

# Monitoring and Evaluation Practices and Performance of Water Projects in Nyeri County, Kenya

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**Abstract:** Reliable and safe water is a critical component of social welfare, economic development, and environmental sustainability in Kenya. Despite continued investments in water infrastructure, many projects in Nyeri County face persistent challenges related to poor performance, inefficiency, and limited sustainability. Numerous water projects in the region encounter recurrent implementation and operational obstacles, resulting in minimal achievement of intended outcomes. While theory suggests that robust monitoring and evaluation (M&E) systems enhance project performance, empirical evidence remains inconclusive. This study examined the impact of M&E practices on the performance of water projects in Nyeri County, with a focus on staff capacity building, stakeholder engagement, M&E planning, and resource allocation. The research was grounded in the Performance Prism Theory and Stakeholder Theory and employed a descriptive research design. The target population comprised 82 water projects implemented between 2019 and 2023. Using proportionate stratified sampling, 230 respondents were selected, including project engineers, managers, procurement officers, fund administrators, and community beneficiaries. Data were collected through structured questionnaires, and reliability and validity were ensured via expert review. Quantitative data were analyzed using descriptive statistics, correlation, and multiple regression, while qualitative data underwent thematic analysis. Findings revealed that effective M&E practices positively and significantly influenced project performance. Among the variables examined, stakeholder engagement emerged as the strongest determinant of project success, followed by comprehensive M&E planning and the enhancement of staff capacities. The study concludes that coordinated M&E systems, strengthened stakeholder mobilization, ongoing capacity-building initiatives, and equitable resource allocation are essential for improving the sustainability and effectiveness of water projects in Nyeri County.

**Keywords:** Monitoring and Evaluation, Water Project Performance, Stakeholder Engagement, Resource Allocation, Capacity Building.

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## 1. INTRODUCTION

Project performance remains a major concern among stakeholders in the global water sector due to the persistent failure of many water development initiatives to achieve their intended objectives. Despite substantial investments in water infrastructure, a significant proportion of projects experience delays, cost overruns, and operational inefficiencies. Evidence shows that approximately one in three water projects encounters budget constraints, schedule delays, or performance shortfalls (KPMG, 2020). Similarly, large water infrastructure projects have been reported to record cost overruns of nearly 80 percent and schedule overruns of about 20 percent (McKinsey, 2019). The challenge is particularly evident in developing regions, where studies indicate that between 35 and 50 percent of rural drinking water projects in Africa fail within two to five years after completion. Globally, nearly 60 percent of water projects fail to achieve their intended impact, forcing many communities to rely on unsafe water sources (World Bank, 2021).

Kenya faces similar challenges in the sustainability and performance of water projects. It is estimated that approximately 35 percent of water projects in the country fail to achieve their intended outcomes (Gichuki, 2023). These failures undermine long-term strategies aimed at addressing water scarcity and threaten progress toward the Sustainable Development Goals (SDGs). Water is a fundamental resource for ecological sustainability, economic development, and human well-being, and it plays a crucial role in achieving multiple SDGs (Allan et al., 2022). However, increasing population pressure, environmental degradation, climate variability, and unequal access to water resources continue to intensify global water scarcity (Mararakanye et al., 2022). These conditions, often described as water poverty, highlight the urgent need for effective management and sustainability of water development projects.

Project performance in project management refers to the extent to which a project achieves its objectives within the established scope, time, cost, and quality parameters (Dasí et al., 2021; Karuga, Mutuku & Sang, 2024). Successful project implementation benefits governments, communities, and investors while ensuring accountability and transparency in the use of resources (Kerzner, 2022). Performance evaluation is therefore an essential management practice because it enables stakeholders to assess progress, identify implementation challenges, and implement corrective measures when necessary. Moreover, performance measurement helps determine whether project goals are being achieved and whether additional investments are justified (Fewings & Henjewe, 2019).

Several frameworks have been developed to evaluate project performance. Among the most widely used are the Triple Constraint model and the Project Management Diamond, which assess project success based on dimensions such as scope, cost, schedule, and quality (Gyadu et al., 2013). However, assessing project success is often complex because different stakeholders may have varying expectations and criteria for evaluating outcomes (Armstrong, 2021). Consequently, contemporary approaches emphasize a holistic perspective that evaluates both short-term outputs and long-term project impacts across the entire project lifecycle (Helmold, 2019). These evaluations typically rely on Key Performance Indicators (KPIs) that provide objective data on project progress, operational efficiency, and areas requiring improvement. Within the project diamond framework, scope, cost, schedule, and quality are interdependent dimensions that collectively determine overall project success (Josiah, 2019).

Monitoring and evaluation (M&E) practices play a critical role in enhancing project performance by ensuring that project activities are implemented effectively and that intended results are achieved. Monitoring involves the continuous tracking of project activities, while evaluation focuses on assessing the relevance, efficiency, and impact of project interventions (Onjole, 2021). Through systematic data collection and analysis, M&E systems generate information that supports evidence-based decision-making, enhances transparency, and improves resource utilization (Kabeyi, 2019; Nalubega & Uwizeyimana, 2019). Continuous monitoring also enables project managers to identify emerging challenges early and take corrective actions to ensure projects remain aligned with their objectives (Kelly & Reid, 2021).

Effective M&E systems involve structured processes such as data collection, performance tracking, and stakeholder feedback mechanisms. These processes ensure that project outcomes align with planned objectives while also providing insights that can improve future project implementation (Kerzner, 2022; Woźniak, 2021). Furthermore, monitoring activities strengthen accountability by providing evidence regarding the use of resources, the quality of project deliverables, and adherence to project timelines (Lock, 2021). Consequently, well-designed monitoring systems are considered essential for enhancing project performance throughout the project lifecycle (Brownson & Fowler, 2020).

Stakeholder engagement is another critical component of effective monitoring and evaluation practices. Stakeholders include individuals or groups that are affected by or capable of influencing project outcomes (Kujala et al., 2022). Their participation promotes transparency, enhances communication, and fosters shared responsibility for project implementation. Empirical evidence suggests that stakeholder involvement significantly improves project sustainability and operational performance. For instance, stakeholder participation in water projects funded by the World Bank in Uganda contributed to improved sustainability and effectiveness (Onziru & Kimutai, 2022). Similarly, studies indicate that stakeholder engagement positively influences project outcomes and aligns with the principles of stakeholder theory (Chepchirchir & Nyang'au, 2022).

Staff capacity development is also essential for the effectiveness of monitoring and evaluation systems. Training equips project personnel with the skills and competencies required to implement M&E frameworks and methodologies effectively (Fewings & Henjewe, 2019). Capacity-building initiatives such as training of trainers, structured training programs, and continuous professional development enable staff to adopt modern monitoring tools and approaches (Tereso et al., 2019). Evidence indicates that organizations that invest in M&E training often achieve improved project performance and enhanced accountability (Omunga & Gitau, 2019).

In addition, structured M&E planning is vital for ensuring the effectiveness of monitoring systems. An M&E plan outlines the objectives, indicators, resources, and procedures necessary for monitoring project activities and evaluating outcomes (Levy, 2018). Studies conducted in Kenya and other regions have shown that well-designed M&E plans significantly contribute to improved project performance and accountability (Onjole, 2021; Letsola, 2022). Adequate allocation of resources—including financial resources, personnel, equipment, and time—is equally important for successful M&E implementation (Turner, 2014; Cleland & Ireland, 1994). Proper resource planning enhances the reliability and effectiveness of monitoring processes and promotes a results-oriented approach to project management (Burke, 2013).

Despite the recognized importance of monitoring and evaluation practices, empirical findings regarding their influence on project performance remain inconsistent. While several studies report positive relationships between structured M&E systems and project outcomes, others report limited or insignificant effects (Gallo, 2019). Moreover, many studies focus on specific components of M&E while neglecting other critical aspects such as stakeholder participation or resource allocation. These inconsistencies highlight the need for further empirical research to better understand the role of monitoring and evaluation practices in improving project performance.

Nyeri County in Kenya provides an important context for examining these challenges. Although the county is endowed with significant water resources and major water catchment areas, many communities continue to experience water shortages (Gichuki, 2023). Seasonal rivers and uneven water distribution contribute to persistent supply challenges. In response, the county government, in collaboration with national agencies and development partners, has implemented several water development projects aimed at improving water access (Schmitz & Kihara, 2022). For example, the Nyeri County Government invested approximately KSh 53.4 million in water projects in 2021, targeting more than 6,200 households through 82 water initiatives (County Government of Nyeri, 2022). Despite these efforts, many projects continue to experience challenges related to cost management, quality standards, and timely completion. Reports indicate that more than 60 percent of water projects in Nyeri County fail to meet expected quality, cost, or schedule requirements, while approximately 30 percent fail entirely (World Bank, 2021; Schmitz & Kihara, 2022).

Given the importance of water for socio-economic development, the persistent underperformance of water projects presents a critical development challenge. Although theoretical literature suggests that effective monitoring and evaluation practices can enhance project performance, empirical evidence remains inconclusive. Furthermore, many previous studies have focused on limited geographical contexts or specific variables, thereby restricting the generalizability of their findings. Consequently, there is limited objective evidence to guide policy and managerial decisions aimed at improving the performance and sustainability of water projects. This study therefore seeks to address these gaps by examining the role of monitoring and evaluation practices in enhancing the performance of water projects. The findings are expected to provide evidence-based insights that can inform policy formulation and improve the effectiveness of water development initiatives in addressing water scarcity challenges.

## **2. LITERATURE REVIEW**

The theoretical foundation of the study is informed by four major perspectives: Performance Prism Theory and Stakeholder Theory. Performance Prism Theory explains project success in relation to how well project strategies address stakeholder expectations (Ingle & Mahesh, 2022). The framework emphasizes multidimensional performance indicators such as scope, cost, schedule, and quality, often operationalized through the Project Diamond model (Nicholas & Steyn, 2020). It further highlights the importance of structured monitoring and evaluation systems for assessing performance across the project lifecycle (Moura et al., 2019; Liulliyah & Subriadi, 2020). Stakeholder Theory, originally proposed by Freeman (1984), emphasizes the importance of involving individuals and groups who influence or are affected by project outcomes. Stakeholders such as project managers, financiers, community members, and government agencies contribute valuable information and support during project implementation (Siew, 2023). Active stakeholder participation in monitoring and evaluation processes enhances transparency, accountability, and project sustainability (Lehtinen et al., 2023; Chen, 2023). Furthermore, stakeholder engagement helps balance competing interests and improve project decision-making processes (Freudenreich et al., 2020; Haleem et al., 2022).

Empirical studies further highlight the significance of M&E practices in influencing project performance. Research indicates that structured M&E planning improves project coordination and implementation efficiency. For instance, Onjole (2021) found that well-designed M&E frameworks enhance project monitoring and contribute to improved project outcomes. Similarly, Letsola (2022) reported that monitoring planning, stakeholder engagement, and resource allocation significantly influence the success of socio-economic empowerment projects. Studies conducted in Kenya also show that M&E planning positively affects infrastructure project performance (Gallallo, 2019; Njeru & Kirui, 2022).

Staff training in monitoring and evaluation has also been identified as a critical factor in improving project performance. Studies indicate that training enhances the technical skills required for data collection, analysis, and reporting (Wambua, 2019). For example, Cheboi (2022) found that capacity-building initiatives in environmental projects significantly improved project evaluation processes and overall outcomes. Similarly, Omunga and Gitau (2019) demonstrated that staff training enhances monitoring accuracy and contributes to improved project performance in construction projects.

Stakeholder engagement in monitoring and evaluation processes has also received considerable attention in empirical studies. Research shows that participatory monitoring approaches strengthen collaboration, transparency, and community ownership of projects (Omunga & Gitau, 2019). Leariwala and Kamau (2021) further demonstrated that stakeholder involvement improves project performance by promoting information sharing and collective decision-making. However, several studies note that stakeholder engagement in M&E has not been extensively examined in many local contexts (Letsolo, 2022; Nyakaru & Mungai, 2022).

Resource allocation represents another important factor influencing the effectiveness of monitoring and evaluation systems. Adequate financial, technical, and human resources enable organizations to implement comprehensive monitoring frameworks and sustain project activities throughout the project lifecycle (Letsolo, 2022; Leariwala & Kamau, 2021). However, existing studies indicate that resource allocation has often received limited attention compared to other M&E dimensions (Nyakaru & Mungai, 2022; Omunga & Gitau, 2019).

The reviewed literature demonstrates that monitoring and evaluation practices—including planning, staff training, stakeholder engagement, and resource allocation—play a significant role in improving project performance. Nevertheless, gaps remain in integrating these components within a comprehensive analytical framework, particularly in developing country contexts. These gaps justify further investigation into the influence of monitoring and evaluation practices on project performance.

### **3. RESEARCH METHODOLOGY**

The study adopted a descriptive survey research design to examine the relationship between monitoring and evaluation (M&E) practices and the performance of water projects in Nyeri County. Descriptive research is appropriate for studies that aim to systematically describe a phenomenon by examining its characteristics without manipulating the study variables (Aggarwal & Ranganathan, 2019). The design enabled the researcher to collect and analyze data on existing M&E practices and their association with project performance.

The target population comprised 82 water projects funded by the Nyeri County Government between 2019 and 2023. From these projects, the study targeted 410 respondents drawn from key project stakeholders, including project managers, engineers, finance officers, public administrators, and supply chain personnel. These individuals were considered appropriate respondents because they are directly involved in project implementation, management, and monitoring activities.

To ensure representativeness, the study used proportionate stratified random sampling, which allowed each sub-county to be represented proportionally in the sample (Siedlecki, 2020). Using Trek's (2015) sampling approach, 46 projects were selected from the total population of 82 projects. From these projects, 230 respondents participated in the study, including project managers, engineers, fund managers, supply chain officers, and community representatives.

Both primary and secondary data were used in the study to enhance the validity and comprehensiveness of the findings. Primary data were collected using semi-structured questionnaires designed to obtain detailed information about M&E practices and project performance. Secondary data were obtained through a document review checklist focusing on project reports, progress reports, and annual reports. Questionnaires were considered appropriate because they enable efficient and cost-effective data collection from a large number of respondents (Bell, Bryman, & Harley, 2022). Prior to the main study, a pilot test was conducted with 10 project managers involved in water projects in neighboring Kirinyaga County. Feedback obtained from the pilot study was used to refine the questionnaire and improve its clarity and reliability.

To ensure the quality of the research instrument, both validity and reliability tests were conducted. Validity refers to the extent to which a research instrument measures what it is intended to measure (Rubin & Babbie, 2016). Content validity was enhanced through expert review by the academic supervisor, who provided feedback on the relevance and clarity of the research instruments. Reliability was assessed using Cronbach's Alpha coefficient, where a value of 0.70 or higher was considered acceptable, indicating adequate internal consistency among the measurement items.

Data were collected using the drop-and-pick method, whereby questionnaires were distributed to respondents and collected later after completion. This method provided respondents with sufficient time to complete the questionnaires, thereby improving response quality and response rates (Cohen, Manion, & Morrison, 2011).

After data collection, the responses were cleaned, coded, and analyzed using the Statistical Package for Social Sciences (SPSS). Diagnostic tests were conducted to validate the regression model, including the Shapiro–Wilk test for normality, the Glejser test for heteroskedasticity, the Durbin–Watson test for autocorrelation, and the Variance Inflation Factor (VIF) test for multicollinearity. Qualitative data were analyzed using thematic analysis to identify key themes and patterns in the responses, while quantitative data were analyzed using descriptive statistics and multiple regression analysis to determine the relationship between M&E practices and project performance. The regression model incorporated four independent variables M&E planning, staff training in M&E, stakeholder involvement in M&E, and resource allocation for M&E with project performance as the dependent variable. The coefficient of determination ( $R^2$ ) was used to determine the explanatory power of the model, while the statistical significance of the relationships was tested using ANOVA and the F-test at a 0.05 significance level. The findings were presented using tables and charts.

Ethical approval for the study was obtained from Kenyatta University and the National Commission for Science, Technology and Innovation (NACOSTI). Proper data storage and disposal procedures were also followed to safeguard the confidentiality of the participants.

#### 4. RESEARCH FINDINGS AND DISCUSSIONS

##### 4.1 Descriptive Statistics Results

##### 4.1.1 Monitoring and Evaluation Planning

Respondents were asked to evaluate statements relating to monitoring and evaluation (M&E) planning practices in water projects using a five-point Likert scale. The results are presented in Table 4.1.

**Table 4.1: Monitoring and Evaluation Planning**

Statement	Mean	Std. Dev.
The project consistently conducts baseline surveys to generate key data that inform the design and execution of M&E plans for the water initiative.	3.77	0.83
The project team explicitly establishes and details the objectives of M&E as a crucial part of the overall M&E framework and project plans.	3.75	0.63
The inputs required for monitoring and evaluation are meticulously incorporated into the M&E plan.	3.82	0.44
The expected monitoring and evaluation outputs are properly defined in the monitoring and evaluation plans.	3.54	0.88
The M&E planning process explicitly outlines the approach for managing outcomes.	3.26	0.34
<b>Aggregate</b>	<b>3.63</b>	<b>0.62</b>

Source: Survey Data (2025)

Table 4.1 indicates that monitoring and evaluation planning practices are moderately implemented in the water projects studied. The overall mean score of 3.63 with a standard deviation of 0.62 suggests a general agreement among respondents that M&E planning is practiced, though some elements require improvement.

The results show that baseline surveys are commonly conducted, as reflected by a mean score of 3.77. This implies that baseline data collection is considered an essential step in informing M&E frameworks and guiding project implementation. The moderate standard deviation (0.83) suggests some variation in practice across projects, but overall the findings indicate that baseline assessments are generally recognized as important components of project planning.

Similarly, respondents indicated that inputs required for monitoring and evaluation are adequately incorporated into M&E plans, as evidenced by the highest mean score of 3.82 and a relatively low standard deviation of 0.44. The low variability indicates strong agreement among respondents that project resources and inputs are carefully planned and integrated into the M&E system.

The results further reveal that M&E objectives are clearly defined within project plans, with a mean score of 3.75 and standard deviation of 0.63. This suggests that project teams generally recognize the importance of specifying monitoring and evaluation objectives as part of project management practices.

However, comparatively lower scores were recorded for defining expected M&E outputs (mean = 3.54) and result management approaches (mean = 3.26). The higher standard deviation for output definition (0.88) indicates divergent views among respondents regarding the clarity of expected M&E outcomes. The relatively lower score for result management suggests that although planning structures exist, mechanisms for managing and tracking results may not be sufficiently emphasized.

Overall, the findings suggest that while monitoring and evaluation planning structures are present in Nyeri County water projects, greater emphasis may be required on outcome-based monitoring frameworks and result management systems. These findings are consistent with Ngesa and Muturi (2021) who observed that many community-based development projects in Kenya tend to emphasize activity-based monitoring rather than outcome-based evaluation frameworks. Similarly, Abuya and Chepkemboi (2023) argue that weak alignment between monitoring systems and expected outcomes can limit long-term project sustainability and impact.

#### 4.1.2 Staff Training in Monitoring and Evaluation

Respondents were also asked to rate statements relating to staff training in monitoring and evaluation. The results are presented in Table 4.2.

**Table 4.2: Staff Training in Monitoring and Evaluation**

Statement	Mean	Std. Dev.
The water project management team is committed to building the capacity of staff to handle M&E responsibilities and assignments.	3.73	0.45
The project carries out regular training needs assessments (TNAs) to identify areas where staff require training support on M&E matters.	3.20	0.33
The training offered is comprehensive enough and covers both technical and interpersonal skills relevant to M&E activities.	3.76	0.21
The M&E training includes a Training-of-Trainers (TOT) component to encourage peer learning among project teams.	3.52	0.52
M&E training programs are conducted regularly to align staff skills with evolving project requirements.	3.44	0.21
<b>Aggregate</b>	<b>3.53</b>	<b>0.34</b>

*Source: Survey Data (2025)*

Table 4.2 shows that staff training in monitoring and evaluation is moderately implemented across the water projects. The aggregate mean score of 3.53 with a standard deviation of 0.34 indicates general agreement that capacity-building initiatives exist, although they may not be consistently implemented.

Respondents reported that project management teams are committed to building staff capacity, as reflected by a mean score of 3.73. The relatively low standard deviation (0.45) indicates a high level of agreement among respondents that management recognizes the importance of strengthening staff skills in monitoring and evaluation.

The comprehensiveness of training programs also received a relatively high mean score (3.76), suggesting that the training provided generally covers relevant competencies required for M&E activities, including both technical and interpersonal skills.

However, the lowest mean score (3.20) was recorded for regular training needs assessments (TNAs). This finding suggests that although training programs are offered, systematic identification of training needs may not be consistently conducted. Without regular needs assessments, training initiatives may not effectively address the emerging skill gaps among project staff.

Moderate agreement was also observed regarding Training-of-Trainers (TOT) initiatives (mean = 3.52) and the frequency of training programs (mean = 3.44). These findings imply that while training opportunities exist, their regularity and structured implementation could be improved.

Overall, the results suggest that although staff capacity development is recognized as important, training programs may not always be systematic or strategically aligned with emerging M&E skill requirements. These findings support the observations of Omondi et al. (2022) who found that many water and sanitation projects in Kenya rely on sporadic or informal M&E training, which often compromises the quality of monitoring reports and data management. Similarly, Kiprotich and Kemei (2021) note that inadequate professional development opportunities for M&E personnel significantly constrain the effectiveness of monitoring processes in rural development projects.

#### 4.1.3 Stakeholder Engagement in Monitoring and Evaluation

Stakeholder engagement is a critical component of monitoring and evaluation processes. Respondents were asked to evaluate various statements regarding stakeholder participation in M&E activities. The results are summarized in Table 4.3.

**Table 4.3: Stakeholder Engagement in Monitoring and Evaluation**

Statement	Mean	Std. Dev.
The project team conducts stakeholder mapping to ensure inclusive participation in M&E activities.	3.86	0.40
The project management team relies on stakeholder collaboration as a key element of successful monitoring and evaluation.	3.98	0.58
There is regular public participation in monitoring and evaluation activities.	3.92	0.45
Communication and feedback mechanisms are well established to support stakeholder engagement.	4.00	0.21
The project team manages stakeholder risks to ensure that only relevant stakeholders are involved.	3.60	0.43
<b>Aggregate</b>	<b>3.87</b>	<b>0.41</b>

*Source: Survey Data (2025)*

The findings in Table 4.3 show that stakeholder engagement is one of the strongest aspects of monitoring and evaluation practices in the water projects. The overall mean score of 3.87 with a standard deviation of 0.41 indicates strong agreement among respondents regarding the importance and implementation of stakeholder participation.

The highest mean score (4.00) was recorded for communication and feedback mechanisms, indicating that respondents strongly believe that effective communication channels exist between project teams and stakeholders. These mechanisms are essential in facilitating transparency, accountability, and collaborative decision-making.

Similarly, stakeholder collaboration recorded a high mean score of 3.98, suggesting that project teams recognize the importance of cooperative relationships with stakeholders in strengthening monitoring and evaluation processes.

Public participation in M&E activities also recorded a high mean score (3.92), indicating that communities and other stakeholders are actively involved in project monitoring processes. In addition, stakeholder mapping practices (mean = 3.86) demonstrate that projects make deliberate efforts to identify and engage relevant stakeholders.

However, relatively lower scores were observed for stakeholder risk management (mean = 3.60). Although still positive, this result suggests that mechanisms for identifying and managing potential stakeholder conflicts or risks could be further strengthened.

Overall, the findings indicate that water projects in Nyeri County emphasize participatory monitoring and evaluation practices. These results are consistent with Mutua and Kihara (2022) who found that participatory M&E significantly enhances community ownership and accountability in Kenyan water development projects. Similarly, Mwangi and Ndiritu (2021) emphasize that effective communication strategies strengthen stakeholder trust, although weak stakeholder validation mechanisms may limit inclusivity in some projects.

#### 4.1.4 Resource Allocation for Monitoring and Evaluation

Respondents were asked to assess the adequacy and effectiveness of resource allocation for monitoring and evaluation activities. The results are presented in Table 4.4.

**Table 4.4: Resource Allocation for Monitoring and Evaluation**

Statement	Mean	Std. Dev.
Funds allocated for M&E activities are disbursed on time.	3.31	0.11
The management team has established effective resource planning and budgeting for M&E activities.	4.00	0.25
The resources allocated for M&E activities are adequate.	2.52	0.37
There are clear policies guiding efficient utilization of project funds.	3.61	0.48
The project has diverse resources to support monitoring and evaluation activities.	2.81	0.44
<b>Aggregate</b>	<b>3.25</b>	<b>0.33</b>

Source: Survey Data (2025)

Table 4.4 indicates that resource allocation represents the weakest dimension of monitoring and evaluation practices among the water projects studied. The aggregate mean score of 3.25 suggests only moderate agreement among respondents regarding the adequacy of resources available for M&E activities. Although resource planning and budgeting structures appear to be well established (mean = 4.00), respondents expressed concerns regarding the adequacy of resources, which recorded the lowest mean score (2.52). This finding suggests that while budgeting frameworks exist, the actual financial resources allocated for monitoring and evaluation may not be sufficient to support comprehensive evaluation activities. Similarly, the relatively low score for diversity of M&E resources (mean = 2.81) indicates that projects may rely on limited financial, technological, or human resources to conduct monitoring activities. Such limitations may reduce the scope and quality of project evaluations.

The findings also show moderate agreement regarding timely disbursement of funds (mean = 3.31) and the existence of policies guiding financial management (mean = 3.61). However, variations in responses suggest that implementation of these policies may differ across projects.

These findings are consistent with Otieno and Wanjiru (2020) who identified inadequate financial allocation as one of the major challenges affecting effective monitoring and evaluation in water development projects in Kenya. Similarly, Chebet and Korir (2023) note that although many projects allocate funds for monitoring activities during planning stages, the funding is often insufficient or irregular, thereby undermining the quality of evaluation and project accountability.

#### 4.5 Performance of Water Projects

Respondents were asked to rate statements relating to the performance of water projects in Nyeri County. The findings are summarized in Table 4.5.

**Table 4.5: Performance of Water Projects**

Statement	Mean	Std. Dev.
The project has been efficient and effective in controlling the finances and costs at the water project.	3.81	0.31
The project scores highly with regard to schedule or timelines of various milestones.	2.67	0.34
The project has effectively and comprehensively produced the deliverables defined in the scope.	3.51	0.11
The project has been implemented within the laid down standards.	3.50	0.13
The project has been efficient and effective in controlling the finances and costs at the water project.	3.87	0.23

Source: Survey Data (2025)

The results indicate that water projects generally perform well in financial control and adherence to standards. In particular, the statement regarding the control of finances and project costs recorded a relatively high mean score (M = 3.81; SD =

0.31), suggesting that respondents perceived project managers to be effective in managing financial resources. A similar observation was reflected in the second cost control indicator ( $M = 3.87$ ;  $SD = 0.23$ ), reinforcing the perception that financial management practices are relatively strong within the studied projects.

Performance related to project scope delivery was also rated positively ( $M = 3.51$ ;  $SD = 0.11$ ), indicating that most projects were able to produce deliverables consistent with the defined project scope. Likewise, adherence to implementation standards received a moderate rating ( $M = 3.50$ ;  $SD = 0.13$ ), suggesting that most projects complied with the prescribed technical and regulatory standards.

However, the results reveal weaknesses in schedule management. The statement regarding project timelines recorded a relatively low mean score ( $M = 2.67$ ;  $SD = 0.34$ ), implying that many projects experience delays in achieving planned milestones. This finding suggests that while financial and scope management are relatively effective, project scheduling and timely implementation remain significant challenges within water projects. The study further assessed the adequacy of resources available to support monitoring and evaluation (M&E) activities. The results indicate that respondents perceived resources allocated to M&E as insufficient, with a mean score of 2.52. The relatively low standard deviation ( $SD = 0.37$ ) indicates a strong consensus among respondents regarding the inadequacy of these resources. This finding suggests that limited funding, inadequate logistics, and insufficient personnel may constrain the effectiveness of monitoring and evaluation processes.

With regard to policies governing the utilization of project funds, the results indicate a moderate level of agreement that such policies exist and are functional ( $M = 3.61$ ;  $SD = 0.48$ ). While respondents generally acknowledged the presence of financial management structures, the moderate variation in responses suggests that the implementation of these policies may differ across projects.

Similarly, the availability of resources to support M&E functions recorded a mean score of 2.81 ( $SD = 0.44$ ), indicating that respondents perceived such resources to be moderately inadequate. This perception implies that insufficient logistical and financial support may limit the depth and quality of project evaluation activities.

Overall, resource allocation emerged as the weakest component of the M&E system ( $M = 3.25$ ;  $SD = 0.33$ ). This suggests that a gap exists between the resources budgeted for monitoring activities and the actual resources available during project implementation. These findings are consistent with previous studies which highlight resource constraints as a major barrier to effective monitoring and evaluation in water sector projects. For instance, Otieno and Wanjiru (2020) and Adhan and Mutuku (2023) identified inadequate funding as one of the major obstacles to effective M&E implementation in Kenyan water projects. Similarly, Chebet and Korir (2023) observed that although M&E budgets are often included in project planning, the actual disbursement of funds is frequently inconsistent and insufficient, thereby affecting evaluation quality and project accountability.

## 4.2 Correlation and Multiple Linear Regression Analysis

The study further examined the relationship between monitoring and evaluation practices and the performance of water projects in Nyeri County, Kenya. Correlation analysis was conducted to determine the strength and direction of relationships between the study variables.

### 4.2.1 Correlation Analysis

Pearson's Product Moment Correlation was used to assess the linear relationships between the independent variables and project performance. This method was appropriate because the data were measured using Likert-scale responses, allowing the estimation of the strength and direction of relationships between variables.

The results indicate positive and statistically significant relationships between all monitoring and evaluation practices and the performance of water projects.

**Table 4.6: Correlation of Study Variables**

Variable	Correlation (r)	Significance (p)
M&E Planning	0.563	0.001
Staff Training in M&E	0.441	0.000
Stakeholder Engagement in M&E	0.548	0.001
Resource Allocation for M&E	0.654	0.000

Source: Survey Data (2025)

The results indicate a strong positive and statistically significant relationship between M&E planning and project performance ( $r = 0.563$ ,  $p = 0.001$ ). This suggests that projects with clearly defined monitoring plans, measurable indicators, and structured timelines are more likely to achieve improved performance outcomes. The findings also reveal a positive and statistically significant relationship between staff training and project performance ( $r = 0.441$ ,  $p = 0.000$ ). This implies that the development of monitoring and evaluation competencies among project staff contributes to improved project implementation and reporting. Further, stakeholder engagement also demonstrated a strong positive relationship with project performance ( $r = 0.548$ ,  $p = 0.001$ ). This finding indicates that participatory monitoring approaches that involve community members and project stakeholders enhance project ownership and sustainability.

#### 4.2.2 Multiple Linear Regression Analysis

Multiple linear regression analysis was conducted to determine the predictive influence of monitoring and evaluation practices on water project performance.

**Table 4.7: Regression Coefficients**

Model	B	Std. Error	Beta	t	Sig.
Constant	5.056	3.061	—	1.652	0.104
M&E Planning	0.364	0.073	0.304	2.221	0.030
Staff Training in M&E	0.217	0.079	0.423	5.344	0.001
Stakeholder Engagement	0.379	0.058	0.375	3.063	0.002
Resource Allocation	0.424	0.039	0.272	5.328	0.001

*Dependent Variable: Project Performance*

*Source: Survey Data (2025)*

The regression results indicate that all four variables have a statistically significant effect on project performance. Resource allocation for M&E had the strongest influence ( $\beta = 0.424$ ,  $p = 0.001$ ), followed by stakeholder engagement ( $\beta = 0.379$ ,  $p = 0.002$ ), M&E planning ( $\beta = 0.364$ ,  $p = 0.030$ ), and staff training in M&E ( $\beta = 0.217$ ,  $p = 0.001$ ).

**Table 4.8: Model Summary**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error
1	0.803	0.644	0.618	0.78382

*Source: Survey Data (2025)*

The adjusted R<sup>2</sup> value of 0.618 indicates that the independent variables explain 61.8% of the variation in water project performance. The remaining 38.2% may be attributed to other factors not included in the model.

**Table 4.9: ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	61.144	4	15.286	24.882	0.000
Residual	33.789	195	0.614		
Total	94.933	199			

*Source: Survey Data (2025)*

The ANOVA results indicate that the regression model is statistically significant ( $F = 24.882$ ,  $p = 0.000$ ). This confirms that the selected monitoring and evaluation practices significantly explain variations in the performance of water projects in Nyeri County.

## 5. CONCLUSIONS AND RECOMMENDATIONS

The findings of this study indicate that effective monitoring and evaluation (M&E) planning is a critical determinant of water project performance in Nyeri County, Kenya. Projects that incorporated baseline surveys and integrated relevant inputs into their M&E plans exhibited stronger foundations for monitoring and reporting. Clear M&E objectives were identified as key enablers of project success; however, inconsistencies in defining outputs suggest the need for further

clarification to ensure effective implementation. While outcome management frameworks were generally outlined, reinforcing these structures would enhance the alignment of project results with stakeholder expectations and overall project success.

Staff training in M&E emerged as an essential factor in improving project performance. Respondents acknowledged positive management commitment to building staff capacity, reflecting a foundation for skill development within project teams. Nevertheless, variations in the frequency and comprehensiveness of training needs assessments (TNAs) indicate a gap between existing training programs and the dynamic demands of staff functions. Although training programs were perceived as technically and interpersonally robust, the study highlights the importance of continuous and iterative capacity building to ensure personnel remain current with evolving M&E practices and methodologies.

Stakeholder engagement was found to be a cornerstone of effective M&E implementation. Projects were generally inclusive, with extensive stakeholder mapping, active collaboration, and meaningful community involvement. Positive interaction and feedback mechanisms promoted accountability and ownership among stakeholders. Although stakeholder risk management received an intermediate rating, respondents noted that project teams effectively managed engagement-related risks. These findings underscore the importance of embedding robust stakeholder engagement measures into project M&E strategies to enhance both performance and sustainability.

Resource allocation remains a persistent challenge, despite the presence of generally adequate planning and budgeting mechanisms. Respondents highlighted insufficiencies in the availability and diversity of resources, delays in fund disbursement, and inconsistent application of financial policies as limiting the scope and quality of M&E activities. Addressing these challenges through timely allocation, diversification of resources, and standardization of policies is critical to ensure that M&E activities are adequately supported and that project objectives are effectively met.

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