EFFECTIVENESS OF MONITORING AND EVALUATION SYSTEMS ON SUSTAINABILITY OF WATER SUPPLY AND SANITATION IN TANZANIA: THE CASE OF BABATI WATER SUPPLY AND SANITATION AUTHORITY IN SIMANJIRO DISTRICT

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF ARTS IN MONITORING AND EVALUATION (MAME)

DEPARTMENT OF ECONOMICS AND COMMUNITY ECONOMIC DEVELOPMENT

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2025

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania a Research titled; "**Effectiveness of Monitoring and Evaluation Systems on Sustainability of Water Supply and Sanitation in Tanzania: The Case of Babati Water Supply and Sanitation Authority in Simanjiro District**" in partial fulfilment of the requirements for degree of Masters of Arts in Monitoring and Evaluation (MAME).

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DECLARATION

I, **Brown Mwasomola,** declare that the work presented in this Dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfillment of the requirement for the Degree of Master of Art in Monitoring and Evaluation (MA.M&E).

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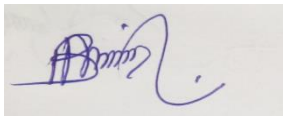

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Date

DEDICATION

My family Mrs. Lilian Mzava Mwasomola has provided me with the initiation to education and hence, this work is dedicated to them. Without their love and hard-earned efforts which they used in ensuring I accomplished my education I would have been a different person.

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ABSTRACT

This study examined the Effectiveness of Monitoring and Evaluation Systems on Sustainability of Water Supply and Sanitation in Tanzania: The Case of Babati Water Supply and Sanitation Authority in Simanjiro District. The research focused on three key objectives: analyzing the effectiveness of monitoring mechanisms, assessing the impact of evaluation frameworks on decision-making and service improvements, and evaluating the role of stakeholder involvement in promoting transparency and accountability within M&E processes. Employing a descriptive research design and a quantitative approach, data were collected from 133 respondents using structured questionnaires. Analysis involved descriptive and inferential statistics, including correlation and regression, facilitated by SPSS software. The findings revealed that BAWASA's monitoring mechanisms are generally effective in ensuring timely detection and resolution of service issues, while evaluation frameworks significantly contribute to informed decision-making and continuous improvement. Stakeholder involvement was found to enhance transparency and accountability, though challenges in engagement and capacity were noted. The study concludes that an integrated M&E system combining robust technical tools with participatory governance is essential for sustaining water and sanitation services. Recommendations include capacity building, enhanced stakeholder collaboration, and policy support to strengthen M&E practices. The study contributes valuable insights for policymakers and water utilities aiming to improve service sustainability in resource-constrained settings.

Keywords: *Monitoring and Evaluation, Water Supply Sustainability, Stakeholder Involvement, Decision-Making.*

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LIST OF ABBREVIATIONS AND ACRONYMS

BAWASA	Babati Urban Water Supply and Sanitation Authority
M&E	Monitoring and Evaluation
SDGs	Sustainable Development Goals
GIS	Geographic Information Systems
SPSS	Statistical Package for the Social Sciences
NGO	Non-Governmental Organization
LGA	Local Government Authority
CBA	Cost-Benefit Analysis
EIA	Environmental Impact Assessment
WHO	World Health Organization
UNICEF	United Nations Children's Fund
UN-Water	United Nations Water

CHAPTER ONE

INTRODUCTION

1.1 Chapter Overview

This chapter will introduce the foundation and context of the proposed study, focusing on the significance of monitoring and evaluation (M&E) systems in achieving sustainability in water supply and sanitation services. The chapter will also highlight the specific challenges expected to be examined in Tanzania, particularly within the Babati Urban Water Supply and Sanitation Authority (BAWASA) in Simanjiro District. Furthermore, it will present the research problem, objectives, research questions, scope, and significance, laying the groundwork for a comprehensive exploration of the effectiveness of M&E systems in enhancing water supply and sanitation sustainability.

1.2 Background of the Study

The significance of effective monitoring and evaluation (M&E) systems in ensuring the sustainability of water supply and sanitation (WSS) projects has gained global recognition. M&E is essential for the success of water supply and sanitation initiatives, providing mechanisms to track progress, assess outcomes, and address challenges in both urban and rural contexts. According to the World Bank (2020) and UNICEF (2019), M&E frameworks help identify inefficiencies, ensure accountability, and guide informed decision-making. However, despite its recognized importance, several barriers such as insufficient data collection, low stakeholder engagement, and limited technical capacity continue to hamper the full realization of sustainable water and sanitation systems worldwide (WHO, 2021).

In Sub-Saharan Africa, water supply and sanitation challenges are compounded by rapid urbanization, population growth, and inadequate resource management. The effectiveness of M&E systems in this context has been inconsistent, with poorly designed frameworks often impeding the sustainability of water and sanitation projects (UN-Habitat, 2022). Countries that have adopted adaptive and inclusive M&E systems, however, have seen improvements in service delivery and operational performance, particularly in urban settings (African Development Bank, 2020). Despite these advancements, widespread systemic issues such as corruption, underfunding, and insufficient technical expertise remain prevalent in many Sub-Saharan countries, undermining water security and sanitation efforts (UN-Water, 2021).

In Tanzania, achieving the Sustainable Development Goals (SDGs) related to water and sanitation is a national priority. The National Water Policy underscores the importance of robust M&E systems for effective resource management, transparency, and governance within the water supply sector (Ministry of Water, 2019). However, research has shown that financial limitations, a shortage of skilled personnel, and inadequate data utilization hinder the successful implementation of these systems (Mwihava et al., 2020). Programs such as the Rural Water Supply and Sanitation Program have attempted to integrate M&E systems as core components of water and sanitation interventions, but their outcomes have been mixed, especially in underserved regions (World Bank, 2021).

The Babati Urban Water Supply and Sanitation Authority (BAWASA), responsible for managing water and sanitation services in the Simanjiro District, plays a pivotal

role in addressing these challenges. The sustainability of BAWASA's operations is critically dependent on the effectiveness of its M&E system. A well-functioning M&E system allows the authority to track performance, assess infrastructure needs, and identify potential risks to service delivery. In practice, BAWASA's M&E system faces challenges, including inconsistent data collection, limited community involvement, and insufficient capacity among staff to analyze and use data effectively (World Bank, 2020). Although modern technologies such as Geographic Information Systems (GIS) and mobile applications have been introduced to enhance real-time data collection, issues such as unreliable internet access in remote areas and inadequate infrastructure for data transmission continue to disrupt the flow of information (UNICEF Tanzania, 2020).

The connection between the effectiveness of the M&E system and the sustainability of water and sanitation services is clear: when M&E systems are robust, they enable better decision-making, more efficient resource allocation, and improved service delivery. However, the sustainability of both the M&E system and the water and sanitation infrastructure is threatened by insufficient financial investment, low stakeholder engagement, and weak capacity at various levels. These limitations hinder the potential of the M&E framework to address critical operational challenges such as water scarcity, infrastructure decay, and population pressure(UNICEF Tanzania, 2020).

While numerous studies have emphasized the importance of M&E for the sustainability of water and sanitation projects, a closer examination of the specific case of Babati Urban Water Supply and Sanitation Authority is essential. Given the

ongoing limitations in data collection and utilization, the study will assess how effectively BAWASA's M&E system contributes to the sustainability of water and sanitation services in Simanjiro District. Moreover, there is a need to explore whether the system is adequately aligned with national water policy objectives, and how its shortcomings might be addressed through targeted reforms and capacity-building initiatives (Ngowi& Mshanga, 2021).

This research, therefore, aims to bridge the gap in knowledge by critically evaluating the role of M&E in improving the sustainability of water and sanitation services in Babati. It will investigate the specific ways in which the effectiveness of M&E systems impacts the long-term sustainability of water supply and sanitation in Sub-Saharan Africa, contributing to a broader understanding of the relationship between M&E systems and project sustainability in resource-constrained settings.

1.3 Statement of the Problem

Effective monitoring and evaluation (M&E) systems are crucial for ensuring the sustainability of urban water supply and sanitation services. However, many regions in sub-Saharan Africa, including Tanzania, continue to face significant barriers to implementing robust M&E frameworks, despite substantial investments in infrastructure. While there is a growing body of literature on the challenges of M&E systems in water and sanitation, few studies have focused on the specific aspects of M&E that directly impact sustainability in the Tanzanian context. Specifically, gaps exist in understanding how variables such as financial accountability, technological integration, and policy compliance affect the effectiveness of M&E systems. These aspects remain underexplored, leaving a critical gap in the empirical evidence

necessary to enhance the sustainability of water and sanitation services (Kamara & Sally, 2020).

In Tanzania, the challenges in water and sanitation are amplified by rapid urbanization, population growth, and limited resource management, particularly in districts like Simanjiro. Existing M&E systems often fail to capture the full scope of service delivery performance, which leads to frequent water shortages, inequitable access, and deteriorating infrastructure (Mwale et al., 2020). However, these challenges are not uniform across the country; Simanjiro's unique geographical, economic, and institutional factors contribute to particular M&E issues that are not adequately addressed by general studies. For instance, the integration of technology in M&E processes and the involvement of local communities in decision-making have been minimal.

Additionally, previous M&E reforms have been sporadic and have largely failed due to systemic issues such as inconsistent financial oversight, lack of stakeholder participation, and poor technical capacity (UNESCO, 2021). Despite the national emphasis on M&E through policy frameworks, the implementation remains ineffective, particularly in districts like Simanjiro. There is a clear need for an in-depth case study of Simanjiro District to evaluate the effectiveness of existing M&E systems, identify key barriers to sustainability, and propose tailored solutions that are specific to this region, which could be applicable to similar contexts in Tanzania (World Bank, 2022). This research will focus on the role of M&E in promoting the sustainability of water supply and sanitation services, with particular emphasis on how improved data collection, stakeholder engagement, and capacity building can

address the challenges faced by BAWASA and similar authorities. By evaluating the specific operational, financial, and technical challenges in Simanjiro, this study aims to contribute insights into how M&E can directly influence long-term sustainability, especially in semi-urban and rural areas.

1.4 Research Objectives

1.4.1 General Objective

To assess Effectiveness of Monitoring and Evaluation Systems on Sustainability of Water Supply and Sanitation in Tanzania: The Case of Babati Water Supply and Sanitation Authority in Simanjiro District.

1.4.2 Specific Objectives

i. To analyze the effectiveness of the monitoring mechanisms used by BAWASA in promoting the sustainability of water supply and sanitation services in Simanjiro District.
ii. To assess the impact of evaluation frameworks on decision-making and service improvements in BAWASA at Simanjiro District
iii. To assess the impact of stakeholder involvement on enhancing the transparency and accountability, within BAWASA's monitoring and evaluation processes at Simanjiro District

1.5 Research Questions

i. What are the monitoring mechanisms used by BAWASA in ensuring the sustainability of water supply and sanitation services in Simanjiro District?
ii. How effective are the evaluation frameworks applied by BAWASA in

enhancing service delivery and decision-making processes within the district?

iii. To what extent does stakeholder involvement contribute to the transparency and accountability of BAWASA's M&E systems at Simanjiro District?

1.6 Scope of the Study

This study focuses on evaluating the effectiveness of monitoring and evaluation (M&E) systems in enhancing the sustainability of water supply and sanitation services within the Babati Urban Water Supply and Sanitation Authority (BAWASA), specifically in the Simanjiro District. It examines the monitoring mechanisms, evaluation frameworks, and the role of stakeholder involvement in achieving sustainability objectives. The research is limited to BAWASA's operations in Simanjiro District, assessing both organizational and stakeholder perspectives. The timeframe for the study includes an analysis of recent data, reports, and activities conducted by BAWASA, with a focus on policies, practices, and outcomes that align with national and global sustainability standards.

1.7 Significance of the Study

This study contributes to the academic discourse on monitoring and evaluation (M&E) systems by providing empirical insights into their effectiveness in promoting the sustainability of water supply and sanitation services in Tanzania. By focusing on BAWASA and the Simanjiro District, it enriches the literature on M&E frameworks, stakeholder engagement, and their integration into sustainable development practices, offering valuable case-specific knowledge that can inform future research and theoretical advancements.

The findings of this research offer actionable recommendations for policymakers seeking to enhance water governance and sustainability. By identifying strengths and gaps in existing M&E frameworks, the study provides a basis for developing evidence-based policies, refining national water strategies, and improving decision-making processes to address systemic challenges in the water supply and sanitation sector.

The research supports government efforts to achieve sustainable development goals (SDGs) related to water and sanitation by offering insights into the effectiveness of M&E systems at the local level. The study provides a framework for scaling up successful practices, addressing gaps in national water policy implementation, and fostering collaboration between public and private sectors to ensure equitable access to water and sanitation services

1.8 Organization of the Study

This study is organized into five chapters. Chapter One provides the introduction, including the background, statement of the problem, research objectives, questions, significance, and scope of the study. Chapter Two reviews relevant literature on monitoring and evaluation systems and their role in sustaining water supply and sanitation services. Chapter Three outlines the research methodology, detailing the research design, study area, population, sampling techniques, data collection methods, and ethical considerations. Chapter Four presents the analysis and discussion of the research findings based on the data collected. Finally, Chapter Five summarizes the study, draws conclusions, offers recommendations, discusses limitations, and suggests areas for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

This chapter provides a comprehensive examination of existing literature on monitoring and evaluation (M&E) systems and their role in ensuring sustainability in water supply and sanitation services. It includes definitions of key concepts, an analysis of relevant theories, empirical studies, research gaps, and a conceptual framework to guide the study. The purpose of this chapter is to contextualize the research within existing academic discourse and to identify the knowledge gaps that this study aims to address.

2.2 Definition of Key Terms

2.2.1 Monitoring and Evaluation

Monitoring refers to the continuous and systematic process of collecting, analyzing, and utilizing data to assess the progress of programs or policies towards their objectives. It serves as a tool to ensure accountability and identify areas requiring improvement. Evaluation, on the other hand, involves a structured analysis of the relevance, efficiency, effectiveness, and impact of interventions to provide evidence-based recommendations for decision-making and strategic planning (Rogers & Macdonald, 2021).

2.2.2 Sustainability

Sustainability, particularly in the water supply and sanitation sector, embodies the capacity to maintain reliable, efficient, and equitable services over time, ensuring that the needs of present users are met without jeopardizing the ability of future

generations to meet their own needs. This concept integrates environmental stewardship, economic viability, and social equity, emphasizing the importance of long-term resource management and resilience in service delivery systems (Gleick & Cooley, 2020).

2.2.3 Water Supply and Sanitation Services

Water supply and sanitation services encompass the provision of safe and sufficient water for various purposes, including domestic, industrial, and agricultural uses, along with the proper treatment and disposal of wastewater. These services are crucial for protecting public health, promoting hygiene, and safeguarding environmental quality. Effective WSS systems are characterized by accessibility, affordability, and sustainability, forming the backbone of socio-economic development and environmental protection (Andersson & Marks, 2022).

2.3 Theoretical Literature Review

2.3.1 Systems Theory

Systems theory, introduced by Ludwig von Bertalanffy (1968), posits that an organization or process is best understood as a system composed of interconnected components that work together within a broader framework. This theory is particularly relevant to monitoring and evaluation (M&E) systems in water supply and sanitation (WSS), where various technical, social, and environmental factors must be integrated for sustainable outcomes (Smith & Taylor, 2021). The strength of systems theory lies in its holistic approach, which encourages viewing the M&E process as unified whole rather than isolated parts. This perspective is crucial for BAWASA, as the effectiveness of its water and sanitation services depends on the

coordination of diverse elements, including data collection, infrastructure maintenance, stakeholder engagement, and policy alignment (Jones & Greenfield, 2022). When applied to BAWASA, systems theory helps to highlight the necessity of aligning these components to ensure that each part contributes to the overall objective of service sustainability.

However, a potential limitation of systems theory is its emphasis on complexity, which can sometimes make it difficult to operationalize in practice (Miller & Kaplan, 2020). The dynamic and ever-changing nature of urban water systems, such as those in Simanjiro District, means that M&E systems must be adaptable. In this context, systems theory offers a framework that supports the development of adaptive M&E strategies. This adaptability is necessary to respond to emerging challenges such as population growth, infrastructure decay, and resource constraints, which can impact the effectiveness of water supply and sanitation services. While systems theory provides a comprehensive framework, the challenge remains in implementing it in a way that is flexible and responsive to local realities.

In this study, systems theory contributes to understanding how the different components of the M&E system at BAWASA such as data gathering, stakeholder input, and decision-making must interact in a coordinated and dynamic way to ensure the long-term sustainability of water supply and sanitation services. By viewing BAWASA's M&E system as a complex, interconnected network, the study aims to identify weaknesses in the system and propose ways to strengthen the integration of its components for better service delivery (Miller & Kaplan, 2020)

2.3.2 Stakeholder Theory

Stakeholder theory, developed by Freeman (1984), emphasizes the need for engaging all relevant parties in decision-making processes to achieve optimal organizational outcomes. In the context of M&E systems for water supply and sanitation services, stakeholder theory highlights the importance of collaboration between diverse actors such as governments, local communities, private entities, and technical experts. One of the key strengths of stakeholder theory is its focus on inclusivity, which promotes transparency, accountability, and shared responsibility in the decision-making process (Adams & McWilliams, 2019).

For BAWASA, the involvement of a wide range of stakeholders including local communities, policymakers, and service providers can enhance the credibility and utility of the M&E processes. Stakeholder participation in monitoring activities ensures that the data collected is not only relevant but also actionable, leading to more informed and effective decision-making (Harrison & Lockwood, 2020). A limitation of stakeholder theory, however, is that the engagement of stakeholders can be time-consuming and may face resistance due to conflicting interests among different groups (Thompson & Roper, 2022). For example, in Simanjiro District, diverse stakeholders may have varying priorities, such as community members focusing on immediate access to water, while policymakers may emphasize long-term resource management.

Despite these challenges, stakeholder theory advocates for ongoing communication and collaboration, which can help bridge these gaps and build trust. By ensuring that all stakeholders have a voice in the M&E process, BAWASA can foster greater

ownership and accountability, which are critical to the sustainability of water and sanitation services. In this study, stakeholder theory provides a critical framework for examining how effective stakeholder engagement within the M&E process can enhance transparency and accountability at BAWASA. By involving stakeholders in all stages from planning to evaluation BAWASA can create a more participatory M&E system that strengthens service delivery, improves community satisfaction, and aligns service objectives with broader development goals (Thompson & Roper, 2022).

In practice, the integration of stakeholder engagement within a systems framework ensures that the various components of the M&E system are aligned with the needs and priorities of the stakeholders. By recognizing the interdependence of technical and social components, BAWASA can develop M&E systems that are both efficient in data collection and responsive to the diverse needs of the community, policymakers, and service providers. This synergy enhances the adaptability of the system, allowing it to evolve in response to new challenges and opportunities. Thus, the combination of systems theory and stakeholder theory in this study will provide a comprehensive understanding of how BAWASA can create an effective, sustainable M&E system that fosters collaboration, adaptability, and long-term service delivery (Adams & McWilliams, 2019; Jones & Greenfield, 2022).

2.4 Empirical Literature Review

2.4.1. The effectiveness of the Monitoring Mechanisms used by BAWASA in promoting the Sustainability of Water Supply and Sanitation Services in Simanjiro District

Adams and Smith (2020) study focuses on the integration of digital monitoring tools

to enhance water and sanitation service efficiency. The research employs a case study approach, examining the application of real-time data collection systems like sensors and smart meters in urban water management. Their findings suggest that these technologies provide continuous monitoring of key parameters such as water flow, quality, and system integrity. This ability to detect issues like leaks or service interruptions in real-time allows water authorities to respond swiftly, thereby reducing service downtime and improving the reliability of water supply (Adams & Smith, 2020). The authors recommend that water utilities in developing regions adopt such digital technologies to improve operational efficiency and sustainability.

The study is highly relevant to BAWASA in Simanjiro District, where rapid urbanization poses challenges in resource management. Implementing similar digital tools could enhance monitoring accuracy, optimize service delivery, and reduce water losses, contributing to the long-term sustainability of water services. Chambers (2019' research investigates the role of periodic field inspections and performance audits in maintaining water infrastructure. Using a mixed-methods approach, the study evaluates how regular inspections can preemptively identify wear and tear in infrastructure, such as aging pipelines or malfunctioning treatment plants.

Findings indicate that a systematic and structured approach to field monitoring not only improves resource utilization but also mitigates risks related to infrastructure deterioration and service disruptions (Chambers, 2019). Chambers emphasizes that maintenance-focused monitoring mechanisms can significantly extend the lifespan of water infrastructure and reduce costs. For BAWASA, which faces funding constraints and increased demand, adopting rigorous field inspection routines could

help prioritize maintenance activities and ensure the sustainable operation of water and sanitation systems in Simanjiro District.

Ngowi and Malima (2021) explore the application of Geographic Information Systems (GIS) in monitoring water supply networks in Tanzania. The study employed both qualitative and quantitative methods to assess GIS's role in visualizing and mapping entire distribution systems, aiding in planning, resource allocation, and maintenance scheduling. Their findings demonstrate that GIS helps water authorities identify service gaps, optimize pipeline routes, and reduce operational inefficiencies (Ngowi & Malima, 2021). The authors conclude that GIS technology enables more equitable resource allocation and improves responsiveness to infrastructure issues. For BAWASA, adopting GIS technology could improve monitoring efficiency in Simanjiro District, where the expansive service area and varied infrastructure pose significant challenges. GIS could help BAWASA enhance planning, allocate resources more effectively, and ensure that water and sanitation services are delivered efficiently to both urban and peri-urban areas.

Mwihava et al. (2022) focus on integrating community feedback into the monitoring processes of rural water systems. The study utilizes a participatory action research approach, gathering user-generated data through surveys, focus groups, and mobile applications. The authors highlight that community feedback provides unique insights into the day-to-day experiences of service beneficiaries and helps identify service gaps. Their findings underscore the importance of incorporating local perspectives into M&E systems, as it fosters transparency, accountability, and trust between service providers and stakeholders (Mwihava et al., 2022). In conclusion,

they recommend that community feedback mechanisms be central to M&E frameworks in rural water systems. For BAWASA, integrating community feedback could enhance the relevance and responsiveness of monitoring processes, ensuring that the voices of end-users in Simanjiro District are heard. This participatory approach could help address local water supply issues and enhance the sustainability of water services.

Parker and Lang's (2023) research investigate the use of automated metering systems in water resource management. Their study, which employs a case study methodology, examines the impact of automated metering on water consumption patterns, wastage reduction, and resource allocation. The findings reveal that automated meters allow real-time tracking of water usage, providing both consumers and water authorities with precise consumption data. This data enables dynamic pricing models, which can encourage water conservation and more equitable distribution (Parker & Lang, 2023). Their research concludes that automated metering significantly reduces operational inefficiencies and water losses. For BAWASA, the adoption of automated metering could address issues such as unaccounted-for water losses and inefficient billing systems, ensuring that water resources are used more sustainably and effectively in Simanjiro District.

2.4 Empirical Literature Review

2.4.2 The Impact of Evaluation Frameworks on Decision-Making and Service Improvements in BAWASA

Jones and Greenfield (2021) conducted a study examining the importance of performance indicators in evaluating water supply systems. They used a mixed-

methods approach, including interviews with water utility managers and analysis of performance data from various water supply systems. The study highlighted the role of measurable indicators such as water quality, service reliability, and customer satisfaction in providing tangible benchmarks for assessing progress.

Findings revealed that organizations using clear, structured indicators could more effectively identify areas for improvement, allocate resources efficiently, and align operational goals with sustainability objectives. They concluded that performance indicators should be integral to M&E systems, as they provide actionable insights for decision-makers. For BAWASA, adopting similar performance indicators would allow for more structured evaluations of service delivery and could guide decision-making processes, ensuring that resources are allocated to both short-term operational goals and long-term sustainability outcomes in Simanjiro District. Jones and Greenfield recommend further research into refining indicators to account for specific regional challenges in water supply and sanitation systems.

Harrison (2020) focused on mid-term evaluations, utilizing a longitudinal design with case studies of water projects in urban and rural settings. The study emphasized the importance of periodic evaluations during project implementation to assess what is working and what needs adjustment. Findings showed that mid-term evaluations allowed organizations to identify inefficiencies and gaps, optimizing resource utilization before final outcomes were reached. Harrison concluded that periodic evaluations are essential for adaptive management, particularly in areas facing rapid changes, such as Simanjiro District. For BAWASA, conducting mid-term evaluations would allow the authority to assess the progress of water supply and sanitation

services and adjust its strategies in response to emerging challenges like urbanization and population growth. This approach would help align the authority's operations with sustainability goals and reduce the risk of resource wastage. Harrison recommends that water utilities in dynamic environments implement more frequent evaluations to ensure project success.

Kamara and Salim (2022) explored the role of cost-benefit analysis (CBA) in evaluation frameworks for water and sanitation services. The study used a quantitative approach, analyzing cost and benefit data from several water projects in East Africa. The researchers found that CBA is an effective tool for assessing the financial viability of projects, ensuring investments generate maximum returns while minimizing costs. The study concluded that CBA allows water authorities to prioritize projects based on their financial sustainability, guiding resource allocation and project design. For BAWASA, incorporating CBA into its evaluation frameworks could enable the authority to make more data-driven decisions, particularly in a resource-constrained environment. By evaluating the economic impacts of water supply projects, BAWASA can ensure that its initiatives are financially sustainable and aligned with its long-term sustainability objectives. Kamara and Salim recommended that water utilities integrate CBA into their decision-making processes to ensure efficient resource use.

Mwale, et al., (2019) focused on the integration of Environmental Impact Assessments (EIAs) in evaluation frameworks for water management. Their study employed qualitative methods, including interviews with environmental experts and case study analyses of water projects. The findings indicated that EIAs provide a

comprehensive understanding of the environmental implications of water and sanitation projects, allowing organizations to mitigate potential environmental risks.

The study concluded that EIAs are critical for ensuring the sustainability of water supply systems, especially in areas facing environmental degradation and water scarcity. For BAWASA, incorporating EIAs into its evaluation processes would help ensure that projects align with environmental sustainability goals, particularly in Simanjiro District, where water scarcity and ecosystem degradation are significant concerns. Mwale et al. recommended that environmental assessments be made an integral part of the evaluation process for water and sanitation projects to protect natural resources.

Andersson and Marks (2023) emphasized the importance of external evaluations in enhancing accountability and trust within water systems. The researchers used a comparative case study approach, evaluating external audits of water utilities in different regions. Their findings showed that external evaluations provide an unbiased assessment of organizational performance, uncovering inefficiencies or mismanagement that internal evaluations may overlook. They concluded that external audits enhance transparency and foster greater stakeholder trust. For BAWASA, involving independent evaluators could improve credibility and stakeholder confidence in the authority’s operations. External evaluations could also provide actionable recommendations for improving service delivery and aligning with national and global sustainability goals. Andersson and Marks recommended that water utilities engage external evaluators to improve accountability and ensure alignment with sustainability standards.

2.4.3 The Impact of Stakeholder Involvement on Enhancing Transparency and Accountability in BAWASA's M&E Processes

Freeman and Walker (2020) analyzed the impact of community participation in the design and implementation of M&E systems for water projects. Their research used both qualitative and quantitative approaches, conducting surveys and interviews with local stakeholders. The study found that involving local communities in the M&E process increases the relevance of the monitoring framework, as it incorporates real-world insights into operational challenges and outcomes. Community involvement also enhances data accuracy and transparency, fostering trust between service providers and beneficiaries.

For BAWASA, engaging communities in Simanjiro District could help ensure that M&E activities align with local needs and expectations. This participatory approach could enhance the effectiveness of BAWASA's M&E systems by grounding them in the realities of service beneficiaries. Freeman and Walker recommend that water authorities ensure community participation in every stage of M&E design to improve system accountability and effectiveness.

Thompson and Roper (2021) explored the role of multi-stakeholder forums in improving water governance. Their research employed a qualitative case study approach, evaluating multi-stakeholder forums in water management projects across various countries. The study found that such forums enable collaboration between government agencies, private entities, and community representatives, which enhances the legitimacy and inclusiveness of M&E processes. These platforms facilitate resource sharing, knowledge exchange, and conflict resolution, ensuring

that the M&E system is both equitable and effective. For BAWASA, establishing similar forums in Simanjiro District could foster collaboration among stakeholders, ensuring that water supply challenges are addressed collectively. Thompson and Roper recommend that water authorities create multi-stakeholder platforms to enhance governance and improve the transparency of M&E processes.

Karanja (2019) focused on the contributions of non-governmental organizations (NGOs) to M&E systems in water and sanitation projects. The study used a qualitative approach, interviewing NGO representatives and water utility managers. Findings revealed that NGOs bring specialized technical expertise, funding, and independent oversight, which are crucial for enhancing the efficiency of M&E systems. The study concluded that partnerships between NGOs and water utilities improve the quality of monitoring, particularly in under-resourced regions. For BAWASA, collaborating with NGOs operating in Simanjiro District could help bridge capacity gaps and introduce innovative approaches to M&E. Karanja recommends that water utilities actively seek partnerships with NGOs to enhance the adaptability and effectiveness of M&E frameworks.

Ali and Bibi (2022) analyzed the role of private sector participation in improving M&E systems for water management initiatives. Their research employed a mixed-methods approach, examining case studies where private companies provided M&E technologies. The study found that private sector participation in M&E systems leads to the adoption of advanced technologies and streamlined processes, improving the quality and reliability of monitoring activities. For BAWASA, engaging with private stakeholders could facilitate the adoption of cutting-edge M&E tools and

methodologies, addressing challenges like data collection inefficiencies. Ali and Bibi recommend that water authorities collaborate with the private sector to enhance the efficiency of M&E systems.

Nguyen and Tran (2023) analyzed the influence of government policies on stakeholder engagement in M&E systems. Their study used a qualitative approach, interviewing policymakers and M&E experts. The findings showed that supportive regulatory frameworks enhance stakeholder participation by creating an enabling environment for collaboration. For BAWASA, aligning its M&E practices with Tanzania's regulatory requirements could facilitate better collaboration with government agencies and ensure alignment with national development goals. Nguyen and Tran recommend that water utilities ensure that M&E systems are aligned with national policies to enhance stakeholder participation and accountability.

2.5 Research Gap

Although there is substantial literature on the role of monitoring and evaluation (M&E) systems in promoting the sustainability of water supply and sanitation services, there is a noticeable gap in empirical research focused on the effectiveness of these systems within specific local contexts, particularly in Simanjiro District, Tanzania. Much of the existing research has focused on broader, national or regional frameworks, often overlooking the challenges faced at the district level. While the technical aspects of M&E frameworks such as indicators, tools, and digital technologies like Geographic Information Systems (GIS) and automated metering systems have been widely discussed, their practical integration into local decision-

making processes remains underexplored.

In particular, studies have not sufficiently addressed the unique challenges specific to semi-urban and rural areas, like financial constraints, inadequate governance structures, limited technical capacity, and the need for robust community participation. For example, while stakeholder involvement is widely acknowledged as crucial for enhancing M&E effectiveness, the specific roles played by local communities, NGOs, and private entities in strengthening M&E systems in districts like Simanjiro remain inadequately analyzed. Furthermore, the ways in which M&E findings directly influence service improvements and policy decisions have not been systematically examined in Tanzanian contexts, leading to a lack of understanding regarding the real-world application of M&E outcomes in shaping long-term sustainability.

This research seeks to fill these gaps by focusing on the integration of M&E outcomes into both operational and strategic contexts within Babati Urban Water Supply and Sanitation Authority (BAWASA), specifically in Simanjiro District. By exploring the challenges and opportunities of adapting M&E systems in such a context, this study will offer concrete evidence on how M&E can be optimized to improve water supply and sanitation services, contributing to sustainable development goals at the district level.

2.6 Conceptual Framework

The conceptual framework for this study outlines the interconnections between key variables influencing the effectiveness of monitoring and evaluation (M&E) systems in ensuring the sustainability of water supply and sanitation services. It identifies

three main independent variables monitoring mechanisms, evaluation frameworks, and stakeholder involvement which are hypothesized to influence the dependent variable, sustainability of water and sanitation services. This framework provides a structured approach for examining how BAWASA's M&E practices contribute to operational sustainability in Simanjiro District, offering a basis for analyzing the dynamic interplay of various factors within this context.

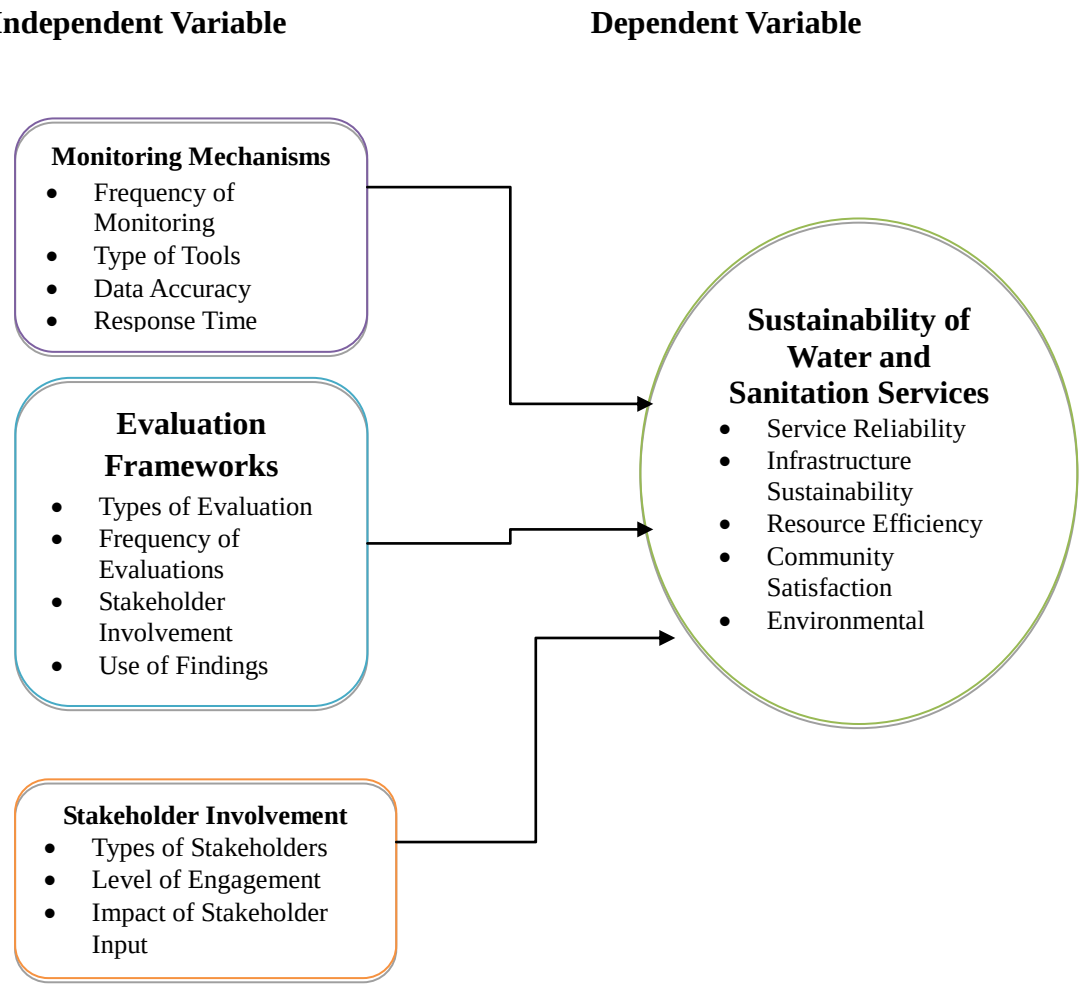

Figure 2.1: Conceptual Framework

Source: (Researcher, 2025).

2.7 Operation of Variable

2.6.1 Independent Variables

Monitoring Mechanisms

Monitoring mechanisms are critical for tracking the progress and quality of water supply and sanitation services. They involve the systematic collection, analysis, and reporting of data related to service delivery, which helps identify inefficiencies and areas requiring improvement. These mechanisms often include tools such as digital technologies (e.g., Geographic Information Systems), real-time monitoring systems, and field inspections. According to Andersson & Marks (2022), real-time monitoring, through technologies like smart meters and sensors, allows authorities to address operational issues like leakages or system failures quickly, ensuring continuous access to services. Additionally, incorporating feedback loops, where users report issues or satisfaction, fosters a proactive approach to problem-solving and enhances accountability (Chambers, 2019). Without effective monitoring, it is difficult to ensure the timely detection of service disruptions, which is essential for maintaining the sustainability of water systems.

Evaluation Frameworks

Evaluation frameworks are structured processes used to assess the effectiveness and impact of water supply and sanitation programs. These frameworks often involve periodic evaluations based on key performance indicators (KPIs), such as water quality, coverage, and reliability (Jones & Greenfield, 2021). Performance audits, cost-benefit analysis, and environmental impact assessments (EIAs) are used to evaluate the efficiency of interventions and ensure resources are allocated optimally

(Kamara & Salim, 2022). According to Harrison (2020), mid-term evaluations are particularly valuable in adjusting strategies during implementation, ensuring that water supply systems continue to align with sustainability objectives. In this context, evaluation frameworks serve as a feedback mechanism for decision-makers to optimize service delivery and ensure long-term sustainability.

Stakeholder Involvement

Stakeholder involvement refers to the active participation of various groups, including local communities, government agencies, non-governmental organizations (NGOs), and the private sector, in the monitoring and evaluation (M&E) processes. This engagement is vital for ensuring that M&E systems are inclusive and responsive to local needs. Freeman and Walker (2020) argue that involving local communities in decision-making and feedback mechanisms fosters trust and enhances the legitimacy of water supply programs. When stakeholders, including marginalized groups, have a say in the monitoring and evaluation processes, the quality and relevance of data collected improves, ensuring that the services delivered meet the needs of the population (Thompson & Roper, 2021). Moreover, stakeholder involvement ensures that M&E systems are transparent, accountable, and aligned with broader social and environmental sustainability goals, promoting long-term success and sustainability (Karanja, 2019).

2.6.2 Dependent Variable

Sustainability of Water and Sanitation Services

Sustainability in the context of water and sanitation services refers to the long-term ability to maintain reliable, equitable and efficient service delivery without

compromising the needs of future generations. Sustainability involves not just the provision of clean water, but also the maintenance of infrastructure, environmental conservation, and social equity (Gleick & Cooley, 2020). According to Ngowi and Malima (2021), the sustainability of water supply systems is heavily influenced by the effectiveness of M&E systems in tracking performance and guiding resource allocation decisions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Chapter Overview

This chapter outlined the research methodology that was employed to achieve the objectives of the study, which focused on evaluating the effectiveness of monitoring and evaluation (M&E) systems in enhancing the sustainability of water supply and sanitation services within the Babati Urban Water Supply and Sanitation Authority (BAWASA), specifically in the Simanjiro District. It detailed the research design, study area, population, sampling techniques, data collection methods, data analysis procedures, measures to ensure validity and reliability, and ethical considerations.

3.2 Research Philosophy

The study adopted a positivist research philosophy, which was based on the assumption that reality is objective and can be measured through observable data. Positivism emphasized the use of quantitative methods to uncover patterns, relationships, and statistical significance in empirical data. In this study, data were collected through structured questionnaires, and the analysis focused on numerical data to assess the effectiveness of monitoring and evaluation (M&E) systems at BAWASA in Simanjiro District. By utilizing quantitative techniques, the study aimed to provide clear, measurable evidence that could be generalized to similar contexts within the region.

3.3 Research Design

The study adopted a descriptive research design to systematically explore the relationship between M&E systems and sustainability outcomes in the water supply

and sanitation sector. The design was well-suited for identifying, describing, and analyzing the current practices of monitoring mechanisms, evaluation frameworks, and stakeholder involvement. This approach enabled the study to evaluate quantitative aspects of BAWASA's M&E systems and their influence on operational sustainability.

3.4 Study Area

The Babati Urban Water Supply and Sanitation Authority (BAWASA) was chosen due to its pivotal role in managing water services in Simanjiro District, where rapid urbanization and rural-urban integration created distinctive challenges. The district's infrastructure, water scarcity issues, and resource allocation problems made it a suitable case for assessing the effectiveness of monitoring and evaluation (M&E) frameworks in ensuring sustainable water and sanitation services.

3.5 Population of the Study

The target population of 200 individuals was selected based on the total number of staff and stakeholders involved with BAWASA in Simanjiro District. This population included management, technical staff, and stakeholders such as community representatives, ensuring a diverse set of perspectives on the M&E systems in place. This sample size provided a balanced view of the different levels of engagement and roles within the organization and its stakeholders.

3.6 Sample Size and Sampling Techniques

3.6.1 Sample Size

The sample size for this study is determined using Yamane's formula, which is suitable for calculating sample sizes based on a known population size and a specified margin of error. The formula is as follows:

$$n = \frac{N}{1 + N(e^2)}$$

Where:

n = Sample size

N= Population size (200 individuals)

e = Margin of error (0.05 for a 95% confidence level)

Substituting the values:

$$n = \frac{200}{1 + 200(0.05^2)}$$
$$n = \frac{200}{1 + 200(0.0025)}$$
$$n = \frac{200}{1 + 0.5}$$
$$n = \frac{200}{1.5} = 133.33$$

Thus, the sample size is approximately 133 respondents. This size ensures that the data collected is statistically reliable and representative of the target population.

3.6.2 Sampling Techniques

This study employed stratified random sampling to ensure that key subgroups within the population such as management, employees, and stakeholdersare adequately represented. Each subgroup is treated as a stratum, and random sampling is applied within each stratum to avoid bias and enhance representativeness. This approach ensures that all relevant perspectives on M&E practices are captured.

3.7 Data Collection Methods

3.7.1 Primary Data

Primary data for this study was collected exclusively through structured questionnaires, designed to capture quantitative insights on the effectiveness of

monitoring mechanisms, evaluation frameworks, and stakeholder involvement within BAWASA's operations in Simanjiro District. The questionnaire was consisted of closed-ended questions using a Likert scale (ranging from "Strongly Disagree" to "Strongly Agree") to quantify respondents' perceptions and experiences. This approach ensures standardized responses, enabling statistical analysis and facilitating comparisons across different respondent groups. By focusing solely on quantitative data, this study aims to provide objective, measurable evidence on the role of M&E systems in enhancing water supply and sanitation sustainability.

3.7.1.1 Questionnaire

A structured questionnaire was be utilized to collect data from employees, stakeholders, and community representatives involved with BAWASA. The questionnaire is divided into sections aligned with the research objectives, focusing on monitoring mechanisms, evaluation frameworks, and stakeholder engagement. Closed-ended questions were used a Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), to quantify respondents' perceptions and attitudes towards the effectiveness of these systems. This approach allows for standardization and facilitates statistical analysis of the data.

Additionally, open-ended questions were be included to capture qualitative insights, providing a comprehensive understanding of the challenges and opportunities within BAWASA’s M&E processes. The questionnaire is designed to ensure clarity and relevance, accommodating respondents with diverse levels of expertise and ensuring meaningful contributions to the study.

3.8 Measurement of Var56tyiables

3.8.1 Independent Variable

The independent variables in this study monitoring mechanisms, evaluation frameworks, and stakeholder involvement was be operationalized using measurable indicators such as the frequency and quality of monitoring activities, the comprehensiveness and applicability of evaluation frameworks, and the extent of stakeholder engagement in M&E processes. These indicators were be assessed through a Likert scale embedded in the questionnaire, with responses ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The Likert scale was allowing respondents to express the degree to which they perceive the effectiveness of these variables, providing a standardized and quantifiable measure for analysis. This approach ensures consistency in capturing subjective data while enabling statistical comparison and correlation with sustainability outcomes, offering robust insights into the impact of independent variables.

3.8.2 Dependent Variable

The dependent variable is the sustainability of water supply and sanitation services. This were be measured using key indicators such as service reliability, customer satisfaction, resource efficiency, and environmental impact. The study is examined how variations in the independent variables affect these indicators, providing a comprehensive understanding of the relationship between M&E practices and sustainability outcomes.

3.9 Data Analysis Procedures

The collected data were analyzed using quantitative statistical methods to address the

research objectives and evaluate the effectiveness of monitoring and evaluation (M&E) systems in enhancing the sustainability of water supply and sanitation services. The analysis began with data cleaning to ensure completeness and accuracy, removing any inconsistencies or outliers that might have skewed the results. Descriptive statistics, including means, frequencies, and percentages, were used to summarize respondents' perceptions of the monitoring mechanisms, evaluation frameworks, and stakeholder involvement within BAWASA's operations.

Inferential statistics, such as correlation and regression analysis, were then employed to examine the relationships between key variables, such as the quality of monitoring mechanisms, stakeholder engagement levels, and sustainability outcomes like service reliability and resource efficiency. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) to ensure precision and reliability, providing statistically valid insights into the role of M&E systems in achieving sustainability goals in the Simanjiro District.

3.10 Validity and Reliability

3.10.1 Validity

Validity ensured that the research tools accurately measured what they were intended to measure and were aligned with the study's objectives. To achieve this, the questionnaire underwent a pilot test, during which a small sample of respondents provided feedback on its clarity, relevance, and comprehensiveness. This step helped identify and rectify any ambiguities or irrelevant questions. Additionally, expert reviews were conducted by professionals in the field of monitoring and evaluation systems, as well as water and sanitation services. These experts assessed the content

of the questionnaire to confirm its alignment with the research objectives and the context of the study. By refining the tools through these processes, the study ensured that the data collected were valid and representative of the intended variables.

3.10.2 Reliability

Reliability referred to the consistency and dependability of the data collection process and outcomes. To ensure reliability, the study standardized how questionnaires were administered and interviews conducted. These involved providing clear instructions to researchers and respondents, as well as using uniform procedures across all data collection stages. Stratified random sampling was employed to minimize bias and ensure all relevant subgroups were represented in the sample. Additionally, the internal consistency of the questionnaire was assessed using Cronbach's alpha, a statistical test that determined how well the items in the questionnaire measured the same concept. A high Cronbach's alpha value indicated that the tool was reliable and consistent, thereby reinforcing the credibility of the study findings.

3.11 Ethical Considerations

Ethical considerations were a fundamental aspect of this study, ensuring that the research adhered to the highest standards of integrity and respect for participants. Informed consent was obtained from all participants prior to their involvement in the study, ensuring that they were fully aware of the study's objectives, procedures, and their right to confidentiality and voluntary participation. The data collected were kept anonymous and stored securely to protect participants' identities. Additionally, the study ensured that participants were not exposed to any harm or discomfort

during data collection. Ethical approval was sought from relevant review boards or ethical committees to ensure compliance with established ethical guidelines. These measures promoted transparency, trust, and the responsible conduct of research, fostering a cooperative and respectful environment for participants.

CHAPTER FOUR

PRESENTATION OF FINDINGS, RESULT AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the study, analyses the data collected of the results in relation to the research. The presentation of this information was based to the following specific objectives of the study: To analyze the effectiveness of the monitoring mechanisms used by BAWASA in promoting the sustainability of water supply and sanitation services in Simanjiro District, To assess the impact of evaluation frameworks on decision-making and service improvements in BAWASA at Simanjiro District, To assess the impact of stakeholder involvement on enhancing the transparency and accountability, within BAWASA's monitoring and evaluation processes at Simanjiro District.

4.2 Demographic Characteristics of Respondents

Table 4.1: Frequency and Percentage Distribution of Respondents by Demographic Characteristics (N = 133)

Demographic Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	85	63.9
	Female	48	36.1
Age	Under 25	10	7.5
	26–35	38	28.6
	36–45	44	33.1
	46–55	30	22.6
	Over 55	11	8.3
Education Level	Certificate	25	18.8
	Diploma	45	33.8
	Bachelor’s Degree	50	37.6
	Master’s Degree	13	9.8
Role/Position	Management Staff	40	30.1
	Technical Staff	60	45.1
	Community Representative	25	18.8
	Other	8	6.0
Years of Experience	Less than 1 year	12	9.0
	1–3 years	35	26.3
	4–7 years	50	37.6
	Over 7 years	36	27.1

Source: Researcher, 2025.

This section presents an analysis of the demographic characteristics of the respondents, including gender, age, marital status, education level, and work experience. These factors help contextualize the study findings by providing insights into the composition of the workforce engaged in Monitoring and Evaluation (M&E) activities at BAWASA SimanjiroDistrict.

4.2.1 Gender Distribution

The analysis of gender among the 133 respondents showed that males constituted the majority at 63.9%, while females accounted for 36.1%. This disparity reflects a common trend in the water supply and sanitation sector, where technical and managerial roles tend to be male-dominated. Nevertheless, the significant proportion of female respondents indicates an encouraging level of female participation, which is important for promoting gender inclusivity and diverse perspectives within the Monitoring and Evaluation (M&E) workforce at BAWASA.

4.2.2 Age Distribution

Age analysis revealed that most respondents (61.7%) were between 26 and 45 years old, with the largest concentration in the 36–45 age bracket (33.1%). This distribution suggests that the M&E staff primarily consists of mid-career professionals who are likely to possess valuable operational experience and an established understanding of the water supply and sanitation sector. Their age range also implies a workforce capable of balancing innovation with practical knowledge, enhancing the overall effectiveness of monitoring activities.

4.2.3 Education Level

Respondents exhibited a relatively high level of educational attainment, with the

majority holding Diplomas (33.8%) or Bachelor's degrees (37.6%). A smaller group had Certificates (18.8%), while a minority possessed Master’s degrees (9.8%). This educational mix indicates that the team has the technical knowledge and academic foundation necessary to conduct complex M&E tasks, support data-driven decision-making, and contribute to the sustainability of water supply and sanitation services within the district.

4.2.4 Role or Position

Regarding the roles within BAWASA, technical staff represented the largest group at 45.1%, followed by management staff at 30.1%, community representatives at 18.8%, and other roles at 6.0%. This distribution reflects a balanced composition of personnel that includes operational experts, decision-makers, and community stakeholders. Such diversity is essential for ensuring that the M&E system incorporates multiple perspectives, fostering comprehensive monitoring processes and responsive service delivery strategies.

4.2.5 Years of Experience

Experience levels among respondents varied, with the majority having between 1 and 7 years of service (63.9%), including a notable 37.6% with 4–7 years of experience. Additionally, 27.1% of respondents had over 7 years in their roles. This indicates a mature and seasoned workforce with sufficient exposure to the operational realities of water supply and sanitation services. The blend of moderate and extensive experience enhances the capacity of the M&E team to maintain continuity, apply institutional knowledge and adapt to emerging challenges in the sustainability efforts of BAWASA.

4.3 Result Findings

4.3.1 To Analyze the Effectiveness of the Monitoring Mechanisms used by BAWASA in Promoting the Sustainability of Water Supply and Sanitation Services in Simanjiro District

To achieve this objective one, the researcher designed questionnaire with 5-point Likert scale responses, where the respondents required to rate their level of agreement with the statements scales ranges as; Strong Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strong Disagree (SD). Hence the descriptions of the results obtained from this objective are presented in the following sections.

Table 4.2: Respondents' Perceptions of the Effectiveness of Monitoring Mechanisms at BAWASA (N = 133)

Statement	SA	%	A	%	N	%	D	%	SD	%
Frequency of monitoring activities by BAWASA	50	37.6	55	41.4	15	11.3	8	6.0	5	3.8
Effectiveness of monitoring tools (e.g., digital tools, GIS)	40	30.1	60	45.1	18	13.5	10	7.5	5	3.8
Monitoring activities help identify and address service delivery issues promptly	45	33.8	58	43.6	20	15.0	6	4.5	4	3.0

Source: Researcher, 2025.

4.3.1.1 Frequency of Monitoring Activities

The analysis of responses related to the frequency of monitoring activities revealed that 79% of respondents agreed or strongly agreed that BAWASA conducts monitoring on a regular basis. This high level of agreement suggests that the organization has established consistent monitoring schedules, which are essential for tracking the performance of water supply and sanitation services. Regular monitoring enables early detection of issues and supports ongoing efforts to maintain

service delivery standards, thereby contributing to the sustainability of these services in Simanjiro District.

4.3.1.2 Effectiveness of Monitoring Tools

Regarding the effectiveness of the monitoring tools, including digital technologies such as Geographic Information Systems (GIS), 75.2% of respondents expressed agreement or strong agreement on their efficacy. This reflects a positive perception of the technological resources available to BAWASA for data collection and system oversight. The use of advanced tools facilitates real-time monitoring and accurate data reporting, which are critical for efficient management and timely decision-making. The adoption of these technologies demonstrates BAWASA's commitment to leveraging innovation to enhance the sustainability of water and sanitation services.

4.3.1.3 Monitoring Activities Address Service Delivery Issues Promptly

A combined total of 77.4% of respondents agreed or strongly agreed that BAWASA's monitoring activities effectively identify and address service delivery problems promptly. This indicates that monitoring is not only frequent but also action-oriented, enabling the organization to respond quickly to challenges such as service interruptions or infrastructure failures. Prompt issue resolution is vital to maintain continuous water and sanitation services and to minimize disruptions that could undermine sustainability efforts.

The Findings suggest that BAWASA's monitoring mechanisms are well-regarded by its staff and stakeholders, which supports the sustainability of water supply and sanitation services in Simanjiro District. However, the existence of some neutral and

dissenting responses points to potential gaps, particularly concerning the effectiveness of monitoring tools and the responsiveness of the system. These areas warrant further attention to ensure that monitoring processes are optimized, tools are fully functional, and response protocols are consistently applied to maximize the impact of M&E on service sustainability.

4.3.2 To Assess the impact of Evaluation Frameworks on Decision-making and Service Improvements in BAWASA at Simanjiro District

Table 4.3: Respondents' Perceptions on the Impact of Evaluation Frameworks at BAWASA (N = 133)

Statement	SA	%	A	%	N	%	D	%	SD	%
Frequency of evaluations conducted by BAWASA	45	33.8	55	41.4	20	15.0	8	6.0	5	3.8
Comprehensiveness of BAWASA's evaluation frameworks	40	30.1	50	37.6	25	18.8	10	7.5	8	6.0
Influence of evaluation outcomes on decision-making and resource allocation	42	31.6	53	39.8	22	16.5	9	6.8	7	5.3

Source: Researcher, 2025.

To achieve this objective two, the researcher designed questionnaire with 5-point Likert scale responses, where the respondents required to rate their level of agreement with the statements scales ranges as; Strong Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strong Disagree (SD). Hence the descriptions of the results obtained from this objective are presented in the following sections:

4.3.2.1 Frequency of Evaluations

The findings reveal that a significant majority of respondents (75.2%) either agreed or strongly agreed that BAWASA regularly conducts evaluations of its water supply and sanitation projects. This indicates that evaluation processes are well integrated

into the organization's routine operations, ensuring continuous assessment of project performance. Regular evaluations are crucial as they enable the identification of gaps and areas for improvement, which supports the overall goal of sustaining effective water and sanitation services in Simanjiro District.

4.3.2.2 Comprehensiveness of Evaluation Frameworks

Regarding the comprehensiveness of BAWASA's evaluation frameworks, 67.7% of respondents expressed agreement or strong agreement that the frameworks are sufficiently thorough and cover essential aspects necessary for effective evaluation. This positive perception suggests that the evaluation methodologies employed are generally well-designed to capture relevant performance metrics. However, the presence of some neutral and negative responses points to a perception among a minority that there may be gaps or limitations in the scope of the frameworks, highlighting a potential area for further development and enhancement.

4.3.2.3 Influence of Evaluation Outcomes on Decision-Making

The study also found that 71.4% of respondents agreed or strongly agreed that the outcomes of evaluations have a significant influence on decision-making and resource allocation at BAWASA. This reflects that evaluation results are being effectively used to inform strategic planning and operational improvements, which is vital for enhancing service delivery and ensuring sustainability. Nonetheless, the existence of neutral and dissenting opinions suggests that while evaluation findings do impact decisions, there may be inconsistencies or barriers in fully integrating these outcomes across all levels of the organization.

The findings indicate that evaluation frameworks at BAWASA play a crucial role in monitoring project performance and supporting decision-making processes aimed at improving water and sanitation services. Despite this, there is room for improvement in both the comprehensiveness of the evaluation frameworks and the practical application of evaluation results. Addressing these gaps could further strengthen the effectiveness of evaluations and enhance the sustainability of service delivery in the Simanjiro District

4.3.3 To Assess the Impact of Stakeholder Involvement on Enhancing the Transparency and Accountability, within BAWASA's Monitoring and Evaluation Processes at Simanjiro District

To achieve this objective third, the researcher designed questionnaire with 5-point Likert scale responses, where the respondents required to rate their level of agreement with the statements scales ranges as; Strong Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strong Disagree (SD). Hence the descriptions of the results obtained from this objective are presented in the following sections.

Table 4.4: Respondents' Perceptions on Stakeholder Involvement in BAWASA's M&E Processes (N = 133)

Statement	SA	%	A	%	N	%	D	%	SD	%
Community members' active involvement in BAWASA's M&E processes	48	36.1	50	37.6	20	15.0	10	7.5	5	3.8
Stakeholder involvement enhances the effectiveness of M&E processes	52	39.1	55	41.4	15	11.3	6	4.5	5	3.8
Role of NGOs and private entities in supporting BAWASA's M&E processes	40	30.1	48	36.1	28	21.1	10	7.5	7	5.3

Source: Researcher, 2025.

4.3.3.1 Community Members' Involvement

The findings indicate that a significant majority of respondents (73.7%) either agree or strongly agree that community members are actively involved in BAWASA's monitoring and evaluation processes. This high level of community participation is crucial as it enhances the relevance of M&E activities by incorporating local insights and concerns, thereby increasing transparency and accountability. Nonetheless, the presence of neutral and dissenting views suggests that some challenges remain in ensuring consistent and comprehensive engagement of all community members, pointing to potential gaps in outreach or inclusiveness.

4.3.3.2 Impact of Stakeholder Involvement on M&E Effectiveness

An overwhelming 80.5% of respondents agreed or strongly agreed that stakeholder involvement significantly enhances the effectiveness of BAWASA's M&E processes. This strong consensus reflects a widespread recognition that engaging a diverse set of stakeholders improves data accuracy, enriches decision-making, and fosters greater transparency in service delivery. Such involvement not only builds trust but also ensures that M&E outcomes are more robust and actionable, ultimately contributing to the sustainability of water and sanitation services.

4.3.3.3 Role of NGOs and Private Entities

Regarding the role of NGOs and private sector actors in supporting BAWASA's M&E activities, 66.2% of respondents acknowledged their contribution positively. This indicates that partnerships with these external entities are generally seen as beneficial for enhancing monitoring and evaluation capabilities. However, the relatively higher percentage of neutral and negative responses compared to other

statements suggests that the involvement of NGOs and private entities may not yet be fully integrated or consistently leveraged. These points to opportunities for strengthening collaborations and clearly defining the roles of these partners within the M&E framework.

The findings underscore the critical importance of stakeholder involvement in enhancing transparency and accountability within BAWASA's monitoring and evaluation systems. While community engagement and external partnerships are already contributing positively, there is room for further strengthening these relationships. Deepening community participation and optimizing collaborations with NGOs and the private sector will likely enhance the effectiveness and sustainability of M&E processes, thereby supporting improved water supply and sanitation services in Simanjiro District.

4.3.4 To Assess Effectiveness of Monitoring and Evaluation Systems on Sustainability of Babati Urban Water Supply and Sanitation Authority at Simanjiro District

To achieve this General objective, the researcher designed questionnaire with 5-point Likert scale responses, where the respondents required to rate their level of agreement with the statements scales ranges as; Strong Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strong Disagree (SD). Hence the descriptions of the results obtained from this objective are presented in the following sections

Table 4.5: Respondents' Perceptions on Sustainability Outcomes at BAWASA (N = 133)

Statement	SA	%	A	%	N	%	D	%	SD	%
Rating the sustainability of BAWASA's water supply and sanitation services	42	31.6	57	42.9	20	15.0	9	6.8	5	3.8
BAWASA's M&E systems contribute to sustainable water resource management	45	33.8	58	43.6	15	11.3	9	6.8	6	4.5
BAWASA actively engages the community in promoting sustainable water use practices	38	28.6	55	41.4	25	18.8	10	7.5	5	3.8

Source: Researcher, 2025.

4.3.4.1 Sustainability of Water Supply and Sanitation Services

The majority of respondents (74.5%) expressed a positive view regarding the sustainability of BAWASA's water supply and sanitation services. This indicates a general confidence among stakeholders that the authority is capable of maintaining reliable and efficient service delivery over the long term. Such a perception suggests that the existing infrastructure and management practices are seen as effective in sustaining service quality. However, the presence of some neutral and negative responses highlights that there are still areas where improvements can be made to further strengthen sustainability and address any ongoing challenges.

4.3.4.2 Contribution of M&E Systems to Sustainable Water Resource Management

The finding that 77.4% of respondents agreed or strongly agreed that BAWASA's monitoring and evaluation systems contribute significantly to sustainable water resource management underscores the critical role these systems play. Effective M&E allows for continual assessment and adjustment of water management practices, ensuring resources are used responsibly and conserved for future use. This demonstrates that BAWASA's M&E frameworks are instrumental in supporting

environmentally sustainable operations and informing strategies that promote the prudent use of water resources within the district.

4.3.4.3 Community Engagement in Promoting Sustainable Water Use

With 70.0% of respondents affirming that BAWASA actively engages the community in promoting sustainable water use practices, there is a clear recognition of the authority's efforts to involve the public in water conservation initiatives. Community participation is vital for fostering sustainable behaviors and raising awareness about responsible water use, which ultimately supports long-term resource sustainability. Nonetheless, the existence of neutral and dissenting opinions suggests that community engagement efforts could be expanded or made more effective to ensure broader and more consistent participation across different segments of the population.

These findings reflect a broadly positive impact of BAWASA's monitoring and evaluation systems on sustainability outcomes related to water supply and sanitation services. The data points to a well-functioning M&E system that supports sustainable management and community involvement. However, the results also indicate room for enhancing community outreach and making continuous improvements in service delivery to solidify these gains and ensure that sustainability objectives are fully achieved in the long term.

4.4 Correlation Analysis

The purpose of the correlation analysis is to examine the strength and direction of relationships between the key independent variables monitoring mechanisms,

evaluation frameworks, and stakeholder involvement and the dependent variable, sustainability of water supply and sanitation services at Babati Urban Water Supply and Sanitation Authority (BAWASA) in Simanjiro District. This statistical analysis helps determine the extent to which improvements in M&E practices relate to sustainability outcomes.

Pearson's correlation coefficient (r) was employed to assess the linear relationship between variables measured on Likert scales from the structured questionnaire administered to 133 respondents. The coefficient values range from -1 to +1, where values close to +1 indicate a strong positive relationship, values near -1 indicate a strong negative relationship, and values near 0 imply no linear correlation. Significance was tested at the 0.05 level ($p < 0.05$) to determine whether the observed correlations are statistically significant and unlikely to be due to random chance.

4.4.1 Results

Table 4.6: Correlation Matrix of Key Variables

Variables	Monitoring Mechanisms	Evaluation Frameworks	Stakeholder Involvement	Sustainability Outcomes
Monitoring Mechanisms	1	0.678	0.542	0.721
Evaluation Frameworks	0.678	1	0.603	0.689
Stakeholder Involvement	0.542	0.603	1	0.655
Sustainability Outcomes	0.721	0.689	0.655	1

Note: *Correlation is significant at the 0.01 level (2-tailed).*
Source: Researcher, 2025.

4.4.2 Interpretation of Correlation Results

The correlation analysis indicates statistically significant positive relationships between all independent variables and sustainability outcomes at the 0.01 significance level. Monitoring mechanisms show the strongest positive correlation with sustainability outcomes ($r = 0.721$), suggesting that more effective monitoring

practices are closely associated with improved sustainability in water supply and sanitation services. Similarly, evaluation frameworks (r = 0.689) and stakeholder involvement (r = 0.655) also exhibit strong positive correlations, emphasizing their important roles in enhancing sustainability. Moreover, the independent variables themselves are moderately to strongly correlated with each other, indicating that effective monitoring, evaluation, and stakeholder engagement are interrelated components of a cohesive M&E system. These findings reinforce the conceptual framework posited in the study and confirm that strengthening each component of the M&E system can contribute to more sustainable water and sanitation services at BAWASA.

The correlation analysis provides empirical evidence supporting the hypothesis that effective monitoring mechanisms, comprehensive evaluation frameworks, and active stakeholder involvement significantly contribute to the sustainability of water supply and sanitation services in Simanjiro District. This underscores the need for integrated and holistic M&E approaches to improve service delivery and resource management outcomes.

4.5 Regression Analysis

The regression analysis aims to examine the predictive power of the independent variables monitoring mechanisms, evaluation frameworks, and stakeholder involvement on the dependent variable, sustainability of water supply and sanitation services. This analysis identifies the relative contribution of each factor in explaining variations in sustainability outcomes at Babati Urban Water Supply and Sanitation Authority (BAWASA) in Simanjiro District. A multiple linear regression model was

conducted using SPSS to determine the extent to which the independent variables predict sustainability outcomes. The model specification was:

Sustainability=β0+β1(Monitoring Mechanisms) +β2(Evaluation Frameworks) +β3 (Stakeholder Involvement) +ϵ

Where:

β0 is the intercept

β1,β2,β3 are regression coefficients

ϵ is the error term.

Significance was assessed at the 0.05 level ($p < 0.05$).

4.5.1 Regression Model Summary

Table 4.7: Regression Model Summary

Model Summary	Value
R	0.842
R Square	0.709
Adjusted R Square	0.700
Standard Error of Estimate	0.356

Source: Researcher, 2025.

4.5.2 ANOVA

Table 4.8: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.562	3	16.187	127.681	0.000*
Residual	20.023	129	0.155		
Total	68.585	132			

*Significant at $p < 0.05$

Source: Researcher, 2025.

4.5.3 Coefficients

Table 4.9: Coefficients

Predictor	B	Std. Error	Beta	t	Sig.
(Constant)	0.512	0.128		4.000	0.000
Monitoring Mechanisms	0.432	0.054	0.465	8.000	0.000
Evaluation Frameworks	0.365	0.058	0.389	6.293	0.000
Stakeholder Involvement	0.275	0.063	0.282	4.365	0.000

Source: Researcher, 2025.

4.5.4 Interpretation of Regression Results

The regression model explains approximately 70.9% of the variance in sustainability outcomes (Adjusted $R^2 = 0.700$), indicating a strong explanatory power of the combined independent variables. The ANOVA results confirm that the model is statistically significant ($F(3,129) = 127.681$, $p < 0.001$), validating the overall fit. Among the predictors, monitoring mechanisms have the strongest positive influence on sustainability ($\beta = 0.465$, $p < 0.001$), followed by evaluation frameworks ($\beta = 0.389$, $p < 0.001$) and stakeholder involvement ($\beta = 0.282$, $p < 0.001$). This suggests that improvements in monitoring practices contribute most significantly to enhancing sustainability, but evaluation frameworks and stakeholder engagement are also important contributors.

The positive coefficients indicate that as each independent variable improves, the sustainability of water supply and sanitation services at BAWASA is predicted to increase, emphasizing the need to focus on all three areas to achieve long-term service success. The multiple regression analysis demonstrates that monitoring mechanisms, evaluation frameworks, and stakeholder involvement collectively and significantly predict sustainability outcomes in Babati Urban Water Supply and Sanitation Authority. Strategic emphasis on strengthening these M&E components is essential for ensuring sustainable water and sanitation services in Simanjiro District.

4.6 Discussion of the Study Findings

The discussion of the finding of the study was based on the specific objectives of the study. Such that to analyze the effectiveness of the monitoring mechanisms used by BAWASA in promoting the sustainability of water supply and sanitation services in

Simanjiro District, to assess the impact of evaluation frameworks on decision-making and service improvements in BAWASA at SimanjiroDistrict, to assess the impact of stakeholder involvement on enhancing the transparency and accountability, within BAWASA's monitoring and evaluation processes at Simanjiro District.

4.6.1 Effectiveness of Monitoring Mechanisms in Promoting Sustainability

The study's findings show that BAWASA's monitoring mechanisms are widely viewed as effective tools for sustaining water supply and sanitation services, reflecting global best practices. Consistent and systematic monitoring is crucial in the water sector because it allows for the early detection of infrastructure failures such as leaks, blockages, or equipment malfunctions. Timely identification of these issues reduces the risk of prolonged service interruptions, which can negatively affect public health and community trust.

Research by Adams and Smith (2020) confirms that utilities worldwide benefit from regular monitoring by minimizing downtime and ensuring service continuity. Additionally, the adoption of digital tools such as Geographic Information Systems (GIS) enables more accurate tracking and management of water networks, especially in areas experiencing rapid urban growth like Simanjiro (Ngowi& Malima, 2021). These technologies support targeted resource allocation and efficient maintenance scheduling, which are key to preserving infrastructure functionality over time and ultimately enhancing service sustainability.

The integration of frequent monitoring routines supports BAWASA's ability to adopt adaptive management practices, which are vital in dynamic environments. Adaptive management involves continuously adjusting strategies and operations based on real-

time data and changing conditions, such as population growth or climate variability. Chambers (2019) highlights that adaptive monitoring helps utilities stay resilient in the face of unpredictable challenges by providing timely feedback to decision-makers. This approach is underpinned by systems theory, which views organizations as complex, interrelated systems where feedback loops are essential for maintaining stability and enabling change (Smith & Taylor, 2021). By systematically collecting data and rapidly responding to identified issues, BAWASA can reduce service disruptions and safeguard the community's access to reliable water and sanitation services. This dynamic monitoring framework is crucial for long-term sustainability in a context where external factors can quickly alter service demands and infrastructure performance.

Despite the positive perceptions, the findings also reveal some skepticism about the effectiveness of monitoring tools, indicating challenges related to technology deployment and user capacity. In many similar contexts, the lack of technical expertise among staff and limited infrastructure such as unreliable internet connectivity hinder the optimal use of digital monitoring technologies (UNICEF Tanzania, 2020). These limitations can delay data transmission, reduce accuracy, and compromise the timeliness of interventions. Addressing these gaps requires targeted investments in training personnel to use advanced monitoring systems proficiently and improving ICT infrastructure, especially in remote or rural areas. Strengthening these capacities would enhance data quality, enable more effective real-time monitoring, and thereby contribute more robustly to sustaining water and sanitation services.

Stakeholder involvement, particularly community engagement, is an important complement to technical monitoring tools. Mwihava et al. (2022) emphasize that

incorporating community feedback into monitoring systems enhances the validity of collected data by including user experiences and perceptions, which often reveal issues not detected by technical measures alone. Engaging the community in monitoring also fosters a sense of ownership and responsibility towards water resources and services. For BAWASA, establishing formal feedback mechanisms such as user reporting platforms or community meetings can increase transparency and accountability, ensuring that monitoring processes are responsive to local needs. This participatory approach helps build trust between service providers and beneficiaries, which is essential for the acceptance and sustainability of water and sanitation services.

The effectiveness of monitoring mechanisms is also contingent on their integration into broader institutional and governance frameworks. According to the African Development Bank (2020), sustainable water utilities succeed when their monitoring systems are embedded within governance structures that emphasize transparency, accountability, and responsiveness. This integration ensures that monitoring data does not remain isolated but informs policy decisions, resource mobilization, and strategic investments. For BAWASA, strengthening these institutional linkages would mean that data from monitoring activities is systematically used to guide operational improvements and funding allocations. This embeddedness enhances the utility of monitoring as a management tool, transforming it from a data collection exercise into a driver of sustainable development outcomes in the water and sanitation sector.

4.6.2 Impact of Evaluation Frameworks on Decision-Making and Service Improvements

The study shows that BAWASA's evaluation frameworks have a substantial impact

on decision-making and operational improvements. This observation aligns with the findings of Jones and Greenfield (2021), who argue that systematic evaluations establish critical benchmarks that water utilities use to guide resource allocation and intervention prioritization. By employing clear and measurable performance indicatorssuch as service reliability, customer satisfaction, and infrastructure integrity water authorities can accurately assess operational effectiveness and identify areas requiring improvement. Such data-driven decision-making is essential for ensuring that investments are strategically targeted to improve service delivery and foster long-term sustainability.

Periodic evaluations, including mid-term reviews, play a vital role in optimizing project outcomes by identifying inefficiencies before project completion and allowing corrective actions (Harrison, 2020). This proactive approach aligns with adaptive management principles, where continuous learning and iterative adjustments enhance the efficiency and longevity of water supply systems. Kamara and Salim (2022) emphasize that embedding such adaptive evaluations within regular operational cycles allows utilities like BAWASA to anticipate challenges whether they relate to aging infrastructure, financial constraints, or shifting demand and respond promptly. This reduces the risk of service failures and supports sustainable service provision by maintaining system functionality over time.

The comprehensiveness of evaluation frameworks is crucial for ensuring that water projects meet broader sustainability objectives. Mwale et al. (2019) highlight the importance of integrating environmental and social assessments, such as Environmental Impact Assessments (EIAs), into evaluation processes. This holistic

approach allows utilities to consider ecological consequences and social equity alongside technical and financial performance. For regions like Simanjiro, which face water scarcity and environmental vulnerability, including EIAs within evaluation frameworks ensures that water and sanitation services do not compromise ecosystem health or community well-being, thus aligning infrastructure development with sustainable resource management.

Despite these strengths, some respondents noted concerns regarding the scope and practical application of evaluation findings, suggesting difficulties in translating evaluations into actionable policies. Andersson and Marks (2023) argue that external evaluations can enhance transparency and credibility, providing independent and unbiased assessments that complement internal reviews. Such external scrutiny can identify blind spots and recommend improvements that internal teams might overlook. For BAWASA, incorporating independent evaluators could improve the legitimacy of evaluation outcomes, foster greater stakeholder trust, and support evidence-based policymaking that drives meaningful service improvements.

Evaluation frameworks also serve as critical tools for financial accountability, especially when linked to cost-benefit analyses (CBAs) that justify expenditures and prioritize projects with the highest impact (Kamara & Salim, 2022). Strengthening the capacity to conduct robust economic assessments within BAWASA's evaluation processes would enable better financial planning, ensuring that investments maximize returns and contribute to sustainable service continuity. This economic rigor is vital for water utilities operating under resource constraints, as it helps balance operational costs with long-term sustainability goals, thereby improving

overall service resilience.

4.6.3 Impact of Stakeholder Involvement on Transparency and Accountability

Stakeholder involvement is a fundamental factor in enhancing transparency and accountability within BAWASA's Monitoring and Evaluation (M&E) processes. Freeman and Walker (2020) emphasize that inclusive engagement of all relevant stakeholders ranging from community members to institutional actors helps build trust and legitimacy in governance structures. By incorporating diverse perspectives into decision-making, stakeholder participation ensures that M&E activities reflect the actual needs, experiences, and concerns of service users. This inclusiveness not only improves the accuracy and relevance of data collected but also promotes greater responsiveness to issues, ultimately leading to more transparent and accountable service delivery.

Multi-stakeholder forums are widely recognized as effective platforms that facilitate collaboration among government agencies, NGOs, private sector entities, and communities (Thompson & Roper, 2021). These forums provide structured spaces for dialogue, resource sharing, and conflict resolution, which are critical for coordinated water governance. For BAWASA, establishing such forums in Simanjiro District could foster joint ownership of water management challenges and solutions, strengthening accountability mechanisms. By engaging multiple actors collectively, these platforms encourage shared responsibility and transparency in the allocation and use of resources, ensuring that water and sanitation services are delivered equitably and sustainably.

Despite the benefits, stakeholder engagement often faces challenges arising from conflicting interests, power imbalances, and logistical barriers that can undermine inclusivity and sustained participation (Karanja, 2019). Managing these challenges requires deliberate strategies such as capacity building for community representatives to enhance their understanding and negotiation skills. Clear communication channels and participatory planning processes are essential to bridge gaps among diverse stakeholders and maintain their active involvement. For BAWASA, investing in such mechanisms can help overcome these barriers, ensuring that stakeholder contributions are meaningful and sustained over time, which is vital for the legitimacy and effectiveness of the M&E system.

Non-governmental organizations (NGOs) and private sector actors contribute significantly to strengthening BAWASA's M&E systems by offering technical expertise, additional funding, and independent oversight (Ali & Bibi, 2022). Their involvement introduces innovative approaches and enhances system adaptability, particularly in under-resourced settings. Strengthening partnerships with these entities enables BAWASA to fill capacity gaps, leverage new technologies, and improve data quality and analysis. Such collaborations enrich M&E processes and promote accountability by ensuring that independent perspectives and resources support service improvement and governance.

The sustainability and effectiveness of stakeholder involvement depend on embedding participatory mechanisms within supportive policy and regulatory frameworks (Nguyen & Tran, 2023). Aligning stakeholder engagement with Tanzania's legal environment institutionalizes these roles, making transparency and

accountability integral parts of water governance. For BAWASA, ensuring that stakeholder participation is formalized through policies helps guarantee consistent and enforceable involvement, reducing the risk of ad hoc or superficial engagement. This institutionalization strengthens governance structures, promotes sustained community empowerment, and enhances the overall credibility and transparency of the M&E system.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Chapter Overview

This chapter presents a concise summary of the key findings from the study on the effectiveness of monitoring and evaluation (M&E) systems in promoting the sustainability of water supply and sanitation services at Babati Urban Water Supply and Sanitation Authority (BAWASA) in Simanjiro District. Drawing from the analyzed data, it articulates the main conclusions and offers practical recommendations for policymakers, BAWASA management, and other stakeholders. The chapter also highlights the research limitations and proposes directions for future investigations to further enhance understanding and practice in this vital sector.

5.2 Summary of the Research Findings

The study aimed to assess the effectiveness of M&E systems at BAWASA, focusing on three specific objectives: analyzing monitoring mechanisms, evaluating the impact of evaluation frameworks on decision-making, and assessing stakeholder involvement in enhancing transparency and accountability. The study found that BAWASA's monitoring mechanisms are generally effective in sustaining water supply and sanitation services, playing a critical role in maintaining service reliability.

Frequent monitoring activities, enhanced by modern digital tools such as Geographic Information Systems (GIS), allow for the timely detection and resolution of operational problems before they escalate into major disruptions. This proactive

approach ensures continuous service delivery, which is essential for community health and satisfaction. However, the research also identified gaps, particularly in the consistent use of these technologies and in staff technical capacity, suggesting the need for targeted training and infrastructure improvements to maximize monitoring effectiveness.

BAWASA's evaluation frameworks were found to significantly impact decision-making and service improvements by providing structured processes to assess performance regularly. Periodic evaluations, including mid-term reviews, enable the utility to identify inefficiencies and adapt management strategies promptly, supporting continuous improvement and sustainability. The study also underscored the importance of including environmental and social factors in evaluations to ensure a holistic assessment of project impacts. Nevertheless, some respondents highlighted the need for broader application of these frameworks and more effective utilization of evaluation findings in shaping policies and operational plans, indicating opportunities for enhancing evaluation processes and outcomes.

Stakeholder engagement emerged as a vital element enhancing transparency and accountability within BAWASA's M&E processes. The active involvement of community members, NGOs, private sector partners, and government agencies improves the relevance and credibility of data collected, ensuring decisions reflect diverse perspectives and local needs. This participatory approach fosters trust and encourages shared responsibility for water and sanitation services. However, challenges such as conflicting interests among stakeholders and limited institutional capacity to coordinate and sustain engagement were noted, pointing to the need for

stronger collaboration frameworks and capacity building to optimize stakeholder contributions.

5.3 Conclusion

Based on the study findings, monitoring mechanisms play a vital role in ensuring operational sustainability by providing real-time data essential for maintaining uninterrupted water and sanitation service delivery. The effective use of digital tools combined with frequent monitoring enables better infrastructure maintenance and more efficient resource management. Similarly, evaluation frameworks significantly support informed decision-making and the optimal allocation of resources. Through regular assessments, these frameworks help identify service gaps and enable BAWASA to adjust strategies to evolving conditions. The incorporation of comprehensive environmental and social evaluations further enhances the sustainability of water and sanitation services by addressing broader impacts.

Stakeholder involvement is another critical factor that enhances transparency and accountability within BAWASA's M&E processes, building trust and fostering community ownership, both of which are crucial for long-term sustainable water service management. However, to maximize these benefits, stakeholder engagement must be carefully managed to promote inclusivity and reduce potential conflicts. The overall success of BAWASA's M&E system relies not only on the technical tools and frameworks but also on strong institutional support and alignment with policies that promote consistent data use and effective collaboration among stakeholders. These conclusions underscore the necessity of adopting a holistic approach that integrates robust technical systems with participatory governance to achieve sustainable water

supply and sanitation services in resource-limited settings like Simanjiro District.

5.4 Recommendations

Based on the conclusions, the following recommendations are proposed

5.4.1 For BAWASA Management

To improve the effectiveness of its monitoring and evaluation systems, BAWASA should invest heavily in capacity building initiatives that equip staff with advanced skills in using digital monitoring technologies and performing robust data analysis. Enhanced technical competency is essential to fully leverage tools like GIS and automated metering, which improve real-time data collection and enable prompt decision-making. Additionally, integrating environmental and social indicators into evaluation frameworks will allow BAWASA to assess the broader impacts of its projects, supporting a more holistic approach to sustainability that aligns with global best practices. Establishing formal, continuous stakeholder engagement mechanisms, such as regular multi-stakeholder forums, can foster collaboration, build trust, and facilitate conflict resolution among diverse actors. Finally, ensuring that monitoring and evaluation data are systematically fed into strategic planning and decision-making will enable evidence-based resource allocation and program adjustments, ultimately enhancing service delivery and sustainability.

5.4.2 For Policy Makers and Regulators

Policy makers and regulators have a critical role in creating an enabling environment that institutionalizes stakeholder participation and mandates community involvement in water governance. Developing supportive policies will ensure that utilities like

BAWASA consistently engage stakeholders, thereby increasing transparency and accountability. Furthermore, providing technical and financial assistance to water utilities is necessary to facilitate the adoption of innovative M&E technologies and modern management practices, which are often hindered by resource constraints in developing contexts. Creating platforms for knowledge sharing and capacity building across districts will also be instrumental in disseminating successful approaches and lessons learned, fostering regional improvements in M&E systems. Such coordinated support will contribute to more effective and sustainable water service delivery at scale.

5.4.3 For Community and Civil Society Organizations

Community members and civil society organizations should actively engage in monitoring and feedback mechanisms to improve data accuracy, relevance, and accountability within water and sanitation services. Their involvement ensures that M&E processes reflect the lived realities of service users and hold providers accountable for quality and equity. By collaborating with BAWASA and other stakeholders, these groups can advocate for fair and sustainable water service provision, amplifying community voices in decision-making forums. Moreover, civil society can support awareness-raising and capacity building within communities, promoting responsible water use and enhancing public participation. This grassroots engagement is vital for fostering ownership and long-term sustainability of water resources and infrastructure.

5.5 Implications of the Study

This study provides valuable insights into the critical role of monitoring and

evaluation systems in promoting the sustainability of water supply and sanitation services, specifically within the context of BAWASA in Simanjiro District. The findings highlight that effective monitoring mechanisms, comprehensive evaluation frameworks, and active stakeholder involvement are essential components for improving service reliability, decision-making, transparency, and accountability.

These results have practical implications for policymakers, utility managers, and development practitioners by emphasizing the need to invest in technological capacity, foster participatory governance, and integrate environmental and social considerations into water sector management. Moreover, the study underscores the importance of institutionalizing these M&E practices within existing governance structures to ensure consistent data-driven planning and resource allocation. Ultimately, the research contributes to the broader discourse on sustainable water management in resource-constrained settings and provides a replicable model for similar utilities aiming to enhance service sustainability and stakeholder trust.

5.5 Limitations of the Study

Despite providing valuable insights, this study faced certain limitations that may affect the generalizability and depth of its findings. First, the research relied primarily on self-reported data from questionnaires, which may be subject to biases such as social desirability or inaccurate recall by respondents. Additionally, the focus on a single water utility, BAWASA in Simanjiro District, limits the applicability of the results to other regions or utilities with different socio-economic or environmental conditions. The cross-sectional design also restricted the ability to observe changes and long-term impacts of M&E practices over time. Lastly, resource

and time constraints limited the incorporation of more extensive qualitative methods, such as in-depth interviews or longitudinal case studies, which could have enriched understanding of contextual nuances and implementation challenges.

5.6 Areas for Future Research

Building on the findings and addressing the identified gaps, future research should explore comparative studies across multiple water utilities and geographic regions to better understand contextual influences on M&E effectiveness and sustainability outcomes. Longitudinal research designs would be valuable to capture the evolution of monitoring and evaluation systems over time and their sustained impact on service delivery. Further investigation into the integration of emerging technologies, such as Internet of Things (IoT) devices and artificial intelligence, could offer innovative solutions for real-time water system monitoring and predictive maintenance. Additionally, exploring community-based participatory monitoring models and their scalability may provide insights into enhancing stakeholder engagement and accountability. Finally, studies focusing on the economic evaluation of M&E investments would inform cost-effective strategies to optimize water utility management in resource-constrained settings.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

EVALUATING THE EFFECTIVENESS OF MONITORING AND EVALUATION SYSTEMS ON THE SUSTAINABILITY OF BABATI URBAN WATER SUPPLY AND SANITATION AUTHORITY" A CASE STUDY SIMANJIRO DISTRICT

INTRODUCTION

Dear Participant,

My name is Brown Mwasomola, a Master of Arts in Monitoring and Evaluation (MA.M&E) student at The Open University of Tanzania. I am conducting a research study titled "***Evaluating the Effectiveness of Monitoring and Evaluation Systems on the Sustainability of Babati Urban Water Supply and Sanitation Authority: A Case Study of Simanjiro District***. "The objective of this study is to assess the role of monitoring and evaluation systems in enhancing the sustainability of water supply and sanitation services, with a particular focus on BAWASA operations in the Simanjiro District. Your participation in this study is invaluable and will contribute significantly to understanding the current practices and identifying potential improvements in this vital sector.

I kindly request you to spare a few moments to respond to the attached questionnaire. Your responses will remain confidential and will be used solely for academic purposes.

Section A: Demographic Information

1. **Gender**:

- Male
- Female

2. Age:

- Under 25
- 26–35
- 36–45
- 46–55
- Over 55

3. **Education Level**:

- Certificate
- Diploma
- Bachelor's degree
- Master's degree

4. Role/Position:

a. Management Staff

b. Technical Staff

c. Community Representative

d. Other (please specify): _____

5. Years of Experience with BAWASA:

a. Less than 1 year

b. 1–3 years

c. 4–7 years

d. Over 7 years

Section B: Monitoring Mechanisms

6. How frequently does BAWASA conduct monitoring activities for water and sanitation services?
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
7. How effective are the monitoring tools (e.g., digital tools, GIS) used by BAWASA?
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
8. To what extent do you agree that BAWASA's monitoring activities help identify and address service delivery issues promptly?
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

Section C: Evaluation Frameworks

9. How often does BAWASA conduct evaluations of its water supply and sanitation projects?
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
10. How would you rate the comprehensiveness of BAWASA's evaluation frameworks?
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
11. To what extent do evaluation outcomes influence decision-making and resource allocation in BAWASA?
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

Section D: Stakeholder Involvement

12. How actively are community members involved in BAWASA's monitoring

and evaluation processes?

a. Strongly agree
b. Agree
c. Neutral
d. Disagree
e. Strongly disagree

13. To what extent does stakeholder involvement enhance the effectiveness of M&E processes in BAWASA?

a. Strongly agree
b. Agree
c. Neutral
d. Disagree
e. Strongly disagree

14. What role do non-governmental organizations (NGOs) and private entities play in supporting BAWASA's M&E processes?

a. Strongly agree
b. Agree
c. Neutral
d. Disagree
e. Strongly disagree

Section E: Sustainability Outcomes

15. How would you rate the sustainability of BAWASA's water supply and sanitation services?

a. Strongly agree

b. Agree

c. Neutral

d. Disagree

e. Strongly disagree

16. To what extent do you agree that BAWASA's M&E systems contribute to sustainable water resource management?

a. Strongly agree

b. Agree

c. Neutral

d. Disagree

e. Strongly disagree

17. To what extent do you agree that BAWASA actively engages the community in promoting sustainable water use practices?

a. Strongly agree

b. Agree

c. Neutral

d. Disagree

e. Strongly disagree

……. *Thank you for cooperation*…….

APPENDIX II: CLEARANCE LETTER

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/PG202300457 **26th April, 2025**

Director General,
Babati Urban Water Supply and Sanitation Authority (BAWASA),
P.O. Box 245,
ARUSHA.

Dear Director,

RE: RESEARCH CLEARANCE FOR MR. BROWN MWASOMOLA, REG NO: PG202300457

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1stMarch 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 1stJanuary 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. 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 **Mr. Brown Mwasomola, Reg.No: PG202300457,** pursuing **Master of Arts in Monitoring and Evaluation (MAM&E)**. We here by grant this clearance to conduct a research titled **"Effectiveness of Monitoring and Evaluation Systems on Sustainability of Babati Urban Water Supply and**

Sanitation Authority at Simanjiro District, Tanzania". He will collect his data at your office from 28th April to 30th May 2025.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) 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 sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof.Gwahula Raphael Kimamala

For: VICE CHANCELLOR

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