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EFFECT OF PROJECT PLANNING ON PROJECT PERFORMANCE: A CASE OF COOKSTOVE PROJECT IN RULINDO DISTRICT, RWANDA

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Abstract

The general objective of this research is to find out the effect of project planning on the performance of the Cookstove Project in Rulindo District. For this study, the researcher employed both descriptive and correlational research designs. Descriptive survey research was utilized to gather information on various issues, while the correlational research design focused on exploring the relationships between the variables under study. The researcher relied on document analysis, questionnaires, and interviews in collecting data. Descriptive and inferential statistics were used to analyze data. The findings show an R value of 0.823, indicating a strong positive correlation between predictors (Monitoring and evaluation planning, resource planning, risk planning, and financial planning) and project performance in the Cookstove Project in Rulindo District. The R^2 value of 0.677 means that approximately 67.7% of the variance in project performance can be explained by financial planning, resource planning, risk planning, and monitoring and evaluation planning. The unstandardized coefficient for financial planning is 0.246, indicating that a one-unit increase in financial planning results in a 0.246-unit increase in project performance ($\beta = 0.246$, $t = 2.558$, $p = 0.012$). The unstandardized coefficient for resource planning is 0.248, indicating that a one-unit increase in resource planning leads to a 0.248-unit increase in project performance ($\beta = 0.248$, $t = 2.982$, $p = 0.003$). The unstandardized coefficient for risk planning is 0.151, revealing that a one-unit increase in risk planning results in a 0.151-unit increase in project performance ($\beta = 0.151$, $t = 2.172$, $p = 0.032$). Lastly, the unstandardized coefficient for M&E planning is 0.264, indicating that a one-unit increase in M&E planning correlates with a 0.264-unit increase in project performance ($\beta = 0.264$, $t = 4.467$, $p = 0.000$). The study recommended that project managers, coordinators, and field staff prioritize effective financial, resource, risk, and monitoring planning to ensure the successful implementation of the cookstove project in Rulindo District.

Key Words: Project Planning, Resource Planning, Risk Planning, Financial Planning, Monitoring and Evaluation Planning, Performance of the Cookstove Project

1. Introduction

Inadequate project planning has led to the failure of several cooking-related initiatives in Rwanda. Projects aimed at producing briquetted fuels from municipal solid waste failed due to poor planning, unrealistic expectations, and a lack of market targeting. These failures highlight the consequences of neglecting essential planning components such as market analysis and realistic goal setting. Without thorough planning, projects are prone to inefficiencies and unsustainable outcomes (Habiyaremye, 2023).

Despite evolving through trial and error during a multi-year pilot phase, the project's complexity hindered its scalability and effectiveness, leading to missed opportunities for broader implementation and reduced overall impact. This case illustrates that without simplified and well-structured planning, projects may struggle to achieve their intended impact. Streamlined planning processes are essential to ensure clarity and feasibility in project execution. The finding is pertinent to cooking projects, as inadequate planning can lead to similar setbacks, compromising project timelines and budgets. Effective planning is crucial to anticipate potential challenges and allocate resources efficiently, thereby enhancing project performance (Uwizeyimana, 2023).

There have been a few studies on project management techniques and project performance in Rwanda. For example, Sibonama *et al.* (2020) investigated the relationship between project management techniques and the performance of infrastructure projects. Mukeshimana (2021) shows that a number of projects in Rwanda fail for a variety of reasons, such as poor risk management, a lack of resources, and poor communication. The results of the research have shown that focusing on key performance indicators, like stakeholder engagement, monitoring, and decision-making, shows that the project will be successful when the tools and procedures needed to keep the project from failing are taken into account. According to Nyakarengo and Wanjiku (2023), inefficient resource management and lack of community engagement significantly undermine project outcomes, limiting the achievement of food security and economic improvement for farmers in regions such as Kayonza.

Inadequate planning has led to significant challenges, including delays, poor performance, and inefficiencies. For example, a study on the Partnership for Resilient and Inclusive Small Livestock Market (PRISM) project in Rulindo District revealed that deficiencies in project communication planning adversely affected performance (Uwera & Dushimimana, 2025). Similarly, research on the Rural Electricity Distribution Project in Rulindo District found that insufficient monitoring and evaluation processes, particularly in budgeting and community involvement, negatively impacted project outcomes (Mugire & Njenga, 2023).

The aforementioned studies, including those by Sibonama *et al.* (2020), Mukeshimana (2021), Nyakarengo and Wanjiku (2023), Uwera and Dushimimana (2025), and Mugire and Njenga (2023), did not focus on the effect of project planning on the performance of the Cookstove Project in Rulindo District. Hence, there is a need for this study to be carried out to specifically address the academic gap in understanding the critical effects of financial planning, human resource planning, risk planning, and monitoring and evaluation planning on the performance of the Cookstove Project in Rulindo District.

The study guided by the following null hypotheses.

Ho1: Financial planning has no significant effect on performance of cookstove project in Rulindo District.

Ho2: There is no significant effect of resource planning on performance of cookstove project in Rulindo District.

Ho3: Risk planning has no significant effect of risk planning on performance of cookstove project in Rulindo District.

Ho4: There is no significant effect of monitoring and evaluation planning on performance of cookstove project in Rulindo District.

2. Literature Review

An empirical review involves the process where the researcher develops a good understanding of the current state of research works and data in a research field of interest. It specifies the type of the review based on practical findings rather than conceptual implications characteristic of other types of reviews, such as theoretical reviews or literature reviews that focus on abstract concepts without direct application to real-world scenarios.

2.1 Financial planning on project performance

Zhang (2022) sought to establish a link between the presence or otherwise of financial planning and the completion of infrastructure projects in China. Cross-sectional quantitative data was collected from 200 project managers from different infrastructure projects using a structured questionnaire, and the data was analyzed by structural equation modeling. The research also established that overall project financial planning is positively related to project performance and more so to budget and time. In a development process, especially in infrastructure procurement and management, financial management and planning are essential for the implementation of any project. Any involved project manager should consider detailed financial planning as a tool towards improving project performance and reducing risk.

Dufitumukiza (2022) utilized a case study of the Rwanda Education Assistance Project to assess the effect of project planning on the sustainability of educational initiatives in Rwanda. That means a total of 151 participants in the sample. Descriptive and inferential statistics were applied to the quantitative data using the Statistical Package for the Social Sciences. The study gathered the data it needed from a variety of primary and secondary resources. Analysis and discussion of the data demonstrate convincingly that the study's research question and aim were effectively addressed. The F-test's positive result of 44.622 is statistically significant at the 5% level since its significance threshold is 0.000. For this reason, the researcher recommended that all initiatives put an emphasis on planning in order to evaluate their immediate, intermediate, and long-term effects on sustainability.

Adetunji (2021) assessed the effect that financial planning has on project performance in the construction industry of Nigeria. Both questionnaires and case studies with fifty construction firms were used in this study. The results showed more effective budget performance and shorter project duration in companies with established financial planning controls. A key factor that influences the performance of the project in the construction sector is the issue of financial planning. Management should ensure that firms undertake strict financial control and reviews of projects with a view of seeing that they are completed on cost.

Eric (2021) examined the Huguka Dukore Akazi Kanoze Project in Nyabihu District to see how improved planning may increase the likelihood of the project's performance. A total of 123 people were expected to read this. Since the population could be readily managed, there was no need to fret about the size of the sample. Primary and secondary data were collected via documentary research, in-depth interviews, and questionnaires. We utilized SPSS 20 to

categorize and arrange our data for analysis, and we used Pearson to determine the degrees of association between our various measures of interest. The results of the study were shown in tables and charts. R-square (correlation coefficient) values of 82.4%, 81.9%, and 78.3% indicate a statistically significant relationship between project scope planning, cost planning, and human resource planning and project performance, respectively. The research found that in order to keep the project working effectively, project staff should stress the importance of beneficiaries learning to take responsibility for their own health.

2.2 Resource planning on project performance

A study conducted by Ronald *et al.* (2020) examined the impact of materials management on the performance of specific construction projects in Rwanda. The study employed a case study of selected sites owned by Baraka Properties Ltd. Finding out how procurement, inventory control, and material estimation costs affected building project performance was the goal of the current study. The study included 195 individuals. Data analysis also made use of SPSS, version 21.0 for the social sciences. The findings demonstrated a positive and statistically significant correlation (r=0.518) between Baraka Properties' building project performance and the estimated cost of materials. The connection between the procurement procedure and project performance was found to be 0.884, which is both positive and statistically significant. Project performance and inventory control in the procurement process had a correlation coefficient of 0.874, according to the data. When it comes to monitoring and assessing expenses, contractors should exercise caution in the areas that have a favorable effect on cost management, such as recruiting competent individuals.

Mudeni *et al.* (2021) looked at how the county government of Kenya's Kakamega County used resource monitoring to finish road projects on time. As a framework, the study relied on the theory of limitations. Researchers used a descriptive survey approach for this study. To select the sample, stratified random sampling was employed. Structured questionnaires were utilized to gather primary data. For both descriptive and inferential statistical analysis of quantitative data, the Statistical Package for the Social Sciences was used. Due to the beneficial and substantial impact of resource monitoring, the road projects of the County Government of Kakamega were able to be finished on schedule. Implicit resource monitoring has a major impact on how quickly road projects are finished. One key benefit of resource monitoring, as shown in the research, is that it enables organizations to efficiently meet job specifications. The project manager and their colleagues can determine the best course of action by monitoring things like available cash, environmental issues, and project objectives.

Francis *et al.* (2020) investigated the impact of material management on the profitability of projects and the survival of contractors in Ebonyi State. Since the majority of Nigerian project development organizations still ignore the matter of materials management, it is crucial to address this in order to effectively manage projects. The purpose of this research was to examine how materials management impacts the performance or failure of construction projects and contractors. Goals such as determining what elements influence efficient materials management on building sites and measuring the impact of materials management on project profitability were emphasized. Data for this study came from a variety of sources, including primary and secondary sources. The study found that factors such as intricate drawing details, design revisions made during construction, insufficient storage causing deterioration, and so on had a significant influence on material management practice. If you want the project to be

profitable, the study says you should think about materials management procedures from the beginning.

2.3 Risk planning on project performance

According to the results of the study, Gateka (2023) examined the effect of risk management on the accomplishment of the Rabbit Project by Rabbit LTD in Rwanda. Because of the limited number of indices required to convey any meaningful information about the distribution of scores or measures, descriptive statistics were used. In addition, 80 participants who filled out the survey provided responses. Stratified sampling was used because it is a very effective form of sampling when the researcher wants to zero in on a specific subset of the total population. SPSS was used to input and evaluate the collected data. The correlation between risk management and the completion of the Rabbit project is rather high ($R^2 = 0.84$). The analysis finds that the performance of the Rabbit Project in Rwanda is due in large part to the efforts of the company's employees after examining the data obtained from those individuals. This research aimed to determine the role that risk management played in the overall performance of projects undertaken by Rabbit Ltd in Rwanda.

Jha (2022) explores how risk management planning helps to determine the level of project performance in construction industries in India. A survey analysis of the construction industry was conducted, involving 100 construction projects, using quantitative modeling, mathematical modeling, and a survey. The study argued that out of the projects, which developed specific risk management strategies, 87% mentioned fewer problems and difficulties in the implementation phase. Writing the risk management plan is important since it can help in preventing the disruption of projects as well as enhance the performance of the projects. Risk management planning should be considered an important part of the overall construction firm's project management strategy.

Tumbo (2022) explored risk management planning as an intervention point to avoid project failures in Uganda. A quantitative approach was used in the study because a survey was conducted among project managers across various fields. The conclusion found out that the project with documented risk management strategies recorded a significant reduction in delay and cost overruns. Planning for risk management is essential in any project, as it enables the avoidance of detrimental risks. To improve performance rates of project management, organizations should incorporate risk management training into the practices that are implemented, as this training equips project managers with the skills to identify, assess, and mitigate potential risks effectively.

2.4 Monitoring and evaluation planning on project performance

Workneh and Aga (2023) investigated the impact of monitoring and evaluation (M&E) practices on the performance of development projects in non-governmental organizations (NGOs) in Ethiopia. The study employed a survey research design and analyzed 92 NGO projects. It turned out that important methods of monitoring and evaluation, including preparation, technical competence of personnel, financial planning, and involvement of stakeholders, greatly affected the outcome of the project. The study highlighted that proper M&E planning, combined with the technical competence of project staff and adequate budgeting, were crucial factors for the performance of development projects. Furthermore, active involvement of stakeholders in the M&E process played an important role in ensuring

project effectiveness. The findings suggest that NGOs should focus on establishing comprehensive M&E systems that incorporate these practices to enhance project performance and outcomes. This study emphasizes the need for NGOs to prioritize M&E systems as a central element in their project management approach to achieve long-term performance.

Mukamana (2023) investigated the effect of monitoring and evaluation (M&E) practices on the performance of local government projects in Musanze District, specifically focusing on the Modern Market Building Project. The study used both quantitative and qualitative approaches with a sample size of 197 respondents. It found that 93.4% of the variation in project performance could be attributed to M&E practices, with an R^2 value of 0.934. Additionally, the study revealed that a one-unit increase in process monitoring and evaluation led to a 0.798 increase in project performance, compliance monitoring and evaluation resulted in a 0.602 increase, financial monitoring and evaluation showed a 1.081 increase, and results monitoring and evaluation led to a 0.949 increase in performance. The study concluded that M&E practices significantly impact project performance and recommended the formulation of policies promoting comprehensive application of M&E in local government projects.

Dubé and Paré (2022) shed light on the evaluation and monitoring planning to let us know how it helps improve project performance in the nonprofit organization of Canada. To establish the effectiveness of M&E practices, a cross-sectional online questionnaire was administered to 150 nonprofit project managers with the use of five completed projects to further audit the results. The study indicated that with better M&E planning, accountability on projects increased as well as results since 80% of the respondents declared that they had better stakeholder engagement because the M&E plans were well structured. Evaluability assessment in projects has been a significant agenda in enhancing transparency in the nonprofit sector. Nonprofit organizations should ensure that they design an effective M&E framework to allow for learning throughout the implementation process.

Uwurukundo (2022) investigated the effect of monitoring and evaluation (M&E) practices on the performance of the Rwanda Dairy Development (RDDP) Project across 12 districts from 2017 to 2021. The study used descriptive and causal research designs with a sample size of 138 employees. The findings revealed that M&E design and planning ($\beta1 = 0.228$, p-value = 0.000), M&E quality assurance ($\beta2 = 0.226$, p-value = 0.000), M&E capacity building ($\beta3 = 0.212$, p-value = 0.000), M&E information sharing ($\beta4 = 0.793$, p-value = 0.000), and M&E budget ($\beta5 = 0.084$, p-value = 0.002) all had significant positive effects on the project's performance. The adjusted R^2 of 0.753 indicated that 75.3% of the performance variation in the RDDP project was influenced by M&E practices. The study concluded that M&E practices play a significant role in enhancing project performance and recommended strengthening M&E quality assurance.

3. Methodology

The population of this study was 158 people, including project staff, local leaders, and beneficiaries per cell of the cookstove project. In this study, a census method was employed to gather comprehensive data from the entire population of 158 individuals involved in the cookstove project. The census method involves gathering data from each individual within the designated population, thereby guaranteeing that the results are both representative and comprehensive.

The researcher employed the Cronbach's alpha technique to assess the reliability of the research instrument. Cronbach's alpha (α), also known as coefficient alpha, measures the internal consistency of the questionnaire, providing an indication of how closely related a set of items are as a group. The values of Cronbach's alpha range from 0 to 1, with higher values indicating greater reliability. Specifically, a value of 0.7 or higher is generally considered acceptable for research purposes, suggesting that the items within the instrument consistently measure the same underlying construct.

Table 1: Reliability statistics

Variables	Cronbach's Alpha	N of Items
Financial planning	.837	4
Resource planning	.821	4
Risk planning	.829	4
M&E planning	.832	4
Project performance	.818	4

The reliability analysis, measured using Cronbach's alpha, indicates a strong level of internal consistency for all variables in the study. A reliability coefficient above 0.70 is generally considered acceptable, and in this case, all variables exceed this threshold, demonstrating high reliability. Financial planning (α = 0.837) suggests that the four items measuring this variable are highly consistent. Resource planning (α = 0.821) shows strong internal reliability, indicating that the items effectively measure the construct. Risk planning (α = 0.829) also reflects good reliability, suggesting that the related items provide a consistent measure. M&E planning (α = 0.832) has the highest reliability score, reinforcing the consistency of its measurement, and project performance (α = 0.818) has the highest reliability score, reinforcing the consistency of its measurement. Overall, the Cronbach's alpha values confirm that the questionnaire items for each variable are reliable and suitable for assessing the intended constructs.

The researcher presented the findings in numerical and statistical formats, providing the reader with a comprehensive understanding of the results. The Statistical Package for Social Sciences (SPSS) version 25 was utilized for this study.

4. Findings & Discussion

The study presents the response rate for the survey conducted in the Cookstove Project in Rulindo District. Out of 158 questionnaires distributed, 148 were filled and returned, resulting in a response rate of 93.7%. The data indicates that a small number of surveys, specifically 10, remained unreturned and incomplete, accounting for 6.3% of the total distribution. This high response rate reflects effective engagement with participants and underscores the reliability of the data collected for analysis.

4.1 Correlation analysis

This section presents the correlation analysis conducted to assess the relationships between financial planning, resource planning, risk planning, M&E planning, and project performance in the Cookstove Project in Rulindo District. It aims to determine the strength and direction of the associations between these variables, highlighting significant correlations and their implications for project performance.

Table 2: Correlations matrix

		Financial planning	Resource planning	Risk planning	M&E planning	Project performance
Financial planning	Pearson Correlation	1	.805**	.745**	.666**	.766**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	148	148	148	148	148
Resource planning	Pearson Correlation	.805**	1	.704**	.500**	.711**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	148	148	148	148	148
Risk planning	Pearson Correlation	.745**	.704**	1	.566**	.689**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	148	148	148	148	148
M&E planning	Pearson Correlation	.666**	.500**	.566**	1	.674**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	148	148	148	148	148
Project performance	Pearson Correlation	.766**	.711**	.689**	.674**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	148	148	148	148	148

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

Source: Field data, 2025

Table 2 presents the correlation matrix assessing relationships between financial planning, resource planning, risk planning, M&E planning, and project performance in the Cookstove Project in Rulindo District. The analysis reveals that all independent variables demonstrate significant positive relationships with project performance.

Financial planning shows a strong positive relationship ($r = 0.766$, $p < 0.05$): improvements in financial planning practices are strongly associated with better project performance. The findings align with what Zhang (2022) highlighted, which is that effective financial planning is crucial for project success. The Cookstove Project in Rulindo District demonstrates a strong emphasis on financial management practices. Both studies emphasize the necessity of continuous financial planning to attain desired project results and mitigate risks.

Resource planning also exhibits a strong positive relationship ($r = 0.711$, $p < 0.05$), suggesting that effective resource management significantly enhances overall performance. The results resonate with Ronald et al. (2020), who noted the importance of effective resource planning in enhancing project performance. The Cookstove Project in Rulindo District showcases the impact of comprehensive resource management on timely execution and cost-effectiveness. Both studies highlight the necessity for strategic resource allocation to achieve project objectives.

Risk planning demonstrates a moderate positive relationship ($r = 0.689$, $p < 0.05$), indicating that improvements in risk management practices are beneficial but slightly less strong compared to financial and resource planning. The findings support the assertions made by Jha (2022), which emphasize the significance of risk management planning for project performance. The Cookstove Project in Rulindo District employs effective risk management strategies that contribute to successful implementation, such as regular risk assessments and stakeholder engagement, which help identify and mitigate potential challenges early in the

project lifecycle. Both studies underscore the vital role that proactive risk planning plays in navigating challenges and ensuring project success.

Finally, M&E planning shows a moderate positive relationship ($r = 0.674$, $p < 0.05$), which means that good monitoring and evaluation help projects succeed. The results are upheld by the findings of Mukamana (2023), which indicate that strong monitoring and evaluation practices significantly influence project performance. The Cookstove Project in Rulindo District utilizes structured M&E frameworks that enhance effectiveness and accountability, which in turn leads to improved project outcomes and greater community satisfaction. Both studies underline the importance of comprehensive M&E systems in facilitating project success and improving outcomes.

4.2 Regression analysis

This section evaluates the impact of financial planning, resource planning, risk planning, and M&E planning on project performance, including model fit, ANOVA results, coefficients, and hypothesis testing.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.823[a]	.677	.668	.28766	2.003

a. Predictors: (Constant), M&E planning, Resource planning, Risk planning, Financial planning

b. Dependent Variable: Project performance

Source: Field data, 2025

Table 3 presents the model summary, which shows an R value of 0.823, indicating a strong positive correlation between predictors (M&E planning, resource planning, risk planning, and financial planning) and project performance in the Cookstove Project in Rulindo District. The R^2 value of 0.677 means that approximately 67.7% of the variance in project performance can be explained by financial planning, resource planning, risk planning, and M&E planning. The Durbin-Watson statistic of 2.003 indicates no significant autocorrelation of the residuals.

The findings are aligned with the research conducted by Zhang and Chen (2022), which emphasized the importance of meticulous project planning in enhancing performance outcomes in large-scale infrastructure projects. Their study demonstrated that effective planning positively influences managerial control and risk response strategies, ultimately leading to improved project results. This study on the Cookstove Project in Rulindo District indicates that comprehensive planning practices contribute significantly to achieving desired project performance. Both studies underscore the necessity of strong planning frameworks for successful project execution and management.

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.814	4	6.204	74.969	.000[b]
	Residual	11.833	143	.083		
	Total	36.647	147			

a. Dependent Variable: Project performance

b. Predictors: (Constant), M&E planning, Resource planning, Risk planning, Financial planning

Source: Field data, 2025

Table 4 displays the ANOVA results, with an F value of 74.969 and a significance level ($p < 0.000$) indicating that the model is statistically significant. This shows that the predictors (M&E planning, resource planning, risk planning, and financial planning) significantly explain variability in project performance in the Cookstove Project in Rulindo District.

The findings corroborate the assertions of Mthembu and Nkosi (2022), indicating that comprehensive planning enhances project performance in public infrastructure initiatives. The Cookstove Project in Rulindo District has a significant reliance on effective planning practices to ensure successful outcomes. Both studies stress the need for consistent implementation of meticulous planning to achieve project success.

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.318	.204		1.562	.120		
	Financial planning	.246	.096	.251	2.558	.012	.235	4.258
	Resource planning	.248	.083	.250	2.982	.003	.322	3.102
	Risk planning	.151	.069	.163	2.172	.032	.402	2.487
	M&E planning	.264	.059	.290	4.467	.000	.537	1.863

a. Dependent Variable: Project performance

Source: Field data, 2025

The adopted model for analysis was structured as follows:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$

Where:

Y = cookstove project performance

X_1 = Financial planning

X_2 = Resource planning

X_3 = Risk planning

X_4 = M&E planning

β_0 = Constant (intercept)

β_1, β_2, β_3, β_4 = Coefficients indicating the strength of each variable's influence on project performance

ϵ = Error term

Hence, Project performance = 0.318 + 0.246(Financial planning) + 0.248(Resource planning) + 0.151(Risk planning) + 0.264(M&E planning) + ϵ.

Table 5 presents the coefficients for the regression model analyzing the effect of financial planning, resource planning, risk planning, and M&E planning on project performance for the Cookstove Project in Rulindo District. The unstandardized coefficient for the constant is 0.318, indicating the baseline value of project performance when all predictor variables are zero.

The unstandardized coefficient for financial planning is 0.246, indicating that a one-unit increase in financial planning results in a 0.246-unit increase in project performance ($\beta = 0.246$, $t = 2.558$, $p = 0.012$). This significant finding indicates that financial planning positively affects project outcomes. The findings are consistent with Adetunji (2021), who emphasized that effective financial planning is essential for improving project performance in the construction industry. Their research showed that businesses with good financial controls had better budget performance and shorter project times. This study on the Cookstove Project in Rulindo District indicates that strong financial planning positively impacts project outcomes. Both studies highlight the importance of diligent financial management in ensuring project success.

The unstandardized coefficient for resource planning is 0.248, indicating that a one-unit increase in resource planning leads to a 0.248-unit increase in project performance ($\beta = 0.248$, $t = 2.982$, $p = 0.003$). This significant result demonstrates that effective resource management contributes positively to project success. The findings resonate with Francis et al. (2020), who investigated the impact of material management on project performance. Their study noted that effective materials management directly influences project profitability and contractor survival. This study on the Cookstove Project in Rulindo District indicates that effective resource planning significantly enhances project execution and cost management. Both studies stress the need for effective resource allocation to achieve favorable project outcomes.

The unstandardized coefficient for risk planning is 0.151, revealing that a one-unit increase in risk planning results in a 0.151-unit increase in project performance ($\beta = 0.151$, $t = 2.172$, $p = 0.032$), indicating that risk management plays a beneficial role in project outcomes.

The findings align with Tumbo (2022), who explored the importance of risk management planning in preventing project failures. Their study revealed that projects with documented risk management strategies experienced fewer delays and cost overruns. This study on the Cookstove Project in Rulindo District indicates that effective risk planning is crucial for enhancing project performance. Both studies underscore the necessity of proactive risk management in achieving project success.

Lastly, the unstandardized coefficient for M&E planning is 0.264, indicating that a one-unit increase in M&E planning correlates with a 0.264-unit increase in project performance ($\beta = 0.264$, $t = 4.467$, $p = 0.000$). This finding emphasizes that effective monitoring and evaluation practices are critical for enhancing project performance in the Cookstove Project in Rulindo District. The collinearity statistics indicate that tolerance values for all predictors exceed 0.1, and VIF values remain below 10, confirming no multicollinearity issues.

The findings are supported by Dubé and Paré (2022), who emphasized the role of monitoring and evaluation practices in improving project outcomes. Their study illustrated that well-structured M&E plans enhance accountability and stakeholder engagement in nonprofit projects. This study on the Cookstove Project in Rulindo District indicates that effective M&E planning significantly contributes to project effectiveness. Both studies highlight the importance of comprehensive M&E systems for facilitating project success.

Table 6: Hypotheses Results

Null Hypotheses	p value	Decision
H_{o1}: Financial planning has no significant effect on performance of cookstove project in Rulindo District.	p<0.05	Rejected
H_{o2}: There is no significant effect of resource planning on performance of cookstove project in Rulindo District.	p<0.05	Rejected
H_{o3}: Risk planning has no significant effect of risk planning on performance of cookstove project in Rulindo District.	p<0.05	Rejected
H_{o4}: There is no significant effect of monitoring and evaluation planning on performance of cookstove project in Rulindo District.		

Table 6 presents the hypotheses results relating to the various planning practices' impact on project performance. The null hypotheses are tested to determine whether financial planning, resource planning, risk planning, and monitoring and evaluation planning significantly affect project performance in the Cookstove Project in Rulindo District.

For Ho1: Financial planning has no significant effect on the performance of the cookstove project in Rulindo District; the p-value is less than 0.05 ($p < 0.05$), leading to the rejection of this hypothesis. This indicates that financial planning does indeed have a significant effect on project performance. For Ho2: There is no significant effect of resource planning on the performance of the cookstove project in Rulindo District; the p-value is again less than 0.05 ($p < 0.05$), resulting in the rejection of this hypothesis. Therefore, resource planning positively impacts project performance.

For Ho3: Risk planning has no significant effect on the performance of the cookstove project in Rulindo District; the p-value is again less than 0.05 ($p < 0.05$), leading to the rejection of this hypothesis. Risk planning consequently contributes significantly to project performance.

For Ho4: There is no significant effect of monitoring and evaluation planning on the performance of the cookstove project in Rulindo District; the significance level remains below 0.05 ($p < 0.05$), indicating the rejection of this hypothesis as well. This suggests that monitoring and evaluation planning indeed plays a vital role in enhancing project performance.

5. Conclusion

Financial planning significantly influenced the performance of the cookstove project in Rulindo District. The study found strong positive agreement regarding the effectiveness of cost estimation, budgeting, and cost control mechanisms. Resource planning played a critical role in the success of the cookstove project. Strong positive agreement was expressed regarding the importance of effective planning for human, financial, and material resources. Risk planning proved essential for the success of the project. High levels of agreement were observed regarding the importance of risk identification, analysis, prioritization, and monitoring. Monitoring and evaluation (M&E) planning was integral to the effectiveness of the cookstove project. Strong agreement was found regarding the importance of regular progress monitoring, capacity building, and feedback collection.

6. Recommendations

The study suggests that project managers should give priority to comprehensive financial planning to guarantee the accurate implementation of cost estimation, budgeting, and control mechanisms.

Local leaders are recommended to strengthen their support in facilitating stakeholder engagement and providing local knowledge to ensure the successful execution of resource and risk planning strategies, which are essential for aligning project goals with community needs and enhancing overall project effectiveness.

7. Suggestion for further research

Future researchers are encouraged to investigate the effect of risk mitigation strategies on the performance of cookstove projects in Rwanda. Future research should also analyze the role of stakeholder engagement in the success of cookstove projects in rural areas.

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