



DETERMINANTS INFLUENCING THE IMPLEMENTATION OF WATER AND SANITATION PROJECTS IN ZIWA LA NG'OMBE MOMBASA

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ABSTRACT

Project implementation consists of carrying out the activities with the aim of delivering the outputs and monitoring progress compared to the work plan. Sustainability of water projects could originate from the project environment, lack of sufficient resources and management related issues. The objective of the study is to determinants influencing the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County in Kenya. The study was guided by both general and specific objectives. The study objectives will be to examine the influence of project stakeholders' involvement in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County; to evaluate the influence of project resources availability in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County; to determine the influence of project manager's skills in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County and to examine the influence of project structural facilities in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. To strengthen the conceptual framework the study will apply theories such as the stakeholders' theory, resource-based view theory, resource dependence theory and theory of constraint. The study targeted 25 water and sanitation projects in Ziwa La Ng'ombe ward in the project implementation department. The sample size was 77. A modified Likert scale questionnaire will be developed divided into three parts. A pilot study was carried out to refine the instrument. The quality and consistency of the study further was assessed using Cronbach's alpha. Data analysis was performed on a PC computer using Statistical Package for Social Science (SPSS Version 25) for Windows. Analysis was done using frequency counts, percentages, means and standard deviation, regression, correlation, and the information generated will be presented in form of graphs, charts, and tables. The study established that there was a strong positive correlation between the independent variables stakeholder's involvement, project resources availability, project manager's skills, and project structural facilities. On regression, the study findings rejected null hypothesis for stakeholder's involvement and project resources availability project manager's skills and project structural facilities. The study concluded that project stakeholder's involvement, project resource availability, project manager's skills and project structural facilities have a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The study recommends that stakeholders should have

different roles and therefore they should not clash and that project resources should be applied to project areas that give optimum results.

Key Words: Project Stakeholders' Project Resources, Project managers Skills, Project Structural Facilities, Implementation

1.1 BACKGROUND OF THE STUDY

The general assumption among Project Managers is that a project completed in time, within the agreed budget and the set quality, and then the project is deemed to be successful. Hartman (2018) claims that a successful project is one that makes all stakeholders happy. However, Harrison and Lock (2018) argues that Hartman point of view is a good one that must be borne in mind although, in several instances, real success or failure cannot be measured just by the three primary objectives alone. Each stakeholder group will hold a different point of view as to which objectives should be valued or balanced. Kerzner (2019) asserts that the definition of project success has been modified to include completion within allocated period, within the budgeted cost, at the proper performance or specification level. Also, with the acceptance by the customer with a minimum mutually agreed upon scope changes, without disturbing the main workflow of the organization and without changing the corporate culture.

One of the most important natural resource is water. It is the essence of life on earth. The availability of safe water is critical not just for health reasons, but also for social and economic development (WHO and UNICEF, 2017). The development agenda highlighted water supply and sanitation as a result of the UN conference in 1977 in Argentina. The International drinking Water supply and sanitation Decade was declared in the 1980s with the aim of ensuring every person has access to safe water, of adequate quantity and basic sanitary facilities, by 1990 (World Water Assessment Program, 2013). Despite this, one billion people in the world today are without access to improved sources of water, and access to consistent safe drinking water not withstanding water being at the center of economic and social development: (World Bank, 2015).

The quality of life of people is threatened globally, it is approximated that 1.4 million people die from unavailable, clean drinking water; and 3.6 million people die each year from water-borne diseases. Of that number, children constitute 84% and 98% are living in the developing world. The crisis is real for those living in the developing world. The water crisis has become a major issue that needs to be addressed in order to save the lives of poor people that are dying from preventable ailments. According to the United Nations Human Development Report, the crisis is claiming more lives in the developed world than war claims through weapons (Water Facts, 2013).

When the issue of Sanitation arises, it is clear that in most urban centers in Africa, Asia, and Latin America less than one third of the population in each country has what is referred to as "good quality sanitation". It is approximated that more than 100 million urban dwellers worldwide are forced to defecate in the open, into wastepaper and plastic bags because public toilets are not available or are too distant and expensive (WHO and UNICEF, 2017). These settlements lack systems for disposal of sewage, excreta, silage and solid wastes, which may cause health and environmental dangers. Specifically, Human waste disposal is a major

problem, which renders informal settlements an unhygienic living place for the residents (WHO and UNICEF, 2017).

Informal settlements are areas where inhabitants have no land security land for where they dwell. The Residents are deemed as squatters and live-in setup where the rental for housing is informal. The areas normally have no access to the basic services and infrastructure. Housing mostly does not normally comply with the planning and building regulations, and often they are situated in areas that are geographically and environmentally dangerous (UN HABITAT, 2013). Residents in these areas are not officially recognized by the government, and more so do not possess birth certificates or national identification cards. It can be concluded that they do not even exist in the country for their records are scarce (Sclar & Mary, 2017). Sclar and Mary (2017) note that there are several trends that can be observed. These settlements house a large portion of the world's population. One out of every six people in the world live in urban informal settlements. According to the Millennium Development Goals Report (2008) 62% of urban households in sub-Saharan Africa live in informal settlements, this is a significant proof that informal settlements carry an incredibly significant portion of the world's population. Field and Michael (2016) have established that more and more people are migrating to informal settlements. What is clear is that the problem of access to safe drinking water in these informal settlements is not going away, but it is getting worse as the demand for water and sanitation services is strained.

Globally, Indonesia is one country that has seen its population grow uncontrollably with little advances in maintaining constant water supply, waste check and management. According to the World Bank report (2015), In Indonesia the WSS scenario is characterized challenges in the access and low quality of service. It is approximated that Over 40 million people lack access to improved water source, of the 240 million people, 110 million have no access to improved sanitation, with only 2% having access to sewerage, makes it one of the lowest among the middle-income countries (WHO, 2017). A study by UNICEF (2018) shows that, implementing projects that could give relief to the residents in the slums has proofed difficult due to challenges like, poor community participation, poor security, low rates of return, political sideshows, poor infrastructure, poor urban planning and land ownership among others.

In Africa, water shortage is related to both under-development of potentially available water resources and their uneven distribution. This is coupled up with an unrelenting population growth rate of 3 % per year, which is a major factor in on-going water and sanitation problems. Water supply services in Zambia's peri-urban areas vary widely from one settlement to another even within the same town. Water supply systems have been poorly maintained in the last 20 years because local authorities and ministry departments as providers have absconded their capacity and professionalism to operate and sustain these services efficiently and effectively (Nwasco, 2015). This is similar to other countries like Zimbabwe, Nigeria, Angola, DRC etc. In Zimbabwe for example, the governments operation Murambatsvina led to rural-urban migration, leading to growth of these settlements since 2000. A major challenge in these settlements is the lack of access to adequate water, which is contrary to the formal settlements, which have access to water and sanitation, serviced by the local authorities (World Bank 2014). The water challenge can be attributed to poor political representation, lack of budgetary allocation from the central over, poor management and poorly developed infrastructure.

Kenya's annual informal settlements growth is believed to be the highest at 5% and will double in the next 30 years if measures are not put into place (UNDP, 2016). The infrastructure in these settlements is not sufficient to cater for the huge number of residents, which leaves many of them without access to safe drinking water and adequate sanitation and all forms of pollution (UNEP, 2011). A publication on Amnesty International (2010) shows that, in Kenya there are 48.5 million people that live in low income settlements and the population will increase rapidly at 6% per year. In Nairobi alone around 100 unplanned settlements with a population of 1.75 million exist (around 50% of Nairobi's population) and the number of areas and population are increasing.

Thus with these issues in mind today more than ever, the development of a systematic understanding of the role of water and sanitation systems and the identification of the elements composing the complex nexus of challenges and opportunities for water and sanitation in cities become critical activities for policy makers, professionals and sector specialists (WHO / UNICEF, 2015). As the world progresses into the urban century, water and adequate sanitation for life in the household, and water for livelihoods, production and economic activities will continue to be foundational elements for a city's development especially in informal settlements (WASREB, 2016).

Despite the importance that should be attached to water and sanitation, Kenya has scored poorly in almost all the MDGs meeting, more specifically in providing water to its slum dwellers. Kibera which is amongst the world largest slums has only 10% of the population connected to water from the Nairobi county government and has a rationing rate of 67% being experienced and this rises to about 83% in dry seasons. The sanitation situation is wanting in that; the people have resorted to using what is commonly known as 'flying toilets' (Water Services Regulatory Board, 2014). Factors said to have led to this poor state of events include: poorly planned housing that leaves no room for pipes lay down, no budgetary allocations from the national government to such slums, political negligence due to opposition nature of the area administration insecurity that has seen illegal meter connects and many more.

According to Kahariri (2017) Huruma, that has experienced rapid residential developments in Nairobi, faces inadequate water supply and sanitation as a major challenge. Being in Nairobi, it majorly receives its water from Ndakaini Dam, Sasumua Dam and Ruiru dam. These dams' ability to supply water continues to face great challenges due to the ever-increasing demands. The sewerage system in the estate is in a dying state as it is already overstretched to its limits. The residents of this area are therefore in dire need of safe, clean, and consistent supply of water and adequate sanitation facilities. Wafula (2018) notes that, leadership; institutional capacity, management of finances, coordination, and governance in general are essential ingredients of a functioning urban areas and therefore sustainable water and sanitation projects implementation. However, in Kenya today the project outcomes have been disappointing. What is needed is improved governance, financial and skills enhancement for the urban poor which is proving key challenge.

2.0 STATEMENT OF THE PROBLEM

Africa has been found to have the lowest total water supply coverage compared to other continents in the world. In Africa and other developing countries national and regional governments, local and international NGOs and other concerned organizations invest large sums every year for the implementation of rural water supply projects (Gebrehiwot, 2018). Despite the continuous efforts of community-based water project in ensuring access to clean drinking water for all the commodity is still not enough for the ever-growing human population. According to Gleik (2017) most of the water projects fail to achieve the intended objective of providing communities with safe water soon after the funders close the project. In order to make the investment in water supplies more effective, failure rates of these systems should be reduced. According to Gebrehiwot (2018), sustainability of water projects could originate from the project environment, lack of sufficient resources and management related issues. Obtaining sufficient knowledge of the factors, which influence sustainability of water projects, has the potential to positively influence sustainability of the water projects.

According to Gleik (2017) It is important for the organizations or agencies, governmental and non-governmental, who are involved in water services provision for populations living in rural Kenya to achieve their objectives of improving access to safe water for needy populations. In spite of the improved policy, legislative and funding environment, access to safe water for populations in rural Kenya remains low translating to poor social indicators-46 per cent below the poverty line, high infant mortality and morbidity and high incidence of water borne diseases among these populations. A number of studies have been done to access and bring out the situation of the WSS in the slums and other marginalized regions in the country

Kahariri (2017) in a study on the assessment of the challenges of water supply and sanitation in uncontrolled residential developments of Huruma estate, Nairobi County. In this study, he found out that factors like political goodwill, community training/involvement/participation, infrastructure, security, skewed nepotism among others were challenges. Njuguna (2018) did a study on factors influencing sustainability of donor funded projects: the case of water and sanitation projects in Laikipia east district, Laikipia County, Kenya. He found out issues like M&E, project planning, human resources and capital resources affected sustainability of donor funded projects. Mulwa (2018) did a study on factors influencing sustainability of water supply projects in central division, Machakos district of Machakos county, Kenya. In his study, besides the above researchers' findings, he added the idea of rate of return on the WSS.

From these studies and many more not mentioned, it is evident that WSS in Kenya have a number of factors influencing their success. The overall implementation of a project is a key factor to ascertain the success of a project. This is usually determined by the attainment of the project objectives and the sustainability of the project thereafter. Various studies have addressed some of the factors that affect the performance of water and sanitation projects on divergent perspectives. This study will analyze the factors influencing the implementation of water and sanitation projects in Kenya with a special concentration on the water and sanitation projects in Ziwa la Ng'ombe ward in Mombasa.

3.0 RESEARCH OBJECTIVES

This study was guided by both general and specific objectives as follows:

3.1 Specific Objectives

- i. To examine the influence of project stakeholders' involvement on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.
- ii. To establish the influence of project resource availability on the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.
- iii. To evaluate the influence of project technical skills on the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.
- iv. To determine the influence of project managers on the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

4.0 RESEARCH HYPOTHESES

This study was guided by null hypotheses as follows:

H0₁: Stakeholders' involvement has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

H0₂: Project resources availability has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

H0₃: Technical skills have no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

H0₄: Project managers have no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

5.0 LITERATURE REVIEW

5.1 Theoretical Framework

5.1.1 Stakeholders' Theory

Theory as suggested by Miles and Friedman (2006) will be used. This theory illustrated it through two principles, the organization legitimacy and stakeholder fiduciary principles. The principle of organization legitimacy which argued for the management of the organization by considering the benefit of the stakeholders, the rights of various groups are considered as well as their participation in decisions that substantially affect their welfare. On the other hand, the stakeholder fiduciary principal proposed that managers were to act in the interests of the stakeholders as well as the corporate while safeguarding the long-term stakes of each party. Jensen (2002) considers the linkage of objective function and stakeholder theory as enlightened value maximization: implying that whenever managers make trade-offs, they consider how the value gets created.

The core idea of stakeholder theory is that organizations that manage their stakeholder relationships effectively will survive longer and perform better than those organizations that do not. Muthoni and Kavale (2017) suggests that organizations should develop certain stakeholder competencies. Making a commitment to monitoring stakeholder interests, developing strategies to effectively deal with stakeholders and their interests, dividing and categorizing interests into manageable segments and trying to ensure that organizational functions address the needs of

stakeholders. In 2018, Freeman and his colleagues wrote *Managing for Stakeholders*, setting out the managerial framework for companies to implement a stakeholder approach. The stakeholder view of strategy integrates both a resource-based view and a market-based view and adds a socio-political level. One common version of stakeholder theory seeks to define the specific stakeholders of a company (the normative theory of stakeholder identification) and then examine the conditions under which managers treat these parties as stakeholders (the descriptive theory of stakeholder salience). Stakeholder theory is managerial in that it recommends attitudes, structures, and practices and requires that simultaneous attention be given to the interests of all legitimate stakeholders.

5.1.2 Resource Based View Theory

From resource-based view, resources are important unit of analysis to understand a firm's strategy. These resources develop organizational capabilities; heterogeneity and immobility of these resources define an organization's competitive advantage in an industry; sustained competitive advantage reward superior economic and financial performance. The currently dominant view of business strategy resource-based theory or resource-based view (RBV) of firms is based on the concept of economic rent and the view of the company as a collection of capabilities. This view of strategy has a coherence and integrative role that places it well ahead of other mechanisms of strategic decision making (Kering, 2017).

The resource-based view (RBV) offers critical and fundamental insights into why firms with valuable, rare, inimitable, and well organized resources may enjoy superior performance (Miles, 2017). Its current prominence is reflected not only by its dominance in the academic journals, by its inclusion in leading strategic texts which warrants the conclusion that it is widely taught to students and practitioners in undergraduate, masters' and executive programs.

Building on the RBV, Hoopes, Madsen and Walker (2018) suggest a more expansive discussion of sustained differences among firms and develop a broad theory of competitive heterogeneity. The RBV seems to assume what it seeks to explain. This dilutes its explanatory power. For example, one might argue that the RBV defines, rather than hypothesizes, that sustained performance differences are the result of variation in resources and capabilities across firms. The difference is subtle, but it frustrates understanding the Resource Based View's possible contributions (Hoopes, *et al.*, 2018). The Resource Based View's lack of clarity regarding its core premise and its lack of any clear boundary impedes fruitful debate. Given the theory's lack of specificity, one can invoke the definition-based or hypothesis-based logic any time. Again, we argue that resources are but one potential source of competitive heterogeneity. Competitive heterogeneity can obtain for reasons other than sticky resources (or capabilities) (Hoopes *et al.*, 2018). Competitive heterogeneity refers to enduring and systematic performance differences among close competitors.

The RBV uses firms' internal characteristics to explain firms' heterogeneity in strategy and performance. A firm is an organized, unique set of factors known as resources and capabilities, and RBV theory cites two related sources of advantages: resources and capabilities. Resources are a firm's accumulated assets, including anything the firm can use to create, produce, and/or offer its products to a market. Resources are eligible for legal protection can operate

independently of firm members (Cooner & Prahalad, 2018); and intervene as factors in the production process to convert input into output that satisfies needs (Cooner & Prahalad, 2018).

5.1.3 Resource Dependence Theory (RDT)

Resource Dependence Theory (RDT) is based upon how the external resource of organizations affects the behavior of the organization. The theory is based upon the following tenets: Organizations are dependent on resources, these resources ultimately originate from the environment of organizations, the environment to a considerable extent contains other organizations, the resources one organization needs are thus often in the hand of other organizations, resources are a basis of power, legally independent organizations can therefore be dependent on each other (Cobb & Davis, 2018).

In as much as organizations are inter-dependent, the theory of Resource Dependence needs a closer examination. Its very weakness lies in its very assertions of dependence. With changing trends of financial uncertainties, there is need to lean towards other theories of uncertainties. According to this theory, organization depends on resources for their survival; therefore, for any organization to achieve sustainability, resources are indispensable. For community-based projects to achieve sustainability, resources are important. These resources will come in the form of human resource –therefore the need to involve all the stakeholders in the project for sustainability, other resources of land and finances (Sharif & Yeoh, 2014). This theory relates to the Project Resource Availability independent variable.

5.1.4 Theory of Constraint

Theory of Constraints based management philosophy focuses on change at three levels; mindset of the organization, measures that drive the organization, and methods employed within the organization (Albert, 2019). Needs and constraints in a multi-party working situation which is necessary for construction projects bring complications in project management and therefore for effective project management, constraints have to be managed (Menoka, 2019).

The theory of constraints demonstrates how managers can effectively manage organizations based on the assumption of system thinking and constraint management, (Muthoka, 2019). TOC based management philosophy focuses on change at three levels; mind-set of the organization, measures that drive the organization, and methods employed within the organization. Needs and constraints in a multi-party working situation which is necessary for construction projects bring complications in project management therefore for effective project management, constraints have to be managed (Irvin & John, 2015).

This study is based on the triple constraint theory where most of adopted monitoring practices from organizational perspectives may work well or fail hence leading to delays if this theory is not well embraced, (Rugenyi & Bwisa, 2019). Delays in project completion are a common problem in the construction industry not only with an immeasurable cost to society but also with debilitating effects on the contracting parties, (Buerthey, Amofa, & Atsrim, 2019). The theory of constraints is useful to the study because it helps project managers overcome the financing challenges and delays that may brought about by stakeholders opposing the implementation of projects. It is useful as it suggests methods in which managers can develop

7.2 Target Population

According to Kothari, and Garg (2018), a population is a group of events, people, or items of interest with a common observable attribute. Water and sanitation projects are undertaken by MOWASCO. The study therefore targets 95 staff in MOWASCO in the project implementation department including project managers, project engineers, business and customer care units and finance department.

Table 1 Target Population

Department	Target Population
Project Managers	15
Project Engineers	35
Business and Customer Care	40
Finance	5
Total	95

7.3 Sample Size

The total sample size for this study was obtained using the formulae developed by Saunder *et al.*, (2018) together with Miller and Brewer (2015) and the adjusted sample size will be 77 as per workings below. With a study population of 95 MOWASCO staff in the project's implementation department. With a confidence interval of 95 percent, the sample size will also be determined using the formula given by Miller and Brewer (2015) as shown.

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where: n= the sample size,

N= the sample frame (population)

The sample size was 77.

Table 2 Sample Size

Department	Sample
Project Managers	14
Project Engineers	27
Business and Customer Care	32
Finance	4
Total	77

7.4 Data Analysis and Presentation

Data collected will be analyzed using descriptive statistics. The descriptive statistical tools helped in describing the data and determining the respondents' degree of agreement with the various statements under each factor. Data analysis will be done with the help of SPSS version

25. The multiple regression analysis was used to explore the relationship between project stakeholders' involvement, project resources availability, project technical skills and project managers as the independent variables and implementation of water and sanitation projects in Ziwa La Ng'ombe as the dependent variable. Pearson's product moment correlation analysis will also use, and it is a powerful technique for exploring the relationship among variables. Correlation coefficient was used to analyze the strength of the relations between variables. Correlation coefficient was calculated to observe the strength of the association. A series of multiple regression analysis (standard and step wise) will be used because they provide estimates of net effects and explanatory power. Analysis of variance (ANOVA) was used to test the significance of the model. R^2 was used in this research to measure the extent of goodness of fit of the regression model. The multiple linear to be used to estimate the coefficient is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where: -

Y = represents the dependent variable, implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County in Kenya.

$\beta_0, \beta_1, \beta_2, \beta_3$ and β_4 are the Regression Coefficient to be estimated

X_1 = Project Stakeholders' Involvement

X_2 = Project Resource Availability

X_3 = Project Technical Skills

X_4 = Project Managers

e = Stochastic term

8.0 RESULTS

8.1 Descriptive Analysis

8.1.1 Stakeholder's Involvement

The study set out to determine whether stakeholders involved in water and sanitation projects in slums in Mombasa County. The study results showed that 53.2% agreed that stakeholders are involved in the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County whereas 46.8% were of the contrary opinion with a mean score of 1.47 and a standard deviation of 0.503. The results show that there is stakeholder's involvement in the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

Table 3 Stakeholder's Involvement

	N	Minimum	Maximum	Mean	Std. Deviation
There are donors involved at all towards the water and sanitation projects.	62	1	5	3.87	1.624
There are donors involved fully towards the water and sanitation projects.	62	1	5	3.84	1.495
The government is involved in the water and sanitation projects.	62	1	5	3.74	1.619
The government is involved in every stage of the water and sanitation projects.	62	1	5	3.94	1.069
The community is involved in the water and sanitation projects.	62	1	5	4.24	1.250
The community is involved in every stage of the water and sanitation projects.	62	1	5	3.87	1.420

The first aim of the study was to examine the effect of stakeholder's involvement on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The statement that here are donors involved at all towards the water and sanitation projects had a mean score of had a mean score of 3.87 and a standard deviation of 1.624. The statement that there are donors involved fully towards the water and sanitation projects had a mean score of 3.84 and a standard deviation of 1.495. The statement that the government is involved in the water and sanitation projects had a mean score of 3.74 and a standard deviation of 1.619. The statement that the government is involved in every stage of the water and sanitation projects had a mean score of 3.94 and a standard deviation of 1.069. The statement in agreement that the community is involved in the water and sanitation projects had a mean score of 4.24 and a standard deviation of 1.250. The statement that the community is involved in every stage of the water and sanitation projects had a mean score of 3.87 and a standard deviation of 1.420. These results agree with Githinji, Ogolla and Kitheka (2020) in their study on influence of stakeholder's involvement on project performance at the Kenya Ferry Services. The study findings established that involvement of stakeholders in project identification was found to relate to project performance significantly and positively; it was observed that organization respect for stakeholders concerns to be the highest influencing factor in project identification; involvement of stakeholders in project planning was found to significantly and positively relate to project performance, it was observed that involving stakeholders indecision making as the most influential factor; involvement of stakeholders in project monitoring was found to relate to project performance significantly and positively, it was observed that using of inspection list as standardized organization monitoring practices and setting baselines for stakeholder's involvement in monitoring its activities are the most influential factor and lastly,

it was established that involvement of stakeholders in project funding was found to significantly and positively relate to project performance, it was also observed that, involvement of stakeholder's in resource allocation was observed to be influential.

8.1.2 Project Resource Availability

The study set out to establish whether there is project resource availability in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The study result shows that 54.8% of the respondents were positive and 45.2% were of the contrary opinion with a mean score of 1.45 and a standard deviation of 0.502. These show that project resource is essential in the success of a project. This result agrees with Rugiri and Njangiru (2020) Regression analysis results further demonstrated resource availability was a useful predictor of project performance. Pearson correlation analysis results demonstrated that resource availability was positively associated with project performance.

Table 4 Project Resource Availability

	N	Minimum	Maximum	Mean	Std. Deviation
The resources for the project are made public.	62	1	5	4.03	1.504
The resources are planned and budgeted for.	62	1	5	3.79	1.307
The resource management is in line with the project goals.	62	1	5	4.11	1.132
There are software tools for resource management.	62	1	5	3.85	1.099
There is enough staff for the water and sanitation projects.	62	1	5	3.31	1.510
There is optimal use of the human resource for the water and sanitation projects.	62	1	5	3.63	.814

The second aim of the study was to examine the effect of project resource availability on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The statement in agreement that the resources for the project are made public had a mean score of 4.03 and a standard deviation of 1.504. The statement that the resources are planned and budgeted for had a mean score of 3.79 and a standard deviation of 1.307. The statement that the resource management is in line with the project goals had a mean score of 4.11 and a standard deviation of 1.132. The statement that there are software tools for resource management had a mean score of 3.85 and a standard deviation of 1.099. The statement that there is enough staff for the water and sanitation projects had a mean score of 3.31 and a standard deviation of 1.510. The statement that there is optimal use of the human resource for the water and sanitation projects had a mean score of 3.63 and a standard deviation of 0.814. These results agree with Umulisa, Mbabazize, and Shukla, (2019) human resource was seen by most of the respondents to influence the performance of the project. Correlation analysis between human resource planning practices and project performance indicated positive and yet

significant relationship between teamwork, training of the project members on handcraft making and project performance. Financial resource was found to influence the project performance. Practices such as budgeting, forecasting, and having plans for money generations were found to exist in the project. Correlation analysis between financial resource planning practices and project performance indicated that there was a positive and significant relationship between

8.1.3 Project Managers Skills

The study set out to establish whether their project manager's skills in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The study results showed that 72.6% of the respondents agreed with the statement and 27.4% did not agree with a mean score of 1.27 and a standard deviation of 0.450.

Table 5 Project Manager's Skills

	N	Min	Maxi	Mean	Std. Deviation
There is presence of ICT in the water and sanitation projects.	62	1	5	3.92	.946
ICT useful in the water and sanitation projects.	62	1	5	3.61	1.787
There is a monitoring and evaluation team from both the community and MOWASCO staff.	62	1	5	3.50	1.411
Monitoring and evaluation are done regularly.	62	1	5	3.94	1.006
There are avenues for community training regarding the projects.	62	1	5	3.58	1.001
Training is done regularly.	62	1	5	3.02	1.509

The third aim of the study was to examine the effect of project manager's skills on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The statement that there is presence of ICT in the water and sanitation projects had a mean score of 3.92 and a standard deviation of .946. The statement that ICT useful in the water and sanitation projects had a mean score of 3.61 and a standard deviation of 1.787. The statement that there is a monitoring and evaluation team from both the community and MOWASCO staff had a mean score of 3.50 and a standard deviation of 1.411. The statement that monitoring and evaluation are done regularly had a mean score of 3.94 and a standard deviation of 1.006. The statement There are avenues for community training regarding the projects had a mean score of 3.58 and a standard deviation of 1.001. The statement that training is done regularly had a mean score of 3.02 and a standard deviation of 1.509. This study results revealed that Amollo and Omwenga (2020), project manager's skills of the R&D project manager include all the formal knowledge required to understand and undertake the research work from inception to conclusion. The project manager in the R&D institution should therefore ensure that he updates his technical knowhow and skills on a regular basis. Just like is

happening in organizations, there should be training opportunities availed to the managers to build their capacity due to the constant change in trends.

8.1.4 Project Structural Facilities

The study set out to establish whether there are project managers in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. 67.7% of the respondents believe that project managers influence implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa and 32.3% were of the opposite idea with a mean score of 1.32 and a standard deviation of 0.471.

Table 6 Project Structural Facilities

	N	Min	Max	Mean	Std. Deviation
Water pipes insufficiency makes it difficult in implementing the pro-poor water projects in this area	62	1	5	4.05	1.047
Scarcity of allocation of water pumps makes it difficult in implementing the water projects in this area	62	1	5	4.16	1.257
water tanks inadequacy makes it difficult to implementing the pre-poor water projects in this area	62	1	5	3.44	1.554
Private water companies have an influence in providing water services to the residents of Ziwa La Ng'ombe informal settlements	62	1	5	3.92	1.322
Water project manager has a code of ethics in running operations of the water project facility	62	1	5	4.08	1.029
Project manager has members who are skilled in running services of the water supply facility	62	1	5	3.90	1.211

The fourth aim of the study was to examine the effect of project structural facilities on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. The statement that water pipes insufficiency makes it difficult in implementing the pro-poor water projects in this area had a mean score of 4.05 and a standard deviation of 1.047. The statement that Scarcity of allocation of water pumps makes it difficult in implementing the water projects in this area had a mean score of 4.16 and a standard deviation of 1.257. The statement that water tanks inadequacy makes it difficult to implementing the pre-poor water projects in this area had a mean score of 3.44 and a standard deviation of 1.554. The statement that Private water companies have an influence in providing water services to the residents of Ziwa La Ng'ombe informal settlements had a mean score of 3.92 and a standard deviation of 1.322. The statement that had Water project manager has a code of ethics in running operations of the water project facility a mean score of 4.08 and a standard deviation of 1.029. The

statement that Project manager has members who are skilled in running services of the water supply facility had a mean score of 3.90 and a standard deviation of 1.211.

8.1.5 Implementation of Water and Sanitation Projects

Table 7 Implementation of Water and Sanitation Projects

	N	Minimum	Maximum	Mean	Std. Deviation
There is a significant reduction in waterborne diseases in Ziwa la Ng'ombe after the project completion.	62	1	5	4.39	1.192
There is reliable access to clean water all year round.	62	1	5	4.37	1.346
The water and sanitation projects are viable and sustainable.	62	1	5	3.73	1.308
There is a significant economic gain after completion of the projects	62	1	5	3.71	1.046
Projects are done to completion	62	1	5	3.90	1.289
The projects so completed meet the objectives of their existence.	62	1	5	4.39	1.272
The stakeholders have the capacity to implement all the projects.	62	1	5	4.56	.668
The project operators find the implementation of projects worthwhile	62	1	5	3.76	1.434

The statement that there is a significant reduction in waterborne diseases in Ziwa la Ng'ombe after the project completion had a mean score of 4.39 and a standard deviation of 1.192. The statement that there is reliable access to clean water all year round had a mean score of 4.37 and a standard deviation of 1.346. The statement that the water and sanitation projects are viable and sustainable had a mean score of 3.73 and a standard deviation of 1.308. The statement that There is a significant economic gain after completion of the projects had a mean score of 3.90 and a standard deviation of 1.046. The statement that Projects are done to completion had a mean score of 3.90 and a standard deviation of 1.289. The statement that the projects so completed meet the objectives of their existence had a mean score of 4.39 and a standard deviation of 1.272. The statement that the stakeholders have the capacity to implement all the projects had a mean score of 4.56 and a standard deviation of 0.668. The statement that the project operators find the implementation of projects worthwhile had a mean score of 3.76 and a standard deviation of 1.434.

8.2.2 Coefficient of Determination (R^2)

To assess the research model, a confirmatory factors analysis was conducted. The four factors were then subjected to linear regression analysis in order to measure the success of the model and predict causal relationship between independent variables (Stakeholder's Involvement, Project Resources Availability, Project Manager's Skills and Project Structural Facilities), and the dependent variable (Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County).

Table 9 Coefficient of Determination (R^2)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.720 ^a	.519	.485	2.01634

Predictors: (Constant), Project Structural Facilities, Project Manager's Skills, Project Resource Availability, Stakeholder's Involvement

The model explains 51.9% of the variance (R Square = 0.485) on Implementation of water and sanitation projects. Clearly, there are factors other than the four proposed in this model which can be used to predict implementation of water and sanitation projects. However, this is still a good model as Bryman and Bell, (2018) pointed out that as much as lower value R square 0.10-0.20 is acceptable in social science research. This means that 51.9% of the relationship is explained by the identified four factors namely Stakeholder's Involvement, Project Resources Availability, Project Manager's Skills and Project Structural Facilities. The rest 48.1% is explained by other factors in the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County not studied in this research. In summary the four factors studied namely, Stakeholder's Involvement, Project Resources Availability, Project Manager's Skills and Project Structural Facilities or determines 51.9% of the relationship while the rest 48.1% is explained or determined by other factors.

8.3.3 Analysis of Variance (ANOVA)

The study used ANOVA to establish the significance of the regression model. In testing the significance level, the statistical significance was considered significant if the p -value was less or equal to 0.05. The significance of the regression model was as per Table 10 below with P -value of 0.00 which is less than 0.05. This indicates that the regression model is statistically significant in predicting factors of procurement performance. Basing the confidence level at 95% the analysis indicates high reliability of the results obtained. The overall Anova results indicate that the model was significant at $F = 15.369$, $p = 0.000$

Table 10 ANOVA

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	249.936	4	62.484	15.369	.000 ^b
	Residual	231.742	57	4.066		
	Total	481.677	61			

a. Dependent Variable: Implementation

b. Predictors: (Constant), Project Structural Facilities, Stakeholder's Involvement, Project Resource Availability, Project Manager's Skills

8.2.4 Coefficients

The researcher conducted a multiple regression analysis as shown in Table 11 to determine the relationship between implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County and the four variables investigated in this study.

Table 11 Coefficients
Coefficients^a

Model		Unstandardized		Standardized		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	21.267	3.133		6.789	.000
	Stakeholder's Involvement	.221	.094	.166	2.351	.005
	Project Resource Availability	.563	.090	.688	6.263	.000
	Project Manager's Skills	.349	.076	.701	4.602	.000
	Project Structural Facilities	.570	.116	.617	4.920	.000

a. Dependent Variable: Implementation

The regression equation was:

$$Y = 21.267 + 0.121 X_1 + -.563X_2 + 0.349X_3 + 0.570X_4$$

Where;

Y = the dependent variable (Implementation)

X₁ = Stakeholder's Involvement

X₂ = Project Resources Availability

X₃ = Project Manager's Skills

X₄ = Project Structural Facilities

The regression equation above established that taking all factors into account (Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County) constant at zero Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County, Kenya will be 21.267. The findings presented also showed that taking all other independent variables at zero, a unit increase in stakeholder's involvement would lead to a 0.221 increase in the scores of Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County; a unit increase in project resource availability would lead to a 0.563 increase in the Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County; a unit increase in project manager's skills would lead to a 0.349 increase the scores of Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County and a unit increase in project structural facilities would lead to 0.570

increase the scores of Implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

Table 12 Test of Hypothesis

Hypothesis Statement	Regression Results	Decision
H₀₁: Stakeholders' involvement has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.	t = 2.351 P = 0.005	Reject H ₀₁ null hypothesis stakeholder's involvement has a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.
H₀₂: Project resource availability has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.	t = 6.263 P = 0.000	Reject H ₀₂ null hypothesis project resource availability has a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.
H₀₃: Project Manager's skills has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.	t = 4.602 P = 0.000	Reject H ₀₃ null hypothesis technical skills has a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.
H₀₄: Project structural facilities have no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.	t = 4.920 P = 0.000	Reject H ₀₄ null hypothesis project managers has a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

9.0 DISCUSSIONS OF THE FINDINGS

The study was on the factors influencing the implementation of water and sanitation projects in Ziwa La Ng'ombe Mombasa. The study objectives were stakeholder's involvement, project resource availability, technical skills, and project managers. The study was carried out in Ziwa La Ng'ombe ward in Nyali Sub County Mombasa County in Kenya.

The first objective was to examine the influence of stakeholder's involvement on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County in Kenya. From the onset, it was established that stakeholders are involved in every aspect of the implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa

County. From the findings it was established that all stakeholder's namely donors, government agencies charged with the responsibility of water and sanitation and community are involved in the implementation of water and sanitation projects. The study established that there was a positive correlation between the independent variable stakeholder's involvement and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

The second objective of the study was to examine the influence of project resource availability on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County in Kenya. Resource's availabilities play a key role in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. There was a positive correlation between the independent variable project resources availability and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

The third objective of the study was to examine the influence project manager's skills on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County in Kenya. Technical skills are paramount in implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. There was a correlation between the independent variable technical skills and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

The fourth objective of the study was to determine the influence of project structural facilities on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. Water pipes insufficiency makes it difficult in implementing the pro-poor water projects in this area. Scarcity of allocation of water pumps makes it difficult in implementing the water projects in this area. water tanks inadequacy makes it difficult to implementing the pre-poor water projects in this area. There was a correlation between the independent variable project managers and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

10 CONCLUSION AND RECOMMENDATIONS

10.1 Conclusions

The conclusions were based on findings as follows:

10.1.1 Stakeholder's Involvement

Since there was a strong positive correlation between the independent variable stakeholder's involvement and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County, Kenya. From the study findings on coefficients, t- values of 1.283 and p-values of 0.205, this result accepted the null hypothesis that stakeholder's involvement has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. Therefore, the study concludes that stakeholder's involvement has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

10.1.2 Project Resource Availability

Since there was a negative correlation between the independent variable stakeholder's involvement and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County, Kenya. From the study findings on coefficients, t- values of -6.263 and p-values of 0.000, this result accepted the null hypothesis that project resources availability has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. Therefore, the study concludes that project resources availability has no significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

10.1.3 Project Manager's Skills

Since there was a strong positive correlation between the independent variable technical skills and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County, Kenya. From the study findings on coefficients, t- values of 4.602 and p-values of 0.000, this result rejected the null hypothesis that technical skills have a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. Therefore, the study concludes that project manager's skills have a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

10.1.4 Project Structural Facilities

Since there was a strong positive correlation between the independent variable project structural facilities and the dependent variable implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County, Kenya. From the study findings on coefficients, t- values of 4.920 and p-values of 0.000, this result rejected the null hypothesis that project structural facilities have a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County. Therefore, the study concludes that project structural facilities have a significant effect on implementation of water and sanitation projects in Ziwa La Ng'ombe ward in Mombasa County.

10.2 Recommendations

1. That stakeholders should have different roles and therefore they should not clash.
2. That project resources should be applied to project areas that give optimum results.
3. Based on the findings, the researcher recommends for adequate, durable and cost-effective water tanks for easy provision of water services to the poor in the informal settlements. Also, the researcher recommends for high quality water pipes and modern water pumps that integrate modern technology for sustainable projects implementation in the informal settlements.

Policy Recommendations

Policy makers should find out how project resources availability could be put in proper use to reduce wastage and achieve maximum optimal results.

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