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Participatory Monitoring and Evaluation and Sustainability of Community Development Projects in Public Day Schools in Gicumbi District, Rwanda

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Abstract: *Community development projects in Rwanda's public day schools often struggle to maintain their continuity and stakeholder engagement once external assistance diminishes or ends. This study examined the influence of participatory monitoring and evaluation on the sustainability of community development projects in public day schools offering Twelve-Year Basic Education in Gicumbi District, Rwanda. Specifically, it assessed stakeholder involvement in monitoring and evaluation, M&E capacity building, and stakeholder ownership. Stakeholder Theory and the Theory of Change guided the study. The study targeted 139 public day schools, sampled 103 schools, and obtained 99 complete questionnaires, representing a response rate of 96.1%. Questionnaire data were examined using Pearson correlation and multiple regression. The combined model was significant, $F(3, 95) = 258.59$, $p < .001$, explaining 89.1% of sustainability variation ($R^2 = .891$; adjusted $R^2 = .887$). M&E capacity building was the strongest positive predictor ($\beta = .803$, $p < .001$), followed by stakeholder ownership ($\beta = .325$, $p < .001$), while stakeholder involvement had a significant negative adjusted coefficient ($\beta = -.169$, $p = .007$). Because variance inflation factor and tolerance values were within acceptable limits, this sign reversal was interpreted as a suppression effect and not as a collinearity problem and. The study recommends continuous M&E capacity-building programmes, stronger stakeholder ownership, and maintenance plans for community development projects in public day schools.*

Keywords: *Participatory Monitoring and Evaluation, Sustainability, Community Development Projects, Stakeholder Involvement, M&E Capacity Building, Stakeholder Ownership, Public day school, Twelve-Year Basic Education*.

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1. Introduction

Education is widely recognized as a fundamental human right and an essential driver of social development, economic growth, and individual empowerment. Article 26 of the Universal Declaration of Human Rights (1948) establishes education as a universal right, emphasizing its importance in promoting equal opportunities and human dignity. Education contributes to improved living standards, reduced social inequalities, gender equality, and social cohesion, thereby supporting the development of peaceful and sustainable societies. Nevertheless, approximately 57 million children worldwide remain out of school, reflecting persistent barriers to educational access, quality, and equity. In response to these challenges, Sustainable Development Goal 4 (SDG 4) promotes inclusive, equitable, and quality education while encouraging lifelong learning opportunities for all. Its priorities include expanding scholarship opportunities for learners in developing countries, establishing inclusive and accessible learning environments, and strengthening accountability systems. Achieving these priorities requires effective monitoring and evaluation mechanisms to assess educational interventions, identify

implementation gaps, and support sustainable outcomes (United Nations, 2024).

Education plays a critical role in poverty reduction, human capital development, economic transformation, and sustainable development (African Development Bank Group, 2018). Despite its recognized contribution, education systems in many African countries continue to experience challenges associated with inadequate financial resources, shortages of qualified personnel, limited institutional capacity, and ineffective monitoring and evaluation practices. These constraints undermine the implementation, effectiveness, and long-term sustainability of educational and community development initiatives (World Bank, 2021). Addressing such challenges requires stronger institutional coordination, meaningful stakeholder participation, and improved mechanisms for tracking project progress and evaluating results. Participatory approaches and active community involvement are particularly important in promoting accountability, strengthening local ownership, and ensuring that educational interventions continue to benefit communities beyond their implementation periods (UNICEF, 2020).

Education remains a strategic national priority and an important foundation for socioeconomic transformation. The Government of Rwanda has progressively aligned its education policies and development programmes with international commitments, including the Millennium Development Goals (MDGs) and Sustainable Development Goal 4, to promote equitable access to quality education and lifelong learning opportunities (Ministry of Education Rwanda, 2025). One significant policy initiative is the Twelve-Year Basic Education Programme, which extends free basic education from nine to twelve years, allowing learners to complete secondary education without tuition fees (UNESCO IICBA, 2023). The basic education subsector, covering pre-primary, primary, and secondary education, operates under national policies that prioritize educational quality, equity, inclusion, and the development of relevant competencies (Ministry of Education Rwanda, 2023). Furthermore, Rwanda's Second National Strategy for Transformation (NST2, 2024–2029) identifies education as a central component of national development, emphasizing improved learning outcomes, enhanced teacher competencies, and stronger alignment between education and labour market requirements. These national priorities highlight the importance of effective project implementation, stakeholder engagement, and monitoring and evaluation systems in achieving sustainable educational outcomes.

Monitoring and evaluation (M&E) is widely recognised as essential for project effectiveness, and participatory approaches are credited with strengthening sustainability. Makau et al. (2018) found that active stakeholder participation improves transparency, data quality and corrective action. Gakomeye and Njenga (2023) found that strong M&E capacity in Rwandan education projects improves data quality and adaptive management. Aga et al. (2018) found that participation strengthens intentions to sustain projects through psychological ownership. Participation alone is not enough, however. In a Kenyan education project, Mutheki and Kasembeli (2025) found that donor-dependent activities stopped after completion, and Agaba and Turyasingura (2022) warned that power imbalances and weak M&E capacity could make participation symbolic.

Existing research shows that participation and M&E practices can strengthen project performance and ownership, but the evidence comes mostly from other countries, sectors and single-variable designs. It does not show how stakeholder involvement, M&E capacity building and stakeholder ownership jointly influence the sustainability of community development projects in 12YBE public day schools, and no study of this kind has been done in Rwanda. This study addresses that gap by examining the influence of the three factors on the sustainability of community development projects in public day schools in Gicumbi District.

1.1 General Objective

The general purpose of this research was to examine the influence of participatory monitoring and evaluation on sustainability of community development projects in public day schools in Gicumbi District, Rwanda.

1.2 Specific Objectives

The specific objectives of this study are:

1. To determine the influence of stakeholder's involvement in Monitoring and Evaluation on sustainability of community development projects in public day schools,
2. To assess the influence of Monitoring and Evaluation capacity building on sustainability of community development projects in public day schools.
3. To examine the influence of stakeholders' ownership in Monitoring and evaluation on sustainability of community development projects in public day schools.

2. Literature Review

The literature is presented through the theoretical explanations of participatory monitoring and evaluation and the empirical evidence on the three study variables.

2.1 Theoretical Review

The theoretical review combines Stakeholder Theory and Theory of Change (ToC) to examine the sustainability of community development projects in 12YBE, public day schools (Freeman et al., 2007; UNEP, 2021). Stakeholder Theory highlights the participation of parents, teachers, local leaders, and school authorities in monitoring and

evaluation, strengthening ownership, accountability, and legitimacy. In contrast, ToC explains how inputs such as training, data collection, and capacity building lead to outputs, outcomes, and sustainable impacts. While Stakeholder Theory emphasizes relationships and engagement, ToC focuses on structured processes and measurable results, together providing a comprehensive perspective.

2.1.1 Stakeholder Theory

Stakeholder Theory provides an important foundation for understanding how participation and collaboration among different actors influence the sustainability of development initiatives. The theory was originally advanced by Freeman in 1980s and later expanded in management and development studies to explain how organizations operate within networks of individuals and groups who influence or are influenced by project outcomes. Stakeholder theory argues that sustainable outcomes can only be achieved when the interests, expectations, and contributions of all relevant stakeholders are considered in decision-making processes . The theory has been extended to emphasize that long-term success is contingent on inclusive engagement with stakeholders, including beneficiaries, implementers, financiers, and community actors . In the context of community development projects in public day schools, stakeholders typically include government institutions, school administrators, teachers, parents, community members, students, and development partners who collectively shape the success and sustainability of interventions. By actively involving these stakeholders in monitoring and evaluation (M&E) processes, projects can improve decision-making, foster accountability, and enhance ownership, which in turn contributes to long-term sustainability (Freeman et al., 2007; Freeman et al., 2010).

In the education sector, stakeholder theory emphasizes collaborative governance and shared responsibility in planning, implementation, and monitoring of educational programmes. Contemporary studies highlight that education projects are more sustainable when stakeholders are actively engaged in decision-making, resource mobilization, and monitoring activities. Stakeholder engagement allows institutions to incorporate diverse perspectives, promote transparency, and enhance accountability in programme implementation . When stakeholders are involved in monitoring and evaluation processes, they develop a sense of ownership and responsibility toward the outcomes of the project, thereby increasing the likelihood that benefits will be sustained beyond the period of external funding (Aga et al., 2018; Freeman et al., 2010).

Empirical studies highlight that inclusive engagement allows for diverse perspectives in identifying challenges, setting priorities, and tracking progress, reducing the risk of project failure once external support diminishes. The theory underscores that stakeholders are not passive recipients but active agents whose interests, power, and interactions shape project outcomes . Stakeholder theory is particularly relevant to this study because participatory monitoring and evaluation (PM&E) requires the involvement of stakeholders in collecting data, assessing project performance, and making informed decisions regarding programme improvement. Evidence from development research shows that projects with strong stakeholder engagement tend to achieve greater sustainability because stakeholders feel responsible for maintaining project outcomes after the completion of donor support (Mutheki & Kasembeli, 2025; Aga et al., 2018).

In the context of Rwanda's education system, stakeholder participation has become a central principle of educational governance following major reforms implemented after the 1994 Genocide against the Tutsi. The Government of Rwanda introduced decentralised education management structures that encourage community participation in school management, infrastructure development, and monitoring of educational programmes. The Twelve-Year Basic Education programme particularly relies on strong collaboration between schools, local communities, and government authorities to ensure that educational initiatives address local needs and remain sustainable . School governance structures such as school general assemblies and school committees provide platforms where parents, teachers, and community leaders participate in planning and monitoring school activities (Freeman et al., 2010; UNICEF, 2020).

Broadly speaking, stakeholder theory supports the argument that sustainable school development initiatives require inclusive participation, shared decision-making, and continuous engagement among stakeholders. Therefore, this theory provides a strong conceptual basis for examining the role of participatory monitoring and evaluation in enhancing sustainability of community development projects in public day schools in Gicumbi district, Rwanda (Freeman et al., 2007; Aga et al., 2018).

2.1.2 Theory of Change

The Theory of Change (ToC) is widely used in development planning and evaluation to explain how and why specific interventions lead to desired outcomes and long-term impacts. The theory provides a structured framework that identifies the logical relationships between project inputs, activities, outputs, outcomes, and long-term impact, making explicit the causal pathways and assumptions that connect these stages. In development programmes, the Theory of Change emphasizes that successful interventions must clearly articulate the pathways through which change occurs. These pathways typically begin with project inputs such as financial resources, human capacity, and institutional support, followed by activities including training, stakeholder engagement, and service delivery. These activities generate outputs such as improved infrastructure, enhanced institutional capacity, and

increased stakeholder participation. Outputs subsequently lead to outcomes such as improved service delivery, stronger institutional performance, and increased community ownership, which ultimately contribute to long-term impacts such as sustainable development and improved quality of life. By outlining these causal relationships, the theory enables practitioners to design programmes that are both effective and sustainable. The Theory of Change is particularly relevant to monitoring and evaluation because it provides a framework for assessing whether project activities are producing the expected results. Development organizations increasingly use theory-based evaluation approaches to assess the effectiveness of programmes and identify areas for improvement. In this context, monitoring systems track progress along the causal pathway defined by the theory of change, allowing stakeholders to determine whether project activities are producing the intended outputs and outcomes (UNEP, 2021; UNDP, 2019).

Within Rwanda's education sector, the theory of change can be applied to understand how PM&E contributes to the sustainability of community development projects in schools implementing the 12YBE programme. In this context, project inputs include government policies supporting education reforms, financial resources allocated to school development programmes, and training provided to stakeholders in monitoring and evaluation. Project activities include stakeholder participation in monitoring processes, capacity-building programmes for school administrators and community members, and collaborative decision-making regarding school development initiatives. These activities generate outputs such as improved monitoring systems, stronger stakeholder engagement, and enhanced transparency in school governance. The outputs then lead to outcomes including improved project performance, stronger community ownership, and increased accountability in school management. Ultimately, these outcomes contribute to the long-term sustainability of school development projects such as school feeding programmes, infrastructure development initiatives, and community-supported educational services. Therefore, the theory of change provides a logical explanation of how PM&E can influence sustainable development outcomes for 12 YBE (UNEP, 2021; UNICEF, 2020).

Collectively, the Theory of Change provides a structured analytical framework that explains how PM&E contributes to the sustainability of community development projects. By linking project inputs, activities, outputs, outcomes, and long-term impacts, the theory helps researchers understand the mechanisms through which stakeholder involvement, capacity building, and ownership in M&E influence the sustainability of school development initiatives for 12YBE programme in Rwanda (UNEP, 2021; UNDP, 2019).

2.2 Empirical Review

This section examines empirical studies on participatory monitoring and evaluation (PM&E) and its role in sustaining community development projects.

2.2.1 Stakeholder Involvement in M&E and Sustainability

PM&E is an approach in which stakeholders, especially beneficiaries, implementers and local institutions, take part in designing M&E, collecting and analysing data, and using the findings to improve project performance and sustainability. (Agaba & Turyasingura, 2022; UNDP, 2019) Conventional M&E is largely expert-driven. PM&E instead emphasises shared decision-making, learning and accountability, which strengthens local ownership and makes findings more relevant to community needs. Decentralisation and community-based governance reforms have reinforced this shift globally. In the education sector, localised management models now empower schools and communities to monitor progress, assess outcomes and influence decisions.

Empirical evidence links active stakeholder participation in M&E to greater transparency, better data quality and credibility, and more timely corrective action, all of which support long-term sustainability. At community level, engagement builds accountability and ownership because participants recognise that a project's success depends on their own commitment of time and resources (Makau et al., 2018; Aga et al., 2018).

Purdy (2017) argues that participation should be treated as a desired outcome in itself, not only as a tool for implementation, since meaningful involvement gives community members influence over the initiatives that shape their lives. Early engagement supports shared decision-making and collective learning and ensures that local needs are reflected in project design. Performance also improves when stakeholders are carefully selected and actively involved in implementation, particularly in M&E decisions (Purdy, 2017; Makau et al., 2018).

Evidence from Africa is consistent with these findings. Magassouba et al. (2019) examined stakeholder involvement in development projects in Guinea and found that effective participation in M&E decision-making is essential to translating stakeholder expectations into project objectives, which in turn supports successful implementation and better performance. Kinyata and Abiodun (2020) similarly found that involving stakeholders in M&E decisions improves project performance across Africa by building trust and creating favourable conditions for implementation (Magassouba et al., 2019; Kinyata & Abiodun, 2020).

The literature also records important limitations. Power imbalances, limited M&E capacity among community members and unclear participatory frameworks can reduce PM&E to a symbolic exercise. These critiques

point to the need for deliberate capacity building, clear role definition and institutional support. Overall, the evidence indicates that stakeholder involvement in M&E improves sustainability only when participation is inclusive, capacity-driven and embedded throughout the project cycle (Agaba & Turyasingura, 2022).

2.2.2 M&E Capacity Building and Sustainability

Contemporary sustainability theory treats learning and capacity building as central to managing complex, dynamic development systems (UNDP, 2019; Gakomeye & Njenga, 2023). Community development projects operate amid uncertainty, shifting stakeholder interests and changing socio-economic conditions, so they need continuous learning and adaptation to endure. Sustainability is therefore better understood as a process than as a fixed outcome. It depends on stakeholders' ability to generate knowledge, reflect on practice and respond to change. PM&E offers a practical framework for this, because it engages stakeholders directly in tracking progress, interpreting results and applying lessons .

When stakeholders take part in M&E, they develop analytical, problem-solving and decision-making skills that strengthen ownership of and accountability for results (UNDP, 2019; Gakomeye & Njenga, 2023). Participatory, learning-oriented approaches foster collaboration, trust and motivation, which are critical for sustaining initiatives after external support ends. Approaches that reward collaboration and knowledge sharing are also more effective than top-down, compliance-driven models, particularly in education and community-based initiatives.

Studies from Rwanda and comparable contexts support the link between M&E capacity and sustainability. Gakomeye and Njenga (2023) found that strong human resource capacity in M&E in Rwandan education projects significantly improves data quality, evidence-based decision-making and adaptive management, all of which contribute to long-term viability. Evaluations likewise indicate that investing in stakeholder capacity for M&E improves programme continuity, strengthens institutional memory and enables communities to monitor progress and address emerging challenges independently. Participatory M&E capacity building is thus increasingly recognised as a critical determinant of sustainability, especially in decentralised, community-managed education systems (Gakomeye & Njenga, 2023; UNDP, 2019).

2.2.3 Stakeholder Ownership in M&E and Sustainability

Ownership of M&E is widely regarded as a key driver of sustainable community development. Savayi et al. (2025) found that sustainability improves significantly when local community members, teachers and parents help define indicators, collect and analyse data, and use results for corrective action. Ownership fosters responsibility, encourages adaptive learning and strengthens accountability, so that benefits continue after external support ends. Participation of this kind goes beyond attending meetings. It builds community needs and expectations into the evaluation criteria, which keeps the project accountable and relevant throughout its cycle. Zakayo and Sang (2024) similarly found that the likelihood of sustainable outcomes rises when stakeholders are engaged in M&E during implementation. Ownership emerges when community members feel that their insights, reflections and records are valued, because this enables them to track change over time and make informed decisions about future action (Savayi et al., 2025; Zakayo & Sang, 2024).

Participation alone does not produce lasting change. (Aga et al., 2018; Zakayo & Sang, 2024) Stakeholders must also build collective capacity to interpret findings, make adjustments and support continuous improvement, which strengthens both individual and group commitment to project goals. By contrast, donor-led, top-down evaluations often fail to sustain benefits because they lack mechanisms for local ownership and leave communities poorly equipped to maintain gains. Genuine PM&E requires stakeholders to co-define indicators, collect and analyse data, and use results for corrective action and strategic planning. Projects in which stakeholders keep their own records of self-assessment and progress also tend to be more resilient, because these records serve as platforms for reflection, collective learning and accountability long after closure. Stakeholder ownership of M&E is therefore a core driver of sustainable community development outcomes, not a peripheral activity.

3. Methodology

The methodology describes the research design, selection of schools, questionnaire procedures, instrument quality and statistical analysis used to examine the study objectives.

3.1 Research Design

The study integrated explanatory and correlation survey designs.

The explanatory design was used to examine how and why the variables influence one another, using multiple linear regression to establish predictive effect of the PM&E components on sustainability (Hair et al., 2019). While correlation serves to measure the strength and direction of a relationship between two variables. In this research the independent variables are the three components of PM&E: stakeholder involvement in M&E, M&E capacity building, and stakeholder ownership in M&E. The dependent variable is the sustainability of community development projects in public day schools.

3.2 Study Population and Sampling

The target population of this study comprised 139 public day schools in Gicumbi District, including 70 fully public day schools and 69 government-aided day schools. The head teacher from each selected school was the main respondent. As such, head teachers were well positioned to provide reliable information on the implementation, monitoring, and sustainability of community development projects in schools.

The study used stratified random sampling combined with systematic selection. The 139 public day schools were first stratified by school type (70 fully public and 69 government-aided day schools) so that both categories were fairly represented. A sampling frame (complete list of schools) was prepared for each stratum, and a sample was drawn proportionately from each using systematic random sampling: a random starting point was chosen and every kth school was selected, where k is the stratum size divided by the required sample size. This gave every school in a stratum a known, non-zero chance of selection . Within each sampled school, the head teacher was purposively selected from among the SGAC members as the respondent, given their central role in school management, monitoring and coordination of development projects. District and sector education officials were purposively selected as key informants.

The sample size was 103 public day schools selected from a population of 139 public day schools. At each selected day school, the head teacher purposively participated in the study as a respondent from among the members of the School General Assembly Committee (SGAC) due to his or her central role in school management, monitoring, and coordination of development projects.

3.3 Data Collection Instrument

The main instrument was a structured questionnaire built in digital format using KoboToolbox. The questionnaire measured stakeholder involvement in M&E, M&E capacity building, stakeholder ownership in M&E, and sustainability of community development projects in public day schools.

3.4 Pilot Study, Validity and Reliability

Before full data collection, the questionnaire was pre-tested on 6 head teachers from schools outside the study sample, to check clarity of wording, logical flow, skip logic and completion time. Pilot respondents were excluded from the main study.

Validity: Face and content validity were established. Content validity refers to the extent to which the instrument's items adequately cover the study's research questions and objectives . The instrument was reviewed by the academic supervisor to ensure that each item measured the intended construct.

Reliability: Internal consistency was tested with Cronbach's alpha using SPSS. The instrument returned alpha of 0.921, based on standardised items, 0.921 is excellent internal consistency.

Quantitative questionnaire responses were analysed using SPSS. Pearson correlation measured bivariate associations between the study variables, while multiple linear regression estimated the combined and adjusted relationships of stakeholder involvement, M&E capacity building and stakeholder ownership with the sustainability of community development projects. The significance level was 0.05.

3.6 Ethical Considerations

The researcher administered the data collection instruments carefully, following the standards for research involving human participants to ensure the protection of their rights and privacy were safeguarded. The researcher received authorisation letters from Mount Kenya University and the approval letter of data collection from Gicumbi District before interact with selected respondents. The respondents were informed about the objectives, procedures, purpose and expected results of the study, and of their right to participate voluntarily and to withdraw. Strict confidentiality was maintained; the names of schools and respondents were kept anonymous, and results are reported in aggregate form so that no response can be linked to an individual. The writing of this project considered APA referencing across the text as Mount Kenya University recommends, and plagiarism was verified before submission. The data were used only for academic purposes, and the researcher remained impartial throughout the study.

4. Results and Discussion

This section presents the questionnaire response rate and inferential findings, followed by decisions on the null hypotheses and discussion of the results.

4.1 Response Rate

The study targeted a sample of 103 public day schools in Gicumbi District selected through stratified random sampling, with the head teacher of each sampled school serving as the respondent. Out of the 103 questionnaires administered, 99 were fully completed, returned and found valid for analysis, yielding a response rate of 96.1%, as presented in table 1.

Table 1: Response Rate

Category	Frequency	Percentage (%)
Sampled schools	103	100
Questionnaires returned and usable	99	96.1
Non-response	4	3.9

Source: Primary Data (2026)

A response rate of 96.1% is considered excellent for analysis and generalisation of findings. A response rate of 70% and above is very good for descriptive and inferential analysis . The high response rate obtained in this study can be attributed to the digital administration of the questionnaire through Kobo Toolbox, which allowed head teachers sufficient time (three to five days) to respond, together with close follow-up by the researcher and the central administrative role that head teachers occupy in the schools' School General Assembly Committee (SGAC), which made the subject matter directly relevant to their day-to-day responsibilities.

4.2 Inferential Statistics

The inferential analysis first examines bivariate relationships and then estimates the individual contributions of the three predictors within a combined regression model.

4.2.1 Correlation Analysis

A Pearson product-moment correlation analysis was conducted to examine the strength and direction of the relationships between the three independent variables and the dependent variable, and among the independent variables themselves, prior to running the regression model. The results are presented in the table 2.

Table 2: Pearson Correlation Matrix

Variable	X1	X2	X3	Y
Stakeholder Involvement (X1)	1.000			
M&E Capacity Building (X2)	0.778**	1.000		
Stakeholder Ownership (X3)	0.801**	0.786**	1.000	
Sustainability (Y)	0.716**	0.927**	0.821**	1.000

** Correlation is significant at the 0.01 level (2-tailed), n = 99

Source: Primary Data (2026)

The results in Table 2 show that all three independent variables were positively and significantly correlated with sustainability of community development projects in public day schools. M&E capacity building had the strongest correlation with sustainability, followed by stakeholder ownership and stakeholder involvement . The independent variables were also strongly correlated with one another, stakeholder involvement with capacity building, stakeholder involvement with ownership and capacity building and stakeholder ownership, while indicating a coherent set of participatory M&E practices.

4.2.2 Regression Analysis

A multiple linear regression analysis was conducted to establish the combined and individual influence of stakeholder involvement in M&E (X1), M&E capacity building (X2) and stakeholder ownership in M&E (X3) on the sustainability of community development projects (Y) in public day schools in Gicumbi District, Rwanda.

Table 3: Regression Statistics

Model	R	R Square	Adjusted R Square	Std. Error	Observation
1	0.944	0.891	0.887	0.160	99

- Predictors: (Constant), Stakeholder Involvement, M&E Capacity Building and Stakeholder Ownership

Source: Primary Data (2026)

The results in Table 3 show a coefficient of correlation (R) of 0.944, indicating a very strong positive relationship between participatory M&E practices and sustainability of community development projects in public day schools in Gicumbi District.

The coefficient of determination (R Square) is 0.891, meaning that 89.1% of the variation in sustainability of community development projects in public day schools is explained by stakeholder involvement, M&E capacity building and stakeholder ownership combined. While the remaining 10.9% is attributable to other factors not covered in this model, such as government policy and local leadership.

Adjusted R squared is 0.887, after accounting for the number of predictors and sample size, the model explains approximately 88.7% of the variation in sustainability and the remaining 11.3% of variation is not explained by the fitted model; it may reflect other factors, random variation, and measurement error.

The Analysis of Variance was used to determine whether the overall regression model was statistically significant in explaining the variation in the dependent variable.

Table 4: Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	19.748	3	6.583	258.588	0.000
Residual	2.418	95	0.025		
Total	22.166	98			

Dependent Variable: Sustainability of Community Development Projects

Source: Primary Data (2026)

Table 4 shows that the regression model was statistically significant ($F(3, 95) = 258.59$, $p < .001$). This confirms that stakeholder involvement, M&E capacity building and stakeholder ownership jointly explained a significant proportion of variation in sustainability.

Before interpreting the regression coefficients, the study tested for multicollinearity among the independent variables using the Variance Inflation Factor (VIF) and tolerance. Multicollinearity arises when predictors are so strongly inter-correlated that their separate effects on the dependent variable cannot be reliably estimated, which inflates standard errors and can destabilise coefficients. Tolerance measures the proportion of variance in a predictor that is not explained by the other predictors, and VIF is its reciprocal (VIF = 1/Tolerance). Following Hair et al. (2019), tolerance values below 0.20 and VIF values above 5 (or, more leniently, 10) indicate problematic multicollinearity.

Table 5: Collinearity Statistics

Predictors	Tolerance	VIF
Stakeholder Involvement (X1)	0.301	3.319
M&E Capacity Building (X2)	0.321	3.118
Stakeholder Ownership (X3)	0.291	3.433

Dependent Variable: Sustainability of Community Development Projects

Source: Primary Data (2026)

Table 5 shows tolerance values between 0.291 and 0.321, all above the 0.20 threshold, and VIF values between 3.12 and 3.43, all below the cut-off of 5. The condition index was 3.6, well below the warning range of 15–30. Although the predictors are strongly correlated with one another (r = 0.778, 0.786 and 0.801 in Table 5), each retains roughly 30% unique variance. The study therefore concluded that multicollinearity was not serious enough to distort the regression estimates, and the coefficients in Table 5 can be interpreted with confidence.

Regression coefficients are used to determine the direction, magnitude, and statistical significance of the relationship between each independent variable and the dependent variable while controlling for other predictors in the model.

Table 6: Regression Coefficients

	Unstandardized Coefficient		Standardized Coefficient				
Variable	**B**	**Std. Error**	**Beta**	**T**	**Sig.**	**Tolerance**	**VIF**
(Constant)	0.348	0.173		2.016	0.047		
(X1)	-0.198	0.072	-0.169	-2.735	0.007	0.301	3.319
(X2)	0.782	0.058	0.803	13.416	0.000	0.321	3.118
(X3)	0.310	0.060	0.325	5.184	0.000	0.291	3.433

Dependent Variable: Sustainability of Community Development Projects

Source: Primary Data (2026)

By comparison, capacity building was the strongest predictor of sustainability (β = 0.803, p < 0.001), followed by ownership (β = 0.325, p < 0.001). Involvement was significant but negative (β = −0.169, p = 0.007), although it correlates positively with sustainability on its own (r = 0.716). Because the tolerance values between 0.291 and 0.321, all above the 0.20 threshold, and VIF values between 3.12 and 3.43 were acceptable, this negative sign reversal is not a collinearity problem. It is a suppression effect: involvement shares much of its variance with capacity building and ownership (r = 0.778 and 0.801), so its unique contribution is weakly negative once they are controlled. The result is the net contribution of involvement after accounting for capacity and ownership. It does not mean that involving stakeholders reduces sustainability.

4.3 Decision on Null Hypotheses

The three null hypotheses are evaluated against the regression significance values reported above.

The study tested three null hypotheses at the 5% level of significance using the regression coefficients presented in the Table 6.

H01: Stakeholder involvement in M&E has no significant influence on sustainability. The null hypothesis was rejected (β = −0.169, p = .007).

H02: M&E capacity building has no significant influence on sustainability. The null hypothesis was rejected (β = .803, p < .001).

H03: Stakeholder ownership in M&E has no significant influence on sustainability. The null hypothesis was rejected (β = .325, p < .001).

4.4 Discussion of Research Findings

The findings are discussed in the order of the specific objectives and compared with evidence reviewed in the preceding literature section.

4.4.1 Stakeholder Involvement in M&E and Sustainability

Involvement had a statistically significant but negative unique coefficient in the regression (B = −0.198, β = −0.169, p = 0.007), even though it correlated positively with sustainability on its own (r = 0.716). Aga et al. (2018) identified psychological ownership as a mediator between beneficiary participation and intentions to sustain projects. The VIF values of 3.12 to 3.43 and tolerance values of 0.29 to 0.32 show that multicollinearity was within acceptable limits, indicating that the negative sign should not automatically be attributed to excessive collinearity. The result is consistent with a possible suppression effect: involvement shares a large part of its variance with capacity building and ownership (r = 0.778 and 0.801), and the part unique to it is weakly and negatively related to sustainability. The result should not be taken to mean that involving stakeholders reduces sustainability.

A plausible substantive reading is that participation is widespread but is not always matched by the skills, resources and follow-up needed to act on it. Makau et al.

(2018) linked meaningful participation in M&E to transparency, data quality and timely corrective action. Agaba and Turyasingura (2022) similarly caution that limited M&E capacity and unclear participatory frameworks can reduce participation to a symbolic exercise, and Collins et al. (2005) note that stakeholder engagement can expose participants to judgement about their competence and can reveal differing ideals about engagement and sustainability. Reed et al. (2018) also emphasised that appropriate engagement depends on stakeholder interests and context. The limited variation in involvement scores may also have reduced its independent contribution.

4.4.2 M&E Capacity Building and Sustainability

M&E capacity building emerged as the strongest predictor of sustainability ($B = 0.782$, $\beta = 0.803$, $p < 0.001$). Wade and Kallemeyn (2020) highlighted leadership support, dedicated resources and continued use of findings as foundations of sustainable evaluation practice. This is strongly consistent with Gakomeye and Njenga (2023), who found that strong human resource capacity in M&E enhances data quality, evidence-based decision-making and adaptive management in Rwandan education projects. Rogito et al. (2020) similarly linked participatory learning to collaboration, trust and motivation needed after external support ends. It also supports UNICEF (2022), which observed that capacity development in school feeding and community projects strengthens programme continuity and institutional memory.

4.4.3 Stakeholder Ownership in M&E and Sustainability

Stakeholder ownership was the second strongest predictor of sustainability ($B = 0.310$, $\beta = 0.325$, $p < 0.001$). Aga et al. (2018) found that psychological ownership mediated the relationship between beneficiary participation and intentions to support project sustainability. This finding corroborates the results of Savayi et al. (2025) and Zakayo and Sang (2024), who found that active engagement of stakeholders in defining indicators, collecting data and using results for corrective action improves sustainability. Ownership was rated strongly overall. Community leaders were seen as supporting school projects and stakeholders expressed pride in project results .

Taken together, the three PM&E constructs explained 88.7% of the variation in sustainability (Adjusted $R^2 = 0.887$; $F(3, 95) = 258.59$, $p < 0.001$), which underscores the central role of PM&E in sustaining school-based community development projects under the 12YBE programme. The unadjusted R^2 of 0.891 differs from the adjusted value by 0.004; this small difference alone does not establish whether the model is overfitted. Consistent with Gakomeye and Njenga (2023), M&E capacity and evidence use remain important to sustainable school interventions, while Aga et al. (2018) identify psychological ownership as a pathway linking participation to sustainability. The remaining 11.3% of the variation is attributable to factors outside the model, which may include government policy and local leadership (the contextual factors in the conceptual framework, which were not tested), the availability of maintenance funds, and measurement error. These results show how well the three constructs account for sustainability in this sample and do not by themselves establish that PM&E causes sustainability. This is consistent with Cooper and Turner (2020), who argue that active stakeholder involvement in M&E decision-making is critical to lasting project outcomes. It is also consistent with the Stakeholder Theory and the Theory of Change that guided the study, both of which hold that inclusive engagement, capacity strengthening and genuine ownership jointly drive sustainable outcomes.

5. Conclusions and Recommendations

The conclusions follow the statistical findings, while the recommendations identify actions for strengthening sustainability in public day schools.

5.1 Conclusion

Stakeholder involvement in M&E had a statistically significant relationship with sustainability, yet its unique effect on sustainability was small and negative once capacity building and ownership were controlled ($\beta = -0.169$, $p = 0.007$). Because multicollinearity was acceptable (VIF = 3.12 to 3.43), this reflects overlap among the three constructs and not harm from participation. The study concludes that involvement is necessary but not sufficient; it supports sustainability only when accompanied by the skills and local commitment to act on stakeholders' input.

M&E capacity building was the strongest predictor of sustainability ($\beta = 0.803$, $p < 0.001$). Schools that equip staff, committees and community representatives to plan, monitor, and document and apply findings are best placed to sustain projects once external support ends. The weakest element was the formal training of stakeholders in M&E, which is where improvement is most readily achieved.

Stakeholder ownership significantly and positively strengthened sustainability ($\beta = 0.325$, $p < 0.001$). Ownership expressed as attitude was stronger than ownership expressed through resources and arrangements: management working with communities to keep projects operational required improvement.

Participatory M&E plays a critical and statistically significant role in sustaining community development projects in public day schools offering 12YBE in Gicumbi District. The three constructs together explained 89.1% of the variation in sustainability, $F(3, 95) = 258.59$, $p < 0.001$, although sustainability itself recorded the lowest mean of the four variables (4.08). The weakest indicators were the use of M&E findings and the ability to maintain projects without external

support. Capacity building and ownership are therefore the most direct pathways to sustainability, participation is a necessary part of the system but not a substitute for them, and the principal weakness lies in turning monitoring information into follow-up and maintenance.

5.2 Recommendations

The recommendations are directed to the institutions best placed to act on the evidence of this study. They are intended to be implemented within the existing governance structures of the 12YBE programme.

1. Routine M&E training for committees: District Education Officers and Sector Education Inspectors should institutionalise a structured M&E orientation for every newly constituted School General Assembly Committee (SGAC) and audit committee within its first term, complemented by an annual refresher for returning members. The orientation should cover indicator tracking, basic record keeping and the interpretation of progress reports, because formal training of stakeholders was the weakest element of capacity building.

2. Standard monitoring tools: Head teachers as SGAC secretary should maintain a simple project monitoring template and a project file for every school project, recording indicators, assigned owners, current status and next steps. Sector Education officers should review these records during routine school visits to address the gaps in documentation and outcome monitoring identified in monitoring records.

3. Maintenance plans and a maintenance fund: Each SGAC should prepare a maintenance plan for every school project, stating routine tasks, assigned owners and estimated annual costs, and should establish a school maintenance fund supported by agreed community contributions and any school resources that national guidelines permit. This responds to the low confidence that projects can be maintained without external support .

4. Active participation in monitoring: Parents and community members should attend inspection visits and review meetings regularly and use the feedback channels provided by the school to report defects and concerns early, so that participation moves beyond consultation to genuine influence over decisions.

5. Defined maintenance responsibilities: Parents and community groups should accept specific tasks, such as routine inspection, minor repairs and protection of facilities, as recorded in the maintenance plan, so that community commitment is attached to clear duties.

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