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Community Participation on Sustainability of Water Projects in Migori County Kenya

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Victor Charo Simon[1]; Dr. Damaris Moturi[2]

Abstract:

Purpose: *The primary objective of this study was to determine the effect of community participation on the sustainability of water projects in Migori County, Kenya. Specifically, the study examined the influence of community involvement in decision-making and resource mobilization on project sustainability.*

Material/methods: *The study was grounded in Arnstein's Ladder of Citizen Participation Theory and Resource Dependence Theory. It targeted executive committee members—Chairpersons, Secretaries, and Treasurers—from 93 water projects in Migori County, yielding a total of 279 respondents. Stratified and random sampling techniques were employed to select the sample. Data were collected using structured questionnaires developed in line with the study objectives. Instrument validity was assessed through the Content Validity Index (CVI), while reliability was established using Cronbach's Alpha. Data analysis involved descriptive statistics (frequencies, means, and standard deviations) and inferential statistics, including correlation and regression analysis.*

Findings: *The results indicated that community participation—specifically in decision-making and resource mobilization—had a positive and statistically significant effect on the sustainability of water projects. Enhanced participatory practices were associated with improved ownership, transparency, and long-term functionality of the projects.*

Conclusion*: The study concludes that community engagement is critical to the sustainability of water infrastructure. Active involvement in governance and resource coordination strengthens local ownership and institutional resilience, leading to more durable water service outcomes.*

Value: *This study provides empirical support for embedding participatory governance mechanisms within water project frameworks. It recommends the institutionalization of advisory councils and planning forums, the establishment of community-led resource committees with financial oversight, and the integration of capacity-building programs to equip stakeholders with essential technical and leadership competencies.*

Keywords: *Community Participation, Sustainability, Water Projects, Decision Making, Resource Mobilization*

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[1] Msc, Project Management, Jomo Kenyatta University of Agriculture and Technology
Email: viktacharo2@gmail.com

[2] Jomo Kenyatta University of Agriculture and Technology

1.1. Introduction

The sustainability of water projects remains a critical concern, particularly in regions facing water insecurity. Project sustainability serves as a key indicator of a project's ability to meet its objectives effectively and evolve to meet changing needs over time (Kerzner, 2023). Public institutions have increasingly adopted strategies and frameworks aimed at enhancing project sustainability to ensure the continuity and reliability of essential services such as water provision (Silvius & Schipper, 2020). Water projects, in particular, are vital for ensuring consistent access to clean and safe water, which is essential for public health, economic growth, and environmental resilience (Tortajada, 2020). However, challenges such as limited funding, environmental degradation, and poor infrastructure continue to threaten the long-term sustainability of these projects, particularly in developing contexts (Haider et al., 2024). As a result, community participation are being emphasized as pivotal to the survival and effectiveness of water initiatives (Ali & Kamraju, 2024).

Among the various factors influencing the sustainability of water projects, community participation has emerged as a crucial element. Community participation refers to the active engagement of local residents in the planning, implementation, monitoring, and evaluation of development initiatives (Yasmin, et al., 2024). It fosters a sense of ownership, enhances transparency, and promotes the alignment of project goals with community needs (Chuenchum, et al., 2024). Studies have shown that when community members are meaningfully involved, water projects are more likely to remain functional and well-maintained in the long run (Kiio, 2020). Participation also facilitates better communication between project implementers and beneficiaries, allowing for timely identification of challenges and collaborative solutions (Mulinge & Sambuo, 2024). Thus, involving the community not only improves performance but also builds trust, accountability, and sustainability within project frameworks.

In Kenya, ensuring the sustainability of water projects is essential for advancing national water security and achieving development goals. According to the African Development Bank (2022), effective implementation of urban water projects could sustainably serve over 567,000 people with quality water services. National agencies such as the Water Services Regulatory Board (2018) and the Water Resource Authority (2018) have introduced strategic governance and management tools aimed at improving water project sustainability. Despite these efforts, many rural and semi-urban areas—including Migori County—continue to face challenges in sustaining water projects, often due to limited community involvement and weak local structures. These gaps underscore the need to explore how active community participation can enhance the long-term success of such projects. Therefore, this study aims to investigate the influence of community participation on the sustainability of water projects in Migori County, Kenya.

The sustainability water projects has been widely studied, with a focus on their critical role in achieving organizational objectives and promoting sustainable development. Numerous studies have identified key factors influencing project performance, including resource allocation, stakeholder involvement, and effective management practices (Silvius & Schipper, 2020). Despite various efforts, many water projects in Migori County continue to face significant performance and sustainability challenges. While the government and county administration have implemented strategies such as the adoption of smart water technologies (Migori County, 2025), these measures have

not fully addressed underlying issues. According to a report by the Migori County Water Department (2023), approximately 40% of water projects in the region fail to meet their intended performance targets, particularly in rural areas. Furthermore, a survey conducted by the Kenya Water Institute (2022) revealed that 50% of water projects in Migori suffer from poor maintenance and governance, leading to decreased water access and infrastructure failures. This issue is compounded by insufficient funding, inadequate community involvement, and challenges related to climate change, with erratic rainfall patterns worsening the situation (Kenya National Bureau of Statistics, 2023). Despite the introduction of smart technologies, such as real-time water monitoring systems, these solutions have yet to fully address sustainability concerns, particularly regarding long-term financial viability and community ownership of the projects.

Community participation has been theoretically linked to improved water project performance (Roba Gamo et al., 2022; Mengistu & Assefa, 2021; Korir, Kyalo, & Mbugua, 2021). However, its application to the sustainability of water projects remains underexplored. The lack of an integrated approach in addressing all facets of community participation in water projects in the county represents a significant gap in the existing literature. Therefore, this study sought to address this gap by examining the influence of community participation on the sustainability of water projects in Migori County.

1.2.Theoretical and Conceptual Framework

Arnstein's Ladder of Citizen Participation (1969) remains a seminal model for understanding the varying degrees of public involvement in governance, articulating eight rungs that span from non-participation (manipulation and therapy) through tokenistic forms (informing, consultation, placation) to full citizen power (partnership, delegated power, and citizen control). Theoretically grounded in democratic ideals, the Ladder highlights how only the upper tiers—where citizens share decision-making authority—truly empower communities, fostering ownership, accountability, and responsiveness. Subsequent scholarship has both applied and refined Arnstein's framework: Wampler (2015) and Fagotto and Fung (2006) demonstrate that water and infrastructure projects which ascend to partnership and control not only reflect local priorities but also achieve higher rates of maintenance, user satisfaction, and cost recovery. Critics have pointed out the Ladder's linearity and lack of nuance in capturing hybrid forms of participation, prompting adaptations that incorporate cultural context, digital engagement tools, and iterative feedback loops. In this study of Migori County water initiatives, Arnstein's Ladder provides a structured lens to assess where community involvement currently sits—whether residents are merely informed or genuinely co-owners of project decisions—and to identify practical steps for elevating participation, such as establishing community water boards (delegated power) or granting formal veto rights over project designs (citizen control).

Resource Dependence Theory (Pfeffer & Salancik, 1978) complements this participatory perspective by foregrounding the dynamics of organizational survival in resource-scarce environments. RDT posits that entities must navigate external dependencies—on funding, materials, technical expertise, or political backing—and that the power imbalances inherent in these relationships shape strategic behaviors. Key tenets include identifying critical resource gaps, mapping stakeholder

interdependencies, and deploying tactics such as buffering (maintaining reserves), bridging (networking across sectors), and cooptation (integrating resource providers into governance structures). Empirical studies in community water contexts (Allen et al., 2017; Engwall, 2016) confirm that projects which diversify their funding streams—combining local contributions, NGO grants, and government subsidies—enjoy greater resilience and continuity. RDT also alerts practitioners to the risks of over-dependence on a single donor, which can lead to mission drift or abrupt project cessation when priorities shift. Applied to Migori County, this theory guides an analysis of how water projects secure and manage resources—examining, for instance, the balance between user fees and external grants—and informs recommendations for constructing multi-stakeholder resource coalitions, formalizing memoranda of understanding, and building financial reserves to safeguard long-term sustainability.

The conceptual framework depicted in Figure 1 provides a diagrammatic representation of the hypothesized relations between the independent variables of community participation, community in decision making,, and community resource mobilization, and the dependent variable, the sustainability of water projects in Migori county Kenya. This framework serves as a visual representation of the proposed interactions and associations between these key components, offering a structured approach to understanding how community participation may influence the sustainability of water projects in Migori county Kenya.

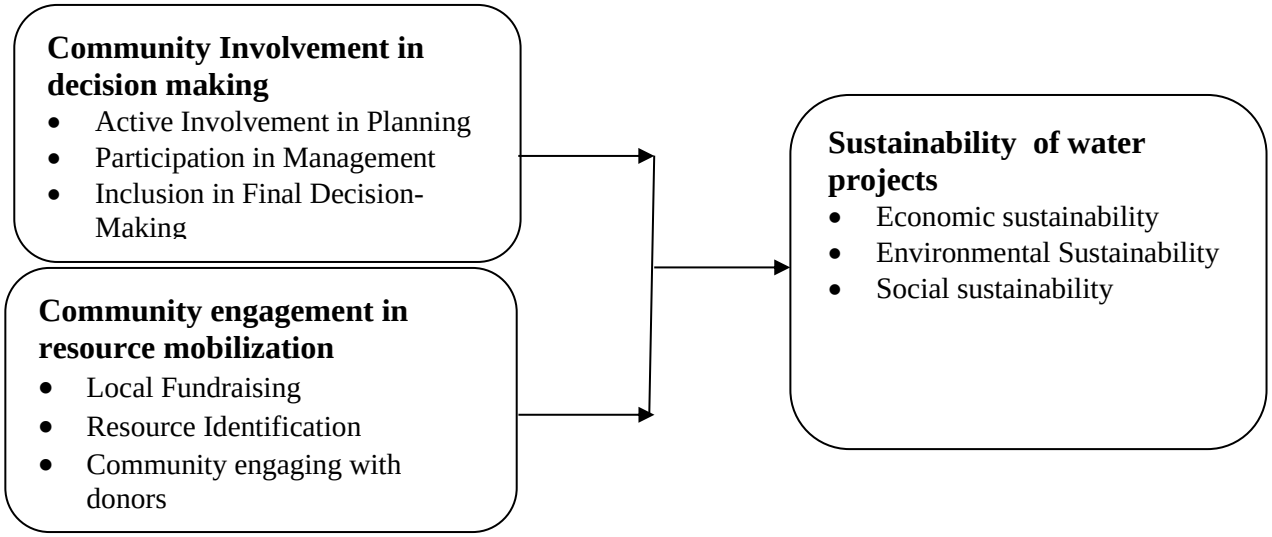

Figure 1: *Conceptual framework*

2.1. Empirical Review

Community in decision making and Sustainability of Water Projects

Korir (2020) explored the role of community participation in the closure phase of water supply projects in Kericho County, Kenya. The study aimed to determine how community involvement in activities such as documentation, procurement closure, and

project handover impacted the sustainability of water projects. A descriptive survey and correlational research design were used, with a sample of 382 individuals from a population of 8,357. The study found that community participation in the closure phase had a significant positive correlation with the successful performance of water projects. The involvement of the local community during project closure led to better project handovers, increased project ownership, and long-term sustainability.

Wambui, Rambo, and Maitho (2024) examined how community empowerment affects the implementation and performance of water projects in Machakos County, Kenya. The study focused on how community participation during project initiation, execution, and management influenced the success of water projects. A descriptive survey design was employed with data collected from 226 water representatives and community members using both quantitative and qualitative methods. The study found that active community empowerment significantly improved the implementation of water projects. Communities that were engaged in the decision-making process demonstrated stronger ownership and accountability, leading to better long-term success.

Monyenye et al. (2024) investigated the effect of community participation on the performance of large-scale dam projects in Kenya. The study focused on how community involvement during the planning, resource management, and monitoring phases of these projects influenced their success. The research utilized a cross-sectional descriptive design and surveyed 221 respondents from local communities, government officials, and consultants. The findings indicated that community participation positively influenced the performance of dam projects, particularly when communities were involved in decision-making processes. The study concluded that such involvement contributed to stronger community ownership and better project outcomes, ensuring long-term sustainability.

Galgallo and Ngugi (2023) explored the relationship between stakeholder involvement, particularly community participation, and the performance of water supply projects in Garissa County, Kenya. The study adopted a descriptive research design and focused on 47 government water supply projects. Data were collected from project managers through surveys and interviews, and the results revealed that stakeholder involvement, especially in the planning and implementation stages, significantly influenced the success of water projects. The study found that communities that were actively engaged in the decision-making process showed greater ownership and support, which led to better performance and sustainability of the projects.

Community Resource Mobilization and Sustainability of Water Projects

Karanja and Kinyua (2022) examined the role of community resource mobilization for water projects in Nyeri County, Kenya. The study focused on understanding how active community participation in resource mobilization activities impacts the financial sustainability and operational success of water projects. A mixed-methods approach was employed, using both qualitative interviews and quantitative surveys, targeting community leaders, local government officials, and project staff. The study found that effective community resource mobilization significantly improved the funding and resource allocation for water projects. Communities that were involved in fundraising and contribution efforts were more likely to experience sustainable outcomes, as the financial resources raised were utilized efficiently.

Miruka (2016) investigated community-based approaches to resource mobilization and their impact on the performance of water projects in Kisii County, Kenya. The study aimed to assess how communities' direct involvement in raising financial and material resources influences the success of water projects. A case study design was used, with data collected from three water projects through interviews with community members, project managers, and local authorities. The study found that when communities were actively engaged in mobilizing resources, there was greater ownership and long-term sustainability of the projects. Additionally, local contributions helped reduce reliance on external funding, thereby improving the financial independence of water projects.

Njagi (2022) assessed how community resource mobilization impacts the success and sustainability of water projects in Murang'a County, Kenya. The research employed a survey design, with data collected from 150 households and 30 project managers using structured questionnaires and interviews. The findings revealed that community resource mobilization led to better resource allocation, effective budgeting, and enhanced financial sustainability of water projects. The study concluded that resource mobilization, when driven by community members, fostered a sense of ownership and accountability, which significantly contributed to the long-term success of water projects.

Kiberenge (2024) explored the effect of community resource mobilization strategies on the performance of water projects in Trans Nzoia County, Kenya. The study used a cross-sectional survey design, gathering data from 210 households, water project managers, and local government officers. Through statistical analysis, the study found that community-driven resource mobilization was a key determinant of the success of water projects. Specifically, projects that incorporated community-driven fundraising, in-kind contributions, and local resource pooling showed better performance indicators, including enhanced infrastructure and service delivery.

3.1. Methodology

This study adopted the descriptive survey design. This design provides insights into the research problem by describing the variables of interest. It was used for purposes of defining, estimating, predicting and examining associative relationships between community participation and the sustainability of water projects in Migori county Kenya. Kombo and Tromp (2006) observe that this design helps in providing useful and accurate information on the phenomenon under study

Sampling

The study targeted all 279 executive members (chairpersons, secretaries, and treasurers) of the 93 water-project management committees in Migori County, chosen for their pivotal oversight roles and in-depth knowledge of project dynamics. Using Slovin's formula (Yamane, 1967; Slovin, 2018), a sample size of 169 was determined. A two-stage probability sampling approach was then employed: first, water-project committees were stratified by sub-county, and second, simple random sampling was used within each stratum to select the final 169 respondents. This ensured that each sub-county was proportionally represented and that the sample accurately reflected the broader committee population.

Data Collection Instrument

A structured questionnaire was used as the primary data-collection instrument, with items directly derived from the study's objectives and research questions. It consisted of closed-ended, five-point Likert-type statements to ensure uniform, easily codable responses while capturing nuanced participant opinions (Saunders et al., 2019). To refine clarity and relevance, a pilot study involving nine respondents (10 percent of the target population) from Homa Bay County's water projects was conducted; these participants were excluded from the main survey to prevent bias. Reliability was evaluated by calculating Cronbach's alpha coefficients for each scale, with values above 0.70 deemed acceptable for internal consistency (Tavakol & Dennick, 2011). Content validity was established through expert review in collaboration with the supervisor, ensuring every item aligned with the study objectives (Kang et al., 2021). Feedback from pilot participants identified ambiguous or misleading items, which were revised prior to full deployment Construct validity was then confirmed via component factor analysis, verifying that questionnaire items loaded appropriately on their intended constructs

Data Analysis and Presentation

Data analysis allows one to use logic to interpret the obtained data in order to identify comparable forms and summarize the essential components revealed in the research. The completed questions were processed and examined for consistency. The coded surveys were then be placed into the computer program Statistical Packages for Social Scientists (SPSS) for analysis. The research was evaluated and display data in the form of tables, means, and charts using descriptive statistics. Additionally, at a 5% significance level, inferential statistics was used to assess the study hypotheses. The theories were put to the test in the following ways: The following regression model was used to investigate effect of community participation and performance of water projects in Migori County.

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon_1$$

Where

Y is sustainability of water projects in Migori County , β_0 = constant (coefficient of intercept);

X_1=Community in decision making, X_2= community resource mobilization

ε =Error Term; B_1, B_2,= regression coefficient of four variables

4.1. Research Findings and Discussions

This section outlines the data analysis procedures and key findings in alignment with the study's objectives and hypotheses, employing both descriptive and inferential statistics across the following stages: response rate; data screening (including cleaning and missing-value checks); respondent background profiling; descriptive analysis; reliability and validity testing; correlation analysis; regression analysis; and hierarchical regression modeling. Of the 169 questionnaires distributed to executive committee members and county officials overseeing 93 water projects in Migori County, 132 were returned (78.1%), a rate achieved through daily site visits, on-site completion or drop-off/pick-up services, and personal reminders. Since response rates above 70% are considered very good (Cooper & Schindler, 2014), this high participation minimizes non-response bias and ensures the findings reliably reflect the views of the target population.

4.1.1. Descriptive Statistics

Descriptive statistics—percentages, means, and standard deviations—were used to summarize respondent views on five dimensions of community involvement in decision making (active planning participation, management-team representation, opinion consideration, personal consultation, and communication transparency) before conducting inferential analysis (Ominde et al., 2022). Table 1 shows that nearly half of respondents strongly disagreed that they were actively involved in project planning (Mean = 2.01, SD = 1.16), represented on the management team (Mean = 2.30, SD = 1.31), or that their opinions influenced final decisions (Mean = 2.33, SD = 1.47). In contrast, informal engagement scored more positively: 29.9% strongly agreed they were personally consulted during key decisions (Mean = 3.13, SD = 1.57), and 37.9% strongly agreed that communication was transparent (Mean = 3.78, SD = 1.33). With an overall involvement index of Mean = 2.68 (SD = 0.92), these results indicate that while ad hoc consultations and open channels are appreciated, formal mechanisms for participation remain inadequate.

Table 1: *Descriptive Statistics for Community in Decision Making*

n=132	**Mean**	**Std. Dev**
Community members were actively involved in the planning of the water project.	2.01	1.16
The management of the water project included representatives from the community.	2.30	1.31
The community's opinions were considered in final project decisions.	2.33	1.47
I was personally consulted or involved during key decision-making stages of the project.	3.13	1.57
There was transparency and open communication between the project leaders and the community.	3.78	1.33
Community in decision making	2.68	0.92

Table 2 shows that community resource mobilization in Migori County exhibits a generally muted profile, with local fundraising participation (Mean = 2.87, SD = 1.48), direct engagement with donors (2.74, SD = 1.32), clarity of formal mobilization plans (2.80, SD = 1.32), and the role of local contributions (2.70, SD = 1.14) all falling below or just at the neutral midpoint. Only resource identification slightly exceeds neutrality (Mean = 3.07, SD = 1.50), suggesting occasional involvement in mapping available assets. Yet nearly 30 percent of respondents strongly disagreed that they took part in fundraising or donor outreach, and nearly one quarter strongly disagreed that local contributions mattered—highlighting significant gaps in structured mobilization efforts. With an overall mean of 3.01 (SD = 1.21), the data indicate a roughly neutral but inconsistent stance toward community-led resource efforts. To bolster support, project leaders should consider formalizing fundraising events, creating dedicated resource-mapping committees, and implementing transparent benefit-sharing mechanisms to incentivize both cash and in-kind contributions.

Table 2 Descriptive Statistics for Community resource mobilization

N= 132	Mean	Std. Dev
The community actively participated in local fundraising activities for the water project.	2.87	1.48
Community members were involved in identifying available resources for the project.	3.07	1.50
The community engaged directly with donors or sponsors to support the water project.	2.74	1.32
There was a clear plan for mobilizing financial and material resources from the community.	2.80	1.32
Local contributions (in cash or kind) played a significant role in supporting the project.	2.70	1.14
Community resource mobilization	3.01	1.21

Table 3's descriptive statistics reveal that community stakeholders view several sustainability dimensions of Migori County's water projects positively: well-defined maintenance plans and budgets are widely recognized (Mean = 3.94, SD = 1.07), sustainable use and conservation are actively promoted (Mean = 3.82, SD = 1.24), projects generally secure adequate funding or generate revenue (Mean = 3.53, SD = 1.38), and service delivery is perceived as fair and inclusive (Mean = 3.71, SD = 1.36). However, reliability in water supply is a major concern—over half of respondents strongly disagreed that supply remained consistent over time (Mean = 1.74, SD = 0.96). The overall sustainability index (Mean = 3.16, SD = 0.85) thus reflects solid performance on financial, maintenance, environmental, and inclusive fronts, tempered by critical shortcomings in service reliability.

Table 3 Descriptive Statistics for Sustainability of Water Projects in Migori County

N=132	Mean	Std. Dev
The water project consistently generates sufficient revenue or attracts adequate funding to support its ongoing operations.	3.53	1.38
There are well-defined maintenance plans and budgets in place to ensure the long-term functionality of the water infrastructure.	3.94	1.07
The project actively promotes the sustainable use and conservation of water sources and the surrounding environment.	3.82	1.24
The water project continues to meet the needs of all community members in a fair and inclusive manner.	3.71	1.36
The project has maintained a consistent and reliable supply of water over time.	1.74	0.96
Sustainability of water projects in Migori County	**3.16**	**0.85**

4.1.2. Correlation Analysis

Pearson Correlation Coefficient (r) results in Table 4showed that community in decision making had the strongest positive relationship with project sustainability ($r = 0.612$, $p < 0.01$), indicating that water projects with higher levels of community participation in planning and governance tend to be more sustainable. Similarly, community resource

mobilization exhibited a strong positive correlation with sustainability ($r = 0.604$, $p < 0.01$), suggesting that active local fundraising and resource identification underpin long-term project viability.

Table 4: Correlation Analysis

		Sustainability of water projects	Community in decision making	Community resource mobilization
Sustainability of water projects	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	132		
Community in decision making	Pearson Correlation	.612**	1	
	Sig. (2-tailed)	0.000		
	N	132	132	
Community resource mobilization	Pearson Correlation	.604**	.684**	1
	Sig. (2-tailed)	0.000	0.000	
	N	132	132	132

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

4.1.3. Regression Analyses

A multiple regression analysis was conducted to assess how four dimensions of community participation—decision making, resource mobilization, collaboration, and capacity building—jointly influence water project sustainability in Migori County. The model explained 56.7% of the variance in sustainability scores ($R^2 = 0.567$; Adjusted $R^2 = 0.554$), with a standard error of estimate of 0.538, and was highly significant ($F(4, 127) = 41.646$, $p < 0.001$), affirming that these community-participation practices together have a meaningful impact on sustaining project success. Nevertheless, approximately 43.3% of the variability remains unaccounted for, indicating that other factors—such as technical capacity, financial management, or external environmental conditions—also play important roles. Subsequent examination of ANOVA results and individual regression coefficients will clarify which specific community practices exert the strongest unique effects.

The first objective of the study was to determine the impact of community decision making on sustaining water project in Migori County government. Findings showed that community decision making exerts a robust and statistically significant influence ($\beta = 0.263$, $p = 0.003$). In practical terms, a one-unit increase in formal community involvement in project planning and governance is associated with a 0.263-unit rise in the sustainability score. This aligns with Korir (2020), who demonstrated that communities engaged at project closure experience smoother handovers and stronger long-term stewardship, and Wambui, Rambo, and Maitho (2024), who found that empowered decision-making fosters ownership and accountability. In the Migori context, structured forums—such as participatory planning workshops or community advisory councils—should be prioritized to embed resident input into every critical

phase, thereby strengthening management structures and securing community buy-in for lasting project benefits.

The second objective was to establish the effect of community resource mobilization on sustaining water project success. Results indicated a significant positive association ($\beta = 0.218$, $p = 0.011$), meaning that proactive local fundraising, resource identification, and in-kind contributions measurably boost long-term viability. This corroborates Karanja and Kinyua (2022) and Miruka (2016). who reported that community-driven fundraising nurtures a virtuous cycle of ownership and financial independence. For Migori's water projects, creating dedicated resource committees or "water banking" groups—tasked with grant scouting, coordinating local contributions, and maintaining transparent accounts—can both secure maintenance budgets and deepen emotional investment in the infrastructure.

Table 5: Multiple regression Analysis

	Unstandardized Coefficients		**Standardized Coefficients**		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	0.534	0.22		2.432	0.016
Community decision making	0.234	0.078	0.263	3.012	0.003
Community resource mobilization	0.217	0.084	0.218	2.595	0.011
Model Summary					
R	0.753				
R Square	0.567				
Adjusted R Square	0.554				
ANOVA					
F	41.646				
Sig.	.000				

a Dependent Variable: sustainability of water project

5.1. Conclusion

Based on the findings, The findings underscore that genuine community decision making is a cornerstone of sustainable water projects in Migori County. Although many communities currently experience only informal consultations, those projects that have established formal participatory structures—such as advisory councils and planning workshops—demonstrate far greater resilience and continuity. Embedding these inclusive governance mechanisms not only ensures that infrastructure reflects local priorities, but also builds a sense of stewardship among residents, who become active custodians rather than passive beneficiaries. Similarly, community-led resource mobilization emerges as a powerful driver of long-term project viability. While fundraising and in-kind contributions are sometimes sporadic, projects supported by organized local "water banks" and transparent committees enjoy stronger financial independence and more reliable maintenance funding. Empowering communities to take charge of budgeting and resource mapping deepens emotional investment in their water systems and creates a robust safety net against funding shortfalls.

6.1. Recommendations

To strengthen community decision making, Migori County should institutionalize formal participatory structures at every stage of water project governance. This could include establishing elected community advisory councils with clearly defined mandates, hosting quarterly planning workshops where residents review technical designs and maintenance schedules, and ensuring that feedback gathered through these forums is systematically incorporated into project plans. By embedding transparent processes and clear channels for resident input, local leaders will foster a stronger sense of ownership, streamline accountability, and build trust that sustains infrastructure long after initial construction.

To bolster community resource mobilization, the county should support the creation of "water banking" committees in each project area. These small, locally led groups would coordinate periodic fundraising drives, manage in-kind donation campaigns, and maintain transparent financial records accessible to all stakeholders. Training committee members in basic grant-writing and donor engagement strategies—paired with simple digital tracking tools—will help secure predictable maintenance funds and reduce dependency on external donors. Clear guidelines for contribution collection and disbursement will further ensure that resources are channeled efficiently toward critical needs.

7.1.Recommendations for Further Studies

Although this study offers valuable empirical evidence on how community participation drives the sustainability of water projects in Migori County, its findings should be interpreted with caution due to several limitations: its geographic confinement to a single county may limit generalizability, warranting replication across diverse regions and institutional contexts; its exclusive focus on four participation dimensions (decision making, resource mobilization, collaboration, and capacity building) overlooks other critical engagement facets—such as conflict-resolution mechanisms, communication strategies, governance structures, leadership styles, and digital platform adoption—that could enrich our understanding of participatory dynamics; and it does not account for potential moderating or mediating factors (e.g., socio-economic status, cultural norms, political support, and community cohesion), which multi-level or mixed-methods designs could help unravel to reveal when and why community involvement most effectively fosters long-term project success.

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