



Influence Of Project Implementation Strategies on Performance of the Kigali Informal Settlement Upgrading Project (KISUP) in Nyarugenge District, Rwanda

Rwangabo Jean Paul & Ruth Odengo

University of Kigali

Email: jeanpaulrwangabo94@gmail.com

Abstract: *This study examined the influence of project implementation strategies on the performance of the Kigali Informal Settlement Upgrading Project (KISUP) in Nyarugenge District, Rwanda. It assessed project design, stakeholder engagement, resource management, and monitoring and evaluation in relation to project performance. Guided by Stakeholder Theory, Contingency Theory, and Goal-Setting Theory, the study adopted a descriptive and correlational mixed-methods design. The target population comprised 477 KISUP stakeholders, with 217 sampled. Data were collected from 164 questionnaire respondents and 27 key informants. Quantitative data were analyzed using descriptive statistics, Pearson correlation, multiple regression, and ANOVA, while qualitative data were analyzed thematically. Results indicated high agreement on project design ($M = 4.27$), stakeholder engagement ($M = 4.25$), resource management ($M = 4.27$), monitoring and evaluation ($M = 4.28$), and project performance ($M = 4.26$). All four strategies correlated positively with performance. The regression model was significant, $F(4,159) = 76.614$, $p < .001$, explaining 65.8% of performance variance ($R^2 = .658$). Project design was the strongest significant predictor ($\beta = .617$, $p < .001$), followed by monitoring and evaluation ($\beta = .356$, $p < .001$). Stakeholder engagement and resource management were not significant independent predictors. The study concludes that effective front-end design and continuous monitoring are critical to KISUP performance. It recommends comprehensive planning, stronger feedback-oriented M&E, sustained stakeholder participation, and improved resource coordination.*

Keywords: *Project Implementation Strategies, Project Design, Stakeholder Engagement, Resource Management Monitoring and Evaluation, Project Performance, Kisup; Rwanda*

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1. Introduction

Informal settlement upgrading has become an important instrument for improving living conditions while supporting more inclusive and resilient urban development. Such projects typically combine physical interventions including roads, drainage, sanitation, public spaces and other basic services with social and

institutional measures such as participation, tenure-related support, community empowerment and improved access to services. Their performance therefore depends not only on the technical quality of outputs but also on the way planning, coordination, stakeholder relations, resource allocation and monitoring are organized throughout the project lifecycle (UN-Habitat, 2025; Mitlin & Satterthwaite, 2023).

Globally, informal settlement upgrading is closely associated with Sustainable Development Goal 11, which calls for inclusive, safe, resilient and sustainable cities. Evidence reviewed in the source study indicates that upgrading initiatives perform better when physical investments are combined with participatory planning, community capacity building, appropriate institutional support and continuous learning. In Latin America, for example, in-situ regeneration approaches have combined infrastructure improvements with participatory planning and recognition of community priorities, while research in Europe emphasizes institutional coordination, legal frameworks and affordability safeguards (Huchzermeyer & Karam, 2022; Fainstein, 2023; Tasan-Kok et al., 2023). The Sub-Saharan African context is characterized by rapid urbanization, constrained public budgets, institutional capacity limitations and complex stakeholder interests.

Incremental and phased approaches are therefore frequently adopted, with initial attention to essential infrastructure followed by broader interventions as resources and institutional capacity permit. The literature reviewed in the dissertation suggests that flexible and community-responsive implementation is often more effective than rigid top-down execution because it allows project teams to adapt to changing needs and implementation constraints (Amis & Olima, 2023; Satterthwaite et al., 2024). Within East Africa, programs such as the Kenya Slum Upgrading Programme and related initiatives have demonstrated the importance of community participation, multi-stakeholder coordination and incremental delivery. However, persistent challenges involving population growth, land issues, funding constraints and institutional coordination make implementation strategies particularly important (White & Yanne, 2024; Huchzermeyer, 2021). In Rwanda, KISUP represents an important urban response to informal settlement challenges in Kigali. The project has involved infrastructure and service improvements in Nyarugenge District, but the dissertation identifies continuing concerns concerning coordination, resource use, monitoring, equitable access and sustained community engagement (Ministry of Infrastructure Rwanda, 2022; Kayitare, 2024).

The problem addressed by this study is therefore not simply whether KISUP has produced outputs, but whether the implementation strategies used to translate plans into outputs have contributed to measurable project performance. Poor implementation can produce delays, cost pressures, weak quality and low beneficiary satisfaction even where project objectives are appropriate. Previous studies have linked participatory planning, stakeholder involvement, institutional coordination and monitoring with project success, but the source study identified limited evidence examining the combined effects of project design, stakeholder engagement,

resource management, and monitoring and evaluation on KISUP specifically (Kumar & Singh, 2023; Chirwa, 2023).

The study consequently responds to a contextual, conceptual and empirical gap. Much of the reviewed evidence concerns large infrastructure or general development projects rather than informal settlement upgrading. In addition, previous studies frequently examined individual implementation strategies rather than their combined explanatory contribution. Finally, Rwanda-specific studies had not provided a detailed assessment of the four strategies within KISUP using both descriptive and inferential evidence. This study therefore integrates the four strategies in one analytical model and evaluates their relationships with timeliness, cost control, quality and community-oriented project performance.

1.1 Objectives of the study were

1.1.1 General Objective

The general objective of this study was to examine the influence of project implementation strategies on the performance of the Kigali Informal Settlement Upgrading Project (KISUP) in Nyarugenge District, Rwanda.

1.1.2 Specific Objectives

1. To assess the influence of project design on the performance of KISUP in Nyarugenge District.
2. To examine the influence of stakeholder engagement on the performance of KISUP in Nyarugenge District.
3. To evaluate the influence of resource management on the performance of KISUP in Nyarugenge District.
4. To determine the influence of monitoring and evaluation on the performance of KISUP in Nyarugenge District.

1.1.3 Hypotheses of the study

1. H_{01} : Project design has no significant influence on the performance of KISUP in Nyarugenge District.
2. H_{02} : Stakeholder engagement has no significant influence on the performance of KISUP in Nyarugenge District.
3. H_{03} : Resource management has no significant influence on the performance of KISUP in Nyarugenge District.
4. H_{04} : Monitoring and evaluation have no significant influence on the performance of KISUP in Nyarugenge District.

2. Literature Review

2.1 Conceptual Review

Project implementation strategies are structured approaches through which project plans are translated into coordinated activities, outputs and outcomes. They encompass planning, scheduling, communication, resource coordination and control mechanisms that connect project design with actual execution (Harrison & Lock, 2020; Nicholas & Steyn, 2021). In complex development projects, implementation strategies must remain sufficiently adaptive to changing stakeholder expectations, resource conditions and environmental constraints (Lock, 2020; Turok, 2022).

Project design refers to the process of defining project scope, objectives, activities, responsibilities, timelines, risks and resource requirements in a coherent implementation architecture. A strong design establishes a practical roadmap before construction or service delivery begins and reduces ambiguity concerning what should be achieved, by whom, when and with what resources (Wysocki, 2020; Heagney, 2021). In informal settlement upgrading, design must additionally reflect community priorities and local social, economic and environmental conditions (De Roo, 2020; Davoudi, 2021).

Stakeholder engagement refers to systematic identification, communication, consultation and participation of individuals and groups that affect or are affected by a project. It supports transparency, trust, conflict management, ownership and the alignment of project decisions with stakeholder expectations (Bryson, 2021; Reed et al., 2022). In upgrading projects, continuous engagement is particularly important because residents, authorities, contractors, development partners and technical actors may have different interests and levels of influence (Mansuri & Rao, 2023; Eskerod & Jepsen, 2023).

Resource management concerns the planning, allocation, coordination and utilization of financial, human and material resources. Effective resource management seeks to ensure that inputs are available when required, used for intended priorities and monitored sufficiently to minimize waste, delays and cost pressures (Haughey, 2021; Fewings, 2020). It also includes staffing, procurement, budgeting and resource-control processes (Too & Weaver, 2021).

Monitoring and evaluation refers to systematic tracking of implementation progress and assessment of outcomes against objectives. Monitoring provides continuous information on whether activities are proceeding as planned, whereas evaluation examines the relevance, effectiveness, efficiency and outcomes of interventions. Results-based M&E strengthens accountability, learning,

corrective action and decision-making (Kusek & Rist, 2023; Bamberger et al., 2024).

Project performance extends beyond the traditional time-cost-quality triangle. It includes achievement of objectives, stakeholder satisfaction, quality and sustainability of outputs, and the value created for beneficiaries (Shenhar & Dvir, 2020; Martinsuo & Geraldi, 2020; Jugdev & Müller, 2023). For KISUP, the study operationalized performance through timely completion, implementation according to schedule, budget control, financial control and quality of delivered work.

2.2 Theoretical Review

2.2.1 Stakeholder Theory

Stakeholder Theory, associated with Freeman's work, argues that organizational and project decisions should recognize the interests of multiple parties rather than privileging a single stakeholder group. Contemporary stakeholder research emphasizes identification, prioritization, communication and balancing of competing interests (Donaldson & Preston, 2025; Aaltonen & Kujala, 2024). The theory is relevant to KISUP because residents, local authorities, government agencies, contractors, technical experts and development partners all influence or are affected by implementation. Effective engagement can strengthen legitimacy, trust, accountability and ownership.

2.2.2 Contingency Theory

Contingency Theory holds that there is no universally optimal management strategy; effectiveness depends on the fit between management practices and situational conditions. Project complexity, uncertainty, resources, stakeholder dynamics and institutional environments may therefore require managers to adjust implementation approaches (Donaldson, 2022; Lawrence & Lorsch, 2023). This theory is particularly appropriate for KISUP because informal settlement upgrading takes place in dynamic settings where site conditions, community concerns, procurement constraints and technical issues can change during implementation.

2.2.3 Goal-Setting Theory

Goal-Setting Theory proposes that specific and challenging goals, supported by feedback and commitment, guide performance by clarifying expected results and directing effort (Lunenburg, 2021; Locke & Latham, 2023). In project environments, clear objectives, measurable targets and feedback mechanisms provide a basis for planning and performance control. The theory therefore helps explain why project design and monitoring may be especially influential in KISUP: design establishes the goals and implementation roadmap, while M&E supplies feedback on progress toward those goals.

2.3 Empirical Review

Evidence reviewed in the source dissertation generally supports a positive association between implementation strategies and project performance. Velasquez (2022), using survey data from infrastructure project managers in Latin America, reported improved timeliness and cost efficiency where planning, coordination and monitoring were integrated. Zhang and Liu (2021) similarly found that phased execution and strict monitoring improved quality and efficiency in urban development projects in China. Schneider (2023) reported higher success among German public infrastructure projects with clearly defined implementation strategies. In Ghana, Mensah (2022) linked participatory implementation and phased resource allocation with sustainability and beneficiary satisfaction, while Uwimana (2023) found positive effects of structured implementation approaches in Kigali urban upgrading projects. For stakeholder engagement, Almeida (2023) reported that inclusive engagement improved project success in international development projects. Rao and Iyer (2022) found that early and continuous stakeholder involvement improved acceptance and reduced delays in Indian urban infrastructure projects. McAllister (2021) emphasized coordination and communication, while Okafor (2022) linked grassroots participation with sustainability and community satisfaction. In Tanzania, Mashauri (2023) found a positive relationship between stakeholder engagement and project performance, and Nshimiyimana (2023) reported improved performance in Kigali urban development projects where stakeholders were actively involved. Resource-management evidence similarly points to the importance of disciplined allocation and control. Carvalho (2022) reported that structured resource planning and monitoring improved efficiency in infrastructure projects. Silva and Pereira (2021) linked financial and material resource management with improved quality and lower cost overruns in Brazilian public construction.

Tanaka (2023) emphasized competent human resources and coordination, while Hassan (2022) highlighted

phased resource allocation and financial monitoring in resource-constrained development projects. Kato (2023) associated transparent resource use with sustainability and trust in Ugandan community projects, and Mukamana (2024) found positive resource-management effects in Kigali urban upgrading. Monitoring and evaluation evidence is also consistently positive. Ramos (2022) reported that continuous M&E improved accountability, timeliness and output quality. Putri and Santoso (2021) linked regular reporting and feedback with efficiency and transparency. Henderson (2023) found that structured evaluation frameworks supported performance targets and organizational learning. Tesfaye (2022) linked regular monitoring with timeliness and cost control, Wanjiru (2023) found positive effects on sustainability and beneficiary satisfaction, and Ndayisaba (2024) reported strong M&E effects in Kigali urban development projects. The reviewed evidence nevertheless reveals limitations. Many studies examine large infrastructure, formal urban development or general development projects, while informal settlement upgrading has distinctive social and spatial complexities. Several studies focus on one implementation strategy at a time. Within Rwanda, existing studies identified in the dissertation had not simultaneously modeled project design, stakeholder engagement, resource management and M&E as predictors of KISUP performance. The present study addresses this gap by combining the four constructs in one regression model and complementing survey findings with key-informant evidence.

2.4 Conceptual Framework

The conceptual framework identifies project design, stakeholder engagement, resource management, and monitoring and evaluation as independent variables influencing project performance. Project design focuses on clear objectives, effective planning, and alignment with community needs; stakeholder engagement emphasizes participation, communication, and involvement; resource management covers effective use of financial, human, and material resources; while M&E involves regular monitoring, reporting, and feedback.

Independent variables Project Implementation Strategies

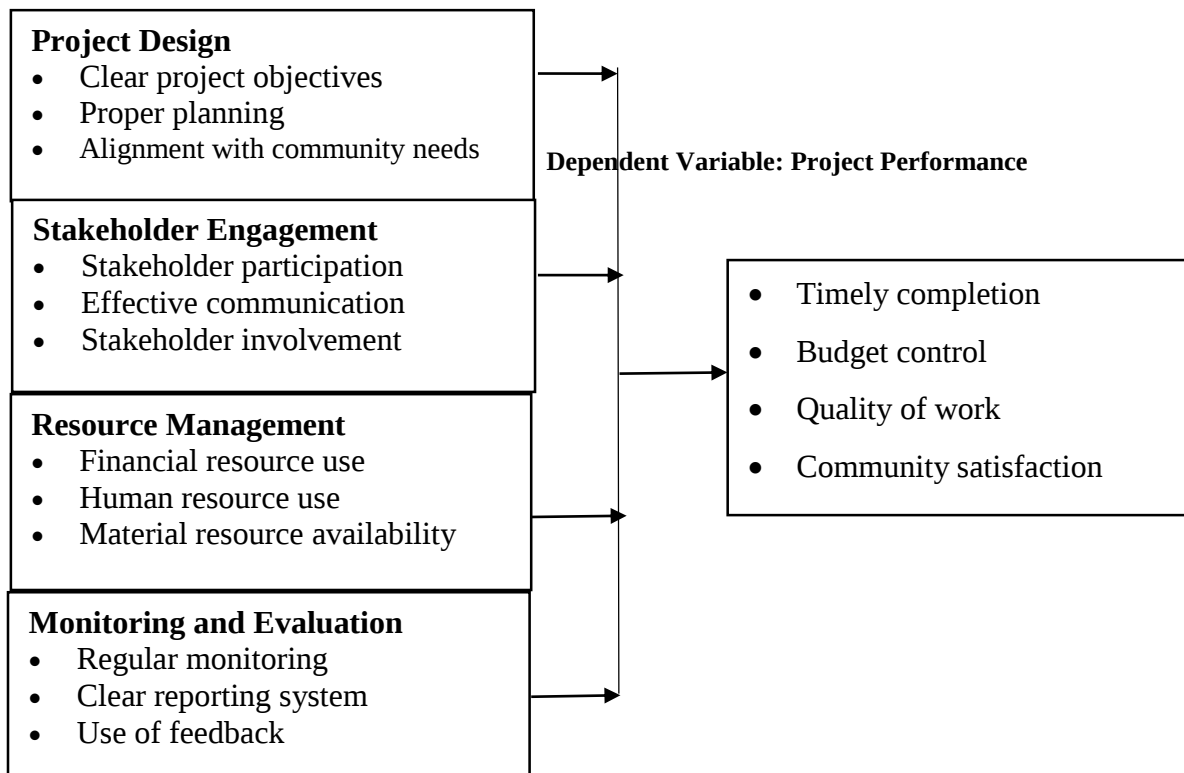


Figure 1: Conceptual framework; Source: Researcher, 2026

3. Methodology

The study adopted a descriptive and correlational mixed-methods design. The descriptive component summarized the implementation strategies and performance conditions observed in KISUP, while the correlational and regression components assessed relationships and predictive effects without manipulating the study variables. Qualitative interviews were used to explain and contextualize quantitative results, consistent with the mixed-method orientation reported in the source dissertation (Creswell, 2020; Saunders et al., 2022).

The target population comprised 477 stakeholders involved in or affected by KISUP: 18 government officials, 7 project managers, 35 civil engineers, 89 contractors, 6 procurement officers and 322 community representatives. Using Yamane's formula with a 5% margin of error, the study selected a sample of 217 respondents. Proportionate representation produced sample allocations of 8 government officials, 3 project managers, 16 civil engineers, 40 contractors, 3 procurement officers and 147 community representatives. Stratified random sampling was used for questionnaire

respondents, while purposive sampling was used for key informants.

Questionnaires were administered to 190 sampled stakeholders and 164 usable questionnaires were returned, producing an 86.3% questionnaire response rate. Twenty-seven key informants government officials, project managers and civil engineers were interviewed, giving a 100% interview response rate. The combined study response was 191 of 217 targeted participants, or 88.0%. The high response rate was considered adequate for analysis and reporting.

The questionnaire used five-point Likert-scale items covering project design, stakeholder engagement, resource management, monitoring and evaluation, and project performance. The interview guide was semi-structured and focused on implementation processes, stakeholder participation, resource use, M&E and perceived performance. A pilot study was conducted using 22 respondents, approximately 10% of the sample, in Kicukiro District to identify ambiguities and improve instrument clarity. Content, construct and face validity were supported through expert review and alignment with the conceptual framework. Triangulation of

questionnaire, interview and secondary information strengthened credibility.

Reliability was assessed using Cronbach's alpha. All constructs exceeded the 0.70 threshold: project design $\alpha = .841$, stakeholder engagement $\alpha = .813$, resource management $\alpha = .796$, monitoring and evaluation $\alpha = .857$, and project performance $\alpha = .826$. Overall reliability was $\alpha = .827$, indicating good internal consistency. Data were coded and analyzed using SPSS version 25. Descriptive statistics included frequencies, percentages, means and standard deviations. Pearson product-moment correlation assessed bivariate relationships, while multiple regression examined the combined and independent influence of the four implementation strategies on project performance. ANOVA assessed the overall significance of the regression model. Hypotheses

were evaluated at $\alpha = .05$. Qualitative interview data were organized thematically and used to corroborate, explain or qualify the quantitative findings. Ethical practice included voluntary participation, confidentiality, anonymity and use of information for academic purposes.

4. Results and Discussions

4.1 Descriptive Results

Descriptive results were interpreted using the five-point Likert scale in which higher means represent stronger agreement with the implementation or performance statement. Across all four implementation dimensions, aggregate means were above 4.20, indicating generally strong positive perceptions. The results are presented by objective below.

Table 1: Project Design

Statement	Mean	Std. Deviation
The project has clearly defined objectives.	4.28	0.721
Project objectives are clearly communicated to stakeholders.	4.19	0.803
Proper planning was conducted before project implementation.	4.35	0.689
Project activities follow a well-structured implementation plan.	4.22	0.752
The project design aligns with the needs of the community.	4.31	0.706
Aggregate Mean	4.27	0.734

Project design recorded an aggregate mean of 4.27, indicating strong agreement that the project was supported by effective design practices. Proper planning had the highest mean (4.35), followed by alignment with community needs (4.31). Clear objectives (4.28) and a structured implementation plan (4.22) were also strongly rated. Communication of objectives was comparatively lower (4.19), although still positive. The relatively small standard deviations indicate considerable consistency of opinion.

These findings are consistent with Wysocki (2020) and Heagney (2021), who emphasize that clear scope, objectives, sequencing and feasibility reduce uncertainty and improve coordination. They also support Davoudi (2021) and De Roo (2020), whose work highlights context-sensitive planning in complex urban environments. The finding that planning was the strongest descriptive indicator suggests that KISUP benefited from establishing a coherent roadmap before implementation.

The qualitative evidence in the source study similarly reported feasibility studies, engineering assessments, stakeholder consultations and community-needs assessments before implementation. This convergence strengthens the interpretation that design was not merely a formal planning exercise but an operational mechanism supporting project performance.

The result also corresponds with the Goal-Setting Theory because clear objectives and structured plans give project actors direction and measurable expectations. The strong alignment between project design and community needs additionally reflects Stakeholder Theory: project designs that incorporate stakeholder interests can increase ownership and reduce resistance. Most importantly, the later regression result confirms that the positive descriptive perception translated into the strongest independent statistical effect, making project design the central implementation lever identified by the study.

Table 2: Stakeholder Engagement

Statement	Mean	Std. Deviation
Stakeholders actively participate in project activities.	4.18	0.816
There is effective communication between project stakeholders.	4.25	0.742
Stakeholders are regularly consulted during the project.	4.34	0.698
Stakeholder views are considered in decision-making.	4.22	0.763
Stakeholders are fully involved throughout the project lifecycle.	4.27	0.719
Aggregate Mean	4.25	0.748

Stakeholder engagement achieved an aggregate mean of 4.25. Regular consultation recorded the highest score (4.34), followed by continuous lifecycle involvement (4.27) and communication (4.25). Active participation had the lowest mean (4.18), indicating that although consultation was strong, there may be scope to deepen direct participation in implementation decisions. The qualitative evidence reported community meetings, progress meetings, communication channels and feedback mechanisms that improved trust and cooperation.

The result is consistent with Bryson (2021), Reed et al. (2022), Eskerod and Jepsen (2023), and Mansuri and Rao (2023), who emphasize structured stakeholder identification, communication, consultation and

participation. It also agrees with Almeida (2023), Rao and Iyer (2022), Okafor (2022), Mashauri (2023) and Nshimiyimana (2023), who found positive stakeholder-engagement effects in different project settings. However, the regression analysis later shows that stakeholder engagement was not a significant independent predictor after controlling for the other strategies. This apparent contrast is analytically important: stakeholder engagement may support performance through coordination, trust and ownership while its unique statistical contribution becomes smaller when strong project design and M&E are already present. The finding therefore does not imply that stakeholder engagement is unimportant; rather, it suggests that engagement may be most effective when embedded within a well-designed and monitored implementation system.

Table 3: Resource Management

Statement	Mean	Std. Deviation
Financial resources are used efficiently in the project.	4.29	0.711
The project maintains proper control over financial resources.	4.24	0.756
Human resources involved in the project are competent.	4.36	0.673
Project staff are effectively utilized and coordinated.	4.30	0.702
Materials required for the project are available when needed.	4.17	0.811
Aggregate Mean	4.27	0.731

Source: Primary data, 2026

Resource management recorded an aggregate mean of 4.27. Competent human resources had the highest rating (4.36), followed by staff utilization and coordination (4.30) and efficient financial-resource use (4.29). Material availability had the lowest score (4.17) and the largest standard deviation (0.811), suggesting some variation in respondents' experiences of supply availability. The overall pattern indicates that respondents generally viewed financial, human and material resources as adequately managed.

The findings are consistent with Haughey (2021), Fewings (2020), Too and Weaver (2021), Carvalho (2022), Silva and Pereira (2021), Tanaka (2023), Hassan (2022), Kato (2023) and Mukamana (2024), whose

studies emphasize planning, allocation, financial control, competent personnel and resource tracking. They also align with Contingency Theory because resources must be matched to project conditions and changing demands. Nevertheless, resource management was not statistically significant in the multivariate regression ($\beta = -.114$, $p = .085$). The result should therefore be interpreted cautiously. Strong descriptive ratings and positive bivariate association do not necessarily mean that resource management independently explains additional variation after other implementation strategies are controlled. The evidence suggests that resource management may operate as an enabling condition whose value is realized through project design, coordination and monitoring rather than as a stand-alone predictor.

Table 4. Monitoring and Evaluation

Statement	Mean	Std. Deviation
The project is regularly monitored to track progress.	4.34	0.684
Monitoring activities are conducted consistently.	4.28	0.721
The project has a clear reporting system.	4.24	0.755
Project reports are prepared and shared on time.	4.18	0.807
Feedback from monitoring is used to improve project performance.	4.37	0.671
Aggregate Mean	4.28	0.728

Monitoring and evaluation produced the highest aggregate mean among the four implementation strategies (4.28). Use of monitoring feedback to improve performance was the highest-rated indicator (4.37), followed by regular monitoring (4.34). Timely preparation and sharing of reports was comparatively lower (4.18), suggesting that reporting timeliness may be an area for continued improvement. Overall, respondents perceived M&E as a practical management system rather than merely a compliance activity.

The finding strongly corresponds with Kusek and Rist (2023), Bamberger et al. (2024), Fitzpatrick et al. (2022), Patton (2021) and Guijt (2023), who emphasize feedback,

learning, accountability and adaptive decision-making. It also agrees with Ramos (2022), Putri and Santoso (2021), Henderson (2023), Tesfaye (2022), Wanjiru (2023) and Ndayisaba (2024). The qualitative evidence further reported field inspections, progress reviews, technical supervision and use of monitoring reports to revise work plans. The consistency between the descriptive, qualitative and inferential findings is particularly strong for M&E: it was highly rated, positively correlated with performance and emerged as the second strongest regression predictor. This supports Contingency Theory because monitoring supplies information that allows managers to adapt implementation strategies to changing conditions.

Table 5. Project Performance (N = 164)

Statement	Mean	Std. Deviation
The project is completed within the planned timeframe.	4.21	0.769
Project activities are implemented according to schedule.	4.26	0.734
The project operates within the approved budget.	4.19	0.802
Financial resources are effectively controlled during implementation.	4.24	0.748
The quality of work delivered by the project meets expected standards.	4.38	0.661
Aggregate Mean	4.26	0.743

Source: Primary data, 2026

Overall project performance recorded an aggregate mean of 4.26, indicating that respondents generally perceived KISUP as performing well. Quality of work was the highest-rated performance indicator (4.38), followed by schedule adherence (4.26) and financial control (4.24). Budget operation recorded the lowest mean (4.19), although it remained positive. The findings therefore indicate satisfactory performance across quality, timeliness and financial dimensions. The results are compatible with Shenhar and Dvir (2020), Martinsuo and

Geraldi (2020), Jugdev and Müller (2023) and Too and Weaver (2021), who argue that project success should be assessed through multiple dimensions rather than time, cost and quality alone. The qualitative findings also indicated improved infrastructure, access, sanitation and beneficiary satisfaction. Thus, the high performance score reflects both management efficiency and perceived value to beneficiaries, although the statistical model indicates that not all implementation strategies contribute independently to performance.

4.2 Correlation Analysis

Table 6: Correlation Analysis

Variable	Project Design	Stakeholder Engagement	Resource Management	M&E	Project Performance
Project Design	1	.740**	.702**	.324**	.724**
Stakeholder Engagement	.740**	1	.576**	.415**	.636**
Resource Management	.702**	.576**	1	.247**	.463**
Monitoring & Evaluation	.324**	.415**	.247**	1	.568**
Project Performance	.724**	.636**	.463**	.568**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed); N = 164.

All four implementation strategies were positively and significantly associated with project performance. Project design had the strongest bivariate relationship with performance ($r = .724$, $p < .001$), followed by stakeholder

engagement ($r = .636$, $p < .001$), M&E ($r = .568$, $p < .001$) and resource management ($r = .463$, $p < .001$). The results suggest that respondents who reported stronger

implementation strategies also tended to report stronger project performance.

The correlations among the independent variables were also positive: project design correlated strongly with stakeholder engagement ($r = .740$) and resource management ($r = .702$), while stakeholder engagement correlated with resource management ($r = .576$) and M&E ($r = .415$). Resource management and M&E had the weakest interrelationship ($r = .247$). These results indicate that implementation strategies are interconnected. This provides an important explanation for why some variables that show positive bivariate relationships may become non-significant in a multivariate model: the regression

estimates each variable's unique contribution while controlling for the shared variance among strategies.

4.3 Multiple Regression Analysis

Multiple regression was used to estimate the combined and individual effects of project design, stakeholder engagement, resource management and monitoring and evaluation on project performance. The model was evaluated at the 5% significance level. The regression equation based on the reported unstandardized coefficients is: Project Performance = $-0.367 + 0.607(\text{Project Design}) + 0.085(\text{Stakeholder Engagement}) - 0.111(\text{Resource Management}) + 0.419(\text{Monitoring and Evaluation})$.

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	.811	.658	.650	.23315

The model produced $R = .811$, indicating a strong combined relationship between the four implementation strategies and project performance. $R^2 = .658$ means that 65.8% of the variance in project performance was explained by the four predictors, while 34.2% remained attributable to factors outside the model. The adjusted R^2

of .650 indicates that the explanatory power remained high after accounting for the number of predictors. This is a substantial level of explained variance for a social-science project-performance model and supports the usefulness of considering implementation strategies jointly.

Model	Source	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.659	4	4.165	76.614	.000
	Residual	8.643	159	.054		
	Total	25.302	163			

The ANOVA results show that the regression model was statistically significant, $F(4,159) = 76.614$, $p < .001$. Thus, the four implementation strategies jointly provide a statistically significant explanation of project performance. The regression sum of squares (16.659) was substantially larger than the residual sum of squares

(8.643), demonstrating that the model captured a considerable proportion of the variation in performance. The result is consistent with the conceptual framework and supports the overall proposition that implementation strategies matter when considered collectively.

Predictor	B	Std. Error	Beta (β)	t	Sig.	Decision
Constant	-.367	.246	—	-1.492	.000	—
Project Design	.607	.078	.617	7.747	.000	Significant positive
Stakeholder Engagement	.085	.064	.097	1.341	.182	Not significant
Resource Management	-.111	.064	-.114	-1.734	.085	Not significant
Monitoring & Evaluation	.419	.060	.356	6.987	.000	Significant positive

Project design was the strongest predictor, with $\beta = .617$, $t = 7.747$ and $p < .001$. Holding other predictors constant, higher project-design scores were associated with higher project-performance scores. The magnitude of the standardized coefficient indicates that project design made the largest unique contribution to the model. This finding reinforces the descriptive evidence on planning, objective clarity and alignment with community needs

and supports the literature emphasizing strong project architecture (Wysocki, 2020; Heagney, 2021; Maylor, 2022).

Monitoring and evaluation was the second strongest predictor, with $\beta = .356$, $t = 6.987$ and $p < .001$. This indicates that regular monitoring, reporting and use of feedback made a statistically significant independent

contribution to performance. The result is theoretically consistent with Contingency Theory because M&E provides information needed to adjust implementation when conditions change, and with Goal-Setting Theory because feedback allows actors to compare actual progress against established objectives.

Stakeholder engagement had a positive but statistically insignificant coefficient ($\beta = .097$, $t = 1.341$, $p = .182$). The direction is consistent with the descriptive and correlation findings, but the unique effect was not statistically distinguishable from zero at the 5% level. The interpretation is not that stakeholder participation is irrelevant; rather, its benefits may be mediated through

planning, communication structures, monitoring and other implementation processes. This finding qualifies the strong bivariate association and illustrates the value of multivariate analysis. Resource management had a negative but statistically insignificant coefficient ($\beta = -.114$, $t = -1.734$, $p = .085$). The negative coefficient should not be interpreted as evidence that good resource management harms performance because the effect was not statistically significant. More plausibly, the result reflects shared variance with other implementation strategies and the possibility that resources contribute to performance through planning and monitoring systems. The finding reinforces the need for strategic rather than isolated resource management.

4.5 Hypotheses Testing

Hypothesis	Beta (β)	t-value	Sig.	Decision
H01: Project design has no significant influence on KISUP performance.	.617	7.747	.000	Rejected
H02: Stakeholder engagement has no significant influence on KISUP performance.	.097	1.341	.182	Accepted
H03: Resource management has no significant influence on KISUP performance.	-.114	-1.734	.085	Accepted
H04: Monitoring and evaluation have no significant influence on KISUP performance.	.356	6.987	.000	Rejected

At $\alpha = .05$, H01 was rejected because project design was statistically significant ($p < .001$). H04 was also rejected because monitoring and evaluation significantly predicted project performance ($p < .001$). H02 and H03 were retained because their p-values (.182 and .085) exceeded .05. Therefore, two of the four null hypotheses were rejected and two were retained. The combined ANOVA result nevertheless confirms that the four strategies jointly predict performance. The distinction between joint and individual effects is important: a strategy may contribute to the overall system of implementation without making a statistically significant unique contribution once other related strategies are controlled.

4.6 Discussion of Results

The central finding is that project design and monitoring and evaluation are the two implementation strategies with statistically significant independent effects on KISUP performance. This result is coherent with the project's operational logic. Design establishes objectives, sequencing, responsibilities and alignment with community needs; monitoring then provides information on whether those plans are being implemented and whether corrective action is required. Together, these functions create a planning-feedback cycle that is especially important in complex urban upgrading environments. The result supports Goal-Setting Theory because clear objectives and implementation plans provide direction, while M&E provides feedback on progress. It also supports Contingency Theory because monitoring enables managers to adjust plans, resources and technical approaches in response to changing

circumstances. Stakeholder Theory remains relevant because the design indicators explicitly include alignment with community needs and the qualitative evidence showed that consultation and communication strengthened ownership.

However, the non-significant independent coefficient for stakeholder engagement indicates that participation may need to be translated into concrete decision-making and integrated into design and monitoring processes to generate a stronger unique performance effect. The findings broadly corroborate the empirical studies reviewed in the dissertation. Uwimana (2023), Ndayisaba (2024), Mukamana (2024) and other Rwanda-focused studies reported positive relationships between implementation strategies and urban project outcomes. The current study adds value by distinguishing bivariate relationships from unique multivariate effects. The strong correlation between stakeholder engagement and performance but its non-significant regression coefficient illustrates why relying only on descriptive or bivariate evidence could overstate the independent influence of a particular strategy. The findings also provide a practical explanation for the high overall performance rating of KISUP. The project achieved a mean performance score of 4.26, while the regression model explains 65.8% of performance variance.

The evidence therefore suggests that implementation quality is not determined by a single managerial practice. Instead, performance emerges from an integrated system in which sound design, stakeholder coordination, resource management and monitoring interact, with

design and M&E providing the strongest unique statistical leverage in this setting.

5. Conclusion and Recommendations

5.1 Conclusion

The study concludes that project implementation strategies are important determinants of KISUP performance, but their independent effects differ. Project design has a significant and strong positive influence and emerged as the strongest predictor. Comprehensive planning, clear objectives, structured implementation plans and alignment with community needs provide the foundation for coordinated execution and performance. Stakeholder engagement is positively associated with project performance and is strongly rated by respondents, but it does not make a statistically significant independent contribution after project design, resource management and M&E are controlled. The study therefore concludes that engagement is valuable as an enabling and coordinating mechanism, particularly when it is integrated into planning, decision-making and feedback systems. Resource management is also positively associated with performance at the bivariate level and received high descriptive ratings, but its independent regression effect was not significant. The conclusion is that financial, human and material resources must be strategically linked to project planning, procurement, coordination and monitoring. Resource availability alone is insufficient to guarantee better project performance. Monitoring and evaluation has a significant positive influence and is the second strongest predictor of performance. Regular monitoring, clear reporting and, most importantly, use of feedback enable project managers to identify problems early, make corrective decisions, strengthen accountability and maintain quality and schedule performance. Overall, the study concludes that KISUP's satisfactory performance is best understood as the outcome of an integrated implementation system. The regression model explains 65.8% of the observed variation in project performance, confirming that implementation strategies provide a substantial explanatory framework, while also leaving room for leadership, risk management, institutional capacity, financing, organizational culture and policy factors not included in the present model.

5.2 Recommendations

Basing on the findings of this study, the following recommendations were made:

1. Strengthen front-end project design. MININFRA, RUHA, the City of Kigali, Nyarugenge District and project managers should institutionalize comprehensive feasibility studies, needs assessments, risk analysis, realistic schedules and clear performance targets before implementation begins.
2. Translate community needs into project design decisions. Stakeholder consultations should be documented and linked explicitly to design choices, priorities, sequencing and safeguards so that participation produces visible influence rather than consultation alone.
3. Strengthen monitoring and evaluation systems. Project managers should maintain regular field monitoring, structured reporting, periodic evaluations and clearly assigned follow-up responsibilities. Monitoring findings should be converted into documented corrective actions and tracked to closure.
4. Improve reporting timeliness. Because timely report preparation recorded the lowest M&E mean, project teams should establish reporting calendars, digital tracking tools and escalation procedures for delayed reports.
5. Integrate stakeholder engagement with planning and M&E. Continuous consultations, feedback forums and joint progress reviews should be linked to project planning and monitoring cycles so that stakeholder information directly informs decisions.
6. Improve resource coordination. Project managers should strengthen financial planning, procurement scheduling, staff deployment and materials forecasting. Resource plans should be reviewed alongside implementation schedules to reduce procurement-related delays and improve cost control.
7. Protect the quality dimension of project performance. Technical supervision and compliance with engineering specifications should remain central because quality of delivered work received the highest performance rating and is essential to long-term sustainability.
8. Strengthen learning across upgrading projects. Lessons from KISUP should be documented and transferred to similar urban upgrading initiatives in Rwanda, particularly regarding feasibility planning, community alignment, monitoring feedback and adaptive implementation.

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