

EFFECT OF PARTICIPATORY PLANNING IN PROJECT SUSTAINABILITY BASED ON NYAKOME WATER PROJECT IN KENYA

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Abstract: *Community participation on project sustainability have become important nowadays among developments and project management scholars. Community participation on project sustainability have multidimensional explanation. This research study looked into community participation in different phases of a project and its relationship to project sustainability. The survey was based on the Nyakome water project in Manga Sub-county, Nyamira County, Kenya. The objective guiding the research study was to establish the effect of participatory planning in project sustainability. The constructs that were used to measure this objective were; project needs, project objectives and decision-making process. The researchers employed descriptive research design in establishing community participation at different project phases in project sustainability based on Nyakome water project. This design ensured complete description of the situation, making sure that there was minimum biasness in the collection and interpretation of data obtained. The target population was obtained from the community where the Nyakome water project based on the beneficiaries and team members of the project. The estimated total population was approximately 1500 homesteads. The researcher covered 150 homesteads from the 1500 homesteads and these number included project management team members who had the expertise in managing and constructing the project and the community members who were to benefit from the project. Based on the findings, the results indicate that the majority of respondents agree that there is a substantial level of planning. However, it is important to note that there were variances in this opinion. The study establishes that planning activities explain a good contribution to the sustainability of projects and that the contribution is positive and significant relationship between project planning activities and sustainability.*

Keywords: *Community Participation, Water Projects, Participatory Planning, Project Sustainability*

Background of the Study

According to Mobey & Parker, (2002), the moment the community members begin to participate in the design and implementation of a project, they easily understand and support the changes brought by the project, and this in turn reduces risks and costs for the outcome. According to (Kaufman et al., 2017) “Many development projects are the beginning of the entire community renewal and the long term benefits of these projects include the creation of more jobs, improvement in community relations, community empowerment, heightened economic status, environmental restoration and enhancement of the quality of life in the neighborhood through environmental assessment”.

Community participation is a social process in which specific groups of people with shared needs often within a given geographical area actively pursue identification of their needs, make decisions and establish mechanisms to meet these needs (Ofuoku, 2011 and Sonowabo 2009). According to (Kadurenge, Nyonje, Onguko, & Kyalo, 2016), Community participation is a process by which citizens and other interested parties

take part in the control of development initiatives and the decisions and resources that influence these initiatives.

According to John & Atikiya, (2017), Planning is a process of setting goals, developing strategies, outlining the implementation arrangements and allocating resources to achieve those goals. Project implementation means putting word into action; ensuring that organization functions harmoniously as per blue print (Linet Onkoba, 2016). Monitoring on the other hand is the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives (International Labour Organization, 2011). Contrary to many definitions that treat monitoring as merely reviewing progress made in implementing actions or activities, the definition used in this Handbook focuses on reviewing progress against achieving goals. In other words, monitoring in this Handbook is not only concerned with asking “Are we taking the actions we said we would take?” but also “Are we making progress on achieving the results that we said we wanted to achieve?” (United Nations, 2009).

According to Gitonga B. A., (2010) a community includes people to benefit from the project product, process, service or results. Therefore, any project is designed with target beneficiaries in mind. The project target beneficiaries would include the client or customer, the public in case of government project and community development projects and according to the research these included communities in Manga Sub County who were to benefit from project in the area.

Project Sustainability

According to Aon, (2012), “A project refers a series of tasks, arranged in a defined sequence or relationship that produces predefined output or effect and it always has a start and an end.” Aon relates a project to a football game where players aim at scoring a goal immediately it enters the opponent’s goal that is to achieve at set objectives. According to (Makokha, 2019), Sustainability is the continuing of the project benefits beyond the project completion period resulting from the participation of the local community. According to (Isabalijaa et al., 2011) Sustainability of a project is led by several factors like planning and design, well-coordinated implementation, and monitoring and evaluation techniques to refine weak areas as reinforcement is done on the effective areas.

According to a study that was conducted in China by (Liang & Wang, 2019) To attain project sustainability, life-cycle perspective and stakeholder management shall be well materialized in the establishment of performance measurements for Public Private Partnership projects. The study further explained that, project performance is measured from multiple stakeholders’ perspectives, for example that of the developer, contractor, local community, and future societal development who included the community. (Liang & Wang, 2019) Continued by saying that potential stakeholders in the whole project life cycle should be identified, and their interests be considered in a dynamic way throughout the varying phases in the project so as to attain sustainable criteria in the performance evaluation of Public Private Partnership projects. According to (Yacoob, 1990), sustainability of a Projects is usually restricted by the inadequacy of financial resources needed to implement that project, however, such a situation can be mitigated by strong and effective capacities at the national level to control and coordinate project funding which pin point at the implementation and management of the project.

According to (Linet Onkoba, 2016), in her study preferred that the project managers and its working team appreciate and understand the importance of project sustainability and concentrate on factors that determine sustainability like: resource support, project design, operational maintenance. Monitoring should be incorporated in the project implementation process to ensure sustainability and project beneficiaries should be

keen to participate in projects which have been brought to their community and offer support during the project design, implementation and management to ensure project sustainability adds (Linnet Onkoba, 2016).

Participatory Planning

Planning can be defined as the process of setting goals, developing strategies, outlining the implementation arrangements and allocating resources to achieve those goals (United Nations, 2009). According to (Bote & Rensburg, 2000), development of a community project begins with discovering of a need or the realization of a problem and this is the planning phase of a project. Project planning which is the first phase in project management engages setting of goals and deciding what the project will entail, (Kerzner R., 2013).

According to Witkin B., (2004)“Community members who participated positively during the planning process got to know well the project process and would support that project which they are engaged in, hence creating a sustainable project. Community participation enhances an environment for residents to be more informed about project affairs and to actively get involved in decision making that ultimately affect their community.”

According to Kadurenge et al., (2016), in their study, concluded that the community involvement in public development projects in Kenya has undergone a lot of transformation through the way communities are getting engaged in and contributing to public development projects. Thus, the government development agencies and sponsors should accord local communities more room to get involved and contribute to public development projects to maintain sustainable development projects.

Another study that was conducted in Tanzania, revealed that community participation for achieving water project sustainability was not effective, instead a balance of both top and down top approaches in decision should be applied and improvement of community participation and redesigning the approaches of managing water projects be used to help to achieve sustainability of projects (Gwamaka William, 2017).

The study that was carried out during the period from March to August 2018 (Dahal, T., & Shiwakoti, 2019), where published literatures and some unpublished data were collected from different sources and analyzed found out that “the community people do not have good understanding and adequate participation on the sustainability of water supply systems.” Dahal *et al.*, (2019) discovered that the community members were only interested in the regular flow in taps and they were aware ignorant about the regular repair and maintenance of water supply systems, their expectations were on the financial support which they got from local body and donor agency. Thus, the community members should be provided with development trainings concerning sustainability of community water supply system, hence implementation of water safety plan, and regular monitoring from local body are crucial activities that should be given central emphasis for the sustainability of rural water supply system (Dahal et al., 2019).

A study done by Wanjohi *et al.*, (2017) found out that level of stakeholders’ involvement, stakeholders’ consultation, stakeholders’ support, level of involvement and decision making influences Sustainability of Corporate Social Responsibility (CSR) Projects and therefore, concluded that working together with stakeholders is significant to getting the project beneficiaries satisfied and hence having successful CSR projects.

In the study conducted by Kadurenge *et al.*, (2016), Active involvement of local residents is important in improved democratic and transparency as this brings about community members realization of the benefits of working in partnership with each other and with statutory agencies; this also enables raises effectiveness in the community since it lead to improved understanding, knowledge and experience essential for regeneration process. Kadurenge et al., (2016) adds that community involvement “enables policy to be relevant to local

communities, add economic value both through the mobilization of voluntary contributions to deliver regeneration and through skill development, which enhances the opportunities for employment and an increase in community wealth.” Thus, this gives residents the opportunity to develop the skills and networks needed to address social needs and improve sustainability since the community has ownership of their community project and develop the confidence and skills to sustain developments once the ‘extra’ resources have gone.

According to Marsela Mwiru, (2015), Making processes of projects selection, implementation and evaluation transparent is an effective way to encourage community participation as it can potentially change power relations between communities and development organizations and between interests within communities. Merely transferring funds to committees is not adequate to introduce community control, as communities need to be protected from the abuses of committees hastily assembled to present them. This means when the processes regarding participation are conducted with transparency it brings about trust and increases the level of communities’ participation in development projects.

Nyakome Water Project

According to an end term review report for safe water provisions and sustainable water management project, in Nyakongo sub location in Manga sub county where the water projects that is, Nyakome and Korora water projects were situated, have been poorly managed and carelessly handled ending up to leave the community with collapsed projects and they remained suffering to look for water from distance places hence taking more time and cost to obtain water for consumption.

According to (Water Services Regulary Board, 2018), This report showed that Nyakome water project targeted local community to provide them with piped water for the domestic, livestock and small scale farming targeting a large population of around 1500 homesteads in Nyakongo sub location under Nyamira county. Up to date, the project had been able to put up the intake laid the mainline and connected about 100 households and finally collapsed, and it no longer served the community members.

Statement of the problem

Water is an important ingredient to human kind and it is used in all the sectors though, there have been accruing problems over time that have subjected water resources to a number of crisis and pressure. According to (World Health Organization, 2017),”Currently 884 million people worldwide still lack access to basic drinking water services.” A report that was given by Nyamira County showed that “the National Water Master Plan 2030 projects that rural population will increase from 13 million in year 2010 to 46 million in year 2030.” This explained that most of these people were to live in rural low-income areas (LIAs) creating a huge strain on water resources. The Nyamira County report further explained that drought experienced in year 2017 and other effects of climate variability should be lessons to the water sector that the development of water resilient systems is fundamental to achieving Sustainable Development Goals (SDGs). While Wasrebwas concerned with water services regulation, a stable resource based was crucial in delivering acceptable services to consumers (Water Services Regulary Board, 2018).

This study tended to establish what “effect community participation had on project sustainability” in different project phases which had led to this water project in Manga sub-county not to work as expected or as intended.

Objective of the Study

This general objective of the study was to identify community participation on sustainability of water projects in Kenya with a specific objective to establish the effect of participatory planning in project sustainability based on Nyakome water project.

Research Methodology

The researcher employed the use of descriptive research design in establishing community participation on project sustainability based on Nyakome water project. According to Mugenda & Mugenda A., (2012), descriptive studies determined and reported things the way they are. This design ensured complete description of the situation, making sure that there were minimum biasness in the collection and interpretation of data obtained. The design was to enable the researcher to obtain descriptive information about the problem at hand, establish the relationship between variables, clarify it and obtain relatable information that was to be used by various stakeholders in conducting related projects in various areas of interest within the community and Kenya in general. The research data was obtained from the community members and management team that were constructing the water project and the community members who were directly affected by the project where it was constructed. The target population was obtained from the community where the Nyakome water project based on the beneficiaries and team members of the project. The estimated total population was approximately 1500 homesteads. The researcher covered 150 homesteads from the 1500 homesteads and these number included project management team members who had the expertise in managing and constructing the project and the community members who were to benefit from the project. This number represented 10 per cent of the total population of these communities that were affected by the project. The researcher selected one member from each home stead. This data was collected using of questionnaires. Data was analyzed using both qualitative and quantitative methods descriptive and inferential statistics and Statistical Program for Social Scientists (SPSS-28).

Validity

To ensure content and construct validity, the questionnaire was piloted with 10 randomly selected samples. Data analysis was done using Pearson's correlation to determine if the obtained values were greater than the critical values and significance level at 0.05. The strength of a relationship was indicated by the correlation coefficient (r), but actually measured by the coefficient of determination (r^2). The significance of the relationship was expressed in probability levels (where $p=0.05, 0.01$ etc.) The value (p) explained how unlikely a given correlation coefficient (r) occurred given that no relationship exists in the population. It must be noted that the larger the correlation (r), the stronger the relationship, whereas a smaller (p) significance-level indicates more significant relationship Corrections were done appropriately in the final tool.

The findings revealed that correlations between the three constructs had obtained values greater than critical values. Project needs had an obtained value of $r= 0.957$, objectives had $r=0.934$ and decision making had $r=0.982$ which were greater than critical value of 0.632 while the significance levels for the three constructs was $p < 0.05$ significance level as indicated by *table 1* next page.

Table 1: Validity Test Participatory Planning

		Project needs	Objectives	Decisions	Total
Project needs	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	10			
Objectives	Pearson Correlation	.836**	1		
	Sig. (2-tailed)	.003			
	N	10	10		
Decisions	Pearson Correlation	.905**	.897**	1	
	Sig. (2-tailed)	.000	.000		
	N	10	10	10	
Total	Pearson Correlation	.957**	.934**	.982**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	10	10	10	10

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

Participatory implementation on sustainability of water project the constructs validity included implementation of plans, coordination and schedule. The validity test showed that the correlation coefficient (r) equals 0.914, indicating a strong relationship for plan implementation, r = 0.828 for coordination and r = 0.891 for scheduling respectively which were greater than critical value of 0.632. The constructs under investigation had all significance level of $p < 0.01$ as indicated, based on the findings the questionnaire was found to be valid as in Table 1.

Descriptive Statistics

The objective of the study was to examine Community Participation on planning phase of Nyakome Water Projects in Nyamira County. The constructs that were used to measure this objective were; project need assessment, objective analysis and project decisions. Under each construct, statements were used to measure the responses and the results were as presented in Table 2.

Table 2: Descriptive Statistics on Community Participation in the Planning Phase

No.	Participatory Planning	SD	D	N	A	SA	Mean	Std
1	The community is involved in setting of the project objectives	2(1.9%)	7(6.7%)	9(8.7%)	60(57.7%)	26(25%)	3.26	1.033
2	Community is engaged in making decisions	5(4.8%)	4(4%)	6(5.7%)	19(18.3%)	70(67.3%)	4.20	0.644
3	Project team take time in explaining to the community about the project.	10(9.6%)	8(7.7%)	4(4%)	50(48%)	32(30.8%)	3.17	1.234
4	The project team seeks for permission to access land and other community resources.	7(6.7%)	4(4%)	8(7.7%)	56(53.5%)	29(27.9%)	3.78	.975

5	The team involves community members in decision making	8(7.7%)	6(5.7%)	5(4.8%)	50(48%)	49(47.1%)	3.66	1.187
Composite Mean							3.61	1.015

N=104 (SD = Strongly Disagree; D = Disagree; N = Neither Agree nor Disagree; A = Agree; SA = Strongly Agree) *Mean = (Strongly Disagree = 0 – 1.8; Disagree = 1.8 – 2.4; Neither Agree nor Disagree = 2.5 – 3.0; Agree = 3.1 - 4.0; Strongly Agree = 4.1 – 5.0).

Results indicate that 60% of the respondents strongly agrees that the community is involved in setting of the project objectives of Nyakome water project, 70% strongly agreed that community is engaged in making decisions, while majority 50% agreed that project team take time in explaining to the community about the project, another 56% agreed that the project team seeks for permission to access land and other community resources and lastly 49% strongly agreed that the team involves community members in decision making. The composite mean was 3.61 and standard deviation of 1.015. These findings imply that majority of the locals have the ability to conceptualize, articulate and meaning fully participate in matters pertaining planning the water project.

Supply of Water in the Community

Based on the finding on water supply, the study found that majority of respondent had (M=4.11,SD,0.723) indicated that they accessed clean water more easily, majority agreed on statement that drought seasons are manageable by use of irrigation (M=4.08, SD=0.912, while majority had (M=4.00 SD=0.800) revealed that there was uninterrupted supply of clean water, There is readily accessibility of clean water with (M=3.39, SD=0.860), There is availability of hand wash points with enough water had (M=3.20,SD=1.065).Finally the last statement indicated that less time is consumed going to look for water from far places (M=2.38, SD=0.958)as shown in *Table 3 below*.

Table 3: Supply of Water in the Community

No.	project sustainability	SD	DA	N	A	SA	Mean	Std
1	There is uninterrupted supply of clean water in the community.	60	20	5	12	7	4.00	.800
2	There is readily accessibility of clean water.	30	50	15	5	4	3.39	0.860
3	There is treated water for consumption.	40	20	5	30	9	4.11	.723
4	Less time is consumed going to look for water from far places.	15	4	5	50	30	2.38	.958
5	There is availability of hand wash points with enough water.	20	10	20	30	24	3.20	1.065
6	Currently drought seasons are manageable by use of irrigation	40	2	5	27	30	4.08	.912
7	Water diseases have been minimized with the supply of clean water.	2	10	3	50	39	2.76	1.084

N=104 (SD = Strongly Disagree; D = Disagree; N = Neither Agree nor Disagree; A = Agree; SA = Strongly Agree) *Mean = (Strongly Disagree = 0 – 1.8; Disagree = 1.8 – 2.6; Neither Agree nor Disagree = 2.6 – 3.4; Agree = 3.4 - 4.2; Strongly Agree = 4.2 – 5.0)

Regression Analysis

To find out the influence of Participatory Planning (X1) on Nyakome water project (Y), a regression model was fitted to the data. The co-efficient of determination (R2) of 0.632 was an indicator that participatory planning explained 63.2% variation in improvement of sustainability of water projects. The adjusted R2 explained 62.8% variation while the remainder could be explained by other factors not included in the model. R value of 0.795 indicated a strong positive correlation between participatory planning and sustainability of water projects.

Table 4: Regression analysis results on participatory and sustainability of Nyakome projects

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.795 ^a	.632	.628	.473

a. Predictors: (Constant), Plan

Analysis of Variance (ANOVA) for Participatory Planning

Table 5: Analysis of Variance (ANOVA^a)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.064	1	39.064	174.970	.000 ^b
	Residual	22.773	102	.223		
	Total	61.837	103			

a. Dependent Variable: Sustainability

b. Predictors: (Constant), Plan

Results on ANOVA reported in *Table 5* indicate F calculated statistic of 174.97 which was greater than f critical (3.48) implying that the model was statistically significant and with goodness of fit of the model. This was also supported by the reported p=0.00 which was less than of 0.05 significance level.

Beta Coefficient Analysis for Participatory Planning

Table 6: BetaCoefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.207	.190		6.355	.000
	Plan	.691	.052	.795	13.228	.000

a. Dependent Variable: Sustainability

The finding in *Table 6* on Beta coefficients indicate given no participatory planning, sustainability of water projects is fixed at 1.207 units. The table shows that a unit increase in participatory planning leads to an increase of 0.691 in sustainability of Water Projects. This relationship is significant since p is 0.000 which is less than 0.05.

Summary

The overall objective of this study was to analyze the community participation on sustainability of Nyakome water project in Nyamira County. Specifically, the study aimed to examine the influence of participatory planning. The constructs that were used to measure the study objective were; project needs, project objectives and decision-making process. The results indicate that the majority of respondents agree that there is a substantial level of planning. However, it is important to note that there were variances in this opinion. The study establishes that planning activities explain a good contribution to the sustainability of projects and that the contribution is positive and significant relationship between project planning activities and sustainability of Nyakome water project. This concurs with a study by (Ndunge K.J, 2020) which revealed that Communities should participate in all stages of the project development, by doing so, long-lasting solutions are found that fit their requirement including resources. Mechanisms for public participation were actualized during the detailing stage, including public participation forums at the village, ward, and Sub-county Levels.

From the results, the study concludes that there was significant positive relationship between participatory planning and sustainability of Nyakome water project.

Recommendation

According to the results, the study recommends that work breakdown structure be documented to guide the project works. Project planning meetings should be held to ensure all project areas are covered during implementation including estimated time plan of starting and ending the project. The study also recommends that more emphasis on the village and ward forums for public participation since they are more accessible by the locals. Since the constitution proposes various mechanisms for public participation, the county should ensure all are well understood and that community members can actively take part in any of those.

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