

Community Participation and Sustainability of Water Projects in Kwanza Sub-County, Trans-Nzoia County, Kenya

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ABSTRACT: Sustainability of water project is crucial for direct and indirect beneficiaries when a project succeeds. Adequate involvement of all community in projects is still a challenge to most of the less developed countries such as Kenya. A lack of sufficient community engagement in project formulation, financing, implementation, and monitoring and evaluation has seen many projects dying before their fifth birthdays. The purpose of the study was to determine the influence of community participation on sustainability of water projects in Kwanza sub-county, Trans-Nzoia County. A descriptive survey research design was used. The target population of the study was 32,181 households in Kwanza Sub-county, Trans-Nzoia County. The researcher used Sekaran (2003) sample size determination formula to give a sample of 380 Households. The researcher used simple random sampling to select the households. The study used questionnaire to collect data. The researcher pre-tested the questionnaire on 38 households in the neighboring Kiminini Constituency. The researcher ensured and enhanced the validity of the questionnaires through expert reviews. Split-half method to compute the reliability of the instruments. Data was analyzed both using both descriptive and inferential statistics. The descriptive analysis generated frequencies, proportions, mean and standard deviation while inferential analysis generated Pearson's correlations coefficients. Findings were presented through frequency and percentage tables. The researcher observed ethical consideration such as informed consent, confidentiality, no harm and beneficence. There was a significant strong positive association between project formulation and sustainability of water projects, Spearman's rho(r) = 0.761, p<0.001, CL=95%. There was a significant strong positive correlation between project financing and sustainability of water projects, Spearman's rho(r) = 0.709, p<0.000, CL=95%. The correlation between project implementation and sustainability of water projects was significant, weak and positive, Spearman's rho(r) = 0.373, p=0.061, CL=95%. Monitoring and Evaluation and sustainability of water projects had a significant moderate positive correlation, Spearman's rho(r) = 0.496, p=0.010, CL=95%. The government and other development agencies need to enhance community involvement in project formulation, project financing, execution and monitoring and evaluation. There is therefore need to establish the moderating role of project leadership on the relationship between stakeholder participation and sustainability of community water projects in Kwanza sub-county.

KEY WORDS: Community participation, Project formulation, Project financing, Project implementation, Project monitoring and evaluation, Sustainability of water projects.

I. BACKGROUND TO THE STUDY

Global population increase continues and the pressure on crucial services such as water persistently escalates. Studies done by Chitonge (2014) and Gaynor (2013) suggest that the challenge of water provision to emerging cities in Asia and Africa will continue to rise. The growth of population is expected to double by 2030 (Chitonge, 2014) and will be more pronounced in countries where majority of the population live below poverty line. In an effort to curb this eminent problem of water shortage and supply stakeholders, including governments and non-governmental organizations strive to involve communities in formulating, financing, and implementing water projects to improve their wellbeing.

Project management experts have proposed different management mechanisms such as demand-responsive approach as opposed to the traditional supply-driven interventions tackle the challenge of water provision and access in the less developed countries such as Kenya. The demand-responsive approach, popularized in the 1990s by the World Bank, is anchored on the concept of community participation that targets to enhance greater beneficiary involvement in water sustainability projects (PMBOK, 2013). The idea comprises communities taking the initiative towards the demand for quality water that is reliable to sustain the community and this goes alongside assuming active initiatives in formulating projects, financing, implementing, monitoring, and evaluating (GDN, 2009). The demand responsive strategy also stresses that stakeholders have to gain ownership

of the system through enhancing continuous and significant contribution through the provision of labor or even cash to enhance the project. The strategy is grounded on the premise that community involvement ultimately results in better formulated projects, more cost-effective, better targeted benefits, and timely provision of water. More importantly, the initiative is viewed as effective in respect to curbing incidences of corruption and rent-seeking activities.

Stakeholders play a crucial role in setting objectives and priorities of water provision initiatives to ensure appropriateness and relevance. It is necessary that all stakeholders are included in the development of projects and not only the direct beneficiaries of the initiative (Jansz, 2011). When designing, financing, implementing, and monitoring projects, more emphasis should be given to the engagement of stakeholders to participate in the process of making decision, learn how to communicate, associate, and cooperate with them for the smooth running of the initiative. Stakeholder participation in project formulation is a key impetus to sustainability of water projects. Project coordinators are charged with powers and rights to involve community members in the design of projects within their areas of control and strengthening of democracy to enhance community development projects (The Millennium Development Goals Report, 2012). To encourage community initiatives, governments tend to decentralize the provision of basic social services, including education, healthcare extension services, community water supply, as well as sewerage systems (UN, 2008). Community members are much aware of the problems they face and are the right people to highlight their felt needs during the stages of project design.

Stakeholder participation in project financing is crucial in planning and budgetary process. Key stakeholders such as farmers form the primary consumers of water and that they can stop the process at any stage, especially when they are not involved in the budgeting process (Vohland&Boubacar, 2009). The anticipated project funds are budgeted in line with the itemized needs of the community members. Planning process ensures that the funds allocated for the project are used to meet both the short term and medium-term goals. Stakeholders feel at ease when they are briefed about the funds received and the way it is spent. Stakeholder participation in project implementation enhances the actualization of all activities designed at the planning stage. Stakeholders, including agency representatives and community members are tasked with the responsibility of implementing the formulated activities (Wisser, Frolking, Douglas, Fekete, Schumann, &Vo`ro`smarty, 2010). The responsibility of the implementation process is one that is people-driven.

Stakeholders participate in monitoring and evaluation in the attempt to enhance power redistribution to the less powerful individuals and comprises power devolution process to make decisions and conduct review on the same for the advantage of the targeted project beneficiaries (Yohannes, Poda, McCartney, Cecchi, Kibret, Hagos, &Laamrani, 2012). Monitoring and evaluation process demands the acknowledgement as well as respecting the experience, knowledge, and viewpoints of the community members with the adequate reasonable measure of objectivity (Wallace & Grover et al., 2008). They are called upon to draw terms of reference (ToR) to guide the procedure of evaluation. The system enhances community ownership and obligation to exercise and observe continuous evaluation of the project.

Kwanza Sub-County of Trans-Nzoia occupies an area of 466.9 km² and partitioned into four administrative wards, including Keiyo, Kwanza, Kampomboni, and Bidii with a population of 193,087(The Millennium Development Goals Report, 2012). In the modern times, it is evident that the bigger the population, the less the amount of water supply available to sustain the population. The claim is backed by the report (UNEP/SEI, 2009) that shows that households in Kwanza Sub-County are among some of the Kenyans with the lowest accesses rate to clean and piped water supply. Water projects initiated by water service boards, water trust funds, county government, and some NGOs operating in the region have often assumed a snail pace.

II. STATEMENT OF THE PROBLEM

Sustainability of water projects within Kenya is still low despite the knowledge that stakeholder participation constitutes a core value in the community development. As Nyandemo and Kongere (2010) state, while community development has since been recognized for a long time as a beneficial initiative, the importance of stakeholder participation in water sustainability projects has been inadequately stressed. The insufficiency can be alluded to a lack of clear interpretation of project development (Chitonge, 2014). Hence, despite efforts that the government of Kenya and agencies dealing with community initiatives make to enhance community participation, stakeholder participation in water provision in most parts of the country is still inadequate.

Insufficient involvement of people in the development process often leads to a lack of ownership and sustainability of development initiatives. The inadequacy usually make communities lose interest in projects, which in turn steps up the dependency on government resources (Mulai, 2011). The looming gap prompts several questions that still require answers to realize sustainability of projects through effective participation, which include stakeholder participation in project design, financing, implementation, as well as monitoring/evaluation (Owuor &Foeken, 2012). With the devolved system of government in Kenya, there is need to strengthen local participation in all planning and implementation. Several studies have been conducted on supply of water and its associated effects on human life, but none of them, to researcher's knowledge has

focused on Kwanza Sub-County of Kenya despite its high population, poverty rate, and persistent water shortage. Jansz (2011) examined the sustainability of water supply and researcher established that the rural water supply of Niassa province is inadequate. A similar study was conducted in Kenya by Oraro (2012) on the *Determinants of Delays in Construction of Community Water Projects in district*. The researcher established that insufficient stakeholder participation and delays in implementation derail programs on water sustainability. The current study intends to assess the influence of community participation in sustainability of water projects in Kwanza Sub-County in Trans-Nzoia County of Kenya.

Purpose of the Study

This was to determine the influence of community participation on sustainability of water projects in Kwanza sub-county, Trans-Nzoia County

Objectives of the Study

The study was guided by the following objectives:

- i) To examine the influence of community participation in project formulation on sustainability of water projects in Kwanza Sub-county,
- ii) To assess the influence of community participation in project financing on the sustainability of water projects in Kwanza Sub-county,
- iii) To determine the influence of community participation in project implementation on sustainability of water projects in Kwanza Sub-county,
- iv) To find out the influence of community participation in project monitoring and evaluation on sustainability of water projects in Kwanza Sub-county.

III. EMPIRICAL LITERATURE REVIEW

a) Community Participation in Project Formulation and sustainability of water projects

As Anderson and Ostrom (2008) puts it, participatory development is an end because it initiates an empowerment process that make the beneficiaries of the project take responsibility for formulating initiatives, implementing, and maintaining high levels of project sustainability. It is a goal in itself and which can be expressed as an empowerment process of gathering skills, knowledge, and experience to take greater responsibility for their development. Banerjee and Morella (2011) confirm that participative approaches are highly dependent on people and few projects can succeed without their involvement and cooperation. Most development projects have stagnated or collapsed because of a lack of certain significant participatory processes involving people. Lapses in project management emerge and threaten the survival of the projects and success.

According to Alabaster (2010), cultural factors are also crucial in the success and sustainability of community projects. The relevance of a project to the cultural norms and taste of the local people should be identified early to avoid unnecessary losses on projects which may translate to be white elephants. In addition to creating local committees at the conception stage, it is also imperative to engage community members in the management of the project throughout the entire project life (Alabaster, 2010). Failure to do this however the development interventions from the external donors may fail to sustain the required level of development activity immediately the funding or donor agencies withdraw their support. Hence, more emphasis is put on stakeholders' participation.

Chitonge (2014) notes that when stakeholders participate and take control of the process it implies that either the government or funding agency or must release some power, authority, and control. Increased empowerment of the locals results in the increased capacity to manage processes, monitor, evaluate, and make sound decisions. It also enables the project participants to gain analytical skills into comprehending their own difficult situations. The process thereby scales up the agitation that may be involved in some aspect of the development initiative. The author posits that participatory management also comprises the identification of project's needs. This is the phase where people participate in identifying their felt needs and ranking them according to priority. When stakeholders are fully engaged in this process, they are likely to own the process as theirs and therefore manage it effectively. At this stage, stakeholders identify and prioritize the core of the problems and their causes and effects (Nyandemo&Kongere, 2010). Once the problem is identified, participants discuss it exhaustively before a consensus is built. The objective analysis is done and a possible solution worked out based on the cause effect relationship that sets pace for the planning process to begin.

b) Stakeholder Participation in Project Financing and sustainability of water projects

According to Gaynor (2013), most finances that are budgeted to support specific activities are virtually directed towards such services. Project practitioners confirm the claim that the effective fund distribution to specific initiatives essentially drives the successful outcomes of specific activities. Community-based projects aims to transform the livelihood of the locals by emphasizing on the provision and access of quality water. On the same note, Kahiga (2011) emphasizes that in order to do this, stakeholders have to unite in working and planning

together as a team. Ongoing professional development as well as technical assistance may yield benefits only if the stakeholders embraced the need to create some certain level of understanding of felt needs as well as relevant skills required to attain the desired outcomes. Hence, funding must be only directed to these crucial categories.

Awortwi (2012) concludes that the sum expenditure of operating a local project differs significantly in terms of services, operational design, size, as well as support required. Also, the variations in the costs involved depends on the sum received from source funding as well as the outlined arrangements from the donor-funding agency or government funding. Cheruiyot (2012) emphasises that variations in the funding sources is the foundation of a viable strategy for investment. The same claim confirms the assertion made towards the support water initiatives to benefit the community. Stakeholders tend to be more equipped to rise against the problems of funding fluctuations, a project risk they mitigate by creating different sources to fund their interventions. Stakeholders involved in sustainability of water projects should consider including permanent funding streams such as community sport marathons as part of their funding strategy.

Ika (2009) suggests that creating different sources of funding is vital in the implementation of various initiatives to support training, evaluation, assistance, as well as a number of operational supports. Stakeholders with a common objective tend to be committed towards availing resources from different sources to meet the needs of the community members (Njon, 2010). They acknowledge the fact that the resources should only be channelled towards meeting the needs of the targeted beneficiaries and the effect is only maximised when the same targeted groups obtain complementary services as well as the backups from other stakeholders.

Owuor and Foeken (2012) conclude that community projects step up and their sustainability is achieved by availing a variety of financial support. The process of diversification benefits from a continuous and reliable source of funding to drive the implementation and support of the related activities (PMBOK, 2013). The initiative to diversify a range of project portfolio is critical in the sense that it attracts substantial that is applied in the utilisation of service delivery and strengthening capacity building initiatives such as professional development as well as evaluation. Imunya (2010) confirms that financial resources are key impetus that affects the sustainability as well as the performance of different project initiatives largely. The assessment concludes that finances are identified as major determinant in the realisation of project sustainability. The study findings show that financial resources that exhibit a co-efficient of 0.24; $P < 0.01$ significantly explains the contribution of activity sustainability.

c) Stakeholder Participation in Project Implementation and sustainability of water projects

As Ghai and Vivian (2014) record, project implementation is that stage in the project cycle when the project management plan is translated into action, which is, work is done on the ground. The inputs of the project implementation process form the output of a project planning process and success or otherwise depend on the quality of a project management plan and the capacity and efficiency of the project management team (Bakker, 2008). It is during the implementation stage that project plans are translated to project activities. UNEP/SEI (2009) states that approximately 70 percent of project initiatives fail because of challenges faced when trying to manage project schedules, deliverables, as well as budgets, thus the critical urge to control scope to provide stakeholders with ample time to meet the approved objectives as well as to realise successful projects. PMBOK (2013) gives the definition of the project scope as the sum total of results, services, and products aimed to be provided to the targeted beneficiaries. Project activities during implementation outlines key milestones in the process. For infrastructure projects the key activities are usually represented in the form of a work programme Gantt chart, a tool for controlling the project to ensure that outlined parameters for quality, time, and budget are achieved as planned.

Asnake (2012) establishes that controlling in project implementation implies the process of establishing standards, monitoring and evaluating progress and taking corrective measures in the event of adverse or extreme variations in the outcomes. The chart is designed at the planning phase to monitor the progress of the project in line with the time barometer as per the outlined plan (Aroka, 2010). Barometers for project measurement are outlined in an in-depth specification that is designed at the planning phase. Nyandemo and Kongere (2010) ascertained four other useful control charts one being the control point of the identification chart that is a summary of a useful technique for controlling that identifies well in advance, what can go amiss in the outlined parameters of cost, time, and quality. The project manager then identifies when and how to know that some deviation occurs and what needs to be done to correct the mistake. A second one comprises the project control chart that utilises schedule plans as well as budgets to provide prompt reports that compare the estimates with actual, computes variance on every finalised sub-unit, as well as provide tally on the cumulative variance for each project (PMBOK, 2013). The third one provides the milestone chart presenting the project schedules as well as their control dates, highlighting main events that demand verification or approval to continue with the activities. The fourth one represents the budget control that is similar to the project control chart, which states the project subunits and compares the actual costs with the estimates.

Mbae (2010) conducted a study on determinants affecting the implementation projects, used a descriptive survey design, and sampled the respondents using a stratified random sampling method. The generated data were then

subjected to qualitative and quantitative analysis. The researcher administered both structured and non-structured questionnaires to the respondents to gather data from the targeted beneficiaries of the project, stakeholders, as well as implementers. The critical finding from the assessment ascertained that the failure of the project was highly attributed to a lack of community involvement or a low stakeholder engagement in most activities.

d) Stakeholder Participation in Project Monitoring and Evaluation and sustainability of water projects

Nyonje, Ndunge and Mulwa (2012), record monitoring as the periodic and continuous assessment of project activities enable the realisation of needed actions, desired outcomes, work schedules, and input deliveries to progress as per the project plan. The process is a continuous one of information gathering at consistent intervals regarding a project or programme that is in progress, specifically on their nature and magnitude of performance. It is an ongoing activity of tracking the progress of a project against planned tasks to ensure that the project is moving towards the right direction and at the right speed to achieve its outlined objectives. Oraro (2012) reaffirms that project monitoring comprise an ongoing undertaking encompassing day-to-day operation at the phase of its implementation and has been regarded as a distinct routine function for measuring inputs against the achieved outputs. Challa (2011) also contends that monitoring comprises implementation, and this has to conform with the needed procedures as well as the attainment of the desirable outcomes. The main aim is to demonstrate at the earliest instance any shortcomings concerning the achievement of the intended objectives so that ameliorative measures can be undertaken promptly.

Enfors(2009) establishes a relationship in monitoring and controlling of risks. The researcher views risk to be potential threats that can negatively influence project quality, scope, and schedule. The project manager will have defined these events as accurately as possible and tried to determine when they would affect the project as well as developed a risk management plan to make amends. Nyonje, Ndunge and Mulwa (2012) confirm that evaluation is a crucial function that encompasses systematic gathering of data, analysing, as well as interpreting results to ascertain whether the project performs in line with its objectives. The definition elucidates the continuity of the monitoring and evaluation processes in tracking progress of projects and the usefulness in risk control.

GOK (2009) records that the ESP Monitoring and Evaluation programme reporting structures from project level upwards to the national level. Every line ministry was to form project monitoring and evaluation committees at the national and district levels that were expected to develop monitoring and evaluation tools for the programme and mainstream monitoring and evaluation into the programme. The objective was to ascertain transparency in the use of programme funds, as well as to ensure effective and efficient implementation of the programme. The committees were to carry out at least one quarterly monitoring and evaluation exercise at constituency levels and carry out a monitoring and evaluation exercise at the close of six months at national level. They were to prepare monitoring and evaluation reports that were to be submitted to the parent ministries for onward transmission to Treasury.

IV. THEORETICAL FRAMEWORK

The researcher has adopted two theories, namely community participation (CP) theory and sustainability theory.

a) Community Participation (CP) Theory

The demand-responsive strategy calls for community participation in water service delivery. Proponents of this approach, including Vohland and Boubacar (2009) postulate that it is applicable as an alternative strategy in improving water access to the marginalised communities (Anderson & Ostrom, 2008). The demand-responsive approach is therefore subsumed under the context of the community participation theory as an alternative approach to sustainability of water projects. In Africa, the CP ideology gained prominence during the 1960s and more specifically in that projects funded by donors. Alabaster (2010) however posits that community participation is not a recent phenomenon since it was practised in pre-colonial Africa when community members came together to carry out some local development projects. In Tanzania, communities worked collectively in activities, including building roads, schools, and community health units while using their own materials and labour (Njon, 2010). Kenya also experienced the same under the late President Jomo Kenyatta and leadership of Jaramogi Oginga Odinga, communities under the guise of the spirit of participation coined the term *harambee*, a Swahili word, meaning pulling together for the realisation of development. Community participation theory rests on the premise that the local and national governments have failed in adequately managing community projects. It also emphasizes on the need to maximise scarce resources such as water and land for the benefit of communities (Wisser et al., 2010). CP is an effective tool for positive outcomes in projects in which it has been administered, particularly in the inclusion of stakeholders in development projects in the water service sector in Africa.

b) Sustainability Theory

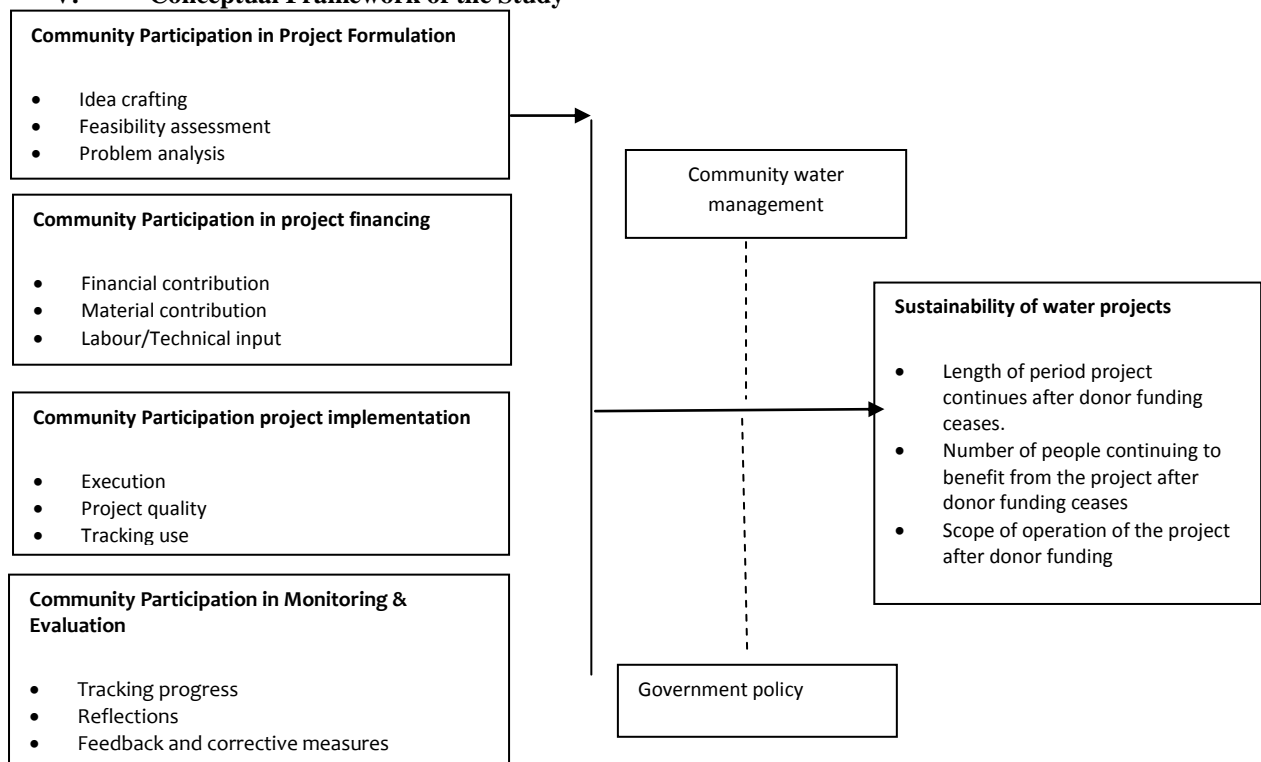
Sustainability tries to integrate and give priority to social responses to cultural as well as environment problems. An economic model focuses on sustaining financial capital and natural resources, and it looks at both ecological integration and biological diversity (Enfors, 2009). Sustainability generally implies the capacity to maintain some outcome, entity, and processes over a period. The concept of sustainability comprises of ways of

mitigating environmental problems that interfere with healthy economic conditions, social, and ecological systems. The question would whether humans are capable of sustaining themselves without necessarily depleting the resources they depend on. The theory of sustainability is grounded on the basic tenet that as a development aimed to promoting the satisfaction of the felt needs without deterring the coming generations from satisfying their personal needs (Rockstrom et al., 2009). Sustainability models looks at sustainability in the context of what have to be sustained. Economic, political, and ecological models are never mutually exclusive but integrate the complementary strengths of each other. Economic model of sustainability posits to maintain opportunity, and often in the form of capital. According to Wallace & Grover et al., (2008), sustainability should be perceived as investment option that demands careful selection and use of resources to create new opportunities of greater or equal value. The use of the sustainability model confirms that the water sustainability system is affected by environmental, institutional, technical, and socio-economic factors (Vohland & Boubacar, 2009). Stakeholders must therefore make institutional arrangements for operating and maintaining water systems that meet the felt needs of the direct beneficiaries.

Summary of Literature and Gaps

The review of literature related to this problem of study presents stakeholder participation to have a rich historical account, dating back to the pre-independence times of 1960s in Kenya and Tanzania. Community participation is widely used in projects of water service delivery and sustainability in the less developed economies. Hence, community participation (CP) theory and sustainability theory have found their practical relevance in examining the influence of stakeholder participation in water sustainability projects. Extensive literature reviews are found on factors that curtail the provision and supply of water, but only a few focuses specifically on stakeholder participation in project formulation, financing, implementation, and monitoring and evaluation, with specific reference to Kwanza Sub-county of Trans-Nzoia County. The current study will be based on this study locale because this is one of the sections of Kenya that face the challenge of water shortage, with water coverage of below 50 percent. The population is high of about 193,087 people, most of who live below the poverty line and can barely access clean water supply for domestic consumption and commercial use. The researchers seemed to have relied a lot on collecting primary data but forgetting that they needed a bit of secondary data to guide the study. The current study intends to incorporate both as the researcher feel that a large data set will be adequate for this research. Secondary data will be gathered from governmental publications, agencies, and NGOs in charge of water provision in Kwanza Sub-County. The techniques of analysis used in these studies appear to be insufficient, as data collected have been subjected to simple descriptive analysis of statistic mean, percentages, and frequency charts. The current study intends to fill these research gaps by incorporating a more robust tool of analysis, that is, the use of a multiple regression analysis to establish the strength and direction of correlation between stakeholder participation and sustainability of water projects.

V. Conceptual Framework of the Study



VI. RESEARCH METHODOLOGY

Descriptive survey design was utilized. This study targeted households in Kwanza Sub-county, Trans-Nzoia County. The study targeted the household heads, in the absence of the household head, the significant other was also targeted. According to 2013 population census estimates, Kwanza has a population of 193,087, the wards in Kwanza are Kwanza, Keiyo, Bidii and Kampomboi. Kwanza sub-county was chosen for the study because according to the report by UNEP/SEI (2009), residents of Kwanza Sub-County are among some of the Kenyans with the lowest accesses rate to clean and piped water supply. There were 32,181 households in Kwanza sub-county, Trans-Nzoia County (Kenya Population Census). The researcher used the Sekaran (2003) sample determination, this gave a sample size of 380 Households. Since all the wards in Kwanza sub-county were homogenous in so far as water supply was concerned. The researcher used simple random sampling in picking the households for interviewing. The first household was identified and skipping intervals were as follows: $\frac{32,181}{380}=84$. The researcher therefore picked every 84th household during the until the required sample size was reached.

Questionnaire was used to collect data. The researcher developed questions based on the variables and the indicators that needed to be measured. The researchers sampled 38 households for pre-testing in the neighboring Kiminini Constituency, this formed 10% of the sample size. Validity was ensured and by working with two experts on matters of water and irrigation and the university lecturers. The experts checked the questions against the objectives, the variables and the indicators under each variable. These efforts enhanced the content validity of the questionnaires, questions were modified accordingly. The researchers used the split-half method to compute the reliability of the instruments. The coefficient was computed using the Spearman rank order correlation and established as 0.79. The questionnaires were therefore reliable Orodho (2009).

At the pre-analysis stage, the researcher sought and checked all the questionnaires for completeness. The quantitative data was assigned codes assigned and thereafter entered into the Statistical Package for Social Sciences version 21. The quantitative data were analyzed both using both descriptive and inferential statistics. The descriptive analysis generated frequencies, proportions, mean and standard deviation while inferential analysis were generated Spearman's correlations to show the relationship between the dependent and the independent variables. The researcher also used logit regression model to make predictions. The findings were presented through tables, graphs and narrations. The researcher sought and informed consent from the respondents before they could be interviewed. The study also ensured respondent confidentiality, anonymity. The study ensured neutrality and respect for the opinions of the respondents.

Study Findings

Respondent Bio-data

Table 1: Respondents gender

Gender	Frequency	Percent
Male	224	59.4
Female	153	40.6
Total	377	100.0

Most of the respondents at 224(59.4%) were males while the minority who were more than two fifths at 153(40.6%) were females.

Table 2: Duration stayed in the community

Duration of stay	Frequency	Percent
1-5	19	5.0
6-10	66	17.5
11-15	265	70.3
Above 15	27	7.2
Total	377	100.0

Most of the respondents at 265(70.3%) had stayed in the community for 11-15 years, nearly a fifth at 66(17.5%) having stayed for 6-10 years with those staying for above 15 years at 27(7.2%) and 1-5 years forming the minority at 19(5%).

Community participation in project formulation and sustainability of water projects

Table 3: Project formulation and sustainability of water projects

Statement	SD	D	N	A	SA	Mean	SD
I was involved in the idea generation for the water projects	14.1%	10.6%	13.8%	32.1%	29.4%	3.52	1.38

I actively participated in the feasibility study for the water projects	19.1%	18%	14.3%	37.9%	10.6%	3.03	1.33
I was present and actively engaged in the problem identification on the issues of focus for the water projects	14.9%	26.8%	21.2%	23.9%	13.3%	2.94	1.28
I participated in designing the steps and deciding the resources or conditions required to implement the water project	14.1%	17%	18.6%	33.4%	17.0%	3.22	1.30
I had a say in the justifying the intention to implement or execute the water project	23.9%	10.6%	20.7%	34.7%	10.1%	2.97	1.35
Mean of means						3.14	

It was common place that the respondents were involved in the idea generation for the water projects to a moderate extent (Mean=3.52, SD=1.378). Chitonge (2014) observed that stakeholder participation in identification of projects is critical for the people participate in identifying their felt needs and ranking them according to priority. Alabaster (2010) also asserted that involving the stakeholders at the inception of the project is also imperative in ensuring that they are engaged throughout the entire project life to prevent failure in sustaining the required level of development. It was common that the respondents had actively participated in the feasibility study for the water projects to a moderate extent (Mean=3.03, SD=1.324). Banerjee and Morella (2011) noted that participative approaches in the project cycle such as involving people in feasibility studies are important for the success of any project. Banerjee and Morella observed that most development projects have stagnated or collapsed because of a lack of certain significant participatory processes involving people.

It was typical that the respondents were present and actively engaged in the problem identification on the issues of focus for the water projects to a moderate extent (Mean=2.94, SD=1.277). Chitonge (2014) posits it is important for people to participate in identifying their felt needs and ranking them according to priority. He further noted that when stakeholders are fully engaged in this process, they are likely to own the process as theirs and therefore manage it effectively. At this stage, stakeholders identify and prioritize the core of the problems and their causes and effects (Nyandemo&Kongere, 2010).

It was commonplace that the respondents participated in designing the steps and deciding the resources or conditions required to implement the water project to a moderate extent (Mean=3.22, SD=1.304). Cornwall (2008) however throws caution that establishing the availability of project funds alone cannot sufficiently guarantee the success of the project and its sustainability. Bakalian and Wakeman (2009) contend that stakeholders' involvement on resourcing allows them to accept the project and hold the local leadership accountable for the funds used and how the project quality improves. It was typical to a moderate extent that the respondents had a say in the justifying the intention to implement or execute the water project (Mean=2.97, SD=1.347). Overall, the respondents participated in project formulation to a moderate extent (Mean of means =3.14).

Table 4: Correlation between Project formulation and Sustainability of water projects

Variables	Descriptor	Stakeholder participation in project formulation	Sustainability of water projects
Spearman's rho	Coefficient	1.000	.761**
	P-value	.	.000
	N	337	337
Spearman's rho	Coefficient	.761**	1.000
	P-value	.000	.
	N	337	337

There was a significant strong positive correlation between Project formulation and Sustainability of water projects, Spearman's rho(r) = 0.761, $p < 0.000$, CL=95%. This meant that pumping a lot of resources on the formulation of water projects would make them more sustainable. This finding is supported by Kingori (2014) that there was a significant relationship between community participation in formulation phase and the

completion and sustainability of development projects.

Community participation in project financing and sustainability of water projects

Table 5: Project financing and sustainability of water projects

Statement	SD	D	N	A	SA	Mean	SD
I contributed some money during the construction of a water project in my community	33.2%	6.9%	16.7%	26%	17.2%	2.87	1.528
I contributed some material e.g. sand, stones during the construction of a water project in my community	27.6%	13.3%	18.6%	27.3%	13.3%	2.85	1.423
I was part of the workforce during the construction of a water project in my community	24.7%	11.9%	17.5%	29.7%	16.2%	3.01	1.434
We sometimes contribute some money to finance the maintenance of a water project in my community	30.5%	14.1%	16.2%	25.2%	14.1%	2.78	1.461
I gave ideas that were useful during the construction of a water project in my community	27.6%	13.3%	13.3%	28.6%	17.2%	2.95	1.488
Mean of means						2.89	

It was commonplace that the respondents contributed some money during the construction of a water project in their community to a moderate extent (Mean=2.87, SD=1.528). Gaynor (2013) asserts that after sourcing for funding, effective fund coordination is what ensures that invested money show results. Cheruiyot (2012) added that diversified funding is the cornerstone of a sound project and enhances sustainability. It was typical that the respondents contributed some material e.g. sand, stones during the construction of a water project in their community to a moderate extent (Mean=2.85, SD=1.423). Cheruiyot (2012) noted that the use of local available materials would lower the project cost and give room for greater participation of stakeholders.

It was popular to a moderate extent that the respondents were part of the workforce during the construction of a water project in their community (Mean=3.01, SD=1.434). Stakeholders contributed money to finance the maintenance of a water project in their community to a moderate extent (Mean=2.78, SD=1.461). Nyonje, Ndunge, and Mulwa (2012) asserted that communities should recognize the contribution of the project staff and fully involve lead agency and coordinators in the planning and implementation of projects within the budgeted financial resources.

The community members gave ideas that were useful during the construction of a water project in their community to a moderate extent (Mean=2.95, SD=1.488). Overall, the respondents participated in project financing to a moderate extent (Mean of means=2.89), this implied that the projects were largely financed externally with community members coming in to contribute in kind e.g. labor.

Table 6: Correlation between Project Financing and Sustainability of water projects

Variables	Descriptor	Stakeholder participation in project financing	Sustainability of water projects
Spearman's rho	Coefficient	1.000	.709**
	P-value	.	.000
	N	337	337
	Coefficient	.709**	1.000
	P-value	.000	.
	N	337	337

There was a significant strong positive correlation between project financing and sustainability of water projects, Spearman's rho(r) = 0.709, p<0.000, CL=95%. This implies that if the water projects were adequately financed then there would be an improvement in the sustainability of the water projects. Imunya (2010) also established that financial resources positively influenced project sustainability.

Community participation in project implementation and sustainability of water projects

Table 7: Project implementation and sustainability of water projects

Statement	SD	D	N	A	SA	Mean	SD
I have been part and parcel of the water project in my community	0.0%	0.0%	4.2%	73.2%	22.5%	4.18	0.49
I took part in ensuring that the water project was constructed according to specification and expectations of the community members	2.7%	8.5%	0.0%	66.3%	22.5%	3.98	0.90
I participated in testing whether the water project is working for/serving my community	2.7%	4.2%	2.9%	67.6%	22.5%	4.03	0.82
I am give feedback/raise issues when something is going wrong at the water point	2.7%	11.4%	0.0%	63.4%	22.5%	3.92	0.96
I monitor to ensure that the water points are used properly and that the water is safe	4.2%	5.8%	0.0%	64.5%	25.5%	4.11	0.69
Mean of means						4.04	

It was commonplace that the respondents had been part and parcel of the water project in the community to a great extent (Mean=4.18, SD=0.485). It was typical that the respondents took part in ensuring that the water project was constructed according to specification and expectations of the community members to a great extent (Mean=3.98, SD=0.897). The participation of community members in the implementation process is critical, UNEP/SEI (2009) stated that nearly two-thirds of projects are often unsuccessful because of difficulties experienced in trying to control project budgets, deliverables, and schedules; hence, the need to manage and control scope is important.

It was popular that the respondents participated in testing whether the water project was working for/serving their community to a great extent (Mean=4.03, SD=0.815). It was commonplace to a great extent that the respondents gave feedback/raised issues when something was going wrong at the water point (Mean=3.92, SD=0.957). It was popular to a great extent that the respondents monitor to ensure that the water points are used properly and that the water safe (Mean=4.11, SD=0.687). Overall, the respondents participated in project implementation to a great extent (Mean of means=4.04), this implied that the community members played important roles in day to day execution of water projects within their communities.

Table 8: Correlation between Project Implementation and Sustainability of water projects

Variables	Descriptor	Stakeholder participation in project Implementation	Sustainability of water projects
	Coefficient	1.000	.373
	P-value	.	.061
	N	337	337
Spearman's rho	Coefficient	.373	1.000
	P-value	.061	.
	N	337	337

There was a significant weak positive correlation between project implementation and sustainability of water projects, Spearman's rho(r) = 0.373, $p=0.061$, CL=95%. This meant that implementation of the water projects did not guarantee the sustainability of the water projects. Supporting these findings is a research by Mbae (2010) establishing that stakeholder involvement that contributed to the low performance and sustainability of beekeeping project.

Project monitoring and evaluation and sustainability of water projects

Table 9: Project monitoring and evaluation and sustainability of water projects

Statement	SD	D	N	A	SA	Mean	SD
There is a committee constituted by community members to monitor water projects in my community	20.2%	24.4%	9.5%	24.9%	21%	3.02	1.46
I participate in routine tracking of water use from water projects in my community	13.5%	26.5%	0.0%	36.6%	23.3%	3.30	1.42
I participate community reflections regarding water project in my community	43%	25.7%	1.3%	14.6%	15.4%	2.34	1.52
I participate in assessing whether the water project are bringing the intended benefits to my community members	14.6%	19.6%	20.4%	24.7%	20.7%	3.17	1.35
We are often given feedback on water use and measures that we need to take to benefit more from the projects	10.6%	19.4%	15.4%	131%	23.6%	3.38	1.32
Mean of means						3.04	

A committee was constituted by community members to monitor water projects in the community to a moderate extent (Mean=3.02, SD=1.464). Community participation in monitoring and evaluation Challa (2011) contends that monitoring enhances compliance with the required procedures and achievement of planned targets. It was popular that respondents participated in routine tracking of water use from water projects in their community to a moderate extent (Mean=3.30, SD=1.422). It is evident that the community members were able to tracking the progress of a project against planned tasks to ensure that the project is moving towards the right direction and at the right speed to achieve its outlined objectives as asserted by Nyonje, Ndunge and Mulwa (2012).

It was typical to a low extent that respondents participated in community reflections regarding water project in the community (Mean=2.34, SD=1.518). Chitonge (2014) observed that community reflection is critical for project monitoring, he noted that community reflections also enables the project participants to gain analytical skills into comprehending their own difficult situations and come up with solutions to them. It was commonplace that respondents participated in assessing whether the water project was bringing the intended benefits to the community members to a moderate extent (Mean=3.17, SD=1.352). The community members were given feedback on water use and measures that they needed to take to benefit more from the projects to a moderate extent (Mean=3.38, SD=1.317). Overall, the respondents participated in monitoring and evaluation to a moderate extent (Mean of mean=3.04), this implied that they participated in assessing progress, identifying of challenges and crafting action plans for greater success.

Table 10: Correlation between Monitoring and Evaluation and Sustainability of water projects

Variables	Descriptor	Stakeholder participation in monitoring and evaluation	Sustainability of water projects
Stakeholder participation in monitoring and evaluation	Coefficien t	1.000	.496**
	P-value	.	.010
Spearman's rho	N	337	337
	Coefficien t	.496**	1.000
Sustainability of water projects	t	.010	.
	P-value	.	.
	N	337	337

There was a significant moderate positive correlation between Monitoring and Evaluation and sustainability of water projects, Spearman's rho(r) = 0.496, $p=0.010$, CL=95%. This meant that monitoring and evaluation moderately influenced the sustainability of the water projects. The findings are supported by those of King'ori (2014) that participation in monitoring and evaluation is positively associated with project completion, $r=0.799$.

Regressions Analysis

Logit regression Table 11

	B	S.E.	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
						Lower	Upper
Participation in formulation	.579	1.564	1	.711	1.783	.083	38.252
Participation in financing	1.582	1.898	1	.405	4.865	.118	200.855
Participation in implementation	2.526	1.916	1	.187	12.503	.293	534.303
Participation in monitoring and evaluation	.533	1.826	1	.771	.587	.016	21.054
Constant	-13.868	7.682	1	.071	.000		

$$\ln\left(\frac{\pi}{1-\pi}\right) = Y = -13.868 + 0.579x_1 + 1.582x_2 + 2.526x_3 + 0.533x_4 + 14.886$$

Organizations that had stakeholder participation in formulation to a large extent were 1.783 times more likely to realize sustainability compared to those that had stakeholder participation in formulation to a small extent. It was also established that organizations where stakeholders participated in project financing to a large extent were also 4.865 times likely to realize project sustainability compared to where stakeholders participated in project financing to a small extent. Organizations where stakeholders participated in project implementation to a large extent were 12.503 times more likely to achieve project sustainability compared to those where stakeholder participation was to a small extent. It was evident that organization where stakeholders participated in project monitoring and evaluation to a large extent were less likely (OR=0.587) to realize sustainability compared to where stakeholders participated to a small extent.

VII. CONCLUSIONS

The researcher deduced that the respondents participated in project formulation to a moderate extent. It was also inferred that there is a significant strong positive correlation between project formulation and sustainability of water projects. It was also concluded that the respondents participated in project financing to a moderate extent. The researcher also deduced that there is a significant strong positive correlation between project financing and sustainability of water projects.

It was deduced that the respondents participated in project implementation to a great extent. The researcher concluded that there is a significant weak positive correlation between project implementation and sustainability of water projects. It was also concluded that the respondents participated in monitoring and evaluation to a moderate extent. The researcher inferred that there is a significant moderate positive correlation between monitoring and evaluation and sustainability of water projects.

VIII. RECOMMENDATIONS

The government and other development agencies need to enhance stakeholder participation in project formulation, this would result into more sustainable water projects in Kwanza Sub-county. The government and other development agencies need to strengthen stakeholder participation project financing, as this will enhance project ownership and result into more sustainable water projects in Kwanza Sub-county.

The government and other development partners should further adopt mechanism that for greater stakeholder engagement in project implementation, this would better outcomes in terms of sustainability of water projects in Kwanza Sub-county. The government and other development partners need to encourage stakeholders in monitoring and evaluation processes for the water projects in Kwanza Sub-county. This would help them to identify gaps and challenges as well as the extent to which the project is impacting on their lives, this will enhance the sustainability of such projects.

IX. AREA FOR FURTHER STUDY

The study established that community leadership played a role in ensuring stakeholder participation in the water projects. There is therefore need to establish the moderating effect of project leadership on the relationship between stakeholder participation and sustainability of water projects in Kwanza sub-county.

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