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Monitoring and Evaluation Systems and Performance of Government Infrastructure Projects: The Case of the Kitale Multi-Story Business Complex in Trans-Nzoia County, Kenya

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Abstract: ***This study examined the influence of monitoring and evaluation systems on the performance of the Kitale Multi-Story Business Complex in Trans-Nzoia County, Kenya. The study assessed the effects of human capacity, work plans, policy frameworks, and supportive supervision on project performance. Human capital, systems, and goal-setting theories guided the study. A mixed-methods approach alongside a descriptive research design was applied using semi-structured questionnaires administered to 114 respondents selected from a target population of 180 stakeholders through stratified and simple random sampling. Quantitative data were analyzed using descriptive statistics and multiple regression, while qualitative responses were analyzed thematically. Findings showed that monitoring and evaluation human capacity and policy frameworks significantly and positively influenced project performance, while work plans and supportive supervision showed positive but statistically insignificant effects. The study concludes that strengthening technical capacity, policy enforcement, and institutional monitoring structures can improve infrastructure project performance. The findings provide practical guidance for public infrastructure management and policy improvement.***

Keywords: Monitoring and evaluation; Project performance; Public infrastructure projects; Human capacity; Monitoring policy; Supportive supervision; Kenya

1. Introduction

Currently, across the globe, there are massive investments in infrastructure projects, with many in developed countries performing well. The success has, however, been attributed to proper planning and monitoring all along to the intended goals. The infrastructure projects have delivered long-term social and economic benefits to many countries [1]. Successful infrastructure projects are pillars of urban development and economic growth, thus enhancing service delivery [5]. Operational issues, cost overruns, and delays affect the success of infrastructure projects [1].

Several international and regional countries, in partnership with international and local organizations, have supported and invested in transport networks, digital infrastructure, renewable energy, water, and sanitation. Their main goal is to enhance human security, hence, improving living standards. A strong monitoring and evaluation (M&E) framework, stakeholder engagement, effective planning, and sustainable resources are crucial factors as long as project performance is a concern [10].

For example, China has heavily invested in infrastructure projects to create jobs and improve residents' economic status [30]. The BRI linking three continents (Asia, Africa, and Europe) at a cost of over USD 1 trillion, is among the 622 infrastructure projects by China. Additionally, China has collaborated with various multilateral organizations to increase its impact on global development. As early as 2014, key international institutions, including the United Nations Environmental Programme (UNEP), the United Nations Development Programme (UNDP), the Asian Development Bank (ADB), and the World Bank, formalized their commitment by signing Memorandums of Understanding (MoUs) with China [9]. The involvement of these international institutions signals a shared interest in promoting sustainable infrastructure, economic growth, enhancing financial stability, and environmental responsibility within the BRI framework.

Regionally, South Africa, Egypt, and Kenya continue to lay the groundwork for connectivity and economic resilience [8]. In recent years, bold and transformative infrastructure projects have reshaped Africa's economic landscape. This has enhanced daily life and opened new opportunities for trade, investment, and innovation. The developments are more than just structural improvements; they represent a strategic shift toward sustainability, resilience, and long-term prosperity.

In Kenya, various counties have adopted infrastructure development projects to create economic opportunities for communities while fostering a favorable environment for business growth. Trans-Nzoia County (TNC) specifically has made significant investments in road networks, market centers, industrial parks, and energy access projects, aimed at improving connectivity, boosting trade, and enhancing public services [18]. These developments have not only made it easier to move goods and people but have also attracted investors and strengthened agribusiness, a key economic driver in the region. The county has focused on modern market infrastructure projects, including the KMSM, designed to give

small and medium-sized enterprises (SMEs) better trading spaces. However, the KMSM Project has faced construction delays, allegedly caused by procurement inefficiencies, contractor-related setbacks, and unpredictable weather conditions. The delay has extended project completion timelines, affecting traders who were supposed to move into the new facility. Additionally, alleged inefficiencies in the M&E work plan, policies, bureaucratic approvals, and changes in project scope have contributed to the extended timelines.

1.2 Statement of the Problem

Infrastructure development is vital for Kenya's economic growth, yet government projects frequently underperform. Only 13% of these projects are completed on time, with 87% experiencing delays and 48% exceeding budgets [28]. These issues hinder development goals, waste resources, and diminish public trust. The KMSBC in TNC illustrates these problems. Aiming to modernize trading spaces for over 5,000 SMEs and promote local economic growth, the project has faced continual delays, rising costs, and scope changes. Contributing factors include procurement inefficiencies, contractor setbacks, unpredictable weather, bureaucratic approval processes, and weaknesses in M&E systems [18]. These delays have disrupted trader relocation and limited the project's expected benefits.

TNC is an appropriate focus for this study because the Kitale project is one of the most ambitious urban development endeavors in the region under Kenya's devolved system. Its scope and complexity make it a representative case for assessing county-level infrastructure delivery challenges. Insights from this case can help improve planning, execution, and oversight of similar projects across Kenya [18]. Empirically, few studies have examined how M&E systems influence project performance in large county-level projects like Kitale. This study, therefore, addressed the above gaps by offering a context-specific, theoretically grounded, and methodologically robust investigation of M&E and its role in project performance in TNC.

1.3 Specific Objectives of the Study

a) To assess the impact of M&E human capacity on the project performance of the KMSBC in TNC, Kenya.
b) To examine the impact of the M&E work plan on the project performance of the KMSBC in TNC, Kenya.
c) To examine the impact of M&E policy on the project performance of the KMSBC in TNC, Kenya.
d) To assess how M&E supportive supervision affects the project performance of the KMSBC in TNC, Kenya.

1.4 Significance of the Study

The study intends to contribute to the improvement of the project performance of KMSBC and other related infrastructure projects in TNC. The findings assist in identifying and ranking the best M&E systems components. Additionally, the study results support local authorities and project managers to increase project performance, thus resulting in better economic value to the community. The study's findings guide policy decisions across all levels of government by demonstrating the role of M&E systems in project performance. Academicians in the field benefit through the illustration of how M&E systems are practically evaluated to inform project performance in real-world situations. Additionally, the study results help future researchers to gain a baseline understanding of how M&E systems are related to project performance, especially for infrastructure projects.

2. Theoretical Review

The section presents the key frameworks that demonstrate the fundamental concepts and relationships underlying the study. It explores relevant theories that explain the dynamics of the research variables, providing a foundation for interpreting findings and drawing conclusions.

Human Capital Theory

In 1961, Schultz introduced the human capital concept, and it has since become a foundational element in understanding organizational success. Human capital theory suggests that employees are not just labor inputs but valuable assets whose knowledge, skills, and expertise drive productivity and efficiency within an organization. Human capital is the collective potential and productivity of staff [11]. The perspective recognizes that employees' intellectual and practical capabilities are critical for achieving organizational goals, especially in knowledge-intensive fields.

M&E is viewed as a "systematic and dynamic process that depends on accurate data collection and data use to evaluate project performance and impact" [26]. Due to the changing nature of project environments, employees involved in M&E must have specialized and flexible skills. The rapid growth of technology and data analytics tools demands ongoing learning and skill development to maintain accuracy in monitoring frameworks and reporting systems. Human capital development is crucial for strengthening the analytical, technical, and strategic abilities of M&E professionals, thereby enhancing decision-making and ensuring projects achieve their goals [20].

An important assumption is that employee training and development offer substantial advantages for an organization [16]. Organized capacity-building activities, including workshops, mentorship schemes, and ongoing professional growth, prepare employees with essential skills for managing the complexities of M&E. These initiatives promote a culture of continual learning within organizations, helping staff stay updated on new methods, compliance requirements, and best practices. Consequently, this enhances employees' ability to monitor project progress effectively, report findings accurately, and support informed decisions.

Furthermore, organizations that invest in human capital through staff training see improvements in operational efficiency and project results [16]. Skilled M&E personnel are more capable of interpreting key performance indicators, conducting comprehensive impact assessments, and proactively managing project challenges [6]. Moreover, developing a workforce proficient in data analysis enables organizations to effectively implement, evaluate, and improve projects aligned with strategic objectives. The link between

human capital theory and M&E goes beyond individual skills, enhancing overall institutional capacity [4]. Organizations that embed structured learning and continuous professional development into their core strategies are better positioned to maintain high standards of accountability, transparency, and efficiency.

System Theory

Ludwig von Bertalanffy, in 1940, developed systems theory, which has since expanded into several disciplines, including management, engineering, psychology, sociology, and environmental sciences [22]. The theory is an interdisciplinary framework that offers a "structured approach to understanding complex entities as interconnected and interdependent components working together toward a common goal" [22]. It provides a holistic perspective, emphasizing that systems should be studied as dynamic entities influenced by their parts and external environments. This theory is especially useful for analyzing and solving complex problems because it helps identify relationships, dependencies, and patterns within a system.

At its core, systems theory states that "a system is made up of multiple interconnected elements that work together as a whole" [2]. These elements include inputs (resources, information, or materials entering the system), processes (methods that transform inputs into outputs), outputs (results or outcomes produced by the system), and feedback loops (mechanisms that control system behavior by adjusting inputs or processes based on output performance). "Systems can be classified as either open or closed [3]". Open systems exchange resources and information, making them adaptable and responsive to change. Most real-world systems, such as organizations, ecosystems, and economies, operate as open systems. Conversely, closed systems have minimal interaction with their environment, making them more self-contained but less adaptable to external changes.

A system's ability is accomplished through self-regulation and feedback mechanisms, which enable it to adjust and restore balance [2]. Another important principle is equifinality, which indicates that different pathways or strategies can lead to the same outcome, highlighting flexibility and adaptability in problem-solving. Additionally, emergence describes the phenomenon where a system displays properties that are not found in its individual parts but develop from their interactions, emphasizing the significance of synergy in complex systems.

Beyond the application of system theory in organization setup, it offers "a valuable framework for understanding and optimizing M&E systems in project management" [19]. It highlights the interdependence of components contributing to effective performance measurement and decision-making. M&E systems, like any other system, consist of interconnected elements that work together to track progress, assess outcomes, and support continuous improvement. Key ingredients include the M&E work plan, human capacity, policy framework, and supportive supervision, which function as subsystems within a larger system, interacting dynamically to provide efficient "data collection, analysis, and use" [19].

Applying systems theory to M&E helps organizations see dependencies, improve coordination, and boost overall effectiveness. Systems theory emphasizes that an M&E system functions as an interconnected whole, where work plans, human capacity, policies, and supervision all play vital roles in maintaining efficiency and effectiveness. A failure in one part can disrupt the entire system, while strong integration and coordination improve the success rate [17].

Goal Setting Theory

Edwin Locke introduced the theory in 1968, which offers a psychological perspective on how well-defined, challenging goals can enhance both individual and team performance. The theory emphasizes that "goals play a crucial role in influencing motivation and behavior by providing clarity, direction, and purpose" [14]. It is extensively applied in fields such as organizational behavior, management, education, and personal growth. The core principle is that goals impact project performance by enabling focused attention, sustained effort, increased persistence, and the use of the most effective strategies to achieve desired outcomes.

"Clarity, challenge, commitment, feedback, and task complexity are the five key principles that influence goal setting [15]." Clarity means establishing specific, well-defined goals rather than vague ones. Challenge is important because goals should be tough enough to motivate effort and engagement without being so unrealistic that they lead to frustration. People tend to perform better when pursuing moderately difficult yet attainable goals, as these foster a feeling of achievement upon completion [7].

Commitment to a goal significantly affects its success, meaning individuals must personally accept and be motivated to achieve the set objectives [15]. Commitment is strengthened through participation in goal setting, incentives, or ensuring individual goals are well aligned with organizational values. Feedback helps track progress and make necessary adjustments. Regular feedback ensures that employees or individuals understand whether they are on the right track or need to change their approach. Lastly, task complexity shows that while challenging goals boost performance, overly complex tasks can be overwhelming. Providing adequate time, resources, and training can help address this challenge and improve goal completion.

"Goal-setting theory has important implications in PM", where it is used to boost project performance by aligning key objectives with other indicators [13]. Project managers who use structured goal-setting frameworks help their teams stay focused, improve productivity, and contribute to project success. Setting and achieving meaningful goals leads to greater self-efficacy and motivation. Furthermore, the theory is widely applied in organizations, leadership development programs, and educational settings to encourage growth and improvement. Despite the effectiveness of goal-setting theory, its overemphasis on achieving the goal can lead to disregard for ethical conduct, excessive pressure, or neglect of other important areas. Additionally, poorly set goals, such as those that are too difficult or conflicting, can cause frustration and lower performance.

2.2 Conceptual Framework

This is a diagrammatic representation that serves as the foundation for understanding the key variables, relationships, and assumptions that support this research study. It provides a structured way to explain how the study's concepts interact, guiding the researcher in formulating objectives and research questions.

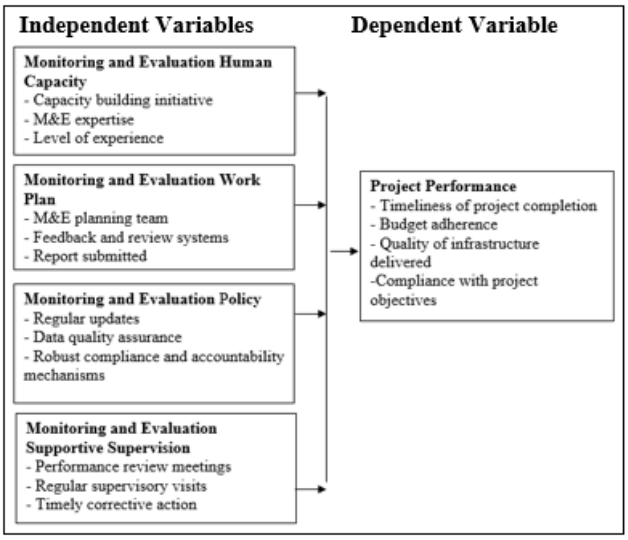

Figure 1: Conceptual Framework
Source: Researcher (2026)

3. Research Methodology

This study employed a mixed-methods approach alongside a descriptive research design to gain a broad but also in-depth understanding of the factors influencing government infrastructure project performance. The quantitative part used a structured questionnaire to assess key elements of the M&E systems, including work plans, human capacity, supportive supervision, and policy frameworks. It also helped to collect data on project outcomes like timeliness, cost-effectiveness, output quality, and objective achievement. This method enabled statistical examination of the relationship between M&E components and project performance. The qualitative aspect involved gathering in-depth insights through open-ended survey questions with key stakeholders involved in the KMSBC project.

The study target population included KMSBC project managers, county officials, project support team members, and traders' representatives, totaling 180 people. Yamane's formula was used to determine the sample size. A sequential application of stratified and simple random sampling was used to capture the full range of characteristics among the target respondents for the KMSBC project. Stratified sampling was applied to divide target respondents into specific groups based on their roles. Then, simple random sampling techniques were used to select members within each group.

A semi-structured questionnaire was used for data collection purposes. The questionnaire was designed to have both open-ended questions to facilitate qualitative analysis and closed questions to facilitate quantitative analysis using a five-point Likert scale. A pilot study was carried out in Nakuru County, where the construction of a multi-million-dollar modern market is currently ongoing, thus enabling testing and refinement of the research instruments. Additionally, academic supervisors provided valuable scholarly insights into the clarity, logical flow, structure of the questions, and their alignment with research objectives. In this study, reliability was assessed using "Cronbach's alpha coefficient, a statistical measure that evaluates the internal consistency of the research instrument.

Table 1: Reliability Statistics

Variable	Cronbach's Alpha	N of Items
M&E Human Capacity	0.818	8
M&E Work Plan	0.719	7
M&E Policy	0.773	8
M&E Supervisor Support	0.819	8
Project performance	0.761	9

Source: Data analysis (2026)

The Cronbach's Alpha values for all variables were above the commonly accepted threshold of 0.70. This suggested that the items used in the questionnaire were reliable.

Furthermore, descriptive and inferential statistics were performed in relation to the data collected. Descriptive statistics such as frequencies, percentages, means, and standard deviations summarized respondent demographics and key variables related to M&E systems and project outcomes. To assess how M&E system components related to project performance indicators, such as timeliness, cost efficiency, output quality, and objective fulfilment, a multiple regression analysis was conducted. This analysis aimed to develop a quantitative framework that integrates the impact of the aforementioned components on cumulative performance. Deriving coefficient estimates helped to bring out the magnitude and sign of each variable's contribution to the observed project outcomes. The model was as follows:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

Where:
Y = Performance of Government Infrastructure Project
$\mathbf{X_1}$ = Monitoring and Evaluation Work Plan
$\mathbf{X_2}$ = Human Capacity for M&E
$\mathbf{X_3}$ = Supportive Supervision
$\mathbf{X_4}$ = Monitoring and Evaluation Policy
$\boldsymbol{\beta_0}$ = Intercept (constant term)
$\boldsymbol{\beta_1 - \beta_4}$ = Coefficients representing the strength and direction of the relationship between each independent variable and the dependent variable
$\boldsymbol{\varepsilon}$ = Error term (captures the variability in Y not explained by the model)

Subsequently, the quantitative analysis results were displayed using frequency tables, bar charts, pie charts, and histograms to illustrate distribution patterns and demographic information. Qualitative data from open-ended questions were analyzed thematically to identify codes and themes that summarize perspectives and recommendations. The emerging findings were presented through narrative descriptions.

Moreover, the researcher conducted the research ethically. Participants received a full briefing on the study's objectives, scope, and potential implications before providing informed consent for data collection. Strict confidentiality and

anonymity were maintained; no identifying details were included in reports, publications, or presentations. All data was used solely for this research work and securely stored against unauthorized access. Participation was entirely voluntary, and participants were made aware of their right to decline or withdraw without consequences. To fulfil ethical and institutional standards, the researcher obtained approvals and permits from the 'National Commission for Science, Technology, and Innovation (NACOSTI)' and the Kenyatta University postgraduate review committee.

4. Research Findings

4.1 Response Rate

The researcher distributed a total of 125 questionnaires to the target respondents. Out of these, 114 were completed and returned, representing a response rate of 91.2%. This high response rate revealed a strong participation and engagement from the respondents. Moreover, it enhances the reliability and validity of the study. It minimizes the risk of non-response bias and ensures that the findings are more representative of the target population. [12] A response rate above 80% is considered excellent. It provides a solid foundation for meaningful analysis and interpretation of results.

4.2 Descriptive Analysis

Table 2: Monitoring and Evaluation Human Capacity

	Mean	Std. Deviation
	Statistic	Statistic
Regular training and workshops are conducted to build staff capacity in M&E.	4.52	0.613
The project allocates sufficient resources for M&E-related capacity-building activities.	3.97	0.619
New stakeholders receive adequate orientation and induction training in M&E.	4.11	0.615
The M&E team possesses the necessary technical skills to carry out data collection, analysis, and reporting.	3.82	0.898
The project team involved in M&E demonstrates strong knowledge of monitoring frameworks and evaluation methodologies.	3.75	0.839
The project team with more M&E experience is involved in mentoring junior team members.	3.71	0.849
The level of experience among M&E staff contributes significantly to the quality of reports and decision-making processes.	3.53	0.789
The M&E personnel have adequate experience in managing and implementing M&E systems.	3.98	0.564
Valid N (listwise)		
Overall Mean	3.92	

Source: Researcher (2026)

The analysis results in Table 2 indicate that the respondents agree that training and workshops build staff capacity, with a mean of 4.52. Additionally, new stakeholders are oriented about the M&E framework, with a mean of 4.11. Respondents also agreed that M&E personnel have adequate experience to implement M&E systems, ensure quality data collection and reporting, monitor junior staff, knowledge of monitoring frameworks, and capacity to allocate project resources, with means ranging from 3.53 to 3.82. The analysis indicates a low standard deviation, ranging from 0.564 to 0.898, which implies a close clustering of responses around the mean. The overall mean of 3.92 reveals a strong emphasis on M&E human capacity. The findings agree with [16], who stated that human capacity enhances project performance.

The participants have, however, identified several gaps. Fifty-three percent stated that limited technical skills limit exposure to modern tools. Sixty-seven percent indicated that high workload and staff shortages hinder the effectiveness of M&E activities. While 71% stated that inadequate financial resources limit capacity building. Lastly, 34% indicated that limited knowledge of the M&E framework weakens its effectiveness.

Table 3: Monitoring and Evaluation Work Plan

	Mean	Std. Deviation
	Statistic	Statistic
The M&E work plan was developed collaboratively by a multidisciplinary planning team.	4.11	0.916
Members of the M&E planning team clearly understood their roles and responsibilities.	3.95	0.901
The planning team included representatives from all key stakeholder groups.	4.07	0.713
The M&E work plan includes a structured feedback mechanism for continuous improvement.	3.84	0.604
Feedback from stakeholders is regularly used to update or refine the M&E activities.	3.93	0.56
There is a formal system for reviewing the M&E plan's progress against set targets.	4.38	0.709
Reports related to M&E activities are submitted on time as scheduled in the work plan.	4.39	0.749
Valid N (listwise)		
Overall mean	4.1	

Source: Researcher (2025)

Participants strongly agree that M&E activity reports are submitted on time, that there is a formal system in place, that there are inclusive representatives, and that the M&E work plan was developed collaboratively, with means of 4.39, 4.38, 4.07, and 4.11, respectively. Additionally, the participants moderately agree that feedback from stakeholders is regularly used, the M&E work plan includes a structured feedback mechanism, and the M&E planning team clearly understood their roles and responsibilities, with means of 3.93, 3.84, and 3.95, respectively. The analysis indicates a low standard deviation, which ranges from 0.560 to 0.916. This implies a close clustering of responses around the mean.

The overall mean of 4.10 revealed that the M&E work plan was well practiced throughout the project phases. This aligns with the findings of [5], who argued that well-defined roles reduce conflict and enhance team performance. Collectively, the findings highlight the critical role of clear communication, structured organization, and adaptability in effective project management.

Table 4: Monitoring and Evaluation Policy

	Mean	Std. Deviation
	Statistic	Statistic
The M&E policy includes clear guidelines for ensuring data accuracy and consistency.	3.83	0.637
Mechanisms for verifying and validating data are well-documented and regularly applied.	4.04	0.78
There are routine checks and audits to maintain high data quality standards.	3.85	0.755
The M&E policy outlines well-defined roles and responsibilities for compliance.	3.76	0.732
There are clear consequences for non-compliance with M&E procedures and reporting timelines.	4.02	0.58
Accountability mechanisms within the M&E policy are effective in ensuring transparency and integrity of data and processes.	4.11	0.9
The M&E policy is reviewed and updated regularly to reflect emerging trends and changes in project needs.	4.08	0.822
Regular updates to the M&E policy contribute to improved effectiveness and relevance of monitoring and evaluation activities.	3.72	0.782
Valid N (listwise)		
Overall Mean	3.93	

Source: Researcher (2026)

The participants strongly agree that mechanisms for verifying and validating data are well-documented and regularly applied, there are clear consequences for non-compliance, accountability mechanisms within the M&E policy are effective, and the M&E policy is reviewed and updated regularly with means of 4.04, 4.02, 4.11, and 4.08, respectively. Participants also moderately agree that regular updates to the M&E policy contribute to project effectiveness, with a mean of 3.72. Participants also moderately agreed that the M&E policy outlines well-defined roles and responsibilities, there are routine checks, and the M&E policy includes clear guidelines, with means of 3.76, 3.85, and 3.83, respectively.

The analysis indicates a relatively low standard deviation, ranging from 0.580 to 0.900, which implies a close clustering of responses around the mean. The overall mean of 3.93 revealed that the M&E policy is moderately practiced in the project. The findings suggest room for improvement since M&E policies ensure accountability and data quality. The findings agree with [24], who found that a well-defined and structured M&E policy improves decision-making.

The participants, however, revealed several challenges to the M&E policy. Eighty-two percent of the participants revealed that weak compliance mechanisms and inadequate enforcement reduce M&E policy applicability. Additionally, 58% indicate that a lack of policy awareness guides and a lack of clarity hinder the implementation of M&E policy. The respondents also highlighted that bureaucratic delays reduce M&E policy responsiveness.

Table 5: Monitoring and Evaluation Supportive Supervision

	Mean	Std. Deviation
	Statistic	Statistic
Performance review meetings are held regularly to assess progress on M&E activities.	4.02	1.072
Supervision teams use standard checklists or tools during their visits to ensure consistency.	3.78	0.966
Supervisory visits to project sites are conducted consistently as per the M&E schedule.	3.89	1.046
Review meetings help in identifying gaps and challenges in M&E implementation.	3.83	0.872
Supervisory visits include supportive feedback aimed at improving staff performance.	3.88	1.04
There is a clear mechanism for initiating corrective actions based on M&E findings.	3.7	0.959
Timely corrective actions have contributed to improved project outcomes and accountability.	3.82	0.755
Issues identified during supervision are addressed promptly and effectively.	3.7	0.716
Valid N (listwise)		
Overall Mean	3.83	

Source: Researcher (2026)

M&E supportive supervision level of agreement. As per the analysis, respondents strongly agree that performance review meetings are held regularly, to assess progress with a mean of 4.02. Additionally, participants moderately agree that issues identified are addressed promptly, there are timely corrective actions, there is a clear mechanism for initiating corrective actions, there is supportive feedback from the supervisors, review meetings help in identifying gaps, and supervision teams use standard checklists, with means of 3.70, 3.82, 3.88, 3.83, 3.89, and 3.78, respectively. The analysis results indicate relatively moderate standard deviation values, ranging from 0.716 to 1.072, which implies a variation in some responses. The overall mean of 3.83 revealed that the M&E supportive supervision is moderately practiced in the project. The findings suggest that despite supervisory visits, feedback, and regular review meetings, there is a need for corrective action and strengthening consistency. The findings agree with [21], who found that effective supportive supervision leads to better project outcomes.

4.5 Inferential Statistics

4.5.1 Diagnostic Test

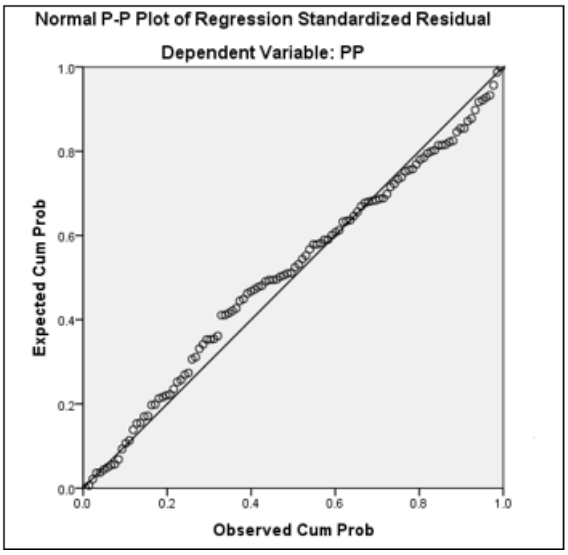

Figure 2: Normal P-P Plot
Source: Data analysis (2026)

The normal P-P plot reveals that major data points are within the line of best fit. That implies that the normality assumption is satisfied. This gives the researcher a go-ahead to perform regression model analysis.

Table 6: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	HC	0.508	1.967
	Policy	0.562	1.779
	WP	0.477	2.094
	SP	0.96	1.041

a. Dependent Variable: Project performance
Source: Data analysis (2026)

The findings indicate that tolerance values range from 0.477 to 0.960, way above the recommended 0.1 threshold. Additionally, VIF values range from 1.041 to 2.094 within the threshold of 0-10. Both imply that there is no multicollinearity among the predictor variables. In other words, the regression model estimates are not biased since the predictor variables are not highly correlated.

Regression Analysis

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581[a]	0.337	0.313	0.38813

a. Predictors: (Constant), M&E Human Capacity, M&E Work Plan, M&E Policy, M&E Supportive Supervision
Source: Data analysis (2026)

The model summary results in Table 7 indicate a strong positive connection between the independent and dependent variables with an R value of 0.581. Additionally, the R-square of 0.337 indicates that the 33.7% of project performance is explained by M&E Human Capacity, M&E Work Plan, M&E Policy, and M&E Supportive Supervision, while 66.3% is explained by other factors not captured in the model. This means project success involves many critical drivers.

Table 8: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.363	4	2.091	13.878	.000[b]
	Residual	16.42	109	0.151		
	Total	24.783	113			

a. Dependent Variable: Project performance
b. Predictors: (Constant), M&E Human Capacity, M&E Work Plan, M&E Policy, M&E Supportive Supervision
Source: Data analysis (2026)

The ANOVA analysis results reveal that the regression model is statistically significant with a P-value of 0.000 and an F-value of 13.878. This means the combination of M&E human capacity, M&E work plan, M&E policy, and M&E supportive supervision influences project performance effectively.

Table 9: Coefficients

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	1.125	0.398	2.826	0.006
	M&E Human Capacity	0.318	0.105	3.02	0.003
	M&E Work Plan	0.085	0.116	0.729	0.468
	M&E Policy	0.222	0.104	2.14	0.035
	M&E Supportive Supervision	0.069	0.06	1.152	0.252

Source: Data analysis (2026)

$$\textbf{Project performance} = 1.125 + 0.085\ \textbf{M\&E work plan} + 0.318\ \textbf{M\&E human capacity} + 0.069\ \textbf{M\&E supportive supervision} + 0.222\ \textbf{M\&E policy}$$

M&E human capacity (with $\beta = 0.330$ and $p = 0.003$) and M&E policy ($\beta = 0.223$, $p = 0.035$) positively and significantly influence project performance [25], [29]. This indicates that a unit increase in M&E human capacity and M&E policy increases project performance by 0.318 and 0.222, respectively. The findings suggest that the policy framework and human capacity are the most influential factors in project performance. The analysis results are in agreement with [24] and [27], who found that M&E expertise and skilled personnel are determinants of project success.

In contrast, the M&E work plan ($\beta = 0.082$, $p = 0.468$) and the M&E supportive supervision ($\beta = 0.092$, $p = 0.252$) influence project performance positively, but their effect depends on other factors [8], [27]. This suggests that an additional unit on the M&E work plan and M&E supportive supervision increases project performance by 0.116 and 0.069 units, respectively. The M&E work plan and M&E supportive supervision alone are insufficient to drive project performance. Therefore, skills and institutional structures need to be integrated to realize the full potential of the M&E work plan and M&E supportive supervision. A structured M&E work plan may exist but not be fully effective, thus failing to impact project performance [23]. On the other hand, while supervision is observed, it may lack the effectiveness to influence project success [21]. In general, this suggests that greater investment in policy enforcement, training, and technical expertise needs to be prioritized for better project outcomes.

5. Conclusion

The study concludes that monitoring and evaluation human capacity and policy frameworks significantly improve the performance of government infrastructure projects. Human technical competence, institutional accountability, and policy enforcement emerged as key determinants of project success. Although work plans and supportive supervision contributed positively, their statistical influence was limited, suggesting that implementation effectiveness matters more than procedural existence alone. Strengthening technical capacity, policy compliance, and supervisory execution would likely improve infrastructure delivery outcomes in similar public-sector projects.

6. Recommendations

M&E human capacity positively and significantly influences project performance. However, its full potential is yet to be exhausted. Therefore, to achieve this, the study recommends regular training and capacity-building workshops to enhance technical competencies in data collection, analysis, and reporting. The study also recommends that the management increase investment in M&E resources, including tools and technologies to support data management. Another recommendation is to strengthen mentorship programs and promote knowledge transfer between experienced and junior staff. It also recommends hiring qualified M&E personnel. This fosters continuous professional development to ensure the sustainability of skills within projects.

The M&E work plan was found to positively influence project performance, but its effect depends on other factors. This, therefore, requires a more structured and inclusive approach to enable its full potential. As a result, the study recommends greater stakeholder involvement during planning to ensure inclusivity and ownership. It also recommends that the management team should define roles clearly and ensure accountability mechanisms to enhance implementation efficiency. Moreover, the study recommends adaptive planning, regular reviews, and realistic timelines. Feedback mechanisms should also be established to enhance tracking and reporting processes.

M&E policy positively and significantly influences project performance despite weak compliance mechanisms and inadequate enforcement. The study, however, recommends that training and sensitization programs should be enhanced to ensure clear policy awareness. Furthermore, strengthen enforcement and compliance mechanisms to ensure accountability. Additionally, increase resource allocation to support regular policy review and implementation. The study also recommends that management teams should promote stakeholder participation in policy development and implementation.

Lastly, the study recognized that M&E supportive supervision influences project performance positively. However, M&E supportive supervision was moderately practiced in the project. As a result, the study recommends regular supervisory visits to ensure consistency. The study also recommends standardized tools and checklists for reference. Establish a constructive feedback mechanism that focuses on building capacity. The study recommends promoting collaborative problem-solving, training for supervisors, and leveraging technology to enhance supervisors' effectiveness and efficiency.

Suggestions for Further Studies

The researcher suggests that future research be conducted on other factors, such as the political environment and funding that influence project performance. Additionally, future research can be conducted in other sectors or countries for comparison. Future research can also be conducted on digital M&E systems and project performance in the same sector.

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