MONITORING AND EVALUATION PRACTICES AND PERFORMANCE OF IRRIGATION PROJECTS IN SIAYA COUNTY, KENYA

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ABSTRACT

A functional irrigation system is essential to guarantee the productivity of agriculture in Kenya. Countries that have implemented sustainable irrigation systems in their arid and semi-arid regions are experiencing substantial advantages worldwide. Monitoring and evaluation practices play a crucial role in enhancing the overall efficiency of project planning, management, and implementation. This study general objective is to determine the role of Monitoring and Evaluation practices and performance of Irrigation Projects in Siaya County, Kenya. The study was guided by the following objectives; influence of M&E planning and M&E Training on performance of Irrigation Projects in Siaya County, Kenya. The study was conducted in Siaya County, Kenya from October 2023 to February 2024. The study adopted a descriptive research design to collect data from a study population of 447 project members from 16 irrigation projects within Siaya County, Kenya. Stratified random sampling was used to choose a sample of 211 participants from whom primary data was collected using a questionnaire. The study conducted a pilot test and tested for content validity and reliability through Cronbach Alpha Coefficient. The reliability results indicated that all the items in the questionnaire were reliable. Data was analyzed using SPSS version 28 for inferential and descriptive statistics. The response rate for the study was 81% as only 170 questionnaires out of the 211 distributed were returned. The study employed both descriptive and inferential statistics. The Pearson product moment correlation coefficient was utilized in determining the link between the dependent and independent variables. The results demonstrated a robust, statistically significant, and positive correlation between the dependent and independent variables. A multilinear regression analysis was utilized in assessing the relationship between monitoring and evaluation practices and project performance. The findings revealed that a unit increment in M&E planning and M&E training corresponded to increase in project performance by 0.364, and 0.377, respectively. The study concluded that M&E planning and M&E training significantly enhance project performance. Therefore, the study recommended that irrigation schemes and projects in Kenya should devise comprehensive strategies to effectively implement these independent variables, thereby positively influencing project performance.

Key Words: Monitoring and evaluation practices, Irrigation Projects, M&E planning, M&E Training, Siaya County, Kenya

Background of the Study

The performance of projects, particularly within the agricultural irrigation sector, has been a focal point of scholarly attention. Irrigation contributes to rapid transformation of agriculture as present-day agriculture is dominated by rain-fed single crops. As a nation heavily reliant on agriculture, Kenya should prioritize the development of its irrigation infrastructure to ensure the effectiveness of agricultural activities. The nation's agriculture industry has many difficulties, and one of the main ones is how well irrigation projects are doing. For Kenyan agriculture to be productive, there must be a functioning irrigation infrastructure. According to IFAD (2019), 50% of projects, including those in the agricultural sector, have well-designed plans, although even these plans may only have moderate success. According to projections, the global population is anticipated to escalate from the current to 8.7 billion by 2030 (FAO, 2022). FAO (2022) reports that nearly 800 million individuals in developing nations confront persistent malnutrition, with 199 million children under five experiencing acute or chronic food deficiencies. Countries that have implemented sustainable irrigation systems in their arid and semi-arid regions are experiencing substantial advantages worldwide. Presently, 47.2% of the world is situated in arid climates where crop cultivation is unattainable without irrigation.

Irrigation stands as a crucial component within the spectrum of technologies, institutions, and policies supporting increased agricultural productivity (Mishra & Aithal, 2022). Effective planning alone may not guarantee good performance in irrigation projects unless supported by successful implementation. A UNDP Evaluation (Mugabe & Kanda, 2018) underscores various factors influencing the success of projects, including planning and the coordination and control systems or mechanisms in place. Monitoring and Evaluation encompass the involvement of stakeholders at different levels to assess projects, programs, or policies, sharing control over the content, processes, and outcomes of monitoring activities, and identifying remedial actions (Saiful, 2018).

Monitoring and evaluation (M&E) play a crucial role in enhancing the overall efficiency of project planning, management, and implementation. Many projects are initiated with the primary objective of positively influencing the sociopolitical and economic conditions of a specific region (Estrella, 2017). The process of continuously confirming adherence to the project plan, spotting errors, and swiftly putting remedial measures into place is known as monitoring and evaluation (ADRA, 2017). Throughout the course of the project, data is methodically collected in an orderly and sequential fashion. On the other hand, evaluation comprises the methodical and impartial appraisal of a project, program, or policy that is in progress or has already been completed, taking into account its conception, execution, and results.

The conceptualization of Monitoring and Evaluation (M&E) in projects has undergone changes over time, reflecting the paradigm shifts in project management (Nyonje, Ndunge, & Mulwa, 2012). In the 1950s, M&E practices were primarily focused on the prudent use of resources, aligning with the social scientific trends of that era (Rodgers & Williams, 2006). During this period, the emphasis was on capturing lived experiences and incorporating the perspectives of various stakeholders through a consensus-driven evaluation process (Schwandt & Burgon, 2006).

In the current setting, many associations see M&E more as a prerequisite forced by benefactors as opposed to a managerial tool for surveying progress and recognizing and correcting issues in project planning or implementation (Shapiro, 2001; Alcock, 2009; Armstrong and Noble, 2013). While givers have a real interest in guaranteeing legitimate asset usage, the main role of M&E ought to be for the association or venture itself to assess its presentation and improve its capacities. Naidoo (2011) features that viable task checking and assessment gives an establishment to prove based project management decision.

Statement of the Problem

Over the years, Kenya has faced significant crop losses due to drought particularly in the years 1980, 1984, 2000, 2008, 2009, 2011, 2016, 2017, 2019, 2020 and 2022 (WFP, 2023). Responding to this challenge, the government embarked on a mission since 2009 to decrease dependence on rain-fed production by investing KES12.5 billion in the rehabilitation of irrigation schemes across the country (Leshore & Minja, 2019). Presently, Kenya is actively pursuing the development of seven additional large-scale irrigation schemes, including Mwea, Bura, West Kano, Perkerra, Tana, Bunyala, and Ahero. The government estimates that the country has an irrigation potential of 1.3 million hectares. However, as of now, only 12%, or 162,000 hectares, has been utilized, falling short of meeting the food demand (FAO, 2017).

Siaya County has an irrigation potential of 7100 hectares in its natural state, but only 10% of the area is being utilized. Areas suitable for irrigation include land along Lake Victoria and Kanyaboli; Rivers Yala, Nzoia and major streams such as Wuoroya. This acreage is not yet fully utilized despite the potential for expansion using irrigation dams. Over-reliance on rain fed agriculture has been the major reason for food insecurity in the county. This has made the county a net importer for most foodstuffs. With an irrigation potential of 7100 hectares, Siaya County would be food secure if more focus is put on expanding area under irrigation from the current 10% to 20%. Monitoring and Evaluation emerge as a potential solution to enhance project performance by empowering farmers to identify and address challenges effectively.

Several studies have been undertaken on monitoring and evaluation on project performance. For instance, Njeru & Kirui (2022) carried out a study on the impact of monitoring and evaluation practices on the performance of road construction projects in Nairobi City County and found out that projects are poorly implemented because few implementers have trainings in M&E, poorly done baseline survey study leading to the failure of the project. Similarly, Farmers undertaking irrigation farming in Kenya and Siaya County in particular are few with very low adoption level on M&E practices. Irrigation projects, like other initiatives, depend on Monitoring and Evaluation practices as integral part of managing and evaluating efficiency and effectiveness in this sector, so as to ensure optimal performance. Therefore, there is a pressing need to assess the need and outright impact that M&E planning

and M&E training would have on the performance of irrigation projects in Kenya, particularly in Siaya County.

Specific Objectives

i. To examine the role of M&E planning on performance of Irrigation Projects in Siaya County, Kenya.
ii. To determine the role of M&E training on performance of Irrigation Projects in Siaya County, Kenya.

LITERATURE REVIEW

Theoretical Review

Theory of Change

This theory was developed in 1949 by Pfeffer and Salancik. It was based on the observation that trade in developed and undeveloped countries had a huge difference. It has further been seen as a way of describing a set of assumptions that explains both the mini-steps that lead to long-term

interest and also the connections between programme activities and outcomes at each stage. Employing best practices in Monitoring and Evaluation is likely to enhance the realization of project deliverables as well as ensure that projects are able to use resources and hence sustainability. Further, Reeler (2007) notes that the underlying assumptions that development processes are predictable or unpredictable generate a focus on the achievements of the results and not as much on understanding and learning regarding the process, especially as regards the Theory of Change. Often, rigid applicability undermines the flexibility required in dealing with the unexpected results and complexity of this process (Steff, 2008). A theory of change is one small contribution to a larger body of theorizing. It can be regarded as an observational map to help practitioners, whether field practitioners or donor or even beneficiaries, to read and thus navigate processes of social change. There is need to recognize how change processes shape the situation and adjust practice appropriately (Reeler, 2007).

The Theory of Change process enhances the understanding of stakes and stakeholders hence assisting in thinking through the utilization of the Monitoring and Evaluation data and lessons and increases the consequence awareness. Monitoring involves tracking progress against plans, milestones and expected results. The Theory of Change takes a broader perspective. It looks at the problem the project is addressing, its wider context and changes in the relationships between the process indicators and outcomes that are unintended, to prove if they are valid. Therefore, revisiting the assumptions that have been made at the beginning during project implementation is importance. The Theory of Change is helpful to not only measure outcomes but also to understand the role of the project and other factors in contributing to outcomes. This theory guides the study in establishing the influence of M&E planning on performance of irrigation Projects in Siaya County, Kenya.

The Resource-Based View Theory

Resource-Based View theory (RBV), developed by Jay B. Barney in 1991, is a management framework concentrating on a firm's internal resources and capabilities as the primary drivers of competitive advantage (Barney, 1991). According to RBV, a firm's distinct resources, encompassing technology, knowledge, skills, reputation, and culture, have the potential to generate value, attain superior performance, and surpass competitors over the long term. The theory asserts that not all resources hold equal value, and sustainable competitive advantage arises from possessing resources that are rare, valuable, inimitable, and non-substitutable (Barney, 1991). These strategic resources, constituting a firm's unique strengths, establish a lasting competitive edge that is challenging for competitors to duplicate. RBV has significantly impacted strategic planning, influencing resource allocation, strategic decision-making, and competitive positioning in organizational practices. It has found extensive application across various industries to identify and harness core competencies and essential resources, contributing to sustained organizational success (Grant, 1991).

Critics of Resource-Based View Theory raise concerns about the specific criteria for identifying strategic resources and the challenges in empirically measuring the impact of resources on firm performance (Wernerfelt, 1984). Some argue that the theory may neglect external market dynamics and industry influences in shaping a firm's competitive advantage (Priem & Butler, 2001). Despite these criticisms, Resource-Based View (RBV) Theory remains a valuable lens for understanding how irrigation projects can leverage their distinctive resources to achieve sustainability and competitive advantage. This theory has been used in this study to assess the influence of M&E training on the performance of irrigation projects in Siaya County, Kenya.

Conceptual Framework

A conceptual framework is essentially the researcher's capacity to comprehend the interconnections among specific variables in a study (Marilla, 2018). It outlines the essential variables in the research investigation process, serving as a roadmap for the researcher's exploration. The conceptual framework lays the foundation for crafting the specific research question that drives the investigation, originating from the problem statement (Marilla, 2018). This is supported by established theories that summarize the findings of various researchers, explaining the causes and mechanisms of a specific phenomenon. The study sought to explore the influence of planning and training in monitoring and evaluation on the performance of the irrigation projects.
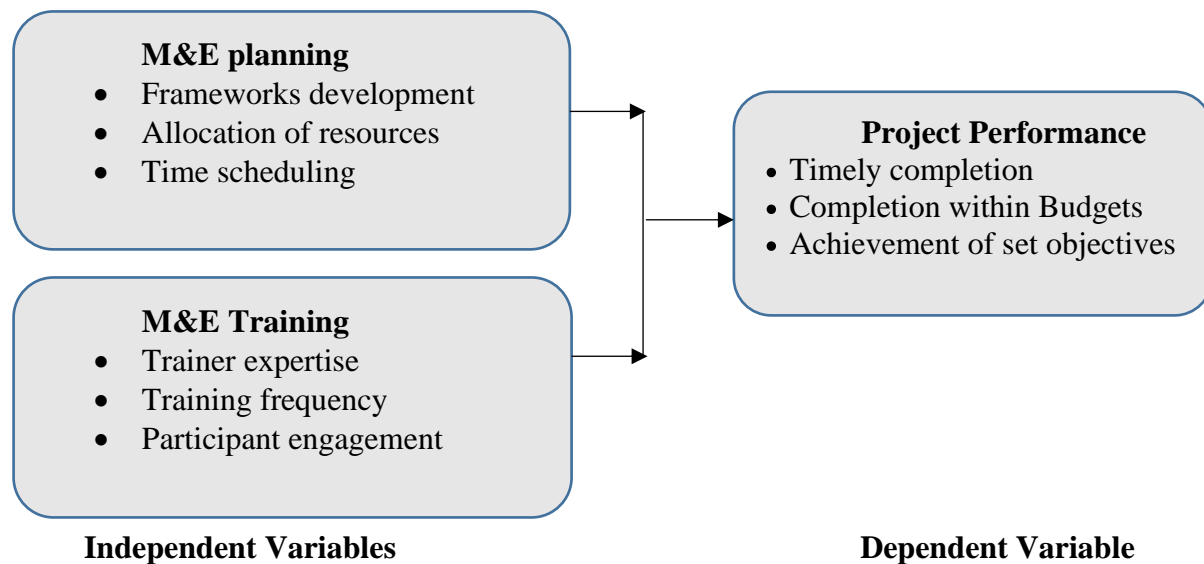
M&E planning
- Frameworks development
- Allocation of resources
- Time scheduling

M&E Training
- Trainer expertise
- Training frequency
- Participant engagement

Project Performance
- Timely completion
- Completion within Budgets
- Achievement of set objectives

Independent Variables   **Dependent Variable**

Figure 1: Conceptual Framework

Monitoring and Evaluation Planning

M&E planning is a critical tool utilized by stakeholders to ensure the success of projects (Naoum, Fong, & Walker, 2004; Ling & Chan, 2002; Thomas et al., 2002). Faniran et al. (2000) define M&E planning as the systematic allocation of project resources to achieve project objectives. It involves both preconstruction and construction planning, addressing phases from project conception to completion (Faniran et al., 1998). Strategic planning is crucial for organizations to align long-term plans with their vision, mission, objectives, and activities (Pearce & Robison, 2012). While strategic planning is essential, effective implementation is equally vital for organizational survival and success (Thompson & Strickland, 2012).

Monitoring and Evaluation uses various instruments and approaches, such as performance indicators, logical framework, theory-based monitoring, set studies, quick evaluation methods, participatory techniques, open use tracking studies, impact monitoring, and cost-benefit analysis (World Bank, 2012). Evaluators may employ a combination of methods to cross-validate data (Nabris, 2002). To enhance the effectiveness of monitoring systems, planning and design should be integral parts of the project (Nabris, 2002). The choice of monitoring instruments depends on the information required, stakeholders, and associated costs (World Bank, 2012).

M&E planning has difficulties in spite of its significance, such as expensive expenses, time restraints, and the requirement for specialized training (ACF, 2011). The relevance of connecting M&E to project plans, efficiency, participatory approaches, using both local and international expertise, disseminating results widely, using multiple data sources, and applying data for program improvement are all highlighted by best practices, as demonstrated by USAID Turkey (Mathis et

al., 2001). Effectively formulated and implemented M&E work plans support project objectives and global norms, guaranteeing state companies make evidence-based decisions (Jha et al., 2010).

Monitoring and Evaluation Training

Monitoring and evaluation training encompasses the provision of knowledge, skills, and tools to individuals and teams engaged in monitoring and evaluation activities. Effective training ensures that project personnel acquire the essential competencies for conducting systematic data collection, analysis, and interpretation, facilitating evidence-based decision-making (Phiri, 2017). The significance of monitoring and evaluation training lies in its role in enhancing project performance and impact. Well-trained personnel are better prepared to develop and implement monitoring and evaluation frameworks, resulting in improved data quality, accuracy, and relevance (World Bank, 2018). Training also empowers stakeholders to utilize monitoring and evaluation findings for adaptive management strategies and continuous improvement. Comprehensive training covers various aspects, including data collection methods, data analysis techniques, result-based management, and the utilization of monitoring and evaluation tools (UNICEF, 2020). A holistic training program ensures participants understand the importance of monitoring and evaluation in project success and can apply these skills in real-world scenarios.

Furthermore, monitoring and evaluation training plays a crucial role in cultivating a culture of learning and accountability within organizations (Rogers, 2020). Trained staff are more likely to adopt a results-focused approach and actively engage in ongoing performance assessments, fostering a learning-oriented organizational environment. However, challenges may arise in delivering effective monitoring and evaluation training, including limited resources, time constraints, and organizational resistance to change (Bamberger, 2020). Addressing these challenges necessitates thoughtful planning, stakeholder engagement, and continuous support from organizational leadership. Therefore, by investing in comprehensive training programs, organizations can build capacity, nurture a culture of learning, and leverage monitoring and evaluation practices for evidence-based decision-making and continuous improvement.

Performance of Projects

Performance is commonly defined as the successful completion of a designated task, involving the application of knowledge, skills, and abilities. In the context of an organization, performance is often associated with achieving a high ranking aligned with the anticipated requirements of a specific task or role (Rogito, 2016). It is imperative to consider supplementary elements like stakeholder engagement, consumer satisfaction, performance contracting, and organizational goals and objectives when evaluating the success of varied institutions. These characteristics function as useful markers that may be employed to gauge and assess an organization's overall effectiveness.

Empirical Review

Monitoring and Evaluation Planning and Project Performance

The goal of Odhiambo, Wakibia, and Sakwa's (2020) study was to assess how monitoring and evaluation planning affected the way poverty alleviation mariculture projects were carried out. Specifically, the researchers looked at the effects of timeliness, progress tracking, periodic reporting, mid-term evaluation, and end-of-project assessment in Kenya's coastal region. The results indicated a strong positive relationship between outcome effectiveness and tracking progress and timeliness. Furthermore, strong correlations were found between the M&E planning by project managers and overall project success. Another study by Buba and Tanko (2017) delved into the influence of project planning on the quality performance of construction projects. The study involved distributing 43 questionnaires to key groups of respondents, including quantity surveyors, builders, and architects serving as project managers in Nigeria. The findings highlighted that a project manager's ability to provide direction, particularly through effective leadership

styles, significantly contributes to the artistic quality of the project and fosters better inter-functional relationships.

Additionally, Sendagi & Masereka (2024) conducted a study that aimed at determining the effect of monitoring and evaluation planning on the performance of USE schools in Kinyamaseke Town Council, Kasese District. A descriptive survey with both qualitative and quantitative methods were employed among all staff responsible for the implementation of the M&E in Kinyamaseke Town Council. The findings demonstrated that there is a very strong linear relationship between the combined dimensions of M&E planning and performance of USE schools

Monitoring and Evaluation Training and Project Performance

At Kenya's Dedan Kimathi University, Githaiga & Mutundu (2022) look into how training in monitoring and evaluation (M&E) affects the performance of infrastructure projects. The report acknowledges the changing significance of M&E in administrative projects and highlights how crucial it is for monitoring program development and making sure that deadlines are met. From a population of 265 people, the researchers polled 157 of them using a basic random sample technique. Data analysis demonstrated that M&E training had a major impact on project performance, underscoring its critical role in directing program success. The study underscores the need for inclusive M&E training to inform project implementation, recommending continuous monitoring and evaluation to facilitate re-planning and review when necessary, ultimately contributing to project success.

In a related study, Kithinji, Kidombo, and Gakuu (2016) investigated professional development in monitoring and evaluation, as well as result utilization in the Meru region of Kenya. The study utilized a pragmatic approach to lay the foundation for a mixed-mode methodology, allowing both descriptive and inferential analysis of data. Targeting employees with over two years of experience in project organizations in the region, the study had a sample size of 218. The findings indicated that all activities aimed at developing professionalism in M&E had a positive high correlation, suggesting their influence on the actual utilization of M&E results. Specifically, a unit increase in professional development in the region resulted in a 43.6% increase in M&E result utilization.

RESEARCH METHODOLOGY

The research utilized a descriptive research design, which is focused on depicting the characteristics of a specific individual or group, also commonly referred to as a survey design (Kothari, 2018). This study considers all the 16 Irrigation projects in Siaya County Government according to the County Integrated Development Plan (2018-2022). These projects form the unit of analysis. The target population for this study compose of the 429 project members who directly benefit from the 16 irrigation projects in Siaya County. They form the unit of observation. Additionally, 18 key informants comprising of 16 project managers and 2 Technical officers (M&E officers) from the County Monitoring and Evaluation Office are also targeted. The project executive management committee members were involved in the study because they were in a position of providing vital information on performance of irrigation projects as opposed to the general project members.

In this study, the Yamane formula was used to determine the suitable sample size. Thus, applying the formula, the study's sample size is determined to be 211 respondents, constituting 47.2% of the target population. The study utilized Stratified Random Sampling methods in selecting the respondents for this study. Questionnaires are the main instruments for collecting data since they are easy to administer and enables to collect data from respondents spread in various geographical locations. The study employs the drop-and-pick method, where questionnaires were delivered to respondents with the assistance of a research assistant. According to Young (2014), a sample size of between 15 and 25 respondents is adequate for pilot test in an academic study or at least 10%

of the sample size. The researcher conducted a pilot study among 21 project members from 3 irrigation scheme projects currently being implemented in the nearby Busia County.

RESEARCH FINDINGS AND DISCUSSIONS

The sample size for this study was 211 respondents. The researcher distributed 211 questionnaires to the respondents, out of which 170 (81%) were filled and collected back, whereas 41(19%) were unreturned. Consequently, this study's response rate was 81%. According to Babbie (2020), a response rate of above 70% is sufficient to enable a study collect enough data and answer the research questions. Moreover, Egbert (2015) suggests that a response rate of 50% is average, 60% to 70% is considered adequate, and anything above 70% is excellent. Thus, the 81% response rate attained in this study exceeded the recommended threshold and was satisfactory to meet the objectives of the study.

Descriptive Results

Monitoring and Evaluation Planning

The participants were asked to indicate the extent to which they agreed or disagreed with the following statements on monitoring and evaluation planning in irrigation projects in Siaya County. They rated their responses on a 5 point likert scale whereby: 1= Strongly Disagree, 2= Disagree, 3= Neutral 4= Agree, and 5=Strongly Agree. The results were summarized in table 1.

Table 1: Level of agreement with statements on Monitoring and Evaluation Planning

Aspect	Mean	Std. Dev.
M&E planning processes have contributed to theproject performance	4.07	1.08
Conducting Initial needs Assessment has been critical in enhancing better project implementation of county government projects	4.45	0.86
M&E planning offers clear scope and scheduling that has positive influence on the execution of the project	4.21	0.81
There has been timely and reliable indicator formulation that provides information to support projects implementation	4.28	0.97
There is clear roles and responsibilities assignment at the M&E planning stage enhancing better project implementation of county government irrigation projects	3.84	1.14
Aggregate	**4.17**	**0.205**

The study used the Likert scale of five units shown above to gauge respondents' levels of agreement/disagreement regarding M&E planning's impact on irrigation project performance in Siaya County. The summary included mean values for each statement, overall mean, and standard deviation per unit on the Likert Scale. A mean falling between 3 and 5 indicated majority agreement with the statement, while a mean below 3 signified majority disagreement.

The respondents were asked whether M&E planning processes have contributed to performance of irrigation projects in the county. The mean of 4.07 depicted that a majority of respondents agreed with the statement. The statement conducting initial needs assessment has been critical in enhancing better project implementation of projects received a mean of 4.45, indicating that the majority of respondents agreed with it. The majority of respondents, with a mean of 4.21, expressed agreement with the statement that M&E planning offers clear scope and scheduling that has positive influence on the execution of the project. The majority of respondents, supported by a mean of 4.28, concurred that there has been timely and reliable indicator formulation that providesinformation to support projects implementation. The majority of respondents, with a mean

of 3.8, agreed that there are clear roles and responsibilities assignment at the M&E planning stage, hence enhancing better project implementation of county government irrigation projects.

Monitoring and evaluation planning had an overall mean of 4.17 which indicates that a majority of the respondents agreed with the statements concerning Monitoring and evaluation planning in the irrigation projects at Siaya County. The respondents' sentiments are similar to Odhiambo, Wakibia, & Sakwa (2020) who ascertained that M&E planning leads to project performance. Similarly, Sendagi, & Masereka (2024) was of the view that through fostering combined utilization of M&E planning dimensions and there was an increased performance in schools.

Monitoring and Evaluation Training

The participants were also asked to indicate the extent to which they agreed or disagreed with the following statements on monitoring and evaluation training in irrigation projects in Siaya County. They rated their responses on a 5 point likert scale whereby: 1= Strongly Disagree, 2= Disagree, 3= Neutral 4= Agree, and 5=Strongly Agree. The results were summarized in table 2.

Table 2: Level of agreement with statements on Monitoring and Evaluation Training

Statement	Mean	Std. Dev.
M&E Training for project stakeholders is very crucial	3.76	1.07
The county government should offer project members training programs that are relevant	3.45	1.34
Recommendations from M&E training sessions are implemented by the county government	3.41	1.24
Capacity building as it is currently influences performance of Irrigation projects	3.38	1.45
It is important for project members are involved in the preparation of training material	4.02	1.05
Aggregate	**3.60**	**0.249**

The study used the Likert scale of five units shown above to measure respondents' levels of agreement/disagreement regarding the influence of monitoring and evaluation training on irrigation project performance in Siaya County. The summary included mean values for each statement, overall mean, and standard deviation per unit on the Likert Scale. A mean falling between 3 and 5 indicated majority agreement with the statement, while a mean below 3 signified majority disagreement.

With a mean of 3.76, a majority of the respondents agreed that M&E Training for project stakeholders is very crucial. With a mean of 3.45, majority of the participants agreed that the county government should offer project members training programs that are relevant. The mean of 3.41 indicated that majority of the respondents agreed with the statement that Recommendations from M&E training sessions are implemented by the county government. With a mean of 3.38, majority of the respondents agreed that Capacity building as it is currently influences performance of irrigation projects. Majority of the respondents with a mean of 4.02 agreed that it is important for project members are involved in the preparation of training material.

The overall mean of 3.60 suggested that majority of the respondents agreed that there exists a relationship between M&E training and project performance. Similarly, Kithinji, Kidombo, and Gakuu (2016) opined that all activities aimed at developing professionalism in M&E had a positive high correlation. Githaiga & Mutundu (2022) corroborated these findings in their study by suggesting the need for inclusive M&E training to inform project implementation, recommending continuous monitoring and evaluation to facilitate re-planning and review when necessary, ultimately contributing to project success.

Project Performance

The participants were also asked to indicate the extent to which they agreed or disagreed with the following statements on performance of irrigation projects in Siaya County. They rated their responses on a 5 point likert scale whereby: 1= Strongly Disagree, 2= Disagree, 3= Neutral 4= Agree, and 5=Strongly Agree. The results were summarized in table 3.

Table 3: Level of agreement with statements on Project Performance

Statement	Mean	Std. Dev.
The county is having increased production within the projects	3.53	1.24
Irrigation projects are completed in a timely manner	3.81	1.23
The county is currently experiencing better irrigation practices	3.28	1.31
Irrigation projects are completed within the set Budgets	4.10	1.07
There is an increased level of satisfaction among project members in the county	3.82	1.15
Aggregate	**3.71**	**0.280**

The study used the Likert scale of five units shown above to measure respondents' levels of agreement/disagreement regarding performance of irrigation projects in Siaya County. The summary included mean values for each statement, overall mean, and standard deviation per unit on the Likert Scale. A mean falling between 3 and 5 indicated majority agreement with the statement, while a mean below 3 signified majority disagreement.

The first statement on the county is having increased production within the projects had a mean of 3.53 suggesting that majority of the respondents agreed with the statement. The mean of 3.81 suggested that the Irrigation projects are completed in a timely manner. Majority of respondents with a mean of 3.28 agreed that the county is currently experiencing better irrigation practices. With a mean of 4.10 majority of the respondents agreed that the irrigation projects are completed within the set budgets. Majority of the respondents also agreed that there is an increased level of satisfaction among project members in the county as supported with a mean of 3.82.

The overall mean of 3.71 indicated that majority of the respondents agreed with the statements concerning project performance at Siaya County. The overall mean was in the range of 3-5 implying that majority of the respondents believed that the irrigation projects were performing well. According to Killo, (2022) factors such as utilization of monitoring and evaluation results, M&E training, data management, and M&E planning had the greatest impact on project performance, indicating the significant role of M&E practices as drivers of project performance in water points for agro-pastoral projects in Somalia.

Inferential Analysis

Correlation Analysis

The study employed the Pearson product-moment correlation coefficient to ascertain the relationship between M&E planning and M&E reporting and project performance as well as M&E training and project performance. The scale for correlation coefficients ranged from -1 to +1, capturing the strength and direction of the relationship between variables. Gupta et al. (2019), states that a correlation coefficient of +0.3 or higher indicated a strong correlation, whereas a coefficient below +0.3 suggested a weak relationship among the variables under investigation. The findings of the correlation analysis were displayed in Table 4.

Table 4: Correlation Analysis

		Project performance	M&E Planning	M&E Training
Project performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	170		
M&E Planning	Pearson Correlation	.439**	1	
	Sig. (2-tailed)	.001		
	N	170	170	
M&E Training	Pearson Correlation	.689**	.358**	1
	Sig. (2-tailed)	.001	.001	
	N	170	170	170

Correlation was considered significant at the 0.01 level. Hence, the results presented in Table 4.13 were statistically significant at a 99% confidence level, enabling the examination of the relationship between the variables in question. The correlation analysis, aimed at assessing the link between M&E planning and project performance, revealed a statistically significant correlation ($r = 0.439$, $p < 0.01$). The Pearson's product moment correlation coefficient indicated a strong and statistically significant relationship between M&E planning and project performance.

The correlation analysis examining the relationship between M&E training and project performance revealed a significant correlation ($r = 0.689$, $p < 0.01$), indicating a strong and statistically significant association between the two variables. All variables exhibited correlation coefficients exceeding +0.3, with p-values equal to or less than 0.01, indicating a significant and strong relationship among them.

Multiple Linear Regression Analysis

Multivariate regression analysis was utilized in assessing the collective impact of the four independent variables on the dependent variable. The results of this analysis were presented in Table 5.

Table 5: Multiple Linear Regression Analysis Model Summary

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate
	.750[a]	.563	.551	2.98569

a.   Predictors: (Constant), M&E planning, M&E training

The results presented in Table 5 include the R, R-square, and adjusted R-square values. The R value indicates the strength of the relationship between the variables. The R value was 0.750 suggesting that a strong and positive relationship existed between the variables under study. The R-square value of 0.563 indicates the combined impact of the independent variables on the dependent variable. Therefore, M&E planning and M&E training collectively influence project performance by 56.3%, while the remaining unexamined variables contribute 43.7% to project performance.

Analysis of Variance (ANOVA)

The analysis of variance ANOVA was used to assess how well the model fits the data as shown in table 6.

Table 6: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1689.267	4	422.317	47.375	.001[b]
Residual	1470.810	165	8.914		
Total	3160.077	169			

a. Project performance
b. Predictors: (Constant), M&E planning, M&E training

ANOVA was used to determine whether the model was a good fit for the data. The study's F Calculated was 47.375, and F Critical value was 3.863, suggesting that F Calculated > F Critical indicating that the study's overall regression model was significant. Since the P-Value (0.001) is less than 0.05 the model was considered a good fit for data. This high confidence level suggests that the data could lead to the conclusion that M&E planning, and M&E training accounted for the variations in project performance.

Regression Coefficients

The study determined the regression coefficients as presented in table 7.

Table 7: Regression Coefficients results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.Error	Beta		
(Constant)	.239	.061		3.198	.000
M&E Planning	.364	.085	.216	3.536	.001
M&E Training	.377	.090	.373	3.788	.001

a. Dependent variable: project performance

The established regression equation of the study was:

$$Y = 0.239 + 0.364X_1 + 0.377X_2$$

Table 7 presented the regression coefficients for the independent variables in the study. The coefficient for M&E planning ($\beta 1 = 0.264$) indicates that a one-unit increase in M&E planning led to a 0.364-unit increase in project performance. M&E training had a coefficient of 0.377, implying that a one-unit increase in M&E training corresponded to a 0.377-unit increase in project performance.

Conclusion

The study concluded that monitoring and evaluation planning has a significant effect on project performance in irrigation projects in Siaya County, Kenya. The study findings revealed that conducting initial needs assessment, allocation of resources, and time scheduling influence project performance in in irrigation projects in Siaya County, Kenya.

The study also concludes that monitoring and evaluation training has a significant effect on project performance in irrigation projects in Siaya County. The study findings revealed that trainer expertise, training frequency, and participant engagement influence project performance in irrigation projects in Siaya County.

Recommendations

Based on the findings, this study recommends the following;

That management board of irrigation schemes in Kenya should ensure that monitoring and evaluation planning is embraced within the various irrigation schemes in Kenya. By investing in robust M&E planning, the management can ensure that monitoring and evaluation practices are systematically integrated into project implementation processes, enabling informed decision-making and continuous improvement in the performance of irrigation projects

That the management board of irrigation schemes in Kenya should prioritize the development of comprehensive M&E training programs tailored to the specific needs and roles of staff and stakeholders involved in monitoring and evaluation practices. These programs should include relevant content covering key M&E concepts, methodologies, and tools, ensuring that participants gain a thorough understanding of the monitoring and evaluation process. By investing in M&E training, the management can equip individuals with the necessary skills and knowledge to enhance the effectiveness and sustainability of irrigation initiatives, ultimately leading to improved project outcomes and impact in the country.

Suggestions for Further Studies

The study found that the independent variables (M&E planning and M&E training) could only explain 56.3% of project performance of irrigation projects in Siaya County, Kenya. This study therefore suggests further research on other factors affecting project performance in irrigation projects in Siaya County, Kenya.

Secondly, the researcher suggests that a similar study could also be conducted in another county in Kenya for comparison purposes. Thirdly, the researcher also suggests that other studies would be conducted on a different set of projects other than irrigation projects so as to further establish the influence of Monitoring and Evaluation practices on project performance

REFERENCES

Anita, M. M., & Wairimu, M. A. M. (2023) Results Based Monitoring and Evaluation Systems on Performance of CDF Funded Projects In Nairobi County, Kenya. *Social Sciences*, *2590*, 2911.

Babbie, E. R. (2020). *The practice of social research*. Cengage AU.

Bjornlund, V., Bjornlund, H., & van Rooyen, A. F. (2020). Exploring the factors causing the poor performance of most irrigation schemes in post-independence sub-Saharan Africa. *International Journal of Water Resources Development*, *36*(sup1), S54-S101.

Cooper, D.R and Schindler, P.S (2018). *Business Research Methods*. McGrae-Hill Education

Githaiga, V. N., & Mutundu, K. K. (2022). THE Impact of Monitoring & Evaluation Training on the Performance of Infrastructural Projects at Dedan Kimathi University, Kenya. *International Journal of Research in Social Science and Humanities (IJRSS) ISSN: 2582-6220, DOI: 10.47505/IJRSS*, *3*(11), 1-9.

Killo, P. N. (2022). *Influence of Monitoring and Evaluation Practices on Performance of Tobacco Contract Farming Projects in Katavi Region, Tanzania* (Doctoral dissertation, The Open University of Tanzania).

Kothari, C (2018) *Research Methodology Methods and Techniques* (2nd Ed,) Prashan, New Age International (P) Limited Delhi.

Marilla, D. S (2018) *A Guidebook On Conceptual Frameworks For Rigorous Research in Engineering Education.* University of Texas. USA

Mishra, K., & Aithal, P. S. (2022). Performance Assessment of Irrigation: A Case from Nepal-Asia. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, *7*(1), 444-464.

Muchelule, Y. W. (2018). *Influence of monitoring practices on projects performance of Kenya state corporations* (Doctoral dissertation, JKUAT-COHRED).

Njeru, C. M., & Kirui, C. (2022). Monitoring and Evaluation Practices and Performance of Kenya National Highway Authority Road Construction Projects in Nairobi City County, Kenya. *Journal of Entrepreneurship & Project Management*, 2(1), 11-27.

Odhiambo, J. O., Wakibia, J., & Sakwa, M. M. (2020). Effects of monitoring and evaluation planning on implementation of poverty alleviation mariculture projects in the coast of Kenya. *Marine Policy*, *119*, 104050.

Rogito, O.D (2016*). Influence of Monitoring and Evaluation on project performance*. A case of Youth enterprise development fund in Marani District Kenya. University of Nairobi.

Sendagi, M., & Masereka, S. (2024). A Descriptive Survey On The Effect Of Monitoring And Evaluation Planning On The Performance Of Use Schools In Kinyamaseke Town Council, Kasese District. *SJ Education Research Africa*, *1*(1).

Shin, J.C. (2010). Impacts of performance based accountability on institutional performancein US. "*Higher Education, 60(1), 47-68.*

Vance,O.A, Denni, E., Eggett, Lowry,B.P (2019) *Increasing Accountability Through User Interface Design Artifacts: A New Approach to Addressing the Problem of Access-Policy Violations journal*