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PROJECT STAKEHOLDER IDENTIFICATION AND IMPLEMENTATION OF WATER PROJECTS IN KENYA

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ABSTRACT

Despite the efforts made to improve water access and management in Kenya, many communities in the region still experience inadequate access to clean and safe water. Literature has shown that stakeholder engagement and consultation are positively associated with the successful implementation of projects. Therefore, a study focusing on effect of project stakeholder identification on implementation of water projects in Kenya would provide valuable insights into the unique challenges and opportunities that exist in this specific geographical and cultural context, and would fill important research gaps in the understanding of the relationship between stakeholder management and the implementation of water projects. In addition, the study assessed the moderating effect of project manager competency on the relationship between stakeholders' communication and implementation of water projects in Kenya. This study is grounded on Social Identity Theory. Cross-sectional design and positivist philosophy was used. The target population was 321 active water projects under water works development agencies in Kenya. The sample frame was 321 project staff drawn from the 321 active projects. The sample size for the study was 178 Project staff. Primary data was obtained using a structured questionnaire. Eighteen respondents from the target population were used to pilot the questionnaire. Descriptive statistics such as frequency, percentages, means, and standard deviation were used to summarize findings of the research variables. The study concludes that project stakeholder identification has a positive and significant effect on implementation of water projects in Kenya. Findings revealed that stakeholder types, stakeholders' number, stakeholder roles and stakeholder attributes influence implementation of water projects in Kenya

Key Words: Project Stakeholder Identification, Project Manager Competency, Implementation of Water Projects

Background of the Study

Increasing water demand in many parts of the world and the need to improve clean water supply have led to an increased interest in water use. However, the success of these projects often depends on the management of the stakeholders (Project Management Body of Knowledge (PMBOK), 2017). Regulators, donors and local communities must work together to ensure this priority, or the risk of loss of life is an inevitable consequence. Water resources such as boreholes and basins should be increased and natural water resources such as springs, rivers and lakes should be protected/conserved (Peterson, 2017). Since there is no regular rainfall every year in many parts of the world, the concept of artificial water has emerged because some communities do not have access to natural water (Beratan, 2020).

Stakeholder management is a crucial aspect of project management, involving the identification, analysis, and engagement of individuals or groups that have an interest in or can affect the outcome of a project (Machado *et al*., 2019). The primary goal of stakeholder management is to ensure that stakeholders' needs and expectations are understood and addressed, fostering positive relationships and minimizing potential conflicts. This process begins with stakeholder identification, which involves recognizing all parties who have a stake in the project. Stakeholder management encompasses various critical components, each playing a significant role in ensuring the success of a project. One of the first steps is stakeholder identification, which involves recognizing all individuals or groups who have an interest in the project or can influence its outcome (Dwivedi & Dwiwedi, 2021). This includes internal stakeholders like team members and executives, as well as external stakeholders such as clients, suppliers, regulatory bodies, and the community. Identifying stakeholders early in the project helps in understanding their needs, expectations, and potential impact on the project, laying the foundation for effective engagement and communication strategies (Smith & Love, 2019).

Globally, project stakeholder management has been widely embraced. In Japan, the performance of water supply services in many cities ranges from detailed surveys of existing water facilities, new construction/remediation projects, well-planned design work, to being directly involved as a supervisor in the project (Alegre, Baptista, Cabrera, Cubillo, Duarte, Hirner and Parena, 2016). Weak community engagement, weak security, weak recovery, political competition, weak infrastructure, weak urban planning and land titles are all challenges (McGranahan and Mitlin, 2016). Brazil has moved towards its goal of providing drinking water and sanitation by 2033, as demonstrated in the National Sanitation Plan (Pinheiro, Savoia and Angelo, 2016). But there is still a lot of work to be done: In 2015, more than 33 million Brazilians did not have safe drinking water, and more than 100 million did not have access to sewerage. Only 42% of Brazil's sewage is treated, affecting all health, the economy, the planet and biodiversity.

In Africa, management of water resources in Africa is largely dominated by the national governments, with little efforts made by local private organizations, non-governmental organizations and inter-governmental initiatives. Evidently, success of water projects is influenced by stakeholder among other factors. In Nigeria for instance, there have been very effective initiatives to create organizations to manage water resources through development planning and Federal Ministry of Water Resources. These organizations are expected to work closely with stakeholders in water projects. Interestingly, there is significant low stakeholder involvement leading to low water quality management (Amadi, Carrillo, & Tuuli, 2014). While the main role of national government in water supply is to develop national policies to lead and coordinate water management, these regulations should address the distribution of water resources, the construction and maintenance of water projects, and the development of states' resources from all inclusive points of view, creating the need for stakeholder involvement

(Alayande, Bashir, & Oyewobi, 2021). From empirical literature, it is clear that while state governments are responsible for providing safe water to the people living in their areas, local government are responsible for stakeholders and water supply and monitoring in rural areas such as open wells and boreholes (Ebekozien, Aigbavboa, & Ramotshela, 2023).

The implementation of Water Supply Projects in Kenya is executed by Water Work Development Agencies (WWDAs). There are 8 water services development agencies namely, Athi Water Works Development Agency, Coast Water Works Development Agency, Lake Victoria North Water Works Development Agency, Lake Victoria South Water Works Development Agency, Northern Water Works Development Agency, Rift Valley Water Works Development Agency, Tanathi Water Works Development Agency and Central Rift Water Works Development Agency. The WWDAs are mandated to develop and maintain water infrastructure in the County, with an aim of ensuring adequate and sustainable supply of clean water. To achieve their mandate, the agencies are expected to work with other government agencies and stakeholders.

Implementation of water projects is however overseen by the Water Supply Regulatory Board (WASREB). WASREB was established under the Water Act 2016 with the main objective of protecting the interests and rights of consumers while protecting the interests of other stakeholders in water services. WASREB sets national standards, evaluates tariffs, licenses and permits service providers, monitors compliance and ensures consumer protection (Water Supply Regulatory Board, 2022). WASREB plays an important role in the development of national water service standards and the development of infrastructure for service facilities. This ensures that water activities comply with legal and operational standards. WASREB provides guidance and direction for efficient water management in Kenya by developing standards. WASREB ensures that the needs and concerns of end users are taken into account while implementing projects by prioritizing customer satisfaction (The Water Act, 2016).

Statement of the Problem

Consistent supply of adequate safe water is a necessity to communities, it is associated with better nutrition, improved health and enhanced economic activities. Machado *et al*. (2019) argues that water is a significant determinant of socio-economic welfare of the community. Ayeni, Soneye and Akintuyi (2019) argue that consistent supply of adequate safe water needs collaboration among stakeholders and the water resources management team. Stakeholder management plays a key role in ensuring success, optimality and sustainability in water projects as well as ensuring affordability and adequate distribution of water.

Despite water being a precious commodity, Muema and Ngugi (2021) estimates that access to water in Kenya is 32% which is way below. Worryingly, 30% to 60 % of existing water supply systems are not operational due to breakdown (Kariuki, 2015). This is attributed to failure to plan for maintenance of water infrastructure (Nzomo & Gachengo, 2021) and the fact that operation and maintenance of community water projects are given little attention (Kosgei, 2021). According to Maragia et al. (2018), unsustainability in rural water supply projects in Kenya can be blamed on low community participation levels, poor or lack of freshwater management, non-community owned projects, inadequate financial capacity, inadequate systems maintenance skills and poor construction.

Deliberate efforts have been made to improve water access and management in Kenya including enhancing community involvement, technology adoption, enhancing financing among other initiatives (Muigai, 2019). Despite these efforts, many communities still lack access to clean and safe water. Majority of households still rely on surface water sources that are often contaminated (Kosgei, 2021) with up to 60% of households reporting cases of water-

related illnesses resulting probably from water contamination (Ochieng & Onyango, 2019). Furthermore, 65% of water projects still face challenges of conflicts between community groups, government agencies, and private sector entities (Nyabera, 2015) while 60% of water projects lack robust monitoring and evaluation systems (Ochieng & Onyango, 2019).

In studies in other contexts, stakeholder engagement and consultation has been identified as a determinant of successful implementation of projects. For example, Alameri (2022) in rural communities in Abu Dabi, Demirkesen and Reinhardt (2021) in Poland and Woldesenbet (2020) in Ethiopia. These studies were conducted in different project and cultural contexts and their findings cannot be generalized. Limited study has been conducted in Kenya to provide findings specific to the Kenyan context. A study in Kenya is necessary to provide a cultural-specific understanding of the effect of stakeholder management on the implementation of water projects. To fill this gap, the current study sought to investigate the effect of project stakeholder identification on successful implementation of water projects in Kenya.

Objectives of the Study

i. To establish the effect of project stakeholder identification on implementation of water projects in Kenya

ii. To assess the mediating effect of project manager competency on the relationship between project stakeholder identification and implementation of water projects in Kenya

Theoretical Review

A theoretical framework guides in understanding of research variables and relationship between them. Good research should be founded on theories that explain the variables as well as the association between them (Luft, Jeong, Idsardi, & Gardner, 2022). This research is based on planned behavior theory, self-awareness theory, value theory, cooperation theory and organization theory.

Theory of Planned Behavior

The Theory of Planned Behavior Theory (TPB) is a theory developed by Icek Ajzen in 1991. It proposes that people's behavior is determined by their attitudes, behavior, and control habits. Attitude refers to a person's evaluation of a behavior, behavior is the social pressure to do or not to do a behavior and behavior control is one's perception of ability to act the behavior (Wynn, Smith, & Killen, 2021). TPB explains that individuals' behaviors are affected by their desire to behave. These emotions are a function of personal behavior, attitude, and behavioral control. According to this theory, the more a person is willing to perform a behavior, the more likely he is to perform that behavior. In the project environment, TPB influences stakeholder behavior (Chaudhary, Warner, & Lamm, 2017).

While the theory has been used to understand and predict many behaviors, including water conservation (Gibson, Lamm, Woosman, & Croom, 2021), TPB has received some criticism. Many researchers have criticized Behavior Theory (TPK) for failing to take into account other factors such as personality, past behavior, and the influence of others on behavior. Some examples of these researchers, Sniehotta et al. (2014) argue that TPB does not include behavioral constructs, implying that attitudes can influence behavior itself. Rossmann (2020) argues that TPB does not consider the impact of past behavior on future behavior. They argue that past behavior can influence future behavior regardless of emotions. In addition, Liu et al. (2023) argue that TPB does not take into account the influence of culture. They argue that social influence can independently influence behavior. They criticized TPB for failing to take into account the influence of other factors, such as personality, past behavior, and the influence

of others on behavior. In addition, they argued that the theory did not include the influence of emotions and effects on behavior.

In the context of project management, TPB can be used to understand how communication strategies affect the behavior, attitudes and behavior of stakeholders. By changing these conditions, communication management strategies can lead to better attitudes and behaviors and ultimately more support for the project. The theory will therefore be used to explain the effect of stakeholder communication on the implementation of water projects in Kenya.

Resource-Based View Theory

Resource-Based View Theory (RBV) is a management theory that explains how resources and capabilities can lead to competitive advantage (Almarri & Gardiner, 2014). The theory believes that resources, including tangible and intangible assets, human capital, and design, give an advantage that rare, valuable, irreplaceable and irreplaceable, which is critical in successful of water projects (Salazar & Armando, 2017).

RBV theory can be used to examine project manager's ability to allocate resources to achieve good results. A project manager has the ability to be effective, efficient, flexible and flexible, which can lead to the success of the project. In this regard, the ability of the project manager can be considered as an advantage that can contribute to the success of the project and thus bring a competitive advantage to the organization (Almarri & Gardiner, 2014)

RBV theory is widely used in the project management reviews to explain the relationship between resources and competitive advantage (Alameri, 2022). However, the theory has been criticized for focusing on other factors such as marketing and competition that are important to the success of the organization (Almarri & Gardiner, 2014). The theory has also been criticized for overemphasizing resource heterogeneity and failing to explain how firms acquire new resources for competitive advantage (Chaudhary, Warner, & Lamm, 2017).

In the current study, RBV theory is relevant as it emphasizes the importance of specific and valuable resources that can lead to effective project completion. The project manager may have certain skills and abilities that lead to the success of the project, thereby providing value to the organization. Therefore, understanding the role of managerial competence can provide insight into how firms can gain competitive advantage through effective project management. RBV theory provides a framework for understanding how a company's resources and capabilities contribute to profitability. The theory explains how valuable and specific resources can be applied to project management, where the skills and abilities of a competent project manager can be considered critical resources. The theory will therefore be used to explain the positive impact of manager's ability on the relationship between stakeholders' management policies and water conservation use in Kenya.

Conceptual Framework

Mugenda and Mugenda (2019) defined the concept of conceptual framework as the hypothetical model for relationship between dependency and independence between variables. Kothari and Garg (2018) define the independent variable as the explanatory variable, the cause of the change and the dependent variable as variable that scientists want to explain. The purpose of the conceptual framework is to classify and explain the concepts in the study and to show the relationship between them.

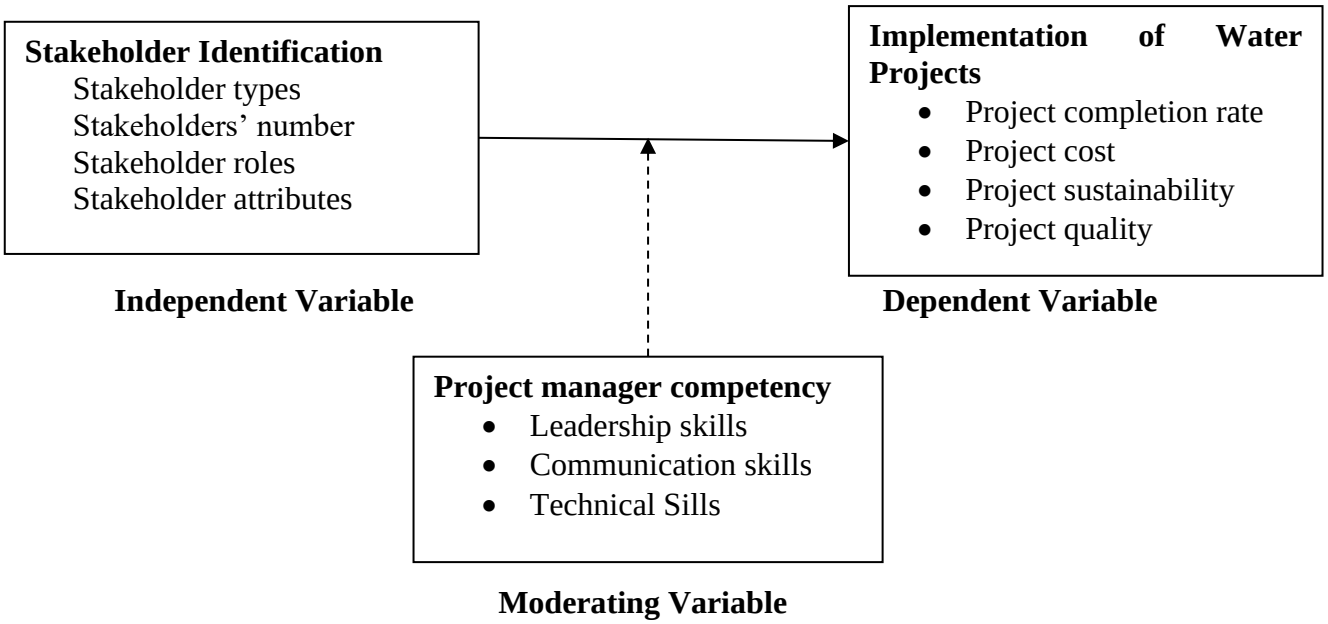

Figure 2. 1: Conceptual Framework

Project Stakeholder Identification and Analysis

Stakeholder identification and analysis identifies each stakeholder, as well as map their needs and expectations. The process tries to identify and understand the needs and expectations of project stakeholders in intention of having such needs and expectations factored during project execution (Amadi et al., 2014). This includes identifying the specific needs and expectations of each stakeholder group, as well as understanding how these needs and expectations may change over time (Giangregorio, 2020). It is a critical aspect of project management as it helps to ensure that the project is aligned with the needs and expectations of stakeholders and that the project outcomes are acceptable to all parties involved (Nzomo & Gachengo, 2021).

There are different methods that can be used to identify the needs and expectations of stakeholders. One common method is project need and expectation identification documentation review, where stakeholders' previous statements, feedback, and other relevant documents are analyzed to understand their needs and expectations (Chen & Chen, 2018). Another method is brainstorming sessions, where stakeholders are brought together to brainstorm ideas and identify common needs and expectations (Maragia et al., 2018). Focus group discussions is also another method, where a small group of stakeholders are brought together to discuss their needs and expectations, and their views are recorded and analyzed (Owuor, 2017).

Project Manager Competency

Project manager competency is critical to ensure successful project delivery. It refers to knowledge, skills and abilities that predict effectively and efficiently (Müller & Jugdev, 2012). Project manager competence has an effect on the success of the project and is a key factor for project success. Leadership skills are one of the important criteria of a manager's ability. A competent project manager should be able to lead a team and motivate them to work towards a common goal (Nichol, 2020).

Leadership skills of project managers are important for motivating team members, solving problems and building relationships with stakeholders. A competent project manager provides direction, guidance and support to team members to achieve project goals. He motivates team

members, provides guidance, and delegates tasks appropriately (Ahmed, Massod, & Mohamad, 2013).

Communication skills are another important aspect of a manager's competence. A competent project manager must communicate effectively with members, stakeholders and supporters. Good communication is essential in understanding the goals and objectives of the project (Project Management Institute, 2023). A competent manager should be able to convey information to stakeholders at all levels, listen well and provide feedback to members and to ensure that the working group is followed and the objectives of the project are understood by all stakeholders (Alayande, Bashir, & Oyewobi, 2021).

Technical knowledge is also an important measure of a manager's ability. Operational information enables project managers to make informed decisions and take the necessary actions to complete the project (Project Management Institute, 2023). A competent project manager should have a solid understanding of project management, its tools and techniques. A competent manager should be able to plan, execute and monitor projects effectively using management best practices (Alayande et al., 2021).

Continuous improvement of manager competence is important to ensure managers remain effective in their roles and are better able to respond to challenges. Leaders should strive to develop their leadership, communication and skills to ensure they remain relevant and effective in their roles (Ahmed et al., 2013).

Empirical Literature Review

Stakeholder Identification and Analysis and Successful Implementation of Projects

Smith and Love (2019) examined that effectively identifying and managing the needs and expectations of stakeholders is closely related to the success of construction projects. This study focused on project managers and stakeholders in the construction industry with sample size of 200 obtained using purposive sampling and data collected through surveys and interviews. They reported that identifying and managing the needs and expectations of project stakeholders has a positive outcome on the success of infrastructure projects in terms of project completion, cost effectiveness and project sustainability.

Dwivedi and Dwiwedi (2021) examined the role of identification and analysis of stakeholders' needs and expectations in enhancing success of projects. The study found that identifying and managing the needs and expectations of project stakeholders was positively associated with the success of projects in terms of project completion, project cost, and project sustainability. This is attributed to the fact that correct identification of stakeholder interests and expectations makes it easier to address specific stakeholder needs enhancing project success.

From empirical studies reviewed, it is evident that studies have been done in the US and UK, none focused on Kenya. Studying the region will provide a better understanding of the unique challenges and opportunities that exist in this particular region. A study in Kenya would also provide a culture-specific understanding of the impact of needs and expectations analysis on project implementation. Additionally, previous research has focused on different types of projects, but research focused on activities will provide insight into the specific problems and opportunities that exist in these studies.

Project Manager Competency on Stakeholders' Management and Implementation of Water Projects

Kariuki (2019) conducted a study on project manager competency and performance of water projects in Kenya. Research data were collected through a questionnaire. The study showed

that effective project management approaches, including stakeholder engagement and negotiation skills, have a positive impact on project success. The study recommended that project managers should be trained on technical and soft project management skills, critical for teamwork and effective feedback critical in project success.

Hogsckola (2021) investigated the relationship between managerial competence and project success. This study has a quantitative research sample and the target population includes managers and stakeholders. The sample size was participants and data were collected via an online self-survey. The study analyzed the data using regression analysis and found that the project manager contributed to the success of the project.

The findings suggest that project managers should have the skills, leadership and communication skills needed to complete projects.

Armenia et al. (2019) examines the role of manager's competence in sustainable project management. The study targeted project managers involved in sustainable project management. The sample size was 150 participants and data were collected via online self-survey. This study used the structural equation model to analyze the data and found that the project manager's ability was related to the success of the project for the firm's performance. This study suggests that project managers should have skills such as cognitive skills, collaboration with stakeholders and strategic thinking to successfully implement focused sustainability projects.

Irfan et al. (2020) explored the relationship between manager's competence and project success in public projects. The sample size was 260 project engineers and data was collected through semi-structured interviews. The study reported a positive association between project management competency and project success. This study recommends that project managers have the knowledge, skills and leadership to manage stakeholders to successfully complete oil and gas projects. In a similar study, Elmezain et al. (2021) examined the relationship between manager skills and project success. The study that involved 400 project managers reported reduced project cost and enhanced project quality and time delivery.

RESEARCH METHODOLOGY

Research Design

According to Cooper and Schindler (2017), research design allows researchers to allocate limited resources by suggesting critical options. The research used cross-sectional research methods. This design is suitable for situations where the relationship between two variables needs to be determined over a short time (Cooper & Schindler, 2011). Cross-sectional studies are useful and therefore allow researchers to verify the existence of significant relationships between variables, while allowing more accurate analysis of data. In addition, the design provides researchers with the opportunity to capture population characteristics and test hypotheses quantitatively and qualitatively (Creswell, 2013).

Target Population

Target population is the total number of individuals or subjects for which research data is used for analysis; he is a "universal" scientist (Kothari & Garg, 2014). In this study, the target population was 321 active projects implemented by water work development agencies. There are 321 active projects under the 9 water works development agencies. According to Cooper and Schindler (2017), a good research must have a unit of analysis and unit of observation. In the current study, unit of analysis is individual active water project while the staff involved in the study constituted the unit of observation.

Sampling Frame

A sampling frame is a list of all the items taken from which a representative sample is obtained for research purposes (Saunders, Lewis, & Thornhill, 2016). It is a list of people in the study's population from whom a sample can be drawn (Kothari & Garg, 2014). The sample frame for this study was composed of 321 project managers drawn from the 321 active projects implemented by the water works development agencies. These personnel are selected on the basis that they are actively involved in actions and decisions that relate to stakeholder issues and project success. Similarly, they serve in management level and therefore, they can give research data on project manager competency. Table 3.1 presents the sample frame of the study.

Table 3.1: Sample Frame

No.	Agency	Number of Projects
1.	Lake Victoria South Water Works Development Agency	50
2.	Lake Victoria North Water Works Development Agency	47
3.	Tanathi Water Works Development Agency	38
4.	Athi Water Works Development Agency	58
5.	Coast Water Works Development Agency	21
6.	Central Rift Water Works Development Agency	24
7.	North Rift Valley Water Works Development Agency	15
8.	Tana Water Works Development Agency	38
9.	Northern Water Works Development Agency	30
	Total	**321**

Source: Water Services Regulatory Board (2023)

Sample and Sampling Technique

A sample represents a certain percentage of the population, and the frequency distribution of the trait is similar to the distribution of the same trait in the entire population (Saunders, Lewis, & Thornhill, 2016)

Sample Size

Kothari and Garg (2019) explain that the sample size refers to the items selected from the population as a sample, while the sampling technique refers to the process used to select the sample. Sample size for this study was determined using Yamane (1967).

This formula used to calculate the sample size is;

$$n = \frac{N}{1+N(e^2)} \quad \text{…….. (3.1)/1.8025}$$

Where n is the sample size, N is the population size, and e is the level of precision (0.05).

When this formula is applied, the following equation is obtained;

$$n = \frac{321}{1 + 321(0.05^2)}$$

$$= 178$$

Therefore, using Yamane (1967), the sample size for this study would be 178 participants. This represents 58.7% of the study's target audience. According to Mugenda and Mugenda (2014), the sample representing at least 30% of the study population is a suitable sample for the study. Therefore, our sample was appropriate for this study.

Data Collection Instruments

The study collected primary data through use of questionnaires. Survey is one of the advantages of collecting data especially from many respondents and allows anonymity (Mugenda & Mugenda, 2019). Data for this study was collected with close-ended questions. In closed questions, respondents are prohibited from answering directly without further explanation, while in open-ended questions; respondents were asked for their views on the analyzed situation. Likert scale was used to allow respondents to provide their perception.

Pilot Testing

A pilot analysis was used to ensure the validity and reliability of the questionnaire. According to Sekaran (2013), the pilot test is a small study before the actual test focusing on testing and improving a study. According to Cooper and Schindler (2017), pilot testing is done to discover flaws in design and measurement and to provide evidence for selection of possible models. Muus and Baker-Demaray (2017) explain that the test should involve people from the project and follow data collection procedures and methods. For high sensitivity studies, the sample size should be between 1% and 10% (Mugenda & Mugenda, 2014). Therefore, this study tested the data collection tool with 18 participants (10% of the study sample) selected from the target population. The samples used in the test were excluded from the final run.

Data Processing and Analysis

In this study, qualitative and quantitative data was collected. Qualitative data was analyzed using content analysis and presented in text form. Quantitative data was analyzed using the Statistical Standard for Social Sciences (SPSS) version 25 program. Quantitative data was analyzed using descriptive statistics such as frequency, percentage, mean and standard deviation. Descriptive statistics allow researchers to interpret the distribution of measurements and complete data (Sekaran & Bougie, 2016). This work also included statistical analysis of quantitative data, including analysis and regression analysis

According to Saunders et al. (2018), correlation is an analytical tool that helps to identify the relationship between two or more variables. Cooper and Schindler (2017) say that the correlation (measured by the correlation coefficient) is the degree of a positive relationship between the variables. Pearson correlation coefficient was used to measure the relationship between independent and dependent variables. The correlation coefficient (r) has two properties: power and direction.

Multiple regression model was used to evaluate the importance of the effect of individual variables on the variables. Multiple regression analysis was used to determine how activity use is affected by four variables of participant control. Multiple regression analysis determines whether a number of variables together predict a variable and in this way tries to increase the accuracy of the estimation (Mugenda & Mugenda, 2003). Using a regression model is ideal because it can show whether there is a positive or negative relationship between independence and change (Kothari & Garg, 2014).

The multiple regression equation model is illustrated below:

$Y= \beta_0+ \beta_1 X_1 +e$ ……. (3.3)

Where: Y is the dependent variable (Implementation of water projects),

β_0 is the constant (Co-efficient of intercept)

β_1, is the slope of the regression equation,

X_1 is Project Stakeholder Identification,

e is an error term

The equation was solved using a statistical model where SPSS was applied to generate the value.
Moderation was tested in the fifth research objective. Moderation happens when the relationship between the independent variables and the dependent variable is influenced by the introduction of another variable. This additional variable is the moderator. Moderation analysis was computed by use of hierarchical regression, whereby the relationship between stakeholder management and implementation of water projects in Kenya were computed first, followed by the introduction of Project manager competency (M). The product term, often referred to as the interaction term, was created by multiplying the summated-weighted scores of Project Stakeholder Identification (X) and Project manager competency (M).

Statistically, moderation analysis was computed by testing for interaction between Project manager competency (M) and stakeholder management (X) in a model of implementation of water projects in Kenya (Y); so as to determine whether Project manager competency weakens, strengthens, or plays insignificant role on the relationship between project stakeholder identification and successful implementation of water projects in Kenya.

The following model will be used;

$Y = \beta_0 + \beta_1 X + \beta_2 (X*M) + \varepsilon$ …… (3.4)

Where;

Y = Implementation of water projects
β_0 = constant
β_6 - β_8 = Beta coefficients
X = Project stakeholder identification
M = Project manager competency
(X*M) = interaction term
ε = error term for the moderation analysis
The findings were presented in tables and figures.

RESEARCH FINDINGS AND DISCUSSION

Descriptive Analysis

Project Stakeholder Identification

The first objective of the study was to establish the effect of project stakeholder identification on implementation of water projects in Kenya. Respondents were therefore requested to indicate their level of agreement with statements on project stakeholder identification and implementation of water projects in Kenya. Table 4.1 presents summary of the findings obtained.
From the results, the respondents agreed that there is a mechanism to identify the right project stakeholders (M= 4.118, SD= 0.703). In addition, the respondents agreed that all project stakeholders are categorized based pre-determined approach (M= 3.981, SD= 0.905). It was also agreed that stakeholder attributes are analyzed and taken care of in project decisions (M= 3.954, SD= 1.013). The respondents agreed that stakeholder roles are analyzed and stakeholders involved in all stages of the project (M= 3.888, SD= 0.957). The study findings are in line with the findings of Smith and Love (2019) who revealed that identifying and managing the needs and expectations of project stakeholders has a positive outcome on the success of infrastructure projects in terms of project completion, cost effectiveness and project sustainability.

The respondents agreed that project stakeholders concerns are analyzed in good time as they arise (M= 3.835, SD= 0.843). In addition, the respondents agreed that stakeholder needs and expectations are identified before the project begins (M= 3.817, SD= 0.771). Further, the respondents agreed that project stakeholder needs and expectations formally captured and documented (M= 3.801, SD= 0.836). The results are supported by the findings of Dwivedi and Dwiwedi (2021) found that identifying and managing the needs and expectations of project stakeholders was positively associated with the success of projects in terms of project completion, project cost, and project sustainability. This is attributed to the fact that correct identification of stakeholder interests and expectations makes it easier to address specific stakeholder needs enhancing project success

Table 4. 1: Descriptive Statistics on Project Stakeholder Identification

Statements.	**Mean**	**Std. Dev.**
There is a mechanism to identify the right project stakeholders	4.118	0.703
All project stakeholders are categorized based pre-determined approach	3.981	0.905
Stakeholder attributes are analyzed and taken care of in project decisions	3.954	1.013
Stakeholder roles are analyzed and stakeholders involved in all stages of the project	3.888	0.957
Project stakeholders concerns are analyzed in good time as they arise	3.835	0.843
Stakeholder needs and expectations are identified before the project begins.	3.817	0.771
Project stakeholder needs and expectations formally captured and documented	3.801	0.836
Aggregate Score	**3.851**	**0.831**

Project Manager Competency

The sec objective of the study was to assess the mediating effect of project manager competency on the relationship between stakeholders' management and implementation of water projects in Kenya. Respondents gave their level of agreement on statements on project manager competency on implementation of water projects in Kenya. Table 4.8 presents summary of the findings obtained.

From the results, the respondents agreed that project managers demonstrate the ability to inspire and motivate project team members (M= 3.996, SD= 1.008). In addition, the respondents agreed that project managers have a clear vision for the project and communicate it effectively to stakeholders (M= 3.950, SD= 1.030). It was also agreed that project managers take responsibility for project outcomes and hold team members accountable (M= 3.885, SD= 0.909). The respondents also agreed that project manager actively listen to stakeholders and seek to understand their perspectives (M= 3.868, SD= 1.258). The findings are supported by those of Kariuki (2015) who showed that effective project management approach, including stakeholder engagement and negotiation skills, have a positive impact on project success. The study recommended that project managers should be trained on technical and soft project management skills, critical for team work and effective feedback critical in project success.

The respondents agreed that project manager communicates project progress and challenges clearly and in a timely manner (M= 3.871, SD= 1.177). In addition, the respondents agreed that project manager adjust communication styles based on the needs and preferences of stakeholders (M= 3.869, SD= 0.765). Further, the respondents agreed that project managers have a thorough understanding of the technical requirements of the project (M= 3.823, SD= 0.796). The respondents also agreed that project managers have the ability to identify and mitigate technical risks (M= 3.731, SD= 0.874). The respondents further agreed that project

managers possess the necessary technical skills to effectively manage the project (M= 3.723, SD= 1.129). The results are supported by the findings of Armenia *et al*. (2019) who established project managers should have skills such as cognitive skills, collaboration with stakeholders and strategic thinking to successfully implement focused sustainability projects.

Table 4.2: Descriptive Statistics on Project Manager Competency

	Mean	Std. Dev.
Project managers demonstrate the ability to inspire and motivate project team members	3.996	1.008
Project managers have a clear vision for the project and communicate it effectively to stakeholders	3.950	1.030
Project managers take responsibility for project outcomes and hold team members accountable	3.885	0.909
Project manager actively listen to stakeholders and seek to understand their perspectives	3.868	1.258
Project manager communicates project progress and challenges clearly and in a timely manner	3.871	1.177
Project manager adjust communication styles based on the needs and preferences of stakeholders	3.869	0.765
Project managers have a thorough understanding of the technical requirements of the project	3.823	0.796
Project managers have the ability to identify and mitigate technical risks	3.731	0.874
Project managers possess the necessary technical skills to effectively manage the project	3.723	1.129
Aggregate Score	**3.863**	**0.993**

Implementation of Water Projects in Kenya

The main objective of this study is to investigate the effect of Project Stakeholder Identification on implementation of water projects in Kenya. Respondents were therefore requested to indicate their level of agreement with statements on implementation of water projects in Kenya. Table 4.3 presents summary of the findings obtained.

From the results, the respondents agreed that the water projects are completed within schedule (M= 3.950, SD= 0.689). In addition, the respondents agreed that the water projects are completed within budget (M= 3.923, SD= 0.857). It was also agreed that the water projects are completed within scope (M= 3.913, SD= 0.758). The respondents agreed that the water projects meet the required quality threshold (M= 3.885, SD= 0.766). In addition, the respondents agreed that the water projects meet set objectives and goals (M= 3.839, SD= 1.029). Further, the respondents agreed that the water projects meet project sustainability requirements (M= 3.754, SD= 0.797). The study results are supported by the findings of Alameri (2022) who established that a project is said to be successfully implemented if it is completed within the budget, within the timeframe and within the specified quality standards.

Table 4.3: Descriptive Statistics on Implementation of Water Projects in Kenya

	Mean	Std. Dev.
The water projects are completed within schedule	3.950	0.689
The water projects are completed within budget	3.923	0.857
The water projects are completed within scope	3.913	0.758
The water projects meet the required quality threshold	3.885	0.766
The water projects meet set objectives and goals	3.839	1.029
The water projects meet project sustainability requirements	3.754	0.797
Aggregate Score	**3.845**	**0.862**

Correlation Analysis

This research adopted Pearson correlation analysis to determine how the dependent variable (implementation of water projects in Kenya) relates with the independent variables (project stakeholder identification).

Table 4. 4: Correlation Coefficients

		Project Implementation	Project Stakeholder Identification
Project Implementation	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	171	
Project Stakeholder Identification	Pearson Correlation	.805**	1
	Sig. (2-tailed)	.003	
	N	171	171

From the results, there was a very strong relationship between project stakeholder identification and implementation of water projects in Kenya (r = 0.805, p value =0.003). The relationship was significant since the p value 0.003 was less than 0.05 (significant level). The findings are in line with the findings of Smith and Love (2019) who indicated that there is a very strong relationship between project stakeholder identification and project implementation.

Test for Hypothesis One

The first specific objective of the study was to establish the effect of project stakeholder identification on implementation of water projects in Kenya. The associated null hypothesis was that Project stakeholder identification has no significant effect on implementation of water projects in Kenya. A univariate analysis was conducted in which implementation of water projects in Kenya was regressed on project stakeholder identification.

The R-Squared depicted the variation in the dependent variable that can be explained by the independent variables. The greater the value of R-squared the greater the effect of independent variable. The R Squared can range from 0.000 to 1.000, with 1.000 showing a perfect fit that indicates that each point is on the line. As indicated in Table 4.18, the R-squared for the relationship between project stakeholder identification and implementation of water projects in Kenya was 0.252; this is an indication that at 95% confidence interval, 25.2% of variation in implementation of water projects in Kenya can be attributed to changes in project stakeholder identification. Therefore, project stakeholder identification can be used to explain 25.2% of changes in implementation of water projects in Kenya but there are other factors that can be attributed to 74.8% change in implementation of water projects in Kenya.

Table 4.5: Model Summary for Project Stakeholder Identification

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.502[a]	.252	.252	.66127

a. Predictors: (Constant), Project stakeholder identification

The analysis of variance was used to determine whether the regression model is a good fit for the data. It also gave the F-test statistic; the linear regression's F-test has the null hypothesis that there is no linear relationship between the two variables. From the analysis of variance (ANOVA) findings in Table 4.6, the study found out that that Prob>$F_{1,169}$= 0.000 was less than the selected 0.05 level of significance. This suggests that the model as constituted was fit to predict implementation of water projects in Kenya. Further, the F-calculated, from the table (287.08) was greater than the F-critical, from f-distribution tables (3.897) supporting the findings that Project stakeholder identification can be used to predict implementation of water projects in Kenya.

Table 4.6: ANOVA for Project Stakeholder Identification

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.91	1	41.91	287.05	.000[b]
	Residual	24.722	169	0.146		
	Total	66.632	170			

a. Dependent Variable: Implementation of water projects
b. Predictors: (Constant), Project stakeholder identification

From the results in Table 4.6, the following regression model was fitted.

$$Y = 2.069 + 0.433\ X_1$$

(X_1 is Project Stakeholder Identification)

The coefficient results showed that the constant had a coefficient of 2.069 suggesting that if Project Stakeholder Identification was held constant at zero, Implementation of water projects in Kenya would be 2.069 units. In addition, results showed that Project Stakeholder Identification coefficient was 0.433 indicating that a unit increase in Project Stakeholder Identification would result in a 0.433 improvement in implementation of water projects in Kenya. It was also noted that the P-value for project stakeholder identification coefficient was 0.000 which is less than the set 0.05 significance level indicating that project stakeholder identification was significant. Based on these results, the study rejected the null hypothesis and accepted the alternative that project stakeholder identification has positive significant influence implementation of water projects in Kenya.

Table 4.7: Beta Coefficients for Project Stakeholder Identification

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.069	.174		11.881	.000
	Project Stakeholder Identification	.433	.045	.491	9.723	.000

a. Dependent Variable: Implementation of water projects in Kenya

Test for Hypothesis Two

The second objective of the study was to assess the mediating effect of project manager competency on the relationship between project stakeholder identification and implementation of water projects in Kenya. Mediation happens when the relationship between the dependent

variable and the independent variables is dependent on a third variable (mediating variable). The effect that this variable has is termed as interaction as it affects the direction or strength of the relationship between the dependent and independent variable. To achieve the second research objective, the study computed moderating effect regression analysis. This (mediating effect regression analysis) also guided the study in testing the second research hypothesis. Project manager competency (M) was introduced as the moderating variable.

Ho_2: Assess the mediating effect of project manager competency on the relationship between project stakeholder identification and implementation of water projects in Kenya.

The study then used stepwise regression to establish the mediating effect of project manager competency (M) on the relationship between independent variable (X) and implementation of water projects in Kenya (Y). From the model summary findings in Table 4.8, the first model for which is the regression between project stakeholder identification (X) without moderator, project manager competency (M) and interaction, the value of R-squared was 0.336 which suggests that 33.6% change in implementation of water projects in Kenya can be explained by changes in project stakeholder identification. The p-value for the first model (0.000) was less than the selected level of significance (0.05) suggesting that the model was significant. The findings in the second model which constituted project stakeholder identification, project manager competency and implementation of water projects in Kenya (X*M) as predictors, the r-squared was 0.568. This implies that the introduction of project manager competency in the second model led to a 0.232 increase in r-squared, showing that project manager competency positively moderates implementation of water projects in Kenya.

Table 4.8: Model Summary for Mediating Effect

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.580[a]	.336	.334	.65170	.336	150.295	1	269	.000
2	.754[b]	.568	.564	.52727	.232	79.360	3	267	.000

a. Predictors: (Constant), Project stakeholder identification
b. Predictors: (Constant), Project stakeholder identification, project manager competency, Interaction (X*M)

From the model summary findings in Table 4.9, the F-calculated for the first model, was 498.688 and for the second model was 441.01. Since the F-calculated for the two models were more than the F-critical, 3.897 (first model) and 2.659 (second model), the two models were good fit for the data and hence they could be used in predicting the mediating effect of project manager competency on the implementation of water projects in Kenya.

Table 4. 9: ANOVA for Mediating Effect

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.832	1	63.832	498.688	.000[b]
	Residual	21.675	169	0.128		
	Total	85.507	170			
2	Regression	107.958	2	35.986	441.01	.000[c]
	Residual	13.622	168	0.0816		
	Total	121.58	170			

a. Dependent Variable: Implementation of water projects in Kenya
b. Predictors: (Constant), Project stakeholder identification
c. Predictors: (Constant), Project stakeholder identification, project manager competency, Interaction

Further, by substituting the beta values as well as the constant term from the coefficient's findings for the first step regression modelling, the following regression model will be fitted:

$Y = 1.387 + 0.608 X$

Where X is Project stakeholder identification

The findings show that when project stakeholder identification is held to a constant zero, implementation of water projects in Kenya will be at a constant value of 1.387. The findings also show that project stakeholder identification has a statistically significant effect on implementation of water projects in Kenya as shown by a regression coefficient of 0.608 (p-value= .000).

By substituting the beta values as well as the constant term from model 2 emanating from the second step in regression modeling the following regression model was fitted:

$Y= 3.876 + 0.220 X + 0.325 M + 0.283 X*M$

Where X is Project stakeholder identification; M is project manager competency and X*M is the interaction term between project stakeholder identification and project manager competency.

The findings show that when project stakeholder identification, project manager competency, interaction (X*M) are held to a constant zero, implementation of water projects in Kenya will be at a constant value of 3.876. The model also indicated that project stakeholder identification had a positive and statistically significant effect on implementation of water projects in Kenya as shown by a regression coefficient of 0.220 (p-value= 0.002). It is also seen that project manager competency had a positive and significant effect on implementation of water projects in Kenya as shown by a regression coefficient 0.325. On the other hand, interaction of implementation of water projects in Kenya and project manager competency (X*M) also had a positive and significant effect on implementation of water projects in Kenya as shown by a regression coefficient of 0.283 (p-value= 0.000).

It is therefore seen that project stakeholder identification on its own has 22% effect on implementation of water projects in Kenya. However, when interacted with project manager competency, it has an effect of 28.3%. This is a clear indication that introduction of project manager competency as moderating variable has positive influence on implementation of water projects in Kenya. The study therefore rejects the null hypothesis and accepts the alternative that project manager competency has significant mediating effect on the relationship between project stakeholder identification and implementation of water projects in Kenya.

Table 4.10: Beta Coefficients for mediating Effect

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.387	.194		7.163	.000
	Project stakeholder identification	.608	.050	.580	12.260	.000
2	(Constant)	3.876	1.009		3.841	.000
	Project stakeholder identification	.220	.067	.782	3.284	.002
	Project Manager Competency	.325	.048	.310	6.748	.000
	Interaction (X*M)	.283	.065	1.661	4.357	.000

a. Dependent Variable: Implementation of water projects in Kenya

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Project Stakeholder Identification

The first null hypothesis tested whether project stakeholder identification had a significant effect on implementation of water projects in Kenya. The study's findings revealed that project stakeholder identification is statistically significant in explaining the implementation of water projects in Kenya, and this influence was found to be positive. In other words, an improvement in project stakeholder identification positively impacts implementation of water projects in Kenya. The study concludes that project stakeholder identification has a positive and significant effect on implementation of water projects in Kenya. Findings revealed that stakeholder types, stakeholders' number, stakeholder roles and stakeholder attributes influence implementation of water projects in Kenya.

Project Manager Competency

The second null hypothesis tested whether Project manager competency had a significant mediating effect on the relationship between project stakeholder identification and implementation of water projects in Kenya. The study's findings revealed that Project manager competency had a significant mediating effect on the relationship between project stakeholder identification and implementation of water projects in Kenya, and this influence was found to be positive. In other words, an improvement in Project manager competency positively impacts implementation of water projects in Kenya. The study concludes that project manager competency has a positive and significant mediating effect on the relationship between project stakeholder identification and implementation of water projects in Kenya. Findings revealed that leadership skills, communication skills and technical sills influence implementation of water projects in Kenya.

Project Stakeholder Identification

This study recommends that project managers should conduct comprehensive stakeholder identification and mapping. This involves developing a detailed stakeholder map that includes all potential stakeholders such as local communities, government agencies, NGOs, donors, contractors, and environmental groups. Conducting thorough stakeholder analysis to understand the interests, influence, and impact of each stakeholder on the project is crucial. Categorizing stakeholders based on their level of influence and interest helps ensure that no critical stakeholder is overlooked and allows for more effective engagement strategies.

Project Manager Competency

The study recommends that investing in leadership development programs is essential to equip project managers with the necessary skills to inspire and guide project teams towards achieving project objectives. Leadership training should focus on fostering strategic thinking, decision-making, and team management skills. Project managers should be encouraged to participate in leadership workshops, seminars, and mentorship programs to enhance their leadership capabilities. Additionally, providing opportunities for practical leadership experiences, such as leading cross-functional teams or spearheading community engagement initiatives, can further develop their leadership competencies.

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