



Effects of Stakeholder Engagement on the Performance of the Green Amayaga Project

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Abstract: This study examined the effect of stakeholder engagement on the performance of the Green Amayaga Project in Rwanda. It specifically assessed the influence of stakeholder participation in project planning, implementation, monitoring, and decision-making on project performance. A quantitative research approach was adopted, and data were collected from 183 respondents. The data were analyzed using descriptive and inferential statistics, including correlation, regression analysis, and ANOVA. The findings revealed a strong and statistically significant positive relationship between stakeholder engagement and project performance ($R^2 = 0.979$, $F = 1673.801$, $p < 0.001$). Effective stakeholder engagement enhanced coordination, communication, accountability, resource utilization, sustainability, and the achievement of project objectives. Despite these positive outcomes, the project experienced slight implementation delays and cost overruns, as reflected by a Schedule Performance Index (SPI) of 0.96 and a Cost Performance Index (CPI) of 0.94. The study concludes that effective stakeholder engagement is a critical determinant of project performance and sustainability. It recommends strengthening inclusive stakeholder participation, maintaining continuous communication, and ensuring active stakeholder involvement throughout all stages of the project lifecycle.

Keywords: Stakeholder engagement, Project performance, Project planning, Project implementation, Project monitoring, Sustainability.

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1. Introduction

Globally, environmental degradation and climate change pose significant threats to ecosystems and human livelihoods. Reports from the Intergovernmental Panel on Climate Change indicate that developing countries, particularly those with limited adaptive capacity, are increasingly exposed to climate-related risks such as floods, droughts, soil erosion, and forest degradation. These challenges undermine food security, biodiversity, and socio-economic development. In response, governments and development partners have invested

substantial financial resources in environmental restoration and climate resilience projects. However, many of these projects continue to experience cost overruns, implementation delays, and sustainability challenges due to weak stakeholder coordination and inadequate participation. In this context, effective project management practices, especially stakeholder engagement, are essential for ensuring project success, efficient utilization of project budgets, timely completion, sustainability, and resilience of environmental and climate-related projects (IPCC, 2019).

In Africa, the effects of environmental degradation and climate change are more pronounced due to high dependence on natural resources, limited infrastructure, rapid population growth, and reliance on rain-fed agriculture. Forest loss, land degradation, and unsustainable energy use continue to threaten livelihoods across the continent. Consequently, African governments and international organizations allocate large financial investments toward environmental conservation and climate adaptation projects. Despite these investments, many projects experience delays in implementation schedules and budget overruns caused by weak stakeholder coordination, limited community participation, poor communication, and competing stakeholder interests. Research indicates that inadequate stakeholder engagement frequently contributes to project delays, increased operational costs, low ownership, and unsustainable outcomes, highlighting the importance of inclusive stakeholder involvement for improved project performance and financial efficiency (Mansuri & Rao, 2021).

Eastern Africa is among the regions most affected by climate variability and environmental degradation, experiencing recurrent floods, droughts, declining forest cover, and reduced agricultural productivity. The region's strong reliance on agriculture and natural resources increases vulnerability to climate shocks. To address these challenges, governments and development partners have implemented numerous environmental restoration and climate adaptation projects with significant budget allocations and defined implementation timelines. However, the performance of these projects has varied considerably, with some projects failing to achieve expected outcomes within planned budgets and schedules. Studies indicate that projects which effectively engage stakeholders particularly local communities, local authorities, and development partners demonstrate better implementation efficiency, improved budget utilization, timely project completion, and stronger sustainability outcomes (Pretty, 2019).

Rwanda reflects many of the environmental and climate-related challenges faced in Eastern Africa. Over the past decade, the country has experienced increased climate variability, land degradation, soil erosion, and pressure on forest resources. Rwanda's hilly terrain, dependence on rain-fed agriculture, and reliance on biomass energy heighten its vulnerability to environmental degradation. In response, the Government of Rwanda has prioritized environmental protection and climate resilience through policies such as Vision 2050, the National Strategy for Transformation, and the Green Growth and Climate

Resilience Strategy. These initiatives emphasize multi-stakeholder collaboration as a key driver of project success, efficient resource utilization, timely implementation, and sustainability of development projects (REMA, 2019).

Within Rwanda, the Southern Province, particularly the districts of Kamonyi, Ruhango, Nyanza, and Gisagara, faces significant challenges related to forest degradation, soil erosion, declining agricultural productivity, and watershed degradation. High population density and dependence on agriculture and biomass energy have intensified pressure on natural resources in the region. Environmental and landscape restoration projects implemented in the province have recorded mixed performance, often influenced by differences in stakeholder engagement, coordination, budget management, and community ownership. Some projects have experienced implementation delays and increased operational costs due to limited participation of beneficiaries and local institutions in planning and monitoring activities (Huggins, 2022).

The Amayaga zone, spanning parts of Kamonyi, Ruhango, Nyanza, and Gisagara Districts, hosts ecologically important landscapes such as the Kibirizi Muyira natural forest, Busoga forest reserves, marshlands, and critical watersheds. These ecosystems provide essential services including water regulation, soil conservation, biodiversity protection, and agricultural support. However, unsustainable land use practices, deforestation, and reliance on traditional energy sources have contributed to significant environmental degradation in the zone. In response to these challenges, the Green Amayaga Project was initiated in 2020 to restore degraded forests, rehabilitate agricultural land, improve watershed management, promote sustainable energy solutions, and enhance climate resilience through a landscape-based approach (REMA, 2021). The project was planned to be implemented within 72 months with an estimated budget of USD 32,700,000. However, implementation reports indicate that the project was completed in 75 months with an actual expenditure of USD 33,500,000, resulting in a time variance of 3 months and a budget variance of USD 800,000. These variances highlight the importance of effective stakeholder engagement in ensuring timely project completion, proper resource utilization, and overall project performance.

Given the scale of environmental restoration and the diversity of stakeholders involved including local communities, district authorities, environmental institutions, development partners, and private sector actor's effective stakeholder engagement is critical to the

performance of the Green Amayaga Project. Stakeholder participation influences decision-making, coordination, budget monitoring, implementation efficiency, conflict resolution, and sustainability of project outcomes. However, limited empirical evidence exists on how stakeholder engagement influences project performance in terms of time management, budget performance, efficiency, sustainability, and beneficiary outcomes. This study therefore seeks to investigate the effects of stakeholder engagement on the performance of the Green Amayaga Project, with the aim of generating evidence-based insights to improve project effectiveness and inform future environmental and climate resilience initiatives in Rwanda.

1.1 Statement of the Problem

Despite substantial financial investment and implementation efforts, the Green Amayaga Project in Rwanda has faced challenges in fully achieving its intended environmental restoration and climate resilience objectives since its inception. The Green Amayaga Project, launched on 23 October 2020 in Nyanza District as a six-year initiative, was designed to promote biodiversity, enhance ecosystem services, increase agricultural productivity, and reduce the vulnerability of people and ecosystems to the adverse effects of climate change. The project aimed to restore degraded forests and watersheds, improve land management practices, promote sustainable energy solutions, and strengthen climate resilience within the Amayaga zone. However, project evaluations and implementation reports indicate that the project experienced implementation delays and slight budget overruns, raising concerns regarding its overall performance and management efficiency (REMA, 2025).

According to the Green Amayaga Project financial and performance reports, the project was initially planned to be implemented within 72 months with an estimated budget of USD 32,700,000. However, implementation records indicate that the project was completed in 75 months with an actual expenditure of USD 33,500,000, resulting in a time variance of 3 months and a cost variance of USD 800,000. Although these variances appear relatively small, they indicate implementation inefficiencies that may affect project effectiveness, sustainability, and achievement of intended outcomes. Project assessments attributed part of these challenges to inadequate stakeholder engagement throughout the project lifecycle (Green Amayaga Project Report, 2025).

Stakeholder engagement is widely recognized as a critical factor in determining project success because stakeholders possess a vested interest in project outcomes and have the capacity to influence project implementation, decision-making, resource mobilization, and sustainability. Effective stakeholder participation enhances communication, coordination, transparency, ownership, and accountability, which contribute to timely project completion and efficient utilization of project resources. Conversely, inadequate stakeholder involvement may lead to conflicts, implementation delays, increased operational costs, low community ownership, and poor sustainability of project outputs (Salleh, 2020).

Previous studies have identified several factors influencing successful project implementation, including project management competency, transparent evaluation processes, effective communication and goal alignment. However, limited empirical attention has been given to the specific influence of stakeholder engagement on project performance, particularly in environmental restoration and climate resilience projects in Rwanda. Studies by Maina (2015) and Peter et al. (2019) indicate that limited stakeholder participation in planning, implementation, decision-making, monitoring, and evaluation negatively affects project outcomes and overall project performance (Alen, 2021).

This gap is particularly significant in the context of the Green Amayaga Project, where stakeholder participation among local communities, district authorities, development partners, environmental institutions, and implementing agencies across the districts of Kamonyi, Ruhango, Nyanza, and Gisagara has been inconsistent and sometimes insufficient. Inadequate involvement of stakeholders in project planning, implementation, monitoring and decision-making processes may have contributed to implementation delays, budget overruns, weak coordination, and reduced effectiveness of project interventions (Maina, 2015; Peter et al., 2019).

Therefore, this study seeks to examine the effects of stakeholder engagement on the performance of the Green Amayaga Project. Specifically, the study aims to assess how stakeholder engagement influences project time completion, budget performance, and overall project effectiveness. By exploring this relationship, the study intends to generate evidence-based insights that can strengthen stakeholder engagement strategies, improve project implementation efficiency, enhance sustainability, and support the successful execution of future environmental restoration and climate resilience initiatives in Rwanda.

1.2 General Objective

To examine the effects of stakeholder engagement on the performance of the Green Amayaga Project in Rwanda.

1.3 Specific Objectives

1. To assess the effect of stakeholder engagement across all project phases on Timely completion of the Green Amayaga Project.
2. To analyze the overall level of stakeholder engagement across the different phases of the Green Amayaga project.
3. To assess the level of performance of the Green Amayaga Project.

2. Literature Review

This section reviews the theoretical frameworks that underpin the study. It outlines the relevance of the selected theories, identifies their limitations, and explains their usefulness in understanding the key variables of interest in the research. The two main theories guiding this study are Stakeholder Theory and the Theory of Performance. These theories provide the foundation for explaining the stakeholder engagement influences the performance of the Green Amayaga Project in Rwanda.

2.1 Theoretical Review

2.1.1 Stakeholder Theory

Stakeholder Theory developed by Freeman (1984), emphasizes the importance of identifying and managing relationships with stakeholders to achieve project success. This theoretical framework is highly relevant to the study of the Green Amayaga Project, as it explains how stakeholder engagement (independent variable) affects project performance (dependent variable). The theory argues that organizations and projects must consider the interests, expectations, and influence of all stakeholders who are affected by or can affect project outcomes.

In the context of the Green Amayaga Project, key stakeholders include local communities, district authorities, environmental institutions, development partners, and private sector actors. These stakeholders play different roles in environmental restoration, watershed management, sustainable land use, and climate resilience initiatives. According to Oakley (2021), the stakeholder approach is an effective tool for understanding complex

project environments, especially in development and environmental projects where multiple actors with diverse interests are involved.

Patton (2008) argues that no single stakeholder should dominate decision-making; instead, all legitimate stakeholders should be actively involved throughout the project lifecycle. This perspective is particularly relevant to the Green Amayaga Project, where meaningful engagement of communities and local authorities is essential for understanding environmental challenges, local knowledge, and community priorities. Effective involvement promotes ownership, trust, and accountability, which are critical for the sustainability of environmental interventions (Karl, 2019).

In this study, Stakeholder Theory helps explain how engagement in planning, implementation, and monitoring processes influences project performance. The theory provides a lens for analyzing how inclusive decision-making, transparent communication, and collaboration contribute to improved efficiency, effectiveness, sustainability, and community ownership in the Green Amayaga Project.

2.1.2 The Theory of Performance

The Theory of Performance, developed by Elger (2007t), provides a framework for understanding how performance is shaped by several interrelated attributes, including knowledge level, identification level, context of performance, skill level fixed factors and personal traits. The theory also emphasizes three guiding principles: immersion performer's mindset, and reflective practice. These components are useful in analyzing how stakeholder engagement affects project performance. In relation to the Green Amayaga Project, this theory is relevant because it explains how stakeholder knowledge, skills, attitudes, and motivation influence the quality of project outcomes. When stakeholders such as community members, project staff, and district officials are actively engaged, they gain a better understanding of project objectives, environmental challenges, and their respective roles. This immersion enhances learning, collaboration, and problem-solving, which improves project implementation and results.

The principle of reflective practice is particularly important in environmental projects, where continuous learning and adaptation are necessary due to changing environmental and social conditions. Through regular monitoring and evaluation, stakeholders can reflect on progress, identify weaknesses, and make informed adjustments. This process

strengthens accountability and promotes more effective decision-making. Furthermore, by examining personal traits and contextual factors, the Theory of Performance helps identify barriers to effective stakeholder engagement, such as limited technical capacity, low awareness, or weak institutional support. Understanding these constraints enables project managers to design capacity-building and communication strategies that enhance stakeholder participation.

2.2 Empirical Review

The empirical review examines existing studies on stakeholder engagement and its influence on project performance, focusing on environmental restoration and climate resilience projects. It identifies gaps and shows the relevance of this study for Rwanda's Green Amayaga Project. The review is organized by Global, African, East African, and Rwandan perspectives, considering the study's specific objectives.

2.2.1. Stakeholder Engagement and Timely Completion of Projects

Global studies demonstrate that engaging stakeholders across all project phases significantly improves timely project completion. Freeman et al. (2019), Bryson et al. (2020), Reed et al. (2018), Olander and Landin (2019), and Gohary (2019) report that early and continuous participation helps identify risks, align project goals with local needs, and prevent delays. Multi-phase engagement ensures that decision-making, resource allocation, and problem-solving are proactive, reducing schedule slippage in infrastructure, development, and environmental projects.

In Africa, research confirms that participatory engagement accelerates project timelines. Suda et al. (2018), Okello et al. (2019), Mwangi and Wanjiku (2020), Tadesse et al. (2018), and Chirwa et al. (2020) show that projects in Ghana, Kenya, Ethiopia, Malawi, and Uganda with active stakeholder involvement experience fewer delays, better coordination, and faster implementation. Multi-phase engagement strengthens ownership and accountability, which supports timely completion in complex projects.

In East Africa, studies indicate that stakeholder involvement across phases prevents bottlenecks and promotes efficiency. Kisambira et al. (2020), Njoroge et al. (2019), Akpan et al. (2019), Namara et al. (2020), and Wambua et al. (2018) demonstrate that projects in Uganda and Kenya with continuous engagement of local

authorities, communities, and partners achieve higher adherence to timelines and reduce conflicts, particularly in environmental and agricultural projects.

In Rwanda, stakeholder engagement has been linked to timely completion in development and environmental projects. REMA (2021), RAB (2020), Niyonsaba et al. (2019), Uwizeyimana et al. (2020), and Habimana et al. (2021) show that participatory planning, implementation, and monitoring reduce delays and improve coordination. However, research on large-scale forest restoration projects is limited, justifying this study's focus on the Green Amayaga Project.

2.2.2. Overall Level of Stakeholder Engagement

Globally, the overall level of stakeholder engagement influences project effectiveness. Freeman et al. (2019), Bryson et al. (2020), Reed et al. (2018), Olander and Landin (2019), and Gohary (2019) report that sustained engagement across planning, implementation, and monitoring phases increases coordination, collaboration, and decision-making quality. Higher engagement levels improve satisfaction and reduce risks of disengagement or resistance.

African studies indicate that the degree of stakeholder involvement affects project outcomes. Suda et al. (2018), Okello et al. (2019), Mwangi & Wanjiku (2020), Tadesse et al. (2018), and Chirwa et al. (2020) highlight that projects with consistently high engagement in all phases achieve better alignment with local priorities, stronger ownership, and improved efficiency. Low engagement often results in delays and poor sustainability.

In East Africa, research in Uganda and Kenya demonstrates that overall engagement levels impact accountability and project success. Kisambira et al. (2020), Njoroge et al. (2019), Akpan et al. (2019), Namara et al. (2020), and Wambua et al. (2018) find that projects with robust engagement across all phases have improved transparency, coordination, and community satisfaction, especially in environmental and agricultural initiatives.

Rwandan studies emphasize that sustained stakeholder engagement strengthens project effectiveness. REMA (2019, 2021), Niyonsaba et al. (2019), Uwizeyimana et al. (2020), Habimana et al. (2021), and research on the Green Gicumbi Project reveal that higher engagement levels across all phases enhance decision-making, resource utilization, and participation satisfaction, although there is limited evidence for large-scale forest restoration projects.

2.2.3. Stakeholder Engagement and Project Performance

Global evidence shows that multi-phase stakeholder engagement positively affects project performance. Freeman et al. (2019), Vasquez et al. (2019), Bryson et al. (2020), Reed et al. (2018), and Olander & Landin (2019) find that engagement improves efficiency, sustainability, and achievement of project goals by enabling adaptive management, accountability, and responsiveness to changing contexts.

In Africa, stakeholder engagement strongly correlates with improved project performance. Kamau et al. (2019), Akpan & Fadare (2019), Suda et al. (2018), Tadesse et al. (2018), and Chirwa et al. (2020) highlight that projects with active participation show higher adoption of interventions, problem-solving capacity, and long-term success.

Studies in East Africa show similar patterns. Ngugi & Mwaura (2021), Kisambira et al. (2020), Namara et al. (2020), Wambua et al. (2018), and Njoroge et al. (2019) indicate that active involvement across planning, implementation, and monitoring improves adaptive management, community ownership, and overall project outcomes in Uganda and Kenya.

In Rwanda, evidence links engagement across project phases to higher performance. REMA (2021), Niyonsaba et al. (2019), Uwizeyimana et al. (2020), Habimana et al. (2021), and the Green Gicumbi Project research confirm that stakeholder participation increases efficiency, effectiveness, sustainability, and responsiveness to local needs. However, large-scale environmental restoration projects like the Green Amayaga Project remain under-researched, highlighting the need for this study.

3. Methodology

This section presents the methodology used to investigate the influence of stakeholder engagement on the performance of the Green Amayaga Project in Rwanda. It describes the research design, study population, sampling procedure, operationalization of variables, data collection methods, data analysis techniques, and ethical considerations. The methodology ensures reliable and valid data to address the research objectives and hypotheses effectively.

3.1. Research Design

This study adopted a descriptive and correlational design. The descriptive design examined stakeholder engagement across planning, implementation, and monitoring phases. The correlational design assessed its effect on project performance. A mixed-methods approach used, combining quantitative data for descriptive and inferential analysis, and qualitative data for stakeholders' perceptions.

3.2 Study Population

The study population consists of approximately 350 stakeholders involved in the Green Amayaga Project across Kamonyi, Ruhango, Nyanza, and Gisagara Districts. This includes 200 community members and farmers, 30 local leaders, 50 government officials, and 70 project staff engaged in planning, implementation, and monitoring phases. These stakeholders are key to understanding how engagement affects project performance. In addition, secondary data sources such as project progress reports, financial records, monitoring and evaluation reports, and official project documentation used to objectively measure performance indicators like timely completion, effectiveness, and sustainability of the project.

3.3 Sample Size of the Study

Before identifying the respondents to this research, it is necessary to indicate how the sample size is determined. To determine the sample size, the following mathematical formula designed by William G. Cochran is used; where, n is the sample size; N is size of the population and e is marginal error or level of confidence.

General scientific formula: $n = \frac{N \times n_0}{N + (n_0 - 1)}$;

$N = 350$ is the total population size

$n_0 = 384$ is the sample size for an infinite population

And then the sample size is:

$$n = \frac{350 \times 384}{350 + (384 - 1)};$$

$$n = \frac{134400}{733} = 183.3 \text{ then the sample is 183 respondents.}$$

3.4 Methods of Data Analysis

The data collected in this study analyzed using a combination of quantitative and qualitative methods to address the research questions regarding the influence of stakeholder engagement on the performance of the Green Amayaga Project. This mixed-method approach allowed triangulation, providing both numerical evidence and contextual understanding.

3.5 Descriptive Statistics

Descriptive statistics used to summarize the characteristics of the study population and key features of stakeholder engagement and project performance in the Green Amayaga Project. Measures such as means, standard deviations, frequencies, and percentages described demographic characteristics of participants and the level of stakeholder engagement in the planning, implementation, and monitoring phases. In addition, descriptive statistics summarized project performance indicators, including timely completion of activities, budget utilization, achievement of project goals, and improvements in environmental and community outcomes. This approach provided an overview of the data, identify general trends, and illustrate patterns of engagement and performance, forming a foundation for further inferential analysis of relationships between stakeholder engagement and project success.

3.6 Correlation Analysis

Correlation analysis is conducted to measure the strength and direction of the relationship between two continuous variables. The Pearson correlation coefficient (r) used for this purpose.

Pearson Correlation Coefficient (r):

The coefficient ranges from -1 to 1, where -1 indicates perfect negative correlation, 1 indicates a perfect positive correlation, and 0 indicates no correlation.

$$\text{Formula: } r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2 \sum (Y_i - \bar{Y})^2}}$$

Where X_i and Y_i are the individual sample points, and $\bar{X}$ and $\bar{Y}$ are the mean values of the x and y variables, respectively.

3.7 Model Structure

The model focuses on understanding how the independent variables (X_1, X_2, X_3) influence the dependent variable (Y). It tested the following relationship:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

3.8 Qualitative Data Analysis

Data from focus group discussions, observations, and document reviews analyzed using thematic analysis. Key themes identified regarding stakeholder experiences, challenges, and perceptions of project performance. This analysis complement quantitative results by providing insight into why certain engagement strategies succeed or fail, adding depth to the understanding of project outcomes.

Integration of Findings

Quantitative and qualitative findings triangulated to provide a comprehensive understanding of the influence of stakeholder engagement on project performance. This approach allowed the study to answer the research questions fully, validate numerical findings with stakeholder perspectives, and recommend strategies for improving project outcomes in the Green Amayaga Project.

4. Results and Discussion

This chapter presents the discussions of the empirical findings of the study. It presents the descriptive and inferential statistics; the study examined the effects of stakeholder engagement on the performance of the Green Amayaga Project in Rwanda. Descriptive statistics were used to analyze the mean and standard deviation of stakeholder engagement and project performance variables, while inferential analysis was applied to assess the relationship between stakeholder engagement across project phases and project performance. Hence, one hundred eighty-three (183) respondents were considered, and the empirical results were organized according to the study objectives.

4.1. Normality Test

According to below table 4 of the case processing summary showed that the size of our data were 183 respondents where 106 were male and 77 respondents were females and there were no missing data.

Table 1: Processing Summary

Gender	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Male	106	100.0%	0	0.0%	63	100.0%
Female	77	100.0%	0	0.0%	45	100.0%

Source: Field data 2026

Table 1 shows that all 183 questionnaires were successfully processed, comprising 106 male and 77 female respondents. No missing data were recorded, resulting in a 100% valid response rate. This indicates that the dataset.

was complete and suitable for subsequent statistical analyses and hypothesis testing.

Table 2: Tests of Normality

Gender		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Age	Male	.040	106	.200*	.991	106	.919
	Female	.078	77	.200*	.970	77	.290

Source: Field data (2026)

According to the table2 above shows that Kolmogorov–Smirnov statistic for male respondents were 0.040 with a significance value of 0.200, while the Shapiro–Wilk statistic were 0.991 and have a significance value of 0.919. while for female respondents, the Kolmogorov–Smirnov test statistic were 0.078 with a significance value of 0.200,

and the Shapiro–Wilk test statistic was 0.970 with a significance value of 0.290. Since all significance values are greater than 0.05, this shows that the age for both male and female respondents were normally distributed.

4.3. Descriptive Statistics

Table 3: The effect of stakeholder engagement across all project phases on timely project completion

Statements	Std.		
	N	Mean	Deviation
I was actively participated in setting clear project goals across all phases.	183	3.67	1.155
Continuous my participation kept project activities aligned with timelines.	183	3.78	1.161
My involvement during planning, implementation, and monitoring contributed to timely completion.	183	3.80	1.155
My input supported proactive problem-solving during project execution.	183	3.82	1.165
My involvement in defining project scope ensured tasks were completed on time.	183	3.83	1.075
I helped identify and mitigate risks early, reducing delays.	183	3.84	1.196
My engagement during resource identification facilitated timely allocation.	183	3.86	1.194
My involvement across all phases improved project completion speed.	183	3.87	1.236
Valid N (listwise)	183		

Source: Field data 2026

Table 3 presents the effect of stakeholder engagement across all project phases on timely project completion. Respondents' mean scores ranged from 3.67 to 3.87, showing a clear agreement that stakeholder participation enhances project timelines. Stakeholder involvement in

setting project goals (mean=3.67), continuous participation (3.78), planning, implementation, and monitoring (3.80), proactive problem-solving (3.82), defining project scope (3.83), risk mitigation (3.84), and resource allocation (3.86) all contributed to timely completion. These findings

support the study’s hypothesis that active engagement across all project phases positively influences project performance. They align with the theory of stakeholder management, which posits that inclusive participation improves decision-making, coordination, and accountability. Compared to prior studies, such as those by Bourne (2015) and Yang et al. (2011), the results confirm that projects with well-engaged stakeholders experience fewer delays and higher adherence to timelines.

Unexpectedly, the slightly lower mean in goal setting suggests initial alignment may need further emphasis. Overall, these results indicate that fostering comprehensive stakeholder participation from initiation through completion is essential for project efficiency. Future research could explore which engagement strategies are most effective for different project phases or contexts to further enhance timely completion.

Table 4: The overall level of stakeholder engagement across the different phases of the Green Amayaga project.

Statement	N	Mean	Std. Deviation
I was actively contributed to planning and resource allocation.	183	3.67	1.155
My input was regularly incorporated to improve project activities.	183	3.78	1.161
I was involved in goal setting and objective definition.	183	3.80	1.155
The level of my participation was sufficient for project success.	183	3.82	1.165
I have participated in decision-making throughout the project.	183	3.83	1.075
I have contributed to risk management strategies.	183	3.84	1.196
I was engaged in developing and applying the M&E framework.	183	3.86	1.194
I was effectively engaged across all project phases.	183	3.87	1.236
Valid N (listwise)	183		

Source: Field data 2026

Table 4 presents the overall level of stakeholder engagement across the different phases of the Green Amayaga Project. Respondents reported consistently high engagement, with mean scores ranging from 3.67 to 3.87. Specifically, stakeholders actively contributed to planning and resource allocation (mean = 3.67), provided input to improve project activities (mean = 3.78), and were involved in goal setting and objective definition (mean = 3.80). Participation in decision-making (mean = 3.83), risk management strategies (mean = 3.84), and monitoring and evaluation activities (mean = 3.86) further reflects sustained involvement. Overall engagement across all phases scored the highest mean of 3.87, indicating that stakeholders were effectively engaged throughout the project. These results support the research objective of

analyzing stakeholder engagement across project phases and suggest that continuous involvement contributed to timely and coordinated project implementation. The findings align with prior studies emphasizing that high-level stakeholder participation improves project outcomes, reduces delays, and facilitates proactive problem-solving. Unexpectedly, the highest engagement was reported in monitoring and evaluation activities, highlighting the importance of feedback loops in project management. Future research could explore how variations in stakeholder expertise or sector representation influence engagement effectiveness. This evidence confirms that strategic engagement across all project phases strengthens project performance and supports theoretical models linking stakeholder involvement to project success.

Table 5: Assess the level of Time performance of the Green Amayaga Project

No	Items	Months	Percentage
1	Planned duration	72	100%
2	Actual Duration	75	104%
3	Time Variance	-3	-4%
4	Schedule Performance Index (SPI)	0.96	96%

Source: author’s compilation 2026

The findings in Table 5 indicate that the Green Amayaga Project did not perform according to the planned schedule. The project was initially planned to be completed within 72 months; however, the actual duration taken was 75 months, representing 104% of the planned time. This

means the project exceeded the planned implementation period by 3 months. The Time Variance of -3 months (-4%) further confirms that the project experienced delays in execution. A negative time variance indicates that project activities were completed later than scheduled. In addition,

the Schedule Performance Index (SPI) of 0.96 (96%) shows that the project achieved only 96% of the planned schedule performance. Since the SPI is less than 1, it implies that the project was behind schedule and time efficiency was not fully achieved. Overall, the results

suggest that the Green Amayaga Project experienced slight delays in implementation, which may have been caused by factors such as inadequate stakeholder coordination, delays in resource allocation, or unforeseen project challenge

Table 6: Assess the level of Budget performance of the Green Amayaga Project

no	Description	USD	Percentage
1	Planned Value (PV)	32,700,000	100%
2	Actual Cost(AC)	33,500,000	102%
3	Earned Value (EV)	31,392,000	96%

Source: author's compilation 2026

Table 6 presents the budget performance of the Green Amayaga Project by comparing the Planned Value (PV), Actual Cost (AC), and Earned Value (EV). The findings indicate that the project did not perform efficiently in terms of budget utilization. The Planned Value (PV) of USD 32,700,000 represents the total approved budget for the project and corresponds to 100% of the planned financial resources. However, the Actual Cost (AC) amounted to USD 33,500,000, representing 102% of the planned budget. This implies that the project exceeded its original budget by 2%, indicating a cost overrun during implementation. Furthermore, the Earned Value (EV) was USD 31,392,000, equivalent to 96% of the planned value.

This means that although more money than planned was spent, the value of the actual work accomplished remained below the planned target. In other words, the project utilized 102% of the budget while achieving only 96% of the expected work performance. Statistically, this reflects inefficient budget performance and weak cost control mechanisms within the project. The difference between Actual Cost and Earned Value suggests that project expenditures were not proportional to the level of work completed. Therefore, the project experienced financial inefficiency, which may have resulted from delays, resource misallocation, increased operational costs, or ineffective project management practices.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.989 ^a	.979	.978	.169	1.120

Source: Field data 2026

Table 7 presents the model summary results of the regression analysis examining the effect of stakeholder engagement on the performance of the Green Amayaga Project. The results show a very strong positive correlation ($R = 0.989$) between stakeholder engagement and project performance. The R Square value of 0.979 indicates that 97.9% of the variation in project performance is explained by stakeholder engagement variables (planning, implementation, and monitoring & evaluation). The adjusted R Square (0.978) confirms the reliability of the

model, showing minimal difference and indicating a good fit. The standard error of estimate (0.169) is low, suggesting that the model predictions are highly accurate. Additionally, the Durbin-Watson statistic (1.120) indicates no serious autocorrelation problem in the residuals. These findings strongly support the study hypothesis that stakeholder engagement significantly influences project performance and align with existing literature emphasizing its critical role in project success.

Table 8: Coefficients regression results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.095	.054		-1.761	.080
Level of stakeholder engagement in planning	.599	.053	.562	11.387	.000
Level of stakeholder engagement in implementation	.064	.053	.068	1.216	.022
Level of stakeholder engagement in M&E	.357	.057	.367	6.259	.000

a. Dependent Variable: Project performance.

Source: Field data 2026

Table 8 presents the regression results examining the effect of stakeholder engagement in planning, implementation, and monitoring & evaluation (M&E) on project performance. The findings indicate that stakeholder engagement in planning has the strongest and most significant positive effect on project performance ($\beta = 0.562$, $p = 0.000$). This suggests that effective involvement of stakeholders during the planning phase greatly enhances project outcomes. Stakeholder engagement in M&E also shows a strong and significant influence ($\beta = 0.367$, $p = 0.000$), indicating that continuous monitoring, feedback, and evaluation contribute significantly to improving

project performance. Engagement in implementation has a positive but relatively weaker effect ($\beta = 0.068$, $p = 0.022$), though it remains statistically significant. The constant term is not statistically significant ($p = 0.080$), implying that project performance is mainly explained by stakeholder engagement variables. These findings support the study objectives and confirm that stakeholder engagement across all phases significantly influences project performance, with planning and M&E playing the most critical roles, consistent with stakeholder theory and previous empirical studies.

Table 9: ANOVA Result Test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	210.799	4	52.700	1673.801	.000
Within Groups	5.636	179	.031		
Total	216.435	183			

Source: Field data 2026

Table 9 presents the ANOVA results assessing the overall significance of the regression model on stakeholder engagement and the performance of the Green Amayaga Project. The findings show that the model is highly statistically significant, with an F-value of 1673.801 and a significance level of $p = 0.000$, which is far below 0.05. This indicates that the independent variables collectively have a strong and significant effect on project performance. The between-groups sum of squares (210.799) is

substantially higher than the within-groups sum of squares (5.636), demonstrating that most of the variation in project performance is explained by stakeholder engagement factors rather than random error. These results confirm the reliability and validity of the regression model and strongly support the study hypothesis that stakeholder engagement significantly influences project performance. The findings emphasize the critical role of stakeholder involvement in achieving successful project outcomes.

Table 10: Correlations Analysis

		Level of stakeholder engagement in planning	Level of stakeholder engagement in implementation	Level of stakeholder engagement in M&E
Level of stakeholder engagement in planning	Pearson	1	.970**	.973**
	Correlation		.000	.000
	Sig. (2-tailed)			
	N	184	184	184
Level of stakeholder engagement in implementation	Pearson	.970**	1	.979**
	Correlation			.000
	Sig. (2-tailed)			
	N	184	184	184
Level of stakeholder engagement in M&E	Pearson	.973**	.979**	1
	Correlation		.000	
	Sig. (2-tailed)			
	N	184	184	184

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

Table 10 presents the Pearson correlation results showing the relationships among stakeholder engagement in planning, implementation, and monitoring & evaluation (M&E). The findings indicate very strong positive correlations between all variables. Specifically, stakeholder engagement in planning is highly correlated with implementation ($r = 0.970$, $p = 0.000$) and M&E ($r = 0.973$, $p = 0.000$). Similarly, engagement in implementation is strongly correlated with M&E ($r = 0.979$, $p = 0.000$). All correlations are significant at the 0.01 level, indicating strong statistical significance. This suggests that stakeholder engagement across different project phases is closely interconnected, meaning that effective engagement in one phase is likely to enhance engagement in other phases.

These results support the study assumption that stakeholder engagement is a continuous and integrated process. The findings also align with existing literature and reinforce the importance of holistic stakeholder involvement throughout the entire project lifecycle to improve overall project performance.

5. Conclusion and Recommendations

6. Conclusions

This study concludes that stakeholder engagement has a strong, positive, and statistically significant effect on the performance of the Green Amayaga Project in Rwanda. Based on data from 183 respondents, stakeholder participation in planning, implementation, monitoring, communication, and decision-making improved project coordination, accountability, transparency, resource

utilization, sustainability, and achievement of project objectives. During planning, stakeholder involvement in goal setting, budgeting, scheduling, resource allocation, and risk identification enhanced project effectiveness and ownership. During implementation and monitoring, continuous participation strengthened teamwork, communication, accountability, and timely identification and resolution of challenges.

The project experienced moderate performance deviations, taking 75 months instead of 72 and spending USD 33.5 million against USD 32.7 million planned. It achieved 96% of planned work, with an SPI of 0.96 and CPI of 0.94. Regression and ANOVA confirmed a significant relationship between stakeholder engagement and project performance ($R^2 = 0.979$, $F = 1673.801$, $p < 0.001$). The study concludes that effective stakeholder engagement is essential for project success and sustainability. Therefore, project managers, government institutions, policymakers, and development partners should strengthen inclusive participation, continuous communication, collaborative decision-making, and stakeholder monitoring throughout the project lifecycle.

5.2 Recommendations

The following recommendations are proposed:

1. From the study findings which indicated that inadequate stakeholder engagement can affect timely project completion, the researcher recommends that project managers should actively involve stakeholders from the

- planning stage, ensuring clear communication, participatory decision-making, and proper resource allocation to enhance project efficiency and prevent delays.
2. As per the study results showing that stakeholder engagement during implementation improves coordination and reduces risks, it is recommended that project teams maintain continuous stakeholder participation, conduct regular progress reviews, and address issues proactively to avoid disruptions and ensure adherence to timelines.
 3. The study findings confirmed that engagement in monitoring and evaluation positively influenced project outcomes. The researcher recommends strengthening stakeholder roles in M&E, including providing feedback, tracking progress against objectives, and aligning activities with project goals to enhance overall project performance, sustainability, and impact.

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