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Effect of Participatory Project Management Practices on Performance of a Construction Project: A Case of Mulindi-Gasogi Road Project in Gasabo District, Rwanda

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Abstract: *The construction industry in Rwanda, vital for socio-economic transformation faces challenges including budget overruns, schedule delays, and quality concerns. This study assessed the effect of participatory project management practices on the performance of the Mulindi-Gasogi Road Project in Gasabo District, Rwanda. Specifically, it examined participatory planning, participatory implementation, and participatory monitoring and evaluation. Stakeholder Theory, Systems Theory, and Participative Leadership Theory provided the theoretical basis. A descriptive and correlational design was combined with quantitative questionnaires and qualitative interviews. A census covered the target population of 313 project managers, project staff, and community or local leaders, and 304 complete questionnaires (97.12%) were obtained. SPSS analysis showed significant positive regression coefficients for participatory planning ($B = 0.309$, $p < 0.001$), participatory implementation ($B = 0.278$, $p < 0.001$), and participatory monitoring and evaluation ($B = 0.326$, $p < 0.001$). The regression model achieved $R = 0.880$ and $R^2 = 0.774$, accounting for 77.4% of the observed variation in project performance. The study concluded that stakeholder participation throughout planning, implementation, and monitoring was associated with better project performance. It recommended inclusive planning processes, structured stakeholder engagement, and systematic mechanisms for incorporating monitoring feedback.*

Keywords: *Participatory project management, Participatory planning, Participatory implementation, Participatory monitoring and evaluation, Construction project performance, Rwanda*

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1. Introduction

The adoption of participatory project management strategies across different regions highlights the global recognition of its value in constructing effective infrastructure. Engaging stakeholders throughout the project lifecycle not only improves the quality of construction outcomes but also ensures accountability and community satisfaction. The resulting infrastructure reflects the realities and aspirations of local populations, better addressing their specific challenges. As this approach continues to gain momentum, its potential to reshape construction practices and foster sustainable development becomes increasingly evident. The integration of stakeholder engagement represents a significant step toward more inclusive and effective project outcome, ultimately contributing to enhanced community resilience and improved living standards (Evans *et al.*, 2023).

In Europe, particularly within the United Kingdom, participatory project management has gained considerable traction in urban planning initiatives. The concept of community-led design has been effectively employed in various construction projects, ensuring that stakeholder input plays a significant role in decision-making. Public consultations incorporated into the design process have led to modifications that account for the preferences of local residents. In projects such as urban regeneration initiatives, this collaborative approach has strengthened community support and acceptance, resulting in smoother implementation phases (Bua & Bussu, 2021).

In Africa, several countries have recognized the role of participatory project management in enhancing construction outcomes. South Africa's Expanded Public Works Programme actively engages local communities in major construction projects, focusing on employment

creation and skills development. This initiative promotes collaboration between community members and construction teams, ensuring that projects align with local needs. The outcome has not only improved infrastructure delivery but has also provided sustainable livelihoods for participants, addressing broader socio-economic issues (Kgobe *et al.*, 2023).

Community involvement in building projects is something that Kenya has also enthusiastically adopted. The Kenya Urban Support Programme emphasizes the importance of participatory planning, allowing residents to play an active role in decision-making processes concerning infrastructure development. Community consultations have proven effective in identifying local priorities, particularly in road construction and housing projects. Recent housing initiatives in informal settlements, which involved residents in design discussions, resulted in solutions that directly reflect the preferences of the community, promoting greater satisfaction and sustainability (Okoth, 2023).

Rwanda showcases a strong commitment to participatory project management in its infrastructure development efforts. The Rwandan national housing program incorporates extensive community involvement in planning phases. Public consultations and stakeholder workshops facilitate dialogue among residents, local authorities, and construction professionals, ensuring that projects meet community aspirations. The Kigali Integrated Urban Development Project exemplifies the positive impact of this participatory framework in enhancing urban infrastructure, while simultaneously fostering social cohesion among community members (Rwamuhinda, 2024).

The Mpazi Project in Nyarugenge District illustrates how stakeholder engagement contributes to project performance through identification, planning, and implementation phases. Research findings indicate high correlations between stakeholder involvement and project outcomes, with significant contributions observed in planning and identification activities. Utilizing descriptive case study methods and a stratified sample, data revealed that incorporating stakeholder input enhances decision-making and execution (Kayonga & Irechukwu, 2023).

The construction industry in Rwanda, vital for socio-economic transformation faces challenges including budget overruns, schedule delays, and quality concerns. These inefficiencies are often linked to poor stakeholder engagement, which affects project communication, scope clarity, and risk management. Studies emphasize that proactive stakeholder involvement throughout the project lifecycle can mitigate delays, improve budgeting, and enhance quality (Ntawiniga, 2024).

The construction industry in Rwanda faces significant challenges, despite its rapid growth driven by urbanization and infrastructure development. A prominent issue is the prevalence of budget overruns; a study by Gakwaya *et al.* (2020) revealed that 72% of construction projects in Kigali City encountered such financial discrepancies. Factors contributing to these overruns include poor communication, unclear project scopes, and inadequate risk management. Insufficient stakeholder engagement has been identified as a critical factor impacting effective communication and clarity regarding project goals, ultimately compromising budgeting and cost control measures. This gap in stakeholder participation highlights a fundamental weakness within the construction industry that undermines financial planning and resource allocation.

Alongside budget issues, schedule delays are rampant within the Rwandan construction sector. Mukiza *et al.* (2021) found that 68% of public construction projects experienced delays, often attributed to material shortages, changes in project scope, and poor coordination among stakeholders. The lack of proactive stakeholder engagement in the planning and scheduling processes exacerbates these delays, preventing early detection of potential issues and the development of effective mitigation strategies. The ongoing occurrence of these delays not only disrupts project timelines but also affects the overall efficiency of the construction sector, leading to disputes and increased costs, further straining project viability.

A survey conducted by Uwiringiyimana *et al.* (2022) indicated that 82% of construction professionals in Rwanda reported quality issues in their projects, primarily due to a lack of skilled labor, inadequate supervision, and poor communication between contractors and subcontractors. These quality problems threaten the structural integrity and durability of constructions, ultimately endangering public safety and trust in the construction industry. Addressing the underlying causes of quality deficiencies is crucial and requires a concerted effort toward effective stakeholder engagement to ensure adherence to quality standards throughout the entire construction process.

Several studies of Ntawiniga (2024), Gakwaya *et al.* (2020), Mukiza *et al.* (2021) and Uwiringiyimana *et al.* (2022) have been conducted on participatory project management and its impact on construction project outcomes. However, no studies have been done specifically on effect of participatory project management on performance of Mulindi-Gasogi Road Project in Rwanda. This study on Mulindi-Gasogi Road Project addressed gaps of knowledge.

1.1 General Objective

The general objective of this research was to assess the effect of participatory project management practices on performance of Mulindi-Gasogi Road Project in Rwanda.

1.2 Specific Objectives

1. To determine the effect of participatory planning on performance of Mulindi-Gasogi Road Project in Gasabo District.

2. To assess the effect of participatory implementation on performance of Mulindi-Gasogi Road Project in Gasabo District.
3. To analyze the effect of participatory monitoring and evaluation on performance of the Mulindi-Gasogi Road Project in Gasabo District.

2. Literature Review

This section presents the theoretical foundations and prior empirical evidence relevant to the study objectives.

2.1 Theoretical Review

The following theories provide the basis for examining the relationships between the independent variables and project outcomes.

2.1.1 Stakeholder Theory

Stakeholder Theory, introduced in the 1980s, posits that organizations must recognize and address the interests of all stakeholders involved in or affected by a project. This approach shifts focus from solely maximizing shareholder profit to creating value for a broader group, including employees, customers, suppliers, and local communities. The theory argues that organizations or projects are more successful when they consider and engage the needs and expectations of all relevant stakeholders. This leads to better decision-making, enhanced cooperation, and reduced conflicts. Stakeholder identification, prioritization, and engagement are critical processes under this theory (Mahajan *et al.*, 2023).

The theory emphasizes that maintaining transparent communication with stakeholders helps in managing their expectations and mitigating risks. It encourages a balanced approach to decision-making where the interests of various parties are considered, aiming to deliver benefits to all stakeholders involved. Stakeholder Theory is widely applied in project management, particularly for projects with diverse and impacted stakeholder groups, ensuring alignment of goals and mutual benefit (Oladeinde *et al.*, 2023).

This study used Stakeholder Theory to assess the effect of participatory implementation on performance of Mulindi-Gasogi Road Project in Rwanda. The theory highlights the importance of stakeholder engagement, aiding in evaluating how participatory implementation practices contribute to achieving project goals.

2.1.2 Systems Theory

Systems Theory, which emerged in the mid-20th century, focuses on understanding the interrelationships and interdependencies among various elements within a system. It operates on the principle that a system's behavior cannot be fully understood by examining individual components in isolation. Instead, the system must be viewed holistically, considering how parts interact and influence each other. In project management, this approach helps identify how changes in one aspect of a project, such as resource allocation, can impact other aspects, like time or quality (Davis, 2023).

Systems Theory encourages a comprehensive approach to problem-solving, where every project element is seen as interconnected, allowing for better decision-making and risk management. It highlights the importance of feedback loops, where outputs from different parts of the system are continuously evaluated and adjusted. Applying this theory to project management enables a more dynamic understanding of project performance and provides a framework for addressing issues that affect multiple areas of a project simultaneously (Li *et al.*, 2023).

This study used Systems Theory to assess the effect of participatory project management practices on the performance of the Mulindi-Gasogi Road Project in Rwanda. The theory's holistic approach helped evaluate the interconnected impacts of participatory planning, implementation, and monitoring and evaluation.

2.1.3 Participative Leadership Theory

Leadership Theory was developed by Kurt Lewin in the 1930s, who conducted studies on group dynamics and introduced various leadership styles, including autocratic, democratic (participative), and laissez-faire leadership. His work laid the foundation for understanding participative leadership, emphasizing the value of involving team members in decision-making processes. Rensis Likert further explored this concept in the 1960s with his model, which highlighted the significance of employee involvement and participatory decision-making in organizational settings. Overall, participative leadership emerged as a concept over time through various contributions from researchers and practitioners in management and organizational behavior (Kim & Noh, 2022).

Participants in the participative leadership model may include patrons, managers, seniors, and juniors. Understanding this theory is crucial, as it enhances the effectiveness of individuals as employees or managers. In participative leadership, the entire team takes part in the decision-making process within an organization. Team members can share their thoughts and ideas with the manager before implementing new processes or procedures at work. A participative leader possesses several characteristics, such as open-mindedness, curiosity, collaboration, critical thinking, mindfulness, and strong communication skills. Effective communication between leaders and workers ensures that ideas and thoughts can flow smoothly and without difficulty (Wang & Zheng, 2021).

Participative Leadership Theory was relevant to the effect of participatory project management practices on performance of Mulindi-Gasogi Road Project in Rwanda, as it emphasized the importance of involving stakeholders such as team members, local communities, and government officials in the decision-making processes throughout the project lifecycle.

2.2 Empirical Review

The empirical review presents evidence from studies corresponding to each specific research objective.

2.2.1 Participatory Planning and Performance of Construction Projects

Kwamboka and Deya (2022) examined the effect of participatory planning on project sustainability, focusing on the Nyakome Water Project in Manga Sub-county, Nyamira County, Kenya. The research highlights the critical role of community involvement in various project phases, aiming to establish the relationship between participatory planning and sustainability. Utilizing a descriptive research design, the study targeted an estimated population of 1500 homesteads and surveyed 150 of these, which included beneficiaries and members of the project management team. Key constructs measured included project needs, objectives, and decision-making processes. Findings reveal that most respondents agree on a substantial level of planning, despite some variance in opinions. The analysis demonstrates that planning activities significantly contribute to project sustainability, indicating a positive and significant relationship between participatory planning and sustainability outcomes. This reinforces the importance of community participation in enhancing the success and longevity of development projects.

Fredrick and Ahmad (2023) investigated the factors influencing community engagement and participation levels in agricultural initiatives planning, specifically focusing on the Matongoro cattle auction project in Tanzania. Despite the implementation of a bottom-up methodology in community development, many initiatives fail to yield the desired outcomes due to the insufficient involvement of the intended beneficiaries. Through a combination of focus groups, key informant interviews, and surveys, data was collected from a sample of 150 participants to assess their levels of engagement. The analysis employed descriptive statistics to generate frequency and percentage counts, as well as a binary logistic regression model to identify significant variables. The results revealed that over 90% of respondents reported low levels of engagement, highlighting the ineffectiveness of the bottom-up approach. Additionally, key factors such as age, sex, income, the number of cattle owned, awareness, and experience were found to significantly impact community involvement in these initiatives. The study emphasized the need for the government to actively involve local communities at all stages, from brainstorming to execution, to enhance the success and sustainability of agricultural projects.

Setiani *et al.* (2023) assessed the factors contributing to material supply delays in Siak Regency, employing a descriptive survey research design. The study revealed variability in the degree of collaboration between contractors and other stakeholders across different projects. In several cases, ineffective communication channels and coordination mechanisms led to delays, conflicts, and operational inefficiencies. Conversely, successful collaboration in other instances correlated with enhanced project performance. The findings highlight that fostering strong collaboration among contractors and stakeholders is crucial for the success of road construction projects, emphasizing the need for improved communication and coordination to mitigate delays and improve overall project outcomes. This underscores the importance of establishing effective collaborative practices in project management to enhance efficiency and effectiveness in construction processes.

2.2.2 Participatory Implementation and Performance of Construction Projects

Madey and Chege (2022) investigated the influence of participatory project cycle management on the performance of donor-funded projects in Mandera County. Guided by theories like Community Action Planning and Arnstein's Ladder of Citizen Participation, the research specifically examined the effect of participatory identification, planning, implementation, and monitoring and evaluation on project success. Data were gathered from 16 donor-funded projects and 344 household heads benefiting from these initiatives. Analysis using SPSS revealed that stakeholder participation significantly enhances project performance, particularly when communities are actively involved in planning and monitoring processes. However, the study also identified challenges, such as low levels of community engagement in monitoring and evaluation stages. Recommendations were made for organizations to foster greater community participation across all phases to improve project outcomes. Additionally, the study suggested further research should expand the scope to include other stakeholders beyond household heads to gain a more comprehensive understanding of the factors influencing community participation and project performance.Mougiakou and Karimali (2023) examined public participation in projects on the Greek Island of Gavdos, focusing on the impact of community involvement on project performance. Utilizing a survey research design, the study incorporated both questionnaires and interviews with community members residing near the project areas to assess their levels of participation and satisfaction. Findings indicated that active community contribution in monitoring and evaluation (M&E) processes significantly influenced project performance. Engaged communities provided essential feedback on project progress, facilitating timely adjustments and leading to improved outcomes. The research concluded that involving community members in M&E activities not only enhances project effectiveness but also fosters a sense of ownership among residents. This highlights the importance of public participation in ensuring the success and sustainability of development projects within local contexts.

Kinyata and Abiodun (2020) investigate the impact of community participation on the success of projects in Africa, advocating for a bottom-up approach to development. The study emphasizes the importance of involving local communities in project planning and execution to enhance project outcomes and sustainability. The authors argue that successful projects stem from active community engagement, which fosters a sense of ownership and accountability among beneficiaries. Using a thorough literature review and empirical data analysis, the research demonstrates that meaningful participation is linked to increased project effectiveness and reduced corruption, as communities become stakeholders in resource management. The findings highlight the historical context where many development initiatives were imposed without local input, leading to failures and ongoing consequences for countries that accumulated debt without reaping benefits. The article concludes that adopting a bottom-up approach, which prioritizes

community participation, is vital for the successful implementation of development projects across Africa, ensuring that local needs and perspectives are adequately addressed.

2.2.3 Participatory Monitoring and Evaluation and Performance of Construction Projects

Mohamed (2022) explored the impact of participatory monitoring and evaluation (PME) on the performance of community-based Internally Displaced Person (IDP) projects in Afgooye, Lower Shebelle, Somalia. It highlights the progress made in Somalia since the federal government was established in 2012, noting that towns have become key destinations for displaced persons seeking improved living conditions. The study aimed to examine the effect of project manager knowledge, planning, resource availability, and stakeholder involvement in PME on project performance. Grounded in community action plan theory and stakeholder theory, a cross-sectional descriptive survey was utilized, targeting approximately 1,250 individuals, from which a sample of 175 was selected through simple random and purposive sampling. Data were collected via questionnaires and key informant interviews, with the Statistical Package for the Social Sciences (SPSS) version 25 employed for data analysis. Results indicate the significance of effective PME in enhancing project outcomes for displaced communities.

De Medici *et al.* (2023) investigated participatory approaches in social housing projects through a descriptive research design. The study utilized a structured questionnaire survey directed at residents living near construction sites to assess their satisfaction with project performance. Key findings indicated that community satisfaction was significantly influenced by infrastructure quality, adherence to project timelines, and the extent of community participation in decision-making processes. Residents who were actively involved and had their concerns taken into account reported higher levels of satisfaction with project outcomes. The study concluded that a strong link exists between community satisfaction and the level of involvement in construction projects, underscoring the importance of participatory practices in enhancing project success and fostering positive relationships between developers and residents.Kampire and Gitahi (2023) investigated the influence of community involvement on the long-term viability of projects in Gakenke District, Rwanda, emphasizing the role of participatory monitoring and evaluation (PM&E). Employing a descriptive research design, the study sampled 151 respondents out of a target population of 244, using questionnaires and document reviews for data collection. Descriptive and inferential statistics were applied to analyze the data. The findings revealed that community engagement significantly impacts project sustainability. Specifically, the involvement of beneficiaries, the identification of activities, and the clarity of project objectives were found to account for approximately 97.6% of the variance in project sustainability ($R^2 = 0.976$). In contrast, the project design system and reporting system contributed less significantly, explaining 11.1% and 7.4% of the variance, respectively. The study concludes that effective PM&E is crucial for ensuring that the benefits and structures of projects endure beyond their completion. It underscores the importance of involving beneficiaries in the M&E process to enhance capacity building, skill development, and training. Improved system design, operational clarity, and frequent result reporting are recommended to boost project performance and sustainability.

3. Methodology

The research applied descriptive and correlational approaches to examine participatory project management and construction-project performance. Quantitative questionnaire responses were supplemented with qualitative accounts and project documents.

3.1 Research Design

A descriptive design summarized participants' perceptions of participatory planning, implementation, monitoring and evaluation, and project performance. A correlational design examined the direction and strength of the relationships, with multiple regression estimating the unique associations of each practice with performance. Qualitative information provided explanatory context for the quantitative findings.

3.2 Study Population

The study population consisted of 313 individuals involved in the Mulindi-Gasogi Road Project including project managers, project staff, and community or local leaders. These groups were included because their responsibilities and involvement gave them direct knowledge of project practices and outcomes.

3.3 Sampling Design

The researcher adopted a census of the full population of 313 rather than selecting a subset. All eligible participants were targeted for the questionnaire, of whom 304 returned complete responses; six project managers additionally provided interview information reported in the dissertation.

3.4 Data Collection Instrument

Primary evidence was obtained through a structured questionnaire containing 16 substantive items on the three participatory practices and project performance. Responses were recorded on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Interviews with six project managers gathered contextual views; documentation reviewed project reports, progress assessments, and other official records.

3.5 Pilot Study, Validity and Reliability

The questionnaire was pretested with 31 project staff to examine clarity, relevance, and response consistency. Content validity was assessed against a Content Validity Index (CVI) threshold greater than 0.70, and the dissertation reported a CVI of 0.80. Cronbach's alpha was used to assess internal consistency with 0.70 as the minimum acceptable benchmark; the four constructs recorded coefficients of 0.830, 0.828, 0.819, and 0.807, with an overall alpha of 0.821.

3.6 Data Analysis

Completed questionnaires were edited, coded, tabulated, and analyzed using SPSS version 25. Frequencies, percentages, means, and standard deviations summarized the data. Mean scores were interpreted as very low (1.0–1.8), low (1.9–2.6), neutral (2.7–3.4), high (3.5–4.2), and very high (4.3–5.0). Standard deviations not exceeding 0.50 were treated as homogeneous, while larger deviations indicated heterogeneous responses. Pearson correlation assessed bivariate relationships; multiple regression tested the simultaneous contribution of the three predictors at $\alpha = 0.05$. The estimated model was $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$, where Y was project performance, X_1 participatory planning, X_2 participatory implementation, and X_3 participatory monitoring and evaluation.

3.7 Ethical Considerations

The study followed voluntary participation, informed consent, anonymity, and confidentiality. Institutional authorization was obtained from the University of Kigali and the project administration, and collected data were handled for academic research purposes.

4. Result and Discussions

This section presents response rate, correlation and regression analyses, hypothesis decisions, and objective-aligned discussion of the findings.

4.1 Response Rate

The response rate measured the proportion of distributed questionnaires that produced complete cases suitable for analysis.

Table 1: Response rate

	Frequency	Percent
Completed	304	97.12
Unreturned	9	2.88
Total	**313**	**100.00**

Source: Field data, 2026

Of 313 questionnaires distributed, 304 were completed (97.12%) and 9 remained unreturned (2.88%). The 304 valid cases formed the quantitative dataset for the subsequent analyses.

4.2 Inferential Statistics

Pearson correlations measured individual relationships between participatory practices and project performance. Multiple regression established the joint explanatory value of the three practices and their independent contributions, with a significance criterion of 0.05.

4.2.1 Correlation Analysis

The correlation analysis used the 304 complete cases and two-tailed significance tests to establish the direction and strength of the objective-specific associations.

Table 2: Correlations between participatory practices and project performance

		Participatory Planning	Participatory Implementation	Participatory Monitoring and Evaluation	Project performance
Participatory Planning	Pearson Correlation	1	.859**	.770**	.821**
	Sig. (2-tailed)		.000	.000	.000
	N	304	304	304	304
Participatory Implementation	Pearson Correlation	.859**	1	.816**	.833**
	Sig. (2-tailed)	.000		.000	.000
	N	304	304	304	304
Participatory Monitoring and Evaluation	Pearson Correlation	.770**	.816**	1	.818**
	Sig. (2-tailed)	.000	.000		.000
	N	304	304	304	304
Project performance	Pearson Correlation	.821**	.833**	.818**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	304	304	304	304

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Field data, 2026

Participatory planning was strongly and positively correlated with project performance ($r = 0.821$, $p < 0.001$). Participatory implementation showed a similarly strong association ($r = 0.833$, $p < 0.001$), while participatory monitoring and evaluation was also positively associated with performance ($r = 0.818$, $p < 0.001$). All three relationships were statistically significant at the 0.05 level.

4.2.2 Regression Analysis

Multiple regression estimated project performance from participatory planning, implementation, and monitoring and evaluation after accounting for the other included predictors.

Table 3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.880[a]	.774	.772	.24962	1.951

a. Predictors: (Constant), Participatory Monitoring and Evaluation, Participatory Planning, Participatory Implementation
b. Dependent Variable: Project performance
Source: Field data, 2026

The regression model recorded $R = 0.880$, $R^2 = 0.774$, and adjusted $R^2 = 0.772$. The three participatory predictors jointly accounted for 77.4% of the variance in performance scores. Durbin–Watson was 1.951, close to the reference value of 2 for uncorrelated residuals.

Table 4: ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.174	3	21.391	343.315	.000[b]
	Residual	18.693	300	.062		
	Total	82.867	303			

a. Dependent Variable: Project performance
b. Predictors: (Constant), Participatory Monitoring and Evaluation, Participatory Planning, Participatory Implementation
Source: Field data, 2026

The overall regression was statistically significant, $F(3, 300) = 343.315$, $p < 0.001$, indicating that the three predictors jointly provided explanatory value for variation in project performance.

Table 5: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.324	.110		2.942	.004		
	Participatory Planning	.309	.055	.312	5.655	.000	.248	4.037
	Participatory Implementation	.278	.060	.281	4.613	.000	.203	4.920
	Participatory Monitoring and Evaluation	.326	.046	.349	7.140	.000	.316	3.169

a. Dependent Variable: Project performance
Source: Field data, 2026

Participatory planning had a positive unstandardized coefficient ($B = 0.309$; standardized $\beta = 0.312$; $t = 5.655$; $p < 0.001$). Participatory implementation was also positive ($B = 0.278$; $\beta = 0.281$; $t = 4.613$; $p < 0.001$), as was participatory monitoring and evaluation ($B = 0.326$; $\beta = 0.349$; $t = 7.140$; $p < 0.001$). VIF values of 4.037, 4.920, and 3.169 were below 5, with tolerances of 0.248, 0.203, and 0.316. The fitted equation was: Performance = 0.324 + 0.309(Planning) + 0.278(Implementation) + 0.326(Monitoring and Evaluation) + ε.

4.3 Decision on Null Hypotheses

Null hypotheses were rejected when the corresponding regression coefficient recorded $p < 0.05$. Decisions were taken from the reported model rather than from bivariate correlation alone.

Table 6: Decision on null hypotheses

Research Hypotheses	Decision
H_{01}: There is no significant effect of participatory planning on performance of Mulindi-Gasogi Road Project in Gasabo District.	H_{o1}, rejected since $p<0.05$
H_{02}: There is no significant effect of participatory implementation on performance of Mulindi-Gasogi Road Project in Gasabo District.	H_{o2}, rejected since $p<0.05$
H_{03}: There is no significant effect of participatory monitoring and evaluation on performance of the Mulindi-Gasogi Road Project in Gasabo District.	H_{o3}, rejected since $p<0.05$

Source: Field data, 2026

All three null hypotheses were rejected because the significance probabilities for participatory planning, implementation, and monitoring and evaluation were below 0.05.

4.4 Discussion of Research Findings

The findings are discussed in the order of the specific objectives and compared only with theories and studies presented in the preceding literature review.

4.4.1 Effect of Participatory Planning on Project Performance

Participatory planning recorded a positive coefficient ($B = 0.309$, $t = 5.655$, $p < 0.001$) and a strong bivariate relationship with performance ($r = 0.821$). These findings indicated that stakeholder involvement in identifying needs, determining objectives, and allocating resources was associated with stronger project outcomes. Kwamboka and Deya (2022) found that community engagement in planning contributed positively to project sustainability. Fredrick and Ahmad (2023) highlighted the challenges that emerge when intended beneficiaries have little involvement in project decisions, while Setiani *et al.* (2023) linked collaboration and communication with construction project efficiency. Participative Leadership Theory also helps explain why shared planning can align project priorities with stakeholder expectations.

4.4.2 Effect of Participatory Implementation on Project Performance

The positive regression coefficient for participatory implementation ($B = 0.278$, $t = 4.613$, $p < 0.001$) showed that collaborative execution remained significantly associated with performance after the other practices were controlled. Madey and Chege (2022) reported beneficial effects of participatory project-cycle practices in donor-funded programmes, supporting the value of shared implementation responsibilities. Kinyata and Abiodun (2020) likewise emphasized community participation for successful projects, while Mougiakou and Karimali (2023) connected public participation with better project experiences. Stakeholder Theory provides a basis for interpreting participation as a mechanism for coordination, accountability, and project acceptance.

4.4.3 Effect of Participatory Monitoring and Evaluation on Project Performance

Participatory monitoring and evaluation produced the largest unstandardized regression coefficient ($B = 0.326$, $t = 7.140$, $p < 0.001$) and was strongly associated with performance ($r = 0.818$). This indicates the contribution of feedback, progress reviews, and stakeholder-led corrective action to reported project performance. Kampire and Gitahi (2023) linked community participation in monitoring and evaluation with sustainability, while Mohamed (2022) examined the contribution of participatory monitoring in community-based projects. De Medici *et al.* (2023) also emphasized the value of resident participation and satisfaction in development projects. Systems Theory supports these results by treating feedback and coordinated adjustment as interconnected elements of effective project management.

5. Conclusion and Recommendations

This section presents conclusions and recommendations derived from the specific objectives and statistical results.

5.1 Conclusion

Participatory planning had a statistically significant and positive association with the performance of the Mulindi-Gasogi Road Project. Involving stakeholders in defining project needs and objectives helped create a stronger basis for decisions about resources and implementation. Participatory implementation was also significant, indicating that shared execution, coordination, and ongoing communication were important to project outcomes. Participatory monitoring and evaluation showed the greatest unstandardized contribution within the fitted model, highlighting the importance of timely feedback, stakeholder oversight, and adjustment during implementation. The three practices together explained 77.4% of variation in the reported performance measure. These cross-sectional associations support practical improvements in participation, but do not independently establish causal effects.

5.2 Recommendations

The following recommendations are based on the objectives and empirical findings.

1. Project Managers are recommended to enhance participatory planning practices by actively involving stakeholders in identifying project needs to ensure that project objectives align with community expectations.

2. Project Staff have to facilitate open communication channels with stakeholders during the implementation phase to ensure that project tasks are executed collaboratively, enhancing overall project efficiency.
3. Community/Local Leaders should promote stakeholder involvement in participatory project planning to ensure that diverse perspectives are integrated into project objectives.
4. Project Managers should develop protocols that ensure stakeholder feedback is systematically incorporated during the monitoring phase, enhancing project adaptability based on real-time insights.
5. Project Staff need to continuously evaluate the impact of participatory practices on project performance, using feedback mechanisms to refine engagement strategies and improve outcomes.

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