INFLUENCE OF MONITORING AND EVALUATION PRINCIPLES ON THE SUSTAINABILITY OF WATER SUPPLY PROJECTS IN KAJIADO COUNTY: A CASE OF NGONG REGION.

BY

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A Thesis Submitted in Partial Fulfillment of the Requirements of the Award of The Degree of Master of Arts in Monitoring and Evaluation in the Department of Monitoring and Evaluation and the School of Business of the African Nazarene University.

JUNE, 2022

DECLARATION

I declare that this document and the research are my original work and thatthey have not been presented to any other university for academic work.

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DEDICATION

I dedicate this project to my late father James Machuka, my beloved mother Beatrice Machuka and my entire family for all the physical, emotional, financial and spiritual support they have accorded me over the years in my pursuit of education and for seeing me through the completion of this project.

ACKNOWLEDGEMENT

I would like to thank God for the strength, good health and providence as I undertook this study. I recognize that it has been through the generous dedication and able guidance of my supervisor Dr Wanjiru Nderitu that this project has been accomplished. I would also like to thank all my lecturers in the Monitoring and Evaluation Department for facilitating the course. I also extend my gratitude to the African Nazarene University for allowing me to pursue this course. Special regards to my colleagues and classmates with whom we studied together and supported each other throughout this academic journey.

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DEFINITION OF TERMS

Monitoring: Operationally defined data collection by various methods to understand natural systems and features, evaluate the impacts of development proposals on such systems, and assess the performance of mitigation measures.

Evaluation: Operationally defined, periodic but broad assessment of the general development andvalue of a project.

M&E Principles: For purposes of this study, fundamental laws, doctrines, assumptions, codes or rules of conduct that guide the M/E of projects.

Funds: For purposes of this study, resources vital to finance a need, program, or project.

Logical Framework: For purposes of this study, a tool is used to help project managers think logically about what the project is trying to achieve (the goal), the outputs and what produces these outputs (the activities).

M& E Technical/Human Expertise: Operationally defined, bringing together more resources, more people, and more skills to ensure the success of a project.

M&E Tools: Operationally defined as interventions used to keep track of the system in use to have the earliest caution of failures, flaws or complications and devise means of improving them.

Monitored Financial records: Operationally defined as the records resulting from the conduct ofbusiness and activities relating to the financial management of a project.

Project: For this study, inputs and outputs planned and designed to achieve a specific goal.

Stakeholder Involvement: For purposes of this study, groups with shared needs living in a specific physical area dynamically recognize needs, make decisions, and devise meansof accomplishing solutions or goals.

Sustainability: Operationally defined, a water project's ability to sustain or increase a stream of benefits at a stated level for a prolonged period after stopping project inputs.

ABBREVIATIONS/ACRONYMS

SPSS	**–**	Statistical Package for Social Sciences
UNDP	**–**	United Nations Development Programme
OECD	**–**	Organization for Economic Co-operation and Development
M&E	**_**	Monitoring and Evaluation
NGOs	**_**	Non-Governmental Organizations
UNDP	**_**	United Nations Development Programme
WHO	**_**	World Health Organization
WASH	**_**	Water and Sanitation for Health Project
WASREB	**_**	Water Services Regulatory Board
IFAD	**_**	International Fund for Agricultural Development
ICWE	**_**	International Conference on Water and the Environment
USAID	**_**	United States Agency for International Development
INSP	**_**	Internet Protocol Television (formerly Inspiration Network)
RBM	**_**	Results-Based Management
AFDB	**-**	African Development Bank

ABSTRACT

Project sustainability, especially in the water sector, has continued to receive great scholarly attention. Like all other projects, water projects rely on effective M&E to ensure their sustainability. Yet the sustainability of projects is still a major challenge in many developing countries. The study sought to find out the influence of monitoring and evaluation principles on the sustainability of water projects in Kajiado County using the Ngong Region as a case study. The study aimed to assess the influence of M&E tools, Monitored FinancialRecords, and M&E human and technical expertise on the sustainability of water projects in Kajiado County. Thestudy was informed by the Theory of Sustainability and Theory of Change. The study adopted a descriptive survey design with mixed approaches. The target population was 10 waterprojects. Stratified and random sampling techniques were used to sample 330 water consumers, 10 Project/M&E Officers, 2 community leaders, and 3 Ngong Sub-County Water Officers totalling a sample size of 345 respondents. The study used Five-Point Likert scale questionnaires and interview schedules to collect data. The data collected was analyzed by descriptivestatistics using the SPSS V.25 software. The study established that M& E tools positively influence the sustainability of water projects in Kajiado County, Ngong Region with an aggregate mean (M=3.69) and standard deviation of (SD=0.97). The study established that the monitored financial records positively influence the sustainability of water projects in Kajiado County, Ngong Region with an aggregate mean (M=4.11) and standard deviation of (SD=0.94). The study also established that the M & E Technical and Human Expertise positively influence the sustainability of Water projects in Kajiado County, Ngong Region with an aggregate mean (M=4.39) and standard deviation of (SD=0.84). The study concluded that the M&E principles under study positively influence the sustainability of water projects in Ngong Town, Kajiado County. The study recommended for proper legislation and structural work plan be put in place, an improvement in the quality of water, proper training of manpower and improved customer service.

CHAPTER ONE: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Introduction

This chapter begins with the study's background, problem statement, study objectives and justification, significance, scope, limitations of the research, and the Conceptual Framework. Thestudy determined the impact of Monitoring and Evaluation on water projects' sustainability in Ngong, Kajiado County. Monitoring and Evaluation as the independent variable in this study, its effects on sustainability, the dependent variable, was defined by examining the M&E tools, Monitored Financial Records, and M&E technical/ human expertise.

Monitoring and Evaluation (M&E) helps in improving performance by increasing presentand future administration of outputs, outcomes, and impact. It appraises the implementation of projects, organizations, and programs developed by governments, international organizations, andNGOs. It establishes connections between past, present, and future actions. According to Mansuri, G. & Rao (2003), Monitoring and Evaluation are critical project management tools wheremonitoring informs stakeholders of progress and outcomes and shows where corrective action is needed to adjust implementation plans. The evaluation assesses effects and impacts relative to expectations, explains variations, and helps review funding allocations. Monitoring and Evaluation are critical to determining the relevance and

fulfilment of project objectives and the tools to accomplish the output.

1.2 Background

Managing water resources more effectively and efficiently will enable humanity to better respond to today's problems and troubles expected in a warming world (UN-Water in support of the International Water for Life ‟Decade, 2005–2015). Inarguably, water is one of the crucial resources that the environment offers (IWMI,). Water is key to economic and social development; it preserves health, helps in food growth, manages the environment, and creates jobs. Averting infection thus remains out of reach for many.

According to the WHO and UNICEF (2015), only 68% of the world's population used improved sanitation facilities, with Sub-Saharan Africa and Southern Asia having only 30% and 47% respectively. According to Stanski (2020), having a total populationof 32 million, 2.5 million people in Peru lack access to an improved water source and five millionlack access to improved sanitation. An estimated 75 million and 250 million persons in Africa will be residing in high water stress zones by 2030. In 2018, a water crisis hit several towns in Kenya, including Nairobi, Nakuru, Kakamega, Mombasa, Kericho, Migori, Bungoma, Murang'a and Eldoret towns. The shortage was due to climate change resulting in the disappearance of rain, forest destruction, poor resource management, and a bloated population (Xinhua, 2018).

As the prevalence of COVID-19 increases across Africa and the world, over 40% of thepopulation in Sub-Saharan Africa does not have access to clean water and cannot regard the advice of health experts to wash their hands as a main way to stop the spread of the virus. Thisis a far cry from the aim of Sustainable Development Goal 6 (six) which is to guarantee the accessibility and sustainable management of water and sanitation for all by 2030. The pandemic has increased the awareness of both the magnitude and the repercussions of this access gap, and it could slow down advancement in attaining the sustainable development goal 6 (six) as revenue losses by water services influence their ability to make essential capital investments (AFDB, 2020).

The most modern intervention to address sustainability has been monitoring and evaluatingpractices in local-based water projects (UNDP, 2009). M&E has been in existence since ancient times (Kusek and Rist, 2004); however, today, the requirement for M&E as a management tool to show performance has grown with the demand by stakeholders for accountability and transparency(Gorgens et al., 2010). M&E is an essential management tool used to track a project's progress andfacilitate decision-making. Since the year 2000, Government agencies and non-governmental organisations (NGOs) in South Africa which often use international donor funds for their projectshave been engaged in outsourcing evaluation studies, and currently, all government departments have established their M&E units (Abrahams, 2015).

1.2.1 Sustainability of Water Supply Projects

According to the Brundtland Commission of the United Nations (1987), sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Morfaw, 2014). Sustainability is an organization's ability to develop a growth and development strategy that continues to function indefinitely. Project sustainability entails the management of resources to ensure benefits for both current and future generations. According to WASH, a sustainable water supply and sanitation project maintains or expands a flow of benefits at a specified level for an extended period after withdrawing external funding. Projects produce services that continue at some specified level overtime. “Post-project” assessments of sustainability occur after the project allows the local institutions time to become self-reliant. Appraisals should be carried out several years after the project construction period to allow a valid judgment about the benefit stream's direction and sustainability assessment.

Project sustainability is now a common approach related to the management of projects, programs, institutions, organizations, people, and other entities requiring effective and efficient production, marketing, distribution, and the delivery of products and services. Generally, for projects to be sustained, certain metrics and standards need to be set from project identification through feasibility studies, formulation, design, appraisal,

funding, implementation, monitoring, and evaluation. It is a proven truism that most projects are failing because of the lack of an appropriate sustainability plan. It is therefore very necessary for a comprehensive analysis of the social, economic, legal, cultural, educational, and political environments for project implementation (Morfaw, 2014).

1.2.2 Monitoring and Evaluation Principles

According to Patton (2016), M&E principles ensure that systems are people-centred which results in improved service delivery to communities. M&E principles ensure that projects have sufficient local ownership while enabling a wide range of participation by all stakeholders. M&E principles provide accountability, transparency and governance of the project funds which allows for transparency to the public and all stakeholders. M&E principles ensure the sustainability of projects by developing human capacity and strengthening budgetary processes and financial management. They are fundamental truths or propositions that serve as the foundation for a system of belief or behaviour or a chain of reasoning (Patton, 2016).

According to Chesos (2010) and Mamer (2010), most organizations lack effective monitoring and evaluation systems due to misuse of resources, poor planning, conflict of interest, and poor communication in meeting obligatory requirements; hence failing to deliver results that don't meet stakeholders needs despite monitoring and evaluation systems being in place. This research sought to look at the influence of M&E Principlessuch as M&E Tools, Monitored Financial Records and M&E Technical and Human

Expertise on sustainability of water projects.

M/E tools are constantly used to keep track of the system in use to have the earliest cautionof failures, flaws or complications and devise means of improving them. Tools for monitoring and evaluation include logical framework, surveys, observation, case studies, focus groups and interviews, and questionnaires. Monitoring system effectiveness increases by preparing the monitoringplan and design as a constituent part of the project (Nabris, 2002).

According to the Project Manager (2021), monitoring project funds require establishing systems to deal with the expenses and ensuring that the project can track them. This can be a robustproject management software with dynamic functionality or something more static like an excel sheet. The project requires a mechanism to collect data and to know how money is spent and by whom. Projects also require providing online access to their stakeholders. Gaining access to one'stracking system is an essential part of any project management plan thereby guaranteeing that theproject team has access to it even while on field visits. There is also the need to identify the budgetitems by estimating the cost of all the tasks that make up the project together with all the resourcesthat are required to implement them. These budget items include equipment, human resource, real-estate costs, legal, and travel expenses among others. The last part includes the process of assigning personnel to track and control the expenses to streamline the process and ensure the effective andefficient running of the project.

Vanessa and Gala (2011) noted that the technical know-how of the organization inconducting evaluations influences how M&E is implemented thereby influencing decision makingand how data is collected, analysed, perceived and disseminated. Therefore, having resourceful personnel is vital for the sustainability of an M&E system which trickles down to the overall project success. It is therefore imperative that the available M&E staff be technically trained through M&E Training and Empowerment. This confirms that both formal and, on the job, experience is vital for the effective implementation of M&E and other project activities.

Training, capacity building and Empowerment are necessary to the sustainability of waterand sanitation initiatives, especially in technical and managerial positions, to guarantee their presence in the decision-making process. Development Bank of Southern Africa (2000) notes that there is a lack of professionalism in M/E experts, which can be solved through training and job experience.

1.3 Statement of the problem

The sustainability of water projects has been of great concern worldwide, as fewer projectsare sustainable, which means that the cost of implementation is not proportionate to the benefits accrued (UNDP, 2009). Like all other projects, water projects rely on effective Monitoring & Evaluation to ensure their sustainability. In recent years, M&E is increasingly being recognized as integral in organizational management

functions because stakeholders anticipate good results and outcomes with progressive effects and sustainability. According to Wanjiru and Kimutai (2013), monitoring and evaluation of projects in Kenya is critical because many government and private resources are provided to organizations to implement various water projects. Best practices requireproject monitoring for control, and project stakeholders require transparency, accountability for resource use and impact, excellent project performance, and organizational learning to benefit future projects.

The study looked at Kajiado County which faces a scarcity of vital resources such as water and social amenities required to enhance the economic and livelihood of its people (Odindo,2014). Kajiado County is a semi-arid area hence its nature of shortage of water supply systems. Ngong is a town close to the NgongHills within Kajiado County, situated in the South West of Nairobi in Southern Kenya. The word'Ngong' is a Maasai word derived from the word 'Enkongu,' meaning the 'eye' of water' or spring from where rhinos came to drink water (Enchoro e' Muny) but this is far from the reality of the residents on the ground. According to the Kenya Population and Housing Census, the population of Ngong as of 2019 was 102,323, a 58.4% increase from theyear 2000. Consequently, the population increase has spiked a water demand resulting in limited access to a clean and reliable water supply which has necessitated government, non-governmental and private agencies to develop interventions to support communities to establish water projects.

In 2014, Plan International evaluated its community development projects and realized that the projects barely go beyond six months when funding stops (Plan International, Homa BayPU, 2014). Harvey and Reed (2007) report showed that community issues like perceived lack of ownership, lack of education on water supply and sanitation, inadequate management system, andlimited demand are related to low sustainability rates. Habtamu Addis (2012) observed that most water projects decline in performance shortly after the withdrawal of external support. The level of community participation defines whether a project becomes reputable, how swiftly and efficiently it combines, and how it reacts and adjusts to meet varying needs (USAID, 2009). Hofisi (2013) indicated donor-funded projects fail to sustain development when local communities are not involved. According to Gibbs et al, 2002 and Gillamet al, 2003) many projects lack adequate funding hence the available resources are channelled intothe actual implementation of project activities and M&E is looked upon as an unaffordable extra expense. According to Kimweli (2013), the participatory M&E framework influences the projects' success and sustainability. According to Mulandi (2013), technical expertise has a significant influence on the performance of M&E systems in non-governmental organisations in governance in Nairobi County.

There is, therefore, a need to understand why numerous water projects exist in Ngong Region, Kajiado County but water shortages persist, and most of the water projects stall after a short time. A study on the intervention of

M&E Principles in themanagement of water projects is vital in addressing the knowledge gap as well as highlighting the importance of M&E principles in influencing the sustainability of water projects beyond project completion.

1.4 Purpose of the Study

This study investigated the influence of monitoring and evaluation principles on water supply projects' sustainability: A case of Ngong Region.

1.5 Objectives of the study

1.5.1 General Objective

To determine the influence of Monitoring and Evaluation Principles on the Sustainability of water supply projects in Kajiado County: A case of Ngong Region.

1.5.2 Specific Objectives

i) To assess the influence of M&E tools on the sustainability of water projects in Kajiado County;a case of Ngong Region.

ii) To assess the influence of Monitored Financial Records on the sustainability of water projectsin Kajiado County; a case of Ngong Region.

iii) To determine the influence of M&E human and technical expertise on the sustainability ofwater projects in Kajiado County; a case of Ngong Region.

1.6 Research Questions

i) How does the use of M&E tools influence the sustainability of water projects in Kajiado County,Ngong Region?

ii) How does the availability of Monitored Financial Records influence the sustainability of waterprojects in Kajiado County, Ngong Region?

iii) How does M&E Human and Technical expertise influence the sustainability of water projects in Kajiado County,Ngong Region?

1.7 Significance of the study

This study's findings have cross-cutting benefits to the various stakeholders (project manager, technical staff, county government staff, and locals) to improve program success to meetstakeholder needs and provide useful information as lessons for other projects coming up in future.The research will have very significant implications for the locals and the county government policymakers in formulating policies aimed at improving M&E implementation. The study outputwill add to the body of knowledge by filling the gap that exists and hence will be used by other researchers as reference material as well as initiate a discussion on other topics associated with M&E that necessitate further research.

1.8 Scope of the study

Studies have shown that the implementation of water projects is

showing significant improvement. Still, the trend with post-implementation sustainability is somewhat disappointing as it occurs less often. The researcher will conduct the study in Ngong, Kajiado County, where there is a high trend of less functional and unsustainable water projects. This study covers 10 (ten) water projects (Kibiko, Oloolaiser, Lekurruki P.C.E.A, Kerarapon, Mburu, Major, Olkeri, P.C.E.A Enchoro Emuny, Lekurruki Limited, and Olepolos) of the Ngong Region with a population of 2,485 members as the water consumers. The study will also comprise ten water project managers/M&EOfficers, three county water office personnel, and two community leaders. The total target population is 2500.

1.9 Delimitation of the Study

The research study was delimited to Ngong town due to Kajiado County's vastness; hence, it would have been time-consuming and expensive. The study investigated the influence of M&E principles on the sustainability of water projects. The data collected was controlled with caution to fit the county's distinctive features instead of generalizing and comparing it to otherparts of the country or world. The three M&E principles were M& E tools (Logical Framework, Questionnaires, List of participants), Monitored Financial Records, and M&E Technical and human Expertise.

1.10 Limitations of the Study

The water projects' confidentiality policies restricted most of the respondents from answering some questionnaires since they considered it to

be against the organisation's confidentiality policy to expose secret organization matters. The researcher solved the problem by assuring the respondents of the utmost confidentiality and disclosing the study's academic purpose and intention. Other challenges met included; some respondents not filling or completing the questionnaire or misunderstanding questions, inadequate responses to inquiries, and unexpected occurrences like respondents proceeding on leave before completing the survey.

The issue was mitigated through constant reminders to the respondents during the period they had the questionnaire, by presenting an introduction letter obtained from the university. A research permit from the national council of research science and technology (NACOST) to the organization's management helped avoid suspicion and enable the organization's leadership to disclose much of the study's information (Muchelule, 2018).

The study was limited in terms of previous studies used to compare findings. From the literature, limited information existed on empirical studies that examine the moderating influenceof the independent variables (M/E tools, M&E technical and human capacity, and monitored financial records) on water projects' sustainability. The study linked the relationship between individual independent variables and projects' sustainability with the previous studies' findings that examined similar or closely related variables.

1.11 Assumptions of the Study

The study presumed that the respondents knew the water projects and could give relevant information about the research without fear and subjectivity. The study also assumed that the sample was selected as a representative, and hence the findings were generalized to represent the entire target population. Finally, the research believed that the proposed objectives were relevantto the study information sought.

1.12 Theoretical Framework

This study combines two theories, including the Theory of Change and the Theory of Sustainability.

1.12.1 Theory of Change

Carol Weiss popularized the theory of change in 1995. It simplifies the procedure of progress by sketching out causal linkages in an activity, i.e., short-term, mid-term, and long-term results. The observed changes are mapped as the "outcomes pathway," demonstrating every effectin intelligent relationships to all the others and sequential stream. The theory of change shows facets of implementation that require checking for value to differentiate between execution disappointment and theory failure.

According to Wafula and Kirabo (2022), theory of Change helps in

the pre-planning stages of scoping and strategic analysis, design,planning, and implementation. It helps support various project cycle activities, such as decision-making and adaptation, to clarify the drivers, internal and external, around an existing initiative, monitor progress, and assess the impact of projects. It advocates for combining theory andaction to create social change through the necessary capacity-building initiatives and engagement in inappropriate planning and coordination. The theory of change helps measure outcomes and understand the project's role and other factors contributing to performance. This theory's main objective is to check if project M&E provides the proposed change as per the underlying theory of change and if it needs to be revised to align with organizational techniques to achieve its performance (Hinchcliffe et al., 1996).

INSP (2005) put forward some benefits of change theory, comprising changing stakeholders from being intolerant gatherers and correspondents of information to active users of the data for system planning and service delivery. Also, it gives project staff and system a better understanding of the kind of evaluation information they need to make day-to-day decisions. Moreover, it also helps the evaluator develop research questions that focus on changes given the particular strategies. INSP (2005) also added that M&E in societal alteration programming requiresknowing what variations and expectations one expects, monitoring and knowing how these changes develop for implementation. It guides M/E efforts to focus on the particular beliefs, outputs, outcomes, impacts, and even sustainability of

a program or project. It also outlines five practical steps in the theory of Change use in M&E; they include Developing indicators,Formulation of Baseline, Mid-term Evaluation, Evaluation, and Scaling-up decisions.

Weiss (1998) noted that the theory of change could also measure an organization'scommitment as agents of change by steering change processes within a plan toward delivering itsresults and achieving its objective. It has also become a powerful communication tool to inform a programme's progress more effectively to donors enhancing transparency, accountability, and advocacy and possibly increasing funding for the same programme or future replication programsin other areas (USAID, 2010).

1.12.2 Theory of Sustainability

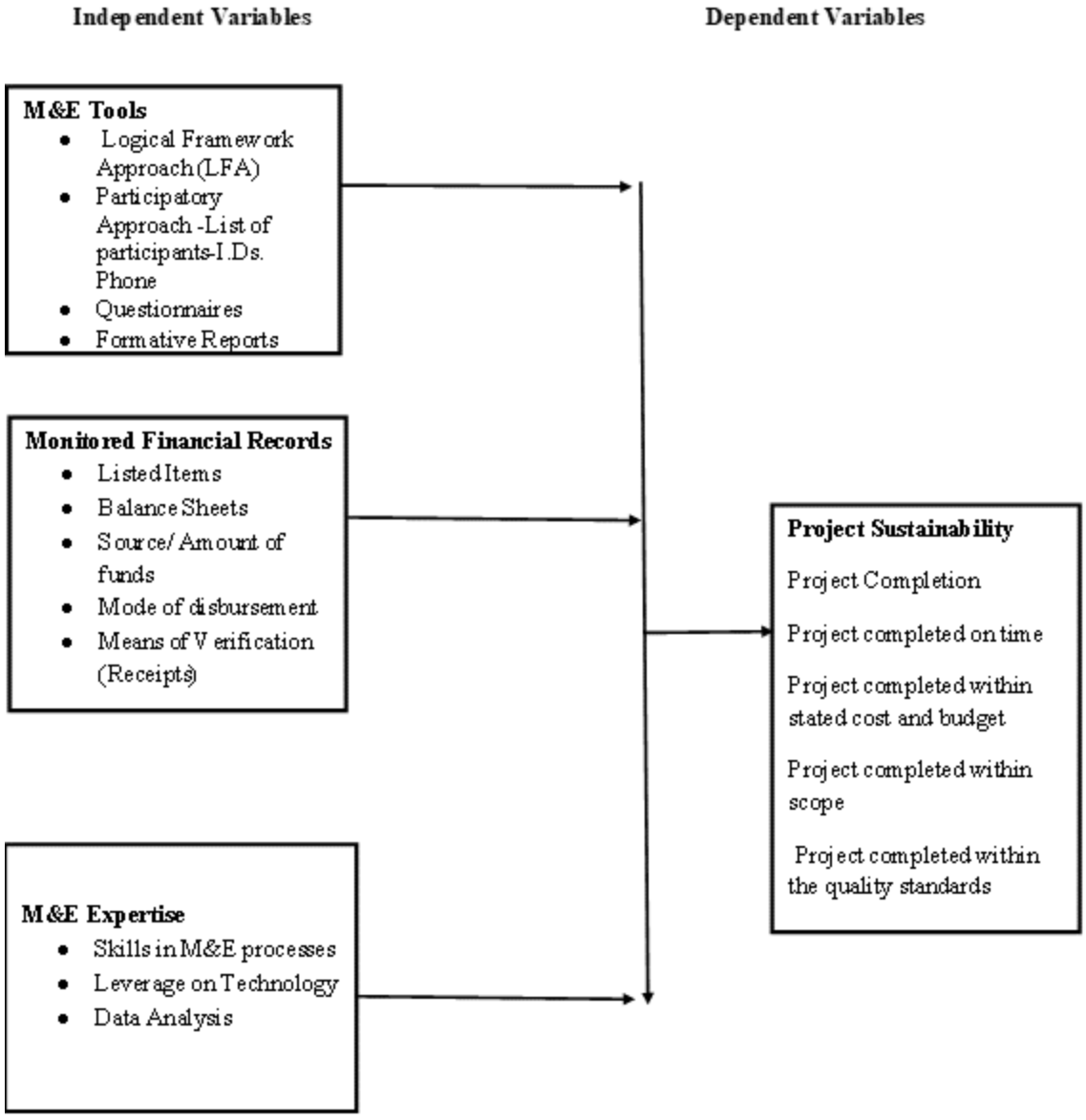
The term "sustainable development" attained international public importance through the 1987 report of the World Commission on Environment and Development, Our Common Future, often called the "Brundtland Report" after the name of its chair, former Norwegian prime minister Gro Harlem Brundtland. It offered the famed definition: "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, 43).

Theories of sustainability prioritizes and integrates social responses to environmental and cultural issues. Gunasena (2018) defines the theory of sustainability and prosperity as the theory of understanding the natural and

human interface at any geographical location at a given time and handling the natural resources to expand the livelihoods of the people while supporting ecosystems to manage their resilience. An economic model aims to hold up natural and financial capital; an ecological model aspires to biological diversity and ecological integrity; a political model ensures that social systems realize human dignity.

The concept of sustainability seeks to raise important basic questions: can human activity effectively sustain itself and its goals without draining the resources on which it depends? Asking that question directs attention toward the global impact of human activity and its resilience over time arousing a reflection on the means and purposes of global human society. Issues such as loss of biodiversity and climate change demonstrate the global scope of humankind's powers and the measure of its risk. Mitigating their impact and risk seems to require reform across many human systems. The practical challenge of sustainability finding exact conducts to follow those unique goals that adapt to their mutual relation. Therein lies the possibility of upholding (or starting) over time a decent quality of human life for all. This research sought to seek answers to these practical questions by putting into context the purpose of the water projects and their relation to ecological and social systems and how use of M&E could help bridge the gap.

1.13 Conceptual Framework



Source: Researcher, 2022

Fig 1.1: Conceptual Framework showing the dependent and independent variables

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter highlights the literature and theoretical background related to the study from the local and international perspectives. The main aim was to establish the influence of monitoringand evaluation principles on water projects' sustainability in Ngong, Kajiado County. This review provides an overview of the literature, which touches on the relationships between M&E Tools and indicators¸ Monitored Financial Records and M&E Technical and Human Expertise.

2.2 Empirical Review of Literature

Kenya is a water-scarce country, which means that it has less than 1000m3 of freshwater accessible to every person per year (Ministry of Water and Irrigation, 2006). Kenya's limited freshwater amounts to only 647 m3 per capita, which hastily decreased due to population growth and climatic variations and is estimated to be less than 245m3 per capita by 2025 (KEWASNET,2012). Word Bank noted that access to water provides higher self-esteem, reduced exposure to thethreat of violence and health hazards, and increased time for productivity. Harmless, sufficient, and sustainable water provisions for all are among the principal social goals articulated at a universal level in the past few years.

Sara and Katz (1997) define sustainability as a system that provides

an acceptable level ofservices all through the water supply project period. Harvey and Reed (2002) argue that a projectis sustainable when the water sources are not overexploited, ensuring a reliable and adequate watersupply and enjoyment of benefits by all users over a prolonged period. The service delivery processdemonstrates a replicable, cost-effective use of resources.

According to Irrigation (2016), the sustainability of commissioned projects is enhanced by ensuring that only projects prioritized by the beneficiaries are implemented which builds the capacity of the beneficiaries and enhances project ownership. Project implementers ensure that a management and sustainable operations concept is established to ensure projects continue to meet the needs of the recipients over time. This is through key stakeholders' involvement from the project preparation phase. From the definitions, it is clear that sustainability occurs when there is minimal long-term external support. Users finance the operation and maintenance costs and access to project benefits should be continued or over a long period.

The Kenyan constitution provides a strong foundation for the country's M&E practices byactively advocating for responsive, accountable, and effective institutions (The Republic of Kenya,2012). It gives all citizens the right to water and significant national water services mandating the government to carry out the monitoring and evaluation function to facilitate this right's progressiveactualization. UNDP (2002) defines monitoring as a continuing function that aims primarily to provide the management and

stakeholders with an ongoing intervention with early indications of progress. International Federation of Red Cross and Red Crescent Societies (2011) describes monitoring as the systematic collection and analysis of data to track progress against set plans andcheck compliance with established standards. On the other hand, evaluation has been defined as the systematic and objective assessment of an ongoing or completed project, program, or policy. Its design, implementation, and results determine the relevance and fulfilment of objectives, efficiency, effectiveness, impact, and performance.

Monitoring system effectiveness increases by preparing the monitoring plan and design asa constituent part of the project (Nabris, 2002). Evaluation is the assessment of actual project impacts against the agreed strategic objectives. It can be formative, taking place during a project or organization to improve its functioning or organization. It can also be summative, drawing learning from a completed project or an organisation that is no longer functioning (Shapiro, 2002).Monitoring and Evaluation is an amalgamation of two different yet complementary practices (Gorgens and Kusek, 2009). It is a process of analytically gathering and scrutinizing information on a continuing project and assessing it relative to the project outcome and impact on the project targets (Hunter, 2009). Monitoring and Evaluation increase the general effectiveness of project planning, management, and implementation. Mutai, Wanyoike and Kihara (2016) in theircontribution to the debate on project success factors in the water sector in Kenya, identified communication, stakeholder support, top-level

management commitment and competence as key.

2.2.1 Influence of M/E Tools on the sustainability of water projects

The LFA is an acceptable instrument to shape a feasible pathway for sustainable development according to the International Journal of Safety and Security Engineering (2020). Mostafavi et.al (2020) noted that the Log frame reviews the fundamentals of the project, the order of objectives and activities and assumptions and how the project's development, outputs and outcomes will be monitored and assessed.

The Logical Framework Approach (LFA) has proved to be a valued tool for project approval, design, and evaluation (Couillard et al., 2009). Rugh (2008) states that a logical framework shows the conceptual foundation upon which the project's M&E system is constructed. The logical framework is a matrix that specifies project objectives and how this achievement will be measured using indicators. A log frame summarizes: What the project is going to attain? What activities will be done to accomplish its outputs and purpose? What resources (inputs) are essential? What are the possible glitches which could upset the success of the project? And how the growth and final success of the project will be measured and substantiated (DFID, 2003).

The Logical Framework Approach was established in 1969 by the U.S. Agency for International Development (USAID) founded on a universal study by Leon J. Rosenberg, a principal of Fry Consultants Inc.

According to (Milika 2011), the logical framework helps in the identification of stakeholder essentials and the description of linked objectives and creates an underlying connection between inputs, activities, results, purpose, and overall goal. It defines theexpectations on which the project logic forms, ascertain the probable threats for achieving objectives and purpose; establishes a system for monitoring and evaluating a communication and learning process among the stakeholders. A logical framework helps to document empirical data during project implementation. It is also a useful tool to guide performance, monitoring, and evaluation and should be updated during execution to reflect changing conditions.

The increased emphasis on project outcomes instead of activities and output has also brought substantial changes in the focus, approach, and monitoring and evaluation systems. As the emphasis of administration changes from activities to results, the emphasis of M&E also varies from the traditional M&E system, which focuses on assessing inputs and implementation process (progress monitoring), to a results-based M&E system, which emphasizes assessment of the contributions of interventions to development outcomes (Gebremedhin et al., 2010). According to an IFAD (2008) annual report on results and impact, recurrent criticisms against M&E systems include limited scope, complexity, low data quality, inadequate resources, weak institutional capacity, lackof baseline surveys, and lack of use.

According to World Bank (2011), twenty (20) countries in Latin

America are currently working to strengthen their M&E frameworks influenced by Chile, Colombia, and Mexico's exemplary achievements.

Leuzzi (2013) study on the development of the logical framework approach in Ghana shows that a major component of the logical framework is the formulation of a logical framework matrix as it explains all the components of a project. It is a table format that can be read by all the relevant users. He concludes that the log frame matrix is a participatory, planning, M&E tool whose power is dependent on the beneficiaries' views. Bakewell and Garbutt(2005) conducted a study that used a simple-structured questionnaire from 18 different organizations. The study findings indicate that the log frame focus is to look at the expected projectobjectives stated in the matrix rather than the work itself.

Busiinge (2010) study in the Ugandan Ruwenzori region used questionnaires for data collection with the unit of analysis being those in high positions in each organization. The study found out that donors rarely operate outside the log frame approach whereby project activities arethe core aspects of the frame. However, they are boxed in results that are put in the project's logicalframework, and yet the situation on the ground might affect the achievement of some activities, hence a need to change some aspects of the project regarding objectives. The study focused on longitudinal data and did not examine the cause and effect of the variables at a specific period.

Kimweli (2013) investigated the influence of the M&E framework on the success of donor-funded food security intervention projects in Kenya.

The study targeted residents of the Kibwezi district who have profited from donor-funded food security projects. The study established that the community was not involved in monitoring and evaluating food security intervention projects. The study's findings recognized the influence of the participatory M&E framework on the projects' success and sustainability.

According to Odhiambo (2000), evaluations in Kenya are yet to reach acceptable levels asthey merely deal with some aspects of the resulting chain, namely inputs and outputs at the expenseof impacts, are propelled by activist and donor demands and carried out by evaluators devoid of the requisite knowledge. He further notes that concerning market and use, there is a need to focuson the following: documentation of old and recent information; use of data; the need for data; data accuracy and relevance. M& E systems should be demand-driven as opposed to being supply-driven to facilitate sustainability.

According to Philip et al., (2008), a participatory approach in M&E is a method through which stakeholders at many stagesengage in monitoring or evaluating a specific project, program, or policy, share control over the content, the process, and the results of M&E activity, and participate in taking or detecting counteractive measures. Normally, M&E engages external experts to measure performance against pre-set indicators, using standardized procedures and tools. In contrast, participatory M&E focuses on primary stakeholders' active engagement (World Bank, 2010). Stakeholders and community representatives, therefore, participate jointly in

drawing up the terms of reference for M&E. The process ensures local ownership and commitment not only to the exercise and its outcome but, more importantly, to the future of the programme's evolution (Barasa & Jelagat, 2013).

According to the World Bank (2010), community participation in M&E is important in project performance as it offers new ways of gauging and learning from the more inclusive and more receptive change to the needs and ambitions of those most directly affected. Itshows a project's efficiency, shapes ownership, empowers beneficiaries, builds accountability and transparency, and takes remedial schedules to progress performance and outcomes.

A study by Murungi (2015) on the influence of project management practices on implementing donor-funded education projects in Kajiado County revealed that the project's key stakeholders are essential to project success. Thus, the effective implementation of M&E requires the active participation of the stakeholders involved. The study noted that stakeholder involvementpromotes project ownership and sustainability, primarily when engaged throughout the project's life cycle. The study recommended that stakeholders need to be involved in the formulation and implementation processes, paying attention to their needs to ensure their maximum participation in the project.

A study by Kisumbi (2017) examined the effects of stakeholder non-

participation on the sustainability of water projects in Makueni County Kenya. Perennial water shortages in MakueniCounty despite a proliferation of community water projects was an issue of concern. Arnstein's Ladder Theory of Citizen Participation was adopted to guide this study. Data was captured using a self-administered questionnaire and interview guide. A sample of 121 respondents was selected using a systematic sampling technique. Correlation and regression were the main analyses tools used in the study. Findings indicated that stakeholder non-participation and water project sustainability had a positive significant relationship ($p=0.005$). A regression F-test of the two variables was significant ($R^2=0.095$, $p=0.016$). This study recommended community participation in water projects' implementation.

Formative reports are an M&E tool aimed at identifying and documenting what has workedwell, what are the good practices and strengths of a water project, what did not work well and whatare the weaknesses and challenges and how to improve strategies and programmes designs (UNICEF, 2019). The formative evaluation identifies good practices and lessons learnt in the implementation of the programmes. It focuses on the five criteria; Relevance and influence/likelyimpact of the project, Efficiency; a correlation between time, effort, knowledge, money invested (cost-benefit analysis) and results achieved, effectiveness; results and outcomes, main enabling and hindering factors in achieving targets and goals and impact of the programme interventions, impact; whether or not the programme meets

or exceeds the stated outcomes/expectations and sustainability of the programme demonstrated by ownership by local communities and institutionsthat are the main enablers and bottle necks that can sustain the achieved changes. Formative evaluation will use mixed methods to capture both qualitative and quantitative data, including desk reviews, semi-structured interviews and observations by conducting field visits and holding consultations with project stakeholders (UNICEF, 2019).

2.2.2 Influence of Monitored Financial Records on the sustainability of water projects

According to Muhaswa (2020), financial records are formal documents representing the transactions of a business, individual or other organization. He noted that effective financial record management practices and accountability lead to transparency and effectiveness in running institutions. Financial records entail any paper and electronic information regarding financial transactions generated in an institution (Muhaswa, 2020).

UN-Habitat (2020) notes that the financial records include a profit and loss account, a cash flow statement displaying a summary of sources and applications of funds and a balance sheet accepted by the fund's trusteesand by an external auditor and completed annually within three months of the end of the financial year. It's imperative to produce a profit and loss account quarterly for purposes of monitoring andplanning the project alongside a cash flow forecast for the rest of the year. Based on the typeof project, a

quarterly balance sheet may also be necessary. The project staff should be capable ofmaintaining adequate records including records on premiums, contributions, loans, and advances. The information should be kept confidentially by storing and securing the relevant information and records appropriately to avoid access by third parties (UN-Habitat,2020/09).

An effective accounting record-keeping system will safeguard assets and ensure that your company complies with necessary laws and regulations according to Ali, K. H. (2011). Good records management systems are essential to support financial management and financial accountability. Kehinde, Felicia and Joseph (2016) research accounting record keeping and Internal Control in the Nigerian Banking System with an emphasis to inspect the matters of internal control visa viz., accounting record-keeping in the banking industry, accepting both primary and secondary data. The outcomes demonstrate that internal control on its own is effective against fraud.

In a study by Igwe & Utebor (2020) on the influence of financial records management practices on the financial performance of food and beverage business organizations in Nigeria, poor financial recording management which includes a poor record of business transactions and financial statements have a negative influence on the return on equity of food and beverage business. Financial records represent formal records or written reports of financial activities of an entity to quantify financial performance and financial strength. Financial records management systems also can eliminate accounting errors and minimize records keeping redundancy (Yin

et al.,2020).

The organization must continually monitor its financial control systems to assess their efficiency and fitness for purpose over time (International Federation of Accountants, 2018). This is completed via regular activities, separate analyses or a mix of both. Ongoing tracking includes routine administration and also managerial activities, as well as various other activities employees, take in performing their responsibilities.

A study by Wakiriba, Ngahu and Wagoki (2014) interrogated the effects of financial controls on financial monitoring in the public sector in Kenya. The research conducted in Mirangine Sub-County of Nyandarua County focused on the agencies of the national government. The research study established that the public agencies in Mirangine Sub County had an efficient financial control system defined by continuous monitoring, clear separation of duties and effective supervision. Nevertheless, there were weaknesses in the execution of financial controls considering that the internal audit function was not well executed in all the divisions. Additionally, the study established a positive and significant association between financial effectiveness and control activities (Wakiriba et al., 2014).

In a study by Barasa (2014) on the Influence of M&E tools on project completion in Kenya: a case of constituency development fund projects in Kakamega County, the component of budget in the strategic plan was deliberated whereby the respondents noted the part budget plays during the project implementation and completion. They responded suitably using the

scalesprovided in the questionnaire. Fifty-three-point seven (53.7%) per cent expressed that the inclusion ofthe budget in the strategic plan had a high influence on project completion. The respondents strongly felt the inclusion of a budget in the strategic plan was crucial. It was noted that due to irregular and underfunding most of the projects had stalled. It arose that the respondents desire an all-inclusive budget that goes beyond the bill of quantities.

The project budget should provide for an allocation of M&E activities. The project budgetshould offer a clear and satisfactory provision for monitoring and evaluation activities. The monitoring and evaluation budget can be plainly defined within the general project budget to givethe monitoring and evaluation role the due acknowledgement it deserves in project management (Gyorkos, 2003; McCoy, 2005). A monitoring and evaluation budget should be between 5 to 10 per cent of the total budget (Kelly & Magongo, 2004).

According to Chaplowe (2008), M&E budget should not be too diminutive to affect the accuracy and credibility of results and neither should it consume many resources to the level of affecting other project activities. M&E activitiesand their cost should be estimated and correctly planned to guarantee the funds required are suitably assigned. This should be done at the project design stage so that funds are allocated exactly to M&E and are available to implement M&E tasks (Chaplowe, 2008).

Khisa (2012) established that the withdrawal of donor funding affects project sustainabilityand development. If donor funding ceased, most (41%) of the respondents thought that the project would cease operating, 33% pointed out that the project would be affected significantly, and 18% indicated that the project would not be affected at all. In comparison, 8% believed that the projectwould continue normally. Khisa also established that financing affects the sustainability and performance of the project. From the findings, most of the interviewed respondents (59%) pointedout that funding affects project sustainability to a very great extent, 28% to a great extent, while 13% revealed that budget affects project sustainability to a moderate extent. The findings illustratethat misuse of the funds allocated for project sustainability, inadequate funds, and embezzlement of funds may hinder the project's sustainability.

A study by Mushori (2015) on determinants of effective M&E of county government projects notes that M&E is usually budgeted for but there is no specific allocation for its activities.Barasa (2014) in his study observed that the inclusion of the M&E budget in the strategic plan is crucial and some projects had stalled or performed poorly due to underfunding. He also notes that a budget should be all-inclusive taking into account all costs and expenses likely to be incurred.

2.2.3 Influence of M&E Expertise on the sustainability of water projects

Accorsding to Musomba et al, (2013), any organization is only as

robust as its human resource proficiencies. An organization without the right persons with the right training is as good as dead (Musomba et al, 2013). As revealed by Musomba (2013), the technical team's ability to conduct evaluations and the valueof participation in the decision-making process can be huge determinants of how the M&E lessonsare learnt, communicated and perceived. Building capacity means bringing together more resources, more people (both women and men), and more skills. M&E practical training is significant in the capacity building of staff because it aids with the collaboration and management of the M&E systems. M&E training commences with the understanding of the M&E theory and ensuring that the team comprehends the connections between the project theory of change and theresults framework as well as related pointers (CPWF, 2012). Training should therefore bepractically focused to ensure understanding (CPWF, 2012). Organizations dismissing the trainingaspect in M & E are faced with a myriad of challenges.

Focusing on the nature of the expertise effect, it is assumed that experts in a specific domain can reach higher performance levels because they possess highly organized knowledge structures, more sophisticated procedural knowledge structures, more elaborated mental models, and problem-solving strategies which enable them to analyse problems thoroughly and to develop flexible solutions and alternatives. According to Schwalle (2006), knowledgeable people in a certain field need to plan and do the work. Technical capacity is the most important in project management

because without it no completion of the project will be possible. The technical workof any project needs to be done by qualified staff to produce work of a high standard; there is a lack of professional and technical supervision, which has led to poor project quality. In addition, there is low community participation in monitoring and evaluation due to the adequacy of data andgeneral information about the implementation process.

There is a constant demand for monitoring and evaluation training for project staff and partners' projects (Gosling & Edwards, 2003). Monitoring and Evaluation done by untaught anduntested people is sure to be time-consuming, and costly, and the results produced could be unreasonable and irrelevant. Therefore, this will impact the projects (Nabris, 2002). Skills for numeracy, literacy, interrogating, and monitoring in qualitative and quantitative management information systems are essential for participatory monitoring and Evaluation (Adan, 2012). Theability to motivate and unite staff to pursue a common goal and possess a vision and the ability to articulate it are vital dimensions of leadership (World Bank, 2004).

Program and project designs must take adequate account of local administrative systems' capacity to support staff and service delivery (Chamoun, 2006). For example: if the local staff is not getting paid regularly, are not paid a living wage, travel allowances are not available, and their performance is unrewarded, their ability and willingness to work on program/project activities must be assessed accordingly (Harrin, 2007).

While projects may then intervene by providing special incentives, sustainable outcomes are unlikely in such situations (Brooks, 2002).

Having resourceful personnel is essential for the sustainability of M&E systems; hence demands that evaluators be equipped through M&E Training and Development through formal training and on the job know-how to ensure active implementation of M&E activities. Gladys et al. (2010) note that evaluators' two main competencies are cognitive capacities and communication skills. They further noted that programme and senior managers also need technical training on M&E to trust and use the M&E information and specifically encourage the organization's result-based culture. The project should give human capital a transparent job allocation and designationbefitting their skill; if they are insufficient, training for the necessary skills should be set. For projects using staff referred out in the field to carry out project activities on their own, there is a need for constant and intensive onsite support to the field staff (Ramesh, 2002).

Karanja (2014) examined management practices' influence on the sustainability projects in Kangema District, Murang'a County, Kenya. It paid attention to training, monitoring & evaluation, leadership, and financial management facets regarding project sustainability. A descriptive survey design was adopted with 13 groups selected through stratified sampling, where the chairperson and member of each group were included in thesample. Two groups were involved in focused group discussions, the district officer was interviewed, analyzed data using descriptive statistics, and put out the

outcomes in tables and percentages. The study revealed that sound financial management, appropriate training, leadership,and effective monitoring and evaluation influence the projects' sustainability.

According to Mulandi (2013), technical expertise has a significant influence on the performance of M&E systems in non-governmental organisations in governance in Nairobi County. The study further noted that programme officers working for these NGOs had received training in M&E either formally or through in-service training, which supports the concept by Acevedo et al. (2010) that both formal training and on-the-job experience are essential in developing evaluators. Mukhererjee (1993) notes that human capacity needs hiring the right people, training staff, hiring external consultants for focused inputs and safeguarding the capacity of goodquality by eliminating disincentives and adding incentives for learning, monitoring of staff performance through regular evaluation, striving for continuity of staff and finding highly qualifiedstaff to synchronize.

2.3 Summary of the review of the Literature and Research Gaps

According to AFDB (2020), there is a water access gap which has slowed down growth in meeting the SDG 6 development goal as revenue losses by water services influence their capability to make important capital investments.

M& E systems should be demand-driven as opposed to being supply-driven to facilitate sustainability (Kisimbi, 2020). The literature that the

study reviewed showed that evaluations in Kenya are yet to reachacceptable levels as they merely deal with some aspects of the resulting chain, namely inputs andoutputs at the expense of impacts propelled by activist and donor demands and carried out by evaluators devoid of the requisite knowledge. There is also concern on market and use, there is a need to focus on documentation of old and recent information; use of data; the need for data; dataaccuracy and relevance.

Poor project budget allocation for implementation M&E activities to facilitate the monitoring and recording of project funds and execution of other M&E activities (Project Manager, 2021). The review also found that most appraisal techniques best suit the needs of project-level management. In monitoring and evaluating operations, project design teams give insufficient attention to adequate planning of monitoring and evaluation systems, setting priorities for information needs, and estimating monitoring and evaluation staffing and support costs (Bhavesh,2006).

A lack of M&E professional and technical expertise and proper leadership has led to sub-standard project performance (Nyamongo, 2017). The literature review has shown a lack of professional human and technical expertise, which leads to low project quality and prioritization (Chamoun,2006). Heerkens (2001) admits a lack of professional and technical supervision, which has led to low project quality. The review also found that follow-up technical assistance and training efforts for project monitoringand evaluation staff lack in many cases. Technical advisers who

are assigned monitoring and evaluation responsibilities lack appropriate evaluation skills and relevant experience.

There is minimal community involvement in decision making of projects (Kisumbi,2017) and a lack of participation by community members in identifying, designing, implementing of projects, and especially management stages (Sam, 2016). In addition, there is low community participation in monitoring and evaluation due to the inadequacy of data and general information about the implementation process. Community members are not adequately involved in resource mobilization to execute the projects. Community participation in M&E is essential to project performance as it gives new approaches of assessing and learningfrom the change that is more all-inclusive and more receptive to the needs and ambitions of those most directly affected. Community participation in M&E helps measure a project's effectiveness, builds ownership, empowers beneficiaries, builds accountability and transparency, and takes corrective actions to improve performance and outcomes.

According to Cooke-Davies (2002), there has been disagreement on a single set of determinants to predict project sustainability, indicating that a gap exists in project management and business literature on the comprehensive factors supporting the project. Minimal research has been done influence of M&E Principles such as M&E tools (LFA, participatory approach, questionnaires), Monitored Funds Records, and M&E Technical and human expertise perspectives on project sustainability. Moreover,

studies on this topic are generalized and are suited for other locations with different constraints to this study's research area. This research study sought to supplement the knowledge base by discovering the influence of monitoring and evaluation principles on water projects' sustainability in Ngong Town, Kajiado County.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction to Research Methodology

This section deals with the methodology used for the research, and it focuses on research design, target population, and sample design. It also has a section on how data was collected and analysed. It concludes with a section on the expected outputs.

3.2 Research Design

According to Mugenda 2003, descriptive survey design focuses on objectives formulation, data collection tools design, data collection, data processing, analysis, and reporting of findings. A descriptive survey involves issuing out the questionnaires in person, via mail, and by telephone. The research design technique provides a framework through which the researcher gathers and presents data. This study employed a descriptive research methodology, which offered the opportunity to obtain in-depth information from quite a large sample of respondents. By utilizing this research design, both quantitative and qualitative data was collected from a section of the community members at a household level, water management committees, and critical informantsfrom the Sub County Water office and Ward Administration office.

3.3 Research Site

A research site is a geographical location where research is conducted. This research studyfocused on water projects in Kajiado County,

Ngong Town. Ngong is a town close to the NgongHills in Kajiado County, located in the South West of Nairobi in Southern Kenya. Kajiado Countyis a semi-arid area hence its nature of shortage of water supply systems. The research study was delimited to Ngong town due to Kajiado County's vastness, which would be time-consuming and expensive to undertake. The study output will assist in developing an M&E toolkit that will significantly assist and help in the advancement of water projects in Ngong, Kajiado County, and neighbouringcounties.

3.4 Target Population

According to the encyclopedia of survey research methods, the target population for a survey is the complete set of units for which the survey data was used to conclude. Thus, the target population defines those units for which the survey findings generalize. Mugenda and Mugenda (2003) notes that a target population should have some visible characteristics, to which the researcher anticipates generalizing the outcomes of the study.

For this study, the analysis unit was 10 (ten) water projects (Kibiko, Oloolaiser, Lekurruki P.C.E.A, Kerarapon, Mburu, Major, Olkeri, P.C.E.A Enchoro Emuny, Lekurruki Limited, and Olepolos) of Ngong Town with a population of 2,485 members as the water consumers. The study also comprised ten water project managers/M&E Officers, three countywater office personnel, and two community leaders. The total target population was 2500 as shown in table 1 below;

Table 3.1 *Target Population Distribution Table*

Water Projects	Consumers	County Personnel	Project Officers	Community Leaders
Kibiko	260	—	1	—
Oloolaiser	250	—	1	—
Lekurruki P.C.E. A	155	—	1	—
Olkeri	200	—	1	—
Olepolos	205	—	1	—
Lekurruki Limited	400	—	1	—
P.C.E. A	250	—	1	—
Kerarapon	295	—	1	—
Major	200	—	1	—
Mburu	250	—	1	—
TOTAL	**2485**	**3**	**10**	**2**

Note. Researcher, 2022

3.5 Determination of Study Sample

3.5.1 Sampling Procedure

Mugenda and Mugenda (2003) describe sampling as the process of selecting the subjectsto be included in the study as representative of the target population.

Table 3.2 *Sample size of respondents from each stratum*

Water Projects	Sample size (Consumers)	Sample size (project officers)	Sample size (community leaders)	Sample size (water officers)	Total sample size
Kibiko	35	1	—	—	—
Oloolaiser	30	1	—	—	—
Lekurruki P.C.E.A	30	1	—	—	—
Olkeri	30	1	—	—	—
Olepolos	30	1	—	—	—
Lekurruki Limited	40	1	—	—	—
P.C.E.A Enchoro E	35	1	—	—	—
Kerarapon	35	1	—	—	—
Major	30	1	—	—	—
Mburu	35	1	—	—	—
TOTAL	**330**	**10**	**2**	**3**	**345**

Note. Researcher, 2022

For this research study, the sample was arrived at using the stratified random sampling method. The population was put into strata based on project managers/ M&E Officers, and thena sample unit for the study was chosen from each stratum randomly based on proportionality. A sample size of 345 comprises 330 water users and 10 project managers/ M&E Officers from the 10 water projects, three (3) officers from the Ngong water

department, and two (2) community leaders drawn from the population. These groups have intricate knowledge of variables affecting the water facilities' operation and provided insightful responses.

3.5.2 Study Sample size

A sampling of one-tenth per cent of the chosen source material was considered sufficient to conclude the entire population's characteristics, Kerlinger (1986). The researcher sampled 330 water consumers, ten Project/M&E management members, two community leaders, and three Ngong Water Officers, bringing the total sample size of this study to 345 respondents. A stratified random sampling procedure is appropriate when the population of interest isn't homogeneous and subdivided into mutually exclusive and heterogeneous subpopulations called stratum (Mugenda and Mugenda, 2003). Mugenda and Mugenda (2003) also argued that for greater accuracy in the findings, each stratum's number is based on the relative variability of the study's characteristic rather than proportionate to the relative size of the group.

Kothari (2004) proposes Slovene's formula to calculate an appropriate sample for the study, whichis optimal. The sampling procedure is given in the equation at the confidence interval of 95% witha significance level of 5%

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

n = number of samples, **N** = total population, **e** = Level of precision errorThen: **N** = 2500 people, **e** = 0.05 **n** =?

From the formula:

$n = 2500/ (1+ 2500 *0.05^2)$

n = 2500/ (1+6.25)

n = 2500/7.25

n =344.83

Therefore: n = **345**

From the above formula, the sample size for this study is **345**

To obtain the samples, 330(three hundred and thirty) water users from the ten (10) water projects were consulted, interviewed, and given questionnaires. On the other hand, three (3) officers fromthe Ngong water department, and two (2) community leaders, were consulted as critical implementers of M&E practices.

Table.3.3 *Sample size for the study of water projects in Ngong Region*

NO.	**Respondents**	**Number of Respondents**
1.	Consumers (water users)	330
2.	Project Officers/M/E staff	10
3.	Community Leaders	2
4.	Ngong Water Officers	3
TOTAL		**345**

Note. Researcher, 2022

3.6 Data collection Measures

3.6.1 Development of instruments

Data for the study was collected using questionnaires and interview methods. The questionnaires were pilot tested to determine their suitability to both the project beneficiaries and local staff involved inexecuting the project, and local authorities. A drop and pick method where the questionnaires were dropped in the morning and collected in the afternoon was used. The questionnaires had both open-ended and closed questions for issues related to the research problem. Due to the COVID-19 pandemic, Ministry of Health protocols were adhered to while administering the questionnaires.

3.6.2 Research Instruments Pilot Testing

A pilot test is an activity that assists the research in determining if there are flaws, limitations, other weaknesses, or challenges that the respondent would face. Before the actual data collection, the researcher conducted a pilot study in the Kibiko sub-county in Kajiado County. The Sub-County was chosen because it exhibits similar characteristics as the one understudy. The pilotstudy was conducted using a questionnaire given to a few people to pretest the questions. The study used 25 questionnaires for the pre-test for this study, representing 10% ofthe sample population.

3.6.3 Instrument reliability

The following steps were taken by the researcher to ensure reliability

researcher: Developing of questionnaire items based on the objectives of the study, writing of the questionnaire items simply to enable respondents' comprehension, the wording of questionnaire items, and carrying out of a pre-test on respondents with the same attributes, but who were not included in the primary research. This was done to find vagueness in the diction, sensitive questions, and wrongly placed questions to revise the questionnaire. Cronbach's alpha reliability statistics were used by the researcher to test the response rate.

3.6.4 Instrument Validity

The validity of the research and research instrument was ensured by using the following process: conducting a literature review to find relevant questions for the questionnaire items, ensuring thesample size was large enough to be representative of the phenomenon under study, and finally, a specific effort was made to guarantee similarity between research questions, objectives, investigation, findings, and recommendations. Further validity tests were done using SPSS V.25.

3.7 Data Processing and analysis

It involved making decisions from the data collected. Primary data from the field was amended first, and then coding was done to translate question responses into specific categories. Data analysis involved inspecting, sorting, transforming, and reproducing data to emphasize useful information and suggest recommendations that were useful in decision-

making(Armendáriz & Morduch, 2007). In this study, data analysis involved editing, coding, and tabulating to enhance segmentation. For descriptive data, the study used frequency distribution,calculated percentages, and tabulated them accurately. The findings were presented in percentages, frequency tables, and a description of the outcome made accordingly. A result of the interviews went through a critical assessment of each response. It was examined using thematic interpretation following the study's main objectives and, after that, presented in narrativeexcerpts within the report. The analysed data was then used to determine the influence of M&E principles on the sustainability of water supply projects in Ngong, Kajiado County.

3.8 Legal and ethical considerations

The researcher sought a research permit from NACOSTI to research in conjunction withthe Ngong Water Office and the various water projects under study. The researcher guaranteed that the right to self-determination of the subjects was practiced as it is the moral code of respect for a person. This was done by ensuring the researcher had adequate information concerning how the project was conducted. This allowed them to participate in the research or decline voluntarily.

The researcher upheld the right to the confidentiality of the subjects. Participantswere informed of the study's confidentiality to ensure respect for the dignity of participants in the study. Their private information was only retrieved by the researcher and the supervisor. They were not required to

provide any identifying details. As such, records and the final report did not replicate the subject's identifying information, such as their names, if they were not content with it. After the study had been finalized and a final report written, the tools used to collect data were destroyed. The researcher-maintained privacy in all matters arising from the participant's information. This was in the form of feelings, beliefs, attitudes, and opinions. The rawdata was protected from unauthorized persons. The information obtained was usedfor the research only. The findings were presented in percentages, frequency tables, and a description of the outcome shared with any respondent who wished to know the research outcome.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the results obtained from data analysis, interpretations and discussion of findings. The study results were analysed and interpreted in line with the objectives which were to assess the influence of M& E tools on the sustainability of water projects, the influence of monitored financial records and determine the influence of M&E technical expertise on the sustainability of water projects in Kajiado County focusing on Ngong Region. The chapter was organized according to the research questions. The data was analyzed using SPSS V.25. The findings were presented in form of descriptive analysis.

4.2 Characteristics of the Respondents (or the Subject of the Study)

The study targeted a sample of 345 respondents on collecting data to determine the influence of monitoring and evaluation on the sustainability of water supply projects in Kajiado County considering a case study of Ngong Town. The 345 questionnaires were distributed physically to the 330 water users from the ten (10) water projects, 3 water officers from Ngong, 2 community leaders and 10 project practitioners/M&E staff. The study managed to obtain data from 276 respondents out of 345. This made a response rate of 80.0%, which is sufficient as Punch (2013) proposed 70% response rate and above is sufficient to inform a study. Table 4.1 presents the findings.

Table 4.1 *Response Rate*

Response	Frequency	Percentage (%)
Water Users	263	95.30
Water Officers	3	1.00
Community Leaders	2	0.70
Project Practitioners	8	3.00
Total	**276**	

Note. Researcher, 2022

4.3 Presentation of Research Analysis, Findings, and Interpretation

The descriptive results of the study focused on the demographic details of the interviewed water users, project/ M&E managers, community leaders and county water officers. The details of the participants and the projects were captured as follows: gender, age, level of education and duration of employment. A short description of each variable for this case has been made. The collection of this demographic information helped determine whether persons of a specific study are a representative sample of the target population for generalization (Salkind, 2010)

4.3.1 Water Projects

The findings reveal that out of the response rate of 276, 272 respondents utilized water from the Ngong water projects except for four (4) project practitioners. A majority of 13.20% (36) respondents were from Lekurruki limited project, 11.50% (31) from the Mburu water project, and 10.5% (28) from the P.C.E.A water project, 10% (27) from Lekurruki P.C.E.A. This was followed by 9.6% (26) from the Olkeri project then closely followed by 9% (25) both from Kibiko and Olepolos water projects.

There was also a tie in response for Oloolaiser and Kerarapon water projects at 8.8% (24). The data above implies that all the water projects in Ngong were well represented to provide adequate information required for the study. Table 4.2 presents the findings

Table 4.2 *Response rate as per water project under study*

Water Projects	**Frequency**	**Percentage (%)**
Kibiko	25	9.00
Oloolaiser	24	8.80
Lekurruki P.C.E. A	27	10.00
Olkeri	26	9.60
Olepolos	25	9.00
Lekurruki Limited	36	13.20
P.C.E.A Enchoro Emuny	28	10.50
Kerarapon	24	8.80
Major	26	9.60
Mburu	31	11.50
Total	**272**	**100.00**

Note. Researcher, 2022

4.3.2 Founding Years of the Water Projects Under Study

The study sought to seek the year the various water projects were founded. The findings discovered that the majority of the respondents and documents were consistent with the years as presented in table 4.3

Table 4.3 *Founding Years of the Water Projects under study.*

Water Projects	**Year**
Kibiko	2004
Oloolaiser	2006
Lekurruki P.C.E. A	2007
Olkeri	2006
Olepolos	2012
Lekurruki Limited	2010
P.C.E.A Enchoro Emuny	2014
Kerarapon	2010
Major	2000
Mburu	2005

Note. Reseacher,2022

4.3.3 Gender

The study sought to find out the gender of the respondents in the study. It was discovered that the majority of the respondents were female 62% (172) and the male was at 38% (104). Such findings are indicative of all gender being well represented adequately to support the study.

4.3.4 Level of Education

In the demographic information sourced the researcher deemed it suitable to know the respondent's education levels among different categories. Results showed that the majority of the respondents had completed secondary level education 46% (126) then followed by certificate holders at 24% (66). Diploma holders were 34% (12) then those that had primary school level qualification were 10% (28) and were followed by

those with graduate school level at 7% (18) and finally those in the postgraduate level at 1% (4). Such findings are an indication of a sampled population that to a moderate extent can articulate information surrounding the area of study where difficulties were encountered translation into local languages helped in getting the information necessary for this study. Table 4.4 reveals the findings;

Table 4.4 *Level of Education of the respondents*

Response	**Frequency**	**Percentage (%)**
Primary level	28	10.00
Secondary level	126	46.00
Certificate holder	66	24.00
Diploma holder	34	12.00
Graduate	18	7.00
Post-graduate	4	1.00
Total	**276**	**100.00**

Note. Researcher, 2022

4.3.5 Occupation

The categories were divided into casual labourers, self-employed, Unemployed, Public service, Private contract and project officers. Findings showed that casual labourers were the majority at 28% (77) closely followed by the self-employed at 26% (71) then the Unemployed at 22% (60) and a distant fourth were those in the public service at 10% (27) and Private contractors at 8% (22) and finally project officers at 6% (16). Such findings indicate that majority of the respondents work for themselves or are temporarily attached to some paying jobs and could be terminated anytime and a further majority not employed meaning minimal to no income category.

4.4 M & E Principles

4.4.1 Monitoring & Evaluation Tools

In this section, the study sought to assess the influence of Monitoring and Evaluation tools on the sustainability of water projects selected in this study. It adopted a Likert scale technique whereby on a scale of 1-5; 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree. The study elicited responses on various items related to the M&E tools and findings showed that the county government plays a role in M&E regulation shown by 245 (88.7%). This is an indication that the community projects work hand in hand with the Kajiado County Government in Monitoring and Evaluation efforts of the water projects' sustainability. Findings further revealed that field visits and meetings with stakeholders are conducted regularly and a list of participants with venue, I.Ds. and telephone numbers were recorded as shown by 249 (90.1%). This is an indication that kick-off meetings, periodic meetings, and status meetings as part of the M&E process are synonymous with the water projects in Ngong to ensure sustainability. As part of the M&E techniques and tools, the M&E process incorporates work plans as supported by 256 (92.9%). This implies that there exist road maps for the water projects clearly articulating the required steps to achieve stated goals by setting demonstrable objectives and measurable deliverables that can be transformed into concrete actions for the water projects. It also came out that formative reports are prepared regularly going by 228 (83.1%). This is a clear indication of water projects that report on project outputs, the

progress of implementation, targets achieved and key result areas based on indicators.

The findings also revealed that LFA helps in identifying clear and measurable objectives as shown by 226 (81.7%). In a nutshell, this is to say they utilize the log frame as a tool for improving the planning, implementation, management, monitoring and evaluation of the water projects in Ngong. There were mixed reactions as to whether the local community committees participate in the management and financial decisions in the water projects as shown by 201 (73.2%). This is an indication of partial community participation or a process that hasn't fully embraced participatory techniques. This was further qualified by a disagreement as to whether the respondents actively participated in planning, implementing, monitoring and evaluating water projects. A response of 188 (67.6%) shows that there is minimal active participation by the respondents. This item had a lower mean than the composite mean of 3.69 a clear indication it does not align with the M&E tools of water projects in Ngong unlike the rest of the variables that positively influence M&E tools. Results are shown in Table 4.5;

Table 4.5 *Influence of M&E Tools on the sustainability of water projects in Ngong Region*

Parameters	SA	A	UN	D	SD	Mean	SD
LFA helps identify clear and measurable objectives (results).	132(47.9)	94 (33.8)	4(1.4)	42(15.5)	4(1.4)	4.11	1.115
Field visits and meetings with stakeholders are conducted regularly and a list of participants with venue, I.D. and telephone numbers Recorded	148(53.5)	101(36.6)	0(0.0)	20(7.0)	7(2.8)	4.31	0.994
Availability of wor plans	97(35.2)	159(57.7)	0(0.0)	16(5.6)	4(1.4)	4.20	0.821
Local Community committees participate in management and financial decisions	112(40.8)	89(32.4)	24(8.5)	51(18.3)	0(0)	3.69	1.114
You actively participate in planning, implementing, monitoring and evaluating water projects	0(0.0)	42(15.5)	46(16.9)	102(36.6)	86(31.0)	2.17	1.042
The county government plays a role in M/E regulation	151(54.9)	94(33.8)	16(5.6)	11(4.2)	4(1.4)	4.37	0.882
Formative reports are prepared Regularly	104(38.0)	124(45.1)	28(9.9)	20(7.0)	0(0.0)	4.14	0.867
Composite Mean and SD						3.69	0.9764

Note. Researcher, 2022

4.4.2 Monitored Financial Records

There was a need for the study to assess the influence of Monitored Financial Records on the sustainability of water projects in Ngong. It adopted a Likert scale technique whereby on a scale of 1-5; 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree. The study found that the majority of the respondents 272 (98.4%) were in agreement that Project implementation requires sufficient funding that ensures that purchases are done efficiently and on time. This recorded an overwhelming response to mean procurement processes are integral in Ngong projects. Another majority of 226(82.2%) were in agreement that the project has sufficient resources to maintain supply and meet customer demands. This is an implication that the projects have sufficient money, material, stock, staff and assets necessary for an optimally functioning project. 212 (76.8%) agreed that annual Reports on the project's financial progress are done at the projects however this is less than the composite mean and could imply this happens only to some extent. 206(75%) agreed that payment of monthly water bills on time and receipts are given as a means of verification. This is to imply that there is validity in the financial monitoring process of the projects however it fell below the composite mean and could mean it does positively influence financial record items. Response as to whether the frequent project appraisals are done within the time frame, scope and cost had 162 (58.9) agreed. However, the mean falls below the composite mean an indication that it does not influence positively financial monitoring of the

projects at Ngong. Findings are presented in Table 4.6 below;

Table 4.6 *Influence of Monitored Financial Records on the Sustainability of water projects in Ngong Region.*

Parameters	SA	A	UN	D	SD	Mean	SD
Annual Reports on the project's financial progress are done	108(39.3)	104(37.5)	29(10.7)	16(5.4)	19(7.1)	3.96	1.165
Frequent Project Appraisals are done within the required time frame, scope and cost	64(23.2)	98(35.7)	60(21.4)	49(17.9)	5(1.8)	3.61	1.094
Payment of monthly water bills on time and receipts are given as a means of verification	98(35.7)	108(39.3)	38(14.3)	16(5.4)	16(5.4)	4.00	1.10
The project has sufficient resources to maintain supply and meet customer demands	118(42.9)	108(39.3)	34(12.5)	16(5.4)	0(0)	4.20	0.862
Projects implementation require sufficient funding that ensures that purchases are done efficiently and in a timely manner	232(83.9)	40(14.5)	4(1.4)	0(0.0)	0(0.0)	4.80	0.482
Composite Mean and SD						4.11	0.9406

Note. Researcher, 2022

4.4.3 M & E Human and Technical Expertise

There was a need for the study to find out M&E expertise in the water projects at Ngong. It elicited responses on various items related. It adopted a Likert scale technique whereby on a scale of 1-5; 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree. In that regard, 276 (100%) agreed that LFA helps in identifying clear and measurable objectives. This is an indication that they acknowledge the log frame in improving the planning, implementation, management, monitoring and evaluation of the water projects in Ngong. 226 (82.1%) were in agreement

that the number of M&E staff influences the duration and frequency of M&E Implementation. This implies that workforce quantity requirements are important in the water projects implementation and every day running. 241(87.5%) agreed that educational level determines the quality of M&E collection and data utilization. It is a clear indication that the years of receiving formal relevant skillful instructions and successful completion of the same determines the quality of M&E in the water projects. All the above are beyond the composite mean of 4.39 to imply that they positively influence M&E expertise concerning the projects.

241 (87.5%) were in agreement that M/E Human and Technical training is useful in the operation and maintenance of projects. This is an indication that acquiring skills in M&E is vital for water project sustainability. 212 (76.7%) were in agreement that project officers possess adequate knowledge and skills required for the successful implementation of water projects. This was self-explanatory however; it was unexpected for the mean to fall below the composite mean could be an effect of factors outlying. The findings are presented in Table 4.7 below;

Table 4.7 *Influence of M&E Human and Technical Expertise on Sustainability of water projects.*

Parameters	SA	A	UN	D	SD	Mean	SD
Staff with M/E skills promote the project's cost effectiveness.	212(76.8)	64(23.2)	0(0.0)	0(0.0)	0(0.0)	4.77	0.431
Project Officers possess adequate knowledge and skills required for the successful implementation of water projects	124(44.6)	88(32.1)	34(12.5)	20(7.1)	10(3.6)	4.07	1.101
Number of M&E staff influences duration and frequency of M&E Implementation	172(62.5)	54(19.6)	30(10.7)	16(5.4)	5(1.8)	4.50	0.910
M/E Human/Technical training is useful in the operation and maintenance of projects	192(69.6)	49(17.9)	20(7.1)	10(3.6)	5(1.8)	4.20	0.862
Educational Level determines the quality of M&E collection and data utilization	167(60.7)	74(26.8)	20(7.1)	10(3.6)	5(1.8)	4.41	0.912
Composite Mean and SD						4.39	0.8432

Note. Researcher, 2022

4.5 Sustainability of Water Projects

The study found it necessary to test variables related to the dependent variable which was the sustainability of the Ngong water projects. This was done through the Likert scale methodology once more whereby on a scale of 1-5; 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree. Findings show that 242 (87.5%) were in agreement that the project can meet the growing demand for the water in Ngong. This indicates that the

water projects can satisfy the water needs of the community in the study population. 217 (78.6%) agreed that the project can carry out repairs on time and that is self-explanatory. Further, the respondents qualified that the water provided by the projects is clean and free from dirt going by 217 (78.5%). This is an assurance of water that is safe for human consumption and meets water quality standards. Another majority of 196 (71.8%) agreed that the water pipes and tanks are always in good condition. This could indicate that facility repairs and maintenance are adhered to optimally at the projects. Additionally, the majority agreed that the project can pay workers' salaries on time going by 196 (71.4%) agreed. Further, 188 (67.9%) agreed that the projects provide water regularly and this qualifies the sufficiency of water to sustain the community dependent on the projects. The aforementioned means are above the composite mean. This is an indication that they positively influence the sustainability of the targeted water projects in this study.

178 (64.3%) were in agreement that the water projects can pay licenses and tariffs on time implying that the project compliance is not an issue. Finally, 124 (44.6%) agreed that monthly water bills are paid promptly. This recorded a mixed reaction as it was way below the expected response. However, the latter two findings fall below the composite mean and are a clear indication that they do not positively influence the sustainability of the targeted water projects. Findings are presented in Table 4.8 below;

Table 4.8 *Sustainability of Water Projects*

Parameters	SA	A	UN	D	SD	Mean	SD
Monthly water bills are paid promptly	54(19.6)	70 (25.0)	59(21.4)	49(17.9)	44(16.1)	3.14	1.371
The water project can pay licenses and tariffs on time	44(16.1)	134(48.2)	39(14.3)	39(14.3)	20(7.1)	3.52	1.142
The water pipes and tanks are always in good condition	84(30.4)	112(41.1)	64(23.2)	16(5.4)	0(0.0)	3.96	0.871
The project can pay workers' salaries on time	64(23.2)	132(48.2)	54(19.6)	16(5.4)	10(3.6)	3.82	0.974
The project can carry out major repairs on time	113(41.1)	104(37.5)	20(7.1)	39(14.3)	0(0.0)	4.05	1.031
The water provided by the project is clear (free of dirt or germs)	93(33.9)	124(44.6)	30(10.7)	24(8.9)	5(1.8)	4.00	0.990
The project provides continuous flow **of** water regularly	80(28.6)	108(39.3)	34(12.5)	44(16.1)	10(3.6)	3.73	1.115
The project can meet the growing demand	138(50.0)	104(37.5)	24(8.9)	10(3.6)	0(0.0)	4.34	0.791
Composite Mean and SD						3.73	1.08562

Note. Researcher, 2022

4.5.1 Suggestions for improvement

The study finally enquired on suggestions the respondents felt were necessary to improve Monitoring and Evaluation Practices to improve the Sustainability of water projects. Overarching themes were gathered and presented. A majority of 226 (81.8%) believed that recruitment should be

out of merit. 214 (77.5%) believed that communication on M&E elements should be effective. 201 (72.8%) believed that basic training on M&E knowledge should be conducted for project beneficiaries to understand the projects better. 191 (69%) felt that the M&E techniques should be more participatory to enhance ownership of the water projects. A further 171 (61.9%) felt that time and resources should be well accessed and allocated for the exercise. Culture and attitude also came out when 159 (57.6%) of the respondents felt that it should be incorporated while dealing with locals regarding the water projects. Table 4.9 presents the findings;

Table 4.9 *Suggestions for M&E Improvement*

Response	**YES**	**ALT**	**TOTAL**
Merit Recruitment	226 (81.8)	50 (18.2)	276 (100)
M&E Communication	214 (77.5)	62 (22.5)	276 (100)
Basic M&E Training	201 (72.8)	75 (27.2)	276 (100)
Participatory M&E	191(69)	85 (31)	276 (100)
Time and Resources	171 (61.9)	105 (38.1)	276 (100)
Culture and Attitude	159 (57.6)	117 (42.4)	276 (100)

The study conducted interviews with some of the respondents on why most water projects are not sustainable in the Ngong region. The study sought to find out if structural work plans were put in place in the implementation of M&E activities of the water project and these were the responses that were obtained;

"...For effective M&E to take place proper M&E structural work plans

need to be in place at the organization level and this has been hindered by a lack of financial support and personnel training on M&E practices……." (Project Officer, Ngong).

The study also sought to find out the impact of stakeholder participation on the sustainability of water projects. According to Kimweli (2013), the participatory M&E framework influences the projects' success and sustainability. The project also sought to find out if project stakeholders were involved before the implementation of M&E related project activities and this is what some of the respondents noted;

"…. we are not given an opportunity to give our opinions and to contribute towards the implementation of the project activities hence we don't feel a sense of ownership to the project or duty to ensure its success…" (Water User, Ngong).

"…the water project that supplies us water developed a water committee which has representatives from the organization, the community and sub-county personnel who deliberate and supervise water project activities." (Project Officer, Kibiko water project). This was a positive response that shows that a few of the water projects are doing their part to ensure success and sustainability but from the responses of the project stakeholders more needs to be done to reach a level where water is available to all stakeholders and at all times.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, a summary of the main study findings is presented together with the conclusions of the study. The chapter further covers recommendations of the study as well as suggestions for further research.

5.2 Discussion

5.2.1 Monitoring & Evaluation Tools

The study established that the M& E tools influence the sustainability of water projects in Kajiado County as it had a composite mean of 3.69 (M=3.69) and a standard deviation of 0.97 (SD=0.97). This was supported by the International Journal of Safety and Security Engineering (2020) which noted that LFA is an acceptable tool to shape a feasible path for sustainable development together with Mostafavi et.al (2020) who also noted that the log frame summarizes the essentials of project, the hierarchy of objectives and activities and assumptions and how the project's development, outputs and outcomes will be monitored and assessed. This was also in support of the study by Kisumbi (2017) which examined the effects of stakeholder non-participation on thesustainability of water projects in Makueni County Kenya and recommended community participation in water projects' implementation.

5.2.2 Monitored Financial Records

The study established that the respondents agreed that there is a

positive influence of monitoring financial records on the sustainability of water projects in Kajiado County with an aggregate mean (M=4.11) and standard deviation of (SD=0.94). This is supported by the study by Wakiriba, Ngahu and Wagoki (2014) in Nyandarua, Kenya which interrogated the effects of financial controls on financial monitoring establishing that an efficient financial control system is defined by continuous monitoring, clear separation of duties and effective supervision.

The study findings are supported by Khisa (2012) who established that the withdrawal of donor funding affects project sustainability and development. The findings are supported by a study by the UN-Habitat (2020) which demonstrated that it is important to generate a profit and loss account quarterly for purposes of monitoring andplanning the project alongside a cash flow forecast for the rest of the year. Depending on the typeof project, a quarterly balance sheet may also be necessary and the project staff should be capable ofmaintaining adequate records including records on premiums, contributions, loans, and advances. The study also stated that information should be kept confidentially by storing and securing the relevant information and records appropriately to avoid access by third parties.

The findings are supported by Rukunga G. et al. (2006) who established that funding for Kenya's water projects is from the Government of Kenya budget, Local Authority budgets, and Non-Governmental Organisations. Theyimplement water projects directly or indirectly through community-based organisations andinternal generation by service providers,

mainly local utilities, community-based organisations, and private small-scale providers. The money generated is used for the repair and maintenance ofthe water facilities or for expanding the investments. In some cases, households pay a fixed monthly contribution or help raise money when required to carry out repairs or develop the scheme.

5.2.3 Monitoring and Evaluation Human and Technical Expertise

Regarding the Monitoring and Evaluation Expertise, the study established that the respondents agreed that M&E Human and Technical Expertise have a positive influence on the sustainability of Water projects in Kajiado County with an aggregate mean (M=4.39) and standard deviation of (SD=0.84). This study finding was supported by Musomba et al, (2013) who found that any organization is only as robust as its human resource competencies. The study also found out that an organization without the right individuals with the right training is as good as lifeless.

The study finding is supported by Musomba (2013) whose study found that the technical team's ability to conduct evaluations and the value of participation in the decision-making process can be huge determinants of how the M&E lessonsare learnt, communicated and perceived. He further states that building capacity means bringing together more resources, more people (both women and men), and more skills and that M&E practical training is significant in the capacity building of staff because it aids with the collaboration and management of the M&E systems. The study was supported by the CPWF (2012) study which states that M&E training

commences with the understanding of the M&E theory and ensuring that the team comprehends the connections between the project theory of change and the results framework as well as related pointers and that organisations which ignore training are faced with many challenges.

5.3 Sustainability of Water Projects

Concerning the sustainability of projects, the study established that the respondents were in agreement on the sustainability of water projects in Kajiado with an aggregate mean (M=3.73 and standard deviation of (SD=1.09). This implied that water projects in Kajiado County were not well managed by resourceful people. The findings concur with Gladys et al. (2010) who argued that having resourceful personnel is essential for the sustainability of M&E systems; hence demands that evaluators be equipped through M&E Training and Development through formal training and on the job know-how to ensure active implementation of M&E activities.

These study findings are supported by the study conducted by Irrigation (2016) which found that the sustainability of commissioned projects is enhanced by ensuring that only projects prioritized by the beneficiaries are implemented which builds the capacity of the beneficiaries and enhances project ownership. Project implementers ensure that a management and sustainable operations concept is established to ensure projects continue to meet the needs of the recipients over time. This is

through key stakeholders' involvement from the project preparation phase.

5.3 Summary of the Main Findings

5.4 Conclusion

Based on the findings discussed in the previous chapters this study concludes that M & E tools, Monitored Financial Records and M& E Expertise all influenced the sustainability of water projects in the Ngong region in Kajiado County. Further, the study concludes all stakeholders need to put the effort to improve the sustainability of water projects in the Ngong region with proper legislation, structural work plans and improvement on the quality of water, proper training of manpower improved customer service to be considered.

5.4 Recommendations

Based on the study findings, the researcher recommends that:

Lobbying at the county level for the development of a water policy that will ensure sustainable access to safe water by all.

Structural work plan to be put in place by water projects and the county and sub-county water committees to ensure compliance.

There is a need for proper training of manpower and awareness on M&E principles and processes through formal training at the community level and on-job training to improve service delivery

Communication on M&E elements and distribution of M&E data to all project stakeholders should be effectively done.

Time and resources should be well accessed and allocated for the M&E activities.

The culture and attitude of the project stakeholders should be taken into account when dealing with locals regarding the water projects.

5.4.1 Suggestions for Further Research

Further research is suggested to be carried out on the following area;

Influence of Sustainable Energy and Technologies on the Sustainability of Water Projects.

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APPENDICES

Appendix I

QUESTIONNAIRE FOR THE PROJECT/M&E OFFICERS, SUB-COUNTY WATEROFFICERS AND COMMUNITY LEADERS.

INSTRUCTIONS: Where applicable, please tick or fill in the space provided with a correct answer. We expect that youwill answer the questions as frankly as possible.

1. DEMOGRAPHIC INFORMATION

1.1 Name of the water project……..……

1.2 When was the project started……?

1.3 Gender of the respondent……

1.4 Age of the respondent

18 – 25years…….……... 26 – 35years……

36 – 45years……... 46 – 55years……

56 – 65years…….…….....66 and above years…….

1.6 Occupation/employment…….

1.7 Education level……

i) Primary level ii) Secondary level

iii) Certificate holder iv) Diploma holder

v) Graduate vi) Post-graduate

2. M&E PRINCIPLES

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Neutral 4= Disagree 5= Strongly Disagree

A. M&E TOOLS

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Neutral 4= Disagree 5= Strongly Disagree regarding M&E Tools

Parameters	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
2.1 LFA helps in identifying clear and measurable objectives (results).					
2.2 Field visits and meetings with stakeholders are conducted regularlyand a list of participants with venue, I.D. and telephone numbers Recorded					
2.3 Availability of work plans					
2.4 Local Community committees participate in management and Financial decisions					
2.5 You actively participate in planning, implementing, Monitoring and Evaluating water projects					
2.6 The county government plays a role in M&E regulation					
2.7 Formative reports are prepared Regularly					

B. MONITORED FINANCIAL RECORDS

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Neutral 4= Disagree 5= Strongly Disagree regarding Monitored Financial Records.

Parameters	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3.1 Annual Reports on the project's financial progress are done					
3.2 Frequent Project Appraisals are done within the required time frame, scope and cost					
3.3 Payment of monthly water bills on time and receipts are given as a means of Verification					
3.4 The project has sufficient resources to maintain supply and meet customer Demands					
3.5 Projects implementation require sufficient funding that ensures that purchases are done efficiently and timely					

C. M&E EXPERTISE

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree regarding M&E Expertise.

Parameters	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4.1 LFA helps in identifying clear and measurable objectives (results).					
4.2 Project Officers possess adequate knowledge and skills required for the successful implementation of water Projects					
4.3 Number of M&E staff influences duration and frequency of M&E Implementation					

4.4 M/E Human/Technical training is useful in operation and maintenance of projects					
4.5 Educational Level determines the quality of M&E collection and data utilization					

II: SUSTAINABILITY OF WATER PROJECTS

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree regarding the sustainability of water projects.

Indicate the extent to which you agree with the following statements	**1**	**2**	**3**	**4**	**5**
5.1 Monthly water bills are paid promptly					
5.2 The water project can pay licenses and tariffs on time					
5.3 The water pipes and tanks are always in good condition					
5.4 The project can pay workers' salaries on time					
5.5 The project can carry out major repairs on time					
5.6 The water provided by the project is clean (free of dirt or germs)					
5.7 The project provides a continuous flow of water regularly					
5.8 The project can meet the growing demand					
5.9 The projected membership has been growing					
5.10 My opinions influence the project decision making					
5.11 Things as they are, I am willing to continue offering my services to the project					
5.12 Things as they are, I am satisfied to provide my services to the Project					

What approaches can you suggest to improve Monitoring and Evaluation Practices to improve the Sustainability of water projects in the Ngong Region?

1……

2……

3……

4……

Thank you for your Cooperation

APPENDIX II

QUESTIONNAIRES FOR THE WATER USERS

INSTRUCTIONS

Where applicable, please tick or fill in the space provided with a correct answer. We expect that youwill answer the questions as frankly as possible.

1. DEMOGRAPHIC INFORMATION

1.1 Name of the water project…….……

1.2 When was the project started……?

1.3 Gender of the respondent…….

1.4 Age of the respondent

18 – 25years…….……... 26 – 35years……

36 – 45years……... 46 – 55years……..……

56 – 65years…….…….....66 and above years…….

1.5 Occupation/employment…….

1.6 Education level……

i) Primary level ii) Secondary level

iii) Certificate holder iv) Diploma holder

v) Graduate vi) Post-graduate

2. M&E PRINCIPLES

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree

A) M&E TOOLS

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree

2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree regarding M&E Tools

Parameters	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
2.1 Beneficiary participation is essential for successful implementation and sustainability of the project.					
2.2 Field visits and meetings with stakeholders are conducted regularlyand a list of participants with venue, I.D. and telephone numbersRecorded					
2.3 Your contributions and opinions are used in decision making during the planning, implementing, Monitoring and Evaluating water projects					
2.4 Most local people, lack interest and initiatives in government-sponsored projects					
2.5 Formative reports are prepared Regularly					

B. MONITORED FINANCIAL RECORDS

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree regarding Monitored Financial Records.

Parameters	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4.6 Annual Report on the project's financial Progress is done and stakeholders informed					
4.7 Establishment of community project Committees affects project sustainability					
4.7 Payment of monthly water bills is done					
on time and receipts are given as a means of verification					
The project has sufficient resources to maintain supply and meet customer Demands					

C. M&E EXPERTISE

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree regarding M&E Expertise.

Parameters	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4.9 M&E skills enhance the quality of M& Data					
4.10 There is a lack of professional and technical monitoring and evaluation skills within the local communities					
4.11 Number of M&E staff influences duration and frequency of M&E Implementation					
M/E Human/Technical training is usefulin the operation and maintenance of projects					
4.13 Operation and maintenance of project facilities and equipment affects					

sustainability of the project					

II: SUSTAINABILITY OF WATER PROJECTS

Please give your opinions to the extent to which you agree with the following statements using aLikert Scale of 1-5 where 1= Strongly Agree 2= Agree 3= Undecided 4= Disagree 5= Strongly Disagree regarding the sustainability of water projects.

Indicate the extent to which you agree with the following statements	**1**	**2**	**3**	**4**	**5**
5.13 I can pay my monthly water bills promptly					
5.14 The water project can pay licenses and tariffs on time					
5.15 The water pipes and tanks are always in good condition					
5.16 The project can pay salaries of workers on time					
5.17 The project can carry out major repairs on time					
5.18 The water provided by the project is free of dirt or germs					
5.19 The project provides a continuous flow of water regularly					
5.20 The project can meet the growing demand					
5.21 The projected membership has been growing					
5.22 Things as they are, I am willing to pay for the services offered to me by the project					
5.23 Things as they are, I am satisfied by the services offered by the Project					

What approaches can you suggest to improve Monitoring and Evaluation Practices to improve the Sustainability of water projects in the Ngong Region?

1……

2……

3……..

4…….

Thank you for your Cooperation

APPENDIX III: NACOSTI RESEARCH PERMIT



REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 291216

Date of Issue: 25/May/2021

RESEARCH LICENSE

This is to Certify that Miss.. Phyllis Mwango Machuka of Africa Nazarene University, has been licensed to conduct research in Kajiado on the topic: Influence of Monitoring and Evaluation Principles on the sustainability of water supply projects in Kajiado County: A case of Ngong Region for the period ending : 25/May/2022.

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APPENDIX IV: RESEARCH AUTHORIZATION LETTER

11th May, 2021

E-mail: researchwriting.mba.anu@gmail.com/ monitoringandevaluation@anu.ac.ke
NACOSTI: registry@nacosti.go.ke Tel. 0202711213

Our Ref: 18M03DMME023
The Director.
National Commission for Science,
Technology and Innovation (NACOSTI),
P. O. Box 30623, 00100
Nairobi. Kenya

Dear Sir/Madam:
RE: RESEARCH AUTHORIZATION FOR: PHYLLIS MWANGO MACHUKA 18M03DMME023

Phyllis Mwango Machuka is a postgraduate student of Africa Nazarene University in the Master OF ARTS IN MONITORING AND EVALUATION (MME) Program.
In order to complete her program, Phyllis is conducting a research entitled: ***INFLUENCE OF MONITORING AND EVALUATION PRINCIPLES ON THE SUSTAINABILITY OF WATER SUPPLY PROJECTS IN KAJIADO COUNTY: A CASE OF NGONG REGION.***
Any assistance offered to her will be highly appreciated.

Yours Faithfully,



Dr. Wanjiru Nderitu

MME, Coordinator; School of Business Studies,

Africa Nazarene University.

APPENDIX V: MAP OF NGONG

