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Project Planning and Sustainability of Urban Water Projects in Ruaka Sub-Locaton, Kenya

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Abstract: *The purpose of this research was to investigate the influence of project planning on the sustainability of urban water projects in Ruaka Sub-Location, Kenya. The specific objectives focused on stakeholders' involvement; objectives clarity; feasibility assessment levels; and risk planning. The study was guided by Systems Theory. The study employed a descriptive research design. The study targeted stakeholders involved in urban water projects in Ruaka Sub-Location, whose total population was 10,069. A sample size of 398 participants was determined using Yamane's formula $n=N/1+Ne^2$ at a 95% confidence level ($e = 0.05$), incorporating simple random and purposive sampling techniques. Data was collected using questionnaires, interview guides, and observation checklists, with a pilot study conducted to test validity and reliability using Cronbach's alpha. Quantitative data was analyzed using descriptive statistics and inferential statistics with the help of SPSS v26, while qualitative data was analyzed using thematic content analysis. The findings from both descriptive and inferential analyses revealed that project planning has a statistically significant and positive influence on sustainability. Project planning was found to significantly enhance sustainability through improved clarity of objectives, stakeholder involvement, resource allocation, and alignment with community needs. Correlation analysis showed a strong positive relationship with sustainability ($r = 0.712$, $p < 0.05$), while regression results indicated that project planning was a significant predictor of sustainability ($\beta = 0.318$, $p < 0.05$). The model explained a substantial proportion of variation in sustainability outcomes ($R^2 = 0.659$), reinforcing the critical role of planning in enhancing long-term performance of urban water projects. The study concludes that project planning significantly enhances sustainability of urban water projects in Ruaka Sub-Location. The study recommends strengthening capacity building and collaboration among different stakeholders to increase the sustainability of water projects in Ruaka Sub-Locaton.*

Key words: *Project Planning; Project Sustainability; Urban Water Projects; Systems Theory; Stakeholders' Involvement*

1.1 Background of the Study

Water remains a fundamental resource for human survival and socio-economic development. Despite being recognized globally as a basic human right, access to safe and reliable water for domestic and productive use continues to pose a significant challenge across both urban and rural settings (Nehaluddin & Lilienthal, 2021). Reader (2022) opined that contemporary development discourse increasingly emphasizes not only access to water but also the sustainability of water systems as a critical determinant of human well-being and economic progress.

At the global level, both developed and developing countries continue to grapple with sustainability challenges in water projects, albeit in different forms. In China, rapid urbanization and industrialization have placed immense pressure on water resources, necessitating improved planning and regulatory enforcement to ensure sustainability (Shen & Fan, 2025). In Japan, although water infrastructure is highly developed, sustainability concerns have emerged due to population decline, high maintenance costs, and the need for efficient asset management strategies (Kawase et al., 2021). Sustainable water project performance is essential for promoting inclusive economic growth and improving living standards (Avidar, 2024). Regionally, Sub-Saharan Africa continues to face acute challenges in sustaining water infrastructure due to rapid population growth, urbanization, and institutional weaknesses (Nyika & Dinka, 2023). In Nigeria, research indicates that inadequate planning and lack of community participation contribute to the failure of water supply projects (Omokaro et al., 2024).

Reports from Kenya indicate that, many water projects fail to deliver long-term services due to poor planning, inadequate maintenance, and weak financial management practices (Mulwa et al., 2021). Water Services Regulatory Board [WASREB], 2023). Water scarcity further represents a broader socio-economic challenge, closely linked to poverty, health outcomes, and social inequalities. Recent discourse emphasizes that, implementation strategies particularly project planning, financial management, and maintenance practices play a pivotal role in determining the long-term sustainability of water projects (Farouk et al., 2024). Effective planning ensures that projects are contextually relevant and technically feasible, while sound financial management supports resource allocation, cost recovery, and operational efficiency.

At the local level, Kiambaa Sub-County in Kiambu County, where Ruaka Sub-Location is situated, exemplifies these challenges. Rapid urban growth, driven by proximity to Nairobi and expansion of infrastructure, has significantly increased demand for water services. However, water supply in the area remains inadequate, with existing systems meeting only a fraction of the demand. Although institutions such as the Athi Water Works Development Agency and local water service providers aim to enhance service delivery, challenges related to planning continue to hinder sustainability. Therefore, this study examined the influence of project planning on the sustainability of urban water projects with the moderating role of regulatory authority in Ruaka Sub-Location, Kiambu County, Kenya.

1.2 Statement of the Problem

Sustainable urban growth largely depends on reliable access to safe, affordable, and dependable water supply systems, which remain a fundamental human necessity and a critical driver of socioeconomic development in urbanised environments. Urban water projects are expected to achieve efficient service delivery, operational reliability, cost effectiveness, and long-term sustainability through effective implementation strategies such as proper project planning (UN-Habitat, 2022). Despite significant investments and reforms within Kenya's water sector, sustainability of water projects in rapidly urbanising areas remains a persistent challenge. In fast-growing settlements such as Ruaka Sub-Location in Kiambu County, accelerated urbanization has increased pressure on existing water supply systems, yet many water projects struggle to achieve reliability, efficiency, and sustainability (Mwangi & Wanyoike, 2024). Research on urban infrastructure projects in Kenya demonstrates that inadequate project planning and many other factors contribute to underperformance of public infrastructure initiatives, water projects included. (Musyoka & Mutisya, 2023). There remains insufficient empirical evidence linking specific implementation strategies, particularly project planning to measurable

sustainability outcomes of urban water projects. This study, therefore, examined the influence of project planning on the sustainability of urban water projects in Ruaka Sub-Location, Kiambu County, while assessing the moderating role of regulatory authority.

1.3 Study Objective

1.3.1 General Objective

To assess the influence of project planning on the sustainability of urban water projects in Ruaka Sub-Location, Kiambu County.

1.3.2 Specific Objectives

a) To assess the level of stakeholders involvement on sustainability of water projects in Ruak Sub-County, Kenya.
b) To examine the influence of clarity of objectives on sustainability of water projects in Ruaka Sub-County, Kenya.
c) To assess the influence of feasibility assessments on sustainability of water project in Ruaka Sub-County Kenya.
d) To establish the influence of risk planning on sustainability of water projects in Ruaka sub-county, Kenya.

1.4 The Conceptual Framework

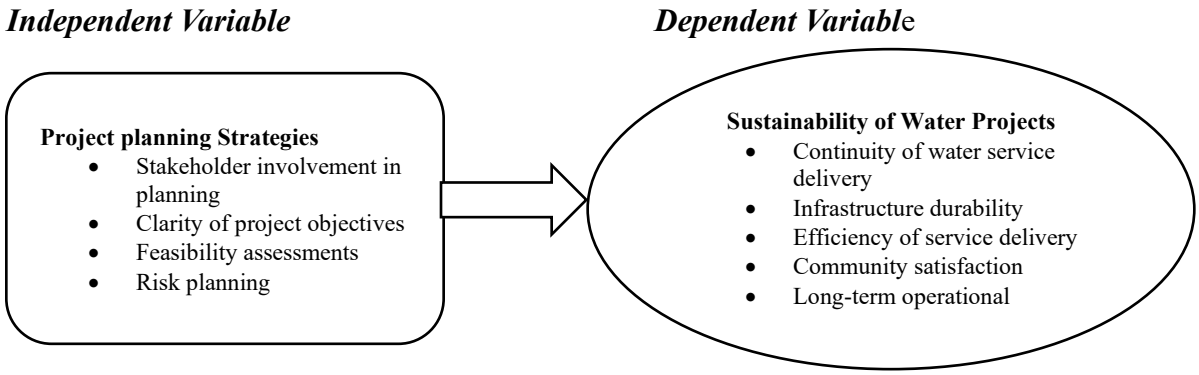

Figure 1: *The Conceptual Framework*

1.5 Literature Review

In this section, theoretical and empirical reviews are presented

1.5.1 Theoretical Review

Systems Theory

Systems Theory, initially advanced by Ludwig von Bertalanffy (1968), conceptualizes organizations and projects as interconnected systems, where each component interacts with others to achieve overall functionality and sustainability. The theory emphasizes that outcomes are not determined by individual elements in isolation but by the relationships and interdependencies among system components. In essence, a change in one element such as project planning, financial management, or stakeholder engagement affects the performance of the entire system (Cabrera & Cabrera, 2023).

A central tenet of Systems Theory is that knowledge and processes are socially constructed, aligning with interpretive and constructivist perspectives (Lo & Liu, 2023). In this framework, stakeholders collectively shape project implementation by contributing insights, making decisions, and coordinating activities, which ensures that water projects are responsive to community needs and adaptable to changing environmental or socio-political conditions (Lim et al., 2022). Empirical evidence demonstrates that water projects in both global contexts and African countries achieve higher sustainability when systems-based approaches are applied, particularly when planning, financial, and maintenance processes are integrated with strong stakeholder engagement (Sigalla et al., 2021).

Within the context of urban water projects, Systems Theory explains how implementation strategies interact to influence the sustainability of water projects. The theory posits that project success depends on understanding these interconnections and ensuring that all components work synergistically (Pluchinotta et al., 2021). For instance, effective planning alone will not guarantee sustainability unless it is complemented by adequate financial oversight, active community engagement, and timely maintenance. Similarly, stakeholder participation enhances system resilience by enabling knowledge sharing, problem-solving, and resource mobilization (Karamouz, 2021).

Strengths of Systems Theory include its holistic orientation, ability to capture complex interdependencies, and emphasis on coordination and participation among stakeholders. It facilitates proactive problem-solving and promotes long-term sustainability by encouraging comprehensive consideration of technical, social, and organizational factors (Albakri & Wood-Harper, 2025).

Criticisms, however, point to its complexity and the assumption that all system components will act rationally and cooperatively, which may not reflect real-world dynamics where conflicts, political pressures, or resource constraints exist (Albin & Foley, 2021). Additionally, the theory offers limited guidance on prioritizing interventions when multiple interconnected factors compete for attention. Nevertheless, its strengths make it a valuable framework for examining how implementation strategies, moderated by regulatory authority, influence the longevity and effectiveness of urban water projects in rapidly urbanizing areas such as Ruaka Sub-Location, Kiambu County.

1.5.2 Empirical Review

Project Planning and Sustainability of Urban Water Projects

Project planning is a critical determinant of the sustainability of urban water projects, as it establishes the framework for resource allocation, stakeholder engagement, scheduling, and risk management. Globally, the sustainability of water projects is increasingly recognized as central to achieving long-term access to safe drinking water, particularly in rapidly urbanizing regions. In China, Yang et al. (2021) found that urban water projects incorporating multi-year planning, robust monitoring, and adaptive management frameworks were significantly more likely to maintain continuous service delivery despite population growth and fluctuating water availability. Similarly, in Japan, Tanaka and Suzuki (2021) reported that urban water systems with integrated disaster risk assessments, technological forecasting, and long-term resource planning achieved high sustainability levels, even in municipalities facing extreme climatic variability. These studies highlight that effective project planning extends beyond physical construction, emphasizing proactive monitoring, stakeholder engagement, and adaptive management as central to long-term functionality.

Regionally, evidence from Africa underscores the critical role of participatory and well-structured project planning in ensuring water project sustainability. In South Africa, integrated urban water planning that incorporates climate projections, demographic changes, and stakeholder coordination has been shown to enhance resilience and continuity of service in peri-urban communities (Adu, 2025). In Ghana, Ansaah et al. (2024) found that water projects designed through participatory planning demonstrated higher maintenance rates, improved functionality, and stronger community ownership. Conversely, projects with limited stakeholder involvement or poorly defined plans often failed within a few years due to inadequate maintenance and disengaged communities. These findings underscored that sustainable outcomes are closely linked to thorough pre-implementation planning, resource forecasting, and the inclusion of all relevant actors throughout the project lifecycle.

At the national level, Kenya has experienced persistent challenges in sustaining urban water projects, particularly in rapidly urbanizing counties. Jacob and Moi (2024) studied public participation influence on the sustainability of water projects in Makueni County, employing a mixed-methods design with 120 project managers and 400 community members, and found that projects with comprehensive planning frameworks including detailed work plans, risk assessments, and stakeholder engagement recorded higher functionality and longevity. Njambi (2025) similarly reported that inadequate planning in Isiolo County, characterized by poor resource estimation, weak scheduling, and minimal stakeholder consultation, significantly reduced the sustainability of urban water systems. Bishoge (2021) further notes that in many Kenyan towns, urban water projects fail to meet current and future population demands due to underestimation of costs, insufficient maintenance planning, and weak institutional coordination. This study revealed that project planning is central to sustainability, particularly when planning incorporates realistic timelines, adequate financial management, effective stakeholder coordination, and post-implementation monitoring.

1.6 Methodology

Research Design: In this study, a descriptive survey research design was used. The design is appropriate as it supports the use of statistical techniques such as correlation and regression analysis to establish relationships between variables, including the moderating effect of regulatory authority. Mixed methods approach was also used to collect both qualitative and quantitative data.

Target Population: The target population comprised stakeholders involved in the implementation, regulation, and utilization of urban water projects in Ruaka Sub-Location, Kiambu County, Kenya. These included water service providers, regulatory institutions, water vendors, and consumers who interact directly with urban water systems. According to local administrative records (2025), Ruaka Sub-Location has an estimated population of 10,056 water consumers, alongside key institutional stakeholders and service providers, forming a total target population of 10,069 respondents.

Sampling and Sampling techniques: This research used Yamane's formula to produce a representative sample. The formula is $n = N / (1 + N e^2)$, where n represents sample size, N denotes population, and e signifies margin of error. Upon calculation, $n = 10,056 / (1 + 10,056 \times 0.05 \times 0.05) = 384.697$, rounded to 385 participants for the sub location which was selected in this study using simple random sampling techniques. Key informants, that is, water company managers, engineers and technicians of the local water company that serves Ruaka Sub-Location. Therefore, the total sample size of this study was 398

participants comprising of 385 water consumers (Households, small businesses, rental tenants and apartment dwellers and informal settlement residents), alongside 3 key institutional stakeholders and 10 service providers as seen in Table 1.

Table 1: Sample Size Matrix

Clusters	Sample Size	Sample technique
Karuri Water and Sanitation Co. Ltd.	1	Purposive
Athi Water Works Development Agency	1	Purposive
Kenya Bureau of Standards	1	Purposive
Purified Water Bottling Companies / Water Kiosk Vendors	10	Purposive
Ruaka Water Consumers	385	Simple random sampling
Total	**398**	

Source: *Researcher (2026)*

Data Collection Instruments: In this study quantitative data was collected using questionnaire which was administered to Ruaka Water Consumers (Households, small businesses, rental tenants and apartment dwellers and informal settlement residents) while interview guide was used to collect qualitative data from key informants (water company managers, engineers and technicians of the local water company that serves Ruaka Sub-Location). An observation guides was also used in collecting data.
Data Analysis Techniques: In this study, data from questionnaires and interviews will be analyzed using both quantitative and qualitative methods to ensure a comprehensive understanding of the phenomena. Quantitative data was coded and analyzed using SPSS version 30. Descriptive statistics, including frequencies, percentages, means, and standard deviations, was computed to summarize respondents' characteristics and responses on project planning under regulatory influence on the sustainability of urban water projects. Inferential statistics, including Pearson's correlation and Multiple Linear Regression analysis to analyze each objective of the study.
Qualitative data obtained from open-ended questions and interviews was analyzed through thematic analysis.

1.7 Research Findings

Respondents' Return Rate: This section presents the response rate of participants who took part in the study. The study employed simple random and purposive sampling approach to ensure representation across different patient categories. While the total target sample size was 398 participants comprising of 385 water consumer participants, alongside 13 key informants. Table 2 show response rate.

Table 2: Response Rate

Category	Target Sample Size	Actual Responses	Response Rate (%)
Water Consumer Participants	385	379	98.4%
Key Informants	13	13	100.00%
Total	**398**	**392**	98.5%

Source: *Field Data (2026)*

Table 2 presents the response rate of participants drawn from water consumer participants and key informants. Out of the 398 questionnaires administered, 392 were completed and returned, resulting in a response rate of 98.5%. All 13 key informants participated in the interviews, yielding a 100.0% response rate for qualitative data. Overall, the study achieved a high response rate of 98.5%.

Project Planning and the Sustainability of Urban Water Projects

The study objective assessed how project planning influence the sustainability of urban water projects in Ruaka Sub-Location, Kiambu County. It specifically examines respondents' views on aspects such as stakeholder involvement in planning, clarity of project objectives, feasibility assessments, Fisk planning and alignment of project objectives with community water needs. Participants were asked whether effective project planning influences the sustainability of water projects in urbanized centers. The results were presented and interpreted in Table 3.

Table 3: Response on Effective Project Planning

n=379

	Frequency	Percent
Yes	341	90.0
No	38	10.0
Total	**379**	**100.0**

Source: *Field Data (2026)*

Findings in Table 3 show that majority of respondents, 341 (90.0%), indicated "Yes," while only 38 (10.0%) indicated "No." The results clearly demonstrate that effective project planning is widely perceived as a key determinant of the sustainability of urban water projects in Ruaka Sub-Location, Kiambu County. Respondents who answered "Yes" indicated that effective project planning is essential for the sustainability of urban water projects because it ensures proper budgeting and efficient allocation of resources, thereby minimizing wastage and reducing delays during implementation. They also noted that good planning promotes early identification of community needs and encourages stakeholder participation, which enhances ownership and acceptance of the projects. On the other hand, respondents who answered "No" argued that project planning alone does not guarantee the sustainability of urban water projects. They noted that even where planning is well done, poor implementation, corruption, and mismanagement of funds can still lead to project failure.

The overwhelming positive response suggested that most stakeholders recognize that well-structured planning processes such as clear objective setting, accurate budgeting, stakeholder involvement, and proper scheduling are essential for ensuring long-term functionality and efficiency of water projects. The strong agreement among respondents aligns with the findings of the Adu (2025), which emphasizes

that effective planning is a foundational element in the success and sustainability of infrastructure projects, including water supply systems.

Participants were further asked whether stakeholders adequately involved in planning water projects in Ruaka Sub-Location. The results were presented and interpreted in Table 4.

Table 4: Response on Stakeholders' Involvement in Project Planning
n=379

	Frequency	Percent
Yes	298	78.6
No	81	21.4
Total	**379**	**100.0**

Source: *Field Data (2026)*

Findings in Table 4 show that a majority of respondents, 298 (78.6%), indicated "Yes," while 81 (21.4%) indicated "No." These results suggested that most stakeholders perceive the planning process of urban water projects as relatively inclusive, with meaningful participation from key factors such as water company representatives, local leaders, civil servants, and community members. This implies that stakeholder engagement is being practiced to a considerable extent in project planning, which is important for enhancing transparency, accountability, and alignment of project objectives with community needs. However, the 21.4% of respondents who indicated "No" suggested that there were still gaps in inclusivity. This could point to instances where certain groups are excluded from planning processes, or where participation is limited to consultation rather than meaningful involvement in decision-making. Such gaps can lead to misalignment between project design and user needs, which may negatively affect sustainability outcomes. The findings are consistent with Yang et al. (2021) argue that stakeholder engagement in infrastructure planning improves project legitimacy and long-term performance. In addition, Tanaka and Suzuki (2021) note that participatory planning approaches in water governance significantly enhance efficiency and sustainability by incorporating diverse community perspectives.

Participants were asked to indicate their level agreement on the influence of project planning on the sustainability of urban water projects in Ruaka Sub-Location, Kiambu County using likert scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. Findings were presented in Table 5.

Table 5: Response on Influence of Project Planning on the Sustainability of Urban Water Projects

n=379

Statements	SD % F	D % F	N % F	A % F	SA % F	Mean	Std Dvt
Water projects are planned with clear timelines and milestones.	12 (3.2)	18 (4.7)	25 (6.6)	160 (42.2)	164 (43.3)	4.18	0.93
Community needs and feedback are considered during project planning.	10 (2.6)	22 (5.8)	30 (7.9)	155 (40.9)	162 (42.8)	4.15	0.94
Project objectives are clearly communicated to all stakeholders.	14 (3.7)	20 (5.3)	28 (7.4)	170 (44.9)	147 (38.8)	4.10	0.95
Planning includes provisions for future expansion and sustainability.	16 (4.2)	24 (6.3)	35 (9.2)	150 (39.6)	154 (40.6)	4.06	1.00
Stakeholders are actively involved in the decision-making process during project planning.	18 (4.7)	26 (6.9)	33 (8.7)	148 (39.1)	154 (40.6)	4.04	1.02
Composite Mean and Standard Deviation						4.11	0.97

Source: *Field Data (2026)*

From Table 5, in relation to the statement that water projects are planned with clear timelines and milestones, the highest response was Agree 160 (42.2%), followed by Strongly Agree 164 (43.3%), Neutral 25 (6.6%), Disagree 18 (4.7%), and Strongly Disagree 12 (3.2%), with a mean of 4.18 and a standard deviation of 0.93. The findings indicate a very high level of agreement that urban water projects in Ruaka Sub-Location are guided by clear timelines and milestones. This suggests that structured scheduling is a key strength in project planning and is perceived as essential for ensuring timely implementation and sustainability of water projects. These results are consistent with Yang et al. (2021), who noted that clearly defined project timelines enhance coordination and improve infrastructure project performance. Similarly, Tanaka and Suzuki (2021) emphasize that well-structured planning frameworks reduce delays and improve sustainability outcomes in water governance systems. Key informant interviews supported these findings. One key informant indicated that project timelines are usually established at the beginning of implementation, helping stakeholders track progress and allocate resources effectively. Another key informant noted that clear milestones make it easier to monitor contractor performance and ensure accountability, which strengthens project sustainability.

Regarding the statement that community needs and feedback are considered during project planning, the highest response was Agree 155 (40.9%), followed by Strongly Agree 162 (42.8%), Neutral 30 (7.9%), Disagree 22 (5.8%), and Strongly Disagree 10 (2.6%), with a mean of 4.15 and a standard deviation of 0.94. The findings indicate that most respondents perceive planning processes as participatory, with community needs being moderately well integrated into project design. This suggests that stakeholder engagement plays a key role in shaping water project priorities and improving acceptance of outcomes. These findings are supported by Adu (2025), who observed that incorporating community feedback in infrastructure planning enhances project relevance and sustainability. Ansaah et al. (2024) further emphasize that participatory planning improves ownership and reduces resistance during

implementation. Key informants corroborated these findings. One key informant stated that community consultations are often conducted before project implementation to identify priority water needs. Another noted that while consultations occur, some community suggestions are not always fully implemented due to budgetary and technical constraints.

On the statement that project objectives are clearly communicated to all stakeholders, the highest response was Agree 170 (44.9%), followed by Strongly Agree 147 (38.8%), Neutral 28 (7.4%), Disagree 20 (5.3%), and Strongly Disagree 14 (3.7%), with a mean of 4.10 and a standard deviation of 0.95. The findings indicate that communication of project objectives is generally effective, ensuring that stakeholders understand project goals and expected outcomes. This supports Jacob and Moi (2024), who argue that clear communication enhances coordination and reduces misunderstandings during project implementation. Key informants indicated that meetings and community forums are commonly used to communicate project goals. However, one informant noted that communication may sometimes be uneven, especially among marginalized groups who may not consistently attend meetings.

Regarding the statement that planning includes provisions for future expansion and sustainability, the highest response was Agree 150 (39.6%), followed by Strongly Agree 154 (40.6%), Neutral 35 (9.2%), Disagree 24 (6.3%), and Strongly Disagree 16 (4.2%), with a mean of 4.06 and a standard deviation of 1.00. The findings suggest that long-term sustainability considerations are generally incorporated into project planning, although not uniformly across all projects. This aligns with Njambi (2025), who notes that incorporating scalability and future demand projections is essential for sustainable water infrastructure. Bishoge (2021) similarly emphasizes that failure to plan for expansion often compromises long-term service delivery. Key informants supported this view. One indicated that some projects include future expansion plans, particularly where population growth is anticipated. However, another noted that budget limitations sometimes restrict the extent to which long-term expansion is fully incorporated.

On the statement that stakeholders are actively involved in the decision-making process during project planning, the highest response was Agree 148 (39.1%), followed by Strongly Agree 154 (40.6%), Neutral 33 (8.7%), Disagree 26 (6.9%), and Strongly Disagree 18 (4.7%), with a mean of 4.04 and a standard deviation of 1.02. The findings indicate that stakeholder participation in decision-making is generally high, although slightly lower compared to other planning aspects. This suggests that while engagement exists, it may not always be fully inclusive or consistent across all stages of planning. Yang et al. (2021) emphasize that meaningful stakeholder involvement enhances project legitimacy and sustainability, while Tanaka and Suzuki (2021) argue that participatory governance is critical in improving water project outcomes. Key informants provided mixed views. One noted that community representatives are often invited during planning meetings, while another indicated that final decisions are sometimes made by technical teams with limited community input. Therefore, the composite means of 4.11 and standard deviation of 0.97 indicated that respondents generally agree that project planning significantly influences the sustainability of urban water projects in Ruaka Sub-Location. The relatively low variation in responses suggests a high level of consensus among participants. These findings are consistent with Systems Theory, which views project planning as a critical subsystem whose effectiveness influences other interconnected components such as implementation efficiency, financial management, and maintenance performance.

Inferential analysis further confirmed the importance of project planning. Correlation analysis showed a strong positive relationship with sustainability ($r = 0.712$, $p < 0.05$), while regression results indicated that project planning was a significant predictor of sustainability ($\beta = 0.318$, $p < 0.05$). The model explained a substantial proportion of variation in sustainability outcomes ($R^2 = 0.659$), reinforcing the critical role of planning in enhancing long-term performance of urban water projects. The findings demonstrated that while project planning was largely effective in Ruaka Sub-Location, strengthening inclusivity and ensuring effective implementation were necessary to further enhance the sustainability of urban water projects.

1.8 Conclusion

The study concludes that project planning significantly enhances sustainability by improving clarity of objectives, stakeholder involvement, resource allocation, and alignment with community needs. Despite challenges such as limited inclusivity and implementation gaps, inferential results confirm its strong predictive effect on sustainability.

1.9 Recommendations

Based on the findings of the study on the influence of Project Planning on the Sustainability of Urban Water Projects in Ruaka Sub-Location, Kiambu County, Kenya, the following recommendations are proposed: - To strengthen project planning practices, water service providers in collaboration with the Kiambu County Government, Ministry of Water, Sanitation and Irrigation, and community stakeholders should institutionalize participatory planning frameworks. This should include structured stakeholder consultations, integration of community feedback, clear definition of project objectives, and incorporation of long-term sustainability and expansion plans. In addition, capacity-building programs for planners and project committees should be strengthened to enhance planning effectiveness and ownership.

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