

# **Influence of Stakeholder Analysis on the Performance of Water and Sanitation Projects in Homabay County, Kenya**

<sup>1</sup>Harriet Akoth Ochieng <sup>2</sup>Jacob Olang'o Onyango

<sup>1</sup>**Msc. Student, Jomo Kenyatta University of Agriculture and Technology**

<sup>2</sup>**Lecturer, Jomo Kenyatta University of Agriculture and Technology**

**Type of the Paper:** Research Paper.

**Type of Review:** Peer Reviewed.

**Indexed in:** worldwide web.

**Google Scholar Citation:** [IJSMP](#)

## **How to Cite this Paper:**

Ochieng, H., O. and Onyango, J. O. (2019). **Influence of Stakeholder Analysis on the Performance of Water and Sanitation Projects in Homabay County, Kenya.** *International Journal of Strategic Management and Procurement (IJSMP)*, 1 (1) 48-47.

**International Journal of Strategic Management and Procurement (IJSMP)**

A Refereed International Journal of OIRC JOURNALS.

© OIRC JOURNALS.



This work is licensed under a [Creative Commons Attribution-Non Commercial 4.0 International License](#) subject to proper citation to the publication source of the work.

**Disclaimer:** The scholarly papers as reviewed and published by the OIRC JOURNALS, are the views and opinions of their respective authors and are not the views or opinions of the OIRC JOURNALS. The OIRC JOURNALS disclaims of any harm or loss caused due to the published content to any party.

## **Influence of Stakeholder Analysis on the Performance of Water and Sanitation Projects in Homabay County, Kenya**

<sup>1</sup>Harriet Akoth Ochieng <sup>2</sup>Jacob Olang'o Onyango

<sup>1</sup>**Msc. Student, Jomo Kenyatta University of Agriculture and Technology**

<sup>2</sup>**Lecturer, Jomo Kenyatta University of Agriculture and Technology**

### **ARTICLE INFO**

Received 6<sup>th</sup> May, 2019

Received in Revised Form 13<sup>th</sup> May, 2019

Accepted on 12<sup>th</sup> May, 2019

Published online 13<sup>th</sup> May, 2019

**Key Words:** Stakeholder Analysis, Performance, Water, Sanitation and projects

research design and targeted respondents from Homabay Water and Sanitation Company Limited, county water officers, NGO technical officers and commercial and domestic users. The sample size of 274 was determined from the formula proposed by Yamane. This study employed purposive sampling for the specialized population and simple random sampling to select domestic and commercial users' respondents in selecting respondents. In this study questionnaires were administered to the sample chosen for the study and a pilot study was carried out in Uasin Gishu County to ascertain the validity and reliability of research instruments. The primary data collected was edited, coded, entered and checked for completeness and uniformity then analyzed through Statistical package for Social Sciences (SPSS) version 24 as the most suitable analysis tool. Descriptive statistics including frequency distribution, mean, standard deviation, percentages and Inferential statistics such as Multiple Regression analysis were used to determine the relationship between the variables under investigation. The study findings indicated that was statistical significant influence of stakeholder analysis on the performance of water and sanitation projects in Homabay County, Kenya ( $p=0.000 < 0.05$ ). The study concluded that stakeholder analysis have an influence on performance of water and sanitation projects. The study recommends that there should be need to ensure that the resourceful persons like top management in the various water projects are involved in execution of citizenships projects.

### **Abstract**

Water supply and sanitation are instrumental in the development of a community. Delays in completion of water projects in WSBs in Kenya are a common phenomenon. The main purpose of the study was assess the influence of stakeholder analysis on the performance of water and sanitation projects in Homabay County, Kenya. The study adopted resource based Theory. This study adopted the descriptive

### **Background of the Study**

One of the most important natural resources 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 (Connor, 2015). 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 (Endo, Tsurita, Burnett & Orencio, 2017).

Despite this, one billion people in the world today are without access to improved sources of water, and

access to consistent safe drinking water notwithstanding water being at the center of economic and social development (Garrick & Hall, 2014). Project performance is viewed as the continuous operation of resources in a way that ensures the present and future generations continue to enjoy their benefits. Performance measures the growth, maintenance and/or degradation of resources that affect a community's ability to keep itself (Cookey, Darnswasdi & Ratanachai, 2016). Lalam (2018) noted that the metrics of performance are endeavors to satisfy the service expectations and needs of communities in the long-term.

According to World Health Organization (2015) report on World Bank developed countries, access to improved water sources. To continue delivering sustainable and efficient water and sanitation services, World Bank-financed projects emphasized financial and environmental sustainability, impacts on poverty and gender, and address climate risk. In Japan, the performance of projects for urban water service in various parts ranges from detailed investigation of existing water facilities, formulation of new development/improvement plan, preparation of effective project design, to direct participation in the realization of the project as responsible supervisor (Alegre, Baptista, Cabrera, Cubillo, Duarte, Hirner & Parena, 2016).

Poor community participation, poor security, low rates of return, political sideshows, poor infrastructure, poor urban planning and land ownership among others are some of the challenges (McGranahan & Mitlin, 2016). Brazil has gained ground towards the objective of conveying moderate widespread drinking water and sanitation benefits by 2033, as anticipated by the National Sanitation Plan (Pinheiro, Savoia & Angelo, 2016). In any case, much stays to be done: in 2015 in excess of 33 million Brazilians had no entrance to safe drinking water, while more than 100 million had no entrance to sewage gathering. Just 42% of sewage in Brazil is treated with results on general wellbeing, the economy, the earth and biodiversity.

With only 58% and 31% enjoying access to water and sanitation services respectively, Sub-Saharan Africa is the only continent that is off-track in achieving these. The problem is compounded by the fact that a rigorous and credible baseline did not exist on coverage to improved water and sanitation and resources required to meet the Millennium Development Goals (Salami, Stampini, Kamara, Sullivan & Namara, 2014). In Madagascar, WaterAid has been working to ensure the people of Madagascar have improved access to water, sanitation, and hygiene (World Health Organization, 2014).

According to report, access to safe water supplies throughout Kenya is 59% with access in rural areas remaining as low as 47%. Keli (2015) notes that, in slums like Bangladeshi in Mombasa, Mjini in Kitui, Mathare in Nairobi and Kianduthu slums in Thika, in every 95 families, almost 63 families don't have access to clean water while 75 families lack basic sanitation (toilets, latrines and garbage dumping sites). This is due to the fact that most companies dealing with water and sanitation services providence are not ready to work in these slums. Reasons behind this include: the security threats

where pumps and other valuables are stolen by the slum gangs, the unpaid bills, illegal connections of the water, busting of the pipes illegally to access water, the poorly planned infrastructure making it difficult to lay down water and sanitation equipment like pipes and collection points.

Enhancing access to safe water is subsequently critical to lessening losses emerging from water-related infections among kids in Kenya. This is especially vital thinking about that at the family unit level in Kenya, most water is dangerous to drink (particularly from e-coli sullyng) or for planning nourishment; over 2.5 million families don't have latrine offices; and, 75% of essential tyke guardians and 71% of auxiliary guardians separately don't wash hands with cleanser at basic occasions. This is especially risky among the least fortunate where the dominant party does not have access to safe water and sanitation administrations to encourage cleanliness enhancement - in this manner putting the offspring of the poor at most serious danger of looseness of the bowels and demise.

In acknowledgment of the poor pointers in the district, the Government of Kenya in cooperation with UNICEF and Government of Netherlands started a Water Supply and Sanitation Program covering 20 ASAL and flood inclined regions in 2008. Among the chosen flood inclined areas that had the least pointers are Siaya and Kisumu areas in the Nyanza and Busia region in Western Kenya. The programme bolstered the advancement of new enhanced water supply sources and a far-reaching family unit sanitation and cleanliness advancement program focusing on expanded safe excreta transfer rehearses through expanded family unit restroom take-up and utilization. In an expansion, family unit water treatment and safe stockpiling and hand washing with cleaner practice at basic occasions were advanced. By mid-2012, in excess of 300,000 individuals in the locale utilized 458 new enhanced water sources while 800,000 individuals utilized 160,000 new fundamental clean offices with hand washing at the family unit (UNICEF, 2012).

#### **Statement of the Problem**

A standout amongst the most basic difficulties is giving safe drinking water and sanitation over one decade from now (Gine & Foguet, 2013). Water and sanitation circumstance makes a bleak picture for the urban poor, looking all-inclusive, various task exhibitions keep on falling beneath their objectives when it comes to water and sanitation, focusing on the poor is critical. Lack of participation has a greater impact in development projects which require the beneficiaries or management committees

to have necessary skills to manage the project after hand over by the donors. Majority of the projects initiated by development actors have experienced low participation of the beneficiaries therefore affecting performance of these projects. Delays in completion of water projects in WSBs in Kenya are a common phenomenon with projects such as Oyugis-Kendubay water supply and Mbita bay water supply in Homabay County not taking off due to issues raised by various stakeholders. According to AWSB's year 2013 achievement report to WASREB for example; 9 of 16 (57%) completed projects in the board's area were completed late while 12 of 14 (86%) ongoing projects were behind schedule. While overall national water supply coverage despite this phenomenon has steadily increased over the recent years reaching a level of 60% and 45% in urban and rural areas respectively (MWI, Annual Water Sector Review Report 2012), a gap of 20% and 30% respectively needs to be closed to reach the sector's National Water Services Strategy target coverage of 80% in urban areas and 75% in rural areas by 2015 (NWSS, 2004). Therefore, this study sought to assess the influence of stakeholder analysis on the performance of water and sanitation projects in Homabay County, Kenya.

#### **General Objective**

The objective of the study was to assess the influence of stakeholder analysis on the performance of water and sanitation projects in Homabay County, Kenya

#### **Research Hypothesis**

**H<sub>01</sub>: Stakeholder analysis does not have a significant effect on the performance of water and sanitation projects in Homabay County, Kenya**

#### **Literature Review**

##### **Theoretical Review**

This study is built upon the Model of Suitability, Feasibility and Acceptability.

##### **Model of Suitability, Feasibility and Acceptability**

Model of Suitability, Feasibility and Acceptability. According to Johnson and Scholes (1999), a feasible and effective project must be evaluated before implementing in a new context. According to Boundless (2015), an effective project must be suitable, feasible, and acceptable to stakeholders. Effectiveness is the capability to produce a desired result. A project is considered effective when both the short-term and long-term goals are accomplished and are in line with the mission, vision, and stakeholder expectations. This requires leaders to recognize how each societal component combines to create a competitive operational process.

With the above framework in mind, a number of scholars have proposed perspectives on project effectiveness. Johnson, Scholes, and Whittington (1999) suggest evaluating the potential success of a project based on three criteria including: Suitability that deals with the overall rationale of the project (Hough, 2008). According to Hough (2008), one method of assessing suitability is using a strength, weakness, opportunity, and threat (SWOT) analysis. A suitable project in this case, fits the project mission, reflects the capabilities, and captures opportunities in the external environment while avoiding threats. A suitable project should derive benefits. Therefore, before implementation by the project managers; their benefits and sustainability needs to be considered.

Feasibility is concerned with whether or not they have the resources required to implement the project (such as capital, people, time, market access, and expertise). One method of analyzing feasibility is to conduct a break-even analysis, which identifies if there are inputs to generate outputs and demand to cover the costs involved. Therefore, the available resources for the projects to be implemented should be put into consideration. It is important for stakeholders to accept the project based on the risk and the potential returns. (One method of assessing acceptability is through a what-if analysis, identifying best and worst case scenarios. This can be applied when designing the project by Mulcaster's Managing eleven (11) forces that include: time, opposing forces, politics, perception, holistic effects, adding value, incentives, learning capabilities, opportunity cost, risk, and style.

##### **Stakeholder Analysis and Performance of Water and Sanitation Projects**

Stakeholder analysis is the first step in stakeholder management, an important process that successful people use to win support from others. Managing stakeholders helps them to ensure that their projects succeed where others might fail (Bourne, 2016). Participatory theory states that stakeholder participation is one of the ways of enhancing effectiveness of development projects. However, this has not been the case, the communities where projects are being implemented have long been viewed as a hurdle to implementing projects and historically have been engaged as little as possible.

According to Greenall and Revere (1999), implementing agencies both local and international expressed several difficulties when engaging community right from the design stages to withdrawal, citing slow implementation, but Karl

(2000) is of the view that development interventions achieve their objectives if the people who are most affected are actively involved. Participation is an effective mechanism for poverty reduction capable of achieving immediate and lasting results at the grassroots level for the reason that it assures better targeting of benefits to the poor, increases the impact and ensures that the development gains are equitably distributed (Chavangi, 1995).

Generally, from the authors view, stakeholder analysis should be done to ensure all parties/actors are actively involved in all stages of project management cycle. This is in concurrence with (Rudqvist and Woodford-Berger, 1996) that the community helps to detect problems during implementation at early stages before they escalate into major sources of conflict and wastefulness. As Karl (2000) puts it, local people's judgments of what constitutes success, give a more pragmatic view about what works and what does not work. Consequently, interventions were successful and sustainable when people have a voice in determining their objectives, to support their implementation, to evaluate their outcomes, and to make indigenous knowledge available.

McConville, Kain, Kvarnstrom and Ulrich (2014) focused on stakeholder's participation in sanitation planning in Burkina Faso: theory and practice. The study results indicated that stakeholder participation is commonly promoted as a means to boost outcomes of sanitation improvement projects, in particular in developing countries. They indicated that there was a little research on when or how this participation should occur during the process of planning a sanitation system in order to maximize the effect. They develops a framework for analyzing participation levels of different stakeholders throughout a planning process and applies it to sanitation planning guidelines and case studies from Burkina Faso. This analysis highlights that, particularly during designing of system options and selecting among these options, there exist potential weaknesses regarding who participates and how that participation may influence what type of sanitation is implemented.

Sigel, Staudel and Londong (2014) studied on the experiences with stakeholder involvement in strategic sanitation planning: a case study of the city of Darkhan, Mongolia. The study found that Stakeholder involvement is a prerequisite in urban strategic sanitation planning, particularly in low-income countries. Conceptually the Darkhan case study builds on a participatory sanitation planning approach known in the literature as community-led urban environmental sanitation (CLUES) planning.

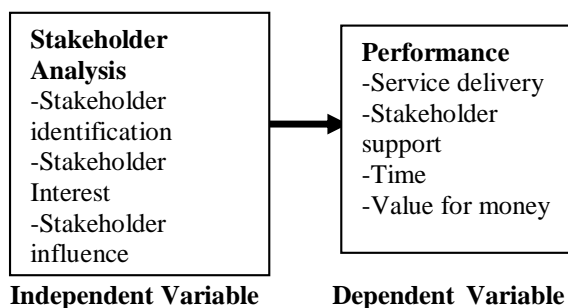
Firstly, a brief introduction to the CLUES approach, its basic principles for effective stakeholder involvement and its adaptation to the Darkhan case study are given.

Secondly, two relevant planning steps including the bus idling and testing of pilot facilities are described and assessed in terms of effective stakeholder involvement. It is shown that even if not all basic principles could be fulfilled adequately, the participatory planning framework helped to improve the scientific outputs of the project mainly the technological research and development and to smooth the way for further actions towards the sustainable implementation of measures on a larger scale. Ngugi, Home and Mutwiwa (2017) focused on impacts of water and sanitation activities on the environment in the Upper Mara Basin. The provision of reliable and safe water supplies is an essential element in improving the quality of life for mankind. However, over time the natural resource base has become severely stressed due to unsustainable use of the resources. Water samples were analyzed for physical, chemical and bacteriological parameters and only 23.4% of sampled water sources were found suitable as domestic water sources. Most open water sources were contaminated with *E. coli* caused by open defecation in the basin which on average was 38%. The study showed that, 21.3% of the sampled water supply projects had evidence of soil erosion around them which was mainly caused by livestock overcrowding at water points. Among the wastewater generating and management activities in upper Mara basin, Bomet municipal stabilization pond posed the greatest pollution threat to the environment since it lacked capacity to treat waste water to standards before it overflowed into the environment. In addition, WASH stakeholders in the basin should make integrated and comprehensive efforts to provide improved water sources and sanitation to all the residents.

Dos and Gupta (2017) study examined the pro-poor water and sanitation: operationalizing inclusive discourses to benefit the poor. The study findings show that technical integration in operationalization has improved water provision to the poor through the adoption of instruments, assessments and outcomes. However, the 'pro-poor' approach introduced a simplified notion of social inclusiveness into multi and inter-disciplinary debates and policy processes. Although outcomes are positive and offer some lessons for the social inclusiveness component of inclusive development, 'pro-poor' WatSan discourses have neither

addressed the related environmental issues nor taken a relational approach to empowering the poor. Ameyaw and Chan (2015) identified and evaluated the most significant risk factors that strongly affect the implementation of public-private partnership (PPP) water supply projects. PPP for water supply infrastructure services has seen continued growth over the past two decades, following public sector's budgetary constraints and inability to provide infrastructure-based water services efficiently and cost effectively. However, these projects are often subjected to major risks leading to failures. The paper presents a derived risk factor list, ranks the factors and describes the "top-ranked" risk factors as: poor contract design, water pricing and tariff review uncertainty, political interference, public resistance to PPP, construction time and cost overrun, non-payment of bills, lack of PPP experience, financing risk, faulty demand forecasting, high operational costs and conflict between partners.

Chan, Lam, Wen, Ameyaw, Wang & Ke (2014) focused on cross-sectional analysis of critical risk factors for PPP water projects in China. The findings revealed that completion risk, inflation, and price change risk have a higher impact on Chinese water PPP projects, whereas government corruption, an imperfect law and supervision system, and a change in market demand have a lower impact on the water supply sector. The findings can help project stakeholders to improve the efficiency of privatization in public utility service and provide private investors with a better understanding while they participate in the enormous Chinese water market through the PPP mode



**Figure 1 Conceptual Framework**

**Research Methodology**

**Research Design**

This study adopted the descriptive research design. Descriptive surveys are capable of obtaining information from large samples of the population over a short period of time thus very suitable for this

study since the scope is large. This design is also suitable as it brought out information on attitudes that could be difficult to measure using observational techniques. This design helped the researcher to collect questions asked repetitively to a sample of a population to mathematically derive characteristics of the total population. This is because the studies were based on the views and opinion of the respondents on influence of stakeholder analysis on the performance of water and sanitation projects in Homabay County, Kenya

**Target Population**

The target population for this study was employees of Homa Bay Water and Sanitation Company Limited, commercial and domestic users, sub-county water officers as well as NGO's funding community. The accessible is the subset of the target population where the researcher draws the samples. In this study the accessible population was drawn from 4 head of departments that is: Human Resource and administration department, engineering and strategy department, business and customer service department and finance department from Homa Bay Water and Sanitation Company Limited, 1 county water director, 16 sub county water officer, 11 NGO technical officers, 350 domestic users, 263 commercial users (Homa Bay Water and Sanitation Company Limited (2019), and Homabay County, 2019). Since all these officers and users play an important role in water and sanitation services in Homabay County, they became the accessible population. This was as presented in Table 3.1.

**Table 3.1 Target Population**

Target Group	Number
Head of Departments	4
County water Director	1
Sub-county water officers	16
NGO technical officers	11
Water committees	40
Domestic Users	350
Commercial Users	263
<b>Total</b>	<b>645</b>

Source: Homa Bay Water and Sanitation Company Limited (2019) and Homabay County (2019).

**Sample Size and Sampling Technique**

The sample size was determined from the formula proposed by Yamane cited by Israel (2009) which state that:

$$n = \frac{N}{1 + N(e)^2}$$
 .....Equation 3.1

Where;

N represents target population for domestic users and commercial users 613

n represent required sample size

e level of precision (5%)

$N=613; e=5\%$  thus:  $n=613 / (1 + 613 (0.05)^2) = 242$

The sample size of the study therefore was 242 from domestic and commercial users, plus 4 Heads of Department, 1 County water Director, 16 Sub-county water officers, 11 NGO Technical officers to get a total of 274 respondents as presented in Table 3.2.

**Table 3.2 Sample Size**

Target Group	Sample size
Heads of Department	4
County water Director	1
Sub-county water officers	16
NGO Technical officers	11
Water committees	15
Domestic Users	138
Commercial Users	104
<b>Total</b>	<b>274</b>

This study used purposive sampling technique to select 4 Heads of Department, 1 County water Director, 16 Sub-county water officers, 11 NGO Technical officers. Purposive sampling technique helped the researcher to select the above respondents because they were knowledgeable on influence of project design on the performance of water and sanitation projects in Homabay County, Kenya. Simple random sampling was used to select domestic and commercial users' respondents because they had equal chance of being chosen to participate in the study. This helped to avoid biasness in selection.

#### Data Collection Instruments

In this study questionnaires were administered to the sample chosen for the study. Sekaran and Bourgie (2010) lay emphasis on the use of questionnaires since the design is based on the objectives of the research and features closed and open ended questions. Use of questionnaires was opted for as the research instrument for primary data in the study because of the following benefits. First, the questionnaire enabled the researcher to ask structured questions which were easier to analyze as well as to administer as each question is followed by alternative answers. Secondly, the use of questionnaires helped in reaching a large number of respondents within a short time. Thirdly,

questionnaires have the ability to accord the respondents adequate time to respond and offer a sense of privacy and confidentiality making questionnaires a quick and cost effective way of data collection (Orodho, 2003). Questionnaires was administered through various methods i.e. for the users face-to-face method was used to make sure all the questions are understood and responded to clearly. Secondary data was collected through review of various reports at the county social affairs office and the donor agencies.

#### Pilot Test

It refers to trial study done in preparation for the major study and it allows for the pre-testing of the particular research instrument being used in the study (Edwin, 2002). One of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated (Armstrong & Tylor, 2014). In addition it provides easy recording and analysis of data. For this study a pilot was carried out in Uasin Gishu County. This was done to ascertain the validity and reliability of research instruments.

Validity defines the accuracy and meaningfulness of inferences drawn from study findings, (Mugenda & Mugenda, 2009). If the instrument is valid, the results obtained from the research actually represent the study variables. Two types of validity were considered: content validity which address the match between test questions and the subject area they are intended to assess and construct validity which assesses the degree to which a test or other what it is purported to measure. The research instruments were pretested on 25 respondents (10% of the sample size) within Uasin Gishu County. The feedback was used to validate the instruments in readiness for the study.

Reliability is the measure of the degree to which a data collection instrument yields consistent results or data after repeated trials (Mugenda and Mugenda, 2003 and Orodho, 2004). A reliable data collection instrument is one that produces consistent results when used more than once to collect data from a sample randomly selected from the sample population. Internal consistency method that is the split-half method was used to test reliability of the research instruments by comparing the results of one half of a test with the results from the other half. Responses from 27 respondents (10% of the sample) were used for the test. The data obtained then entered into the Statistical Package for Social

Science research (SPSS) to determine the reliability of the tool. In this study, the items were considered reliable when they yielded a Cronbach's alpha value of 0.70 and above. However, the Cronbach's alpha that is less than 0.70 implied that the research instruments were not reliable and the researcher made necessary corrections before using the instruments to collect data.

**Data Analysis and Presentation**

According to Mugenda and Mugenda (2003), data analysis is the processing of data to obtain answers to research questions. The primary data collected was edited, coded, and entered, checked for completeness and uniformity then analyzed through Statistical package for Social Sciences (SPSS) version 22 as the most suitable analysis tool. Descriptive statistics including frequency distribution, mean, standard deviation, percentages and Inferential statistics such as Multiple Regression analysis was used to determine the relationship between the variables under investigation (Orodho, 2007).

The choice of statistical method to use depends on the kind of data. Descriptive statistics (frequencies & percentages) was used to summarize the data obtained. The Likert scale was used to give weight of the extent to which project design could be acceptable and feasible. Data was interpreted; and inferences made and presented using Tables, charts and percentages. The following regression model was adopted to determine the influence of project design on the performance of water and sanitation projects in Homabay County.

$Y = \beta_0 + \beta_1 X_1 + \epsilon$ .....Equation 3.1

Where:

**Y** Represents performance of water and sanitation projects

**$\beta_0$**  Represents Constant

**$X_1$**  Represents stakeholder analysis

**$\epsilon$**  Represents Error Term

**$\beta_1$** , represent régression Coefficients of the Independent Variables

**Findings and Discussions**

**Response Rate**

Out of the 274 questionnaires issued to the respondents, 230 were returned while 30 were never returned and spoilt were 14. The questionnaire response rate was (83.9%). According to Mugenda and Mugenda (2003) a response rate of 70% and above is acceptable.

**Pilot Study Results**

The questionnaires used had likert scale items that were to be responded to. For reliability analysis Cronbach's alpha was calculated by application of SPSS. The value of the alpha coefficient ranges from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous (that is, questions with two possible answers) and/or multipoint formatted questionnaires or scales (i.e., rating scale: 1 = poor, 4 = excellent). A higher value shows a more reliable generated scale. Cooper & Schindler (2008) indicated 0.7 to be an acceptable reliability coefficient. Since, the alpha coefficients were all greater than 0.7, a conclusion was drawn that the instruments had an acceptable reliability coefficient and were appropriate for the study.

**Table 4.2 Reliability Results**

Variable	Cronb ach	N of
Stakeholder analysis	.751	4
Performance of water and sanitation projects	.736	4

**Gender of the Respondents**

The study sought to establish the gender of the respondents who participated in the study. The research findings were presented in Table 4.3. From study results among the respondents who participated in the study, 121(52.6%) were men while 109(47.4%) were women. This shows that there is a good gender balance.

**Table 4.3 Gender of the respondents**

Gender	Frequency	Percentage
Male	121	52.6
Female	109	47.4
<b>Total</b>	<b>230</b>	<b>100.00</b>

**Age Bracket**

The study also sought to find the age bracket of those who participated in the study. The study results were presented in Table 4.4. The study findings indicated that among the respondents, 26(11.3%) were aged between 21 years and below, 65(28.3%) were aged between 21-30 years, 87(37.8%) were aged 31-40 years while 52(22.6%) were aged over 40 years. This shows that the respondents are dominated by members who are between 31- 40 years.

**Table 4.4 Age Bracket**

Age	Frequency	Percentage
Below 21years	26	11.3



Between 21- 30 years	65	28.3
Between 31- 40 years	87	37.8
Over 40 years	52	22.6
<b>Total</b>	<b>230</b>	<b>100.00</b>

#### Level of Education

The study sought to establish the level of education of those who participated in the study. The study results were presented in Table 4.5. The study results indicated that among the respondents, 2(0.8%) had attained PHD level education; 14(6.1%) had attained masters level education while 89(38.7%) had attained degree level education and 125(54.3%) had attained diploma level of education. This indicated that most of the respondents are literate and are therefore able to contribute constructively in the management of these projects.

**Table 4.5 Level of Education**

Level of education	Frequency	Percentage
--------------------	-----------	------------

Ph.D	2	0.8
Masters	14	6.1
Degree	89	38.7
Diploma	125	54.3
<b>Total</b>	<b>230</b>	<b>100.0</b>

#### Descriptive Findings and Discussions

The descriptive used in this study were frequency, percentages, means and standard deviation.

#### Stakeholder Analysis and the Performance of Water and Sanitation projects.

In this objective, respondents were asked to indicate the extent to which they agreed or disagreed with the following statements in relation to Influence of stakeholder analysis on the performance of water and sanitation projects. The study was presented in Table 4.8.

**Table 4.8 Stakeholder Analysis and the Performance Projects**

Statements	SA	A	U	D	SD	Total	Mean	SD
i Stakeholder identification on Water and sanitation company projects has greatly reputed good image to the company services.	F 30 % 13	181 78.7	13 5.7	3 1.3	3 1.3	230 100	4.01	0.598
ii Stakeholder interest builds and solidifies objectives of the water and sanitation projects.	F 54 % 23.5	149 64.8	23 10	2 0.9	2 0.9	230 100	4.09	0.664
iii Stakeholder identification influence has significantly earned the company growth opportunities and establishments.	F 29 % 12.6	187 81.3	5 2.2	7 3	2 0.9	230 100	4.02	0.591
iv Stakeholder analysis enables the company realizes its weakness and creates room to advice appropriately addressing the problems.	F 43 % 18.7	178 77.4	5 2.2	2 0.9	2 0.9	230 100	4.12	0.555

Study findings on the influence of stakeholder analysis on the performance of water and sanitation projects showed that the respondents agreed with the statements that; Stakeholder identification on Water and sanitation company projects has greatly reputed good (mean=4.01, SD=.598); Stakeholder interest builds and solidifies objectives of the water and sanitation projects (Mean=4.09, SD=.664); Stakeholder identification influence has

significantly earned the company growth opportunities (Mean=4.02, SD=.591); and Stakeholder analysis enables the company (Mean=4.12, SD=.555).

The study findings agrees with McConville, Kain, Kvarnstrom and Ulrich (2014) who focused on stakeholder's participation in sanitation planning in Burkina Faso: theory and practice. The study results indicated that stakeholder participation is commonly

promoted as a means to boost outcomes of sanitation improvement projects, in particular in developing countries. They indicated that there was a little research on when or how this participation should occur during the process of planning a sanitation system in order to maximize the effect. They develop a framework for analyzing participation levels of different stakeholders throughout a planning process and applies it to sanitation planning guidelines and case studies from Burkina Faso.

The study findings also concede with Sigel, Staudel and Londong (2014) studied on the experiences with stakeholder involvement in strategic sanitation planning: a case study of the city of Darkhan, Mongolia. The study found that Stakeholder involvement is a prerequisite in urban strategic sanitation planning, particularly in low-income countries. Conceptually the Darkhan case study builds on a participatory sanitation planning approach known in the literature as community-led urban environmental sanitation (CLUES) planning. Firstly, a brief introduction to the CLUES approach, its basic principles for effective stakeholder involvement and its adaptation to the Darkhan case study are given. Secondly, two relevant planning steps including the bus idling and testing of pilot facilities are described and assessed in terms of effective stakeholder involvement. It is shown that even if not all basic principles could be fulfilled adequately, the participatory planning framework helped to improve the scientific outputs of the project mainly the technological research and development and to smooth the way for further

actions towards the sustainable implementation of measures on a larger scale.

The study finding is in agreement with Ngugi, Home and Mutwiwa (2017) who focused on impacts of water and sanitation activities on the environment in the Upper Mara Basin. The provision of reliable and safe water supplies is an essential element in improving the quality of life for mankind. However, over time the natural resource base has become severely stressed due to unsustainable use of the resources. Water samples were analyzed for physical, chemical and bacteriological parameters and only 23.4% of sampled water sources were found suitable as domestic water sources.

The study findings revealed that stakeholder analysis greatly influence the performance of water and sanitation projects in Homabay County, Kenya. This implies that stakeholder identification on water and sanitation company projects reputes a good image to the company services, stakeholder interest builds and solidifies objectives of the water and sanitation projects while stakeholder identification significantly earns the company growth opportunities and stakeholder analysis enables the company realize its weakness and creates room to advice appropriately addressing the problems.

#### **Performance of water and sanitation projects in Homabay County, Kenya**

In this section, respondents were asked to indicate the extent to which they agreed or disagreed with the following statements in relation to performance of water and sanitation projects in Homabay County, Kenya. The results were presented in Table 4.10.

**Table 4.10 Performance of water and sanitation projects in Homabay County, Kenya**

Statements		SA	A	U	D	SD	Total	Mean	SD
i Service delivery has greatly improved since integration of technology to the company operations.	F	70	136	15	5	4	230	4.14	.771
	%	30.4	59.1	6.5	2.2	1.7	100		
ii Stakeholder support has seen growth and expansion of water supply systems to the community.	F	74	114	30	8	4	230	4.07	.864
	%	32.2	49.6	13	3.5	1.7	100		
iii Effective project design has improved service delivery hence enabling service of more clients over a short period.	F	81	116	23	6	4	230	4.15	.833
	%	35.2	50.4	10	2.6	1.7	100		
iv	F	56	149	19	2	4	230	4.09	.715

Effective project design is cost	%	24.3	64.8	8.3	.9	1.7	100
----------------------------------	---	------	------	-----	----	-----	-----

The study findings on the performance of water and sanitation projects showed that the respondents agreed with the statements that; service delivery has greatly improved since integration of technology to the company operations (Mean=4.14, SD=.771); stakeholder support has seen growth and expansion of water supply systems to the community (Mean=4.07, SD=.864); effective project design has improved service delivery hence enabling service of more clients over a short period (Mean=4.15, SD=.833) and effective project design is cost friendly, economical in nature and sustainable (Mean=4.09, SD=.715).

The study findings revealed that effective project design greatly influences performance of water and sanitation projects. The study findings concede with Van, Strucker and Danschutter (2017) who noted that Amsterdam as a sustainable European metropolis: integration of water, energy and material flows. Amsterdam has the ambition to develop as a competitive and sustainable European metropolis. The flows of energy, water and resources within the urban environment have a large potential to contribute to this ambition.

It also agrees with Fletcher and Deletic (2014) posited that integrated urban water management relies on data allowing analyses, understand and predict the behaviour of the individual water cycle components and their interactions. The concomitant monitoring of the complex of urban water system elements makes it possible to grasp the entirety of relations among the various components of the urban water. Increasing pressure on both the quantity and quality of water resources is occurring throughout most, if not all, of the populated world. In urban areas, that pressure is evident across all aspects of the water cycle – including water supply,

wastewater, storm water, groundwater and aquatic ecosystems.

### Inferential Analysis

This section describes the results of correlation analysis and regression analysis to show the relationship between stakeholder analysis and project performance.

### Correlation Analysis Results

The study used Pearson’s coefficient of correlation to check direction and strength of relationship between study variables. Direction in that to check if there is positive or negative relationship. While the strength to know if the relationship was weak, moderate or strong. Pearson’s coefficient of correlation values lies between -1 and +1 where;  $r=+1$  shows perfect positive correlation.  $r=-1$ , shows perfect negative correlation.  $r=0$  show no correlation. The correlation showed in the Table shows bivariate correlations of all the variables (stakeholder analysis and performance of water and sanitation projects). The study results in correlation Table 4.11 it is clear that all the independent variables were positively correlated to performance of water and sanitation projects since all the correlation coefficients were positive and p values for all the four variables are 0.000 implying that all the variables are statistically significant.

The study results indicated that the relationship between stakeholder analysis and performance of water and sanitation projects was positive, significant and strong ( $r=0.518$ ,  $p<0.01$ ). Karl Pearson’s coefficient considers a range of 0.10-0.29 to be weak, 0.30-0.49 to be medium and 0.5-1.0 to be strong, Wong and Hiew (2005).

**Table 4.11 Correlations Analysis Results**

		Performance of project	Stakeholder Analysis
<b>Performance of projects</b>	Pearson Correlation	1	
	Sig. (2-tailed)		
<b>Stakeholder analysis</b>	Pearson Correlation	.518**	1
	Sig. (2-tailed)	0.000	

### Regression Analysis Results

The study sought to determine whether there existed a significant variation between stakeholder analysis and dependent variable (performance of water projects). Result in Table 4.18 indicated that

coefficient of determination ( $R^2$ ) correlation coefficient (R) shows the degree of association between stakeholder analysis and performance of water and sanitation projects in Homabay County. From the findings in Table 4.18, R was 0. 628

implying that there was a positive relationship between stakeholder analysis variable and performance of water and sanitation projects in Homabay County. Coefficient of determination  $R^2 = 0.395$  indicating that the variation in dependent variable can be attributed to changes in independent variable as a 39.5% change in the performance of water and sanitation projects attributed to changes in stakeholder analysis. Adjusted  $R^2$  is a modified version of  $R^2$  that has been adjusted for the number of predictors in the model

by less than chance. The adjusted  $R^2$  value was 0.384 and was slightly lower than the  $R^2$  value 0.395. Adjusted  $R^2$  indicate the exact indicator of the relationship between the independent and the dependent variable because it is sensitive to the addition of irrelevant variables. The adjusted  $R^2$  indicates that 38.4% of the performance of water and sanitation projects in Homabay County is explained by the model while 61.6% is not explained by the model. The standard error when the model is used was 0.59289.

**Table 4.12 Model Summary**

Model	R	R Square	Adjusted Square	R	Std. Error
1	.628	.395	.384		.59289

**Model Fitness**

Table 4.13 presents the results of regression ANOVA to test the model fitness at 95% confidence level. The study results indicated that there was a significant value ( $p=0.000 < 0.05$ ) and F-value of 36.673. This shows that the regression

model has a probability of less than 0.05 of giving a correct prediction. Hence, the regression model used is a suitable prediction model for explaining the relationship between independent and dependent variables. This implies that there was a goodness of fit of the model fitted for this study.

**Table 4.13 ANOVA**

Model	Sum Squares	of Df	Mean Square	F	Sig.
1 Regression	51.565	4	12.891	36.673	0.000
Residual	79.091	225	0.352		
Total	130.655	229			

**Coefficients of Regression Model**

The results of coefficients of regression model were presented in Table 14. Regression results revealed that stakeholder analysis has a positive and significance influence in project performance of water and sanitation projects as indicated by  $\beta_3 = 0.272$ ,  $p=0.000 < 0.05$ ,  $t = 5.893$ . The implication is

that an increase in stakeholder analysis would lead to an increase in water and sanitation project Performance by  $\beta_3 = 0.272$ . Therefore the multiple regression model equation was developed from the coefficient as shown in equation 4.18;

$$Y = 0.802 + 272X_1 \dots \dots \dots \text{Equation 4.1}$$

**Table 4.14 Coefficient Analysis**

Items	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.802	0.294		2.727	0.007
Stakeholder analysis	0.272	0.046	0.342	5.893	0.000

**Hypotheses Test Results**

Hypotheses were tested at 5% alpha level of significance. The decision rule in hypotheses testing was that if the  $p$ -value was less than conventional 0.05 the null Hypotheses was rejected and when it

was above 0.05 the study fails to reject the null Hypotheses. The study results were presented in Table 4.15.

The Null Hypothesis  $H_{01}$  stated that stakeholder analysis does not have a significant effect on the

performance of water and sanitation projects in Homabay County, Kenya. However, the study finding indicated that there is a statistical significant influence of stakeholder analysis on the performance of water and sanitation projects in Homabay County, Kenya ( $p=0.000 < 0.05$ ). Hence the study findings rejected the null Hypotheses. This concurs well with Sigel, Staudel and Londong (2014) who studied on the experiences with stakeholder involvement in strategic sanitation planning: a case study of the city of Darkhan, Mongolia. The study found that Stakeholder involvement is a prerequisite in urban strategic sanitation planning, particularly in low-income countries.

**Table 4.15 Summary of Hypotheses Test Results**

Hypotheses	Results	Decision rule(accept/reject)
$H_{01}$ :Stakeholder analysis does not have a significant	$(\beta_1=0.272, p < 0.05)$ .	Rejected the null hypothesis

### Summary, Conclusions and Recommendations Stakeholder Analysis

The results indicated a positive and a significant relationship between stakeholder analysis and performance of water and sanitation projects in Homabay County, Kenya. As such hypothesis  $H_{01}$  that stated that there is a positive relationship between stakeholder analysis and performance of water and sanitation projects was adopted. The study findings revealed that stakeholder analysis greatly influence the performance of water and sanitation projects in Homabay County, Kenya. This implies that stakeholder identification on water and sanitation company projects reposes a good image to the company services, stakeholder interest builds and solidifies objectives of the water and sanitation projects while stakeholder identification significantly earns the company growth opportunities and stakeholder analysis enables the company realize its weakness and creates room to advice appropriately addressing the problems.

### Conclusions of the Study

The study further concluded that stakeholder identification on water and sanitation company projects reposes a good image to the company services, stakeholder interest builds and solidifies objectives of the water and sanitation projects while stakeholder identification significantly earns the company growth opportunities and stakeholder analysis enables the company realize its weakness and creates room to advice appropriately addressing the problems.

### Recommendations of the Study

The study recommends the use of co-creators approach for public projects development in order to establish common ground on share stakeholder feeling. The study finally recommends that there should be need to ensure that the resourceful persons like top management in the various water projects are involved in execution of citizenships projects. This should be in ways that include prompt of funds meant for such activities, top management scrutiny of reports about progress of such projects and increasingly participating in their implementations.

### Suggestions for Further Research

A study can be done to examine the influence of M&E on the implementation of sustainable water and Sanitation projects in informal settlements. A study can also be done to examine the influence of politics in the implementation of community based water and sanitation projects in Kenya's informal settlements

### References

- Alegre, H., Baptista, J. M., Cabrera Jr, E., Cubillo, F., Duarte, P., Hirner, W. & Parena, R. (2016). *Performance Indicators for Water Supply Services*. London, United Kingdom: IWA Publishing.
- Ameyaw, E. E., & Chan, A. P. (2015). Risk Ranking and Analysis in PPP Water Supply Infrastructure Projects: An International Survey of Industry Experts. *International Journal of Project Management* 33(8), 428-453.
- Bourne, L. (2016). *Stakeholder Relationship Management: A Maturity Model for Organizational Implementation*. Abingdon, United Kingdom: Routledge.
- Chan, A. P., Lam, P. T., Wen, Y., Ameyaw, E. E., Wang, S., & Ke, Y. (2014). Cross-Sectional Analysis of Critical

- Risk Factors for PPP Water Projects in China. *Journal of Infrastructure Systems*, 21(1), 401-403.
- Connor, R. (2015). *The United Nations World Water Development Report 2015: Water for a Sustainable World*. Paris, France: UNESCO Publishing.
- Cookey, P. E., Darnswasdi, R., & Ratanachai, C. (2016). Local People's Perceptions of Lake Basin Water Governance Performance in Thailand. *Journal of Ocean and Coastal Management*, 120(2), 11-28.
- Dos Santos, R., & Gupta, J. (2017). Pro-Poor Water and Sanitation: Operationalizing Inclusive Discourses to Benefit the Poor. *Journal of Current Opinion in Environmental Sustainability*, 24(3), 30-35.
- Endo, A., Tsurita, I., Burnett, K., & Orencio, P. M. (2017). A Review of the Current State of Research on the Water, Energy, and Food Nexus. *Journal of Hydrology: Regional Studies*, 11(3), 20-30.
- Garrick, D., & Hall, J. W. (2014). Water Security and Society: Risks, Metrics, and Pathways. *Annual Review of Environment and Resources*, 39(12), 611-639.
- Giné Garriga, R., & Pérez Foguet, A. (2013). Water, Sanitation, Hygiene and Rural Poverty: Issues of Sector Monitoring and the Role of Aggregated Indicators. *Journal of Water Policy*, 15(6), 1018-1045.
- Lalam, E. Y. (2018). Stakeholder Engagement, Community Participation, Stakeholder Commitment and Project Sustainability. *South African Journal of Information Management*, 9(2), 11-18.
- Mcconville, J. R., Kain, J. H., Kvarnström, E., & Ulrich, L. (2014). Participation in Sanitation Planning in Burkina Faso: Theory and Practice. *Journal of Water, Sanitation and Hygiene for Development*, 4(2), 304-312.
- Mcgranahan, G., & Mitlin, D. (2016). Learning from Sustained Success: How Community-Driven Initiatives to Improve Urban Sanitation Can Meet the Challenges. *World Development*, 87(6), 307-317.
- Mugenda, A. G., & Mugenda, A. G. (2012). *Research methods dictionary*. Nairobi, Kenya: Applied Research & Training Services.
- Ngugi, H. N., Home, P. G., & Mutwiwa, U. N. (2017). Impacts of Water and Sanitation Activities on the Environment in the Upper Mara Basin. *Journal of Ecohealth*, 13(4), 633-651.
- Pinheiro, F. A. P., Savoia, J. R. F., & De Angelo, C. F. (2016). A Comparative Analysis of the Public and Private Water Supply and Sanitation Service Providers' Work In Brazil. *Journal of Brazilian Business Review*, 13(1), 115-136.
- Salami, A. O., Stampini, M., Kamara, A. B., Sullivan, C. A., & Namara, R. (2014). Development Aid and Access to Water and Sanitation in Sub-Saharan Africa. *Water International Journal*, 39(3), 294-314.
- Sigel, K., Stäudel, J., & Londong, J. (2014). Experiences with Stakeholder Involvement in Strategic Sanitation Planning: A Case Study of the City of Darkhan, Mongolia. *Journal of Water Science and Technology*, 14(3), 504-512.
- World Health Organization, WHO/UNICEF Joint Water Supply, & Sanitation Monitoring Programme. (2015). *Progress on Sanitation and drinking water: 2015 Update and MDG Assessment*. World Health Organization.
- World Health Organization. (2014). *UN-Water Global Analysis And Assessment Of Sanitation And Drinking-Water (GLAAS) 2014 Report: Investing In Water And Sanitation: Increasing Access, Reducing Inequalities*.