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Community Involvement and the Performance of Water and Sewerage Projects in Kiambu Town, Kiambu County, Kenya

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Abstract: *This study investigated the influence of Community involvement on the performance of water and sewerage projects in Kiambu Town in Kenya. The study was guided by the Theory of Reasoned Action. Given that this study focused on a single project—the Construction of Kiambu Water Supply and Sewerage Project—it adopted a descriptive research design and a mixed method approach. Data were collected from 338 respondents drawn from community households, funding and government officials, and M&E officers using simple random and purposive sampling. Quantitative data were analyzed statistically with the help of SPSS 25, including descriptive statistics and simple linear regression, while qualitative data were processed using NVivo 14. The study revealed that there was a positive and strong correlation between community involvement and Performance of Water and Sewerage Projects ($r = 0.763$, $p < 0.000$). The study suggests that stakeholders enhance project performance and sustainability in water and sewerage projects in Kiambu Town by strengthening community engagement and prioritizing and enhancing participatory capacity-building initiatives*

Key words: *Community Involvement, Performance, Water and Sewerage Projects*

1.1 Study Background

Public health, environmental sustainability, and economic growth all depend on access to safe water and appropriate sanitation. Globally, water and sewerage programs are central to achieving Sustainable Development Goal 6 (SDG 6), which aims to ensure availability and sustainable management of water and sanitation for all (UN-Water, 2023). But differences in infrastructure, financing, and government have resulted in different levels of development around nations. Capacity restrictions, limited resources, and environmental challenges continue to affect the performance of water and sanitation projects in many developing countries, especially in Sub-Saharan Africa, as noted by the African Development Bank [AfDB] [2022]. Urban expansion in East Africa is straining the current water and sanitation systems. Service coverage, quality, and sustainability remain ongoing issues for cities including Nairobi, Kampala, and Dar es Salaam East African Community, 2023. While urban areas like Nairobi and

Mombasa gain from rather better investments, smaller towns and rural areas still struggle with ageing infrastructure, poor service delivery, and limited access to potable water in Kenya (World Bank, 2019).

Kiambu Town struggles similarly even though it is close to Nairobi. Kariuki et al. (2023) reports show that the performance of water and sewerage projects in the area is much compromised by inadequate infrastructure, weak government, and financial restrictions. These difficulties show up as regular service disruptions, low project sustainability, and unsatisfactory community satisfaction.

Several methods of project management have shown promise for improving performance. When done well, for example, project planning guarantees clear goal-setting, effective resource allocation, and proactive risk mitigating—key elements that favorably impact project outcomes (PMI, 2022). Comparably, more project ownership, relevance, and long-term sustainability have been associated with community involvement. Initiatives involving communities from their founding are more likely to meet local needs and garner better acceptance (Houghton & Muchemi, 2023).

Water and sewage projects in Kiambu Town still suffer underperformance in spite of these systems and approaches. Improving service delivery depends on filling in the voids in stakeholder involvement. With the intention of providing useful suggestions for maximum efficiency and sustainability, this study aims to find how community engagement affect the performance of water and sewage systems in Kiambu Town.

The sustainability and success of sewerage and water projects depend largely on community involvement. It entails the active involvement of community members in all stages of the project life cycle: identification, design, implementation, monitoring and evaluation. This participatory approach ensures that project design and operation are sensitive to the needs, tastes, and customary knowledge of the beneficiaries. Participatory community, according to Houghton and Muchemi (2023), increases ownership, increases transparency, and guarantees that the project goals are synchronized with the local reality, thereby providing more significant and context-related solutions. Participatory communities are more likely to recognize the aim of the project, applaud the intention, and help it survive through volunteerism or persuasion. Specifically in the underprivileged and semi-rural areas like Kiambu Town, this collective involvement is also accountable and works towards maintaining infrastructure in the long term.

1.3 Statement of the Problem

Economic and public health development hinge on access to credible water and sewerage infrastructure. Nonetheless, the performance of water and sewerage projects in Kiambu Town in Kenya is low in spite of community involvement (World Bank, 2022). Thought more about systemic issues of a generic kind in project performance than implementation in itself, the Kiambu Water and Sewerage Project, for instance, has been beset by protracted delays, inferior service provision, and resource wastage (Kariuki et al., 2023). Findings from past studies show low community satisfaction rates in water and sewerage utilities in Kiambu Town (IWA, 2023; WHO, 2022; low coverage population; high frequency of service disconnections). All these have been blamed on inadequate project planning, absence of stakeholders' participation, poor capacity building, and poor monitoring and evaluation (Njenga & Omondi, 2023; Houghton & Muchemi, 2023). Despite the extensive debate of these factors, very limited empirical research has been carried out on how community involvement contributes to local water and sewerage program performance. Through an evaluation of the impact community engagement on the performance of water and sewerage programs in Kiambu Town, this study hence aims to fill this gap. The results

should serve as valuable information that can be used to increase the effectiveness, sustainability, and impact of such projects in comparable urban areas.

1.3 Study objective

The purpose of this study was to investigate the influence of community involvement on the performance of water and sewerage projects in Kiambu Town, Kiambu County, Kenya

1.4 Significance of the Study

The study findings may be significant to different stakeholders who are involved in water and sewerage service development and management. The results may better knowledge of the drivers of project success or failure will allow donor organizations and development partners to make more informed choices on future partnerships and investments in the water and sanitation sector. The study aims to promote more effective and inclusive service delivery systems that address the needs of Kiambu Town's citizens. Better socioeconomic development and health outcomes are directly correlated with improved water and sewerage services. Finally, the research addresses a gap in the literature regarding community involvement on the performance of water and sewerage projects in urban Kenyan contexts, the study will add to the body of knowledge in academia.

1.5 Scope of the Study

The purpose of this study was to investigate the influence of community involvement on the performance of water and sewerage projects. 1,500 community households, 340 funding officials, 350 government officials, and 10 Monitoring and Evaluation (M&E) officers working on the Kiambu water supply and sewerage project were among the main respondents. The water and sanitation infrastructure of Kiambu Town, one of Kenya's fast urbanizing centers, is under increasing strain as a result of the city's rapid urbanization and population growth. A thorough examination of the ways in which project management techniques impact infrastructure performance in this dynamic environment was required due to these issues, which include pollution, water scarcity, and poor sanitary facilities.

1.6 The Conceptual Framework

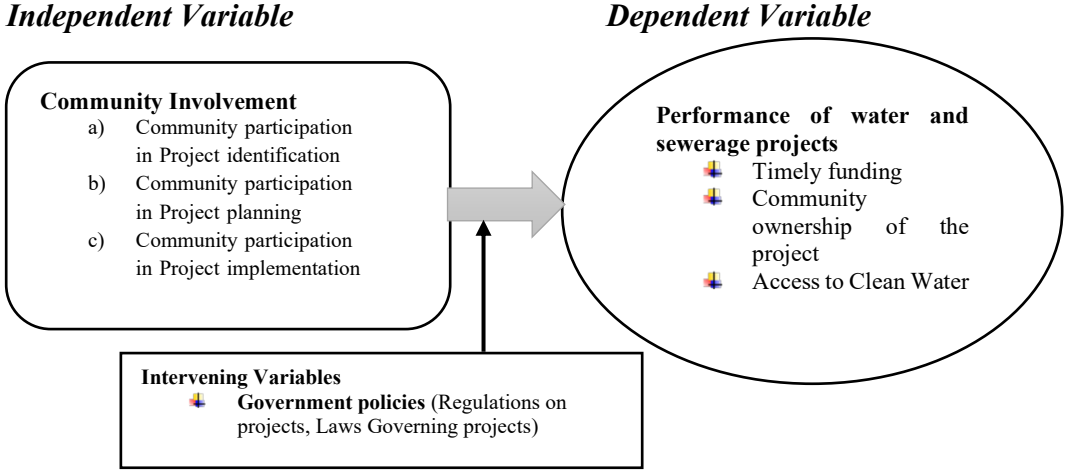

Figure 1: *The Conceptual Framework*
Source: *Own Conceptualization, 2024*

1.7 Literature Review

In this section, the theoretical and empirical reviews on the influence of community involvement on the performance of water and sewerage projects are presented.

1.7.1 Theoretical Review

This study was guided by the theory of reasoned Action (TRA). Martin Fishbein and Icek Ajzen first proposed the Theory of Reasoned Action (TRA) in 1967, and it underwent additional improvements in the early 1970s.' This theory was developed at a time when participatory development was becoming more popular, especially in recently independent countries in Asia, Africa, and Latin America. In an effort to mitigate the detrimental effects of colonialism and modernization, these areas were looking into ways to promote local community involvement in development initiatives. Gandhi, for example, established the groundwork for participatory approaches to development in the 1950s by promoting village self-sufficiency and small-scale development (Gandhi, 1962). The empowerment of oppressed populations through active political and social participation was also a key component of Paulo Freire's pedagogy (Freire, 1970). By offering a psychological framework to explain how individual intentions drive behaviors within community development projects, TRA is consistent with these participatory philosophies. This theory holds that an individual's 'intention to engage in a behaviour is its immediate antecedent, and that intention is influenced by two main factors: the individual's attitude towards the behaviour and the subjective norms that are perceived from social influences. Attitude is the positive or negative assessment of carrying out a behaviour; people are more likely to act when they believe a behaviour is advantageous or desirable. Subjective norms measure the perceived social pressure to engage in a behaviour from significant referents, such as peers, family, or community leaders. In Kiambu Town's water and sewerage projects, for instance, community members are more likely to get involved in project activities if they feel that others in their community expect them to (subjective norms) and that taking part in such initiatives will result in noticeable improvements in their quality of life' (attitude).

TRA is especially pertinent to comprehending the Community Participation variable in this study. It provides a theoretical framework for analyzing the factors that influence local participation in water and sewerage projects. Members of the community's attitudes towards these projects—which are influenced by their perceptions of the benefits of the projects, such as better access to water or better health outcomes—as well as their perceptions of social expectations, affect their willingness to donate labour, time, or resources. Furthermore, in line with the participatory development approach, community capacity building initiatives can strengthen positive attitudes and supportive subjective norms, promoting active participation (White, 1999).

TRA's explanatory power could be limited in locations like Kiambu Town where socioeconomic or infrastructural issues could make it hard to participate unless augmented by models that take such outside influences into consideration. TRA is still, however, a useful place to begin when researching the impact of norms and attitudes on the participation in water and sewer projects within community contexts. Although it is necessary to recognize the theory's shortcomings with regard to behavioral control, its tenets aid in clarifying the social and motivational elements that influence participation, providing useful information for improving community engagement tactics in Kiambu Town's water and sewerage projects.

1.7.2 Empirical review

Throughout the world, there is a general consensus that the inclusion of communities is central to improving the effectiveness of water and sewerage projects. To illustrate how active community involvement improves project performance, Nair and Tiwari (2022) used a mixed-methods approach comprising surveys and case studies in studying in rural India. As they have discovered, resource management is more sustainable and effective where project implementation and planning incorporate local communities. The members of the community appreciate having a sense of ownership as a result of higher participation, and this enhances maintenance and use of the water and sanitation facilities. As Mekonnen and Gerber (2017) observe, community participation ensures that projects are more in sync with the unique needs and wants of the people. In addition to raising accountability, the alignment inspires the community to accept the future development and nourishment of the projects. This argument is supported by the World Bank (2018) report on how increased engagement of citizens contributes to project success through greater transparency, reduced corruption, and expenditure of funds.

Ananga et al. (2020) also provide yet another global viewpoint, where the argument is made that participatory community engagement strengthens interpersonal relationships and fosters social exchange and cooperation, which consequently leads to community resilience to deal with water and sanitation issues. Through collaboration, communities are well placed to maintain project benefits in the long term, which means improved project performance. It is evident from the existing literature that community involvement is critical on a global scale, enhancing social capital, which is needed for maintaining water and sewerage projects as well as strengthening technical and operating aspects.

At the regional level, community involvement continues to be a significant determinant of project success in East Africa and the region as a whole. In a quantitative study of urban sanitation projects in Uganda, there was a positive correlation between increased community involvement and enhanced service delivery and completion rates, according to a survey conducted by Mugisha and Kato (2021). According to their observation, water and sanitation projects become more effective due to local resident involvement in decision-making and implementation that generates a feeling of responsibility and ownership.

In the same perspective, Houghton and Muchemi (2023) also established that community-based projects are more efficient and sustainable because they can respond better to needs at the local level, as well as being in the position to obtain better community acceptance. Their research was qualitative and involved interviews and focus groups from the East African region. From these local studies, local participation is critical in adapting the projects to the various environments in the region so that good outcomes are achieved. Consistent with the research, engaging communities in decision-making could help to overcome such hindrances by ensuring projects are better suited to community needs and expectations and thus improve accountability and innovation. These results highlight the importance of engaging communities at the regional level in spanning gaps between management solutions and local conditions.

There is a huge knowledge gap because the role of community involvement in water and sewerage projects has not been comprehensively researched in the region, for Kiambu Town and surroundings. Although more general studies like those by Nair and Tiwari (2022) and Mugisha and Kato (2021) are useful, they tend to be drawn from rural or regional situations and do not help as much with how the unique problems of urban locales like Kiambu Town are addressed. Urban areas like these have unique

issues such as high population densities and sophisticated infrastructure, which influence how local involvement results in project success. Besides, while the World Bank (2018) and Mekonnen and Gerber (2017) view community participation as a pathway to strengthen accountability and mitigate corruption, they don't explore how different levels of participation—such as participation at the planning level versus the implementation level—affect particular elements of service delivery and maintenance in cities.

Furthermore, few data exist on participatory practices' dynamics in Kiambu Town local government, including how institutional platforms and policies support or hinder the involvement of the community in water and sewerage development projects. The question of how long-term engagement after project completion impacts long-term water infrastructure performance and sustainability has not been answered by the lack of empirical studies in the local environment. To formulate context-specific solutions that take into consideration the realities in Kiambu Town and enable maximum utilization of water and sewerage services in urban Kenya, it is imperative that these knowledge gaps are filled.

1.8 Methodology

The descriptive approach enabled the exploration and description of the influence of community engagement and the performance of water and sewerage works in Kiambu Town. For a comprehensive understanding, both qualitative and quantitative methods were applied in this study. Quantitative data gave measurable evidence whereas qualitative data accrued from focus groups and interviews provided the context and in-depth insights into participants' understanding and experiences with the influence of community engagement on the performance of water and sewerage works in Kiambu Town.

The study was undertaken in Kiambu Town, the county administrative center, and the main urban center in Central Kenya. The Town of Kiambu is located some 10 km north of Nairobi's northern boundary and some 25 km away from the Nairobi CBD, at a latitude of 1°9′S and longitude 36°49′E. Kiambu Town administrative division is made up of three wards, namely Kiambaa, Gitaru, and Ndumberi; these wards together form Kiambu Constituency. According to the 2019 Kenya Population and Housing Census, the population of Kiambu Town was 147,870 people. The town center (including the vicinity of Kiambu High School and the central business district) has a population density of over 6,000 people per square kilometer, while the peri-urban outlying neighborhoods have a population density of roughly 1,500 people per square kilometer. The Kiambu Water and Sewerage Company, which provides services to an estimated 200,000 customers (including residential and small-scale commercial connections) throughout Kiambu Town and surrounding wards, is in charge of this jurisdiction of interest, which includes the three municipal wards. The study's focus was on households and institutions located within the Kiambaa, Gitaru, and Ndumberi wards' municipal boundaries, which together bear administrative responsibility for local planning and service provision. About 50 km of piped water mains, 30 km of sewer trunk lines, and three treatment facilities at Gachie, Gitaru, and Ndumberi make up the water and sewerage network under the service area of Kiambu Water and Sewerage Company. These facilities receive wastewater from more than 5,000 sewer connections and provide water to more than 20,000 metered connections. The study area offered a suitable setting for evaluating how community engagement affects water and sewerage service performance across varying degrees of urbanization and population density because it included both rapidly developing peri-urban areas (like Ndumberi Hills) and well-established urban neighborhoods (like Kiambu Town center, Gitaru Estate). A well-defined sampling frame was also made possible by the municipal boundary, guaranteeing that households, funding and government representatives, and M&E officers operating within this jurisdiction were all included in the study.

Key participants in or directly impacted by the Kiambu water supply and sewerage project made up the study's target population. Among these were 1,500 communal homes, mostly in Kiambu Town and the surrounding suburbs. The study population consisted of 340 finance officers from the different agencies and institutions that financed the project, including the households. According to stakeholders' records and project finance agreements, these officers are selected from both domestic and foreign financing agencies. There are 350 government officers at various levels of government, from national government ministries, county water boards, and local municipality leaders, who are involved in the regulation, supervision, and implementation of the water and sanitation project in Kiambu County.

Table 1: Total Population Distribution

Categories	Target Population
Community Households	1,500
Funding Officials	340
Government Officials	350
Monitoring and Evaluation Officers	10
Total	**2200**

Source: (Kiambu Water Registry, 2022)

Sampling Procedure: In this study, the sample frame constituted project stakeholders and members of the management committee of Construction of Kiambu water supply and sewerage project. For the purpose of choosing participants from whom information was gathered, purposive sampling was also used alongside simple random sampling. However, rather than relying solely on the registry, other stakeholder groups, including government and funding officials, were added based on project documentation and governance structures. Representatives of the different funding organizations and agencies that provided financial support for the Kiambu water supply and sewerage project are represented by funding officials. These could include representatives of financial institutions, development partners, and donor organizations that have funding agreements for the project. According to project records, there are 340 designated representatives across these funding bodies. The 350 government officials in this category come from departments at the local, state, and federal levels of government that were involved in the project's implementation, oversight, or regulation. To guarantee the project's successful completion, their responsibilities included project supervision, policy creation, regulatory compliance, and coordination between various governmental levels. The sample size was determined using Yamane's 1967 sample size formula. Based on the given formula,

$$n = \frac{N}{1 + N(e)2}$$

Where;

n is the sample size

N is the target population

e is the error = 0.05

$$n = \frac{2190}{1 + 2190(0.05\ )2}$$

= 338

Table 2 shows the sample size distribution. Each group was represented proportionately because the sample size was divided among the categories based on proportional allocation in relation to their

population sizes. The following formula was used to determine the sample sizes for government officials, funding officials, and community households: Government officials: 350/2190×338≈54, funding officials: 340/2190×338≈52, and community households: 1500/2190×338≈232. As indicated in Table 2, the sample sizes were somewhat modified due to rounding and pragmatic considerations.

Table 2: Sample Size

Categories	Target Population	Sample Size	Sampling Procedure
Community Households	1,500	232	Simple random sampling
Project Management Officials	340	52	Simple random sampling
Government Officials	350	54	Simple random sampling
Monitoring and Evaluation Officers	10	10	Purposive Sampling
Total	**2200**	**348**	

Source: Yamane (1967)

Data Collection Methods: Information was acquired via the use of questionnaires and interview guides. This data collection technique used structured questionnaires. The questionnaire was administered to community households, funding officials, and government officials. There were both open-ended and closed-ended questions on a Likert scale in the semi-structured survey. In order to gather information useful for making assertions, questionnaires were created based on the indicators used to assess the variable. The interview guides were used to gather qualitative data from the workers, who were the main sources of information.

1.9 Study Findings

Questionnaire return rate

From the field data, 304 of the 338 administered questionnaires were returned and filled up, giving the research an acceptable questionnaire return rate of 89.94%. The return rate indicates legitimate data for analysis, which in this case is acceptable and greater than the universally accepted 50% threshold required in social science research. The reasons behind the 34 unreturned surveys could vary from survey fatigue, respondent absence, lack of interest, or loss of questionnaire. Some may have had problems with literacy, interpreted the intention of the research wrongly, or worried about anonymity. Retrieval could also have been hampered by logistical problems like poor contact details or moving location.

Thematic findings

Community Involvement and Performance of Water and Sewerage Projects in Kiambu Town, Kiambu County

This study sought to investigate the influence of community involvement on performance of water and sewerage projects in Kiambu Town, Kiambu County. The findings of the study are as shown in subsequent subheadings

Descriptive Statistics

The respondents were asked to indicate the extent to which community involvement is a contributing factor of performance of water and sewerage projects in Kiambu Town, Kiambu County. The result findings are as shown in Table 3.

Table 3: Community Involvement and Performance of Water and Sewerage Projects in Kiambu Town, Kiambu County

Statement	SD F %	D F %	N F %	A F %	SA F %	Mean	Std. Dev
Community involvement in water and sewerage projects leads to better project acceptance and support	13 (4.3%)	0 (0%)	40 (13.2%)	152 (50%)	99 (32.6%)	4.109	0.786
Projects that actively involve the community are more likely to meet the needs and preferences of local residents	5 (1.6%)	7 (2.3%)	50 (16.4%)	94 (30.9%)	148 (48.7%)	4.227	0.918
Projects that actively involve the community are not likely to meet the needs and preferences of local residents	161 (53%)	87 (28.6%)	37 (12.2%)	9 (3%)	10 (3.3%)	1.75	1.003
Community involvement improves the performance and long-term success of water and sewerage projects	0 (0%)	0 (0%)	28 (9.2%)	116 (38.2%)	160 (52.6%)	4.434	0.657
Engaging the community in decision-making processes enhances transparency and accountability in water and sewerage projects	44 (14.5%)	87 (28.6%)	9 (3%)	39 (12.8%)	125 (41.1%)	3.375	1.583
Engaging the community in decision-making processes does not enhance transparency and accountability in water and sewerage projects	159 (52.3%)	99 (32.6%)	35 (11.5%)	10 (3.3%)	1 (0.3%)	1.668	0.831
Community involvement fosters a sense of ownership and responsibility for water and sewerage infrastructure among local residents	0 (0%)	10 (3.3%)	42 (13.8%)	87 (28.6%)	165 (54.3%)	4.339	0.837
Community involvement does not foster a sense of ownership and responsibility for	157 (51.6%)	98 (32.2%)	38 (12.5%)	10 (3.3%)	1 (0.3%)	1.684	0.840

water and sewerage infrastructure among local residents'		
Overall Composite Mean and Std Deviation	**3.198**	**0.932**

Source: *Field data, 2024*

Community participation was found to have significantly improved the performance and effectiveness of water and sewerage projects in Kiambu Town (mean= 4.434, SD=0.657). Active participation from local residents increases compliance to project development with the needs and priorities and foster accountability, which creates efficiency and sustainability over the lifetime of projects. Therefore, community involvement in project planning serves to enhance performance and viability. Development of ownership and responsibility feeling among citizens has been named as a key result of community participation (mean 4.339, SD .837), Involving residents in feeling that they belong to a project leads them more to upkeep and protect the infrastructure, which contributes to its functionality and longevity in relation to water and sewerage systems. Therefore, community ownership is essential for the sustainability of such initiative.

Projects that actively engaged the community were identified as being more likely to satisfy the needs and wishes of the local people (mean = 4.227, SD = 0.918). Conversely, the belief that community involvement does not help align projects to local needs obtained a much lower mean score (mean = 1.750, SD = 1.003). This confirms that community input in project planning enhances service delivery. Therefore, inclusive project approaches are essential for meeting local expectations and demands. Community participation was also said to increase project acceptance and support (mean = 4.109, SD = 0.786). Stakeholder buy-in is improved through inclusivity of all these in project implementation and will lessen the resistance by such projects. When communities feel heard and considered, they are more likely to support and safeguard the project. Engagement strategies prioritizing inclusivity thus become useful in improving the chances of the success of projects.

The community has been considered moderately engaged in decision-making processes, which could help improve the transparency and accountability of projects (mean = 3.375, SD = 1.583). When key project discussions included participation of residents, this tends to build trust on management activities. Risks of mismanaging funds as well as corruption reduce and governance conditions become improved. Participation in decision-making strengthens the credibility of project implementation. The contrary view, that community-engagement does not help transparency and accountability, attracted a very low mean score (mean = 1.668, SD = 0.831). This further substantiates the argument regarding having the local stakeholders involved to have improved project oversight and legitimacy. Transparent processes build trust and encourage continuing work together. In the end, participatory approaches are important for ensuring long-term success in project delivery and integrity within governance.
In addition, key informants indicated that:

> **KI6 opined that:** *"Community involvement in the success of water and sewerage projects in Kiambu Town goes a long way. There are continuous engagement of community members through stakeholder meetings, participatory planning meetings, and consultations with traditional authorities to take care of their needs and interests. For example, in one project, we*

set up a community-based monitoring team that worked with the engineers in identifying issues such as leakage and illegal connections" (K16, 2024).

KI7 noted that: *"This not only enhanced project performance but also affected ownership in the eyes of the community, resulting in enhanced operational performance and lower levels of vandalism. However, people sometimes resisted the new infrastructure; community interests conflicted; and sometimes information was misleading, all of which gave us a hard time. 'To this end, we heavily emphasize continuous community sensitization, sustained clear communication, and capacity-building workshops to achieve common expectations and ensure cooperation" (K17, 2024).*

These findings align with previous research emphasizing the role of community engagement in enhancing project outcomes. For instance, Omondi, Odek, and Siringi (2020) examined community involvement in water and sanitation projects run by the Kisumu Water and Sanitation Company (KIWASCO) and found that while project managers possessed experience, there was still a need for professional development opportunities. Their study highlighted that accountability, innovation, and technological adoption are crucial for project success, yet many KIWASCO projects lacked modern technologies, compromising performance. Similarly, Houghton and Muchemi (2023) demonstrated through qualitative research that water projects in East Africa achieve greater performance when communities are actively engaged in planning and implementation.

Inferential Statistics

a) *Correlation Analysis for Community Involvement and Performance of Water and Sewerage Projects*

A Pearson correlation analysis was 'conducted to examine the relationship between community involvement (independent variable) and Performance of Water and Sewerage Projects (dependent variable). The correlation coefficient (r) was computed to assess the strength and direction of the relationship.

Table 4: Correlation Analysis for Community Involvement and Performance of Water and Sewerage Projects

	Performance	Project Planning
Performance	1	0.763
Sig. (2-tailed)	0.000	0.000
N	303	303
Community Involvement	0.763	1
Sig. (2-tailed)	0.000	
N	303	303

Source: ***Researcher, 2024***

The results in Table 4 indicate that there was a positive and high correlation between community participation and Performance of Water and Sewerage Projects ($r = 0.763$, $p < 0.000$). This indicates that there was increased community participation that is associated with increased performance of water and sewerage projects in Kiambu Town.

b) Regression Analysis for Community Involvement and Performance of Water and Sewerage Projects

Regression analysis was employed in assessing the impact of community involvement on Performance of Water and Sewerage Projects in Kiambu Town. The coefficient of determination (R^2) was computed for the purpose of determining how much of the variability in project performance was accounted for by capacity building.

Table 5: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763[a]	0.582	0.573	0.442

Source: Researcher, 2024

As indicated by the results in Table 5, community involvement accounts for 58.2% of the variability (R^2 = 0.582) in the Performance of Water and Sewerage Projects.

Table 6: ANOVA Results

Source	Sum of Squares	Df	Mean Square	F	Sig.
Regression	109.9	1	109.9	269.92	0.000[b]
Residual	126.236	302	0.418		
Total	**236.136**	**303**			

Source: Researcher, 2024

The ANOVA results in Table 6 indicate that the regression model is statistically significant (F = 269.92, $p < 0.000$), indicating that there is a significant influence of community involvement on the performance of water and sewerage projects in Kiambu Town.

Table 7: Regression Coefficients

	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	33.93	2.454		13.82	0.000
Community Involvement	0.473	0.073	0.045	6.479	0.000

Source: Researcher, 2024

The resulting regression model is:

$Y=33.93+0.473X_1+\varepsilon$

Where:

Y = Performance of Water and Sewerage Projects

X_1 = Community Involvement

ε=Error

The regression coefficient results (Table 7) reveal that community participation is positively and significantly associated with Performance of Water and Sewerage Projects ($\beta = 0.473$, $p < 0.000$).' This shows that, with one-unit increase in community participation, there is an increase in 'Projects Performance' by 0.473 units. The findings reveal that project acceptance and ownership and project conduciveness to local needs improve outcomes. Past research also shows that projects with more of a community participation have been successful because there is greater accountability and transparency. This research recommends the application of community engagement practices to improve water and sanitation project long-term performance in Kiambu Town. In line with the research outcome, Nair and

Tiwari (2022) reported that community participation in rural India water and sanitation projects led to better management of the resources, maintenance, and better project ownership, verifying the relationship of involvement and project performance. Ananga et al. (2020) also added that community participation enhances social connections and collaboration, improved resilience, and improving long-term project performance.

1.10 Conclusion

After carrying out this study, it was realized that, participation by the community is greatly increased by the provision of water and sewerage works. There is greater acceptance, ownership, and congruence with community needs when there is community participation in decision making and in the implementation of the project. For providing a platform for establishing trust and for reducing resistance, participatory processes such as open consultation, feedback mechanisms, and continuing communication are essential, as states the study. Community perception contributes to the success of the projects in addressing the water and sanitation requirements and again to their contextual nature.

1.11 Study recommendations

Policy guidelines must incorporate community engagement to improve the performance of Kiambu Town water and sewerage projects. National governments and local governments are required to enact legislation that makes preliminary stakeholder consultation among communities, local government authorities, and private sector participants mandatory. This will guarantee transparency, improve responsiveness, and ensure the sustainability of water and sanitation programs. Project implementers have to implement inclusive, systematic strategies that highlight monitoring in real-time, continuous technical and managerial capacity building, and needs-based planning. The project cycle must incorporate regular stakeholder forums, technical training workshops, and community education schemes. Moreover, the implementation of community feedback mechanisms such as advisory boards will build project ownership, improve service delivery, and enhance accountability for every stakeholder.

References

African Development Bank (AfDB). (2021). *Regional Project Management Practices*. African Development Bank Group.

African Development Bank. (2020). *Water and Sanitation Overview*. AfDB.

Ananga, E. O., Agong', S. G., Acheampong, M., Njoh, A. J., & Hayombe, P. (2020). Examining the effect of community participation on beneficiary satisfaction with the work of water management committee in urban community-based operated water schemes. *Sustainable Water Resources Management*, *6*, 1-13.

Chambers, R. (1993). Challenging the professions: Frontiers for rural development. London: Intermediate Technology Publications.

Department of Water and Sanitation. (2019). *National Water and Sanitation Master Plan*. South African Government.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). Wiley.

Gandhi, J. (2011). Operation and Maintenance for Rural Water Service. WELL Briefing Note 15. Water Engineering and Development Centre (WEDC), Loughborough University, Leicestershire, UK.

Government of Kenya. (2023). *National Government Project Management Guidelines*. Government of Kenya.

Hacker, K., Tendulkar, S. A., Rideout, C., Bhuiya, N., Trinh-Shevrin, C., Savage, C. P., ... & DiGirolamo, A. (2012). Community capacity building and project performance: outcomes of community-based participatory research. *Progress in community health partnerships: research, education, and action*, *6*(3), 349.

Houghton, R., & Muchemi, P. (2023). Community engagement and its impact on the success of water projects in East Africa. *African Journal of Water Resources*, *10*(2), 56-72.

Houghton, R., & Muchemi, P. (2023). *Community Participation in Water Projects: A Case Study of Kenya*. Oxford University Press.

International Water Association (IWA). (2023). *Challenges in Water and Sewerage Management*. International Water Association.

Kariuki, M., Omondi, R., & Karanja, N. (2023). *Infrastructure Challenges in Urban Water Supply*. Springer.

Kaufmann, C., & Kock, A. (2022). Does project management matter? The relationship between project management effort, complexity, and profitability. *International Journal of Project Management*, *40*(6), 624-633.

Kenya National Bureau of Statistics (KNBS). (2021). *Economic Survey 2021*. Nairobi: Government of Kenya.

.

Kifanyi, G. E., Shayo, B. M. B., & Ndambuki, J. M. (2022). Performance of community based organizations in managing sustainable urban water supply and sanitation projects. *International Journal of Physical Sciences*, *8*(30), 1558-1569.

Kihara, J. M. (2011). Managing Water Service Providers In Kenya, "A Case For Good Corporate Governance. Nairobi, KE: MBA Thesis

Mahi, M., Lamzouri, K., Ouatar, S., Hadraoui, A., Bartali, E. L., & Mandi, L. (2018). Improving sanitation Project Management for Unsewered rural communities in Morocco. *Int J Comput Eng Info Technol (IJCEIT)*, *2*(1), 34-41.

Mekonnen, M. M., & Gerber, N. (2017). Influence of Community Involvement on the Project performance of Rural Water Supply Schemes: Case of Shebedino, Ethiopia. Journal of Water, Sanitation and Hygiene for Development, 7(2), 300–310.

Mugisha, J., & Kato, J. (2021). Effectiveness of community participation in urban sanitation projects in Uganda. *Development Policy Review*, *39*(4), 512-527.

Nairobi Water. (2021). *Nairobi City Water and Sewerage Company Annual Report 2020/2021*. NCWSC.

National Water and Sewerage Corporation. (2021). *NWSC Annual Report 2020/2021*. NWSC.

Njenga, G., & Omondi, A. (2023). *Effective Monitoring and Evaluation of Water Projects*. Palgrave Macmillan.

Njuguna, H. G. (2014). *Factors influencing project performance of donor funded projects: The case of water and sanitation projects in Laikipia east District, Laikipia County, Kenya* (Doctoral dissertation).

Project Management Institute (PMI). (2022). *PMBOK Guide*. Project Management Institute.

United Nations Development Programme (UNDP). (2023). *Climate Change and Water Resources in Africa*. United Nations Development Programme.

White, H. (1999). "Politicising Development? The Role of Participation in the Activities of Aid Agencies," Chapter 7 in Ken Gupta (editor) Foreign Aid: New Perspectives, Kluwer Academic Press, Boston Pp: 109-125.

World Bank. (2018). Community Engagement in Urban Water Supply and Sanitation. World Bank Group.

World Bank. (2019). *Greater Cairo Wastewater Management Project*. World Bank.

World Health Organization (WHO). (2022). *Global Status Report on Water and Sanitation*. World Health Organization.