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Influence of Participatory Project Identification on Community Water Point Projects in Turkana County, Kenya

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Abstract

A people-centered participatory development planning process that identifies genuine needs of beneficiaries establishes a sense of local ownership which in turn begets project sustainability. This study sought to investigate the extent to which beneficiaries participate in identification of community water point projects within Turkana Central, in Turkana County. The target population of the study was 24,025 households of Turkana central constituency. Cochran formula with 95% level of confidence and margin of error of 5% was used to determine the sample size of 384 households. Sample selection was done using proportional quota and convenience sampling techniques. The data was collected using observations, focus group discussions, key informants' interviews, and semi-structured questionnaires guides. Multiple Regression Analysis using Statistical Package for Social Sciences was used to analyze quantitative data. Framework Analysis and Narrative Analysis techniques were used to analyze qualitative data. Inter-rater reliability was used to measure the level of consistency of data collection instruments and content test was used to test instrument validity. The findings were tabulated, condensed, analyzed, and inferences drawn. Descriptive statistics were computed, and frequencies, percentages, arithmetic mean, and deviation presented. Pearson's Moment Correlation (r), multiple regression and stepwise regression (R^2), F-tests were used to test the hypothesis. The results indicated that r = 0.859, $p = 0.0 < 0.005$, F(1, 374) = 10,545. The study concluded that participatory project identification had significant influence on sustainability of community water point projects.

Keywords

Project Sustainability, Community Water Points, Participatory Project Identification, Participatory Planning, Stakeholders, Beneficiaries

1. Introduction

Participatory Project Identification is a consultative process that evaluates a condition and identifies a problem with goal to establish needs, interests, priorities, and resources of the stakeholders (Thomet and Vozza, 2010). Meredith and Mantel Jr. (2008) define project identification as a process of assessing individual project or group of projects, and then choosing one that addresses a problem at hand in line with the objectives of the organization. A good project identification is a method itself because if the process is appropriately conducted, potential gains to beneficiaries can improve substantially (Pande, Neuman, & Cavanagh, 2007). Identification of community development needs, calls for appreciation of the environment in which one operates, sensitivity to evolving opportunities or problems, and inventive examination of multiple factors that may come into play (Nyandemo & Singh, 2004). The ideas for projects can either be from technical specialist, local leaders, entrepreneurs, government programs and international community goals and or agenda (Chandra, 2009). This research examined the extent to which beneficiaries participated in identification of community water point projects in Turkana Central Sub-County, Turkana County, Kenya and how their participation improved project success (**Figure 1**).

Turkana county is arid and semi-arid county found in northwest of Kenya. It is defined by warm and hot climate with the rainfall pattern being undependable both with time and space. It records a mean annual rainfall of 200 mm.

The main sources of water in rural areas of Turkana County are boreholes and wells. According to Turkana County Water and Sanitation Sector 2017-2021 Strategic Plan, over 61 per cent of rural families depend on unprotected wells and streams for their domestic use and livestock survival. According to Turkana Central sub-County water points status report of September 2019, there are 117 boreholes, 52 shallow wells, 18 water pans and 1 rock catchment. Of these waterpoints, 35 boreholes, 12 shallow wells 12, and 5 water pans were non-operational. Although a borehole has 30 - 40 years design life, over 50% of boreholes broke down and were repaired in the last five years more than twice. These uncomfortable statistics therefore warranted the study to investigate the extent to which beneficiaries participate in identification of community water point projects and how their participation contributes to project success. The indicators for the study projected problem analysis, participatory needs assessment, participatory project ideas generation and screening, and participatory project prefeasibility studies.

2. Literature Review

The identification of development gaps to solve a problem calls for a comprehensive appreciation of local dynamics that include social setting, available opportunities or existing problems and inventive analysis of a variety of confluences. A study by Peerapun (2018) on participatory urban conservation project in Thailand, concluded that, a reliable identification of community needs, and their respective solution modalities is carried out using participatory methods

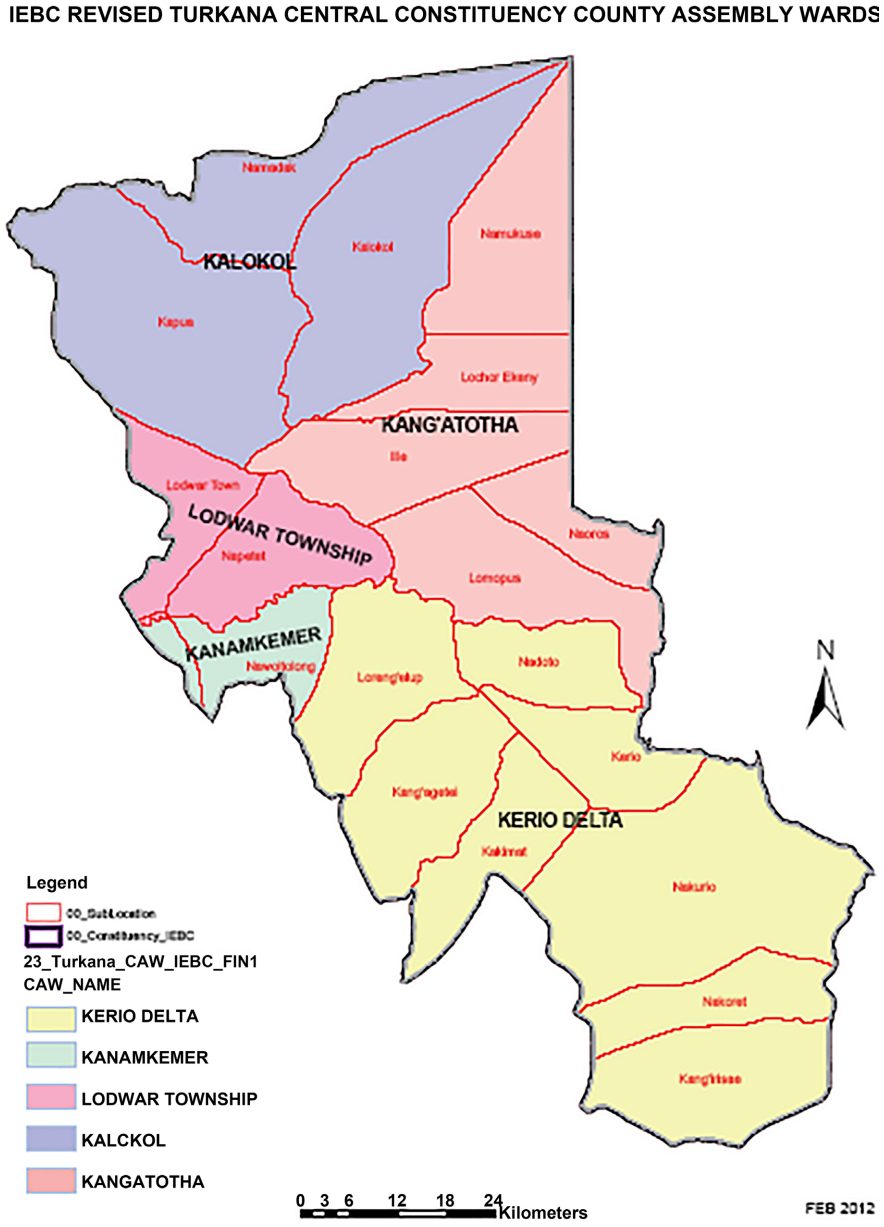

Figure 1. Map of Turkana central sub-county.

i.e., Problem and Preference Ranking, Semi-Structured Interviews, Focus Groups, and Participatory Mapping. A study by Alderman (2002) on community economic support project in Albania found that participatory problem analysis and beneficiaries identification bore more reliable outcome than when it is done by the central authorities. However, the study also found that, the center is often better at targeting poor communities than identifying poor households within such communities. A case study of famine relief efforts in Southern Sudan by Harragin & Bailey (2004) found that the processes used to identify beneficiaries are critical in defining how successful pro-poor decentralized targeting will be, particularly when community members have uneven access to project executers. A study by Paxson and Schady (2002) on poverty targeting of the Peruvian social

fund found that the fund, which underscored the importance of equitable geographic distribution, reached the poorest districts but not the poorest households in those districts: better-to-do households, benefitted more than poor households. Anyaegbunam et al. (2004) pointed out that a problem tree analysis is an effective tool for mapping a problem into cause-effect pictorial representation. This analytical tool helps a project team to have quick look at how a variety of composite issues contribute to a problem and how this problem branches into a set of consequences that call for intervention. This delineation of the problem; therefore, makes it clearer to recognize the most apposite intervention to the problem at hand. Research by ESCAP/UNDP/ADB (2007) used problem tree analysis to ascertain the root causes of the main problems and their effects in Far East Asian countries and it informed identification of the most suitable solution modalities that were efficiently delivered and sustainably utilized.

Once the problem has been analyzed, it is again examined from the perspective of needs which mainly reflects the aspired interventions by the beneficiaries. An effective needs assessment process is a participatory multi-step process of determining and obtaining a precise and a clear picture of the community problems by gathering, examining, and interpreting information that will form the basis for initiating an intervention. Ravallion & Chen (2008) in a study of community project in China's Di Bao region found that the process of needs assessment at the local level varies considerably, both within and across projects, possibly leaving the process open to rent seeking. Harragin (2004) on distribution of humanitarian relief in Southern Sudan found that local ideas on how food should be distributed contrasted with the ideas of humanitarian workers, resulting in a poorly designed project. Therefore, an effective need assessment process should be guided by strategic decision-making which considers options that are informed by the desires of society. Correct needs assessment informs identification of the most suitable and sustainable proposition for filling the gaps in the desired needs.

In the discourse of project identification, once the situation analysis has been undertaken in the lenses of problems and the needs, the next course of action is to generate ideas on how to respond to the situation. An effective ideas generation is a participatory and systematic process of creating and shaping ideas in harmony with specifications set by an organization, which include fundamentals associated with ingenuity and specifics of institutional structure to support the course. A study that involved over 160 companies by Cooper & Edgett (2008), found that the most reliable way of starting an effective ideas generation exercise is by identifying possible sources of ideas; to know the sources of good ideas, which one is known and more importantly, which essential sources are being missed. A study by Flynn et al. (2011) concluded that the processes in which ideas are generated and managed still operate on "ad hoc" basis. However, there is a need to work on structured and participatory procedures to improve success of project performance. Chandra (2009) asserts that a source of project idea can be technical specialists, community leaders, investors or local authorities, central

government, or international development policies. Cleland & Ireland (2007) state that ideas that originate from community forums score greater acceptance and experience ease of implementation because they are owned by the beneficiaries. A study by Dorow et al. (2015) on generation of ideas, ideation and idea Management concluded that it is important for an organization to practice inclusive ideas generation process because ideas are the source of creativity which becomes unlimited foundation for competitive advantage. To polish project ideas and ensure their significance, project developers perform arrays of activities to check the project's emphasis and alternatives (Flynn et al., 2011; Björk & Björk, 2011). To generate ideas that produce sustainable projects, the process of ideas generation needs to involve team consultations and individual expertise and should therefore employ participatory methodologies like Focus Groups, Problem and Preference Ranking, Semi-Structured Interviews and Participatory Mapping.

Looking at project ideas generation, it is understandable that the ideas generated may amount to several projects, some of which may not be viable. It is therefore important to select projects that will be subjected to further scrutiny by prefeasibility studies and preliminary screening. According to Cleland & Ireland (2007), project preliminary screening is carried out to drop ideas which prima facie are not promising by considering their compatibility with the ideas of promoters, consistency with government priorities and regulations, availability of inputs, reasonableness of the cost and acceptability of the risk level. A study by Ahmad & Haq (2016), on project selection techniques, relevance and applications in Pakistan found that success of an institution is dependent on the selection criteria of projects which if erroneous can lead to selection of wrong projects that may offset an organization from its aspired goals. A study by Matiwane, & Terblanché (2012) in Northwest Province of South Africa on community participation, found that a participatory project selection procedure improved community organizational performance and reduced risk of project failure. However, a study by Baird, McIntosh, and Özler (2009) on the process by which Tanzania's Social Action Fund (TASAF) allotted subprojects within districts found that demand-driven application procedure was regressive, because wealthier and more literate districts benefit more. A study by Khwaja (2004, 2009) on local infrastructure projects in Pakistan found that community engagement, with facilitation, significantly improved project maintenance, on when participation was confined to the nontechnical aspects of the project. The study also found that, communities were less capable of maintaining projects that were technically complex or new. Therefore, a participatory project identification process should not only focus on selecting solution-oriented project should but also be informed by how maintainability of the project.

Once project preliminary selection has been done, informed by its face value appropriateness and strategic alignment to the interest of the promoter, a prefeasibility study is carried out to decide whether it qualifies for further scrutiny. According to a study by Yoon (2018), on the policy research of preliminary fea-

sibility study for the government R&D innovation strategy, a preliminary feasibility study and screening should be informed by technological aspect of the project in dimensions of its acceptability and operability and more importantly financing method to be used. A study by Altschuld & Kumar (2010) found that to decide on what projects to be developed as effective solution to the problem beforehand, a process of project selection should be guided by needs identified. Ahmad and Schroeder (2003) study on the impact of human resource management practices on operational performance established that, operational decisions which focus on attaining personal and group outcomes within an organization are also informed by needs identified. Therefore, a preliminary feasibility study should, by and large, look at the findings of needs assessment and available economic data to determine efficient and realistic plan for economic, policy, and technical qualification of the project, among others.

From the studies cited above, it can be generalized that, use of participatory planning methodologies in carrying out detailed problem identification, needs assessment and selection of appropriate projects, improves ownership of projects by beneficiaries, and hence improves chances of project sustainability. The studies also infer that, by investing time and resources in participatory problem analysis, need assessment, ideas generation, preliminary feasibility studies and preliminary screening, the project promoter will have the correct assessment of the situation, buy-in of various stakeholders and be able to come up with solution modalities that will be stakeholders'-driven. Such solutions are likely to be supported by existing community institutions, maintained and be able to inspire more ingenuities. In corroboration of this predisposition, this study analyzed the degree to which participation of stakeholders in project identification influences sustainability of community water point projects in Turkana central, Turkana County.

3. Theoretical Framework

The choice of theoretical framework for the study was informed by the belief that sustainability of a community project is achieved when the process of planning is inclusive, participation, and comprehensive in its content and practicable in its layout. The study was guided by three theoretical propositions namely, Stakeholder Theory (Freeman & Reed, 1983), Collective Action Theory (Olson, 1965), and the Theory of Change (Weiss, 1995).

Stakeholder theory guided in defining stakeholders in a project or organization and examined how they relate for optimal performance. The framework for collective action guided in assessing available platforms for beneficiaries to voice, discuss and solve their problems. Finally, the study sought to use the theory of change to inspire participation of stakeholders in envisioning their strategic goals (outcome), and definition of steps towards achieving the goal, to bring about ownership of the projects as this would improve sustainability of community water point projects.

4. Methodology

The null hypothesis of the research was to establish the extent to which beneficiaries participated in identification of community water point projects in Turkana Central sub-county and how the level of participation led to successful project outcome.

4.1. Research Design

The study used pragmatic paradigm which integrated positivism and constructivism philosophies. The study used mixed methods research (MMR) design approach (Johnson et al., 2007) which combined different elements of qualitative and quantitative research approaches. This ensured broad and in-depth understanding and corroboration of viewpoints obtained from different respondents. The research designs used were Ex post facto, cross-sectional, and correlational research designs. Ex post facto method was used to understand the planning process of community water point projects during implementation and then correlate the process the level of sustainability of the chosen water point projects based on their level of productivity (Cohen & Manion, 1994; Lavrakas, 2008; Leedy & Ormrod, 2010). The target population of the study was 24,025 households of the Turkana Central constituency (Matula et al., 2018). The target population of this study was 24,025 households of the Turkana Central Sub-County. A sampling frame of this study were settlements around identified water points. The unit of analysis of the study was a household. Households here mean community-water-point-benefitting households who for the purpose of this study are referred to as community water point projects. The households' representatives are referred to as stakeholders and were targeted as respondents for the self-administered questionnaires. The stakeholders selected include beneficiaries, community leaders, political leaders. They were drawn equitably from five study wards of, Lodwar Township, Kalokol, Kang'otho, Kanamkemer and Kerio Valley. These households were identified around existing community water points to provide information on the status of the water point projects, their history of planning, implementation, and operation to understand how these processes contributed to sustainability of the water point projects. Cochran formula was used to determine the sample size of 384 respondents to be interviewed during the research (Cohen et al., 2011). This formula enabled calculation of an ideal sample size with a desired level of precision, confidence levels, and estimated proportion of the attribute present in the target population of Turkana Central sub-county. It was considered appropriate because the target population was large. The formula is as follows:

$$n_0 = \frac{z^2 pq}{e^2}$$

n_0 is the study sample size.

e is the desired level of precision i.e. the margin of error which will be taken as 5%.

p is the (estimated) proportion of the population which has the attribute in question.

q is (1 − p). z value will be determined from z-value at 95% as 1.96.

$$n_0 = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05} = 384 \text{ households}$$

The study used proportional quota and convenience sampling techniques to distribute and select study objects, respectively, across five wards of Turkana Central sub-county.

4.2. Data Collection

The study used semi-structured questionnaires, observations, focus group discussions and key informants to collect data (Cohen et al., 2011). The study also deployed qualitative, quantitative, and inferential analyses techniques to analyse data collected (Sutton & Austin, 2015; Gale et al., 2013; Riessman & Quinney, 2005; Babbie, 2010). The study used framework and narrative analyses to evaluate qualitative data, and Statistical Package for Social Sciences (IBM SPSS Statistics 22) to analyze Likert-type quantitative data.

A sample of 38 semi-structured questionnaires were randomly selected for pilots testing to assess adequacy of the instruments, feasibility of the study, and the viability of data collection and analysis processes. This is in accordance with Connelly (2009) who opines that pilot sample should be 10% of the sample projected for the study. The research assistants were instructed to take details of the respondents used at piloting phase to avoid repetition. The responses of interviewees at the piloting were used to improve the questionnaires and methods of interaction during the main study. The test was successful.

During data collection, 342 (38 - 342) semi-structured questionnaires were filled out with responses from respondents interviewed with help of research assistants. The guides were semi-structured with structured section and closed questions and unstructured section with open-ended questions. The closed questions were posed to respondents followed by flexible session that allowed the researcher to dig deeper into issues depending on the responses of the interviewees. The researcher also used Focus Group discussions to delve further and expound on the information captured in the questionnaire guides. Observations were also used to supplement information gathered through interviews. Key informants were used for verification purposes and follow up on data authentication. Sustainability of community water point projects was gauged by assessing project continued productivity, measured by number of beneficiaries at the time of investigation in comparison the beneficiaries as planned, project resilience (lifespan), and project ownership exhibited by existence of management structures or project management committees.

4.3. The Model and Hypothesis

4.3.1. The Hypothesis

There is no significant relationship between participatory project identification

and sustainability of the community water point projects in Turkana central, Turkana County.

This hypothesis is constructed on earlier findings of scholarly work. Ahari et al. (2012) established that if project promoters allow beneficiaries to identify their own problems and needs, and suggest remedial projects, sense of ownership is developed which assures sustainability of projects after the implementation. Peerapun (2018) also concluded that a reliable participatory identification of community needs, and their respective solution modalities improves project ownership and draws a roadmap for guaranteed efficient management and maintenance. In the same vein, the hypothesis speaks to Alderman (2002) finding which determined that participatory problem analysis and beneficiaries' identification bore more reliable outcome when conducted by end users than when it is done by the central authorities.

4.3.2. The Regression Model

In this model, sustainability of community water point projects is the dependent variable while participatory project identification is the independent variable. The constants will also be established through IBM SSPS Statistics 22 analysis. The model is expressed as follows

$$Y = \alpha + \beta X + \varepsilon$$

where Y—Dependent Variable; sustainability of community water point projects.

α—constant, β—Coefficient of the variable, ε—Error term.

X—Independent sub-variable, Participatory Project Identification.

The model was analyzed, and the results tabulated as in **Table 1**.

Results in **Table 2** show that R = 0.826, implying a positive slope between the independent variable (participatory project identification), and dependable variable, (sustainability of community water point projects). The R-Squared was 0.682, meaning that 68.2% of variation in sustainability of community water point projects was explained by variation in participatory project identification. The other factors explained 31.8%. With p-value = 0.00, r = 0.826, R-Squared = 0.682 and overall F(1, 374) = 803.56, the ANOVA results suggest that the model was statistically significant. *Hence, we reject the Null Hypothesis that there is no significant relationship between participatory project identification and sustainability of the community water point projects in Turkana Central, Turkana County.*

5. Findings and Analysis

5.1. Statistical Summary

The response rate for this study was 376 out of 380 questionnaires which translates to 98.95%. This was considered efficient according to Draugalis et al. (2008) assertion that, a return rate of 80% is considered a comfortable level of representative for studies whose outcomes will be generalized to a population. Out of 376 respondents, 258 were female, which makes 68.6%. These statistics resonate with findings by Novak & Watts (2004) which established that responsibility of

Table 1. Households' data and study sample distribution for Turkana Central (2019 KNBS Projections).

Domain	Lodwar Township	Kalokol	Kang'ototha	Kanamkemer	Kerio Valley	Total
Households sample proportionate	100	55	64	64	97	**380**
Water Points Samples	12	5	7	6	10	**40**

Table 2. Multiple regression analysis results of the influence of participatory project identification on sustainability of community water point projects.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.826[a]	0.682	0.682	0.33760	0.682	803.560	1	374	0.000

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.582	1	91.582	803.560	0.000[b]
	Residual	42.625	374	0.114		
	Total	134.207	375			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.073	0.069		15.571	0.000		
	Project Identification	0.596	0.021	0.826	28.347	0.000	1.000	1.000

Dependent Variable: Sustainability of community water point projects. Predictors: (Constant), X. Project Identification. F(1, 374) = 803.560, t = 28.347 at the level of significance $P = 0.00 < 0.05$, r = 0.826, r sq. = 0.682.

domestic water point management is relegated to women, because in most conservative cultural settings, women are typically responsible for collecting, preserving, and utilizing water and for disposing of the effluent thereof. Majority of respondents, 332 (88.3%), were ordinary citizens while 44 (11.7%), were leaders who held various leadership positions in the community. Of these participants, youthful population (18 - 35 years) make up to 37 (24.6%) with the middle age (36 - 55 years) making up 339 (64.4%). The rest were 55 and above years old of age. On duration of occupancy of the area, 84 (22.3%) of the respondents had stayed at project area for 0 - 5 years, 116 (30.9%) for 5 - 10 years and 176 (46.8%) for over 10 years though with some seasonal migrations. On the literacy level of the respondents, over 40% of the respondents could not read and write, 48.6% had attained primary and secondary school education and only 8% had reached tertiary education level.

5.2. General Information on Participatory Project Identification

Stakeholders' Engagement at Participatory Project Identification

The stakeholders that need to be engaged at participatory project identification

stage include the beneficiaries or the community, community leaders, the local authorities or government, and the participating donors. The extent and level of engagement of different stakeholders in problem analysis and needs assessment is analyzed in Tables 3-7.

Table 3. Engagement of beneficiaries in project identification.

		Frequency	Percent
Valid	Yes (Engaged)	129	34.3
	No (Not engaged)	8	2.1
	Do not Know	239	63.6
	Total	**376**	**100.0**

Table 4. Engagement of community leaders in project identification.

		Frequency	Percent
Valid	Yes (Engaged)	275	73.1
	No (Not engaged)	9	2.4
	Do not Know	92	24.5
	Total	**376**	**100.0**

Table 5. Engagement of the donors in project identification.

		Frequency	Percent
Valid	Yes (Engaged)	18	4.8
	No (Not engaged)	5	1.3
	Do not Know	353	93.9
	Total	**376**	**100.0**

Table 6. Engagement of county government in project identification.

		Frequency	Percent
Valid	Yes (Engaged)	329	87.5
	No (Not engaged)	2	0.5
	Do not Know	45	12.0
	Total	**376**	**100.0**

Table 7. Stakeholder level of engagement on identification and needs assessment.

		Frequency	Percent
Valid	Informing	247	65.7
	Consultation	55	14.6
	Involvement	9	2.4
	Empowerment	42	11.2
	Do not Know	23	6.1
	Total	**376**	**100.0**

In Tables 3-6, respondents agreed that stakeholders were engaged in project identification at the rates indicated; 34.3% agreed that beneficiaries were engaged, 73.1% of respondents agreed that community leaders were engaged, 4.8% of respondents agreed that donors were engaged and finally, 87.5% agreed that the County government was engaged. With lowest level of engagement being that of beneficiaries at 34.3%, this data indicates that the development agents needed to have done more to engage beneficiaries to whom project sustainability depends on. Table 7 indicates the rate of agreement by the respondents on the level of engagement of stakeholders at project identification stage. The engagement continuum follows public participation spectrum which defines different levels of participation running from informing through consultation, involvement, and empowerment which in an increasing mode indicates the impact of participation on decision-making process (Bobbio, 2019). In gauging this level of participation, 65.7% of the respondents agreed that engagement was mainly at the information mode, meaning the stakeholders were mostly told about project activities with no or little impact on the kind of decision and how it was taken.

5.3. Percent, Means and Standard Deviation of Data on Participatory Project Identification

The research collected descriptive data on the influence of participatory project identification on sustainability of community water point project using five Likert scale questionnaires. The statistics was analyzed and presented to understand the association that existed between Participatory Project Identification and Sustainability of Community Water Point Projects. Interviews from key informants and focus group discussions were recorded, analyzed, and triangulated with the results from the questionnaires. To measure the relationship between participatory project identification and sustainability of community water projects, the following indicators were studied; problem analysis/needs assessment, project ideas generation, project preliminary screening & pre-feasibility studies, and problem analysis. In addition to semi-structured questions whose results are tabulated in Tables 3-7, ten (10) five-point Likert type questions were developed in a self-administered questionnaire to gauge the extent to which respondents agreed to the statements. The scale ranged from Strongly Agreed (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD) from which the respondents had to choose. The following scoring range was used: $1 < SD < 1.8$, $1.8 < D < 2.6$, $2.6 < N < 3.4$, $3.4 < A < 4.2$, and $4.2 < SA < 5.0$. The responses were tabulated as shown in Table 8.

As shown in Table 8, the perceptions of the respondents showed that the composite mean (M) for participatory project identification is 3.03 and the Standard Deviation, SD = 0.9518. The Cronbach's Alpha Coefficient for the ten items that were used to measure participatory identification was 0.877. According to Taber (2018), when the value of Cronbach's Coefficient is more than 0.7, the data is considered to have high internal consistency.

Table 8. Percent, means and standard deviation of data on participatory project identification.

	Project Identification	N	SD (%)	D (%)	N (%)	A (%)	SA (%)	Me	Std. Er	SD
a	Stakeholders were involved in problem analysis and needs assessment	376	0.5	17.6	49.7	32.2	0	3.1	0.037	0.708
b	Stakeholders were able to suggest various options to solve the problem identified before settling one	376	5.3	23.7	46.8	24.2	0	2.9	0.043	0.826
c	Participatory project identification, was/would be the best solution to solve the problem of water shortage	376	7.4	19.9	25.8	32.2	14.6	3.3	0.060	1.156
d	Project sustainability is an important consideration during project identification	376	3.7	22.6	20.2	37.0	16.5	3.4	0.058	1.117
e	Community leaders held meetings with the beneficiaries to suggest projects	376	5.4	20.6	57.2	15.0	1.8	2.9	0.042	0.821
f	Beneficiaries were allowed to compare different projects	376	4.2	18.0	70.2	7.6	0	2.9	0.044	0.844
g	Stakeholders agreed on the project to be shortlisted	376	5.8	20.8	64.4	5.2	3.8	2.8	0.047	0.911
h	Beneficiaries expressed all the needs to be solved by suggested projects	376	10.2	20.6	58.2	8.6	2.4	2.8	0.054	1.042
i	Political leaders sat with beneficiaries during needs assessment	376	8.9	20.8	46.2	17.4	6.7	2.9	0.041	0.792
j	Political and community leaders-imposed projects on the beneficiaries	376	3.8	12.3	46.8	20.7	16.4	3.3	0.049	0.941
	Valid N (listwise)	376								
	Composite Mean Score and Standard Deviation							**3.03**		**0.9518**

Item **a** on the extent to which stakeholders were involved in problem analysis and needs assessment got responses from respondents as follows: 32.2% agreed, 49.7% were Neutral, and 17.6% disagreed. The item responses generated a mean, and a standard deviation (M = 3.1 and SD = 0.708). The mean score was close to composite mean, M = 3.03. However, Focus Group Discussion respondents and Key Informants were more categorical that they were not involved problem analysis and needs assessment, and this had bearing on the importance they attached to the project. Item **b** inquired if stakeholders were able to suggest various options to solve the problem identified before settling on a particular project. Majority of respondents, 46.8% were Neutral, not sure but a reasonable number 24.2% agreed while 23.7% disagreed. While 5.3% agree, no respondents could strongly disagree. The item mean was (M = 2.9) and standard deviation (SD = 0.826). Key informants and focus group discussion agreed that stakeholders were not given a chance to suggest project options during problem analysis and needs assessment. Item **c** queried if participatory project identification was the best solution to solve the problem of water shortage. The responses were that 14.6% strongly agreed, 32.2% agreed, 25.8% was neutral, 19.9% disagreed and

7.4% strongly disagreed. The mean and the standard deviation were M = 3.3, and SD = 1.156, respectively. Key informants and focus group discussions agreed with the respondents on the importance of project identification in arriving at a sustainable water point project. Item **d** was posed to find out whether project sustainability was considered by both beneficiaries and project promoters as an important factor during project identification. Of the responses received, 16.5% strongly agreed, 37.0% agreed, 20.2% were neutral, 22.6% disagreed and only 3.7% strongly disagreed. After analysis of the responses, the mean score and the standard deviation for the item were found to be M = 3.4 and SD = 1.117, respectively. Interviews with Key informants and focus group discussions concluded that project sustainability should override any other consideration given the scarcity of resources in poverty-stricken Turkana. Item **e** sought to find out whether community leaders held meetings with the beneficiaries to suggest projects to attend to the need gap from the beneficiaries. With item mean and standard deviation of M = 2.9, and SD = 0.821 respectively, and a majority, 57.2% neutral, the respondents were inconclusive on whether community leaders consulted with the beneficiaries during identification of the projects. Item **f** was designed to find out if beneficiaries were allowed to compare different projects during prefeasibility studies. With item mean and standard deviation of M = 2.9 and SD 0.844 and overwhelming 70.2% of respondents neutral, the beneficiaries were not sure on whether they were involved in comparison of different project options before the last choice was settled on. Item **g** sought to establish whether stakeholders agreed on the projects shortlisted for detailed feasibility studies before implementation. With 20.8% disagreeing, 64.4% neutral and item mean and standard deviation of M = 2.8 and SD = 0.911 respectively, the respondents largely disagreed with the statement. With mean item below composite mean, the responses indicated that lack of this agreement discounted sustainability of community water point projects. In item **h**, the study intended to establish whether beneficiaries expressed all the needs to be solved by suggested projects. With 20.6% disagreeing, and 58.2% neutral and item mean and standard deviation of M = 2.8 and SD = 1.042, respondents disagreed with statement that beneficiaries were sufficiently consulted during needs assessment. The item mean being below composite mean is indicative of negative contribution of lack of exhaustive consultation during needs assessment on sustainability of community water point projects. Item **i** sought to establish whether political leaders sat with beneficiaries during needs assessment. With 20.8% in disagreement, and 46.2% neutral and item mean and standard deviation of M = 2.9 and SD = 0.792 respectively, the responses tended to disagree that political leaders sat with the beneficiaries during needs assessment. Item **j** sought to understand the extent to which beneficiaries agreed on whether political and community leaders indeed imposed projects on the beneficiaries. With 46.8%, 20.7% in agreement, and item and standard deviation of M = 3.3 and SD = 0.941, the respondents indicated that the projects were imposed on the beneficiaries by leaders.

5.4. Relationship between Participatory Project Identification and Sustainability of Community Water Point Projects

5.4.1. The Hypothesis

There is no significant relationship between participatory project identification and sustainability of the community water point projects in Turkana Central sub-county. To investigate the hypothesis, the study used Multiple Regression Analysis model with Participatory Project Identification (independent variable) as a predictor against Sustainability of Community Water Point Projects (dependent variable. The outputs of analysis of data using this model are discussed in Section 5.4.2.

5.4.2. Multiple Regression Analysis

Multiple regression analysis of the models was carried out to establish the extent to which participatory project identification influences sustainability of community water point projects using linear regression analysis techniques as follows.

The Model of Sub-Variable:

$$Y = \alpha + \beta X + \varepsilon$$

where α—constant

β—Coefficient of the variable

X—Independent sub-variable, Participatory Project Identification

ε—Error term.

The model was analyzed, and the results tabulated in Table 7.

Results in Table 9 show that R = 0.826, implying a positive slope between the

Table 9. Multiple regression analysis results of the influence of participatory project identification on sustainability of community water point projects.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.826[a]	0.682	0.682	0.33760	0.682	803.560	1	374	0.000

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.582	1	91.582	803.560	0.000[b]
	Residual	42.625	374	0.114		
	Total	134.207	375			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.073	0.069		15.571	0.000		
	Project Identification	0.596	0.021	0.826	28.347	0.000	1.000	1.000

Dependent Variable: Sustainability of community water point projects. Predictors: (Constant), X. Project Identification. F(1, 374) = 803.560, t = 28.347 at the level of significance $P = 0.00 < 0.05$, r = 0.826, r sq. = 0.682.

independent variable (participatory project identification), and dependable variable, (sustainability of community water point projects). The R-Squared was 0.682, meaning that 68.2% of variation in sustainability of community water point projects was explained by variation in participatory project identification. The other factors explained 31.8%. With *p*-value = 0.00, r = 0.826, R-Squared = 0.682 and overall F(1, 374) = 803.56, the ANOVA results suggest that the model was statistically significant. *Hence, we reject the Null Hypothesis that there is no significant relationship between participatory project identification and sustainability of the community water point projects in Turkana Central, Turkana County.*

By substituting the coefficient and the constant, the model will be as:

$$Y = 1.073 + 0.826X$$

According to Schober et al. (2018), in correlated data, the change in the magnitude of 1 variable is associated with a change in the magnitude of another variable, either in the same (positive correlation) or in the opposite (negative correlation) direction. As shown in the equation, the coefficient 0.826, implies that by increasing participatory project identification by a unit, sustainability of community point projects increases by 0.826. This amounts to 82.6% degree of association.

6. Conclusion

The study concluded that a meticulous project identification process that includes beneficiaries and community leaders leads to correct assessment of needs of beneficiaries, accurate proposition of effective ideas to fill the need gaps and informed comparison of identified project ideas. This process, apart from modeling the most effective solution modality to the need gaps, also helps nurturing homegrown solutions to problems. Participation ensures sustainability of water point projects because the beneficiaries own the project and understand the technology needed to maintain it.

Sustainability of community water point projects was gauged by assessing project continued productivity, measured by number of beneficiaries at the time of investigation in comparison with the beneficiaries as planned, project resilience was measured by operational status of the project against design life, and project ownership exhibited by existence of management structures or project management committees. Each of these elements was established to function inversely with the level of participation. Because the level of participation was low particularly among rural heavily illiterate population, most of water points exhibited lack sustainability. The opposite was true in areas close to urban centers with more educated population.

The concluding trend by respondents to Likert-type questions gave a neutral view on the need for participatory project identification. However, Focus Group Discussions (FGD) and interviews of key informants were categorical that community water point projects were unsustainable in Turkana Central, Turkana County because they were introduced to the communities when they had

been fully synthesized and most decisions taken by politicians and county government officials. Inferential analysis concluded that participatory project identification has a significant influence on sustainability of community water point projects in response to the objective of this study which was to investigate the extent to which participatory project identification influences community water point projects in Turkana central, Turkana County.

This study agrees with Ahari et al. (2012) supposition that in working with communities, project promoters should dispense with their presumptions, and let beneficiaries discover their own problems and needs, because this empowerment underpins sustainability of projects after the implementation. The research also agrees with study by Peerapun (2018) which established that a reliable identification of community needs, and their respective solution modalities improve project ownership. This in turn makes maintenance effortless after handing over to the beneficiaries. It also agrees with a study by Alderman (2002) in which it was established that participatory problem analysis and beneficiaries' identification bore more reliable outcome when it is carried out by end users than when it is done by the central authorities.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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