ASSESSMENT OF PROJECT MANAGEMENT PRACTICES ON IMPLEMETATION OF IRRIGATION SCHEME BASED PROJECTS IN KENYA; A CASE OF GALANA KULALU IRRIGATION SCHEME.

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DECLARATION & APPROVAL

Declaration by the Researcher

I hereby proclaim that this is my original work and has not been presented for a degree in any other University or for any other award. I affirm that all content contained within this document is solely my own creation and has not been submitted elsewhere for evaluation or recognition. I declare that it contains no material written or published by other individuals, except where due reference has been made and the authorship of such material is duly acknowledged. I take full responsibility for the integrity and originality of this work

Sign ---------- **Date:** September 2024

Grace Wambui Mahinda

MSCPM/2022/49375

Approval by the Supervisor

I/We certify that the work reported in this project was undertaken by the student under my/our supervision

Dr. Appolonius Kembu, PHD

Sign: ---------- **Date** September 2024

DEDICATION

I devote my work to my family in appreciation of their support, encouragement and for always believing in me throughout my study.

ACKNOWLEDGEMENT

I am truly grateful to Mount Kenya University for providing me with the chance to earn a Master's Degree in Project Management and Planning. Secondly, I want to express my gratitude to Dr. Appolonius Kembu, my supervisor, for all of his guidance during my research. Thirdly, I'd like to express my gratitude to the Galana Kulalu irrigation scheme project for providing me with a place to conduct my research. Above all, I give thanks to God for giving me the life and the means to continue my education.

ABSTRACT

The study focused on assessment of project management practices on implementation of irrigation scheme based projects in Kenya; a case of Galana Kulalu Irrigation scheme. The specific objectives included; to assess the influence of project scheduling, to determine the influence of project monitoring, to determine the influence of project evaluation, to assess how risk management influences the implementation of irrigation schemes based projects in Kenya; a case of Galana Kulalu irrigation scheme Being listed as one of the Sub Saharan nations in Africa that are characterized by arid and semi-arid lands, combined with the fact that food security declines day by day across the world, irrigation schemes in Kenya remain a top priority in checking the menace. The Galana Kulalu irrigation scheme is one of the irrigation schemes with great potential to increase Kenya's agricultural production. The project anticipated to ensure food security in the nation and increase Kenya's export potential. The research employed a descriptive research design. The research target population was 50 from the Galana Kulalu Project. The study employed census, whereby the entire population was examined. The study findings aimed to reveal that Project scheduling, project monitoring, project evaluation and risk identification and mitigation significantly influence project implementation of the Galana –Kulalu Irrigation scheme. During the study, the researcher collected data by use of questionnaire and oral interviews. The questionnaire forms were issued to all 50 individuals within the target population, ensuring a comprehensive representation of opinions. Specifically, these forms were distributed to the staff at Galana-Kulalu, who are directly involved in the project. The respondents took the time to fill out the questionnaire forms, where they provided their insights and views regarding the assessment of project management practices, particularly in relation to the implementation of irrigation-based projects. Once the questionnaires were distributed, they were collected after a few days, allowing sufficient time for the respondents to thoughtfully consider their feedback and provide comprehensive responses. In addition to the written questionnaires, oral interviews were conducted simultaneously while collecting the completed forms. This dual approach enriched the data collection process, capturing both detailed narratives and quantitative responses. The nature of the data generated encompassed both qualitative and quantitative aspects, providing a well-rounded perspective. The data obtained was meticulously analyzed using the Statistical Package for the Social Sciences (SPSS), employing regression analysis to uncover trends and relationships. The findings were then presented visually through tables, percentages, pie charts, and bar graphs. These statistical tools are particularly effective for breaking down and analyzing the gathered data, making the results easily interpretable and accessible to stakeholders.

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LIST OF ABBREVIATIONS &ACRONYMS

FAO - Food &Agricultural Organization

ADP - Annual Development Program

NIB - National Irrigation Board

SDGs - Sustainable Development Goals

WBS – Work Breakdown Structures

UNDP – United Nation Development Program

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Because of how competitive the modern dynamic world is, programs must always adapt to the rapidly shifting business conditions. Project management is viewed as a key ability for making connections between project outputs, goals and adds to organizational competitive strategy (PMI, 2017). The activities involved in putting projects into action are included in project management techniques (Hornstein, 2020). According to PMI (2017) project management comprises carrying out routine tasks that cover the project management stages. Projects are organized, planned for and carried out in the correct order (Cunningham, 2019). Projects are vulnerable to a number of circumstances during these stages, which might be internal or external to the entity in charge of managing and carrying out the project (Kerzner, 2018). When a project is being implemented, project management refers to the procedure for guaranteeing that its objectives are met. According to Hornstein (2020) management techniques are essential for projects since they specify the requirements for the work, its scope, the allocation of resources, the execution process, and the monitoring of the work. The current dynamic world is so competitive that programs have been compelled to continually cope up with the changes. The original plan accounts for any progress and adjustment modifications that could occur during project implementation. With more project management approaches being used, creative practices are required. As a result, businesses that use project management techniques are more likely to be creative and successful in achieving results quickly and with minimum resource use. Project performance ensures that businesses optimize profit margin and lessen the influence of uncertain & competitive events. Therefore, organizations that implement project management practices are likely to be innovative and successful in a quick achievement of outcome with little consumption of resources (Dissanayaka & Kumaraswamy, 2018). Project success is chiefly determined by the ability to be completed in time, allocated budget, meet set quality standards, and maintain safety and environmental protection standards (Adan, 2020).

Studies with a global focus have been carried out to identify project practices that have an impact on how irrigation system projects are implemented. Mega irrigation projects

typically encounter difficulties with land, environmental constraints, money, and community disputes, according to Hans (2017). This also relies on the areas where the planned irrigation plans are to be implemented. Water availability is a crucial factor when it comes to the creation of irrigation schemes, according to Raja & Patel (2016). The current legislative frameworks, which may help or hinder the realization of such initiatives, are greater than FAO (2019). FAO states that financial, institutional, and technical considerations can be used to categorize some elements that affect the implementation of irrigation projects.

According to Ahmed & Ahmad (2016) leadership is a powerful instrument that the project manager can utilize to moderately impact the project's outcome. Poor leadership abilities are directly linked to project failure. On the other side top management should take the initiative, support project activities, and work with project teams. The authors go on to say that enhancing project performance in Pakistan requires the assistance of top management. For projects to be implemented successfully, senior management should authorize, finance, and provide resources to the project overseers.

When it comes to project execution, Nepal is one of the world's poorest nations. Recently, project management has been used to implement projects across the nation, with the National Planning Commission serving in that capacity. According to Kumar, (2020), there have been challenges with project implementation due to things like poor planning, lack of public participation in project implementation, government interference, insufficient evaluation and monitoring systems, increased rates of corruption and delayed budget.

Bangladesh faces a number of challenges while implementing the Annual Development Program, including lack of coordination in the implementation process, delays in project planning and approval, shortage of qualified human resources, and a lack of an adequate funding source (Saleh, 2018).

The majority of poor countries, including those in Sub-Saharan Africa, lack the institutional capacity to carry out initiatives. Factors that contribute to project failure in developing nations include ineffective project planning, the absence of clearly stated objectives, a lack of a well-established project design, and subpar project execution. Projects in the public sector confront a number of difficulties, including understaffing, an unstructured approach, and inadequate project description (Caliste, 2018).

According to Mathew & Manu (2019), Nigeria is one of the African nations with a high rate of project failure. Many of these failures are attributable to cost overruns, lack of community support and lost revenue.

South Africa on the other hand, encounters numerous difficulties while attempting to adopt project management in the nation. Political involvement, lack of sufficient staff with the required project management abilities, lack of knowledge management experience, delayed decision-making process, and lack of efficient monitoring & evaluation system are a few of these difficulties (Mabelebele, 2016).

For Africa to achieve its development goals, project management is essential. Many initiatives in Africa are typically unregulated, ineffective, perform poorly and that they are even unsatisfied with its growth. Corruption, poor governance, and lack of project administration resources are some of the most prevalent problems in managing African projects (Collier, 2016) and (Moyo, 2017).

In Kenya, food security is still an issue affecting the nation, just like other Sub Saharan Africa nations and other nations of the developing world. The Kenya Vision 2030 identified agriculture as a key factor, which is anticipated to propel the economy. The sector is vital for alleviation of poverty and stimulation of economic growth & development. In Kenya, as in many other countries listed in the arid and semi-arid lands, agriculture cannot be supported by annual rainfall alone. Irrigation and water harvesting are applied to support food production (Ochieng, 2020). According to Maina (2017) irrigation schemes projects in Kenya are usually implemented in phases.

A study by Rehema (2018) concluded that the implementation of projects in Kenya lacks proper implementation plans, does not fully involve stakeholders, faces a lot of challenges in the communication of projects information and there exists a poor monitoring and evaluation system. According to World Bank, there are a number of reasons that have an effect on project implementation in Kenya and they comprise of corruption, political interference, financial embezzlement and low levels of technology. A report by UNDP identified that most projects in Kenya do not succeed due to nepotism and tribalism where the larger tribes in Kenya run most of the project activities.

According to a report by Swiss (2019), there is a constant decline in food production across the world, and so is in Kenya. This implies that there is need to seek alternative ways of food production different from the conventional and traditional methods of farming. Park & Morgan (2015) observe that through irrigation, food production can be increased and this can lead to fulfillment of SDGs that are designed to better the living standards. Dawkins (2016) on the other hand state that governments, non-governmental organizations and private institutions ought to work in conjunction with each other so as to sustain the irrigation sector through irrigation schemes. Galana Kulalu irrigation scheme is one of the irrigation schemes with great potential to increase Kenya's agricultural production (Okumu, 2018). The project is managed by the National Irrigation Board (NIB). The project aims at improving the food security situation in Kenya by bringing down the price of essential foods. The project started as a one million-model acre farm in 2014 (Hakuzimanaa, 2020). Initially the project was to be implemented in the Tana and Athi River basins where 60,000-1,000,000 hectares of land (Leshore & Minja, 2019). The project is to be carried out in phases. In Kenya other irrigation schemes include; Mwea, Perkerra, Ahero & Delmonte among others.

It is anticipated that the project would ensure food security in the nation and increase Kenya's export potential. The irrigation scheme and related initiatives will not only generate hundreds of employment but also lower the price of maize flour by 16% (Hakuzimanaa, 2020). The project is also anticipated to raise the living standards of many people and thus improve the economic position of the nation. However, the project remains to face continued challenges such as inefficient use of land, shortage of water and farm inputs, and political interference (Hakuzimanaa, 2020). Despite the challenges the projects still remains very useful to the country in terms of ensuring food availability, employment opportunities and economic development (Okumu, 2018). This study seeks to assess project scheduling, risk management, project monitoring and project evaluation on the implementation of irrigation schemes based projects in Kenya; a case of Galana- Kulalu irrigation scheme.

Project scheduling is a tool for communicating and keeping track of the tasks that need to be completed, the organizational resources that will be used, and when they will be used. A successful project has reduced expenses and increased client satisfaction as a result of effective project scheduling. Scheduling is the act of monitoring tasks, deliverables, and accomplished milestones (Ross & Aiden, 2015).

Project monitoring assists in understanding the project's status. Continuity is mainly examined by comparing the achieved tasks and scheduled work at specified time. When the real state significantly deviates from the expected values, corrective action is taken as needed (Muller & Joslin, 2016).

The execution of projects depends heavily on project evaluation. The chance for in-depth reflection on the assumptions and strategy underlying the project is provided by project evaluation. They evaluate how well a project is doing towards achieving its goals and could suggest changing its approach. They serve as a tool for evaluating how successfully project-level actions relate to and support ILO strategy and objectives at a higher level. (Rehema, 2018)

By applying concepts and practices for risk management, risk management aims to recognize, evaluate, and respond to hazards (Smith & Jagger, 2017). Risk identification include; locating risks through brainstorming, market benchmarking, scenario analysis, and workshops of risk assessment that may impact the project. While planning a response to risk entails taking proactive measures against hazards, risk quantification as well as how multiple risks are connected (Tiwana, 2019). These might include acceptance, mitigation, or prevention. Project performance is impacted by risks that have been identified and are being appropriately addressed. They will comprise of political, environmental, cultural, legal, technical, social and technological concerns. Project managers have a responsibility to clearly define and execute risk management.

1.2 Statement of the problem

The Galana Kulalu food security project started as a 1,000,000 acre model farm in 2014 but issues with the project processes and deliverables became noticeable in 2020. It is aimed that irrigation will ensure food security and also result in increased agricultural exports. In addition to 100 of jobs that would be created by the implementation of the irrigation scheme, the cost of maize flour would drop by 16%. In all industries, project management is now a crucial part of project implementation success. Kenya, a developing nation, encounters few technical and non-technical project implementation issues.

For instance, both the government and non-governmental organizations in Kenya face substantial challenges due to the very structure of project funding (Gizaw, 2022).

Donors' funding for initiatives is now referred to as development partners rather than donors. As a result, many initiatives still fail. It has been observed that donor interests frequently lead to project delays, modifications in scope, and sporadically the cancellation of initiatives. These project management challenges affect the general success and caliber of projects in Kenya.

Numerous empirical researches on project management techniques and project implementation have been carried out. In Kajiado County, Muthomi (2017) and However, unlike the other experiments, none of these ones were based on an irrigation plan, unlike the current study. To this end several gaps have been unfilled. It is through this basis that the researcher saw it appropriate to conduct this study.

This study oversees assessment of project management practices , including project scheduling, risk management, project monitoring & project evaluation on the implementation of irrigation schemes based projects in Kenya; a case of Galana- Kulalu irrigation scheme.

The study will add to the corpus of information regarding crucial success elements for development projects and best practices for project management.

1.3 Objectives of the study

i. To determine the effect of project scheduling on the implementation of irrigation scheme based projects in Kenya; a case of Galana- Kulalu irrigation scheme.
ii. To determine the effect of risk management to the implementation of irrigation scheme based projects in Kenya; a case of Galana- Kulalu irrigation scheme.
iii. To assess the effect of project monitoring to the implementation of irrigation scheme based projects in Kenya; a case of Galana- Kulalu irrigation scheme.
iv. To determine the effect of project evaluation on the implementation of irrigation scheme based projects in Kenya; a case of Galana- Kulalu irrigation scheme.

1.4 Research questions

i. To what extent does project scheduling affect implementation of irrigation scheme based projects in Kenya?
ii. What is the influence of risk management on the implementation of irrigation scheme based projects in Kenya?

iii. How does project monitoring influence the implementation of irrigation scheme based projects in Kenya?

iv. What is the role of project evaluation on the implementation of irrigation scheme based projects in Kenya?

1.5 Significance of the study

Food security around the globe declines day by day, creating an urgent necessity for nations to place greater emphasis on addressing this critical issue, and Kenya is certainly no exception to this trend. The Galana-Kulalu irrigation scheme stands out as one of the most promising irrigation initiatives with substantial potential to significantly enhance agricultural production in Kenya. This improvement is vital for bolstering food security within the country, as highlighted by Okumu (2018). Understanding how various project management practices influence the successful implementation of irrigation scheme-based projects in Kenya is crucial. The insights gained from this research are of paramount importance to several stakeholders, including government agencies, scholars, agricultural organizations, and policy makers, who are all invested in the future of agriculture and food security in Kenya. By focusing on effective management strategies, these stakeholders can work collaboratively to improve the outcomes of irrigation projects and ensure a sustainable food supply for the growing population.

1.5.1 Scholars

The findings of this study aimed to significantly benefit scholars and researchers, serving as a valuable secondary source of information that can greatly enhance their understanding and knowledge in the relevant field. By providing a comprehensive and systematic analysis of the data gathered, this research not only contributes to the existing body of literature but also offers fresh insights and diverse perspectives that can inform and inspire future studies. The detailed findings can assist academics and practitioners alike in developing new hypotheses, refining their methodologies, and identifying critical gaps in current research that warrant further exploration and investigation. Furthermore, the implications of this study extend well beyond academic circles; they can also inform policy-making and practical applications within various industries, thus bridging the gap between theory and practice. Ultimately, the research presents a significant opportunity for scholars and researchers to build upon, fostering a

collaborative environment where knowledge is shared, disseminated, and expanded upon for the betterment of the academic community and society as a whole. By engaging with these findings, stakeholders can work together to address pressing issues and drive innovation in their respective fields.

1.5.2 Ministry of Agriculture

The study provides the ministry with vital information that is critical in helping the ministry to come up with better policies that can best lead to the effective implementation of irrigation schemes. By analyzing existing practices and outcomes, the study aimed to identify key areas for improvement, ensuring that future irrigation initiatives are both efficient and sustainable. The insights gained will not only enhance the quality of policy formulation but also serve as a foundation for developing targeted training programs for local staff and stakeholders involved in these projects. Furthermore, the recommendations derived from the study will be essential in establishing a robust stakeholder involvement mechanism. This involvement is crucial for fostering a sense of ownership and responsibility among all parties engaged in the irrigation projects. By promoting greater accountability in the management of these initiatives, the ministry can ensure that resources are utilized effectively and that projects meet their intended goals. Ultimately, this collaborative approach will lead to better outcomes for the communities that rely on these irrigation schemes, improving agricultural productivity and contributing to food security in the region. The comprehensive nature of this study will help the ministry navigate the complexities of irrigation management and create a more resilient agricultural sector.

1.5.3 The Government of Kenya

The government will find the information beneficial in making informed decisions regarding which project management practices need to be embraced for effective project implementation. This knowledge will also help to deepen the understanding of the critical role that project management plays in the successful execution of various projects. By analyzing the available data, stakeholders can identify specific methodologies and best practices that have proven successful in similar contexts. Furthermore, the information can be utilized to increase the overall success rate of projects across the country by pinpointing the various areas that require improvement. Additionally, it will shed light on the gaps in expertise and the shortage of skilled

professionals in certain sectors. By addressing these deficiencies, the government can implement targeted training programs and initiatives designed to enhance the skill sets of the workforce. Ultimately, this strategic approach will not only lead to more successful project outcomes but also contribute to the overall development and growth of the nation's economy.

1.6 Scope of the study

The study aimed to comprehensively assess project management practices specifically related to the implementation of irrigation-based projects in Kenya. In particular, it focused on the Galana-Kulalu irrigation scheme project, which is situated in the Tana River and Kilifi Counties. This significant irrigation scheme has been widely recognized for its potential to enhance agricultural productivity and ensure food security in the region, ultimately impacting the livelihoods of local communities. A descriptive research design was meticulously employed to capture the nuances of project management in this context. Primary data was collected using both structured and unstructured questionnaires, which allowed for a thorough exploration of various perspectives and experiences of participants involved in the project. Additionally, oral interviews were utilized as an important complementary tool for data collection, enriching the dataset with qualitative insights that provided deeper understanding. The research targeted a diverse population of 50 individuals, and therefore, a census approach was employed. A census involves systematically collecting data from every individual within the defined population, ensuring that the study captures a comprehensive view of the project management practices in question. This robust and comprehensive methodology yielded significant and impactful findings that can inform and enhance future irrigation projects in Kenya. Furthermore, it will contribute substantially to the overall body of knowledge in the critical fields of project management and agricultural development. These findings have the potential to guide crucial policy decisions and strategic investment initiatives in the future, ultimately fostering sustainable agricultural practices and improving food security in the region.

1.7 Limitation of the study

The study could face a significant limitation concerning confidentiality. Some respondents might have apprehensions about whether their privacy will be adequately protected throughout the research process. To effectively overcome this challenge, the researcher took proactive measures to assure respondents that their privacy and the

confidentiality of the data collected from them would be strictly maintained. Additionally, to further safeguard their identities, the respondents' names were not recorded or indicated in any part of the study, reinforcing the commitment to confidentiality. Data was collected using questionnaires, which, while useful, posed a limitation as the respondents were confined to the specific questions asked. This restriction could prevent them from fully expressing their views and opinions on the subject matter at hand. Nevertheless, it is important to note that the questions regarding the study's objectives were comprehensively and thoughtfully addressed, ensuring that the core aims of the research were met despite these limitations.

1.7.1 Delimitations

The study was limited to the Galana Kulalu irrigation project, which is located in the regions of Tana and Kilifi counties. This project has garnered significant attention due to its potential to enhance agricultural productivity and address food security challenges in the area. By focusing specifically on this irrigation initiative, the research aims to explore its impacts during its implementation.

1.8 Assumptions of the study

Presumptions made for this study included the expectation that all respondents will be available for participation, adequately prepared for the questions posed, and willing to engage in the process. Furthermore, it is assumed that they will be able to provide truthful, honest, and understandable information that reflects their genuine thoughts and experiences. The accuracy and reliability of the study's findings will heavily depend on these conditions being met, thus underpinning the overall validity of the research.

1.9 Operational Definition of key terms

Project Implementation: it's the execution of management innovation and related tasks within a predetermined timeframe, at a predetermined cost, and in a manner that fundamentally alters current management practices in order to meet client needs.

Project Management: The link between general, operational, and technical management, bringing together all project-related elements, making the project happen.

Project Monitoring: Refers to the systematic observing and tracking of the project's progress to ensure that all activities and tasks are completed on time, within budget, and according to the established quality standards.

Project scheduling: it is the methodical process of establishing different planned activities to determine the beginning and end dates for each task in order to implement the entire project in an ordered manner. A roadmap for communicating the scheduled dates and resources for the work that needs to be completed.

Risk Management: Its goal is to lessen the impact of losses and takes into account strategies like contingency planning, mitigation and deflection that guarantee a more robust response to threats.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter provides a comprehensive overview of the theoretical literature review, delving into the foundational frameworks and concepts that underpin the study. It also includes an empirical literature review, which examines existing research and findings relevant to the topic at hand. In addition to summarizing the literature reviewed, this chapter highlights key themes, trends, and insights that emerge from the analysis. Furthermore, it identifies significant research gaps that have yet to be addressed within the current body of knowledge. Finally, the chapter concludes with the presentation of a conceptual framework that will guide the research process, illustrating the connections between various variables and providing a structured approach to the study. Through this multifaceted exploration, the chapter aims to lay a solid groundwork for the subsequent research endeavors.

2.1 Theoretical Literature Review

A theory is a comprehensive set of statements designed to explain a specific group of facts that have undergone rigorous testing and have been widely accepted within the scientific community. Such theories not only provide explanations but also possess the capacity to make predictions regarding various natural phenomena. (Grant, 2015). In this context, the following theories served as a foundational guide for the study; the theory of management, which encompasses the principles of organizing and directing resources; the theory of planning, which involves strategizing to achieve specific goals; the theory of execution, which focuses on implementing plans effectively; and the theory of controlling, which emphasizes monitoring progress and making necessary adjustments to ensure successful outcomes.

2.1.1 Theory of Management

Initiating, planning, execution, and controlling are the fundamental steps in project management that serve as the backbone of successful project delivery. This project management theory revolves around the primary processes of systematically planning, carrying out, and effectively controlling various project activities. At its core, it is widely understood that these procedures operate with inherent deviations, which

necessitate adjustments in subsequent plans to ensure the project stays on track (Maina,2020).

This dynamic approach to project management not only facilitates the identification and assessment of risks but also emphasizes the importance of proactive risk mitigation strategies during project implementation. By recognizing potential risks early in the process, project managers can develop comprehensive plans to address these challenges, thereby minimizing their impact on project timelines and outcomes. This foresight is crucial, as it enables teams to preemptively solve problems that could derail progress. Furthermore, effective communication and collaboration among team members play a vital role in this framework, ensuring that everyone is aligned with project goals and timelines. Ultimately, this theory enhances the overall resilience of project management practices, allowing teams to adapt and respond effectively to unforeseen circumstances while striving for project success. By fostering a culture of adaptability and continuous improvement, organizations can better navigate the complexities of project execution, leading to more successful outcomes and enhanced stakeholder satisfaction.

2.1.2 Theory of Planning

From the standpoint of many project management knowledge areas, detailed information about project planning is crucial for ensuring the success of various initiatives. There are two distinct types of planning processes: supporting processes and core procedures. According to Adnan (2014), the project plans that emerge from these structured procedures serve as essential inputs for those who are responsible for executing the projects. In this context, it is assumed that both a managerial component and an effector part of the organization are present, each playing a vital role in the overall project execution. Plans are not only developed but also revised and implemented centrally as part of the broader operations management strategy. This management concept postulates that management choices, such as resource allocation, timeline adjustments, and risk assessments, are causally linked to organizational outcomes. Project scheduling, a critical aspect of project planning, involves a significant amount of strategic foresight and meticulous planning. The theory of planning facilitates the development of work breakdown structures (WBS), which are utilized throughout the project implementation phases. A well-structured WBS not only

enhances clarity regarding project deliverables but also ensures that all team members understand their responsibilities, timelines, and interdependencies. By meticulously planning each phase of the project and establishing clear communication channels, organizations can navigate challenges more effectively and ultimately increase the likelihood of achieving their project goals.

2.1.3 Theory of Execution

This study was guided by theory of execution. An organized process of approving project activities is said to assist in guaranteeing that work is finished on schedule and in the right order (Carrington, 2016). This structured approach is essential in the realm of project management, as it provides a clear framework within which teams can operate effectively. Typically, the primary method utilized for this process is a formal written consent that grants permission to commence work on a specific task or activity. This formalization is not just a bureaucratic necessity; it serves several critical functions that contribute to the overall success of the project.

Firstly, obtaining written approval ensures that all stakeholders are aligned on the objectives and deliverables of the project. When everyone involved has agreed upon the tasks, responsibilities, and the timeline, it minimizes the risk of misunderstandings or conflicts later in the project. Such alignment is crucial, as it fosters a sense of ownership among team members and stakeholders, which can lead to increased motivation and commitment to the project. Moreover, this formal consent acts as a record of accountability, clearly delineating who is responsible for what aspects of the project. This accountability is vital in maintaining focus and discipline throughout the execution phase, ensuring that everyone is aware of their roles and contributions.

This structured approval process assists in verifying that the project schedule is accurate and that the implementation aligns with the initial plan. When tasks are formally approved, it allows project managers to track progress more effectively, making it easier to identify any deviations from the schedule. If adjustments are necessary, they can be made promptly, ensuring that the project remains on track. This proactive approach to management not only addresses issues as they arise but also allows teams to anticipate potential challenges, fostering a culture of continuous improvement.

In summary, the organized process of approving project activities not only guarantees that work is completed on time and in the correct sequence but also enhances communication, accountability, and adaptability, which are essential for successful

project management. By adhering to this systematic approach, organizations can significantly improve their chances of achieving project objectives and delivering quality results, ultimately leading to greater stakeholder satisfaction and project success. This structured methodology can also facilitate better resource allocation, risk management, and overall project governance, ensuring that all elements are in harmony as the project progresses.

2.1.4 Theory of Controlling

The controlling process entails performance reporting and comprehensive change control, which are critical components in effective project management (Hofstede, 2015). These functions ensure that projects remain aligned with their predefined objectives, allowing for timely interventions when necessary. Performance reporting involves the systematic collection and analysis of data related to project activities, enabling stakeholders to assess progress against established benchmarks. Comprehensive change control, on the other hand, provides a structured approach to managing alterations in project scope, timelines, or resources, ensuring that any adjustments are made thoughtfully and with minimal disruption. Through the practice of project monitoring and evaluation, performance is evaluated at various levels, including output and input. This dual assessment approach allows project managers to gain a holistic understanding of how resources are being utilized and whether the outputs produced meet expectations. For instance, the input evaluation focuses on the resources allocated to the project, such as time, budget, and human capital, while the output evaluation examines the results achieved in relation to those inputs. Moreover, any significant differences between the measured values and the established standards are carefully scrutinized. These variances serve as indicators that the project may be deviating from its intended trajectory. In response to these discrepancies, project managers can implement corrective actions designed to realign project activities with the set goals and standards. This continuous feedback loop is essential for fostering an adaptive project environment, where teams can respond to challenges. In summary, the controlling process is a vital aspect of project management that encompasses performance reporting and change control. By systematically monitoring and evaluating project performance, organizations can ensure that they remain on track to achieve their objectives while making necessary adjustments in a timely manner. This proactive approach not only enhances overall project success but

also contributes to the long-term sustainability of organizational practices in an ever-evolving landscape.

2.2 Theoretical Framework

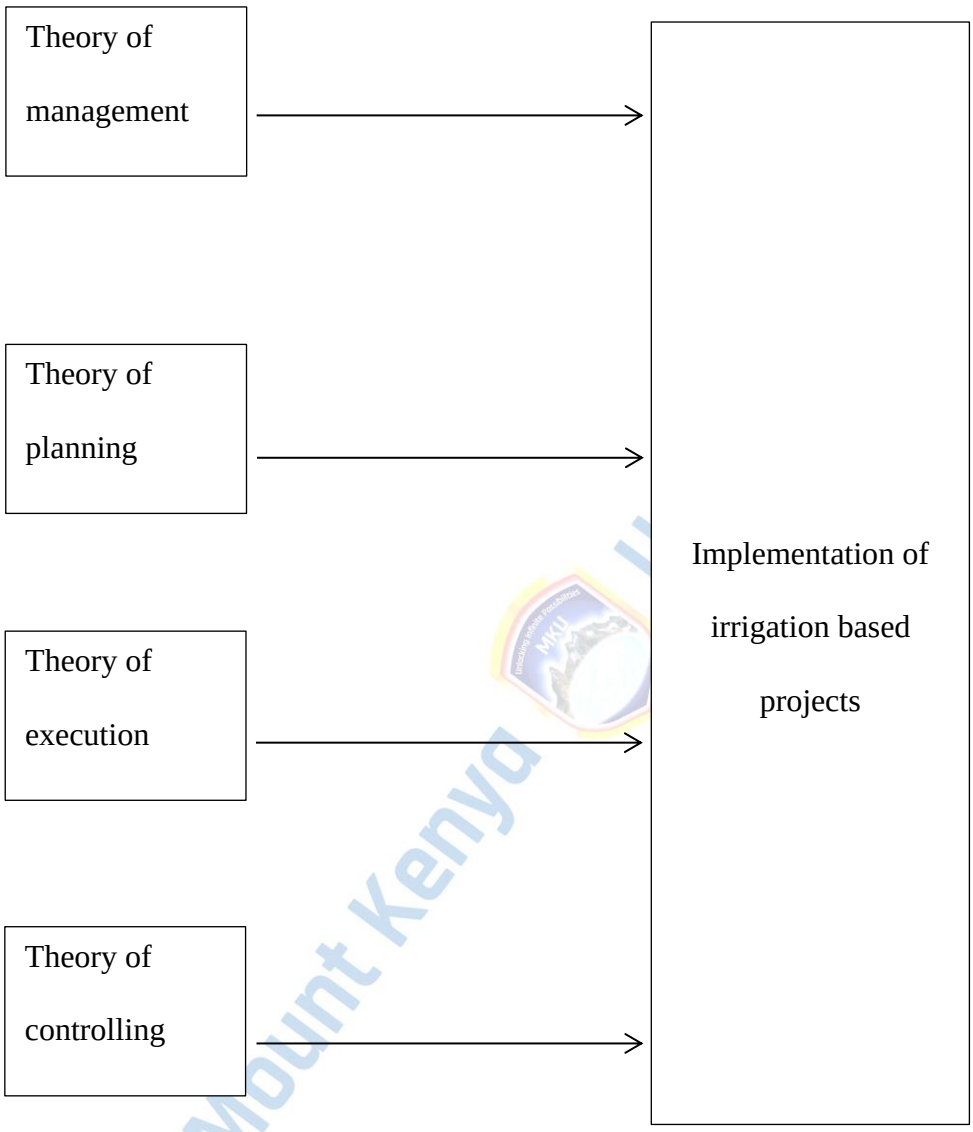

Figure 1 Theoretical Framework

Source: Researcher (2024)

2.3 Empirical Literature

Numerous empirical studies have been conducted to explore the correlation between management practices and the successful implementation of various projects across different sectors. A notable study by Barham (2020) focused on the critical role of management support in the implementation of open innovation projects within the manufacturing industry in Europe. This research provided valuable insights into how effective management can influence project success, particularly in regions characterized by advanced economies. However, it is essential to recognize that the empirical evidence derived from these studies predominantly originates from developed countries, which may not entirely reflect the unique challenges and dynamics faced by developing nations.

In contrast, the current study is situated in Kenya, a developing country where the socio-economic and infrastructural contexts differ significantly from those in developed regions. Previous studies, such as those conducted by Ofori (2018), which examined the construction industry, and Kisaka & Musomi (2017), which focused on investment firms, have provided important findings but do not explore the agricultural sector comprehensively. Moreover, Barham et al. (2020) concentrated on open innovation projects, while Adan (2019) investigated projects funded by the Constituency Development Fund (CDF). Unlike all the reviewed empirical studies, the current research aims to fill a crucial gap by specifically focusing on an irrigation scheme-based project in Kenya. This focus will allow for a deeper understanding of how localized management practices impact project implementation in a developing country context, potentially yielding insights that can inform future practices and policies within similar projects.

2.3.1 Influence of project scheduling on implementation of irrigation based projects in Kenya

Project scheduling is a fundamental aspect of project management that plays a pivotal role in ensuring the successful delivery of projects within the specified timeframe and budget. It involves employing a variety of techniques to optimize the utilization of available labor, equipment, and financial resources effectively. In addition to these essential elements, project scheduling also entails the creation of a well-defined work package, which serves as a comprehensive guide for the tasks that need to be completed. This work package not only details the specific activities but also delineates the resources required and the timelines for each task. The ultimate success of building projects often hinges on the effectiveness of their planning and scheduling processes. A meticulously crafted project schedule communicates not only the specific tasks that must be accomplished but also outlines the resources within the organization that will be deployed to achieve these objectives, along with the critical deadlines for completion.

To enhance project management efficiency, project managers are increasingly relying on online project management software. This technology empowers them to monitor various aspects of the project, including resources, budgets, schedules, and other essential assets, in real-time. Such capabilities are essential in today's fast-paced environment, where timely adjustments can significantly impact project outcomes. Furthermore, team members engaged in the project benefit from having access to the project schedule. They can view and update their progress, which fosters transparency and keeps everyone informed about the overall project status, thereby promoting collaboration and accountability among the team (Ahraf & Siti, 2022). By leveraging these tools and techniques, organizations can enhance their project outcomes. According to Aastha (2022), project schedules are essential frameworks that specify the start and end dates for each activity, phase, and milestone within a project. These schedules serve as the backbone of project management, guiding the overall timeline and ensuring that all involved parties are aware of their responsibilities and deadlines. The time taken to complete a project is ultimately determined by the project schedule, as it outlines the sequence and duration of all required tasks. Once the project reaches completion, it is crucial to monitor the progress of each task diligently and manage the timeline effectively. This ongoing oversight is vital for ensuring that the project remains

on track and that any deviations from the original plan are addressed promptly.

To successfully manage a project timeline, several approaches can be employed. One of the primary methods involves continually updating the project status to reflect current progress. This practice helps in keeping stakeholders informed and allows for proactive decision-making. Additionally, keeping track of anticipated results is essential for measuring success against the established objectives. Identifying potential issues early on and implementing corrective actions is another critical aspect of effective project management. By addressing challenges as they arise, project managers can ensure that project goals and deadlines are met, thereby minimizing the risk of delays and budget overruns.

Furthermore, employing a work breakdown structure (WBS) approach significantly enhances project management efficiency. This method allows for the organization of a project's milestones into a clear hierarchy of tasks and subtasks, facilitating a more structured approach to project execution. The WBS approach not only aids in clarifying the scope of work but also ensures that every team member understands their specific roles and responsibilities. This clarity is essential for fostering teamwork and communication, which are fundamental components in the successful delivery of any project. By breaking down complex projects into manageable parts, project managers can better allocate resources, track progress, and make informed decisions that align with project objectives. The WBS is composed of four essential phases: identifying the project components, estimating the time and resources required for each task, scheduling the tasks in a logical order, and budgeting for the project's financial needs (Kwotani, 2022). Each of these phases plays a crucial role in ensuring that the project is well-planned and that all team members understand their roles and responsibilities, ultimately leading to a higher likelihood of project success. By integrating these methodologies, project managers can navigate the complexities of project execution with greater ease and effectiveness.

2.3.2 Influence of Risk Management on implementation of irrigation based project in Kenya

Using qualitative risk analysis techniques and tools is an essential component of effectively managing risk in building projects. This process encompasses critical activities such as risk identification and preliminary risk assessment.

The primary goals of these activities are to pinpoint the main risk factors that could potentially affect the project and to illustrate the degree of shared influence these factors have on projected timelines and costs. The origin of construction project hazards can be traced back to various sources, including people, financial constraints, political influences, environmental factors, inadequate planning, marketing dynamics, economic fluctuations, natural events, technological advancements, criminal activities, and safety concerns (Basel, 2010). Each of these elements can introduce uncertainties that, if not adequately addressed, may lead to significant project delays, budget overruns, or even project failures. For instance, the human factor can involve miscommunication among team members, while financial constraints may lead to resource limitations that hinder progress and impede the workflow necessary for successful project completion.

It is crucial to remember that risk management strategies are designed to control the situations and issues that give rise to risks, rather than completely eliminating them. This is an important distinction, as attempting to eradicate all risks could inadvertently hinder project performance outcomes. Effective risk management involves not only identifying potential risks but also understanding their implications and developing strategies to mitigate their effects. This might include contingency planning, where alternative courses of action are prepared in advance to address potential setbacks, ensuring that the project can adapt to unexpected challenges efficiently.

Moreover, fostering a culture of open communication among all stakeholders can significantly enhance the identification and management of risks. Encouraging team members to voice concerns and share insights can lead to a more comprehensive understanding of the project landscape and its inherent risks. By embracing a proactive approach to risk management, project managers can better navigate the complexities of construction projects, ultimately leading to more successful outcomes and enhanced project resilience. This holistic approach ensures that risks are not only identified but also strategically managed throughout the project lifecycle, allowing for ongoing adjustments.

Bannerman (2018) posits that achievement in projects is contingent upon the degree to which risk sources are identified, the deployment of risk management planning, and improved risk management techniques to meet project performance goals. This

perspective highlights the fundamental importance of effectively understanding and mitigating risks to ensure successful project outcomes. In the context of irrigation systems, particularly for the Tana River, the challenges are multifaceted and complex. The ongoing competition with other irrigation plans or variable river flows that diminish agricultural benefits has led to a significant lack of water available for the Tana River's diversion. This scarcity not only limits agricultural productivity but also poses significant challenges to sustainability and food security in the region, creating a ripple effect that impacts local economies and livelihoods.

According to Jaselskis & Ashley (2013), the unequal allocation of irrigation water exacerbates social and economic disparities among different communities relying on the Tana River for their agricultural needs. When water resources are not distributed equitably, it can lead to increased tensions and conflict among farmers, further complicating the management of these vital resources. The result is a cycle of conflict and resource mismanagement that can stall progress, hinder development initiatives, and ultimately threaten the viability of agriculture as a sustainable economic activity in the area. Therefore, understanding and addressing these risks is critical for promoting cooperation among stakeholders and ensuring the successful implementation of irrigation projects. Additionally, extreme weather occurrences generate hill torrent floods that exceed design outflows, which devastate irrigation systems, farms, and buildings. These unpredictable weather patterns pose a severe risk to agricultural stability, highlighting the need for robust risk management strategies that can adapt to change.

Moreover, due to additional constraints such as insufficient farming methods, limited market access, and a lack of financing, agricultural output values have not expanded to the level predicted. Many farmers are unable to implement more effective techniques or to reach broader markets that could potentially increase their revenues. This situation is further compounded by the limited access to financial resources, which inhibits investment in improved agricultural practices and technologies. As a result, the overall potential of the agricultural sector remains unfulfilled, hindering economic development and exacerbating poverty in the region. It is crucial for stakeholders to recognize these interrelated challenges and work collaboratively to develop comprehensive strategies that address both the immediate and underlying issues affecting irrigation and agricultural productivity.

2.3.3 Influence of Project Monitoring On implementation of Irrigation based projects in Kenya

According to Kariuki (2014), monitoring is a vital process that involves the continuous evaluation of how effectively project activities are functioning within the established parameters of implementation schedules and the efficient utilization of project inputs. This process is particularly crucial in the context of irrigation-based projects, where the management of resources and time can significantly impact overall outcomes. Project monitoring provides a real-time assessment of the progress of these initiatives, enabling stakeholders to understand the current status of the project and make informed decisions. Through regular data collection and analysis, project managers can identify potential bottlenecks, delays, and deviations from the original project plan. This proactive approach is essential in preventing minor issues from escalating into major problems that could jeopardize the success of the entire project. By utilizing a variety of monitoring tools and techniques, such as performance indicators, checklists, and progress reports, project managers can maintain a clear overview of the project's trajectory. Effective project monitoring not only facilitates the identification of challenges but also fosters a culture of accountability and transparency among team members. When everyone involved in the project is aware of the monitoring mechanisms in place, it encourages a shared commitment to achieving project goals. This collaborative environment can lead to increased motivation, as team members understand that their contributions are being recognized and evaluated.

Additionally, the insights gained from monitoring activities can inform future planning and decision-making processes. By analyzing data from ongoing projects, managers can identify trends and patterns that may influence the design and implementation of subsequent initiatives. This continuous learning process is crucial for enhancing the effectiveness of future projects and ensuring that lessons learned are integrated into best practices.

As noted by Pritchard et al. (2014), real-time monitoring ensures that project stakeholders are consistently informed about the project's status, thus fostering transparency and accountability throughout the project lifecycle. This proactive approach is essential for maintaining trust and collaboration among all parties involved. Engaging with stakeholders, including farmers, local communities, and government agencies, is crucial for the success of irrigation projects, as their insights and

experiences can provide invaluable context and guidance. Effective monitoring creates a platform for regular communication and feedback, allowing project managers to address concerns promptly and adapt the project to meet the evolving needs of various stakeholders.

In a study conducted by Meijerink and Huitema (2019), it was found that inclusive monitoring processes significantly enhance stakeholder participation and increase project legitimacy. When stakeholders feel that their voices are heard and their opinions are valued, they are more likely to support the project and contribute positively to its outcomes. This participatory approach not only improves the quality of project decisions but also fosters a sense of ownership among stakeholders. Through continuous project monitoring, stakeholder satisfaction is ensured, which is a multi-faceted concept that significantly impacts the overall success of a project. Stakeholder satisfaction involves meeting or exceeding the expectations and needs of all project stakeholders, which can include project sponsors, clients, team members, and the broader community. It is essential for project managers to recognize that different stakeholders may have differing priorities and expectations, and addressing these variances is key to achieving a harmonious project environment.

Furthermore, when project managers prioritize stakeholder satisfaction, they are more likely to identify potential risks and challenges early on, allowing for timely interventions that can mitigate negative impacts. This proactive management approach not only enhances the effectiveness of the irrigation projects but also promotes long-term sustainability and resilience within the communities they serve. In conclusion, the integration of real-time monitoring and inclusive stakeholder engagement is vital for the successful implementation and ongoing improvement of irrigation projects, ultimately contributing to better resource management and community well-being.

Monitoring is an essential component of effective project management, as it enables project managers to systematically collect and analyze data regarding the project's performance throughout its lifecycle. By assessing various performance metrics and indicators, project managers can gain valuable insights into the project's progress, as well as identify any potential issues or areas that require adjustment. This data-driven approach not only enhances the ability to make informed decisions but also fosters a

culture of continuous improvement and learning within the project team.

The process of monitoring involves the regular gathering of information related to key performance indicators (KPIs), timelines, budgets, resource allocation, and stakeholder engagement. By consistently tracking these elements, project managers can identify trends and patterns that may influence the project's trajectory. For instance, if there is a consistent delay in the completion of certain tasks, this may signal the need for additional resources or a reevaluation of the project timeline. Similarly, by analyzing budget expenditures, project managers can determine whether the project is on track financially or if adjustments are necessary to avoid going over budget.

Furthermore, monitoring allows project managers to learn from past experiences and make evidence-based decisions that can significantly improve project outcomes. When project managers have access to historical data from previous projects, they can draw comparisons and apply lessons learned to current initiatives. This reflective practice helps in identifying successful strategies and potential pitfalls, thereby enhancing the. In addition to improving decision-making and learning from past experiences, effective monitoring also promotes transparency and accountability among team members and stakeholders. When project progress is regularly documented and communicated, it fosters trust and facilitates better collaboration among all parties involved. Stakeholders are more likely to remain engaged and supportive when they are kept informed about the project's status and any challenges that may arise. In summary, monitoring is a critical aspect of project management that not only facilitates evidence-based decision-making but also reinforces learning, transparency, and collaboration.

In conclusion, monitoring is an indispensable aspect of project management that ensures irrigation-based projects remain on track and achieve their intended outcomes. By facilitating timely interventions and adjustments, monitoring not only addresses current challenges but also lays the groundwork for future project success through informed planning and strategic decision-making.

2.3.4 Influence of Project Evaluation on Implementation of irrigation based projects in Kenya

Projects must be meticulously tailored to the unique specifics of their setting, taking into account the diverse social, cultural, economic, and environmental factors that influence their implementation and outcomes. This customization is essential, as a one-size-fits-all approach rarely meets the nuanced needs of different communities or sectors. Project evaluation plays a crucial role in this process, as it can help develop knowledge and expertise that can be effectively applied to both policy formulation and practical applications. Through rigorous evaluation, stakeholders can gain valuable insights that inform future initiatives, ensuring that they are not only relevant but also impactful.

Project evaluation is a relevant endeavor for a multitude of reasons. First and foremost, it serves to test project sustainability, which is a critical consideration for any initiative aiming for long-term success and viability. Evaluating sustainability involves assessing whether a project can continue to operate effectively over time, particularly after initial funding and support have ceased. This evaluation often encompasses financial, social, and environmental sustainability, allowing organizations to identify potential risks. Additionally, project evaluation fosters accountability and transparency among stakeholders, including funders, beneficiaries, and community members. By systematically analyzing project outcomes, stakeholders can better understand the effectiveness of their investments and the impact of their actions. This transparency can lead to increased trust and collaboration among all parties involved, as it creates a shared understanding of project goals and achievements.

The three types of evaluation discussed in this research, ex ante, interim, and ex-post evaluations each serve distinct purposes in the project life cycle. Ex ante evaluations are conducted before a project begins, assessing its feasibility and potential impact. Interim evaluations occur during project implementation, providing opportunities for real-time adjustments and improvements. Finally, ex-post evaluations are carried out after project completion, offering a comprehensive analysis of outcomes and lessons learned. Together, these evaluation types ensure that projects are continuously refined and

aligned with their intended goals, ultimately enhancing their effectiveness and sustainability in the long run.

Ex-ante evaluation is a crucial process that involves assessing a project before it is implemented. This type of evaluation serves multiple purposes, primarily focused on ensuring the feasibility of the project and identifying the potential for returns on investment. By conducting an ex-ante evaluation, stakeholders can gather vital information that helps them make informed decisions regarding the viability and potential success of a project. According to Makarova and Sokolova (2014), this preliminary assessment allows for a thorough analysis of various factors.

One of the key aspects of ex-ante evaluation is the identification of risks and uncertainties associated with the project. By analyzing these factors in advance, project managers and stakeholders can develop strategies to mitigate potential obstacles and enhance the likelihood of success. This proactive approach not only safeguards the investment but also ensures that resources are allocated effectively and that the project aligns with the broader goals of the organization or initiative.

Furthermore, ex-ante evaluations often incorporate economic, social, and environmental considerations. This holistic perspective is essential for understanding the broader implications of a project and ensuring that it contributes positively to the community and the environment. By evaluating these dimensions, stakeholders can identify opportunities for maximizing positive impacts while minimizing adverse effects. This comprehensive approach can also enhance stakeholder engagement, as communities and other interested parties can see that their concerns and aspirations are being considered.

Additionally, ex-ante evaluations can serve as a valuable communication tool. They provide a structured framework for presenting the project's objectives, expected outcomes, and potential benefits to investors, partners, and other stakeholders. This transparency fosters trust and collaboration, which are essential for the successful execution.

In summary, ex-ante evaluation plays a vital role in the planning and implementation of projects. By assessing feasibility, identifying risks, and considering broader

implications, this process not only enhances the chances of achieving desired outcomes but also promotes responsible investment and sustainable development practices

Interim project evaluation is a critical process that involves systematically assessing the status and progress of a project in relation to its established plan. This evaluation serves as a crucial checkpoint, allowing project managers and stakeholders to gauge how well the project is adhering to its timelines, budgetary constraints, and overall objectives. By conducting an interim evaluation, teams can identify any discrepancies between the planned outcomes and the actual progress made thus far.
The evaluation process typically includes the collection and analysis of various data points, such as performance metrics, budget reports, and stakeholder feedback. These elements provide valuable insights into how effectively the project is being executed. For instance, if certain milestones are being missed, the evaluation can help pinpoint the reasons behind these delays, whether they are due to resource allocation issues, unforeseen challenges, or scope changes.
Moreover, interim project evaluations are not merely a matter of identifying problems; they also present opportunities for improvement. By recognizing areas that require adjustment, project teams can implement corrective measures to realign the project with its original goals. This proactive approach can significantly enhance the chances of project success, ensuring that the final outcomes meet or exceed expectations.
It fosters communication among team members and stakeholders. They create a platform for dialogue, where issues can be discussed openly, and collaborative solutions can be developed. This engagement is vital because it builds a sense of ownership and accountability among all participants, ultimately contributing to a more cohesiveness.

Furthermore, these evaluations can serve as learning opportunities. By reflecting on what has worked well and what has not, teams can gather insights that will be beneficial for future projects. This knowledge transfer can lead to the establishment of best practices and improved project management strategies moving forward.

In conclusion, interim project evaluation is not just a status update; it is a comprehensive assessment of a project's trajectory that plays a pivotal role in ensuring its success. By continuously monitoring progress against the plan, teams can make informed decisions that keep the project on track and aligned with its intended goals.

Ex post evaluation is a critical process that primarily focuses on assessing the long-term results and impacts of projects after their completion. This type of evaluation goes beyond mere project outputs and outcomes; it aims to understand the broader implications of a project over time. By examining the long-term effects, evaluators can determine whether the project's goals were met and how effectively it has contributed to the intended social, economic, and environmental changes. This comprehensive approach allows stakeholders to gauge the sustainability and relevance of the project's outcomes within the context of the community or sector it serves.

Since many projects operate on a medium to long-term timeline, their evaluation standards are heavily influenced by the social time perspective. This perspective emphasizes the importance of understanding how societal factors evolve over time and how these factors can impact the project's results. It recognizes that changes in social, economic, and cultural dynamics can significantly affect the sustainability of project outcomes. For example, a project aimed at improving educational access may take years to fully realize its impact, as it requires not only the establishment of infrastructure and resources but also the gradual change in community attitudes toward education.

Moreover, an ex post evaluation considers the different layers of impact that may emerge long after the project's completion. It often involves a variety of stakeholders, including beneficiaries, community leaders, and policymakers, to gather diverse perspectives on how the project has influenced their lives and the community as a whole. This participatory approach enhances the richness of the evaluation findings and provides valuable insights into the project's relevance and effectiveness in addressing the needs and challenges faced by the target population.

Ultimately, ex post evaluation serves as a vital learning tool for future projects. By critically analyzing the long-term results and understanding the social time perspective, organizations and policymakers can make informed decisions that enhance the design and implementation of future initiatives. This iterative learning process helps to foster a culture of continuous improvement, ensuring that resources are allocated effectively and that interventions are tailored to achieve lasting positive change. In this way, ex post evaluations not only assess past efforts but also pave the way for more impactful future projects.

2.4 Conceptual Framework

This text provides a concise overview of a specific type of research analysis that is centered around literature focused on a particular phenomenon. According to Patrick (2015), such an analysis is essential for grasping the intricate relationships that exist between various variables within the study. In research, these variables are generally classified into two primary categories: independent and dependent variables.

Independent variables are those elements that the researcher manipulates or alters to observe their effects on other variables, while dependent variables are the outcomes or effects that are measured in response to changes in the independent variables. By delineating these relationships clearly, researchers can draw meaningful conclusions about the dynamics at play within their study, thereby enhancing the validity of their findings.

This analytical framework is crucial for establishing a solid foundation upon which the research can be conducted. It acts as a roadmap for understanding how different factors influence one another, thereby highlighting the complexities inherent in the phenomenon being studied. To illustrate, if we consider a research study examining the impact of educational interventions on student performance, here, the educational interventions would function as the independent variable, while student performance would be classified as the dependent variable. Through rigorous analysis, the researcher can uncover significant insights regarding how variations in the independent variable can lead to noticeable changes in the dependent variable.

Furthermore, the representation of these variables within the study's context is vital for effectively communicating findings to the broader academic community and beyond. A well-articulated analysis enables other researchers to replicate the study or build upon its findings, thereby contributing to the cumulative knowledge within the field. This interconnectedness fosters a collaborative environment among researchers, ultimately driving the advancement of knowledge and understanding.

In conclusion, the literature analysis serves as a critical component of research methodology, enabling researchers to systematically explore, define, and illustrate the connections between various factors. This process not only enriches our understanding

of complex phenomena across diverse fields of study but also fosters a deeper engagement with the existing body of knowledge, encouraging ongoing inquiry and exploration. Thus, through careful analysis and articulation, researchers can significantly contribute to the scholarly dialogue surrounding the phenomenon, paving the way for future investigations and applications

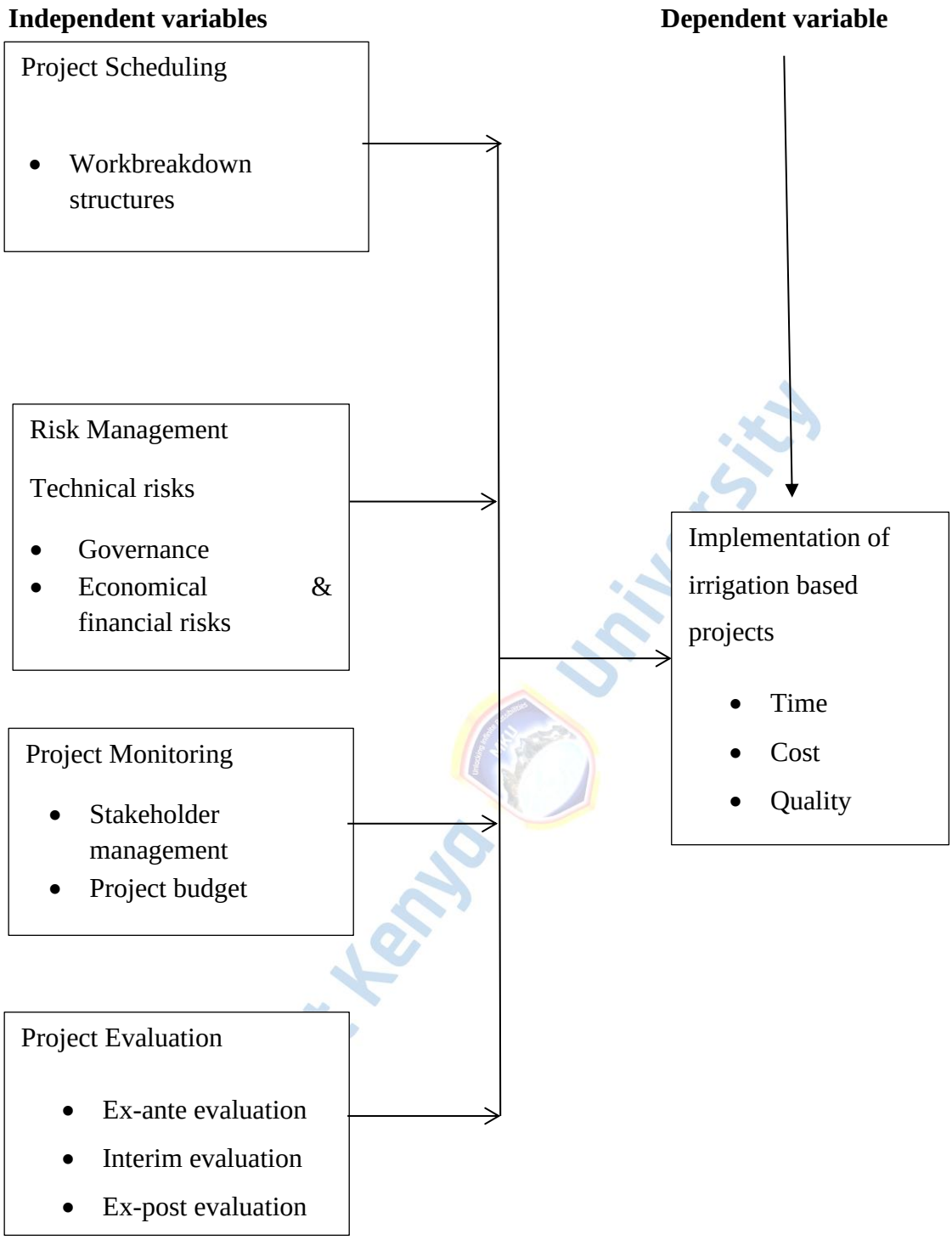

Figure 2 Conceptual Framework

Source; Researcher (2024)

2.5 Research Gaps

Several empirical studies have been conducted to explore the relationship between project management practices and the successful implementation of projects across various sectors and regions. These studies have provided valuable insights into how effective management strategies can lead to improved outcomes in project execution. One notable study by Barham et al. (2020) investigated the role of management support in the implementation of open innovation projects specifically within the manufacturing industry in Europe. Their findings highlighted the importance of strong leadership and organizational backing in facilitating innovation and ensuring that projects meet their goals.

Despite the wealth of research available, it is essential to note that much of the empirical evidence gathered in these studies predominantly comes from developed countries. This geographical focus raises questions about the applicability of these findings to different contexts, particularly in developing nations where the socio-economic landscape can significantly influence project management practices. The current study, in contrast, is set in Kenya, a developing country that presents a unique set of challenges and opportunities for project implementation.

Kenya's dynamic economic environment, characterized by rapid growth and a burgeoning technology sector, necessitates a tailored approach to project management. Factors such as limited resources, varying levels of stakeholder engagement, and differences in cultural attitudes toward project execution can all impact the success rates of projects in this context. By examining project management practices in Kenya, this study aims to contribute to the existing body of knowledge by providing empirical evidence that reflects the realities faced by practitioners in developing countries.

Moreover, understanding how project management practices operate within the Kenyan context can offer valuable lessons for other emerging economies. It allows for a comparative analysis that could highlight best practices and innovative strategies that are particularly effective in resource-constrained environments. Therefore, this research not only fills a critical gap in the literature but also serves to inform policymakers, project managers, and organizations seeking to improve their project outcomes in

Kenya and similar regions. The body of research surrounding various industries has revealed significant insights into project management and operational efficiencies.

For instance, studies conducted by Gitau (2015) and Mandala (2018) concentrated their efforts on the construction industry, exploring the complexities and challenges that arise within this sector. Their findings highlighted the multifaceted nature of construction projects, shedding light on the importance of effective resource management, stakeholder engagement, and risk mitigation strategies. Similarly, the study by Kisaka and Musomi (2017) focused on investment firms, examining how these organizations navigate financial markets and make strategic decisions to maximize returns. Their research contributed to a deeper understanding of investment behaviors and the factors influencing firm performance.

Furthermore, Barham et al. (2020) shifted the focus to open innovation projects, investigating how collaborative efforts can lead to enhanced creativity and problem-solving capabilities within organizations. Their work demonstrated that fostering an environment conducive to open innovation can yield significant benefits, including increased efficiency and the ability to adapt to market changes. In contrast, Adan's (2019) study centered around Community Development Fund (CDF) projects, which aimed to assess the impact of funding on community initiatives and infrastructure development. Through this research, Adan provided valuable insights into the dynamics of funding allocation and its effects on community well-being.

Unlike all the reviewed empirical studies, which predominantly addressed broader sectors or specific organizational frameworks, the current study will carve out a unique niche by specifically focusing on an irrigation scheme-based project. This approach is particularly relevant given the rising importance of sustainable agricultural practices and water management in the face of climate change and food security challenges. By concentrating on irrigation schemes, the current research aims to explore how effective project management can enhance agricultural productivity, improve water resource utilization, and foster sustainable practices within farming communities. This targeted examination will contribute to the existing body of knowledge by providing empirical evidence and insights that can inform future policies and practices in the agricultural sector.

2.6 Summary of Literature Review

This chapter begins with an introduction, then moves on to examine the research questions with the help of a literature review in the sections titled Empirical Literature, Theoretical Literature, Conceptual Framework, and summary. The study was guided by the theory of Management, Planning, Execution, and Controlling, which serves as a critical framework for analyzing the processes and strategies involved. In an effort to identify the gap that assessment of project management practices and their impact on implementation of irrigation based projects. The areas covered include Influence of project scheduling, risk management, project evaluation and project monitoring on implementation of irrigation based projects in Kenya.

Project scheduling is a crucial aspect of project management that involves employing various techniques to optimize the utilization of available labor, equipment, and financial resources. In addition to these fundamental elements, project scheduling also entails the creation of a well-defined work package, which serves as a comprehensive guide for the tasks to be completed. The ultimate success of building projects often hinges on the effectiveness of their planning and scheduling processes.

Risk management strategies are designed to control the situations and issues that give rise to risks, rather than completely eliminating them. This is an important distinction, as attempting to eradicate all risks could inadvertently hinder project performance outcomes. Effective risk management involves not only identifying potential risks but also understanding their implications and developing strategies to mitigate their effects. This might include contingency planning, where alternative courses of action are prepared in advance to address potential setbacks.

Project monitoring provides a real-time assessment of the progress of these initiatives, enabling stakeholders to understand the current status of the project and make informed decisions based on empirical data.

Project evaluation plays a crucial role in this process, as it can help develop knowledge and expertise that can be effectively applied to both policy formulation and practical applications. Through rigorous evaluation, stakeholders can gain valuable insights that inform future initiatives, ensuring that they are not only relevant but also impactful. This systematic assessment is essential for understanding the strengths and weaknesses of a project, enabling stakeholders to make informed decisions moving forward.

Moreover, the importance of project evaluation extends beyond immediate outcomes; it also contributes to the broader learning environment within organizations and communities. It creates a feedback loop that allows for continuous improvement, fostering an adaptive culture that can respond to changing needs and circumstances effectively.

It is a relevant endeavor for a multitude of reasons. It serves to test project sustainability, which is a critical consideration for any initiative aiming for long-term success and viability. Evaluating sustainability involves assessing whether a project can continue to operate effectively over time, particularly after initial funding and support have ceased.

This aspect of evaluation not only determines the longevity of a project but also highlights the necessity for ongoing resources and support systems that can help sustain its impact. By prioritizing sustainability in evaluations, stakeholders can better prepare for potential challenges and ensure that their initiatives can thrive well into the future. Ultimately, through comprehensive evaluation, projects can evolve, adapt, and continue to meet the needs of the communities they serve.

CHAPTER THREE

RESEARCH DESIGN & METHODOLOGY

3.1 Introduction

This chapter provides a comprehensive overview of the strategy that the researcher employed to effectively fulfill the overarching purpose of the study. It is focused on several critical components, including the research methodology, data collection methods, data analysis techniques, data quality assurance, and the ethical considerations that guided the research process. By detailing these aspects, the chapter aims to illustrate not only the systematic approach taken but also the rationale behind each decision made throughout the research journey. The methodology section elaborates on the theoretical framework and the specific research design chosen. Furthermore, an in-depth discussion on data collection methods will highlight the tools and techniques used for gathering information relevant to the study. The analysis section outlines how the data was processed and interpreted to derive meaningful conclusions. Additionally, the chapter emphasizes the importance of maintaining high data quality standards and adhering to ethical principles to ensure the integrity and credibility of the research findings. Through this detailed exposition, the chapter seeks to provide readers with a clear understanding of the research strategy and its implications for the overall study.

3.2 Research Design

A research design serves as a comprehensive framework that outlines the procedures and methodologies that will be utilized throughout the course of a study (Turam, 2014). It encompasses various elements, including the selection of participants, the tools and techniques for data collection, and the overall strategy for data analysis. In this particular study, the researcher opted for a descriptive study approach, which is characterized by its focus on providing an accurate portrayal of the characteristics of a population or phenomenon under investigation. This approach allows for the systematic

gathering of information, enabling the researcher to capture a detailed snapshot of the subject matter. By employing a descriptive study design, the researcher can effectively identify patterns, trends, and relationships within the data, thereby facilitating a deeper understanding of the research questions posed. Ultimately, the chosen methodology plays a crucial role in ensuring the validity and reliability of the findings, contributing to the overall rigor of the research process.

3.3 Target Population

The research is comprised of individuals who possess certain characteristics that can assist a researcher in drawing meaningful conclusions (Babbie, 2015). In this particular study, the focus was on a target population of 50 individuals, all of whom are current project workers engaged at various levels within their respective roles. This diverse group includes employees with different responsibilities and experiences, allowing for a comprehensive analysis of their perspectives and contributions to project work. To gather data effectively, a census approach was utilized in the study, ensuring that all 50 employees were thoroughly examined. The census method was chosen due to the manageable size of the target population, which is less than 100 individuals. By including every member of this small group, the study aimed to capture a complete and nuanced understanding of the dynamics at play. This approach enhances the reliability and validity of the findings, providing a robust foundation for future research and practical applications in project management.

Table 1 Target population

Category	Target Population
Top management	5
Middle management	10
Operational staff	35
Total	**50**

Source : Researcher (2024)

3.4 Data Collection Method & Tools

3.4.1 Instrumentation

For the purpose of this research, questionnaires were employed as the primary technique for data collection, serving as a structured method to gather quantitative information from participants. Additionally, oral interviews were utilized as a supplementary tool to provide deeper insights and qualitative data. This combination of methods allowed for a comprehensive understanding of the subject matter, as the questionnaires facilitated the collection of standardized responses while the interviews offered the opportunity to explore participants' thoughts, feelings, and experiences in greater detail. By integrating both techniques, the research aimed to achieve a well-rounded perspective on the topic being studied, ensuring a rich and nuanced analysis of the findings.

3.4.2 Data Collection Procedure

The questionnaire forms were issued to all 50 employees at Galana-Kulalu, ensuring that every individual had the opportunity to participate in the survey. These employees were tasked with filling in the questionnaire forms, where they provided their insights and opinions regarding the assessment of project management practices related to the implementation of irrigation-based projects. This method allowed for a comprehensive collection of data that reflected a diverse range of perspectives from the workforce involved in these initiatives.

Upon collecting the completed questionnaires, the researcher conducted walk-in oral interviews with the participants. These face-to-face interviews served to enrich the research process, allowing for a more in-depth exploration of the respondents' views and experiences. The interview questions were designed to delve deeper into the respondents' responses, providing context and clarity that could enhance the interpretation of the data gathered from the questionnaires. This combination of quantitative and qualitative data collection methods not only strengthened the research findings but also allowed for a more nuanced understanding of the challenges and successes associated with project management in irrigation-based projects at Galana-Kulalu. The use of both approaches ensured a thorough examination of the subject

matter, ultimately contributing to more effective project management strategies in the future.

3.5 Validity of the Research Instruments

Vicaut (2015) provides a comprehensive definition of validity as a crucial component in the presentation of reliable and credible data that serves as a foundation for formulating effective policies and making informed decisions. In the realm of research, validity ensures that the conclusions drawn from data are accurate and applicable to the real world, thereby enhancing the overall quality of the research. It is imperative that researchers prioritize validity in their methodologies to ensure that the insights gained can genuinely influence policy development and decision-making processes.

One effective way to enhance validity in research instruments, such as questionnaires and interviews, is by incorporating objective questions. Objective questions, which typically require respondents to select from predetermined answers, minimize personal bias and subjectivity, ensuring that the data collected are consistent and quantifiable. By designing the questionnaire with clear, concise, and measurable questions, researchers significantly increased the reliability of the data obtained.

The inclusion of objective questions allowed for easier analysis and comparison of responses, which led to more robust conclusions. This structured approach not only aided in maintaining the integrity of the research but also instilled confidence in stakeholders and policymakers who rely on the findings for making critical decisions. Ultimately, the adherence to validity through the use of objective questioning was essential for producing trustworthy research outcomes that can effectively inform and guide policy formulation.

3.5.1 Reliability of the Research Instrument

The consistency of the data produced when applying the measuring device to the same sample group at different times is referred to as reliability. Reliability is a crucial aspect of research, as it ensures that the results obtained are stable and can be replicated across various instances of data collection. Reliability is a measurement of how consistently research tools produce outcomes (Sekaran & Bougie (2016). If a person receives the same score on the same test when it is administered twice, the instrument is seen to be

trustworthy. Test for reliability was carried out using Pearson correlation between scores obtained from the participants at two different time points.

3.6 Data Analysis and Presentation

Data analysis is a comprehensive and systematic process that involves organizing, cleansing, and transforming the data collected from various sources. The primary objective of this process is to uncover valuable insights, derive meaningful conclusions, and ultimately support informed decision-making. Initially, the collected data underwent a meticulous organization phase, where it was sorted and structured to facilitate further analysis. Any errors or inconsistencies that may have occurred during the data collection phase were addressed and rectified, ensuring the integrity and reliability of the dataset.

Once the data was cleaned, it was coded and entered into a computer system, where advanced analytical techniques were employed. Descriptive statistics played a crucial role in this analysis, utilizing the Statistical Package for Social Sciences (SPSS) software to perform intricate calculations and generate insightful metrics. The data was further disaggregated to explore various facets of the relationship between project management practices and the implementation of irrigation-based projects in Kenya. This comprehensive approach provided both quantitative and qualitative descriptions of the study's objectives, enriching the research findings.

To effectively communicate the descriptive results, the researcher presented the data through a variety of visual aids, including frequency distribution diagrams, tables, percentages, pie charts, and bar graphs. These visual representations not only enhanced the clarity of the findings but also facilitated a better understanding of the underlying trends and patterns within the data. Moreover, the researcher conducted regression analysis to rigorously examine the relationship between the project management practices employed and the successful implementation of irrigation-based projects in Kenya. The regression model was structured to capture the intricate dynamics at play, allowing for a nuanced interpretation of the data and fostering a deeper understanding of how effective project management can influence project outcomes.

$$Y = a + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 3X4 + E$$

Where: Y= Effective Implementation; a = Constant; X1 = Project scheduling; X2 =Risk management; X3 = Project Monitoring X4 = Project Evaluation; While, E = error term.

3.8 Ethical Consideration

The researcher successfully obtained the necessary clearance from the University Ethical Review Committee of Mount Kenya University before commencing any fieldwork related to the study. Alongside this, a formal letter of introduction was secured to assist in the application process for NACOSTI authorization, which is vital for the legal collection of data pertinent to the research. Throughout the entire study, the researcher maintained strict confidentiality to protect the privacy of all participants. Prior to their involvement, the respondents were explicitly asked for their consent, ensuring that participation was completely voluntary. Those who felt uncomfortable sharing specific information were not coerced in any way, respecting their individual rights and choices. Respondents were further assured that the primary aim of the study was educational in nature, reinforcing the voluntary aspect of their participation. To safeguard anonymity, the questionnaires were designed in such a way that they did not require any personal identification information, thus allowing respondents to provide their insights freely without concerns about being identified. This approach not only fostered trust but also encouraged open and honest

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents a comprehensive overview of the research findings, followed by a detailed analysis and interpretation of these findings, all of which are grounded in the main objectives established at the outset of the study. To gather robust primary data, a combination of questionnaires and oral interviews was utilized, ensuring a diverse range of perspectives and insights from participants across different demographics and backgrounds. This methodological approach not only enhances the validity of the data but also captures the complexity of experiences related to the research topic. In addition to the primary data collection methods, secondary data was meticulously obtained from a variety of published materials, including academic journals, books, and reputable online sources. This dual approach not only enriches the research but also provides a well-rounded foundation for understanding the topic at hand. The integration of both primary and secondary data allows for a more nuanced analysis of the findings, facilitating a deeper understanding of the research questions posed and enabling the identification of patterns and correlations that may not have been evident through a singular data source. Ultimately, this comprehensive analysis seeks to contribute significantly to the existing body of knowledge on the subject, offering insights that can inform future research and practical applications.

4.2 Presentation of Findings

The findings are represented using a variety of methods, including detailed tables, visually informative pie charts, and calculated percentages. Additionally, advanced statistical techniques such as regression analysis and ANOVA (analysis of variance) are employed to provide a comprehensive understanding of the data. These representation methods enhance the clarity and accessibility of the results, allowing for a more in-depth interpretation of the underlying trends and relationships within the dataset.

4.2.1 Response Rate

For the study, the researcher specifically targeted a total of 50 respondents from the Galana Kulalu irrigation scheme, an area well-known for its agricultural potential and diverse farming practices that contribute significantly to the local economy.

To gather comprehensive data, 50 questionnaires were meticulously administered to the selected respondents throughout the entire scheme, ensuring a representative sample of the population. Out of the 50 questionnaires distributed, 38 were successfully filled out and collected by the researcher before the established deadline, reflecting the commitment of the respondents to the study. This outcome represented a commendable response rate of 76%, which significantly justifies the validity and reliability of the study's findings, thereby enhancing the overall credibility of the research. Conversely, the non-response rate stood at 24%, corresponding to the 12 questionnaires that were not returned. This non-response could have implications for the study, suggesting areas for further investigation or follow-up to understand the reasons behind the lack of participation from those individuals, which may include factors such as time constraints or lack of interest. Overall, the data collected provides a solid foundation for analyzing the perspectives and experiences of the irrigation scheme's participants, thereby contributing valuable insights into the effectiveness & challenges of agricultural practices.

Table 2 Response Rate

Categories	Frequency	Percentage %
response	38	76
Non response	12	24
Total	50	100

Source: Researcher (2024)

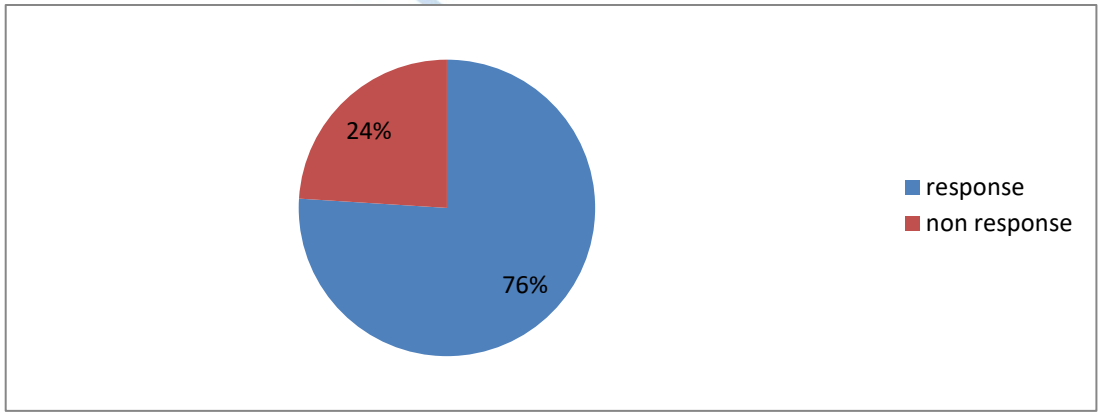

Figure 3 Response rate

As seen in both table 2 and figure 3 above, the researcher had a total of 50 respondents participating in the study. Out of this total, 38 individuals took the time to fill out the

questionnaires and return them, demonstrating their willingness to contribute to the research. This response represents a percentage of 76%, indicating a strong level of engagement among the participants. Conversely, the non -respondents totaled 12, which correspond to 24% of the initial group. Despite the absence of feedback from these individuals, the overall response rate was deemed adequate and sufficient by the researcher for purposes of data analysis. This level of participation provides a solid foundation for drawing meaningful conclusions from the collected data, ensuring that the findings reflect the opinions and insights of a significant majority of the respondents.

4.2.2 Gender of Respondent

Table 4.2 Gender of Respondent

Table 3 Gender of respondent

Gender	Frequency	Percentage %
Male	17	44.74
Female	21	55.26
Total	38	100

Source: Researcher (2024)

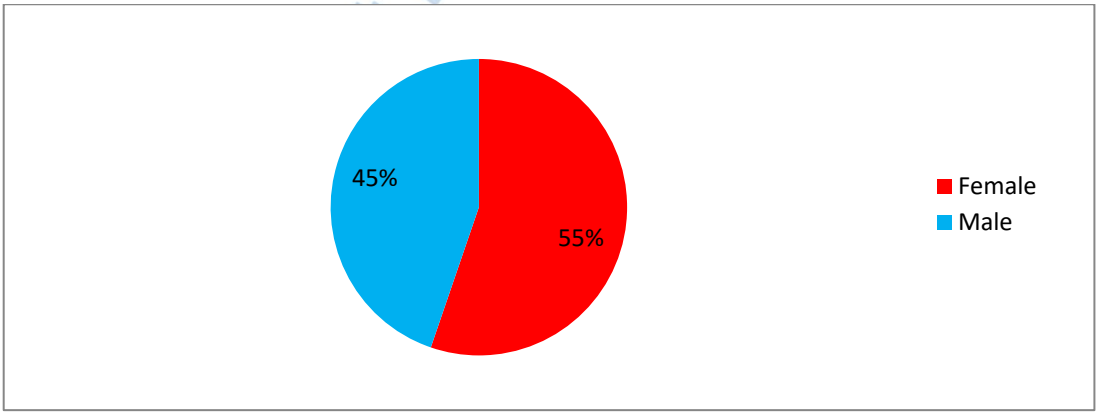

Figure 4 Gender Respondent

Both Table 3 and Figure 4 presented above illustrate a significant gender distribution among the respondents involved in the study. Specifically, 44.74% of the respondents identified as male, whereas a larger portion, comprising 55.26%, identified as female.

This data highlights a notable trend indicating that the majority of participants providing feedback in each of the categories related to the Galana Kulalu Irrigation Scheme were female. The predominance of female respondents could suggest various factors, including their potentially greater involvement in agricultural activities or community engagement within the irrigation scheme. Understanding the implications of this gender distribution is essential for evaluating the effectiveness and outreach of the program.

Table 4 Response by management level

Management level	Frequency	Percentage %
Top management	3	6
Middle level management	8	16
Operational Staff	27	54
Total	38	100

Source: Researcher (2024)

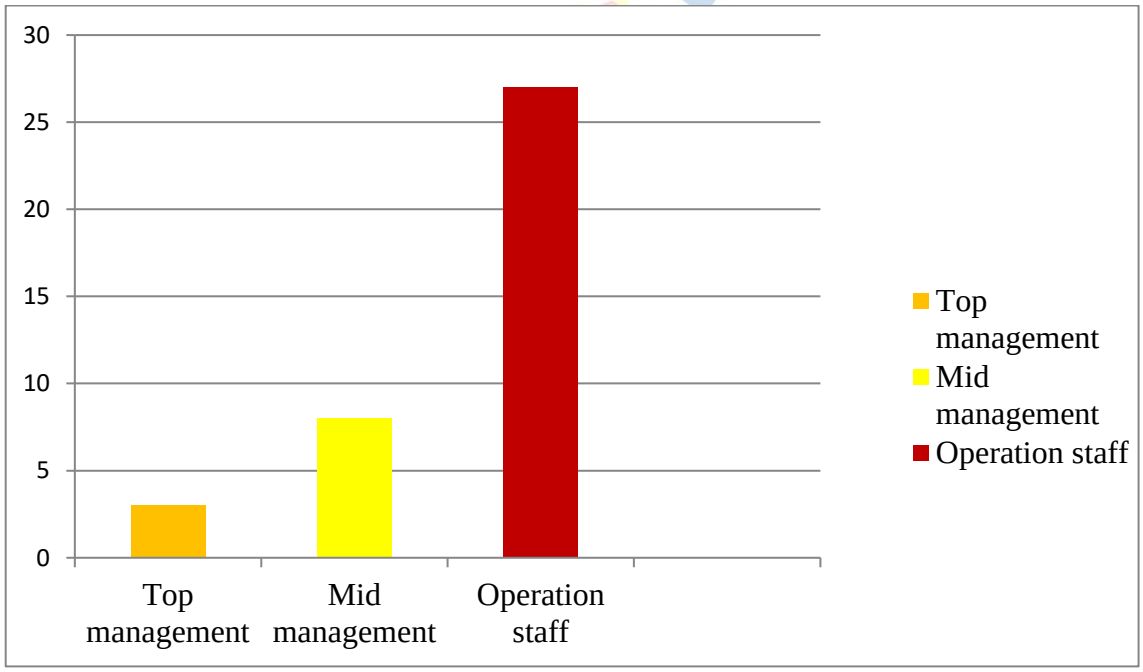

Figure 5 Response by management level

Both Table 4 and Figure 5 presented above provide valuable insights into the distribution of respondents based on their management levels within the organization. Specifically, the data reveals that 6% of the respondents hold positions in top management. In contrast, a larger segment, accounting for 16% of the respondents, represents middle-level management. However, the most significant portion of the

respondents 54% are comprised of operational staff, highlighting their status as the majority group within the organization. This distribution underscores the critical role that operational staff play in the overall functioning of the company. They are the backbone of daily operations and directly influence the organization's success.

4.2.4 Education Level

Table 5 Response by education level

Education level	Frequency	Percentage %
PHD	1	2.63
Master's Degree	2	5.26
Bachelor's Degree	20	52.63
Secondary school Level	15	39.48
Total	38	100

Source: Researcher (2024)

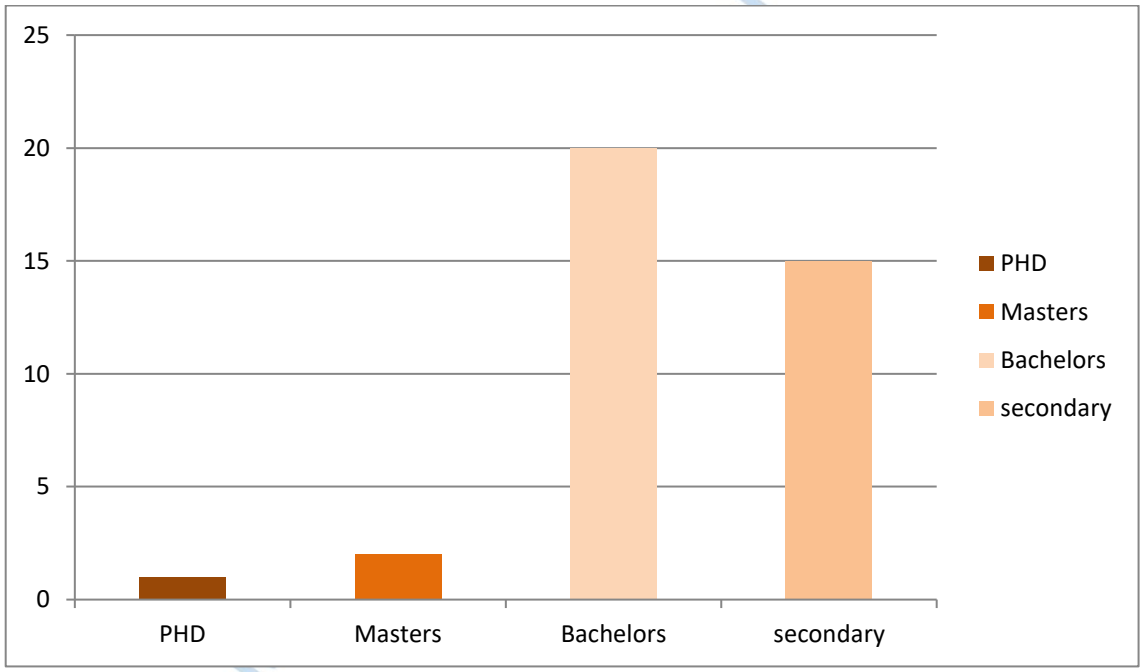

Figure 6 Education level

Both Table 5 and Figure 6 illustrate the educational qualifications of the respondents in a clear and informative manner. Specifically, the data reveals that a total of 38 respondents participated in the survey. Among these individuals, 5.26% hold a PhD, indicating a relatively small but significant number of highly educated participants. Furthermore, 5.26% of respondents have obtained a master's degree, showcasing a strong presence of advanced academic achievement. In contrast, the majority,

comprising 52.63%, possess a bachelor's degree, reflecting a solid foundation of higher education among the respondents. Additionally, 39.48% of the participants have completed their education at the secondary school level. This distribution of educational backgrounds provides valuable insights into the demographic profile of the survey participants.

4.3 Project Scheduling

On project scheduling, the research aimed to thoroughly investigate and establish the extent to which the project effectively incorporated scheduling as a fundamental practice during the implementation phase. By examining various aspects of scheduling methods and their application, the study sought to determine how these practices influenced overall project efficiency, timelines, and resource allocation. Ultimately, the findings were intended to provide valuable insights into the importance of scheduling in successful project management.

Table 6 Project Scheduling

Statements	5	4	3	2	1	Mean
The work breakdown structures was elaborate	19 50%	10 26.32%	5 13.16%	3 7.89%	1 2.63%	4.13
Project schedule that have been done are always clear	16 42.11%	9 23.68%	7 18.42%	3 7.89%	3 7.89%	3.84
Project plan was well defined and communicated from the start	20 52.63%	8 21.05%	5 13.16%	2 5.26%	3 7.89%	4.05
Tasks were properly sequenced	18 26.32%	10 47.37%	8 21.05	1 2.63%	1 2.63%	4.13

Essential resources were available as per the schedule	10 26.32%	15 39.47%	8 21.05%	1 2.63%	2 5.26%	3.63
Stakeholder coordination aligned with the schedule	9 23.68%	20 52.63%	4 10.53%	4 10.53%	1 2.63%	3.84

Source: Researcher (2024)

On the topic of project scheduling, the research aimed to investigate whether project planning was effectively integrated into the strategies employed by the project team. The data presented in Table 6 reveals compelling insights: 76.33% of the respondents concurred that the work breakdown structures were detailed and comprehensive, indicating a solid foundation for project execution. Furthermore, 65.79% of the participants affirmed that the project schedules that had been established were consistently clear, which is crucial for maintaining transparency among team members and stakeholders. Additionally, 73.68% agreed that the project plan was well defined and communicated from the onset, highlighting the importance of clear communication in project management. An impressive 73.69% of respondents noted that tasks were properly sequenced, which is essential for ensuring that the project progresses in a logical and efficient manner. Moreover, 65.79% acknowledged that essential resources were available according to the schedule, a vital factor in meeting project timelines and objectives. Finally, 76.31% agreed that stakeholder coordination was effectively aligned with the schedule, emphasizing the role of collaboration in project success. These findings underscore the significance of project scheduling as a critical practice in the implementation of irrigation-based projects, specifically in the case of the Galana Kulalu Irrigation scheme, illustrating how effective scheduling can lead to improved outcomes and successful project delivery.

4.4 Risk Management

Table 7 Risk Management

Statements	5	4	3	2	1	Mean
The project has a team of experts that help deal with technical risks that may occur	8 21.05%	27 71.05%	2 5.26%	1 2.63%	0 0.00%	4.11
The financial risks arising from the project are insured	9 23.68%	24 63.16%	3 7.89%	1 2.63%	1 2.63%	4.03
Contractors were directly involved in the mapping of risks and determination of mitigation strategies	10 26.32%	22 57.89%	3 7.89%	1 2.63%	2 5.26%	3.97
There is proper governance of the project to ensure that all arising risks are properly handled.	7 18.42%	20 52.63%	5 13.16%	4 10.53%	2 5.26%	3.68
There is adherence to procurement procedure to ensure that	4 10.53%	18 47.37%	10 26.32%	5 13.16%	1 2.63%	3.53

risks are minimized.						
The project had contingency plans for unexpected risk	5 13.16%	19 50.00%	9 23.68%	5 13.16%	0 0.00%	3.63

Source: Reseacher (2024)

On risk management, the research sought to establish if the project incorporated risk management as part of their strategies.

Table 7 shows that 92.1% of the respondents agreed that the project has a team of experts that help deal with technical risks that may occur, 86.84% agreed that the financial risks arising from the project are insured,84.21 % agreed that Contractors were directly involved in the mapping of risks and determination of mitigation strategies, 71.05% of the respondents agreed that there was proper governance of the project to ensure that all arising risks are properly handled, 57.9% agreed that there was adherence to procurement procedure to ensure that risks are minimized and 63.16% agreed that the project had contingency plans for unexpected risk . The findings show that risk management is an important project practice on implementation of irrigation based projects a case of Galana Kulalu Irrigation scheme.

4.5 Project Monitoring

Table 8 Project Monitoring

Statements	5	4	3	2	1	Mean
Key performance indicators were clear as per the performance metrics	5 13.16%	19 50%	9 23.68%	3 7.89%	2 5.26%	3.58

Required resources were provided on time.	4	27	5	1	0	3.82
	10.53%	71.05%	13.16%	2.63%	0.00%	
The organization culture is supportive.	7	19	10	0	2	3.76
	18.42%	50.00%	26.32%	0.00%	5.26%	
Communication channels were open for reporting project challenges and progress	10	20	3	4	1	3.89
	26.32%	52.63%	7.89%	10.53%	2.63%	
Change management was ensured	9	22	2	3	0	3.82
	23.68%	57.89%	5.26%	7.89%	0.00%	

Source: Reseacher (2024)

On project monitoring, the research sought to establish if the project incorporated project monitoring as part of their strategies.

Table 8 shows that 63.16% of the respondents agreed that key performance indicators were clear as per the performance metrics, 81.58 % agreed that required resources were provided on time, 68.42% of the respondents agreed that the organization culture was supportive, 78.95% agreed that change management was ensured and 81.57% agreed that communication channels were open for reporting project challenges and progress. The findings show that project monitoring is an important project practice on implementation of irrigation based projects a case of Galana Kulalu Irrigation scheme.

4.6 Project evaluation

Table 9 Project evaluation

statements	5	4	3	2	1	Mean
Feedback from stakeholders to ensure satisfaction was documented	10 26.32%	19 50%	7 18.42%	0 0.00%	2 5.26%	3.92
Project activities and strategies correspond with the plan.	5 13.16%	20 52.63%	11 28.94%	2 5.26%	0 0.00%	3.74
Project adhered to regulatory and legal requirements	12 31.58%	22 57.89%	2 5.26%	1 2.63%	1 2.63%	4.13
Documentation of lessons learnt was done for future improvement	5 13.16%	8 21.05%	15 39.47%	3 7.89%	7 0.00	3.03

Project financing ensured return on investment	13 34.21%	24 63.16%	1 2.68%	0 0.00%	0 0.00%	4.32

Source: Researcher (2024)

In the comprehensive project evaluation, the research specifically aimed to determine whether the project effectively integrated project monitoring as a critical component of their overall strategies. As evidenced in Table 9, a significant 76.32% of the respondents indicated their agreement that feedback from stakeholders was systematically documented to ensure their satisfaction with the project's progress. Furthermore, 65.79% expressed that the project activities and strategies were in alignment with the initial plan, showcasing a level of consistency in execution. Notably, an impressive 89.47% of respondents affirmed that the project adhered to essential regulatory and legal requirements, highlighting a commitment to compliance and governance. However, only 34.21% acknowledged that documentation of lessons learned was adequately performed, suggesting an area for potential improvement for future projects. On a positive note, a remarkable 97.37% of the participants agreed that project financing mechanisms were structured to ensure a favorable return on investment. These findings underscore the significance of project evaluation as a vital practice for the successful implementation of irrigation-based projects, particularly in the context of the Galana Kulalu Irrigation scheme. Overall, it is clear that thorough evaluation and monitoring are critical for enhancing project outcomes and achieving long-term sustainability.

4.7 Implementation of the project

Table 10 Implementation of the project

Statements	5	4	3	2	1	Mean
The project was completed	15	19	0	1	3	4.11

on time	39.47%	50.%	0.00%	2.63%	7.89%	
The project met beneficiary expectations	6 15.79%	14 36.84%	10 26.32%	4 10.53%	4 10.53%	3.37
The project was completed on budget	3 7.89%	20 52.63%	4 10.53%	6 15.79%	5 13.16%	3.42
The project utilized resources allocated	9 23.68%	22 57.89%	2 5.26%	3 7.89%	0 0.00%	3.82.
The project realized the set goals and objectives.	25 65.79%	13 34.21%	0 0.00%	0 0.00%	0 0.00%	4.66

Source: Reseacher (2024)

On project implementation, the research sought to establish how various project practices contributed to effective implementation. This aspect is vital for ensuring that projects stay on track and meet their intended outcomes.

Table 10 presents significant findings, showing that a substantial 89.47% of the respondents agreed that the project was completed within the designated timeframe, highlighting the efficiency of the project management team. Furthermore, 52.54% of the participants expressed agreement that the project successfully met beneficiary expectations, indicating a positive alignment between project activities and the initial objectives. Additionally, 60.52% of the respondents affirmed that the project was completed within the allocated budget, which reflects prudent financial management

practices. A notable 81.57% agreed that the project effectively utilized the resources allocated, demonstrating a commitment to maximizing the use of available assets. Lastly, a significant majority concurred that the project realized the set goals and objectives, underscoring its overall success and impact on the target community. These results collectively illustrate the importance of rigorous monitoring and evaluation in project implementation.

4.8 Inferential statics

The researcher carried out regression analysis so as to determine the relationship between project management practices employed and implementation of irrigation based projects in Kenya. The model took the following structure:

4.8.1 Anova Analysis

ANOVA (Analysis of Variance) analysis was conducted to evaluate the impact of various project practices on implementation of irrigation based project.

Table 11 Single Anova analysis

Groups	Count	Sum	Average	Variance
Effective Implementation	8	379	47.375	205.125
Project scheduling	8	182	22.75	5.642857
Risk management	8	206	25.75	5.071429
Project Monitoring	8	200	25	2.285714
Project evaluation	8	208	26	4

Table 12 Anova analysis

Source of variation	**ss**	**df**	**ms**	**f**	**p-value**	**Fcrit**
Between groups	3292.5	4	823.125	18.52842	0.000	2.6415
Within groups	1554.875	5	44.425			
Total	484.37	39				

From analysis, the p-value of 0.000 indicated that there was significance in the data following the model. The outcome of the analysis showed that the data between groups was significant with

F value = 18.52
P-value = 0.000
F-critical =2.641

Table 13 Correlation Analysis

	Effective Implementation	Project Scheduling	Risk Management	Project Monitoring	Project Evaluation
Effective Implementation	1				
Project Scheduling	0.066133833	1			
Risk Management	0.331084389	0.20028505	1		
Project Monitoring	-0.217718649	-0.0795557	0	1	
Project Evaluation	-0.608446641	0.03006924	0.253745	-0.283473	1

From analysis, there was a positive relationship between effective implementation and project scheduling. The other negative part is the relationship between risk management and effective implementation. Negative relationships happened between effective implementation and project monitoring and project evaluation. Positive correlations mean that a rise in a single variable led to a rise in another. Negative analysis indicated that when one variable increases, another variable increases and vice versa (Schober, et al, 2018).

4.8.2 Regression Analysis

To effectively determine the statistical significance of the predictor variables in relation to the dependent variable, which in this case is project performance, a regression model analysis was employed. This analytical approach allows for a comprehensive examination of the relationships between various independent variables and their impact on project performance outcomes. The results, which are detailed in Table 4.8 below, indicate that the goodness of fit for the regression analysis that was conducted between the independent variables and project performance was found to be satisfactory. This suggests a strong correlation and a reliable model, thereby reinforcing the validity of the findings derived from this analysis.

Table 14 Regression model Fitness Indicator Coefficient

Regression Statistics	
Multiple R	0.90847
R square	0.82532
Adjusted R Square	0.59241
Standard Error	9.14371
Observations	8

Table 15 Regression Coefficient

	df	SS	MS	F	Significance F
Regression	4	1185.05	296.263	3.543506	0.1633915
Residual	3	250.822	83.6074		
Total	7	1435.88			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	239.297	94.8103	2.52395	0.085878	-62.43177	541.02538
Project Scheduling	-0.3529	1.49159	-0.2366	0.018282	-5.099809	4.3940209
Risk Management	3.60801	1.62631	2.21852	0.113199	-1.567642	8.7836618
Project Monitoring	-4.4826	2.40101	-1.867	0.015873	-12.12369	3.1585022
Project Evaluation	-6.336	1.87066	-3.387	0.042869	-12.28923	0.3826791

From above analysis, the p-value for four of the independent variables were below 0.05 alpha value, indicating that they were significant (Kwak, 2023).

The regression equation for this analysis is as follows

Y= 239.297 – 0.3529X1 + 3.60801X2 -4.4826X3 – 6.336X4 + E
Where: Y= Effective Implementation; a = Constant; X1 = Project scheduling; X2 =Risk

management; X3 = Project Monitoring X4 = Project Evaluation; While, E = error term.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The results of the data analysis and the conclusions drawn from this analysis are the primary focus of this chapter. This section not only presents the findings but also includes a comprehensive summary, drawing conclusions and formulating recommendations that are specifically aligned with the study's objectives. Each recommendation will be carefully crafted to address the key questions posed at the beginning of the research, ensuring that they are relevant and actionable. The researcher will thoroughly assess the data analysis results to determine whether the initial goals set forth at the outset of the study have been successfully achieved. This evaluation process is critical, as it provides insights into the effectiveness of the research methods employed and highlights areas that may require further investigation or adjustment in future studies. Ultimately, this chapter serves as a culmination of the research journey, synthesizing information in a way that is both informative and useful for stakeholders interested in the implications of the findings.

5.2 Summary of the result findings

Out of 50 questionnaires issued 38 were correctly completed and returned yielding a 76% return rate for the study. There were 21 female respondents and 17 male respondents. Despite the fact that there are more men than women at Galana Kulalu Irrigation scheme the survey discovered that the gender ratio was nearly the same. This demonstrates that the researcher took into account all respondents, regardless of gender, through census in order to gather accurate data on the topic of the study. Additionally, it was discovered that the majority of the employees had bachelor's degrees and are operational staff.

The study’s primary focus is assessment of project management practices on implementation of irrigation scheme based projects in Kenya; a case of Galana Kulalu Irrigation scheme. The first objective was determining the influence of project scheduling on the implementation of irrigation based projects. It was found that project scheduling influence Implementation of the Galana Kulalu irrigation scheme

moderately. It was found out that project scheduling had a positive correlation with implementation or Galana Kulalu irrigation scheme of ($r=0.825$ $p< 0.05$). The second objective was to determining the influence of risk management on the implementation of irrigation based projects. It was found that risk management influence Implementation of the Galana Kulalu irrigation scheme moderately. It was found out that risk management had a positive correlation with implementation or Galana Kulalu irrigation scheme of ($r=0.796$ $p< 0.05$). This suggests that risk management had a statistically significant influence on implementation of Galana Kulalu irrigation scheme. The third objective was to determining the influence of project monitoring on the implementation of irrigation based projects. It was found that project monitoring had influence Implementation of the Galana Kulalu irrigation scheme moderately. It was found out that project monitoring had a positive correlation with implementation of Galana Kulalu irrigation scheme of ($r=0.661$ $p< 0.05$). This suggests that project monitoring had a statistically significant influence on implementation of Galana Kulalu irrigation scheme. The fourth and last objective of this study was to determine the influence of project evaluation on the implementation of irrigation based projects. It was found that project evaluation had influence on implementation of the Galana Kulalu irrigation scheme moderately. It was found out that project evaluation had a positive correlation with implementation or Galana Kulalu irrigation scheme of ($r=0.608$ $p< 0.05$). This suggests that project evaluation had a statistically significant influence on implementation of Galana Kulalu irrigation scheme

5.2.1 Project scheduling

The research sought to determine the effect of project scheduling on the implementation of irrigation scheme based projects in Kenya. It was determined from the findings that various aspects of project scheduling has effect on implementation as follows;76.33% of the respondents agreed work breakdown structures were elaborate, 65.79% agreed that project schedule that have been done are always clear,73.68 % agreed that project plan was well defined and communicated from the start, 73.69% of the respondents agreed that tasks were properly sequenced,65.79% agreed that essential resources were available as per the schedule and 76.31% agreed that Stakeholder coordination aligned with the schedule. The finding indicated that project scheduling has an effect on implementation of irrigation scheme based projects in Kenya.

5.2.2 Risk management

The researcher undertook an extensive investigation to determine the effect of risk management on the implementation of irrigation scheme-based projects in Kenya. The findings revealed several key insights regarding how various aspects of risk management significantly influence project implementation. Specifically, an impressive 92.1% of respondents agreed that the project benefits from a dedicated team of experts who are tasked with addressing technical risks that may arise during the project's lifecycle. Furthermore, a substantial 86.84% acknowledged that the financial risks associated with the project are adequately insured, thereby providing a safety net against potential losses. Additionally, 84.21% of respondents indicated that contractors played a crucial role in the mapping of risks and the development of effective mitigation strategies. Moreover, 71.05% agreed that there was a robust governance framework in place to ensure that all emerging risks are managed properly and efficiently. In terms of procurement, 57.9% of participants confirmed adherence to established procedures, which is vital in minimizing risks. Lastly, 63.16% noted that the project had contingency plans in place to address unexpected risks. Collectively, these findings underscore the critical importance of risk management as a fundamental practice in the successful implementation of irrigation-based projects, with specific reference to the Galana Kulalu Irrigation Scheme. This highlights the necessity for continuous improvement in risk management strategies to enhance project outcomes and sustainability in the future.

5.2.3 Project monitoring

The study aimed to thoroughly assess the effect of project monitoring on the implementation of irrigation scheme-based projects in Kenya. This evaluation was crucial, as effective project monitoring can significantly influence the outcome and success of development initiatives. The findings revealed that various facets of project monitoring indeed have a profound effect on project implementation. For instance, an impressive 63.16% of the respondents concurred that the key performance indicators (KPIs) were clearly defined and aligned with the established performance metrics. This clarity is essential for guiding project teams and ensuring that all stakeholders understand.

Additionally, a substantial 81.58% of respondents affirmed that the required resources were made available in a timely manner, which is vital for maintaining project

momentum. Furthermore, 68.42% of the respondents indicated that the organizational culture was supportive of the project objectives, fostering an environment conducive to collaboration and innovation. Moreover, 78.95% agreed that change management processes were effectively implemented, ensuring that any necessary adjustments could be made without disrupting progress. Finally, an impressive 81.57% acknowledged that open communication channels were established, allowing for transparent reporting of project challenges and progress. This comprehensive approach to project monitoring is fundamental for the successful implementation of irrigation schemes, ultimately contributing to improved agricultural productivity and sustainability in Kenya.

5.2.4 Project Evaluation

The researcher sought to determine the effect of project evaluation on the implementation of irrigation scheme-based projects in Kenya. This investigation was vital as it aimed to understand how different facets of project evaluation can influence the successful execution of such initiatives, which are crucial for improving agricultural productivity and ensuring food security in the region. The findings revealed that various aspects of project evaluation significantly affect implementation outcomes. Specifically, 76.32% of the respondents agreed that feedback from stakeholders was effectively documented to ensure their satisfaction with the project processes and outcomes. Additionally, 65.79% acknowledged that the project activities and strategies were in alignment with the initial project plan, indicating a clear adherence to project objectives. Furthermore, an impressive 89.47% of the respondents agreed that the project strictly adhered to regulatory and legal requirements, underscoring the importance of compliance in project implementation. However, only 34.21% agreed that documentation of lessons learned was conducted for future improvement, highlighting a potential area for enhancement. Lastly, a remarkable 97.37% agreed that project financing was structured to ensure a return on investment, reflecting a strong focus on sustainability and financial viability in project execution. These findings collectively emphasize the critical role of thorough project evaluation in the successful implementation of irrigation schemes in Kenya.

5.2.4 Implementation of the project

The analysis conducted reveals that all the independent variables examined have a significant impact on the dependent variable, as illustrated in the results above. Each independent variable contributes uniquely to the overall relationship, suggesting that

they play crucial roles in influencing the dependent variable's behavior. This connection underscores the importance of considering these factors in future research and decision-making processes, as understanding their effects can lead to more informed conclusions and potentially guide interventions or strategies that aim to enhance outcomes related to the dependent variable in question.

5.3 Conclusions

The study concluded that the use of various project management practices has a significant and positive impact on the successful implementation of irrigation-based projects in Kenya. This research highlights the critical importance of adopting structured methodologies and tools that can enhance the efficiency and effectiveness of these projects. By employing best practices in project management, stakeholders, including government agencies, non-governmental organizations, and local communities can ensure that resources are utilized optimally, timelines are adhered to, and project objectives are successfully met. Additionally, the study emphasizes the need for continuous training and development of project managers to strengthen their skills and capabilities. This ongoing education is essential for adapting to new challenges and technologies in project management. Ultimately, these efforts lead to more sustainable irrigation solutions that effectively address the pressing water needs of agricultural communities across the country. By fostering collaboration among all stakeholders and promoting knowledge sharing, it is possible to create a more resilient agricultural sector that can thrive despite the challenges posed by climate change and population growth.

5.4. Recommendations for further Research

The study only considered irrigation schemes within the agriculture sector, which provides a focused but limited view of the broader implications of the research. Future researchers could greatly benefit from carrying out a similar study in different sectors, such as manufacturing, services, or technology, to assess any variation in responses and outcomes. It would be particularly interesting to explore how the results obtained when the methods applied in this study are utilized in other contexts, for example, in public or private sector initiatives. By examining the applicability of these findings across various industries, researchers could uncover unique insights and differences that may not have been evident in the agricultural context. It would also be worthwhile to establish the extent to which the findings of this study are generalizable to other industries and sectors, thereby contributing to a more comprehensive understanding of the subject

matter. Such comparative studies could provide valuable information for policymakers and industry leaders looking to implement effective strategies based on the results of this research.

5.5. Recommendations for Practice

The findings of the research indicate that for effective project implementation, it is crucial for project managers to take full ownership of project management practices. This ownership entails not only a deep understanding of the methodologies and frameworks employed but also an active engagement in the day-to-day management and oversight of the project. When project managers embrace their role with responsibility and commitment, they can significantly influence the trajectory of the project, ensuring that it aligns with organizational goals and stakeholder expectations. Furthermore, taking ownership fosters a culture of accountability within the project team, encouraging members to contribute their best efforts and collaborate effectively towards common objectives.

Moreover, project managers should not only focus on the aspects of project management, such as planning, scheduling, and budgeting, but also prioritize communication and relationship-building with stakeholders. This holistic approach will lead to more resilient project outcomes, as it allows for adaptability and responsiveness to changes and challenges that may arise throughout the project lifecycle. In conclusion, the study emphasizes the importance of project managers owning their roles and responsibilities to drive successful project execution and ultimately enhance overall organizational performance.

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APPENDICIES

Appendix I: Introductory Letter

GRACE WAMBUI MAHINDA

MOUNT KENYA UNIVERSITY

MSCPM/2022/49375

NAIROBI

RE: DATA GATHERING

I am a student in Mount Kenya University doing research on; ASSESSMENT OF PROJECT PRACTICES ON THE IMPLEMENTATION OF IRRIGATION SCHEME BASED PROJECTS IN KENYA; A CASE STUDY OF GALANA KULALU IRRIGATION SCHEME. Please fill out the form as completely as you can. Since the questions are only being asked for study purposes, they will be handled with **CONFIDENTIALITY.**

Sincerely,

Grace Mahinda.

Appendix II: Informed Consent Form

Title of the Study: Assessment of project management practices on implementation of irrigation scheme based projects in Kenya; a case of Galana Kulalu Irrigation scheme.

Researcher: Grace Wambui Mahinda

Introduction:

You are invited to participate in a research study conducted by (Grace Wambui Mahinda), from (Mt Kenya University). Before you decide whether to participate, it is important for you to understand why the research is being conducted and what your participation will involve. Please read this form carefully and ask any questions you may have before deciding whether to participate.

Purpose of the Study:

This study oversees assessment of project management practices , including project scheduling, risk management, project monitoring & project evaluation on the implementation of irrigation schemes based projects in Kenya; a case of Galana- Kulalu irrigation scheme.

Procedures:

If you agree to participate, you will be asked to fill questionnaires alongside oral interviews to provide requisite information to the researcher. Your participation is voluntary, and you may choose not to participate or to withdraw from the study at any time without penalty.

Risks and Benefits:

There are no known risks associated with participating in this study beyond those encountered in daily life. However, you may benefit from participating by incorporating the results of the study in your institution for improved project management within the organization and beyond.

Confidentiality:

Any information collected during the course of this study will be kept strictly confidential. Your name will not be associated with any published results, and all data will be anonymous to ensure your privacy.

Voluntary Participation:

Participation in this study is voluntary. You are free to withdraw at any time without penalty or consequence. Your decision whether or not to participate will not affect your current or future relationship with the researcher.

Contact Information:

If you have any questions or concerns about the study, please contact (Grace Wambui Mahinda no: +254717856759). If you have questions about your rights as a research participant or need to report a research-related concern, you may contact the Institutional Review Board (IRB) at Mt Kenya University.

Consent:

By signing below, you indicate that you have read and understood the information provided in this form and that you voluntarily agree to participate in this study.

Participant Signature: _____

Date: _____

Researcher Signature: _____

Date: _____

Appendix III: Questionnaire

Please take your time to read the question carefully and thoroughly. Once you have understood it, kindly tick the opinion that best reflects your own views and beliefs on the matter at hand. Additionally, you are encouraged to express your thoughts and opinions in detail wherever you feel it is necessary or relevant. Your insights are valuable and can greatly contribute to the discussion.

Section A: Personal Details

1. **Gender:**

Male [ ] Female [ ]

2. Education level:

[ ] Secondary level

[ ] Bachelor's Degree

[ ] Masters

[ ] PHD

3. Management Level:

[ ] Top

[ ] Middle management

[ ] Operational staff

Section B: Project Scheduling

For the table section, Using the key (Where: 5- Strongly agree; 4– Agree; 3 – Neutral; 2 –Disagree; 1- Strongly disagree), kindly tick appropriately according to how much you concur or disagree with the remarks.

Project Scheduling		**5**	**4**	**3**	**2**	**1**
1	The work breakdown structures was elaborate					
2	Project schedule that have been done are always clear					
3	Project plan was well defined and communicated from the start					
4	Tasks were properly sequenced					
5	Essential resources were available as per the schedule					
6	Stakeholder coordination aligned with the schedule					

In what ways does project scheduling contribute towards the betterment of project management?

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SECTION C: RISK MANAGEMENT

Risk Management		**5**	**4**	**3**	**2**	**1**
1	The project has a team of experts that help deal with technical risks that may occur					
2	The financial risks arising from the project are insured					
3	Contractors were directly involved in the mapping of risks and determination of mitigation strategies					
4	There is proper governance of the project to ensure that all arising risks are properly handled.					
5	There is adherence to procurement procedure to ensure that risks are minimized.					
6	The project had contingency plans for unexpected risk					

In what ways does risk management contribute towards the betterment of project management?

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SECTION D: PROJECT MONITORING

Project Monitoring		5	4	3	2	1
1	Key performance indicators were clear as per the performance metrics					
2	Required resources were provided on time.					
3	The organization culture is supportive.					
4	Change management was ensured					
5	Communication channels were open for reporting project challenges and progress					

In what ways does project monitoring contribute towards the betterment of project management?

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SECTION E: PROJECT EVALUATION

Project Evaluation		**5**	**4**	**3**	**2**	**1**
1	Feedback from stakeholders to ensure satisfaction was documented					
2	Project activities and strategies correspond with the plan.					
3	Project adhered to regulatory and legal requirements					
4	Documentation of lessons learnt was done for future improvement					
5	Project financing ensured return on investment					

In what ways does project evaluation contribute towards the betterment of project management?

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Section F: IMPLEMENTATION OF THE PROJECT

Implementation of the Project		**5**	**4**	**3**	**2**	**1**
1	The project was completed on time					
2	The project met beneficiary expectations					
3	The project was completed on budget					
4	The project utilized resources allocated					
5	The project realized the set goals and objectives.					

Appendix VI: Map of Population Frame