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Influence of Project Planning Practices on Success of Rural Infrastructure Projects: A Case of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project in Rwanda

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Abstract: *The general objective of this study was to assess the influence of project planning practices on success of rural infrastructure projects in Rwanda. Data analysis conducted using Statistical Package for Social Sciences version 28, applying frequency counts, percentages, mean scores, and standard deviation. Pearson correlation used to examine relationships between planning variables and project success. The regression analysis shows the coefficients and significance levels for each independent variable. For Resource Planning, the regression coefficient (β) is 0.267 with a t-value of 6.512 and a Sig. of 0.000. Since the p-value is less than 0.05, Resource Planning has a significant positive influence on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project. Regarding Scope Planning, Table 5 shows a coefficient (β) of 0.192, a t-value of 4.174, and a Sig. of 0.000. With the p-value below 0.05, this variable also significantly influences project success. For Quality Control Planning, Table 5 displays the highest coefficient (β) of 0.488, a t-value of 8.873, and a Sig. of 0.000. This p-value (<0.05) signifies a highly significant influence on the dependent variable. Project Management Committee and Kamonyi District authorities should institutionalize the formulation of strict quality criteria at the pre-contract stage to ensure all contractors clearly understand the high performance expectations required.*

Keywords: *Project planning practices, Resource planning, Scope planning, Quality control planning, Project success, Rural infrastructure projects*

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1. Introduction

Rwanda shows that project planning shapes performance across tourism, construction, agriculture and rural services because early preparation creates structure, clarity and coordination across every stage of project advancement. Strong planning strengthens tourism initiatives in Musanze District because clear scoping, organized budgeting, structured staffing and early anticipation of operational uncertainties arrange the entire service pathway before activities begin, shaping steady improvement in delivery and community benefit (Habiyaremye & Sikubwabo, 2023). Continued planning practice improves construction performance in Kigali because design interpretation, material organization and labor preparation are shaped early, creating environments where construction tasks progress with fewer interruptions and greater coherence between planning intention and site activity (Utuje & Kwena, 2024). Planning also improves agricultural markets in Rulindo District because early communication mapping, stakeholder alignment and preparation for operational challenges create a strong collaborative direction among farming groups, local committees and service teams, allowing interventions to move through implementation with steadier interaction and stronger uptake of project

support (Uwera & Dushimimana, 2025). Rural energy and community programs gain stability from planning because technical sequencing, community preparation and coordinated resource pathways are arranged early, creating dependable implementation environments that allow service expansion to follow a clear and predictable path across targeted settlements (Mutesi & Dushimimana, 2024).

Persistent weaknesses in planning limit the success of rural infrastructure projects in Rwanda, especially in road and bridge construction that is intended to unlock remote districts. Many interventions launch with ambitious objectives for connectivity, agriculture, and market access, yet the early phases of project formulation, feasibility analysis, scheduling, and risk anticipation often remain fragmented across ministries, agencies, contractors, and local leaders (World Bank, 2023). This fragmentation creates gaps between planned outputs and field realities, particularly where terrain is difficult, communities are dispersed, and technical staff are few. As a result, projects frequently advance into implementation with incomplete designs, unrealistic completion periods, and poorly phased resource allocations, which later surface as delays, scope changes, and disputes over quality and maintenance responsibilities (Natukunda *et al*., 2023).

Several studies of Mushimiyimana (2025), Mupende (2023), Kayitesi *et al.* (2024), Ntaganzwa *et al.* (2025) and Uwineza and Rukundo (2025) explored planning issues in rural infrastructure projects but failed to consider Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project. This study bridged the gaps in focusing on feasibility planning, scheduling planning and risk anticipation planning to improve the success of rural infrastructure projects in Rwanda.

1.2 Objectives

The general objective of this study was to assess the influence of project planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project in Kamonyi District, Rwanda.

Specific objectives:

1. To examine the influence of resource planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project in Kamonyi District.
2. To identify the influence of scope planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project in Kamonyi District.
3. To assess the influence of quality control planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project in Kamonyi District.

2. Literature Review

This section presents the theoretical and empirical literature that guided the study variables and supported the interpretation of project planning practices and project success.

2.1 Theoretical Review

The theoretical review explains the theories used to connect resource planning, scope planning, and quality control planning with success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.

2.2.1 Resource Based View (RBV)

Resource Based View theory, first introduced in 1984 through Wernerfelt's strategic management research, explains how internal resources influence performance when they are valuable, rare, inimitable, and supported through organizational systems. In project environments, the theory holds that organized access to equipment, skilled labor, materials, and finance strengthens the foundation for task execution. In a study on project resource efficiency, internal alignment of project resources was found to improve cost control and reduce performance delays (Mansour, 2022).

This study applied Resource Based View to explain how structured planning and alignment of labor, equipment, materials, and finance influence execution efficiency. The theory helped to examine how internal resource preparation contributes to continuity, cost regulation, and success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project, Rwanda.

2.2.2 Theory of Change (ToC)

The Theory of Change (ToC) model was fully articulated in 1995 through work at the Aspen Institute Roundtable on Community Change, offering a structured approach for linking inputs, activities, outputs and outcomes in complex program evaluation. It supports planning systems that define inputs, activities, outputs, and intended outcomes within a logical framework. In development planning, the theory has helped clarify how project components must align with outcome paths from the beginning of scope definition (Belcher, 2024).

This study used Theory of Change to interpret how defined scope elements, including tasks, boundaries, and deliverables, align with intended results. The theory assisted in evaluating how structured scope planning enhances coordination, clarity, and achievement of planned outcomes in Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project, Rwanda.

2.2.3 Total Quality Management (TQM)

Total Quality Management emerged from 20th-century manufacturing principles, positioning quality as a result of structured organizational processes. In project

planning, the theory supports early establishment of quality criteria, measurement procedures, documentation tools, and continuous improvement systems. In recent construction planning studies, quality systems integrated from the beginning of project planning led to higher compliance with specifications (Alawag *et al*., 2024).

This study applied Total Quality Management theory to assess how early establishment of quality standards, inspection routines, and documentation procedures influence execution reliability. The theory supported analysis of how structured quality control planning affects adherence to technical specifications in Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project, Rwanda.

2.2 Empirical Review

The empirical review summarizes previous studies related to the three specific objectives of the study and shows how earlier findings connect with the present research.

2.3.1 Resource planning and project success

Yıldız *et al.* (2024) investigated material management activities as a key element of resource planning within construction projects in Türkiye. The study used survey data and multiple regression to connect planning, supply, logistics, transport, stock control and waste control with time, cost and efficiency indicators for project success. The model recorded a correlation coefficient of 0.782 and an R square of 0.611, which indicated that material management practices explained more than half of the variation in project performance. Individual coefficients for supply, material handling and stock and waste control were 0.270, 0.273 and 0.123 respectively, each with significant p values below 0.05, while planning and logistics showed weaker and non-significant effects on performance outcomes. These findings indicated that resource planning for materials must be integrated with practical supply and stock control arrangements in order to sustain improvements in cost and schedule performance within construction projects.

Kyalo and Kising'u (2024) examined project planning practices for road works in Kwale County with a focus on resource planning, scope planning, scheduling and stakeholder coordination. The study adopted a descriptive correlational design, used structured questionnaires among project staff and applied multiple linear regression to test relationships with project performance. The analysis showed that resource planning had a standardized beta coefficient of 0.301 with a p value of 0.000, while scope planning registered a stronger beta of 0.605, also with a p value of 0.000, indicating statistically significant contributions to performance. The joint model that combined the four planning dimensions produced a significant F statistic at the 0.05 level, confirming that planning practices taken together exerted a measurable effect on completion quality and adherence to expected results. The authors concluded that systematic allocation and scheduling of financial, human and equipment resources create a structured environment where road projects achieve higher levels of success.

Aradukunda and Sikubwabo (2024) assessed financial resource management as a dimension of project planning in public institutions in Kigali City and linked it to project performance indicators such as effectiveness, efficiency and service quality. The researchers used a sample of staff from several institutions, employed questionnaires and ran regression analysis to isolate the effect of financial resource planning and control. The model indicated that in the absence of sound financial management practices the predicted performance level remained around 30.6 percent, while a unit improvement in financial resource planning raised performance with a standardized coefficient of 0.731 and a t value of 6.008 at a p value below 0.001. Financial control registered a coefficient of 0.500 with a t value of 2.550 and a p value of 0.025, also indicating statistical significance. The findings showed that structured budgeting, cash flow projections and timely disbursement decisions are central mechanisms through which project planning uplifts performance in Kigali City.

2.3.2 Scope planning and project success

Hammoode (2022) examined project management capabilities in Iraqi construction organizations, including process management, project management awareness and project quality management, and tested their effects on project success using partial least squares structural equation modelling. Within this framework, process management and awareness captured the clarity of procedures, responsibilities and deliverables, which are central aspects of scope planning. Data from 400 managers indicated that process management recorded a path coefficient of 0.094 with a p value of 0.041, while project management awareness showed a coefficient of 0.146 with a p value of 0.001, both significant at the 0.05 level. The model reported strong reliability for the constructs, with Cronbach alpha values above 0.80 and average variance extracted values above 0.50. The analysis confirmed that clearly articulated processes, defined responsibilities and consistent understanding of project boundaries strengthen the probability that construction projects meet planned objectives in Iraq.

Gitahi (2023) investigated project scope management and successful completion of water and sanitation infrastructure projects in Mombasa and Kilifi Counties. The study concentrated on scope definition, scope verification and scope control as core planning tasks and applied correlation and regression techniques on survey responses from implementers. The correlation analysis produced coefficients above 0.700 between scope management indices and measures of project completion, while the regression model recorded an R value of 0.838 and an R square of 0.702, indicating that scope practices explained more than seventy percent of

the variance in project success. A standardized beta coefficient of 0.073 with a p value of 0.001 still reached statistical significance, showing that even incremental improvements in scope planning translated into measurable gains in completion quality. The study concluded that detailed scope statements, work breakdown structures and formal change control procedures play a central role in sustaining performance in water and sanitation infrastructure projects.

Habimana *et al.* (2023) examined project planning and performance of housing construction projects in Kigali City, with scope planning treated as a distinct predictor alongside resource planning and risk planning. Using data from 161 respondents, the researchers calculated a Pearson correlation coefficient of 0.863 between project scope planning and performance of housing construction projects, with a p value of 0.000, indicating a very strong and statistically significant positive relationship. The wider regression model that included scope, resource and risk planning recorded an R value of 0.948 and an R square of 0.899, meaning that planning variables jointly explained almost ninety percent of the variation in housing project performance. The F statistic of 467.870 with a p value of 0.000 confirmed that the model was highly significant. The study emphasized that clear definition of deliverables, milestones and client expectations anchors other planning practices and enhances the success of housing construction initiatives in Kigali City.

2.3.3 Quality Control Planning and Project Success

Alzahrani and Emsley (2023) examined quality planning practices and their influence on project success within large construction firms in the United Kingdom. The study applied quantitative modelling on survey data from project directors and site managers, analyzing the contribution of quality planning indicators or inspection procedures, specification reviews and quality assurance protocols. Regression findings reported a significant standardized beta coefficient of 0.471 for quality planning with a p value below 0.01, indicating a strong positive relationship with project success. The model produced an R square of 0.423, showing that quality planning explained 42.3 percent of the variance in success indicators such as cost stability, compliance with technical standards and reduction of rework. Mean values for inspection and specification review practices exceeded 4.00, reflecting consistent application of structured quality planning across project teams.

Okombe *et al.* (2023) explored quality planning and project success in electricity supply infrastructure projects implemented through the Kenya Electricity Transmission Company. The study used stratified sampling to obtain 63 responses and applied Pearson correlation and simple regression analysis to connect quality planning indices with measures of project success. Correlation analysis produced a coefficient of 0.408 with a p value of 0.001, showing a moderate positive relationship between quality planning and project success. Regression results indicated an R value of 0.535 and an R square of 0.286, meaning that quality planning accounted for 28.6 percent of the variation in project success, with an unstandardized coefficient of 0.084 and a p value below 0.01. The derived equation, expressed as Y equals 1.231 plus 0.084X, showed that incremental strengthening of quality planning activities, such as documentation of requirements and structured cost benefit analysis, raised the likelihood that transmission projects achieved their intended objectives.

Nshimyirayo (2022) examined quality assurance planning and its influence on performance of construction projects implemented through the Rwanda Housing Authority. The study collected data from engineers, architects and project supervisors and applied regression analysis to link quality planning indicators or inspection schedules, compliance procedures and supervision mechanisms with project performance. The results showed that quality assurance planning recorded a standardized coefficient of 0.612 with a p value below 0.01, indicating a strong and statistically significant effect on performance. The model reported an R value of 0.781 and an R square of 0.610, meaning that quality planning explained 61.0 % of the variance in performance measures such as adherence to specifications, defect reduction and timely completion. Descriptive means above 4.00 also demonstrated agreement that structured quality control planning strengthened construction project outcomes in Rwanda.

3. Methodology

This section summarizes the research design, population, sampling procedures, data collection instruments, validity and reliability procedures, and data analysis methods used in the study.

3.1 Research Design

The study used descriptive and correlational research designs. Descriptive analysis presented demographic and variable results, while correlational and regression analysis tested the relationship and influence of resource planning, scope planning, and quality control planning on project success.

3.2 Study Population

The population included 319 individuals connected to Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project: 1 project manager, 29 team leaders, 165 field skilled workers, and 124 local leaders.

3.3 Sample Size and Sampling Technique

The sample size was determined by the help of Slovin' formula. Where n is the sample size, N is the population size which are 319, and e is the marginal of error (5%).

The study employed a combination of stratified sampling and simple random sampling to ensure a representative and unbiased selection of respondents. Initially, stratified sampling used to divide the target population into distinct, mutually exclusive subgroups (strata) based on their roles. Subsequently, within each identified stratum, simple random sampling was applied to select the final participants. This gave every individual within a specific stratum an equal and independent chance of being included in the study.

3.4 Data Collection Instruments

The research collected data using the questionnaire, interview, and documentation techniques.

The questionnaire was the primary mode of contact between the researcher and the respondents. The questionnaire included a set of questions designed to delve into concerns with Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project, Rwanda. These questions are intended to collect both written and numerical data, with an emphasis on the influence of resource planning, scope planning, and quality control planning on success of the road rehabilitation project. The researcher distributed the questionnaire to participants in order to systematically gather responses that used to analyze the project's planning tactics and their influence on success outcomes.

For the purpose of this study, the researcher performed a thorough review of documents. This evaluation concentrated on the resource planning, scope planning, and quality control planning components of the project. The acquired secondary data assisted the researcher in analyzing and evaluating the influence of these planning strategies on success of the road rehabilitation project.

The researcher interviewed important stakeholders such as project managers and team leaders. These interviews aimed to gather extensive information regarding the project's resource planning, scope planning, and quality control planning plans. The qualitative data collected allowed the researcher to investigate how these planning approaches influence the overall success of the road rehabilitation project.

3.5 Validity and Reliability

The data collection tools were aligned with the research objectives and reviewed by academic experts for relevance and clarity. Reliability testing using Cronbach's Alpha showed acceptable internal consistency for resource planning, scope planning, quality control planning, and project success.

3.6 Data Analysis

In this study, descriptive statistics and regression analysis were applied to analyze data and generate the final results. After data collection, the researcher interpreted the information using appropriate statistical techniques to enhance clarity and understanding. Statistical analysis supports the development of sound conclusions by providing structured and evidence-based assessments.

Descriptive analysis was performed using frequencies, proportions, and percentages for each variable. In addition, correlation analysis conducted to measure the relationship between the independent and dependent variables. This helped determine the significance, direction, and strength of the association between the key variables of the study.

The adopted model presented as follow:

$Y= \beta_0+ \beta_1X_1 + \beta_2X_2 + \beta_3X_3 +e$

Where;

Y = Project success

X_1 = Resource Planning

X_2 = Scope planning

X_3 = Quality Control Planning

β_0 = Constant; y-intercept that is, the value of y when x is equal to zero

β_1, β_2, β_3 = Coefficients of the model

3.7 Ethical Considerations

During the study, several ethical principles were observed to ensure a smooth and respectful data collection process. Confidentiality and privacy strictly maintained, and all responses handled discreetly. Participants were given the freedom to respond comfortably and voluntarily throughout the data collection exercise.

4. Results and Discussion

The study achieved a very high response rate, with 163 respondents, representing 91.57% of the sample, successfully filling and returning the questionnaires. This part presents the predictive influence of project planning practices on project success using normality testing, correlation, regression, ANOVA, coefficients, and hypothesis outputs.

Table 1: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Project success	.166	163	.067	.949	163	.053

a. Lilliefors Significance Correction

Source: Field data, 2026

Table 1 presents the results of the normality test. The Shapiro-Wilk test yields a significance value of 0.053, and the Kolmogorov-Smirnov test yields a significance value of 0.067. Since both p-values are greater than the significance level of 0.05, the study failed to reject the null hypothesis that the data is normally distributed. This confirms that the data for Project success follows a normal distribution, thereby justifying the use of parametric statistical tests such as Pearson correlation and linear regression for this study.

Table 2: Correlations

		Resource Planning	Scope planning	Quality Control Planning	Project success
Resource Planning	Pearson Correlation	1	.561**	.610**	.734**
	Sig. (2-tailed)		.000	.000	.000
	N	163	163	163	163
Scope planning	Pearson Correlation	.561**	1	.656**	.708**
	Sig. (2-tailed)	.000		.000	.000
	N	163	163	163	163
Quality Control Planning	Pearson Correlation	.610**	.656**	1	.816**
	Sig. (2-tailed)	.000	.000		.000
	N	163	163	163	163
Project success	Pearson Correlation	.734**	.708**	.816**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	163	163	163	163

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, 2026

Table 2 showcases the correlation matrix examining the relationships between the study variables. The relationship between Resource Planning and Project Success shows a Pearson correlation coefficient (r) of 0.734 with a Sig. (p-value) of 0.000. Since the p-value is less than 0.05, this indicates a statistically significant and strong positive relationship, meaning improved resource planning is linked to higher success in Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.

The correlation between Scope Planning and Project Success in Table 2 displays a coefficient (r) of 0.708 and a Sig. value of 0.000. Because the p-value is less than 0.05, this confirms a significant strong positive relationship. This suggests that clearly defining the project scope is strongly associated with achieving higher success rates in Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project. The results also mirror the findings of Aradukunda and Sikubwabo (2024), whose study in Kigali City demonstrated that structured budgeting and financial resource planning are central mechanisms for uplifting project performance. Furthermore, the significant predictive power of resource planning observed in this study supports Yıldız et al. (2024), who found that material management activities a key component of resource planning explain a substantial portion of the variation in project efficiency and cost performance.

Table 2 also reveals that Quality Control Planning has the strongest relationship with Project Success, with a Pearson correlation coefficient (r) of 0.816 and a Sig. value of 0.000. With the p-value below 0.05, this relationship is statistically significant and very strong.

This indicates that quality control planning is the most critical factor among the variables tested, strongly driving the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.

The correlation analysis demonstrates that all three planning dimension: resource, scope, and quality control have strong, positive, and statistically significant relationships with the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project. The p-values for all relationships are 0.000, which is well below the 0.05 threshold. This finding validates the empirical work of Kyalo and Kising'u (2024), who concluded that the systematic allocation and scheduling of financial, human, and equipment resources create a structured environment where road projects achieve higher success.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.882[a]	.779	.774	.119	1.935

a. Predictors: (Constant), Quality Control Planning, Resource Planning, Scope planning

b. Dependent Variable: Project success

Source: Field data, 2026

Table 3 provides a summary of the regression model's performance. The value of R is 0.882, indicating a very strong positive correlation between the combined predictors and project success. The R Square value of 0.779 indicates that 77.9% of the variation in the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project can be explained by the combination of resource planning, scope planning, and quality control planning. The Durbin-Watson statistic is 1.935, which is very close to 2, suggesting that there is no significant autocorrelation in the residuals, confirming that the assumptions for regression analysis are met.

This aligns with the research of Gitahi (2023), which demonstrated that detailed scope statements and work breakdown structures play a central role in sustaining performance in infrastructure projects. The findings also corroborate Habimana et al. (2023), who found that the clear definition of deliverables and milestones anchors other planning practices and enhances the success of housing construction initiatives. Additionally, the results support Hammoode (2022), who argued that process management and the clarity of project boundaries strengthen the probability of projects meeting their planned objectives by reducing ambiguity.

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.861	3	2.620	187.143	.000[b]
	Residual	2.236	159	.014		
	Total	10.096	162			

a. Dependent Variable: Project success

b. Predictors: (Constant), Quality Control Planning, Resource Planning, Scope planning

Source: Field data, 2026

Table 4 presents the Analysis of Variance (ANOVA) results to test the model's significance. The table shows an F-value of 187.143 and a Sig. value of 0.000. Since the p-value (0.000) is less than the significance level of 0.05, the regression model is statistically significant. This implies that the combination of Resource Planning, Scope Planning, and Quality Control Planning significantly predicts the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project. The model is therefore a good fit for the data.

This finding is in strong agreement with Nshimyirayo (2022), whose regression analysis confirmed that quality assurance planning specifically inspection schedules and compliance procedures has a dominant effect on adherence to specifications and defect reduction. The significant impact observed also supports Alzahrani and Emsley (2023), who reported that quality planning explains a large percentage of the variance in success indicators such as cost stability and technical compliance.

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.262	.178		1.472	.143		
	Resource Planning	.267	.041	.322	6.512	.000	.582	1.718
	Scope planning	.192	.046	.213	4.174	.000	.528	1.894
	Quality Control Planning	.488	.055	.480	8.873	.000	.484	2.067

a. Dependent Variable: Project success

Source: Field data, 2026

Table 5 outlines the regression coefficients and significance levels for each independent variable. For Resource Planning, the regression coefficient (B) is 0.267 with a t-value of 6.512 and a Sig. of 0.000. Since the p-value is less than 0.05, Resource Planning has a significant positive influence on project success, and the VIF of 1.718 indicates no multicollinearity issues. Therefore, we reject the null hypothesis (H01) and conclude that there is a significant influence of resource planning on the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.

Regarding Scope Planning, Table 5 shows a coefficient (B) of 0.192, a t-value of 4.174, and a Sig. of 0.000. With the p-value below 0.05, this variable also significantly influences project success, while the VIF of 1.894 confirms the absence of multicollinearity. Consequently, the null hypothesis (H02) is rejected, confirming that there is a significant influence of scope planning on the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.

For Quality Control Planning, Table 5 displays the highest coefficient (B) of 0.488, a t-value of 8.873, and a Sig. of 0.000. This p-value (<0.05) signifies a highly significant influence on the dependent variable, and the VIF of 2.067 is within the acceptable range. Thus, the null hypothesis (H03) is rejected, establishing that there is a significant influence of quality control planning on the success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project. The results echo Okombe et al. (2023), who found that incremental strengthening of quality planning activities, such as the documentation of requirements, directly raises the likelihood of projects achieving their intended objectives.

Table 6: Hypothesis Decision

Null Hypothesis	P-value	Decision	Interpretation
H_{01}: There is no significant influence of resource planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.	0.000	**Reject H_{01}**	Resource planning significantly influences project success.
H_{02}: There is no significant influence of scope planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.	0.000	**Reject H_{02}**	Scope planning significantly influences project success.
H_{03}: There is no significant influence of quality control planning on success of Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project.	0.000	**Reject H_{03}**	Quality control planning significantly influences project success.

5. Conclusion and Recommendations

This section presents the conclusion drawn from the findings and the recommendations proposed for improving project success.

5.1 Conclusion

Based on the findings, the study concludes that the success of the Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project was heavily dependent on the strategic availability and management of resources. It is evident that the project did not merely rely on having funds or materials, but rather on the precise scheduling and coordination of these assets to prevent work stoppages. The ability to align financial allocations with the actual construction phases ensured that liquidity issues did not hinder progress, while the timely supply of materials supported a continuous workflow. Furthermore, the effective identification of skilled human resources ensured that technical tasks were executed by competent personnel. Therefore, adequate resource planning acted as the logistical engine that kept the project moving forward efficiently.

The study concludes that Scope Planning provided the essential structural integrity for the Kamonyi-Rugalika-Mugina Feeder Road Rehabilitation Project by clearly delineating what was to be done and, equally importantly, what was excluded. By establishing clear project boundaries, the management team successfully avoided the risks associated with uncontrolled expansion of work, which often leads to budget deficits. The clear documentation of output specifications meant that all stakeholders had a shared vision of the final deliverable, reducing conflicts and misunderstandings during execution. The study confirms that well-structured task segmentation allowed for better monitoring of progress across different sections of the road. Consequently, scope planning transformed a complex engineering feat into manageable, actionable components.

The study draws the firm conclusion that Quality Control Planning was the most decisive and impactful factor in the successful rehabilitation of the Kamonyi-Rugalika-Mugina road. The exceptionally high correlation and regression coefficients indicate that the durability and utility of the road are directly attributed to the strict quality criteria formulated at the planning stage. The conclusion is that the project succeeded not just because the road was built, but because it was built to a rigorous standard that ensures sustainability and minimal future maintenance. The systematic approach to inspection and defect correction meant that errors were identified and rectified in real-time, preventing long-term structural failures. Therefore, quality planning was the guardian of the project's value.

5.2 Recommendations

Based on the findings and conclusions of the study, the following recommendations are made to project authorities, stakeholders, and implementers to improve future practices.

1. The Project Management Committee and Kamonyi District authorities should institutionalize the formulation of strict quality criteria at the pre-contract stage to ensure all contractors clearly understand the high performance expectations required.
2. The Ministry of Infrastructure should enforce a policy requiring a resource availability Audit before project commencement to verify that financial, human, and material resources are fully secured to prevent mid-project stalling.
3. Local authorities should implement a community-based monitoring mechanism that involves beneficiaries in the scope verification process, ensuring that the project boundaries align with the actual needs of the local population.

5.3 Suggestion for Further Research

The current study focused on the influence of project planning on success, but there are other dimensions that warrant further investigation to build a more holistic understanding of infrastructure project management. Future researchers are suggested to conduct a study on influence of Stakeholder Engagement on the Sustainability of Feeder Road Projects, another valuable topic would be impact of Risk Management Strategies on Cost Performance in Road Construction, a study on relationship between Procurement Procedures and Project Delays.

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