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STAKEHOLDER MANAGEMENT PRACTICES AND SUSTAINABILITY OF NON-GOVERNMENTAL ORGANIZATION WATER SANITATION HYGIENE PROJECTS IN KITUI COUNTY, KENYA

[1]Indrick Nduku Mutuvi & [2]Dr. Phylis Mbutu

[1]Master of Science in Project Management, Jomo Kenyatta University of Agriculture and Technology, Kenya

[2]Lecturer, Jomo Kenyatta University of Agriculture and Technology, Kenya

ABSTRACT

Sustainability remains a critical concern in Water, Sanitation and Hygiene (WASH) projects, particularly in underserved rural communities where inadequate stakeholder involvement can undermine long-term outcomes. This study examined the relationship between stakeholder identification, stakeholder engagement and the sustainability of NGO WASH projects in Kitui County, Kenya. Guided by Stakeholder Theory and Communication Theory, the study adopted a descriptive research design. The unit of analysis comprised 100 WASH projects implemented by nine NGOs, while the unit of observation consisted of 288 stakeholders, including NGO project staff, school administrators, local leaders and county government officials. Using Yamane's formula, a sample of 167 respondents was determined, and stratified random sampling was applied. Data were collected using structured questionnaires and analysed through descriptive and inferential statistics. Pearson correlation results revealed positive and significant relationships between WASH project sustainability and stakeholder identification ($r = .612$, $p < .01$) and stakeholder engagement ($r = .648$, $p < .01$). The original regression model explained 59.2% of the variation in project sustainability ($R^2 = .592$, $p < .001$), with stakeholder identification and engagement recording standardized coefficients of $\beta = .300$ and $\beta = .250$, respectively. The study concludes that systematic stakeholder identification and continuous engagement are important for WASH project sustainability. It recommends that NGOs maintain updated stakeholder registers, strengthen communication and consultation, and establish effective feedback mechanisms throughout the project lifecycle.

Keywords: Stakeholder identification, stakeholder engagement, project sustainability, WASH projects, non-governmental organizations, Kitui County, Kenya.

INTRODUCTION

Background of the Study

Sustainability remains a critical concern in the implementation of Water, Sanitation, and Hygiene (WASH) projects, particularly in underserved rural communities. Despite substantial investment and progress, many WASH projects fail to deliver lasting outcomes due to inadequate stakeholder involvement. Effective stakeholder management is therefore important in ensuring that projects respond to community needs and achieve long-term benefits. Stakeholder management practices refer to the structured process of identifying and engaging individuals or groups that have an interest in or influence over a project (PMI, 2021). In development projects, particularly WASH interventions, stakeholder identification enables project teams to understand stakeholders' interests, expectations and levels of influence, while stakeholder engagement facilitates their participation in planning, implementation and decision-making processes. These practices promote transparency, accountability and community ownership, which are important for project sustainability.

In Kenya, WASH-related challenges remain acute, particularly in arid and semi-arid regions such as Kitui County, where access to clean water and improved sanitation is limited. The Kenya National Bureau of Statistics (2022) reports that only 21 percent of households in Kitui have access to basic drinking water services, while fewer than 50 percent use improved sanitation facilities. These conditions highlight the need for sustainable WASH interventions that respond to local needs and priorities. Non-Governmental Organizations such as World Vision, AMREF Health Africa, Caritas Kitui and Dorcas Aid International have implemented WASH projects in the county. These interventions include borehole construction, latrine installation, water purification, hygiene promotion and school-based sanitation improvements. However, the sustainability of these projects varies, raising concerns about the extent to which relevant stakeholders are identified and actively involved in project implementation.

Previous studies in Kenya have highlighted the importance of stakeholder involvement in sustaining WASH interventions. Masila and Magu (2023), in a study conducted in West Pokot County, found that the sustainability of NGO sanitation and hygiene projects was directly linked to stakeholder involvement. Projects where local leaders, school administrators and health workers were involved throughout the project cycle demonstrated higher functionality and community ownership. Similarly, Muriuki and Severina (2021) noted that structured community engagement was important to successful WASH project implementation in Kibera, Nairobi County. Kiama et al. (2023) also found that collaboration between government health departments and non-governmental organizations was vital in preventing cholera outbreaks in Kenya. These findings emphasize the importance of clearly identifying relevant stakeholders and establishing effective mechanisms for their participation in project activities.

Despite the recognition of stakeholder involvement as an important aspect of project sustainability, there is limited empirical evidence connecting stakeholder identification and stakeholder engagement specifically with the sustainability of NGO-implemented WASH projects in Kitui County. Existing studies have examined stakeholder involvement in other counties and development contexts, but provide limited insight into how the systematic identification of stakeholders and their continuous engagement relate to the sustainability of WASH projects in this setting. This study therefore focused on stakeholder identification and stakeholder engagement as two important stakeholder management practices associated with the sustainability of NGO WASH projects in Kitui County. It sought to establish how identifying relevant stakeholders and involving them in project planning, implementation and decision-making contribute to operational functionality, service accessibility and service reliability. The findings are expected to inform evidence-based strategies for strengthening

stakeholder participation and enhancing the long-term sustainability of WASH projects in Kitui County and similar rural contexts.

Statement of the Problem

Access to safe water, sanitation, and hygiene (WASH) services is crucial to human health and wellbeing, public health, and socio-economic development. Ideally, WASH projects should not only provide these essential services but also ensure their sustainability, whereby communities are able to continuously operate, manage, and maintain the systems over time. Sustainable WASH projects should remain functional, accessible, and reliable after implementation and handover, thereby contributing to reduced incidence of water-related diseases, improved living standards, and enhanced community resilience (World Health Organization, 2023).

Despite the importance of sustaining WASH services, evidence indicates that the continuity and functionality of WASH projects remain a challenge, particularly after project handover. Kithuki et al. (2021) showed that 40–50% of community-managed rural water points in Kitui County become non-functional within 2–5 years of project handover, mainly due to poor maintenance and weak community ownership. Similarly, Katuva et al. (2022) reported that the baseline functionality of water projects without professional maintenance support stood at 54%. The World Vision Kenya WASH Program Evaluation (2020–2022) further showed that although initial access to water services was high, functionality declined significantly after 3–5 years. The evaluation also reported that only 46.1% of supported projects had effective tariff collection systems, limiting financial sustainability and accelerating infrastructure deterioration. In addition, Katuva, Hope, and Koehler (2022) reported that 57.4% of households travelled at least two kilometres to access water, while 43.6% reported that the water accessed was insufficient for their daily needs. These findings demonstrate that the implementation of WASH infrastructure does not necessarily guarantee sustained, accessible, and reliable service delivery after project implementation.

The sustainability challenge may partly be associated with weaknesses in stakeholder management practices, particularly stakeholder identification and engagement. Stakeholders are important to WASH projects because they participate in planning, implementation, maintenance, decision-making, and resource mobilization. Systematic stakeholder identification enables project implementers to recognize relevant individuals and groups, understand their interests and expectations, and establish their respective roles. Similarly, stakeholder engagement facilitates continuous participation in project planning, implementation and decision-making, thereby promoting community ownership and accountability. However, existing studies in Kenya have largely examined stakeholder participation in relation to project performance rather than project sustainability. Masila and Magu (2023), for example, found that poor community involvement contributed to poor maintenance of WASH projects in West Pokot County. Ngonge (2023) found that stakeholder participation improved the performance of WASH projects in Embu County, while Mutu and Gachengo (2023) found that collaboration among stakeholders significantly contributed to project performance. Similarly, Waiharo and Otieno (2025) reported that donor engagement and beneficiary participation affected the performance of community-based WASH projects in Makueni County.

However, important conceptual and contextual gaps remain. Conceptually, existing studies have predominantly focused on stakeholder participation, collaboration, or individual aspects of stakeholder involvement and their relationship with project performance. Limited empirical attention has been given to the relationship between stakeholder identification and stakeholder engagement and the sustainability of NGO-implemented WASH projects. Contextually, the reviewed studies were conducted in counties such as West Pokot, Embu, and Makueni, and therefore provide limited evidence on the sustainability of NGO-implemented WASH projects

in Kitui County. Consequently, there is inadequate empirical evidence explaining whether and how systematic stakeholder identification and continuous stakeholder engagement contribute to the continued functionality, accessibility, and reliability of NGO WASH projects in Kitui County.

This study therefore sought to examine the relationship between stakeholder identification and stakeholder engagement and the sustainability of non-governmental organization WASH projects in Kitui County, Kenya.

Objectives of the Study

The general objective of this study was to examine the relationship between stakeholder identification, stakeholder engagement, and the sustainability of Non-Governmental Organization WASH projects in Kitui County, Kenya.

The study was guided by the following specific objectives:

i. To analyse the relationship between stakeholder identification and sustainability of Non-Governmental Organization WASH projects in Kitui County.
ii. To investigate the relationship between stakeholder engagement and sustainability of Non-Governmental Organization WASH projects in Kitui County.

Research Questions

The study sought to answer the following research questions:

i. What is the relationship between stakeholder identification and sustainability of Non-Governmental Organization WASH projects in Kitui County?
ii. What is the relationship between stakeholder engagement and sustainability of Non-Governmental Organization WASH projects in Kitui County?

LITERATURE REVIEW

Theoretical Review

Stakeholder Theory

Stakeholder Theory, introduced by Freeman (1984), emphasizes that the success of any organization or project is dependent on how well it manages relationships with those who can affect, or are affected by, its operations. The theory proposes that organizations must go beyond profit-making or internal efficiency and consider the interests, expectations, and influence of all stakeholders, including employees, communities, governments, donors, and beneficiaries. By identifying and managing these relationships, projects are more likely to gain legitimacy, improve outcomes, and achieve long-term sustainability. In the context of development projects, particularly Water, Sanitation, and Hygiene (WASH) projects, Stakeholder Theory provides a strong foundation for inclusive planning and implementation. Identifying the right stakeholders early in the project cycle helps to align project goals with local needs, minimize resistance, and improve community ownership. Stakeholders bring knowledge, resources, and perspectives that can strengthen the relevance and resilience of project outcomes.

This theory is directly applicable to the variable on stakeholder identification. According to Freeman et al. (2020), stakeholder identification is not just a checklist activity but also a strategic step that ensures inclusivity and accountability. In Kitui County, where sustainability of WASH infrastructure is a challenge, proper stakeholder identification ensures that those responsible for maintaining, funding, or benefiting from the projects are recognized and appropriately involved. This inclusion fosters ownership and commitment, reducing the risk of project failure once donor support ends. By using Stakeholder Theory as a guiding framework,

the study acknowledges that identifying relevant actors is foundational to sustaining the functionality, community mobilization, and institutional support of WASH projects.

Communication Theory

Communication Theory, first introduced by Shannon and Weaver (1949), was developed to explain the technical process of transmitting messages from a sender to a receiver. Over time, the theory has evolved to encompass human communication, especially in organizational and project contexts. It emphasizes clarity, feedback, message encoding and decoding, and the reduction of noise that can distort understanding. In development work, this theory highlights how the quality and consistency of communication between project teams and stakeholders can influence the success of an intervention. In the context of stakeholder engagement, Communication Theory is especially relevant. Engaging stakeholders effectively requires clear, timely, and two-way communication. When communication is poor, unclear instructions, lack of updates, or failure to address concerns can cause stakeholders to become disengaged, mistrustful, and less likely to support the project. On the other hand, when stakeholders are regularly informed, consulted, and have channels to provide feedback, they feel valued and are more likely to participate meaningfully.

This theory closely aligns with the variable on stakeholder engagement. Projects that maintain open lines of communication with communities, local leaders, and institutional actors are more likely to sustain WASH infrastructure and services. For example, when water points break down, timely reporting and clear communication with responsible institutions determine whether repairs are done quickly or not at all. Communication also affects how well stakeholders understand their roles in maintaining and funding WASH facilities. By applying Communication Theory, the study underscores that stakeholder engagement is not just about presence; it is about interaction. Sustainable WASH outcomes depend on how well information flows between Non-Governmental Organizations and their stakeholders throughout the project lifecycle.

Conceptual Framework

A conceptual framework refers to a system of concepts, assumptions, expectations, beliefs, and theories that support and inform research. It provides a visual and narrative structure that links the independent and dependent variables of a study and guides the investigation process (Adom, Hussein, and Agyem, 2018). In this study, the conceptual framework outlines the relationship between the study's variables and provides a visual and logical structure to guide the research. It identifies stakeholder identification and stakeholder engagement as the independent variables, and the sustainability of Non-Governmental Organization WASH projects as the dependent variable. The framework helps in understanding how these practices relate to key sustainability indicators such as operational functionality, accessibility and reliability.

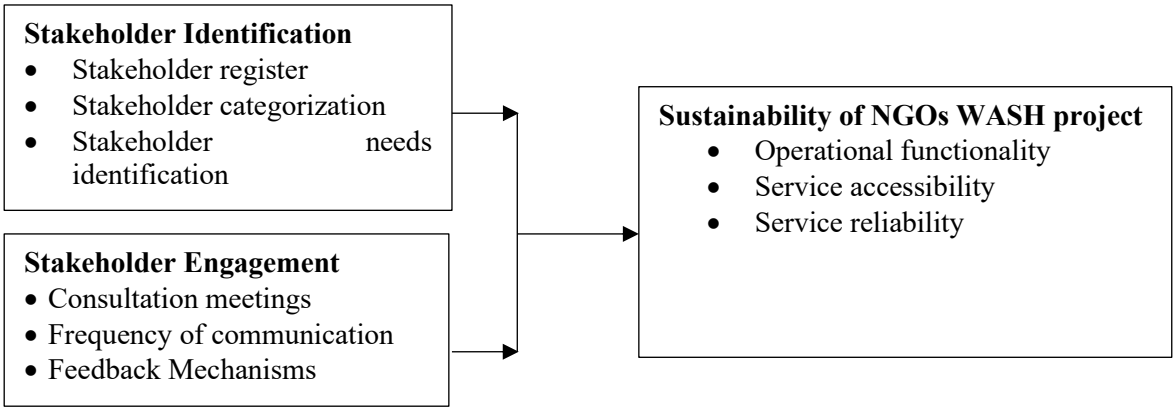


Figure 1: Conceptual Framework

Stakeholder Identification

Stakeholder identification is a foundational step in effective project management practice, particularly in community-driven projects like WASH projects. It involves systematically recognizing all parties who are affected by or can influence the success of a project. Three essential components of this process are stakeholder register, stakeholder categorization, and identification of stakeholder needs and expectations (Hambrick & Wowak, 2021).

Stakeholder mapping is a visual or analytical process of identifying individuals, groups, institutions, and their relationships to the project. It helps in understanding each stakeholder's role, influence, and interest level. This mapping can highlight direct beneficiaries, such as residents and schools, indirect influencers, such as county governments, and implementing partners, such as NGOs and donors. A well-executed stakeholder map ensures that relevant actors are identified and provides a basis for developing appropriate engagement strategies (Freeman et al., 2020). The information generated through stakeholder mapping can then be captured in a comprehensive stakeholder register, which serves as a project document containing the identification details, category, role, influence, and contact information of each stakeholder.

Stakeholder categorization involves grouping identified stakeholders according to characteristics such as their roles, interests, influence, and relationship with the project. Categorization enables project teams to understand the different stakeholder groups and determine appropriate approaches for managing their involvement in the project. For example, beneficiaries, government agencies, NGOs, donors, community leaders, and implementing partners may require different forms of participation and communication. Power-interest grids and other mapping tools can support this categorization by showing stakeholders according to their level of influence and interest in the project (PMI, 2021).

A systematic process for identifying stakeholder needs and expectations is used to uncover specific stakeholder requirements, concerns, and expectations, ensuring that the project aligns with what matters most to the community. Misalignment often leads to resistance, disengagement, or facility neglect. By conducting needs identification early through focus groups and surveys, the project can tailor its design and delivery to foster trust, support, and long-term sustainability (World Bank, 2023).

Stakeholder Engagement

Stakeholder engagement refers to the process of building relationships and maintaining ongoing communication with individuals and groups that have a stake in a project. It goes beyond just informing stakeholders; it involves actively involving them in meaningful ways that influence project outcomes (Ezeh et al., 2024). Three core elements required to operationalize effective engagement are structured consultation meetings, an intentional frequency of communication, and responsive feedback mechanisms.

Consultation meetings serve as the primary collaborative platforms for direct dialogue between the project team and community actors. In Water, Sanitation, and Hygiene (WASH) projects, these meetings bring together diverse groups such as water users' associations, local leaders, and marginalized households to co-create solutions. Rather than acting as passive information sessions, well-structured consultations empower the community to shape the project design, site selection, and management frameworks from the outset (Freeman et al., 2020). The success of these consultations depends heavily on the frequency of communication. Regular, predictable updates ensure that stakeholders remain consistently informed, involved, and aligned with evolving project goals. Maintaining an optimal communication cadence prevents information gaps, mitigates misunderstandings, and builds enduring trust between the project implementation team and the broader community (Shannon & Weaver, 2020).

To ensure communication is genuinely bi-directional, the integration of healthy feedback mechanisms is essential. Embedded within consultation meetings and daily operations, these mechanisms can include targeted surveys, community forums, anonymous suggestion boxes, or grievance redress hotlines. Allowing stakeholders to safely express concerns, ask questions, and contribute ideas improves project decision-making while fostering a profound sense of local ownership and accountability, which is vital for long-term facility functionality (World Bank, 2023).

Ultimately, weaving these elements together establishes transparency in decision-making, which is vital for building project credibility. When project teams utilize regular consultations and open feedback loops to clearly explain how decisions are made, who is involved, and why specific technical or financial actions are taken, stakeholders are far more likely to support the outcomes. Transparent engagement processes enhance stakeholder satisfaction, minimize local conflicts, and secure sustained community support for WASH projects (Ezeh et al., 2024).

Sustainability of Non-Governmental Organization WASH Projects

Sustainability of WASH projects refers to the ability of water, sanitation, and hygiene projects to remain operational, accessible, and reliable to communities long after external support has ended. One important dimension is service reliability, which captures the consistent operation and maintenance of facilities. Reliable services ensure that water points, latrines, and hygiene stations remain operational, with minimal downtime and timely repairs. The primary metric for tracking this dimension is reliability, specifically measured by the percentage of consecutive days a facility provides a stable supply without service interruption. Facilities that are consistently functional reflect strong management structures and effective stakeholder involvement, both of which are crucial for long-term sustainability (Masila & Magu, 2023).

The second dimension is accessibility, which focuses on fair distribution of WASH projects across different community groups. Sustainable projects ensure that households can access safe water and improved sanitation within reasonable distance and time, while also addressing the needs of vulnerable populations such as children, women, the elderly, and persons with disabilities. This spatial and social equity is directly evaluated through service accessibility, a key performance indicator that maps the walking distance and waiting times experienced by the furthest users. Equity in access reduces the burden of water collection, particularly on women and children, and enhances overall community resilience (WHO/UNICEF, 2023).

Finally, service quality and health outcomes reflect the impact of WASH projects on user satisfaction and public health. To quantify this impact, the project must monitor its operational service indicator, which tracks the continuous technical efficiency of the physical infrastructure alongside user feedback metrics. High-quality services are those that meet national and international water quality standards, delivered through safe and hygienic facilities, and are perceived as adequate by users. The ultimate measure of sustainability lies in health outcomes, particularly reductions in waterborne diseases such as cholera, typhoid, and diarrhoea. Projects that maintain high service quality not only build community trust but also contribute directly to improved health and social well-being (World Bank, 2023).

Empirical Review

Stakeholder Identification and Project Sustainability

Wang and Aenis (2019) evaluated how stakeholder identification influenced the success of programmes based in Southwest China. Their assessment examined the role played by identifying, assessing, and analysing stakeholders based on their connection with the project. The study utilized a comparative research approach, comparing projects that had fully identified and documented their stakeholders with those that had not. Results showed that stakeholder identification notably contributed to project success. Project managers who had identified, analysed, and documented their stakeholders were more capable of realizing the

benefits of stakeholder engagement and enhancing project performance. The study further established that stakeholder identification was a continuous process that could be adjusted over time.

Saad, Zahid, and Muhammad (2022) evaluated the role of stakeholder identification in project success. Their assessment focused on identifying, assessing, and analysing stakeholders based on their connection with projects. The study utilized a comparative research approach, comparing projects that had fully identified and documented their stakeholders with those that had not. Findings indicated that stakeholder identification is an essential process in stakeholder management, as it ensures that project teams maintain records of the stakeholders they work with and how they are engaged.

Elfouly (2019) evaluated the relationship between stakeholder identification and urban development projects in Egypt. The study focused on the role played by the recognition and analysis of interested parties in project performance. It utilized a correlational approach and surveyed 107 respondents drawn from project managers in development projects in Egypt. The collected data were analysed using mixed methods. Results showed that project performance relies upon how effectively project teams identify stakeholders, analyse their needs, and engage them according to their needs and expectations.

Angela (2019) examined the effect of stakeholder management strategies on project success, focusing on water and sanitation projects executed by Metropolitan, Municipal and District Assemblies (MMDAs) in the Ashanti Region. The study adopted a descriptive survey design and collected primary data from 122 employee respondents using structured questionnaires. The study found that stakeholder participation, top management support, availability of project professionals and teams, and adequate funding were key factors contributing to project success. In addition, stakeholder identification and engagement strategies had significant positive influences on project success.

Wango, Ngatia, and Lango (2024) investigated the influence of stakeholder identification on the performance of World Bank-funded projects in Kenya. The study adopted a positivist philosophy and employed a cross-sectional survey design. The target population comprised 310 individuals drawn from 62 World Bank-funded projects completed between 2016 and 2021. Primary data were collected through self-administered questionnaires, supplemented by secondary data. The findings revealed that stakeholder identification significantly influenced the performance of World Bank-funded projects in Kenya.

Masila and Magu (2023) conducted a study on factors influencing the sustainability of sanitation and hygiene projects implemented by Non-Governmental Organizations in Pokot Central Sub-County, Kenya. Their findings underscored the critical role of stakeholder identification in project sustainability. The study established that failure to adequately identify key stakeholders at the early stages of a project often resulted in mismatched priorities, weak community ownership, and limited long-term impact. It emphasized that stakeholder identification should be systematic and inclusive, capturing direct beneficiaries as well as influencers such as local leaders, government agencies, and community-based organizations. The findings further showed that understanding stakeholder needs and expectations was essential in aligning project goals with local realities. When stakeholders felt that their views and needs were ignored, they were less likely to support the maintenance of WASH facilities.

Stakeholder Engagement and Project Sustainability

Mukherjee (2023) examined how stakeholder engagement affects information technology projects. The findings showed that stakeholder participation is important in influencing project outcomes. The study emphasized the importance of managing stakeholder expectations, sharing project information, and maintaining communication between project managers and stakeholders throughout project implementation.

Klaus-Rosinka and Iwko (2021) assessed the role of stakeholder management in project success and sustainability in Poland. The study adopted a qualitative research design involving 50 respondents. The findings established a low level of maturity in construction companies in managing project stakeholders. There was also a lack of stakeholder management plans, which could support project success and sustainability. Machange and Fujo (2021) assessed effective communication management in achieving stakeholder satisfaction in project-based organizations in Tanzania, using a sample of 125 respondents. Findings showed that traditional communication channels remained widely used in rural-oriented projects, with face-to-face communication and meetings rated as the most effective channels because of their convenience.

Kosgei (2021) examined the influence of stakeholder consultation on the implementation of water projects in Machakos County, Kenya. The study targeted 172 water projects and collected data using questionnaires from 120 respondents managing 17 water projects. The study concluded that increased stakeholder consultation would result in more effective water project implementation. It recommended the identification of link persons or officials to represent stakeholders during the implementation process.

Waiharo and Otieno (2025) conducted an empirical study on stakeholder engagement and the performance of community-based WASH projects in Makueni County, Kenya. Their research revealed that the degree of stakeholder engagement significantly influenced the functionality and sustainability of WASH projects. Projects that demonstrated frequent, clear, and two-way communication between implementing agencies and community members performed better in terms of facility maintenance and user satisfaction. The study highlighted that effective engagement requires more than informing stakeholders; it involves creating platforms for active participation, feedback sharing, and collaborative decision-making. Results also showed that consistent stakeholder involvement in planning, monitoring, and evaluation was associated with higher project ownership and community commitment. The researchers further emphasized that engagement must be structured and inclusive, involving local leaders and marginalized groups, including women and youth. Their findings affirm that strong stakeholder engagement fosters transparency, accountability, and long-term sustainability of WASH services.

RESEARCH METHODOLOGY

The study adopted a descriptive survey research design to investigate the relationship between stakeholder identification, stakeholder engagement and the sustainability of Non-Governmental Organization (NGO) WASH projects in Kitui County. The design was considered appropriate because it enabled a systematic examination of existing stakeholder management practices and their relationship with project sustainability without manipulating the study environment (Creswell & Creswell, 2018).

The unit of analysis comprised 100 WASH projects implemented by nine NGOs in Kitui County between 2018 and 2023. The unit of observation consisted of 288 stakeholders, including NGO project managers, project supervisors, school administrators, local leaders and government representatives who were directly involved in or affected by the projects. Using Yamane's (1967) formula at a 5% margin of error, a sample size of 167 respondents was obtained. Proportionate stratified random sampling was adopted to ensure representation across the five stakeholder categories, followed by simple random sampling to select respondents within each category.

Primary data were collected using semi-structured questionnaires, while secondary data were obtained from reports and scholarly sources. The questionnaire used a five-point Likert scale to measure respondents' perceptions of stakeholder identification, stakeholder engagement and WASH project sustainability. Data collection was conducted using Google Forms after the researcher obtained an introductory letter from Jomo Kenyatta University of Agriculture and

Technology and a research permit from the National Commission for Science, Technology and Innovation (NACOSTI).

Data were analysed using descriptive and inferential statistics with the aid of Statistical Package for Social Sciences (SPSS) version 28. Descriptive statistics, including means, standard deviations and percentages, were used to summarize the study variables. Pearson correlation analysis was used to establish the direction and strength of the relationships between stakeholder identification, stakeholder engagement and WASH project sustainability. Multiple regression analysis was also used to examine the contribution of the two stakeholder management practices to project sustainability. The findings were presented using tables and descriptive explanations.

RESEARCH FINDINGS AND DISCUSSIONS

Out of 151 questionnaires administered, 141 were returned, while 10 questionnaires were not returned, resulting in a response rate of 93.4%. The response rate was considered satisfactory for data analysis. Mugenda and Mugenda (2013) consider a response rate of 70% and above to be excellent for analysis and reporting.

Descriptive Statistics

This section presents the descriptive statistics for stakeholder identification, stakeholder engagement and WASH project sustainability based on responses from 141 respondents. The variables were measured using a five-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree. The mean and standard deviation were used to summarize respondents' views. Mean scores of 3.41–4.20 indicate agreement, while standard deviations show the extent of variation in responses.

Stakeholder Identification

Stakeholder identification was assessed using six statements covering the maintenance and updating of stakeholder registers, stakeholder categorization, and identification of stakeholder needs and expectations. The results are presented in Table 1.

Table 1: Descriptive Statistics for Stakeholder Identification

Statement	Mean	SD
A stakeholder register is maintained to identify individuals and groups affected by the WASH projects.	3.89	0.914
The stakeholder register is updated when new stakeholders are identified during project implementation.	3.78	0.882
Stakeholders are categorized based on their level of influence and interest in the project.	3.84	0.861
Stakeholders are categorized according to their roles, interests, and influence in the project.	3.69	0.951
Stakeholders' needs and expectations are identified before project implementation.	3.87	0.891
Project design reflects the needs and expectations of stakeholders.	3.86	0.903
Aggregate Mean/SD	**3.82**	**0.734**

Source: Research Data (2026)

The results in Table 1 show that respondents generally agreed that stakeholder identification was practised in the NGO WASH projects, as indicated by the aggregate mean of 3.82 (SD = 0.734). The highest mean was recorded for maintaining a stakeholder register (M = 3.89, SD = 0.914), while the lowest was recorded for categorizing stakeholders according to their roles, interests and influence (M = 3.69, SD = 0.951). The findings suggest that although stakeholder identification was generally practised, there was room to strengthen the categorization of stakeholders according to their respective roles and interests.

This finding is consistent with Wango et al. (2024), who established that stakeholder identification significantly influenced the performance of World Bank-funded projects in Kenya. Similarly, Masila and Magu (2023) found that inadequate stakeholder identification in NGO sanitation and hygiene projects resulted in mismatched priorities, weak community ownership and limited long-term impact. The findings therefore suggest that maintaining stakeholder registers, identifying stakeholder needs and categorizing relevant actors provide a basis for strengthening community ownership and supporting the sustainability of NGO WASH projects.

Stakeholder Engagement

Stakeholder engagement was assessed using six statements relating to communication, sharing of project information and stakeholder feedback. The results are presented in Table 2.

Table 2: Descriptive Statistics for Stakeholder Engagement

Statement	Mean	SD
The project has a clear communication plan that is shared with stakeholders.	3.92	0.871
Stakeholders are regularly updated on project progress.	3.88	0.846
The organization frequently communicates with stakeholders throughout the project lifecycle.	3.91	0.829
Multiple communication channels (meetings, phones, reports) are used to communicate with stakeholders.	3.84	0.913
Stakeholders have a chance to give feedback on the projects.	3.96	0.807
The organization considers feedback from stakeholders in project decision-making.	3.79	0.932
Aggregate Mean/SD	**3.88**	**0.706**

Source: Research Data (2026)

The results in Table 2 indicate that respondents generally agreed that stakeholder engagement was practised in the NGO WASH projects, as shown by the aggregate mean of 3.88 (SD = 0.706). The highest mean was recorded for providing stakeholders with an opportunity to give feedback (M = 3.96, SD = 0.807). The lowest mean was recorded for considering stakeholder feedback in project decision-making (M = 3.79, SD = 0.932). This suggests that although opportunities for stakeholder feedback were generally available, incorporating the views received into project decisions could be strengthened.

The finding agrees with Waiharo and Otieno (2025), who found that stakeholder engagement significantly influenced the functionality and sustainability of community-based WASH projects in Makueni County. Their findings showed that frequent communication, feedback sharing and collaborative decision-making strengthened project ownership and community commitment. Similarly, Kosgei (2021) established that increased stakeholder consultation contributed to effective implementation of water projects in Machakos County. These findings suggest that continuous communication and meaningful consideration of stakeholder feedback can strengthen participation and commitment to the sustainability of NGO WASH projects.

Sustainability of NGO WASH Projects

Sustainability of NGO WASH projects was assessed using six statements covering continued use, accessibility, functionality, maintenance and reliability of WASH facilities and services. The results are presented in Table 3.

Table 3: Descriptive Statistics for WASH Project Sustainability

Statement	Mean	SD
WASH project facilities (water points, latrines and handwashing stations) are consistently used by the intended beneficiaries.	3.91	0.874
WASH project facilities are accessible to the intended beneficiaries when needed.	3.86	0.901
WASH projects remain functional over time after project completion.	3.78	0.932
Regular maintenance of WASH projects is carried out to enhance functionality.	3.71	0.967
WASH services are reliably available to beneficiaries without frequent interruptions.	3.76	0.945
WASH facilities and services consistently meet the needs of the intended beneficiaries.	3.83	0.889
Aggregate Mean/SD	**3.81**	**0.758**

Source: Research Data (2026)

The results in Table 3 show that respondents generally agreed that NGO WASH projects were sustainable, as indicated by the aggregate mean of 3.81 (SD = 0.758). The highest mean was recorded for the consistent use of WASH facilities by intended beneficiaries (M = 3.91, SD = 0.874), while the lowest was recorded for regular maintenance of WASH projects (M = 3.71, SD = 0.967). This suggests that although the facilities were generally accessible and used by beneficiaries, regular maintenance remained an area requiring greater attention.

The findings are consistent with Koehler et al. (2021), who found that active stakeholder monitoring of WASH systems in Kitui County improved responses to breakdowns and misuse, while projects with active monitoring had better maintenance records and fewer service interruptions. The findings therefore indicate that continued functionality, accessibility and reliability are important aspects of WASH project sustainability, with regular maintenance remaining essential to sustaining service delivery.

Pearson Correlation Analysis

Pearson correlation analysis was conducted to establish the direction and strength of the relationship between stakeholder identification, stakeholder engagement and WASH project sustainability. The correlation coefficient (r) indicated the strength and direction of the relationship, while the significance level (p-value) established whether the observed relationship was statistically significant. The results are presented in Table 4.

Table 4: Pearson Correlation Matrix

Variables	WASH Project Sustainability	Stakeholder Identification	Stakeholder Engagement
WASH Project Sustainability	1		
Stakeholder Identification	.612**	1	
Stakeholder Engagement	.648**	.474**	1
N	**141**	**141**	**141**

**Correlation is significant at the 0.01 level (2-tailed). All reported correlations have $p < .001$.
Source: Research Data (2026).

The results in Table 4 show a positive and statistically significant relationship between stakeholder identification and WASH project sustainability ($r = .612$, $p < .001$). This indicates that projects with more systematic stakeholder identification tended to report higher levels of sustainability. The finding is consistent with Wang and Aenis (2019), who found that identifying, analysing and documenting stakeholders contributed to project success. Similarly, Saad et al. (2022) established that stakeholder identification enables project teams to maintain records of the stakeholders involved and understand how they should be engaged. The findings

therefore suggest that systematic identification of stakeholders provides a useful foundation for maintaining stakeholder relationships that support the continued operation of WASH projects.

Stakeholder engagement had a positive and statistically significant relationship with WASH project sustainability ($r = .648$, $p < .001$). This was the strongest correlation among the two selected stakeholder management practices. The finding suggests that projects with stronger stakeholder engagement practices tended to report better sustainability outcomes. It is consistent with Mukherjee (2023), who established the importance of stakeholder management and communication of expectations throughout project implementation. It is also supported by Machange and Fujo (2021), who found that communication was important for stakeholder satisfaction in project-based organizations, with face-to-face communication and meetings being particularly effective in rural-oriented projects. The finding suggests that regular communication and meaningful interaction with stakeholders can strengthen their continued involvement in WASH projects and contribute to sustainability.

Multiple Linear Regression Analysis

The regression coefficients indicate the direction and statistical significance of the contribution of stakeholder identification and stakeholder engagement to WASH project sustainability, holding the other variables constant. The results are presented in Table 4.

Stakeholder identification had a positive and statistically significant contribution to WASH project sustainability ($B = 0.310$, $\beta = 0.300$, $t = 5.000$, $p < .001$). This indicates that a unit increase in stakeholder identification was associated with a 0.310-unit increase in project sustainability, holding the other predictors constant. The finding suggests that systematically identifying stakeholders and understanding their roles, interests and expectations can strengthen WASH project sustainability. This is consistent with Elfouly (2019), who established that project performance depended on identifying stakeholders and analysing their needs and expectations. Similarly, Angela (2019) found that stakeholder identification and engagement strategies positively influenced the success of water and sanitation projects.

Stakeholder engagement also had a positive and statistically significant contribution to WASH project sustainability ($B = 0.269$, $\beta = 0.250$, $t = 4.339$, $p < .001$). This indicates that a unit increase in stakeholder engagement was associated with a 0.269-unit increase in project sustainability, holding the other predictors constant. The finding highlights the importance of regular communication, consultation and feedback in maintaining stakeholder involvement and supporting the continued operation of WASH projects. It is consistent with Klaus-Rosinka and Iwko (2021), who found that inadequate stakeholder management plans affected project success and sustainability.

Overall, both stakeholder identification and stakeholder engagement made positive and statistically significant contributions to WASH project sustainability. Stakeholder identification recorded a higher standardized coefficient ($\beta = .300$) than stakeholder engagement ($\beta = .250$), indicating a relatively stronger contribution within the original four-predictor model.

Table 4: Regression Coefficients

Model	B	Std. Error	Standardized Beta	t	Sig.
(Constant)	.029	.298	—	.097	.923
Stakeholder identification	.310	.062	.300	5.000	.000
Stakeholder engagement	.269	.062	.250	4.339	.000

Dependent variable: WASH project sustainability.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study concludes that stakeholder identification is an important component of sustainable WASH project management. Proper identification enables projects to recognize relevant stakeholders, understand their interests and needs, and involve them appropriately. The findings established a positive and statistically significant relationship between stakeholder identification and WASH project sustainability. This indicates that projects are more likely to achieve sustainability when stakeholder identification is deliberately incorporated into project management through systematic identification of stakeholders, understanding their roles and expectations, and ensuring their involvement throughout the project lifecycle.

Regarding stakeholder engagement, the study concludes that it is an important contributor to the sustainability of NGO WASH projects. Continuous communication, consultation and feedback create opportunities for stakeholders to participate in project decisions and respond to emerging concerns. The findings established a positive and statistically significant relationship between stakeholder engagement and WASH project sustainability. The importance of maintaining stakeholder interaction throughout the project, rather than limiting engagement to the initial stages, is particularly evident. Regular communication, consultation and feedback mechanisms are therefore important in strengthening stakeholder involvement and supporting the continued sustainability of WASH projects.

Recommendations

Stakeholder Identification

NGOs implementing WASH projects in Kitui County should strengthen stakeholder identification by making it a continuous project management activity rather than a one-time exercise at project commencement. At the start of every project, the project team should prepare a stakeholder register identifying all relevant actors, including beneficiaries, community leaders, school administrators, local government representatives, water management committees and other actors involved in the provision and management of WASH services. The register should indicate each stakeholder's role, interests, level of influence and expected contribution to the project.

The register should also be reviewed and updated at major project stages, particularly during project design, implementation, handover and post-completion monitoring. This would allow NGOs to identify new stakeholders and respond to changes in stakeholder roles or interests. Before finalizing project designs, project teams should document stakeholder needs and demonstrate how these needs have been incorporated into the proposed WASH facilities and services. This would help ensure that projects respond to actual local needs and encourage stakeholder ownership of the facilities.

Stakeholder Engagement

NGOs should strengthen stakeholder engagement by establishing clear and structured communication and feedback mechanisms throughout the project lifecycle. Each WASH project should have a stakeholder communication plan specifying who should receive project information, what information should be communicated, the appropriate communication channel and the frequency of communication. Project managers should provide stakeholders with regular updates on implementation progress, emerging challenges, changes to project activities and responsibilities after project completion.

NGOs should also establish formal feedback mechanisms, such as community meetings, stakeholder forums, suggestion channels and designated contact persons through whom concerns can be raised. Importantly, feedback should be recorded, assigned to responsible

project personnel and followed up until the necessary action is taken. Major issues raised by stakeholders should be discussed during project meetings, while stakeholders should be informed about actions taken in response to their concerns. This would move engagement beyond simply informing stakeholders to meaningful participation in project decisions. Continuous stakeholder engagement would consequently strengthen stakeholder involvement and support the long-term sustainability of WASH projects.

Areas for Further Studies

The study recommends that future research should examine other factors that may contribute to the sustainability of NGO WASH projects beyond stakeholder identification and stakeholder engagement. This would help explain additional aspects of sustainability that were not accounted for by the variables examined in this study.

Future studies could also extend the research to other counties in Kenya to determine whether the findings observed in Kitui County are applicable in different geographical and institutional settings. In addition, longitudinal studies could examine how stakeholder identification and engagement influence WASH project sustainability over time, particularly after project completion.

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