

Influence of Public Participation in the Planning Phase on the Outcome of Water Projects in Matungulu Sub-County, Machakos County

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Abstract

This study aimed to find out the influence of public participation in the planning phase on the phase-specific outcome and overall outcome of water projects in the Matungulu sub-county, Machakos County, Kenya. Employing a sequential mixed-method approach, data was gathered from 220 household heads, one water project manager, and eight water user committee representatives. Quantitative data analysis was done using linear regression, and the hypothesis was tested at a significance level of 0.05. A thematic approach was employed for the qualitative data analysis. Results indicated that public participation in the planning phase significantly influenced both the planning phase-specific outcome and the overall water project outcome. However, the level of public participation in the planning phase was found to be low. The study recommends that the Machakos County government officials and elected representatives prioritise public consultation and involvement in the planning phase since it ensures that water projects implemented are relevant to the needs of the local residents and enhances project ownership at an early stage. This ultimately guarantees project success and sustainability. This study provides insights to both the national and county governments on how the involvement of the local community in the planning phase fosters project ownership and leads to more sustainable water projects.

Key terms: Influence, overall outcome, planning phase-specific outcome, public participation, water project.

INTRODUCTION

The problem addressed in this article is the disparity between the increased emphasis on public participation in water projects, as mandated by the 2010 Kenyan constitution and international conventions, and the actual outcome of the water projects, particularly in the Matungulu sub-county. This study was guided by the following hypotheses: (i). Public participation in the planning phase has no statistically significant influence on the phase-specific outcome of the water projects in the Matungulu sub-county (ii). Public participation in the planning phase has no statistically significant influence on the overall outcome of the water projects in the Matungulu sub-county.

Water is a critical international policy issue due to its vital role in sustaining life, ecosystems, and economies (Global Water Partnership [GWP], 1996). Access to clean, reliable and safe water sources is a fundamental human right and an essential element in the pursuit of sustainable development (UN, 2010). The scarcity, unequal distribution, and competition for water resources have prompted global attention and policy considerations (United Nations, 2020).

Globally, governments have grappled with water-related challenges through various policies and initiatives aimed at sustainable water resource management. International agreements like the United Nations Watercourses Convention and the Sustainable Development Goals [SDGs] underscore the importance of participatory approaches to water governance (UN, 2015). In Africa, the African Union's Water Vision 2025 and the Sharm El Sheikh Commitments reflect a strong commitment to improving water governance, infrastructure, and access to clean water (African Ministers' Council on Water [AMCOW], 2008).

Most arid and semi-arid regions in Kenya face significant water scarcity. Residents often endure long distances and wait times to access water. County governments have implemented policies and water projects to ensure sustainable water supplies. Successful projects often involve public participation from project inception to evaluation and monitoring phases, aligning with principles outlined by the International Association of Public Participation [IAP2]

(1999). The Public Participation Act of 2018 and the County Governments Act of 2012 further underscore the necessity of public engagement in governmental operations (Kenya Gazette Supplement, 2018; Centre for Devolution Studies, 2015).

In Matungulu sub-county, numerous water projects were initiated to provide residents with clean and reliable water. However, the success of these projects has varied, often depending on the extent of public involvement in each project phase. Despite legal frameworks and policies promoting public consultation in development projects, many water projects in the eight sub-counties in Machakos County, namely Masinga, Yatta, Mwala, Matungulu, Kangundo, Kathiani, Machakos Town and Mavoko, are stalled, incomplete, or non-operational, with Matungulu sub-county being notably affected. Local residents in Matungulu face significant challenges accessing clean water, highlighting a gap between public participation in the planning phase and water project outcomes. Currently, there is minimal research geared towards the influence of public consultation during project planning on water projects' outcomes. Therefore, this research aims to investigate the influence of public participation in the planning phase on the planning phase-specific outcome and overall outcome of water projects in the Matungulu sub-county.

Public participation in the Matungulu sub-county entailed the active involvement of the local community in various activities related to water projects during the planning phase. These activities encompassed identifying water-related challenges within their locality, proposing potential solutions to address these needs, and engaging in consultations regarding the project's blueprint. 'Influence' denotes the change that public participation during the planning phase had on the outcome of water projects in the Matungulu sub-county, while 'outcome' specifically refers to the outputs achieved during the water project planning phase and the overall results of the water project. This paper provides an overview of relevant legal provisions, international conventions, and local policies promoting public participation in water resource management, setting the context for the study. This study serves as a guide to policy formulation in order to execute more sustainable

water projects by involving the local communities in project planning.

LITERATURE REVIEW

Definition of Public Participation

Norwegian Ministry of Local Government and Modernization (2008) defines public participation as the right of individuals or groups to engage in and impact decision-making processes. According to the International Association of Public Participation (2006), public participation actively involves those affected or interested in decisions. This process, also termed citizen participation, community involvement, or public consultation, aims to ensure inclusive solutions, incorporate diverse perspectives, inform decision-making, foster creativity, and enhance democratic engagement within local communities. Essentially, public participation allows community members to contribute to and influence governmental and public decisions, shaping the future of their communities (Norwegian Ministry of Local Government & Modernization, 2008; International Association of Public Participation, 2006).

Role of Public Participation in Water Project Planning

Public participation plays an important role in the planning phase of water projects, ensuring that the needs, concerns and priorities of communities are adequately addressed (Sharma, 2011). By actively involving community members in planning processes, water projects can benefit from local knowledge and perspectives, causing more sustainable and effective solutions. Public participation fosters transparency and accountability, as it enables stakeholders to understand how choices are made and provides a platform for feedback and input from a diverse range of voices. Furthermore, involving the public in the planning of water projects can help build trust and support among community members, ultimately increasing the likelihood of project success and long-term sustainability (Kenya Gazette Supplement, 2018).

Approaches to Public Participation in Water Projects

A water project typically progresses through several distinct phases: planning, decision-making, implementation, and evaluation and monitoring. It is essential for the public to be involved in each of these phases to ensure the project's success and sustainability. During the planning phase, public input

can help identify the community's needs and preferences, leading to a more relevant and effective project design (Carter, 2019). In the decision-making phase, involving the public promotes transparency and builds trust between the project managers and the community (Smith & Johnson, 2017). During implementation, public participation can facilitate smoother execution and foster community ownership of the project (Anderson, 2015). Finally, in the evaluation and monitoring phase, public feedback is crucial for assessing the project's impact and making necessary adjustments (Jones, 2018). By engaging the public throughout all phases, water projects are more likely to meet the local residents' needs and achieve long-term success (Taylor & Clark, 2016).

Public participation in water projects encompasses various approaches, each influencing project outcomes differently (Jones, 2018; Smith & Brown, 2020). One approach involves consultation, where stakeholders provide feedback on proposed plans, fostering a sense of inclusion and potentially identifying overlooked issues (Adams et al., 2019). Another method is collaboration, wherein community members actively partake in decision-making processes, leading to more tailored and acceptable solutions (Robinson, 2017). Informative strategies aim to educate the public about project details, promoting awareness and support (Green et al., 2021). Lastly, empowerment enables communities to initiate and manage projects, ensuring that the initiatives align with local needs and capacities (Taylor & Clark, 2016). These diverse participation strategies can significantly influence the success and sustainability of water projects, particularly during the planning phase (Anderson, 2015; White & Harris, 2018).

The Water Policies and Public Participation

Globally, the recognition of the crucial role of public participation in water resource management has grown significantly, aligning with the United Nations' Sustainable Development Goal 6 (SDG 6), which emphasises universal access to clean water and sanitation. Organisations like the International Association of Public Participation (IAP2) advocate for public involvement in decision-making processes related to water management (IAP2, 2006). International declarations, such as the Dublin Principle (International Conference on Water and the

Environment, 1992) and SDG 6, highlight the significance of global cooperation in addressing water issues (Global Water Partnership [GWP], 2014). The Dublin Principle emphasises a participatory approach in water management, recognising women's roles, valuing water economically and socially, and safeguarding freshwater resources. SDG 6 proposes the implementation of Integrated Water Resources Management [IWRM] at all levels by 2030, acknowledging the importance of public participation in decision-making processes related to water resources. The World Health Organization [WHO, 2014] opines that water is a social good and public participation is therefore very vital in the management of water resources to ensure maximum social benefit to society. The African Union's Water Vision 2025 and the Sharm El Sheikh Commitments highlight the commitment of African countries to improving water governance, infrastructure, and access to clean water (African Ministers' Council on Water [AMCOW], 2008).

Since the promulgation of the Constitution of Kenya in 2010 and the inception of devolution in 2013, public participation in development projects has been given greater emphasis in Kenya. Kenya's Constitution of 2010, within Articles 174 (c) (d) and Article 69 (1) (d), establishes a framework encouraging public participation in the management and conservation of natural resources, including water resources (Constitution of Kenya [CoK], 2010). These legal provisions mandate both the national and county governments to facilitate public participation in all development projects. The Public Participation Act of 2018 also provides a national framework for effective public participation, offering guidelines for conducting public participation activities depending on the nature and significance of the decisions being made (Kenya Gazette Supplement, 2018). The County Governments Act of 2012 further defines the principles of public participation, emphasising the necessity of facilitating public consultations in county government operations (Centre for Devolution Studies, 2015).

The 2010 Constitution and subsequent devolution ushered in an era of increased public participation in water-related initiatives. The formation of the Water Resources Management Authority (WRMA) through the Water Act of 2002 laid the foundation for Kenya's commitment to water resource governance.

Subsequent legislative developments, including the Water Act of 2016, were necessitated by the constitutional framework (CoK, 2010), international obligations under Article 2(6), and alignment with Vision 2030 and Sustainable Development Goals (SDGs). Section 25 of the Water Act (2016) establishes the Water Resources Authority (WRA), emphasising the implementation of the Integrated Water Resources Management (IWRM) principle, aligning with the Dublin Principles. This involves activities with Water Resources User Associations (WRUAs), which recognise water as a basic human right, highlighting the importance of stakeholder participation in decision-making processes. It promotes integrated approaches to water resources management, encouraging input from the community, private sector, and relevant government bodies. The 2021 National Water Policy [NWP] further underscores the significance of public participation, recommending the establishment of community-based committees with defined roles at decentralised levels (NWP, 2016). This institutional emphasis on public involvement aligns with the broader importance of community engagement in water projects, ensuring that diverse perspectives contribute to effective decision-making and sustainable outcomes (IAP2, 2006; World Bank, 2015).

The Machakos County Government's Water Policy, launched in 2018, emphasises providing free drinking water to rural populations, highlighting the importance of local engagement (World Bank, 2015). This commitment to public participation is further reinforced by Article 196 of the Kenyan Constitution, which obligates County governments to institutionalise citizen participation in policy-making processes. While the Machakos County Water Policy demonstrates a consultative approach, there is limited documentation on how public participation influences water project outcomes (Machakos County Government Water Policy, 2018).

Increased public engagement in the development projects was expected to result in better outcomes and more successful water projects. However, this was not truly the case for the water projects in most of the sub-counties in Machakos County. Despite the increased public participation, most water projects in the county have either stalled, are incomplete or non-

operational. Of the eight sub-counties in Machakos County, the Matungulu sub-county is notably affected, with a majority of the water projects failing and not serving the local residents as expected. Water continues to be a major challenge to most of the Matungulu sub-county residents, with a majority forced to wake up early, walk long distances, and queue for long hours in search of a commodity. There is limited documentation on how public participation in the planning phase influences the planning phase-specific outcome and overall outcome of the water projects. This research, therefore, seeks to investigate whether public participation in the planning phase significantly influenced the phase-specific outcome and overall outcome of the water projects in the Matungulu sub-county.

The World Bank conducted a study on water projects and found that community involvement significantly increased the success rate of such projects. Projects that neglected community involvement often faced issues such as lack of maintenance, abandonment, or even sabotage (World Bank, 2009). A study by

UNESCO-IHE Institute for Water Education (2012) emphasised the significance of community participation in water projects, stating that projects designed and implemented without the involvement of local communities often resulted in poor sustainability and effectiveness. Oxfam conducted a study focusing on water and sanitation projects in various regions. The report highlighted that projects that ignored the needs and preferences of local communities faced higher risks of failure, including disuse or resistance from the community (Oxfam Report, 2016). Despite these insights, the literature review suggests a gap in understanding how public participation in the planning phase influences the planning phase-specific outcome and overall outcome of the water project, indicating the need for further research to categorise and evaluate its influence in the planning phase.

This study utilises Sherry Arnstein's "Ladder of Citizen Participation" theory, shown in Figure 1, which highlights how citizens' influence on decisions correlates with their level of engagement.

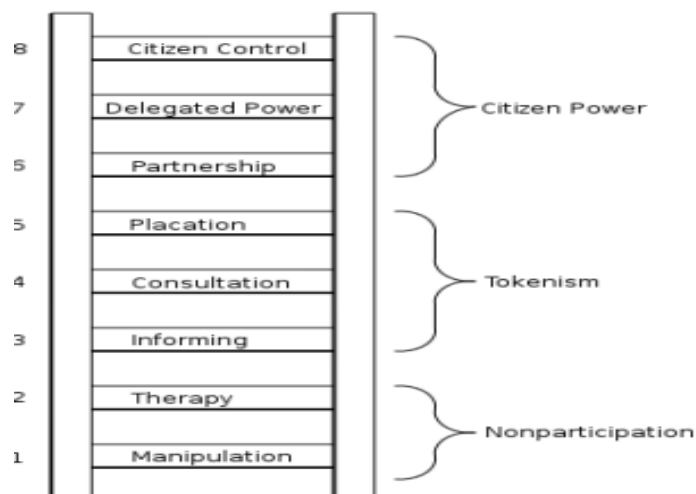


Figure 1: Ladder of Citizen Participation

In examining the influence of public participation on water projects, the framework shown in Figure 1 offers a structured approach to analysing citizen involvement. By categorising participation levels, from minimal involvement to citizen control, the study can assess how different degrees of engagement relate to public influence on project outcomes. Arnstein's theory provides valuable insights into how various approaches to public participation affect the

effectiveness and sustainability of water initiatives, making it a valuable tool for this investigation. The conceptual framework for this study is presented in Figure 2.

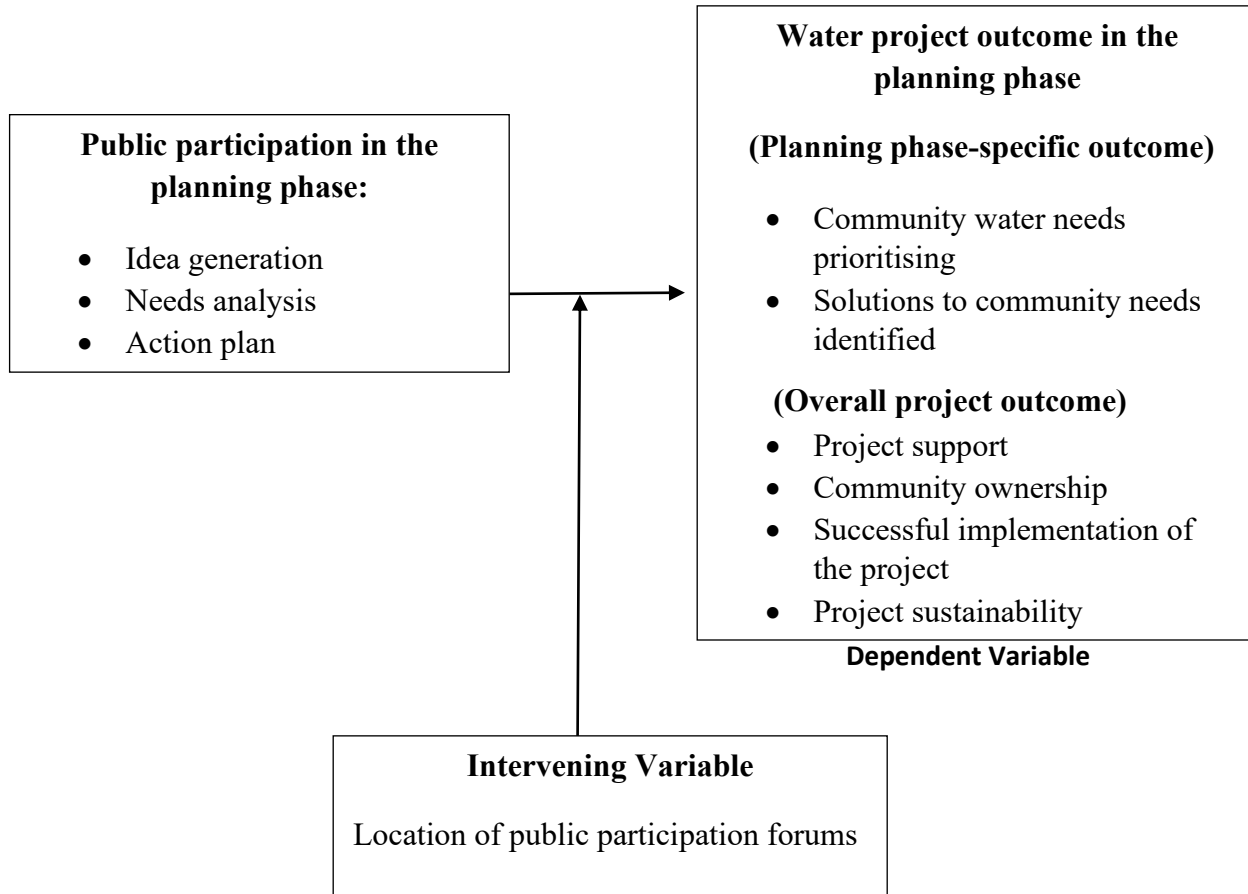


Figure 2: Conceptual Framework

In this study, the conceptual framework was based on public participation in the planning phase, which constituted the independent variable. The dependent variable was the planning phase-specific outcome and overall outcome of the water projects in the Matungulu sub-county, as shown in Figure 2.

METHODOLOGY

This study employed a sequential mixed method design presented in Figure 3.

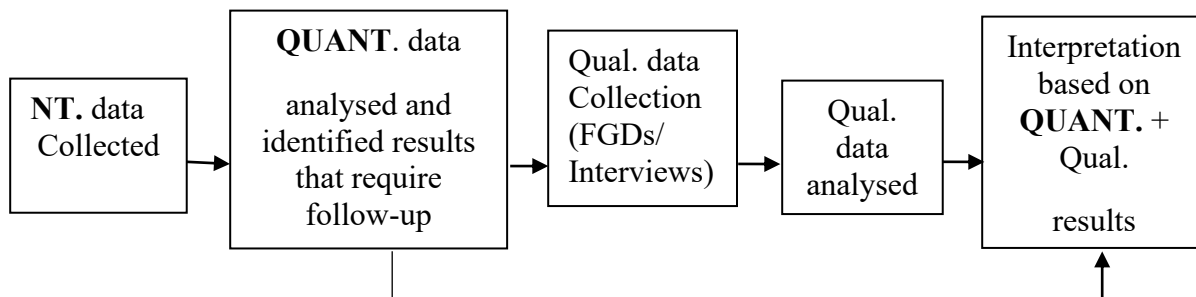


Figure 3: Sequential Mixed Method Design

As illustrated in Figure 3, data was collected in two consecutive phases; quantitative then qualitative. Qualitative data was collected to provide an explanation for the unusual findings in the study. This approach enabled a more comprehensive understanding of the phenomenon of interest, leveraging the strengths of both qualitative and quantitative techniques (Creswell, 2003). Interpretations were derived from a synthesis of results acquired from both the qualitative and quantitative analyses.

This study targeted the 1,098,584 Machakos County residents. The accessible population of the study comprised 45 water projects – 25 operational and 20 non-operational, 28,800 households in the Matungulu sub-county, two water project managers and eight Water User Committee (WUC) chairpersons. Nassiuma's formula, shown in Equation 1, was used to determine the sample size for the study, resulting in a sample of 15 water projects and 223 household heads.

$$\text{Equation 1: } n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where N is the accessible population, C is the coefficient of variation (which should be $\leq 30\%$), and e is the margin of error (fixed between 2-5%).

The study utilised a multi-stage sampling technique, starting with the selection of water projects, followed by the selection of household heads. Initially, the 45 water projects in the Matungulu sub-county, comprising 25 operational and 20 non-operational projects, were sampled proportionately using a simple random sampling technique. Fifteen water projects were selected, resulting in eight operational and seven non-operational water projects. The operational water projects sample included eight functional water projects in Matungulu, Kijito, Kambusu, Kinyui, Katheka, Kalandini (Kwa Kitoo), Uamani and Miseleni. The non-operational water projects sample comprised of the seven non-functional water projects in Maembeni, Kwatombe, Katuluni, Katwanyaa Center, Kanzalu, Kyamulendu and Kwa Munini water projects. Subsequently, a sample of 223 household heads was proportionately allocated among the selected water projects, with 119 households from the operational projects and 104 from the non-operational ones.

Additionally, purposive sampling was employed to select one water project manager and eight chairpersons of the Water User Committees (WUCs).

Data collection involved a household head questionnaire, a water project manager's interview guide, and a Focus Group Discussion schedule. To ensure content validity, research instruments were reviewed by research supervisors and policy experts from the Faculty of Education and Community Studies at Egerton University. Their feedback was used to modify and adapt the research items to the study. A pilot study was conducted in the Kangundo sub-county. The reliability of the household head questionnaire was tested using Cronbach's alpha, which yielded a reliability coefficient of 0.71. This coefficient was deemed acceptable for the study. Household head questionnaires were primarily self-administered. For respondents with low literacy levels, the researcher administered questionnaires to provide clarification and enhance participation. The influence of public participation on the planning phase-specific outcome was analysed using simple linear regression. The analyses of the influence of public participation on the overall water project outcome were done using multiple linear regression.

Linear regression analysis is a statistical method employed to examine the connection between one or more independent variables (predictors) and a dependent variable (outcome). A single independent variable is employed to predict the dependent variable's outcome in simple linear regression, assuming a linear relationship between them. This method helps quantify the extent to which changes in the independent variable(s) are associated with changes in the dependent variable, expressed through coefficients that show the direction and strength of the relationship (Smith & Johnson, 2017). Multiple linear regression extends this analysis to include multiple independent variables, allowing for a more complex examination of how these variables collectively influence the dependent variable (Brown et al., 2019). In the context of water project planning, these regression techniques can assess how different forms of public participation affect specific and overall project outcomes, providing valuable insights into the effectiveness of participatory approaches in shaping project success and sustainability (Adams & Green,

2020). A thematic approach was used to evaluate qualitative data. The significance level for testing the hypotheses was set at 0.05.

FINDINGS AND DISCUSSION

The study sought to investigate whether public participation in the planning phase had an influence on the phase-specific outcome and overall outcome of water projects in the Matungulu sub-county. Public

participation in the planning phase was measured using five items. The respondents were asked to indicate how frequently the local community was involved in each of the water project planning activities based on a 5-point Likert scale, which ranged from 0 = 'Never' to '4 = Very Often'. The mean score of each item was computed and then transformed into the overall mean, as presented in Table 1.

Table 1: Public Participation in the Planning Phase

Item	Mean	SD
The Machakos County government involved my local community in coming up with the water problems in my locality	1.21	0.99
My local community was involved in coming up with the scope of the water problems to be addressed	1.50	1.07
My local community was involved in coming up with the possible ideas to address the water problems	1.66	1.18
My local community was involved in coming up with a plan for implementing the water project in my locality	1.06	1.24
My local community was involved in coming up with a plan for measuring performance of the water project	0.67	1.02
Overall mean score	1.22	1.10

Table 1 indicates that 'the local community was involved in coming up with a plan for measuring performance of the water project' had the lowest mean ($M = 0.67$, $SD = 1.02$). The local community's involvement in coming up with the possible ideas to address the water problems had the highest mean ($M = 1.66$, $SD = 1.18$). The overall mean score implies that public participation in the planning phase was below the average of 2 out of a maximum of 4 ($M = 1.22$, $SD = 1.10$).

The outcome of the water projects during the planning phase was measured using a set of 5 closed-ended items. The respondents were asked to indicate how successful the local community was in realising the water project outcome in the planning phase using a 5-point Likert scale (ranging from 0 = 'Not Successful' to 4 = 'Very Successful'). The responses to the items were scored, and their means were computed and presented in Table 2.

Table 2: Outcome of the Water Projects in the Planning Phase

	Mean	Std. Deviation
My local community successfully identified the water problems to be addressed	1.22	1.093
My local community successfully identified the scope of the water problem	1.19	1.096
My local community successfully suggested the possible strategies to address the water problems	1.35	1.209
My local community successfully came up with a plan for implementing the water project	.89	1.139
My local community successfully developed a procedure for measuring performance of the project.	.71	1.049
Overall mean score	1.072	1.117

Table 2 reveals that the highest mean score ($M = 1.35$, $SD = 1.209$) was observed in the aspect of the local community successfully suggesting the possible strategies to address the water problems in their locality. Conversely, the lowest mean score (Mean = 0.71, $SD = 1.049$) was recorded for 'My local community successfully developed a procedure for measuring performance of the project'. The overall mean score for the phase-specific outcome of the water projects in the planning phase was below the average of 2 out of a maximum of 4 ($M = 1.072$, $SD = 1.117$).

To examine the first hypothesis, simple linear regression was carried out, which stated that public participation in the planning phase had no statistically significant influence on the phase-specific outcome of the water projects in the Matungulu sub-county. A diagnosis run on the data to assess whether all simple linear regression assumptions were satisfied indicated that none of them had been violated. The coefficient of determination, R^2 , was calculated in order to identify the proportion of variance in the dependent variable (outcome of water project in the planning phase) that could be explained by a unit change in the predictor variable (public participation in the planning phase) and results presented in Table 3.

Table 3: Model Summary for Public Participation in the Planning Phase

Model	R	R Square	Adjusted R Square	F Change	Sig. F Change
1	.522 ^a	.272	.269	81.522	.000

The results in Table 3 indicate that the relationship between public participation in the planning phase and the phase-specific water project outcome was strong and positive ($r = .522$). The results also indicate that public participation in the planning phase

explained a 27.2% ($R^2 = .272$) variance in the planning phase-specific outcome. The regression coefficients for public participation in the planning phase were computed and presented in Table 4.

Table 4: Regression Coefficients for Public Participation in the Planning Phase

Scale	Unstd. Coefficients		Std. Coefficients	t-value	p-value
	B	Std. Error	Beta		
Constant	.354	.096		3.727	.000
P2 - planning	.588	.065	.520	8.996	.000

$$R = .522, R^2 = .272, F(1, 218) = 81.522, p = .000$$

Table 4 indicates that the unstandardised coefficient was .588, giving a regression model equation of $Y_1 = 0.354 + 0.588X_1$, where X_1 = public participation in the planning phase and Y_1 = planning phase-specific outcome of the water projects. The results further indicate that public participation in the planning phase was a statistically significant predictor of the planning phase-specific outcome, $F(1, 218) = 81.522$, $p = .000$ or $t = 8.996$, $p = .000$.

Multiple linear regression was conducted to investigate the second hypothesis, which stated that public participation in the planning phase had no statistically significant influence on the overall outcome of the water projects in the Matungulu sub-county. A diagnosis run on the data to assess whether all multiple linear regression assumptions were satisfied indicated that none of them had been violated. Table 5 presents the analysis of ANOVA.

Table 5: Analysis of ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	57.719	4	14.430	82.731	.000 ^b
	Residual	37.500	215	.174		
	Total	95.219	219			
a. Dependent Variable: Outcome						
b. Predictors: (Constant), P2 in P, DM, Impl. & E&M						

As shown in Table 5, the regression model was found to be statistically significant $F(4, 215) = 82.731, p = .000$ and the model was considered a good fit for the data. The coefficient of determination, R^2 , was computed, and the results are presented in Table 6.

Table 6: Regression Model Summary for Public Participation in the Planning, Decision Making, Implementation, and Evaluation and Monitoring Phases

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779 ^a	.622	.615	.42175

As shown in Table 6, the relationship between public participation in the planning and overall water project outcome was found to be strong and positive ($r = .779$). The model explained 62.2% of the variance in the overall water project outcome ($R^2 = .622$). The regression coefficients for public participation in the planning phases were computed and presented in Table 7.

Table 7: Regression coefficients

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.138	.054		2.535	.002
	P	.240	.047	.295	5.104	.000

The unstandardised coefficients $b_1 = 0.24$ in Table 7 represent the change in the overall water project outcome for one unit change in public participation in the planning phase, keeping other variables constant. The quantitative results clearly demonstrate that public participation in the planning phase had a substantial influence on both the planning phase-specific outcome and the overall outcome.

The water project manager observed that the local community was engaged through various forums to identify challenges, propose solutions, and select water project locations, leading to more effective and accepted decisions. For instance, community engagement in the Tala ward during planning ensured

the selection of a suitable water project location that would benefit both upper and lower Kya Katulu villages. The FGD participants were asked to give their views on how public participation in the planning phase influenced the planning phase-specific outcome and overall outcome of the water projects in the Matungulu sub-county. When asked how the community got involved in the planning phase, the respondents indicated that the local community participated by identifying the scope of water problems and suggesting possible solutions to the water challenges in their locality. It was also pointed out that some of the community members donated their own parcels of land for the drilling of the boreholes. A remark by Respondent 7 confirms this;

The county government engaged us during the planning phase of the proposed Kwa Munini Water project. During the consultation meeting, we gave suggestions on how the water challenges in our locality could be addressed.

Respondent 3 observed that;

A public participation forum was organised during the planning phase, community members were invited to provide their proposals and ideas of where the water projects would be done.

The respondents also indicated that the local community participated in the planning phase by identifying the location of the water projects.

Respondent 3 pointed out that:

We identified where the Maembeni water project would be drilled during a consultative meeting.

Nonetheless, the FGD participants observed that the level of public consultation in the water project planning phase was low. When asked why the majority of the community members were not fully engaged in the planning phase, the respondents pointed out that although attempts were made to adopt the public participatory approach during planning stages, most of the water projects in the Matungulu sub-county were initiated with minimal involvement of the public. Respondent 5 advanced the following as the reason why participation of the local community was low.

Most of the water projects in Matungulu sub-county were initiated without the meaningful involvement of the Water User Committees and the wider community. For example, during the drilling of the Kinyui Borehole project, the community was neither informed nor consulted. We learnt of the project when the contractor was already on site.

The FGD respondents expressed that they did not receive feedback from the decision-makers on how their input and contributions influenced the final project decisions. One respondent highlighted this issue, stating:

We regret not receiving any feedback from the elected representatives on how our contributions, ideas, and opinions influenced

the final decisions. This left us feeling that we wasted time and resources during the public consultation.

Other reasons behind low community participation highlighted by the FGD participants were power imbalances and selective participation during project planning. This may have resulted in a situation where the public views and opinions were disregarded. Selective participation involves intentionally involving specific individuals or groups in a given activity, process, or decision-making while excluding others based on certain criteria or qualifications. Respondent 4 pointed out that:

In some cases due to selective participation and power imbalances, decision making processes may be dominated by a small group of powerful individuals within the community, who may not take into account the needs and concerns of the broader community.

When asked how public participation influenced the outcome of the water projects, the respondents unanimously agreed that involving the public in the planning phase helped ensure that the project took the community's wishes into account. The respondents pointed out that the community was more likely to support a project if they were involved at the project's inception because they would have a sense of ownership. All of the respondents agreed that involving the local community in the planning phase helped identify the community's needs and priorities and avoided any misunderstandings and conflicts in the other project phases.

The hypotheses were not supported by the linear regression results, which stated that public participation in the planning phase has no statistically significant influence on the phase-specific outcome and overall outcome of the water projects in the Matungulu sub-county. The study hypotheses were thus rejected.

Discussion

This study investigated how public participation in the planning phase influences both the phase-specific and overall outcomes of water projects. The study found that engaging the local community in activities such as identifying and prioritising water needs, as well as

developing project plans during the planning phase, had a significant impact on both the planning phase-specific and overall outcomes of the water projects. Involving the local community in the planning phase activities led to more implementable water project plans that aligned with the local community's preferences and public interests. It also helped build community support for the water projects. Increased public consultation could ultimately enhance the likelihood of successful water projects.

Several reasons were identified for the relatively low involvement of the local community in the planning phase of most water projects in the Matungulu sub-county. These included a lack of awareness about the benefits of active involvement, selective participation and the absence of timely feedback on how local input influenced final decisions. Nonetheless, the findings demonstrated a significant influence of public participation in the planning phase on both the planning phase-specific outcome and overall project outcome. This highlights the potential for significantly improved project success and sustainability with increased public engagement during the planning phase.

Several studies support the finding that involving community members in project planning leads to better outcomes. Tyler Sadek's work on participatory planning highlights that engaging community stakeholders enhances project success by ensuring decisions are grounded in local knowledge, fostering a sense of ownership, and promoting sustainability (Tyner & Sadek, 2020). Similarly, Wong and Goh (2016) observed that when residents are involved in the planning phase, they are more likely to support the project due to a sense of ownership and investment.

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This can reduce opposition and increase acceptance, leading to a smoother implementation process.

CONCLUSION AND RECOMMENDATIONS

Conclusion: Based on the research findings, public participation in the planning phase significantly influences both the planning phase-specific outcome and the overall outcome of water projects. Involving the local community in identifying their water needs ensures that projects align with community priorities and expectations. This collaborative approach addresses actual needs, fosters ownership, and enhances commitment among residents. Community involvement in the planning phase facilitates better decision-making by incorporating local knowledge and preferences into project design. This participatory process contributes to the sustainability and success of water projects, as demonstrated by the enhanced outcomes in the Kinyui and Kijito water projects. Public consultation is crucial for identifying overlooked local knowledge, streamlining efforts, and gaining acceptance. Community members who participate in planning are more likely to support a project they helped shape, thus fostering project ownership. Meaningful public participation improves information flow, fosters collaboration, and minimises conflicts, thereby reducing opposition and garnering community support. Policymakers should prioritise public involvement in the planning phase to ensure projects meet community needs, are sustainable, and have the necessary support for long-term success.

Recommendation: The study recommends that elected representatives, government officials, and policymakers mobilise the local community to actively participate in identifying their needs and priorities to maximise the benefits of water interventions in their locality.

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