



PROJECT MANAGEMENT TECHNICAL SKILLS AND PERFORMANCE OF WATER, SANITATION AND HYGIENE PROJECTS IN NAIROBI CITY COUNTY IN KENYA

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ABSTRACT

The general objective was to determine the effect of project management technical skills on performance of WASH projects in Nairobi City County, Kenya. The specific objectives were to examine the effect of budgeting skills and to establish the effect of contract management skills on performance of WASH projects in Nairobi City County, Kenya. This study employed a descriptive research design. The study targeted 1,143 registered and active WASH projects in Nairobi City County. The sample size was determined using Yamane 1967 formula where 296 project managers was sampled. Questionnaires will be used for data collection. A pilot study involved 10% of the sample respondents hence 29 project managers who were excluded from actual study. The research used construct and content validity. Cronbach's Alpha Coefficient was used to assess questionnaire reliability. Data was analyzed using SPSS Version 28 to generate both descriptive and inferential statistics. Findings show that there is a moderate significant relationship between project budgeting skills and performance of WASH projects ($r=0.432$, $p=0.000$), and a moderate significant relationship between project contract management skills and performance of WASH projects ($r=0.456$, $p=0.022$). The study recommends that project managers should make efforts in making close follow ups in contractor's quality compliance by regularly monitoring quality conformance and reliability of used materials, carry out quality assurance and ensuring that the technical team is adequately competent or qualified, have adequate provision for changes on contract terms.

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Background of the Study

Project management is the process of initiating, planning, implementing, monitoring, evaluation and closing the project to attain set goals (Project management Institute, 2017). In addition, Comley (2018) defined project management as applying skills that allow a project manager to plan and execute the projects on site, monitor the project activities, control the works to suit the plan, and complete the projects within the allocated time frames and budget. Technical skills are the project managers' capabilities obtained through hands-on experience, education, or both (Odia & Omofonmwan, 2018).

Project managers with well-established clear and realistic goals of project are necessary for effective decision making of project management and technical capability of project management, which are the most important success factors for projects. Projects are different with different teams and therefore it is important for project managers to possess technical skills to be able to interact with the team to effectively produce the intended project outcome (Gudiene, Ramelyte & Banaitis, 2013). The overall success of project and reaching the set goals depend on cooperation of a whole project team and the leadership of its project manager. Project management skills are important in the Kenyan economy because people who have the relevant skills not only make capital equipment more productive but also make effective use of machines and equipment they work with (Mbeche, 2011).

Statement of the Problem

Water, Sanitation and Hygiene projects play an important part in enhancing the economic growth of the country through their contributions in societal development by aiding access to clean water and sanitation leading to a healthy population. Despite the importance attached to water and sanitation, there are very few water and sanitation facilities in Nairobi City County particularly the slum areas (WHO, 2016). Nairobi City County is associated with rapid population growth and unregulated use of water which has caused over-exploitation and degradation of water resources. Despite huge investment in water projects, there has been continued outcry by the public on the inability of the projects to meet their intended objectives while many water projects have taken so long to be completed and many more have been abandoned before completion (Onjala, 2017).

According to the National Water Services, the county government of Nairobi aimed at achieving 80% access to safe and reliable water for urban settlements in Nairobi but it has managed to achieve 57% by end of 2022. This was mainly attributed to the level of funding of the water sector which is below the level required to meet the growing demand for water. Annual budget for the sector is approximately 2.8% of the County budget, which is estimated to cover around 44% of the required WASH projects costs. The resulting funding gap is partly financed by donors (Nyanchaga, 2016). Nturibi (2016) indicated that just 50% of the implemented WASH projects in Nairobi City County are functional which leads to approximately 35% of residents buying water from kiosks and only 3% of slum dwellers are connected to piped water. In addition, the available water is contaminated and requires treatment before use. Many households especially in the slums are not able to afford fuel to boil water (Kenya National Bureau of Statistics, 2021). Majority of the WASH projects started by the government and other non-governmental organizations are not successfully completed on time. Further, some of the Water, Sanitation and Hygiene Projects do not meet the required standard of quality and technical specifications (Lüthi, 2016). According to WHO (2016), 51% of WASH projects collapse because of poor implementation. This is a challenge in the realization of one of the pillars of the 2030 Sustainable Development Goals that is access to clean water and sanitation. This is an implication that the water projects have not met the set objectives of eradicating water shortage in the slum areas and ensuring residents have clean and safe drinking water.

There are some existing studies focusing on project management practices and project performance; Shair (2016) study on project management skills and performance of government funded projects in Kenya found that internal financial control system and budgeting had a significant effect on project performance. Njau and Omwenga (2019) on effect of project management practices in effective implementation of building construction Projects in Kenya found that resource planning, monitoring, top management support and communication were significantly and positively related with effective implementation of building construction Projects

in Kenya. This is an indication that there is study limitation on project management technical skills and performance of WASH projects in Nairobi City County.

Research Objectives

To determine the relationship influence of project management technical skills on performance of WASH projects in Nairobi City County, Kenya.

- i. To examine the influence of budgeting skills on performance of WASH projects in Nairobi City County, Kenya.
- ii. To establish the influence of contract management skills on performance of WASH projects in Nairobi City County, Kenya.

LITERATURE REVIEW

Theoretical Framework

Contingency Theory

Contingency theory is an organizational theory aimed at establishing the fit between the organization, its environment, and sub-systems. The theory was developed by Fiedler in 1964. Contingency theory was first developed in early to mid-1960s, however, its application in accounting research was insignificant before the mid-1970s. Contingency theory is based on the premise that there is no universally appropriate accounting system that applies equally to all organizations in all circumstances (Otley, 1980). Factors, such as technology and the environment, are among the contextual factors that could explain why accounting systems have been found to differ from one organization to another. These contextual factors will affect the organization's structure, which will then influence the design of the accounting information system. The contingency approach to management accounting suggested that particular features of an appropriate accounting system 'will depend upon the specific circumstances in which an organization finds itself. Thus, a contingency theory must identify specific aspects of an accounting system which are associated with certain defined circumstances. The theory supports the variable on budget management skills which aims at ensuring that all project activities are adequately funded. The component of a project budget is cost contingency. The contingency budget is aimed at covering potential events that are not specifically accounted for in a budget estimate.

Contract Theory

Contract theory was developed by Thomas Hobbes' *Leviathan* (1651). Contract theory is the study of how people and organizations construct and develop legal agreements. It analyzes how parties with conflicting interests build formal and informal contracts, even tenancy. According to Hobbes, people will surrender all their rights to the kings and king will not be a part of the contract, the king will be all sovereign whereas. Similarly, Locke says that the people will surrender only a part of their right to the king and is also a part of the contract and the people will have the right to change the king if he fails to fulfill his duties and Rousseau talks about the General Will, it is not the will of all nor it is the will of the majority but is a general will of the people for the common good (Binmore, 2005).

The aim of contract theory is to show that members of some society have reason to endorse and comply with the fundamental social rules, laws, institutions, and/or principles of that society (Sullivan, 2019). The term contract is an agreement or a promise made between the two or more individual and a groups/society. This theory states that the society or the state came into being by a contract that was made between the individual and the society or the contract that was made amongst the individual people. It states that the conditions in the state of nature at some point became worst and to come of this situation the people entered themselves into a contract and

according to this contract the people will surrender some part of their right to the sovereign (Pollock, 2007). Contract theory supports the variable on contract management since it guides on how better to manage contracts and ensure that quality projects are delivered by competent contractors.

Conceptual Framework

A conceptual frame work is a diagrammatic representation of the relationship between the study variables. According to Kothari (2018) the conceptual framework explains the relationship between the independent variables and the dependent variables. Figure 2.1 presents the conceptual framework.

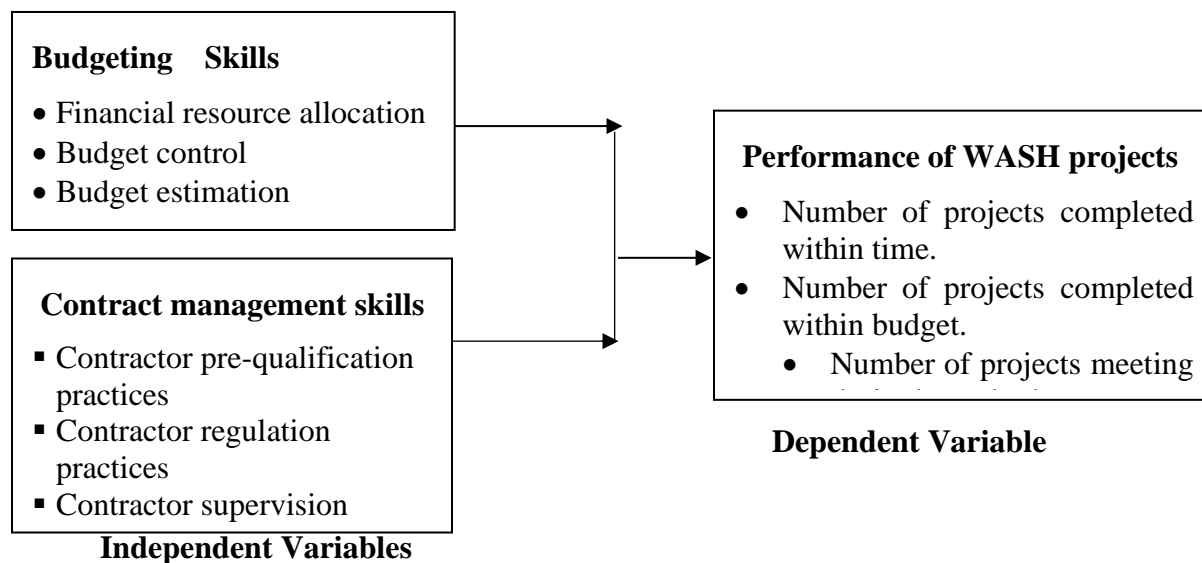


Figure 1: Conceptual Framework

Budgeting

Budgeting entails allocation of the cost estimates generated to project activities while control of cost involves monitoring, managing change in cost and managing the stakeholders (Harrison & Lock, 2014). A professionally developed budget does not only control the project costs but also creates good conditions for the development of a well-functioning cash flow in the project. The consequence of insufficient cash flow in a project is often connected to large extra costs and delays as there is a high risk for a temporary stop of the whole project (Antvik & Sjöholm, 2017). Project budgeting addresses several concerns such as the effectiveness of the project in meeting objectives and targets. It addresses the efficiency of the project or budget and whether it is being implemented efficiently. It also addresses the impact and the relevance of the budget to the project. Budget looks at the objectives and targets including input, output, outcomes, activity, and impacts. Budgeting attains operation efficiency, fiscal discipline, and allocative efficiency (Caffrey & Munro, 2017).

Njama (2015) argues that the limitations of the budget are one of the critical challenges in the implementation of projects and recommends the allocation of finances to direct salaries for the staff; training and employment of local experts in for consultation; indirect allocation of salaries for field staff and management; cost of services including the training on collection and analysis of data. The cost estimation should be based on the project scope, the WBS and be connected to the project plan. To reach a correct estimation it is important that each activity is estimated based on the conditions of the execution of the specific activity. Since there often are several factors that are uncertain in a project, a reserve cost can be assigned to activities with a low level of detailed information or work packages with potential high financial risks (Adisa Olawale & Sun, 2010).

Contract Management

Contract management is the process of systematically and efficiently managing contract creation, executing, and analysis for the purpose of maximizing project success (Aluonzi1, Oluka, & Nduhura, 2016). The best strategy to enter into a contract is having a set out objective that will guide during contract negotiation. Before negotiation takes place a lot of planning is necessary. Planning will enable each party to the contract to know the grounds of the negotiation and what each party is aiming to gain from the negotiation. During negotiation, each party wish to get a deal that will most likely favor them. Where the negotiation is going to take place is very important the surroundings should be considered (Fells, 2016).

According to Germaine (2017), contract management is still a challenge in Sub Saharan Africa; contractors are not performing as per the contract. Most of them are not fully equipped in terms of personnel, equipment and financial capacity. It is partly because of poor contract management which most of times lead to cancellation and suspension of funding for a number of road projects by World Bank largely due to poor funds and contract management. Contracts can last for months or years depending on the organization or the work to be done, when entering into a contract. Negotiation is usually a process and there are usually some steps that ought to be followed during the negotiation process. Negotiation needs skills and a lot of expertise in that field, for you to succeed in that field, most often or not each party when entering into a negotiation have their own interest at hand. Each parties aim is the deal out of that negotiation. Both parties should aim for a win-win situation (Oliver, 2011).

Empirical Review

Budgeting Skills and Project Performance

Dirgahayu et al. (2021) analyzed the implementation of guidance, supervision, and evaluation of the provincial regional revenue and expenditure budget by the Ministry of Home Affairs in Indonesia. This study used qualitative and quantitative approaches with 13 respondents. The findings of the study established the role of proper budgeting in the success of projects insisting on the role of the central government in improving the quality of the public budget. Siborurema, Shukla, and Mbera (2015) studied the effects of projects funding on performance of road projects in Rwanda. Findings revealed that both the cost estimation and technical design interfere with the projects funding policy and affect negatively the scheduled projects implementation time. The researchers recommended that the Ministry should set up teams of technicians with the task of assessing and challenging the projects plans so as to make sure they are not badly planned before the budget lines for the public institutions are confirmed.

Opiyo (2014) examined the influence of budgeting on the implementation of development plans in public secondary schools in Uiri District, Migori County. The study employed a descriptive survey research design with a sample size of 10 principals, 8 bursars/accounts, 30 heads of department, 76 board of governor members, and 10 public secondary schools. The findings of the study revealed that; budgeting skills, project identification, monitoring ability, and evaluation skills positively influence the construction of school buildings. The study concluded that budgeting is essential for the effective implementation of school development plans. Junge, Bosire, and Kamau (2014) analyzed the effect of budgetary practices and performance of public secondary schools in Nakuru municipality. The target was 22 public secondary schools. The study noted that budget practices such as budget estimation, determination and control positively influenced performance of the schools. In the study, it was also noted that budget allocation and annual budget planning were important aspects that improved financial management in organizations in the public sector.

Contract Management Skills and Project Performance

Kabuoh, Egwuonwu, and Ajike (2015) studied effect of contract negotiation on business performance. The study found out that sellers may negotiate price, credit terms, delivery times, trade-in values and other aspects of the commercial transactions all focused towards effective and efficient sales management, which enhance increased sales and organizational performance. Out of all communication skills, mostly sales managers employ negotiation skills but the one that is least discussed. Nsanzimana and Mulyungi (2017) analyzed the effect of contract management practices on performance of the road construction projects in Kigali City. The study adopted descriptive research. The target population 62 people including project managers, contractors, clients and all staff from Rwanda Transport Development Authority. The researcher concluded a strong and positive relationship between contract management techniques and performance of Remera-Rwandex road construction project as their results of correlation between management techniques and project performance.

Anyango and Mugerwa (2021) studied contract management for public works for central and local governments. The purpose of this study was to investigate the management of road construction contracts by Busia Local Government, with the aim of improving such practices. Based on a mixed study that involved a review of existing data and empirical investigation using questionnaires, observations, and interviews, this study reveals that contract management has a significant effect on the performance of road construction projects in Busia Municipality. Contract evaluation, risk management, and monitoring were highlighted as key processes to focus on if contract management is to support the successful performance of road construction project. Mulinge (2017) investigated the influence of contract management practices on the completion of road projects by the County Government. The study population was 458 staff who were the target respondents of this study. Sampling was done using purposive sampling and stratified sampling to come up with a size of 145 respondents. Data were collected using questionnaires deployed using drop and pick method. Data were analyzed using descriptive techniques aided by SPSS software version 21. Findings revealed that contract management practices have a significant effect on project performance.

RESEARCH METHODOLOGY

A research design is the general plan for getting answers to attaining research objectives (Mackey & Gass, 2015). This study employed a descriptive research design. Target population is the entire group of people or events that a researcher is interested in. The study target was WASH projects in Nairobi City County. According to the Kenya National Bureau of Statistics (2021), there are 1,143 completed WASH projects in Nairobi City County. The unit of observation was 1,143 project managers. The sample size of 296 respondents was determined using Yamane 1967 formula. The study used simple random sampling technique

This research used questionnaires as the main collection method for primary data. A pilot study involved 10% of the sample respondents hence 29 project managers who were excluded from actual study. Data was analyzed using SPSS Version 28 to generate both descriptive and inferential statistics. The descriptive statistics comprised of percentages, frequency, and means. Inferential statistics included correlation and regression.

RESEARCH FINDINGS AND DISCUSSIONS

The sample size of study was 296 and it comprised of project managers in the WASH projects. The pilot test respondents were 10% of the total hence 29 respondents. The researcher distributed 267 questionnaires to the respondents and 190 were successfully filled and returned. Thus, the response rate was 71.1%. The response rate was 71.1% which is good for analysis as recommended by Babbie (2004) that the response rate of 50% is acceptable for analysis

Project Budget

The second objective aimed at examine effect of budgeting skills on performance of WASH projects in Nairobi City County, Kenya. Respondents were asked to tick on the extent to which they agree with statements on project budgeting skills. Findings are presented in Table 1.

Table 1: Project Budget

Statements	Strongly disagree		Disagree		Not Sure		Agree		Strongly Agree		mean
	F	%	F	%	F	%	F	%	F	%	
Necessary financial resources were well allocated	8	4.2	31	16.3	4	2.1	58	30.5	89	46.8	3.99
Cost plan is well defined	15	7.9	27	14.2	6	3.2	91	47.9	51	26.8	3.72
The actual budget varies from the projected budget by a very big margin	11	5.8	18	9.5	8	4.2	84	44.2	69	36.3	3.96
Approximation of project budget helps in easier facilitation of project activities	12	6.3	13	6.8	5	2.6	97	51.1	63	33.2	3.98
Changes to the project budget are controlled	18	9.5	16	8.4	4	2.1	38	20.0	114	60.0	4.13
Project funds have been disbursed promptly by the financier	72	37.9	80	42.1	7	3.7	19	10.0	12	6.3	2.45
There is effective and efficient cost control of project resources	19	10.0	16	8.4	4	2.1	97	51.1	54	28.4	3.79

Findings show that the respondents agreed that; changes to the project budget are controlled (m=4.13), necessary financial resources were well allocated (m=3.99), approximation of project budget helps in easier facilitation of project activities (m=3.98), the actual budget varies from the projected budget by a very big margin (m=3.96), there is effective and efficient cost control of project resources (m=3.79), and cost plan is well defined (m=3.72). Respondents disagreed that project funds have been disbursed promptly by the financier (m=2.45). Respondents also added that budgeting affect project performance. Poor budgeting skills results to costs overruns while some projects may be abandoned in case allocated funds runs out before completion. Effective budgeting prevents unnecessary costs and ensures that correct amount of finances is allocated to all project activities and materials. The project managers also indicated that they have a system to regularly monitor project budgets to avoid cost overruns.

Findings imply that budgeting is a key aspect of project management. Focus emphasizes on accountability and project managers must ensure that project funds are managed effectively. There is however delay in disbursement of project funds by the donors which causes delay in project initiation and implementation.

This implied that most of the organizations in the study had systems in place to periodically monitor project budgets as a means of measuring project performance. As a key project. Donors would most times demand for accountability and positive impact on beneficiaries. The fact that the actual budget varies from the projected budget by a very big margin implies that some of the projects costs are overlooked or the project managers do not account for project miscellaneous hence projects exceeds allocated budget. Findings are in support of Siborurema, Shukla, and Mbera (2015) that project cost estimation interfere with the projects funding policy and affect negatively the scheduled projects implementation time.

Project Contract Management

The fourth objective aimed at establishing the effect of contract management skills on performance of WASH projects in Nairobi City County, Kenya. Respondents were asked to tick on the extent to which they agree with statements on contract management skills. Findings are presented in Table 2.

Table 2: Project Contract Management

Statements	Strongly disagree		Disagree		Not Sure		Agree		Strongly Agree		mean
	F	%	F	%	F	%	F	%	F	%	
Subcontractors are evaluated and selected based on their ability to satisfy specified requirements	16	8.4	9	4.7	6	3.2	51	26.8	108	56.8	4.19
Contractors are paid on time	61	32.1	102	53.7	4	2.1	12	6.3	11	5.8	2.22
Contractors are frequently supervised	5	2.6	16	8.4	8	4.2	75	39.5	86	45.3	3.29
Contractor past performance is reviewed during contractor selection	14	7.4	17	8.9	7	3.7	63	33.2	89	46.8	4.03
There are adequate provisions in contract document for change	46	24.2	97	51.1	9	4.7	7	3.7	31	16.3	2.03
Due diligence is conducted to ascertain the authenticity of change	30	15.8	33	17.4	7	3.7	39	20.5	81	42.6	3.57

Findings show that majority of the project managers agreed that; subcontractors are evaluated and selected based on their ability to satisfy specified requirements ($m=4.19$), contractors are frequently supervised ($m=4.03$), due diligence is conducted to ascertain the authenticity of change ($m=3.57$), and contractors are paid on time ($m=3.29$). Respondents disagreed that there are adequate provisions in contract document for change ($m=2.03$). The project managers also added that contract management affect project performance. Contract management gives room for negotiation with contractors and contracts terms and also ensures compliance with the technical specification as stipulated in the terms of reference. Good contract management practices also ensures that the contractor and the client agree on project delivery timelines, materials, costs and all resources needed for project implementation.

Findings imply that the project managers have suitable contract management skills. The contractors are however not paid on time which may cause project delay. The projects managers also take time to evaluate contractor performance to assess the work done by the contractors previously. Late payment of contractors may cause delay in material delays and project execution. The contract documents are also not adequate meaning that crucial project activities or payment terms may not be included in the contract which may result to legal tussles with the contractor. Findings are in agreement with Anyango and Mugerwa (2021) that contract management supports the successful performance of projects.

Performance

The researcher further sought to examine performance of WASH projects in Nairobi City County. Findings are presented in Table 3.

Table 3: Project Performance

Statements	Strongly disagree		Disagree		Not Sure		Agree		Strongly Agree		mean
	F	%	F	%	F	%	F	%	F	%	
The WASH projects are delivered on time	44	23.2	106	55.8	4	2.1	18	9.5	18	9.5	1.94
Projects are delivered within set budget	50	26.3	71	37.4	15	7.9	33	17.4	21	11.1	2.49
The projects meet the desired quality	8	4.2	8	4.2	15	7.9	57	30.0	102	53.7	3.75
Project beneficiaries are satisfied	8	4.2	10	5.3	24	12.6	68	35.8	80	42.1	3.94

Findings show that respondents agreed that the project beneficiaries are satisfied ($m=3.94$) and the projects meet the desired quality ($m=3.75$). Respondents disagreed that the projects are delivered within set budget ($m=2.49$) and the WASH projects are delivered on time ($m=1.94$). Findings imply that although the WASH projects meet the desired quality, they experience time and budget overruns. The project beneficiaries are however satisfied with the WASH projects. Findings are in agreement with Lüthi (2016) that majority of the WASH projects started by the government and other non-governmental organizations are not successfully completed on time.

Correlation

Correlation indicates the strength and significance of the relationship between the study variables. Correlation findings are presented in Table 4.

Table 4: Correlation Coefficients

Variables	Performance	Budget	Contract management
Project Performance	Pearson Correlation 1 Sig. (2-tailed)		
Budget	Pearson Correlation .432** Sig. (2-tailed) .000	1	
Contract management	Pearson Correlation .456** Sig. (2-tailed) .000	.112	1

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

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

Findings show that; there is a moderate significant relationship between project budgeting skills and performance of WASH projects ($r=0.432$, $p=0.000$), and a moderate significant relationship between project contract management skills and performance of WASH projects ($r=0.456$, $p=0.022$). Findings are in agreement with Opiyo (2014) that budgeting skills positively influence the construction projects and Mulinge (2017) that contract management practices have a significant effect on project performance.

Regression Analysis

A regression analysis aimed at establishing how a unit change in budgeting, and contract management skills would predict changes in performance of WASH projects. Regression analysis has three main output; Model summary, ANOVA, and regression coefficients as presented in Table 5-7.

Table 5: Model Summary

Model	R	R ²	Adjusted r ²	Std. Error of the Estimate
1	0.736	0.542	0.532	1.001

Predictors: (constant) budgeting, contract management skills

The results show that the value of R² is 0.542. This shows that budgeting, and contract management skills account for 54.2% variations in performance of WASH projects. Therefore, other project management technical skills excluded from this study account for 45.8% variations in performance of WASH projects in Nairobi City County, Kenya.

Table 6: Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	217.463	4	54.366	53.753	.000 ^b
Residual	187.110	185	1.011		
Total	404.574	189			

Predictors: (constant) budgeting, contract management skills.

Dependent variable: Project performance

Findings in Table 6 show that the model was significant (p-value = 0.000) at the 0.05 level in describing the linear relationship between the study variables. The F-statistic of 23.317 indicates that the model is capable of predicting the relationship between the independent and dependent variables.

Table 7: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant/Y Intercept	1.620	.450		2.856	.003
Budget	.403	.054	.393	7.444	.000
Contract	.589	.054	.576	10.936	.000

According to findings in Table 7, the equation

Project Performance = 1.620 + 0.403 (budgeting) + 0.589 (contract management).

The regression equation shows that unit increase in budgeting skills cause an increase in project performance by 0.403, and unit increase in contract management skills cause an increase in project performance by 0.589. All the variables cause a significant change on performance of WASH projects sig < 0.5. The t statistics show that contract management had the greatest effect on project performance (10.936) followed by budgeting skills (7.444),

Conclusion

Proper budgeting ensures no project activity stalls due to lack of equipment and facilities; hence the project undertaken can be completed within the shortest time and as scheduled. Although the project managers have good budgeting skills, they are challenged with funds disbursement which is sometimes delayed by project sponsors. This would result to use on internal funds hence affecting project delivery as the funds may not be adequate.

The project managers evaluate the competency of the contractors. They also assess whether the contractors abide by the environmental rules and regulations which must be adhered to when implementing WASH projects. There is however a challenge in contract management whereby

the contract documents do not give enough provisions for change. Therefore contract change becomes a tedious and time wastage process.

Recommendations

Managers should also practice periodic project budget monitoring as a measure of successful implementation. This is one of the main ways of early identification of any implementation problems and seeking solutions before the project ends.

Project managers should also seek services of legal professionals in drafting project contracts. This will help them in drafting legally binding contracts and as well have adequate provision for changes on contract terms.

Areas for Further Study

A study on the effect of project management technical skills on performance of WASH projects in Nairobi City County, Kenya. The current study focused on WASH projects only hence a need for further study on other projects. A similar study may also be conducted in another county in Kenya to compare findings. A study incorporating other project management technical skills that may affect project performance as the study has shown that the four technical skills studied contribute to 73.2% WASH projects in Nairobi City County, Kenya.

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