Journal of
Entreprenuership and Project Management
(JEPM)

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CARI Journals

Journal of Entrepreneurship and Project Management
ISSN: 2520-9116 (Online)
Vol.11, Issue No.4, pp 40 – 58, 2026
www.carijournals.org

Stakeholder Involvement and Performance of Mega Dam Projects in Kenya

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Accepted: 27th June, 2026, Received in Revised Form: 10th July, 2026, Published: 22nd July, 2026

ABSTRACT

Purpose: The purpose of this study was to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya. This study was anchored on stakeholder's theory.

Methodology: This study used descriptive and explanatory research design. This study adopted a positivist research paradigm. The unit of analysis was the ongoing and completed dam projects in Kenya while the unit of observation was 361 respondents comprising of 160 employees involved in the projects, 68 national government representatives, 101 project beneficiaries and 32 county government representatives. Due to small size of the target population the study used census method. In this study, primary and secondary data was used. It was collected using a questionnaire. Pilot study was conducted to test the validity and reliability of the data collection instrument. The Statistical Package for Social Sciences (SPSS) version 25 software was used to analyze the data. Qualitative data was analyzed using content analysis and presented in prose form. Quantitative data was analyzed using descriptive and inferential analysis. Descriptive statistics such as frequency, percentages, and means was used. Pearson correlation coefficient was used for testing strength and direction between the independent and the dependent variables. A multiple regression model was used to test the significance of the influence of the independent variables on the dependent variable. The findings were presented in Tables and figures.

Findings: The study concluded that stakeholder involvement positively and significantly influences performance of mega dam projects in Kenya.

Unique Contribution to Theory, Policy and Practice: Based on the findings, the study recommends that project managers should establish structured and continuous stakeholder engagement forums throughout the project lifecycle. These forums should actively involve local communities, environmental groups, county governments, and development partners to foster transparency, build trust, and ensure that diverse interests are addressed.

Keywords: *Stakeholder Involvement, Mega Dam Projects*

Background of the Study

This study sought to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya. According to the World Health Organization, 28.5% of Kenyans did not have access to safe water supply in 2022. Hence there is need to increase water availability to improve food security and production, increase irrigation and fresh water availability. Mega projects are large-scale, complex ventures typically costing billions of dollars, involving multiple stakeholders, and requiring several years to plan and execute. They often aim to deliver substantial economic, social, or environmental benefits and are commonly seen in sectors like infrastructure, energy, transportation, and urban development (Afroze & Khan, 2022). Mega dam projects are large-scale infrastructure undertakings designed to control water flow for purposes such as hydroelectric power generation, irrigation, flood control, and water supply. These projects typically involve the construction of massive dams that can span rivers or valleys, often costing billions of dollars and taking years or even decades to complete (Hassan, & Mehmood, 2024). Mega dam projects significantly alter ecosystems and landscapes, affecting local communities, wildlife habitats, and water systems, while also offering potential economic and environmental benefits such as renewable energy and improved water management. Due to their scale, they require extensive planning, engineering expertise, and coordination among governments, developers, and stakeholders (Ayarkwa, Ayirebi & Amoah, 2022).

Monitoring and evaluation of projects is not only important to projects but it is part and parcel of project design (Balian, Farah, & Braendle, 2020). Resources are scarce and they need to be properly and efficiently utilized. Monitoring and evaluation has been used globally over the last several years as an integral part of the project cycle and of good management practice (Ayarkwa, Ayirebi, & Amoah, 2022). Olive observes that monitoring and evaluation is fundamental if the project goals, objectives and success are to be realized. Monitoring and evaluation provides answers to questions regarding the output, effects and impact of the project or program in the life of the target population (Boermans, & Roelfsema, 2020). It establishes the necessary linkage among a set of activities undertaken in project planning and management: identification of problems, feasibility study, and design of the project/program, approval process, organization, implementation and supervision processes, completion, evaluation and follow-up (Githinji, Ogolla, & Kitheka, 2020). Information secured through monitoring and evaluation must be relevant, that is, geared to specific needs of program and project administrators; timely, that is, available and accessible at the time decisions are taken; and accurate, that is, reliable and empirically verifiable (Gashuga & Kule, 2020).

According to Kuria, and Kimutai (2020) more than 884 million people worldwide lack access to safe drinking water and an estimated 2.5 billion lack access to basic sanitation services. They further state that the World Health Organization estimates that 6.3% of all deaths worldwide are caused by limited access to safe drinking water and limited access to improved sanitation facilities and hygiene practices (Javier, & Alonso, 2022). Therefore, achieving universal access

to the two still remains a crucial goal of the global development agenda. Ibrahim, and Primiana, (2020) states that water and sanitation interventions have demonstrated economic benefits ranging from $5 to $46 per $1 invested.

Dam construction projects are frequently viewed as essential to an economic solution by providing hydroelectric electricity in developed economies, as well as many other developing countries. Around the world, many mega dams have been constructed, significantly assisting economies and communities in utilizing water resources for a variety of purposes. But there may be a cost to communities in receiving these services (Minyiri & Muchelule, 2023). When comparing the advantages and disadvantages of mega dams, the effects on people's livelihoods, health, social systems, and culture are frequently neglected because they are difficult to quantify. Studies conducted globally, regionally, and locally concur that there are several performance challenges associated with mega- dam construction. According to a study conducted by Kanda, Muchelule and Mamadi (2021) on the paradigm shift of sustaining United States reservoir storage capacity, sediment accumulates in reservoirs behind mega dams, which reduces their storage capacity and affects their performance. This also impacts downstream areas, causing problems for ecosystems and water quality.

Construction of mega-dams has negative impacts on the environment, such as changes in water temperature, flow, and quality and the loss of habitats for fish and wildlife (Jamaal, 2020). Building a dam requires a deep understanding of geology and rock mechanics. A study by Mbuvi and Gekara (2022), while assessing the sustainable performance of reservoir sedimentation in the aquatic environment of Katery Lake, Tamil Nadu, India, found that the construction of most mega dams is not done in such a way that the structures can withstand the loads imposed on them by the water in the reservoir and any seismic activity in the area.

In addition to the dam's condition, the environment and societal demands also affect a mega-dam's lifespan. It also has a close association with reinforcement at the same time. In other developed countries like China, some of their mega-dams last a thousand years without failing, while in developing countries most begin to leak and crack in a shorter time. Regionally, studies indicate that some mega- dams are unsafe, and thus their lifespan is short-lived. Mohamed and Thomas (2024), in their study on matching the project manager's roles to project types using data from large dam projects in Africa, concluded that any mega dam can be used as long as it is operationally and structurally safe. They established that mega dams age in various ways and at various rates, depending on a variety of factors. Existing reports indicate that some mega dams in sub- Saharan African countries are not maintained regularly as required to ensure they are functioning properly. This includes tasks such as monitoring and repairing any cracks or leaks, ensuring the integrity of the spillway, and managing vegetation growth in the reservoir.

In an effort to address its water deficit challenges, improve food security, and increase hydropower production, Kenya is currently undertaking its most ambitious mega dam

construction operation (Minyiri & Muchelule, 2023). Building dams, especially mega -dam, is often a costly undertaking that requires significant investment. Securing financing for mega-dam construction in Kenya has been challenging, and the costs of construction and maintenance can sometimes exceed initial estimates. In order to build mega dams around the nation, the Kenyan government has signed agreements worth more than Sh700 billion since 2013 (Muchelule & Mamadi, 2021). At least five mega - dams are being built by the government through various state entities at a cost of more than Sh 156 billion. Thwake Dam, located on the boundary of Makueni and Kitui, was cost of Sh 82 billion; Itare Dam, in Nakuru, was as well allocated the cost of Sh28 billion; and Karimenu Dam, in Gatundu, was allocated a total cost of Sh 24 billion by the Ministry of Water and Sanitation. While huge resources are directed towards the construction of these mega dams across the country, it is noted that their performance has dwindled.

The construction of these mega dams in Kenya has had significant social and cultural impacts, including deaths, the displacement of local communities, and the loss of cultural heritage sites. For example, the African Development Bank (2020) report indicated that of the land on which the Thwake mega dam was designed to occupy, about 70 percent traversed homesteads, smallholders' crop cultivation land, and grazing land. On the other hand, the Solai dam in Nakuru recently burst its banks on private land and killed hundreds of people due to poor engineering and maintenance gaps. The tragedy left 48 people dead, at least 5,000 displaced, and property worth hundreds of thousands destroyed.

Statement of the Problem

Mega dam projects in Kenya have increasingly become a focal point for national development, aiming to boost water supply, generate hydroelectric power, and support irrigation. However, despite their strategic significance, these projects often encounter a range of challenges that hinder their successful implementation (Jamaal, 2020). One of the most pressing challenges faced by mega dam projects in Kenya is the frequent delay in completion. These projects often exceed their scheduled timelines by several years. For example, the Arror and Kimwarer dam projects, initiated in 2017, were expected to be completed within five years. However, by 2023, construction had not begun due to administrative, legal, and financial hurdles (Karanja, & Ruguru, 2023). Delays in project execution not only inflate costs but also reduce the anticipated benefits during the delay period. According to a 2022 report by the Office of the Auditor-General, over 60% of government-funded water projects, including dams, are not completed within the planned timeframes. Another key issue is the failure of these projects to achieve their originally set objectives (Mohamed & Thomas, 2024). Most mega dams in Kenya are initiated to improve water access for agriculture and domestic use, increase power generation, and enhance food security. However, due to poor project planning and implementation flaws, these goals are often not met (Minyiri & Muchelule, 2023). For instance, the Thwake Dam, which was intended to serve four counties with water and power, has struggled with coordination issues, leading to

slow progress and doubts about its ability to meet these broad objectives. A 2021 study by the Kenya Institute for Public Policy Research and Analysis (KIPPRA) found that only 35% of large-scale water projects met at least half of their set goals within three years of commissioning (Kanda, Muchelule & Mamadi, 2021).

According to the Engineers Board of Kenya, over 40% of public infrastructure projects reviewed between 2015 and 2020 did not fully comply with required engineering standards, raising concerns about safety and sustainability (Mbuvi & Gekara, 2022). Cost overruns are perhaps the most controversial issue plaguing mega dam projects in Kenya. Initial budgets are frequently underestimated, and expenditures often balloon due to inflation, corruption, and mismanagement. For example, the Kimwarer and Arror dams were initially estimated to cost KSh 63 billion, but audits later revealed inflated figures and misappropriated funds (Mohamed & Thomas, 2024). As of 2020, the Ethics and Anti-Corruption Commission (EACC) estimated that over KSh 21 billion had been lost in irregular payments linked to these two projects alone. Cost inflation not only burdens taxpayers but also undermines confidence in public infrastructure initiatives (Minyiri & Muchelule, 2023).

Project Monitoring and Evaluation (M&E) Management is an integral to the success and performance of projects. Effective M&E ensures that project activities are aligned with planned objectives, timelines, and budgets, thereby minimizing risks of delays, cost overruns, and quality compromises (Kanda, Muchelule & Mamadi, 2021). Various studies have been conducted in various parts of the world on stakeholder involvement and project performance. However, none of these studies focused on stakeholder involvement on performance of mega dam projects in Kenya. To fill the highlighted gaps, the current study sought to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya.

General Objective

The purpose of this study was to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya.

Theoretical Review

Stakeholders Theory

Stakeholder Theory was proposed by Freeman (1994). This theory underpins issues regarding the management of an organization and the ethical considerations that should be put in place to ensure that an organization achieves its objectives (Wambui, & Bett, 2020). Organizations ought to put into consideration the ideas and opinions of various individuals and groups as that might greatly influence the decision making and consequently the achievement of organizational goals (Gibson, 2019). Stakeholder theory puts across how organizations and its stakeholders interact and relate with each other to achieve organizational objectives (Yakubu, Ogunsanmi, & Yakubu,

2019). According to (Ngwabije & Gitahi, 2023), stakeholders can come from within or outside the organization.

Stakeholder theory describes the composition of organizations as a collection of various individual groups with different interests. These interests, taken together, represent the will of the organization. As much as possible, business decisions should consider the interests of this collective group and advance overall cooperation (Yakubu, Ogunsanmi & Yakubu, 2019). This theory was used to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya.

Conceptual Framework

A conceptual framework is a structured plan or model that outlines the key concepts, variables, and their relationships within a study. It serves as a guide to understanding how different elements of the research are connected and how they contribute to the study's objectives (Creswell, 2019). In this study, the independent variable include; stakeholder involvement while the depedent variable is project performance

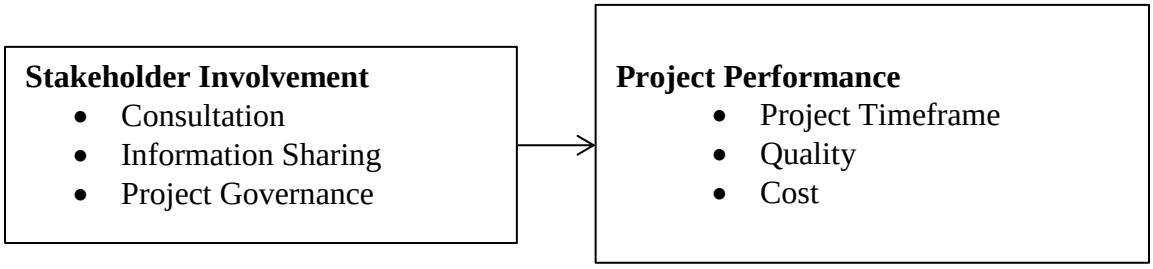

Figure 1: Conceptual Framework

Stakeholder Involvement Aspect of Monitoring and Evaluation

Monitoring and Evaluation (M&E) Stakeholder Involvement refers to the active engagement and participation of relevant individuals, groups, or organizations with an interest or influence in a project, program, or policy throughout the monitoring and evaluation processes. Stakeholders can include beneficiaries, funders, government agencies, community members, and any other entities that are affected by or can affect the outcomes of the initiative (Ngwabije & Gitahi, 2023). The components of stakeholder involvement include; consultation, information sharing and project governance.

Consultation is the process of actively seeking stakeholder input, feedback, and opinions before making major project decisions. It is a two-way interaction in which project implementers and stakeholders exchange views to shape the direction of the project (Samo, *et al*, 2024). Consultation occurs at various stages, including project design, needs assessment, risk identification, implementation, and evaluation. Its primary goal is to ensure that the concerns,

needs, and priorities of stakeholders—especially beneficiaries—are reflected in the project planning and execution processes. Proper consultation can help uncover local knowledge, minimize resistance, and ensure cultural and contextual alignment (Abdisalim & Njoroge, 2023). However, consultation must be meaningful rather than symbolic; token engagement risks alienating stakeholders and undermining the legitimacy of the process. Techniques such as public forums, surveys, stakeholder workshops, and key informant interviews are commonly used to facilitate consultations (Tuyishime & Nyambane, 2021).

Information sharing is a two-way communication process that involves the transparent exchange of data, findings, and insights related to the project between the project team and stakeholders. Transparent communication builds trust and credibility, providing stakeholders with a clear understanding of project progress, challenges, and results. It equips stakeholders with the information needed to make informed decisions and contributions, fostering alignment among all parties involved in the project (Nabibya, Dimo & Ketter, 2023). Project governance, on the other hand, refers to the framework, structure, and processes that guide decision-making, accountability, and performance within a project. It establishes the rules and procedures for how the project will be managed and monitored. Project governance is essential for ensuring accountability, as it clearly defines roles, responsibilities, and lines of accountability, ensuring that each stakeholder understands their contribution to project success. It also contributes to risk management by establishing mechanisms for identifying, assessing, and mitigating risks, ultimately promoting project resilience. Additionally, project governance ensures that the project operates within legal and ethical boundaries, meeting regulatory requirements (Kimanzi & Ngugi, 2022).

Empirical Review

An empirical review is a critical evaluation of existing research studies and data related to a specific topic. It involves analyzing and synthesizing findings from empirical research—research based on observed and measured phenomena, typically involving data collection through experiments, surveys, or other methods (Creswell, 2019). This section presents the empirical review on stakeholder involvement and project performance.

Stakeholder Involvement and Project Performance

Ngwabije and Gitahi (2023) assessed on stakeholder involvement and project performance a case of inspire, educate and empower Rwanda (teaching assistantship project Phase II). The research design was descriptive, and the study population was 227 people from IEE Organization Rwanda, including project beneficiaries, stakeholders, project managers, and IEE administrative staffs. The sample size was 144 respondents. The study found that there is a strong positive correlation between stakeholder involvement and project performance. The study concluded that stakeholder involvement has a significant impact on project performance.

Yadua, *et al* (2024) researched on the influence of stakeholder involvement on strategy implementation in selected Nigerian government agencies. The study used a descriptive survey design and three pivotal government agencies INEC, the Central Bank of Nigeria, and the Nigerian Electricity Regulatory Commission were purposively selected. Data was collected from 384 respondents. The study found a positive association between stakeholder involvement significantly influences strategy implementation in selected Nigerian government agencies. The study concluded that stakeholder involvement significantly influences strategy implementation in selected Nigerian government agencies.

Kimanzi and Ngugi (2022) examined on stakeholder involvement and implementation of projects by Kitui County Government, Kenya. The paper adopted a descriptive survey research design, with the target population consisting of 93 projects undertaken by Kitui County government. The study found that stakeholders' involvement had a positive and significant effect on the implementation of projects by Kitui County government. The study concluded that the involvement of stakeholders had a positive impact on project outcomes.

Githinji, Ogolla and Kitheka (2020) investigated on the influence of stakeholder's involvement on project performance. a case study of Kenya Ferry Services. The study adopted a descriptive research design, target population comprising 231 stakeholders of Kenya ferry services partners from which a sample of 70 respondents was selected. The study found that involvement of stakeholders in project identification, decision making, project monitoring and project funding significantly and positively related to project performance. The study concluded that stakeholder's involvement significantly influence project performance at Kenya Ferry Services.

Miombe, Kaswira and Lango (2024) conducted a study on stakeholder involvement practices and implementation of county government funded water projects in Kisii County Kenya. The study adopted a descriptive survey design with a target population of 201 county water staff managing 90 water projects across the county. Census method was used to collect data. The study found positive correlations between stakeholder involvement practices and implementation of county government funded water projects in Kisii County Kenya. The study concluded that stakeholder involvement plays a critical and multifaceted role in successfully implementing water projects.

RESEARCH METHODOLOGY

Research Design

Research designs refer to the overall strategies utilized in the integration of different components of a study in a logical and coherent way, thus making sure it effectively addresses a research problem. It describes a plan for data collection, measurement of variables, and data analysis in a study. Research designs can be descriptive, experimental, correlational, case study, explanatory or exploratory (Mugenda, & Mugenda, 2019).

The descriptive research design is a research method that systematically and accurately describes the characteristics of a phenomenon or population being studied (Maxwell, 2021). Experimental design refers to a research method aimed at describing and explaining the variation in information before and after an intervention. This study used descriptive and explanatory research design. Mugenda and Mugenda (2019) explained the descriptive design as a process of collecting data in order to test a hypothesis or to answer the questions of the current status of the subject under study.

This research also employed the explanatory research design, also referred to as the causal research design, given that the study is aimed at determining the nature and extent of cause-and-impact relationships. The explanatory research design is therefore suitable given that the objective of this research is to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya.

Research Philosophy

A research philosophy refers to the way in which data about a specific topic, concept or phenomenon is obtained, analyzed and utilized. There are four main research philosophies: pragmatism, positivism, realism and interpretivism (Lütfi, 2020). According to Kothari, (2019), positivists consider reality to be stable and argue that it can be looked at and described from an objective viewpoint without necessarily interfering with the phenomenon being studied. This study used a positivism research philosophy.

Target Population

Target population is the entire set of individuals (or objects) having the same characteristics as pointed out in the sampling criteria used for the study (Bryman, 2019). The unit of analysis is what is being targeted in the research. This study was conducted in Kenya focusing on mega dam projects. Through various State agencies, the government is building 68 Dams as shown in Appendix III (Ministry of Water and Sanitation, 2024). This implies that the unit of analysis was completed mega dam projects in Kenya while the unit of observation was 361 respondents comprising of 160 employees involved in the projects (Quantity surveyors, Engineers, Project managers), 68 national government representatives, 101 project beneficiaries and 32 county government representatives (Ministry of Water and Sanitation, 2024).

Table 1: Target Population

Category	Target Population
Project Staff	160
National Government Representatives	68
County government Representatives	32
Project Beneficiaries	101
Total	**361**

Sampling Frame

A sampling frame refers to a list of all items of a given population from which the study's samples is drawn (Tashakkori, & Teddlie, 2019). The sampling frame of the study was the 361 respondents.

Sample and Sampling Techniques

A sample refers to a part of or fraction of population that is being investigated upon. It can also be defined as a group of individuals who are engaged or participating in a study. The census method is a data collection technique in which information is gathered from every member of the population rather than from a sample (Kothari, 2019). Since the target population is small, the study used census method hence all the 361 respondents participated in the study.

Data Collection Instruments

In this study, primary and secondary data was used. Primary data was collected using a questionnaire because they are cost effective and convenient to collect and summarize responses (Creswell, & Plano, 2019). This study used both closed-ended questions and open ended questions to collect the data. Close-ended questions are used to generate statistics in quantitative research while open-ended questionnaires are used in qualitative research, although some researchers quantify the answers during the analysis stage (Creswell, R. (2019). Open ended questions allow respondents to provide additional information that is not captured by the closed-ended questions. Secondary data refers to data that has been collected by someone other than the user for purposes other than the current research or analysis. This type of data is typically obtained from sources such as government reports, academic papers, previous research studies, organizational records, and databases (Creswell, & Plano, 2019). Performance of mega dam projects in Kenya was measured using secondary data in terms of completion period, achievement of set objectives, project quality and project cost.

Pilot Study

Concurring Kothari (2019), a pilot test is the imitation and practice of the principle study and it conveys to light the shortcomings of the polls and furthermore of the inspecting systems. A pilot study was done on 36 respondents. This enabled the researcher to test the unwavering quality and legitimacy of the poll. The standard that up to 10% of the example ought to comprise a pilot test (Creswell, 2019). Accordingly, the proposed pilot test is inside the prescribed size. Pilot contemplate is, subsequently, directed to recognize the shortcoming in plan and instrumentation and to give precise information to test choice, (Crowther, & Lancaster, 2018).

Data Analysis and Presentation

The data analysis process entails packaging the collected data, putting it in order, and structuring its major elements in a way that the results can be easily and efficiently communicated (Bryman, 2019). The questionnaire generated both quantitative and qualitative data. Thematic analysis was used to analyze qualitative data from the open-ended questions. Thematic analysis is one of the most common forms of analysis in qualitative research. The goal of a thematic analysis is to identify themes and patterns in the data that are important or interesting, and use these themes to address the research or say something about an issue (Cooper, & Schindler, 2019). Themes are patterns across data sets that are important to the description of a phenomenon and are associated with a specific research question. The themes become the categories for analysis. The results from the qualitative data analysis were presented in a narrative form. In addition, qualitative results were used to improve the credibility of the quantitative results, and provide explanations for the findings of the quantitative analysis.

The objectives of the study guided data analysis. SPSS version 26 was used to analyze the data that was collected from the field. In order to allow data to be entered into the software, the questionnaires were referenced, and the data coded. Both quantitative and qualitative data were collected. Quantitative data collected was analyzed using descriptive statistics techniques. Through descriptive analyses, correlational as well as experimental studies emerge; and also, they provide clues on the issues that require more attention which leads to further research (Mugenda & Mugenda, 2020). Qualitative data was analyzed using content analysis which was performed in SPSS. Before the data is analyzed, it was first coded, cleaned, and grouped as per their variables.

Pearson R correlation was used to measure strength and the direction of linear relationship between variables. A large correlation implies a strong relation exists between the variables. The extent of the level of association between two variables is determined using correlation analysis (Creswell, 2019). Through correlation analysis, the researcher was able to detect if there exist any chances of multicollinearity. If the Correlation coefficient is zero, then it suggests the variables are not related, if the value is ±1 the variables are strongly associated (Cooper & Schindler, 2019). Small association is indicated by values ranging from 0.1- 0.29, medium

association is indicated by value ranging from 0.3-0.49, and strong association is indicated by value of 0.5 and above.

Multiple regression models were fitted to the data in order to determine how the predictor/independent variable affects the response/dependent variable. Multiple regression Analysis was used in this study because it uses the predictor variables in predicting the response variable. It is a statistical tool attempting to establish whether some variables can be used together in predicting a particular variable (Mugenda & Mugenda, 2019). Multiple regression model was used to examine the effects of Project Monitoring and Evaluation Management on performance of mega water projects in Kenya.

To determine any causal relationship, multiple linear regression analysis was conducted. As stated by Grant (2019), causation models are best explained by linear regression analysis and thus, the study used linear regression results for the variable to measure hypothesis. The model used was as shown below;

Performance = f (monitoring and evaluation budget a)

$$Y = \beta_0 + \beta_1 X_2 + \varepsilon$$

Where: -

Y is Performance of mega dam projects in Kenya

X_1 is stakeholder involvement

β_0 is a constant

ε is Error term

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

Descriptive Statistics Analysis

This section presents findings on Likert scale questions where respondents were asked to indicate their level of agreement on various statements that relate with the relationship between stakeholder involvement on the performance of mega dam projects in Kenya and the moderating effect of project environment. The study used a 5-point Likert scale where 1-strongly disagree, 2-disagree, 3-moderate, 4-agree, 5-strongly agree. The means and standard deviations were used to interpret the findings where a mean value of 1-1.4 was strongly disagree, 1.5-2.4 disagree, 2.5-3.4 neutral, 3.5-4.4 agree and 4.5-5 strongly agree. Standard deviation greater than 2 was considered large meaning responses were widely spread out and not tightly clustered around the mean. In other words, there was a lot of variability in the responses, which may suggest that participants had different interpretations or perceptions of the questions being asked.

Stakeholder Involvement and Project Performance

The first specific objective of the study was to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya. The respondents were requested to indicate their level of agreement on the statements relating to stakeholder involvement and performance of mega dam projects in Kenya. The results were as shown in Table 2

From the results, the respondents agreed that stakeholders are consulted before key project decisions are made (M=3.922, SD= 0.876). In addition, the respondents agreed that the project team regularly seeks input from affected parties (M=3.858, SD= 0.713). Further, the respondents agreed that consultation processes reflect the views of diverse stakeholders (M=3.844, SD= 0.739). The respondents also agreed that project information is shared openly with stakeholders to keep everyone informed (M=3.822, SD= 0.614). Further, the respondents agreed that there is an effective communication strategy that ensures timely updates to stakeholders (M=3.762, SD= 0.657). The findings concur with the findings of Ngwabije and Gitahi (2023) who established that stakeholder involvement has a significant impact on project performance. In addition, Yadua, *et al* (2024) found that stakeholder involvement significantly influences strategy implementation in selected Nigerian government agencies.

From the results, the respondents agreed that important milestones and changes are regularly communicated to stakeholders (M=3.722, SD= 0.899). In addition, the respondents agreed that the project governance structure is clear, with defined roles for all stakeholders (M=3.699, SD=0.714). Further, the respondents agreed that stakeholders are well-represented in the governance framework, ensuring their interests are considered (M=3.634, SD=0.817). The respondents also agreed that governance processes allow for effective oversight and accountability throughout the project (M=3.612, SD=0.597). The findings are in line with the findings of Kimanzi and Ngugi (2022) who revealed that involvement of stakeholders had a positive impact on project outcomes. In addition, Githinji, Ogolla and Kitheka (2020) confirmed that involvement of stakeholders in project identification, decision making, project monitoring and project funding significantly and positively related to project performance.

Table 2: Stakeholder Involvement and Project Performance

	Mean	Std. Deviation
Consultation		
Stakeholders are consulted before key project decisions are made.	3.922	0.876
The project team regularly seeks input from affected parties.	3.858	0.713
Consultation processes reflect the views of diverse stakeholders.	3.844	0.739
Information Sharing		
Project information is shared openly with stakeholders to keep everyone informed.	3.822	0.614
There is an effective communication strategy that ensures timely updates to stakeholders.	3.762	0.657
Important milestones and changes are regularly communicated to stakeholders.	3.722	0.899
Project Governance		
The project governance structure is clear, with defined roles for all stakeholders.	3.699	0.714
Stakeholders are well-represented in the governance framework, ensuring their interests are considered.	3.634	0.817
Governance processes allow for effective oversight and accountability throughout the project.	3.612	0.597
Aggregate	**3.864**	**0.736**

Test for Hypothesis One

The one objective of the study was to establish how stakeholder involvement relates to the performance of mega dam projects in Kenya. The corresponding hypothesis was stakeholder involvement has no significant influence on performance of mega dam projects in Kenya.

A univariate analysis was therefore conducted to test the null hypothesis. From the model summary findings in Table 3, the r-squared for the relationship between stakeholder involvement and performance of mega dam projects in Kenya was 0.253; this is an indication that at 95% confidence interval, 25.3% variation in performance of mega dam projects in Kenya can be attributed to changes in stakeholder involvement. Therefore, stakeholder involvement can be used to explain 25.3% change in performance of mega dam projects in Kenya. However, the remaining 74.7% variation in performance of mega dam projects in Kenya suggests that there are

other factors other than stakeholder involvement that explain performance of mega dam projects in Kenya.

The analysis of variance was used to determine whether the regression model is a good fit for the data. From the analysis of variance (ANOVA) findings in Table 4, the study found out that that Prob>$F_{1, 312}$= 0.000 was less than the selected 0.05 level of significance. This suggests that the model as constituted was fit to predict performance of mega dam projects in Kenya. Further, the F-calculated, from the table (105.906) was greater than the F-critical, from f-distribution tables (3.871) supporting the findings that stakeholder involvement can be used to predict performance of mega dam projects in Kenya.

From the results in table 5, the following regression model was fitted.

$Y = 0.244 + 0.361 X_2$

(X_2 is Stakeholder Involvement)

The coefficient results showed that the constant had a coefficient of 0.244 suggesting that if stakeholder involvement was held constant at zero, performance of mega dam projects in Kenya would be at 0.244 units. In addition, results showed that stakeholder involvement coefficient was 0.361 indicating that a unit increase in stakeholder involvement would result in a 0.361 increase in performance of mega dam projects in Kenya. It was also noted that the P-value for stakeholder involvement coefficient was 0.000 which is less than the set 0.05 significance level indicating that stakeholder involvement was significant. Based on these results, the study rejected the null hypothesis and accepted the alternative that stakeholder involvement has a positive and significant influence on performance of mega dam projects in Kenya.

Table 3: Model Summary for Stakeholder Involvement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.503[a]	.253	.252	.68365

a. Predictors: (Constant), stakeholder involvement

Table 4: ANOVA for Stakeholder Involvement

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.615	1	14.615	105.906	.000[b]
	Residual	43.111	312	0.138		
	Total	57.726	313			

a. Dependent Variable: performance of mega dam projects in Kenya

b. Predictors: (Constant), stakeholder involvement

Table 5: Beta Coefficients for Stakeholder Involvement

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.244	.063		3.873	.000
	stakeholder involvement	0.361	0.093	0.360	3.882	0.000

a. Dependent Variable: performance of mega dam projects in Kenya

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Stakeholder Involvement and Project Performance

The first null hypothesis test was 'Stakeholder involvement has no significant influence on performance of mega dam projects in Kenya. The study found that stakeholder involvement is statistically significant in explaining performance of mega dam projects in Kenya. The influence was found to be positive. This means that unit improvement in stakeholder involvement would lead to an increase in performance of mega dam projects in Kenya. Based on the findings, the study concluded that stakeholder involvement positively and significantly influences performance of mega dam projects in Kenya.

Recommendations

The study recommends that project managers should establish structured and continuous stakeholder engagement forums throughout the project lifecycle. These forums should actively

involve local communities, environmental groups, county governments, and development partners to foster transparency, build trust, and ensure that diverse interests are addressed.

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