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PROJECT PLANNING STRATEGIES AND PERFORMANCE OF WATER PROJECTS IN ELGEYO MARAKWET COUNTY, KENYA

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ABSTRACT

Access to clean water for drinking and sanitation is currently being addressed as a fundamental human right, and it is a global priority, especially in light of the Sustainable Development Goals. Every human being requires access to clean water. However, despite numerous human advancements and assistance, it remains a major struggle to ensure that all people have access to clean water. In Kenya, about 60% of the population is estimated not to have access to clean water. This problem is particularly significant in rural areas and small towns where getting water may require long physical efforts, it may come from unclean sources, or it may have to be purchased for a high price to ensure adequate hygiene and health. According to Kenya National Water Master Plan 2030, the demand for water in Kenya was at 14% in 2010 and by 2050 it is projected to be at 81%. In Elgeyo Marakwet County (EMC), one of Kenya's 47 counties, studies show that 26% of the population have access to clean water and improved sanitation services. However, a large number of Kenyans lack access to clean drinking water throughout the nation. The main objective of this study was to determine the role of project planning strategies and performance of water projects in Elgeyo Marakwet County. The specific objectives were to to determine the effect of project control on the performance of water projects in EMC and to ascertain the role of work breakdown structures on the performance of water projects in EMC. The target population included the project officers/managers, finance and procurement officers of the county, contract managers, supervisors, engineers, community members, casual workers, facilitators, and project coordinators. Resource based theory and Theory of change was used to guide this study. The study employed both prbability and non-probability sampling methods. Data was collected using self-administered questionnaires. Regression analysis was used to determine whether the variables including water breakdown structures, and project control could be used to predict project performance of water projects. this was achieved with the help of SPSS version 27 and MS Excel. ANOVA test was used to test the significance of the prediction model. The results revealed that project control and work breakdown structures were positively and significantly correlated with performance of water projects . The study recommends that: there is a need among all stakeholders to be involved in resource planning of water projects in Elgeyo-Marakwet County to ensure that the wisdom of each is factored in for successful implementation of the project; the institutions and individuals concerned with project control have to ensure that they follow the laid down procedures and guidelines to ensure the success of the project.

Key Words: Project Planning Strategies, Project Control And Work Breakdown Structures

Background of the Study

Project management is a strategic skill that helps organizations to link project outcomes to organizational goals. Project Management has five phases; initiation; planning; execution, monitoring and control; and closure (Project Management Institute, 2013). To accomplish a certain community goal or set of related goals, project planning is essential. Project planning entails identifying specific community issues that prevent the achievement of community goals, developing a work plan to address those issues and achieve the goals, describing the project's implementation's quantifiable positive impacts on the community and estimating the amount of funding or resources required to complete the project. A successful project's design and implementation therefore, heavily depends on the community and its participation.

Any government project's success is largely dependent on the project's performance (Binder, 2017). To maximize the likelihood of success, project managers plan and carry out their projects using management tools. The majority of government-funded initiatives encounter financial challenges during the implementation stage. One of the main reasons for project completion delays in many nations around the world is inadequate funding. According to Zagorsky (2016), timely and enough finance is essential for a project's success. When projects receive insufficient or delayed funding, their performance suffers, which ultimately affects their ability to be completed on schedule.

To accomplish a certain community or organizational goal or set related goals, project planning entails a series of procedures. A community plan or a strategic plan may mention this objective. It entails identifying specific community issues that prevent the achievement of community goals, developing a work plan to address issues and achieve the goals, describing the project's implementation's quantifiable positive impacts on the community, and estimating the amount of funding or resources required to complete the project. A successful project's design and implementation depend heavily on the community and its participation.

According to Kerzner's (2003) observation, project management is created to control institutional resources in a specific activity within the parameters of time, money, an acceptable degree of performance, and good customer relations. Project management follows a predetermined order of phases that specify the tasks to be completed, the person who will perform those tasks, the milestones, the person who will authorize and review the milestones, and the control and monitoring of the milestones (Project Management Institute, 2013).

In 2010, the United Nations General Assembly recognized both the human right to water and the fact that water is essential to the realization of all human rights. The resolution urged governments and international organizations to assist developing nations in gaining access to safe, clean water through the provision of funding, technology, and capacity development. Demand for water resources is presently the focal point of water resource development, with consumers playing a significant role in decision-making, implementation, and sustainability.

The world's ability to develop sustainably is seriously threatened by the growing water issue. Despite numerous human advancements and assistance, it remains a major struggle to guarantee that all people have contact to clean water. This crisis in water stewardship is becoming more widely recognized as a serious threat to nations. Because of a lack of funds, resources, upkeep and service replacement parts, and capacities; the performance percentage for water projects in poor countries is alarmingly low (Hazelton, 2015).

Gebrehiwot (2015), notes that the performance of government water projects in sub-Saharan Africa frequently demonstrates low completion rates. This is because majority of the government authorities have not been able to fully embrace the project planning and monitoring approach. According to the International Institute for Environment and

Development, the inability to plan for infrastructure maintenance has led to the death of 50,000 water supply points in Africa alone. Carter et al. (2010), further indicated that many rural water supply projects in Sub-Saharan Africa have not been financially viable due to low levels of community involvement, inadequate or nonexistent freshwater management, lack of community ownership, inadequate financial costs to cater for operation and maintenance, inadequate skills to operate and maintain the systems, construction quality that has been compromised due to the technology used, a lack of spare parts for repairs, among other factors. In addition, the proper planning of such projects must be done to ensure they are sustainable and benefit the target population. The World Bank, IMF, and other agencies which fund most of the projects argue that for sustainability of water projects community involvement is essential (Kumar, 2002).

Statement of the Problem

Water is a resource that is essential for socioeconomic development, thriving ecosystems, and human survival, according to the United Nations Department of Economic and Social Affairs (UNDESA) (Cornor, 2015). Despite many human achievements and contributions, it is still very difficult to guarantee that everyone has access to clean water. Water scarcity affects more than 1.6 billion people worldwide (FAO, 2007). In Kenya, it's believed that 60% of people lack access to clean water. In the rural areas where the majority of the population resides, the situation is significantly worse. The Kenya National Water Master Plan 2030 estimates that by 2050, the country's water consumption will have increased from 14% in 2010 to 81%.

Cognizant of the need to increase access to clean water, many countries have made efforts through implementation of water projects. Despite these efforts, to contribute to increased access to safe water, globally, less than 50% of water projects initiated were successful implemented (PWC, 2014). In most parts of Kenya, more than 30% of water projects have performed poorly with some being rendered nonoperational while many others remain incomplete. Also, majority of the constructed water projects report dismal performance in the first three years following completion. The success of water infrastructure therefore remains a great contest which calls for a determined effort to address (GoK, 2021).

The findings from the Auditor General report for the year ended 30th June 2021 indicated that the Elgeyo Marakwet County Department of Lands, Housing and Physical Planning implemented only 40% of its water development allocation. This finding was attributed to lack of community participation during planning, implementation and monitoring of the projects and hence some ended up being unsustainable. Further reports revealed that where community participation was done during project identification and planning, representation of ward residents during public participation forums was not guaranteed. Water scarcity in the County therefore remains to be a challenge.

Various revisions have been taken on the determinants of performance and on factors that influence sustainability of water projects in Elgeyo Marakwet County. Kilimo & Nambuswa (2018) concluded that majority of the customers of the water schemes did not fully contribute in the project. Titus (2020) found that low ownership of water projects by communities was due to limited participation in proof of identity, preparation, resource utilization and oversight of County funded projects. None of these studies however looked at the influence of project planning on the performance of water projects. Elgeyo-Marakwet County was selected for this study because there is insufficient information exists on how planning affects the successful implementation of water projects. The choice of study variables was determined by their relevance to the research area.

General Objective

The purpose of the study was to determine the relationship between project planning strategies and performance of water projects in Elgeyo Marakwet County.

Specific Objectives

i. To determine the effect of project control on the performance of water projects in EMC
ii. To ascertain the role of work breakdown structures on the performance of water projects in EMC

Theoretical Framework

Resource-Based Theory

The resource-based theory laid out by Wernerfelt (1984), defines organization competitive advantage as its ability to access and utilize resources. According to Barney (1991), project resources are; tangible assets such as cash, property plant and equipment and; intangible assets such as capabilities, organizational processes, firms 'attributes, information, and knowledge, controlled by an organization. The theory therefore advocates that organizations derive their competitive advantage from their ownership of strategic resources. Ande et al., (2018), defines strategic resources as collection of tangible assets, skills, knowledge, competences and processes, that are valuable, rare and difficult to copy and substitute. Organizations thus use these strategic resources to implement projects and activities in order to achieve value maximization.

The success of any project implementation relies in the ability and capacity of the implementing entity/agency to manage the project resources effectively so as to ensure improved service delivery and achieve strategic advantage (Mwikya and Khamah, 2020). The theory therefore intimates that the performance of projects can only be achieved when there is a proper understanding of the resources available to an organization and how those resources can be leveraged to enhance goal attainment (Karama et al., 2019). According to Awino and Marendi-Getuno (2014), critics of the theory however, argue that some resources give the firm a competitive advantage while others do not.

In respect to water projects, the resources available include; project staff hired by the implementing agency such as the National, County Governments or water companies; the finances collected and/or disbursed to them; and the facilities including the infrastructure to facilitate the execution of various tasks that the said water projects are required to deliver to the public. Relative to resource - based theory, the bundle of productive resources includes staff, finances and infrastructure among others. On the other hand, capabilities include the expertise possessed by the water project staff. Therefore, the theory is relevant to this study in that it is cognizant of the aforementioned resources and capabilities in water utilities in Kenya.

The idea provides important and fundamental explanations for why businesses with valuable, uncommon, unique, and well-organized resources may perform better (Barney, 2016). Thus, it was decided that the theory can be used to determine the resources available for carrying out water project. Colbert (2004) asserts that it takes the firm's profitability as well as its value element into account. According to this idea, an organization can gain a competitive edge when it is able to use its resources in a distinctive and beneficial way relative to its rivals.

Resource based theory implies that the organization can determine the resources available within them at the stage of planning. The theory also brings the concept of competitive

advantage which is applicable in the completion of water projects to help them be financially self-reliant. This brings the projects more success in the emerging economy of the world (Das & Teng, 2000). Resources develop organizational capabilities to have sustained competitive advantage that led to positive economic and financial performance.

This study adopted the resource-based theory to demonstrate the influence of resource allocation and resource planning on the implementation of water projects. The theory was thought relevant to project planning owing to the fact that it supports implementation of water projects with the available resources. Lack of resources leads to project delays leading to cost overruns, and therefore planning resources ensures availability of resources both on time and quality. The theory hence helps in analyzing the effective use of resources and use of work breakdown structures in implementation of water projects in Elgeyo-Marakwet County.

Theory of Change

There exist various descriptions of what the theory of change (TOC) entails. According to Collins and Clark (2013), a theory of change is an "enunciation of the fundamental beliefs and molds that guide a service delivery plan and are believed to be important for producing change and improvement,". The Theory of change further provides that communities can create policies that, once they are in place, will transform everything to suit their demands. The approach is centered on making links between a project's or program's mission, strategy, execution, and results. According to Jackson (2013) the TOC is based on two components namely; a) conceptualization and operationalization by looking at the population, the strategies employed into the project, the achievement of the project outcomes and creation of meaningful relationships between the key elements of TOC and b) establishment of connections between the main TOC components.

When the theory of change is used in project planning, it offers additional ways for the project team to reach the project's objectives. The TOC evaluates whether or not all project actions are on track throughout the implementation phase and determines what adjustments can be made to guarantee that everything gets back on track (Janzen, Ochocka, & Stobbe, 2016).

This theory was therefore in favor of the project control and project selection variables. This is so that program stakeholders select projects based on the level of expertise and resources available and based on the prioritized needs of the community. The theory also ensures that the projects are monitored during execution and its results evaluated against the desired change and impact. All project participants, but especially the project managers, will be able to successfully plan for reaching the intended results thanks to the theory. The project managers will also be able to connect the project's objectives with its results.

Empirical Review

Project Control in the Performance of Water Projects

The term "project control" pertains to the activities involved in obtaining and evaluating project-related information for the purpose of ensuring that project costs and schedules are effectively managed. Project controls encompass a range of responsibilities, including initiating, strategizing, overseeing, accommodating, communicating, and finalizing project expenditures and timelines. Project controls refer to a set of systematic procedures that are employed to evaluate the status of a project, anticipate probable outcomes based on such evaluations, and subsequently improve project performance in case the anticipated results are deemed unsatisfactory. Rico (2009) asserts that project controls encompass a range of activities, including aligning projects with portfolio/organizational goals and objectives, developing a work breakdown structure (WBS), collaborating to establish initial project

schedules, devising a risk management plan, budgeting and forecasting for the project, monitoring project costs, soliciting feedback from project participants, and optimizing project strategies to enhance future outcomes.

In United States, according to Horner &Yong, (2006) monitoring and controlling processes observes the project executing processes, promptly identifies problems occur during the executions, determines corrective action and controls all project management processes. These processes constantly monitor the performance of the project, identify the variances from project management planning and provide timely corrections. Also, they perform the controlling processes toward changes and problems, in order to provide necessary preventive actions. Monitoring and controlling processes are constant processes, which will help update stakeholders and team members on how well the project has been doing and what may require reviewing, revising or more attention. These processes monitor and control the entire project, interactively provide feedbacks between project phases.

Control systems are needed for cost, risk, quality, communication, time, change, procurement, and human resources. In addition, auditors should consider how important the projects are to the financial statements, how reliant the stakeholders are on controls, and how many controls exist. Ethiopian, Pinto, (2007) stated that auditors should review the development process and procedures for how they are implemented. The process of development and the quality of the final product may also be assessed if needed or requested. A business may want the auditing firm to be involved throughout the process to catch problems earlier on so that they can be fixed more easily. An auditor can serve as a controls consultant as part of the development team or as an independent auditor as part of an audit.

In the organizational hierarchy, project controls are situated below project management. A project manager may receive periodic updates from a project controller regarding the progress of a single project or a group of projects. In addition, project controls play a crucial role in facilitating efficient project management by alerting project stakeholders to possible areas of concern and allowing them to make necessary adjustments to their course of action. According to Donaldson's (2001) assertion, the effectiveness of project controls is contingent upon their consistent and integrated application, rather than sporadic or isolated use. It is imperative that project control activities are executed throughout the entire duration of the project, from its initiation to its conclusion, with the aim of monitoring and regulating the various factors that impact project cost and schedule. Sadotra (2018) alluded that during project control, project managers have to continuously adjust their project schedules to keep the project on track. In cases where the project experiences differences in planning and execution it does not necessarily intimate the need for change in the project plan, however the divergence ought to be reviewed and remedial action proposed.

Work Breakdown Structures in the Performance of Water Projects

According to Burke (2010), a work breakdown structure (WBS) is a visual and hierarchical representation of the scope and deliverables of a project. Project managers utilize a work breakdown structure to decompose the extensive scope of a project into smaller, more feasible outcomes. Winter et al. (2006) assert that the Work Breakdown Structure (WBS) technique distinguishes itself from other similar techniques in terms of its utility and complexity. This is attributed to its ability to provide a high level of clarity in the hierarchy of activities that constitute the internal process specific. Additionally, the technique offers a detailed description of the working stages by specifying phase sequence and timing of limits concerning achievement of deliverables, among other factors. The approach facilitates the identification of the interdependence between operational procedures and the goals of the pyramid structure. It also highlights the possible hazards and corresponding measures that need to be implemented to mitigate the likelihood of any unforeseen circumstances that may impede the attainment of the predetermined objectives. The work breakdown structure holds

significant value as a project management tool for various reasons. Initially, the task is divided into manageable segments, which reduces its daunting nature. According to the findings of Daniel and Patricia's (2017) research, the Work Breakdown Structure (WBS) is a crucial instrument for various project management tasks, including but not limited to resource estimation, performance monitoring and control, assignment of project responsibilities, schedule creation, and identification of project risks and stakeholder engagement.

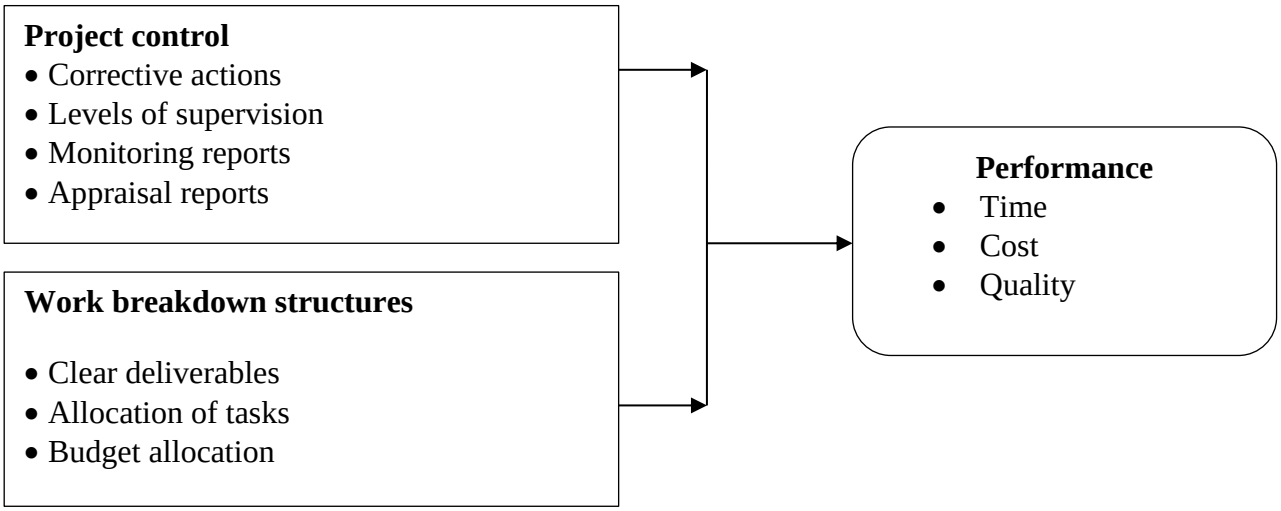
The effective coordination and unexpressed communication among team members, coupled with clearly defined objectives and identified deliverables, are essential for timely project completion. The Work Breakdown Structure (WBS), which is a diagrammatic representation of the project, serves as a straightforward means of internalizing the MP process. The establishment of distinct phases or stages in the process, which subsequently leads to a well-defined understanding of the necessary developmental activities required to achieve the desired objectives, represents the ultimate outcome of this approach. According to Winter et al. (2006), this approach assumes that creativity will be enhanced. The accomplishment of this task necessitates the collaboration of a group of experts, each assigned with the responsibility of presenting their proposals and promoting the most optimal resolutions to accurately determine the essential results, commonly referred to as "deliverables," and the tasks that will be implemented.

The Work Breakdown Structure (WBS) provides a structured plan for the different individuals and groups involved in a project. Many projects necessitate the collaboration of multiple teams, who must work in tandem and communicate effectively in order to successfully accomplish the project's objectives. By utilizing a Work Breakdown Structure (WBS), individuals and teams can focus on their specific tasks and deliverables while also comprehending the larger project framework. This approach is highly effective for allocating resources, identifying milestones, and measuring project completion. By adhering to the 100% rule, project managers can ensure accurate project funding and mitigate the risk of unexpected deliverables causing delays. The Work Breakdown Structure (WBS) is designed to support the management, organization, and performance control of forecasts, thereby reflecting their essential features. Simultaneously, the WBS provides supplementary measures pertaining to quality performance management and the attainment of Project Management Units (PMU) objectives. To effectively assume accountability for project performance, it is imperative for the project manager utilizing a Work Breakdown Structure (WBS) to establish a distinct competitive edge. The UMP employs a methodology that promotes a significant degree of rationality induction during the adoption and implementation of decisions, as noted by Brotherton (2008).

Conceptual framework

Consistent with the theory, the conceptual framework which follows is a short description of the idea under examination accompanied by a graphical or visual delineation of fundamental factors under investigation (Mugenda, 2008). In this study project planning strategies are hypothesized to influence performance of the project. The independent variables are project control and work breakdown structures.

Figure 2.1: Conceptual Framework



Project Control

Time delays, budget overruns, and subpar results are commonplace in projects. The primary goal of project development is to bring the project to a successful completion, which necessitates the participation of many people and organizations across many disciplines and sectors. Taking into account the associated risk management, the business environment, and economic and political stability, the quality of the managerial, financial, technical, and organizational performance of the respective parties will have a significant impact on the level of success in carrying out project development activities (Takim & Akintoye, 2002). Wang (1994) argues that a more sophisticated strategy is required to deal with the initiation, planning, financing, design, approval, implementation, and completion of a project because of the increasing complexity of project management.

Work Breakdown Structures

It is a hierarchical structure that represents the whole decomposition of all labor that the project entails, from start to finish. A large project is made manageable by first breaking it down into discrete components known as work breakdown structures, or WBS. Such a framework defines tasks that can be executed independently of other tasks, allowing resource allocation, duties assignment, and project assessment and control (Devi & Reddy, 2012).

METHODOLOGY

According to Aborisade (2013) research design is a strategy that outlines the procedures and methodology appropriate for obtaining information required to structure and solve research problems. This study adopted an explanatory research design that sought to identify the cause and effect among variables under study and also the extent and nature of the relationship among these variables. The target population for the study was 46 water projects successful implemented within the last 5 years in Elgeyo Marakwet County. This included the government sponsored, community sponsored and non-governmental sponsored projects. The unit of observation included project managers and site engineers involved in the implementation of the water projects. The selection of the unit of respondents was to facilitate the achievement of the study objectives. Table 3.1 below presents the distribution of the completed water projects.

Table 3.1: Population of the Study

Category of project	**Total**
Government sponsored	22
Non-government sponsored	6
Community water projects	18
Total	46

The sampling frame for this study was a list of completed water projects obtained from the Department of Lands, Water, Environment & Natural Resources in Elgeyo Marakwet County. This study adopted census method due to the small target population of 46 completed water projects.

This study used two-stage sampling. In the first stage, water projects completed within the last five years in Elgeyo Marakwet County were purposively selected. The second stage was selection of respondents where convenience sampling was used based on their availability to participate in this study. This study used a semi-structured questionnaire to collect primary data because they are free from bias of the interviewee and it also allows the respondent adequate time to respond and provide well thought out answers (Savin-Baden & Major, 2010). Secondary data was collected through a desk review of literature relevant to the study subject.

Pilot study was conducted to ensure the questionnaire was well-constituted in terms of design, the relevance of the questions, and the time needed to complete the questionnaires. The pilot testing was also undertaken to establish whether the respondents had the same understanding of the questions and thus would offer the information required (Gadziński, 2018). According to Mugenda and Mugenda, pilot testing helps to increase the precision of the research's data collection tools. Pilot testing was carried out by administering 12 questionnaires to project managers and community members that participated in water projects in the County. The researcher excluded these respondents from participating in the final study to preserve credibility of the findings.

Data processing entailed data cleaning, coding, definitions of variables, data entry, analyses, and interpretations. Quantitative data was analyzed with the help of Statistical Package for Social Science (SPSS) version 27 and Excel. Descriptive and Pearson Correlation analysis were performed to test the association between the study variables and to determine the contribution of each independent variable to the dependent variable. The coefficient of determination was computed to test the strength of the relationship or the impact of the independent variables on the dependent variable. Further, multiple regression analysis was used to determine the relative importance of each independent variable to the dependent variable. Content analysis was used to analyze qualitative data and results presented in narrative form. The analysis and discussions were presented in the form of frequency tables and bar graphs.

FINDINGS OF THE STUDY

Effect of project control on the performance of water projects in EMC

The first objective of this study was to determine the effect of project control on the performance of water projects in EMC. The descriptive statistics of project control were obtained and results presented in Table 1.

Table 1: Descriptive statistics of project control

Statement	1(%)	2(%)	3(%)	4(%)	5(%)	Mean	SD
Project managers hold meetings to assess the completed project	0.0	8.1	8.1	67.6	16.2	3.92	0.76
All stakeholders participate in monitoring the projects progress	2.7	16.2	27.0	51.4	2.7	3.35	0.89
Internal audit is conducted for all financial transactions of the project	5.4	13.5	21.6	43.2	16.2	3.51	1.10
Project review reports are considered during implementation	5.4	5.4	8.1	67.6	13.5	3.78	0.95

(1- Strongly disagree, 2 – Disagree, 3 – Neither agree nor disagree, 4 – Agree, 5 – Strongly agree)

Respondents were asked to indicate their level of agreement on whether project managers held meetings to assess the completed project. The results in Table 4.4 shows that, 8.1% of respondents disagreed, 8.1% remained neutral, 67.6% agreed and 16.2% strongly agreed. The mean score stood at 3.92 indicating a moderate to high level of agreement. The standard deviation stood low at 0.76 implying high consistency in respondents' perceptions. When asked whether all stakeholders participate in monitoring the project's progress, 2.70% strongly disagreed, 16.22% disagreed, 27.03% were neutral, 51.35 agreed, while 2.70% strongly agreed. The mean score was 3.35 revealing a moderate level of agreement, while the standard deviation of 0.89 suggested some variability in responses.

On whether internal audit was conducted for all financial transactions of the project, 5.4% strongly disagreed, 13.5% disagreed, 21.6% were neutral, 43.2% agreed and 16.2% strongly agreed. The mean score was 3.51 signifying a moderate level of agreement while the standard deviation of 1.10 suggested some variability in responses. When finally asked whether project review reports are considered during implementation, 5.4% of the respondents strongly disagreed, 5.4% disagreed, 8.1% were neutral, 67.6% agreed and 13.5% strongly agreed. The mean score was 3.78 revealing a moderate to high level of agreement, with the standard deviation of 0.95 suggesting moderate variability in responses.

The role of work breakdown structures on the performance of water projects in EMC

The final objective of this study was to ascertain the role of work breakdown structures on the performance of water projects in EMC. The researcher obtained the descriptive statistics of work breakdown structures. The results are presented in Table 2.

Table 2: Descriptive statistics of work breakdown structures

Statement	1(%)	2(%)	3(%)	4(%)	5(%)	Mean	SD
All the methods for performing project tasks are simple and easy to understand	0.0	18.9	24.3	43.2	13.5	3.51	0.96
Activities needed to finish the project were identified	0.0	2.7	8.1	62.2	27.0	4.14	0.67
Project activities were broken down into sub-activities and tasks	0.0	5.4	13.5	51.4	29.7	4.05	0.81
Deliverable and milestone are identified for each project task	0.0	5.4	13.5	59.5	21.6	3.97	0.76
The personnel and material required to complete each task was identified	0.0	2.7	5.4	73.0	18.9	4.08	0.60
The time for which personnel and materials are to be used for each task was identified	0.0	5.4	24.3	56.8	13.5	3.78	0.75
The costs required to complete each task were estimated	2.7	2.7	5.4	64.9	24.3	4.05	0.81

(1- Strongly disagree, 2 – Disagree, 3 – Neither agree nor disagree, 4 – Agree, 5 – Strongly agree)

The result in Table 2 shows that 18.9% of respondents disagreed, 24.3% were neutral, 43.2% agreed, 18.9% disagreed and 13.5% strongly agreed that all the methods for performing project tasks were simple and easy to understand. The mean score stood at 3.51 indicating a moderate level of agreement, while the standard deviation was 0.96 signifying some variability in responses.

On whether activities needed to finish the project were identified, 2.7% disagreed, 8.1% were neutral, 62.2% agreed and 27.0% strongly agreed. The average score was 4.14 indicating a high level of agreement. The standard deviation of 0.67 indicated a high consistency in respondents' perceptions.

On whether project activities were broken down into sub-activities and tasks, 5.4%disagreed with it, 13.5% were neutral, 51.4% agreed and 29.7% strongly agreed. The mean score was 4.05 revealing a high level of agreement, with the standard deviation of 0.81 suggesting some variability in responses.

When asked whether deliverable and milestone were identified for each project task, 5.4% of the respondents disagreed, 13.5% were neutral, 59.5% agreed while 21.6% strongly agreed. The average score was 3.97 revealing a moderate to high level of agreement. The standard deviation was 0.76 inferring some moderate variability in responses.

On whether the personnel and material required to complete each task were identified, 2.7% of the respondents disagreed, 5.4% were neutral, 73.0% agreed and 18.9% strongly agreed. The mean score stood at 4.08 indicating a high level of agreement, while the standard deviation of 0.60 revealed high consistency in respondents' perceptions.

When the respondents were asked whether the time for which personnel and materials were to be used for each task were identified, 5.4% disagreed with this statement, 24.3% were neutral, 56.8% agreed and another 13.5% strongly agreed. The mean score was 3.78 indicating a moderate to high level of agreement. The standard deviation of 0.75 implied some variability in responses.

When finally asked whether the costs required to complete each task were estimated, 2.7% strongly disagreed, 2.7% disagreed, 5.1% were neutral, 64.9% agreed and 24.3% strongly agreed. The mean score was 4.05 revealing a high level of agreement with a standard deviation of 0.81 indicating some variability in responses.

Relationship between project planning and project performance

Correlation analysis was conducted to determine the relationship between the study variables. the results are presented in Table 3.

Table 3: Correlation analysis

Variable	1	2	3	4	5
3. Project control	.382*	.534**	1		
	0.02	0.001			
4. Work breakdown structure	.376*	.543**	.603**	1	
	0.022	0.001	<0.001		
5. Performance	0.074	.629**	.396*	.404*	1
	0.664	<0.001	0.015	0.013	
n	37	37	37	37	37

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

From Table 3, The relationship between project control and project performance was significant (r (37) = .396, p<0.05). Furthermore, there exists a positive and significant relationship between work breakdown structure and project performance (r (37) = .404, p<0.05). The findings indicate that resource planning, project control, and work breakdown structure had a positive and significant relationship with project performance indicating that these variables have an influence on project performance.

Influence of project planning on project performance

Hypothesis testing

In order to determine if project planning strategies influences the performance of water projects in EMC, the following hypothesis was tested:

Hypothesis N_0: Project planning strategies contribute to the success of the performance of water projects in Elgeyo Marakwet.

Hypothesis N_1: Project planning strategies do not influence the performance of water projects in Elgeyo Marakwet.

The below test, as presented in Tables 4 - 7, were conducted to determine whether the null hypothesis was acceptable or not.

Having established that there exists a positive and significant relationship between resource planning, project control, work breakdown and project performance, regression analysis was done to determine whether these variables significantly predicted project performance.

Table 4: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643[a]	.413	.340	1.92569

a. Predictors: (Constant), Work Breakdown Structure, Project Control
b. Dependent Variable: Performance

From Table 4, the results reveal the existence of a relationship between the predictor variables (work breakdown structure, and project control) and the outcome variable (project performance) (R = .643). The R-square value shows that the work breakdown structure, and project control accounted for about 34% of the total variance in project performance (Frost, 2018). This is indicative that work breakdown, and project control can be used to predict project performance.

The ANOVA test was conducted to determine whether work breakdown, and project control as shown in Table 5 could be used to significantly predict project performance. Table 5 presents the results.

Table 4: ANOVA test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.249	2	4.625	11.89	.002[b]
	Residual	13.226	34	0.389		
	Total	22.474	36			

a. Dependent Variable: Performance
b. Predictors: (Constant), Work Breakdown, Project Control

The results in Table 5 show that work breakdown, and project control (model 1) can be used to significantly predict project performance, ($F(2, 34) = 11.89$, $p<.05$).

The predictive values of work breakdown and project control on project performance of water project were obtained by conducting regression analysis test. The results are presented in Table 6.

Table 5: Predictive values of independent variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.038	0.979		1.06	0.297
	Project Control	0.084	0.184	0.084	0.459	0.002
	Work Breakdown	0.129	0.268	0.089	0.481	0.001

From Table 4.6, project control had a regression coefficient of $\beta= .084$, $p =.002$, implying that project control is a significant predictor; and work breakdown had a regression coefficient of $\beta=.089$, $p =.001$, implying that work breakdown is a significant predictor.

Conclusions

The study concludes that there exists a positive and significant relationship between project control and project performance. This implies that project control has an influence on the performance of the water projects. The study also concludes that project control can be used to significantly predict project performance.

The study concludes that there exists a positive and significant relationship between work breakdown and project performance. This shows that work breakdown has an influence on the performance of the water projects. The study also concludes that work breakdown structures can be used to significantly predict project performance.

Recommendations

i. The project managers should ensure the entire project implementation team is involved in resource planning of water projects to ensure that the wisdom of each is factored in for successful implementation of the project

ii. The institutions and individuals concerned with project control should adhere to the laid down procedures and guidelines to guarantee project success. Additionally, they should promptly flag issues that arise in good time to ensure they are addressed before they get out of hand.

ii. The work breakdown structures in implementation of water projects should be created and clearly explained to ensure the implementing teams understand them

Suggestions for further studies

The study results depicted no significant relationship between project verification and performance of water projects. This being one of the important steps in project management life cycle, further studies should be conducted with different projects to ascertain whether it has an influence on project performance.

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