is ok with you, I assure you that all answers given will remain confidential and will only be used for the purpose of this study. I will be compiling a report which will include the information without any reference to individuals. Your participation is very essential. I request you to respond the following questions.

#### SECTION A: General information of respondents

Tick where appropriate

- 1.1 What is your Gender?
- (a.) Male ( )
- (b.) Female ( )
- 1.2 What is your Age group?
- (a) 18 – 25 ( )
- (b) 26 – 33 ( )
- (c) 34 – 41 ( )
- (d) 42 and above ( )
- 1.3 What is your academic qualification?
- (a.) Primary education ( )
- (b.) Secondary education ( )

- (c.) Certificate ( )
- (d.) Diploma ( )
- (e.) Bachelor degree and above ( )

**PART II QUESTIONNAIRES**

**B: Research Objectives**

i. To assess economic factors affecting community participation on the management of water supply project

To assess economic factors affecting community participation on the management of water supply project. Kindly choose the right number on the following major statement in the Likert of 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree and 1= Strongly Disagree.

No		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Community earning status					
2	Economic status					
3	Community life standards					
4	Education status					
5	Project infrastructures					

2.6 What components of water project do you participate especially in M & E

- A. ....
- B. ....
- C. ....
- D. ....
- E. ....

2.7 Why do you prefer to participate in community water projects?

- A. ....
- B. ....
- C. ....
- D. ....
- E. ....

Does community participation on the management of water supply project enhance availability of water services to the community?

- (a) Strongly agree
- (b) Agree
- (c) Neutral
- (d) Disagree
- (e) Strongly disagree

ii. To examine social factors affecting community participation on the management of water supply project. Kindly choose the right number on the following major statement in the Likert of 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree and 1= Strongly Disagree.

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Social well being					
2	community collaboration					
3	negative social cultures					
4	Education status					
5	Community attitude					

iii. To evaluate institutional factors affecting community participation on the management of water supply project. Please tick the appropriate answer of your choice based on Likert scale where: - 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree and 1= Strongly Disagree.

No	Statement	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 strongly disagree
1	Project functioning					
2	Infrastructures performances					
3	Leadership structures					
4	Monitoring and evaluation					
5	Low efficiency					

.....  
 .....

*Thank you for your corporation.*

**Appendix Ii: Interview Guide**

- i. What are the economic factors affecting community participation on the management of water supply project?
- ii. What are the social factors affecting community participation on the management of water supply project?
- iii. What are the institutional factors affecting community participation on the management of water supply project?
- iv. Who are the key participants on the management of water supply project?
- v. Does the community aware and willing to contribute on the operational and maintenance costs?
- vi. Does the community members possessing water supply and management skills in the study area?
- vii. What components of water project do you participate especially in M & E
- viii. Why do you prefer to participate in community water projects?

### Appendix III: Budget

This study will be funded by the researcher a total of Tsh **1,411,000.00/=** amount will be required to accomplish the study.

Table 6.1 shows activities and cost to be met in carrying out this study

	<b>Main activities</b>	<b>Specific activity</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit cost</b>	<b>Total costs</b>	<b>Source finance</b>
1	Stationeries cost	Typing		4	80,000	320,000	Researcher
		Internet services		21	3,000	63,000	Researcher
		Printing		4 copies	15,000	60,000	Researcher
		Binding		4 copies	3,000	12,000	Researcher
2	Travel costs	All Months	-	-	60,000	420,000	Researcher
3	Meals costs	All Months			50,000	350,000	Researcher
4	Data collection	Three weeks	3	3 weeks	60,000	180,000	Researcher
5	Communication	To supervisor	3	3 times	2,000	6,000	Researcher
6	<b>Total costs</b>					<b>1,411,000</b>	



#### Appendix IV: Schedule of activities

Study will be carried out in six months starting from January to June 2023. The table below illustrates description of activities

Activity	January 2023	February 2023	March 2023	April 2023	May 2023	June 2023
Preparation of Research Proposal						
Submission of Research proposal						
Data collection and Report writing						
Submission of Research paper (Re-defense and Defense)						
Research Defense Preparations						
Research Defense Examination						

**Thank you for your cooperation**

## Appendix V: Ethical Documents

**THE OPEN UNIVERSITY OF TANZANIA**  
**DIRECTORATE OF POSTGRADUATE STUDIES**

P.O. Box 23409  
Dar es Salaam, Tanzania  
<http://www.out.ac.tz>



Tel: 255-22-2668992/2668445  
ext.2101  
Fax: 255-22-2668759  
E-mail: [dpgs@out.ac.tz](mailto:dpgs@out.ac.tz)

**Our Ref: PG20208634**

14<sup>th</sup> February, 2023

Maswa Water Supplies and Sanitation Authority,  
P.O. Box 185,  
MASWA

### **RE: RESEARCH CLEARANCE**

The Open University of Tanzania was established by an act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No. 55 in the official Gazette. The act was however replaced by the Open University of Tanzania charter of 2005, which became operational on 1st January 2007. In line with the later, the Open University mission is to generate and apply knowledge through research.

To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Nandi Mathias, Reg No: PG 20208634** pursuing a **Degree of Master of Project Management**. We hereby grant this clearance to conduct a research titled: **“Factors Affecting Sustainability of Water Supply Project in the Rural Areas in Tanzania: A Case Study of Maswa District Council.”**, she will collect her data in Maswa District Council from 6<sup>th</sup> March to 7<sup>th</sup> April, 2023.

In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic, Research and Consultancy) of the Open University of Tanzania, P.O. Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours,

Prof. Magreth Bushesha  
**DIRECTOR OF POSTGRADUATE STUDIES**



**'THE UNITED REPUBLIC OF TANZANIA**  
**MINISTRY OF WATER**  
**MASWA WATER SUPPLY AND SANITATION AUTHORITY**  
 Telegrams "MAJI Tel No: 028-2750237/2750375  
 P.O.BOX 185, Maswa  
 Fax: 028-27502337, Email: [mdmauwasa@maji.go.tz](mailto:mdmauwasa@maji.go.tz)



**REF: CB.29/308/02/43**

**23<sup>rd</sup> February, 2023**

The Open University of Tanzania,  
 Director of Post Graduate Studies,  
 P.O.BOX 23409,  
 Dar Es Salaam,

**REF: RESEARCH CLEARANCE FOR MR. NANDI MATHIAS.**

With reference to the above subject Matter.

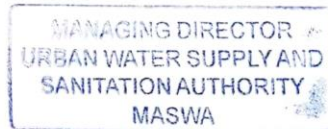
2. I would like to inform you that Mr. Nandi Mathias whose registration number is **PG20208634** and currently pursuing Project Management Master Degree at your University, has been permitted to conduct his research with the title "*Factors Affecting Sustainability of Water Supply Project in Rural Areas in Tanzania (A Case Study of Maswa District Council)*" The research covered Lalago, Sangamwalugesha and Sayusayu ward in Maswa District council in Simiyu Region where the collection of data start from 06<sup>th</sup> March 2023 up to 07<sup>th</sup> April 2023 for the duration of one Month.

3. Your cooperation is highly appreciated.

Leonard Mnyeti

**For: Managing Director.**

**Maswa Water Supply and Sanitation Authority**



**MANUSCRIPT**