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# Influences of Community Participation on Sustainability of Community Operated Water Projects in Central Nyakach Sub- County, Kisumu, Kenya

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***Abstract:*** **This study investigated the influences of community participation on sustainability of community operated water projects in central Nyakach sub-county, Kisumu, Kenya. Using a cross-sectional survey design to collect both quantitative and qualitative data with a sample size of 25 with descriptive statistics such as frequencies, percentages and means used to describe the collected data and determine the relationships between the independent and dependent variables.It is concluded that community members' participation in all the project phases from planning through to the building and management of the community water projects would enhance ownership and ultimately sustainability. The researcher recommends that developments partners allow the community prioritize water projects and be involved from the onset, through budgeting, implementation, and monitoring and evaluation since their concerns are intrinsic to the project's success.**

***Keywords:*** **Community participation, sustainability of community water projects.**

## 1. INTRODUCTION

Access to safe drinking water is a basic human need necessary for both the wellbeing and social economic development of populations living in rural Kenya. In spite of efforts to increase access to water, many rural water supplies have either stopped operating or are not operating optimally. This has resulted in loss of service to populations living in the rural areas of Kenya (Mwangangi& Waynoka2016). Many of the dysfunctional water sources are operated by community based organizations such as community Water and Sanitation (WASH) Committees, Water User Associations or women groups.

The role of the communities in the operation, maintenance and management of rural water projects was first described in the sessional Paper No. 1 of 1999 on National Policy for Water Resources Management and Development (GoK. 2016). The paper defined the involvement of communities in project development in all stages including planning, implementation, operation, and maintenance in light of the changing economic conditions and increasing burden to government. The paper further recommended institutional steps to be taken to facilitate the role of the communities in the operation and maintenance of rural water projects. Increasing the participation of the communities in the development was intended to create a sense of ownership of the projects by communities. In line with recommendations of the Sessional Paper No. 1 of 1999, operation and maintenance of rural projects has largely been transferred to the beneficiary communities over the years. Most rural water supplies today are community operated and managed. In the subsequent water sector reforms and legislation in the Water Act 2002, provision was made for groups or firms that own or want to operate water projects as Water Service Providers. Such groups or firms would operate water systems under license on behalf of user populations.

It is estimated that 35% of improved rural water supply points in sub-Saharan Africa are non-operational and this scenario is no exception in Kenya (Ababa, 2013). Quoting USAID-Kenya. Oino, Kirui, Towett and Luvega(2015) notes that despite the Kenyan government effort of setting ambitious targets to provide access to safe drinking water and basic sanitation facilities to 85% of the population by 2015 and 100 % by 2025 in line with MDGs, the country still faces considerable challenges in reaching the water and sanitation Sustainable Development Goals According to Mamburi (2014), access to safe water supplies throughout Kenya is 59 percent with access in rural areas remaining as low as 47 percent , relying on unprotected wells, springs or informal water providers.

Alida (2012) citing an IRC Triple-S 2010 study, noted that despite relative success in the provision of new rural water infrastructure in the last two to three decades, evidence show that between 30 to 40 per cent of facilities either do not function or are operating below capacity. In Kenya, about 25 to 30 per cent of the recently completed community managed rural water project facilities become dysfunctional within the first three years following completion (Alida, 2012), Central Nyakach is no exception. Consequently, the National governments and development partners have begun to recognize the scale of the problems associated with poor sustainability of rural water projects (IRC, 2011).

Project sustainability has been defined by the American Heritage as the ability of a system of any kind to endure and be healthy over the long term. Macharia, Mbassana and Oduor (2015) contend that project sustainability refers to the benefits realized, maintained and continue after the project has been handed over to the beneficiaries. Sustainability is also defined as the ability of an organization to develop a strategy of growth and development that continues to function indefinitely. This study adopted the definition of sustainability as the process of ensuring an adaptive prevention system and sustainable infrastructure and interventions that can be integrated into ongoing operations to benefit diverse stakeholders (Mwangi, 2014).

Studies conducted on water projects have shown that most water projects did not function to the full capacity (Ngetich, 2009). A study conducted by Habtamu, (2012) showed that most water projects decline in performance shortly after external support is withdrawn. Studies by Airo (2009), Rimbera (2012), and Ali (2012) reported that lack of project sustainability was due to low level of community awareness, approaches used by developers and lack of proper feasibility study. Gatari, Mbabazi and Shukla (2016) note that adoption of technology and the effective operation and maintenance are key in sustainability of community based water projects. Habtamu (2012) contend that sustainability rate of rural water supply systems increases as a result of communities owning and managing their schemes, existence of management organization at the village level, protection of the water point, communities cost recovery for operation and maintenance, technology type and availability of their spare parts and recognition of women.

Addressing the success rate of water projects, Mamburi (2014) noted that operational failure rates from different African countries range from 30 to 60 percent. In Kenya it is a common phenomenon to observe nonfunctional water systems just a few years after implementation. According to Mamburi (2014), some of the factors attributed to this include lack of adequate protection like fencing of water pans, vandalism of solar pumping systems for boreholes, non-operational shallow well hand pumps and wind mills. This scenario is replicated in Nyakach where some water projects have failed in under a year of launch; others have fallen beyond rehabilitation and so on. It is thus imperative that this study be undertaken to provide insights into the underlying factors mitigating sustainability thus formulating strategies that would enhance sustainability.

**The Problem:**

In central Nyakach sub-county, several water projects have been launched but majority are dysfunctional and dilapidated beyond repair. It was against this background that the study endeavored to determine the factors influencing sustainability of water projects: a case of community operated water projects in central Nyakach sub-county, Kenya.

## 2. LITERATURE REVIEW

### 2.1 Community Participation Theory:

The most important process in any development project is the encouragement of the active participation of the local community. Without community participation it is not possible to determine what are the problems, constraints, and local desires for a given community. According to Harvey and Reed (2007) participation of project beneficiaries' is of great essence in that it enhances the sense of ownership among members. This is important in ensuring that water projects are operated and maintained after the implementation phase. Cohen and Uphoff's model regarding people's participation is chosen for this study. Community participation theory assumes that the higher the community participation in the water

project decision-making, the less the likelihood of interferences of external organizations on that decision. In this, focus is given on the participation of the water projects beneficiaries and not that of personnel from the implementing agencies in development projects. Community participation is attained through collaborative or joint involvement of project beneficiaries and the implementing agencies (Kihwaja, 2004).

The community participation theory is very relevant to this study in that it touches on the issues of involvement in decision on choice of water extraction technology, and community capital mobilization in terms of contribution of funds, local materials, O & M, as well as repairs and maintenance. These are key elements of the sustainability of community based water projects. In this study the metric measures of these elements were included where possible.

**2.2 Community Participation and Sustainability of Community Water Projects:**

Mwangi (2014) investigated the determinants of sustainability of community water projects in Kieni east district, NyeriCounty referred to community participation as taking part in the formation, implementation and management of initiatives by community members. It is the presence of process by which community members' opinions and views affects decision making at community level, (Grishvilli, 2003). Participation is either directly or through a legitimate intermediate institution or representatives. Employing a descriptive survey design and sampling purposively sampling household respondents, Mwangi (2007) found a high participation level of 80% in conserving the water resources and water sources reliability. The study however used likert scale to assess dimensions of participation. This may not have measured the actual level of community participation. The current study explored the metric measures of monetary value of the participation dimensions.

Oino, Kirui, Towett and Luvega (2015) assert that community participation is key to the sustainability of projects as it is the genuine involvement of local people as active participants and equal partners whose concerns and experience are intrinsic to the project's success. According to Mamburi (2014) communities should be involved in all stages of the project, from the planning through to the building and management of systems.

Mamburi (2014) further contends that community members should be involved in roles such as; decision making, capacity building, mobilizing political will and in decision making on the technology used, location of facilities and operation and maintenance. Participation of community members in development initiatives creates awareness, motivates, organizes actors and helps draw out priorities to help build long term capacities to manage and negotiate, improve accountability by bringing different actors in a good relationship. According to Mwangi (2006) communities hardly have adequate, complete and reliable information to support objective rational decisions. He notes that such decisions when made have to be followed and accepted by communities and that this affects implementation effectiveness mainly because a balance has to be maintained between quality and acceptability. Participation by communities in project management is reported to depend on policies, rules, norms and perceptions in addition to endowments and attributes of those affected. Low community participation is said to lead to reduced project effectiveness and thus low impact (Mwangi, 2008). In addition, Mwangi (2008) opines that reduced participation may result from inadequate community involvement by partners at a point of planning.

Beyene*et al*, (2006) as cited by Kanyanya, Kyalo, Mulwa and Matula (2014) observe that community participation can be categorized into two aspects and these include time/interest where individuals participation in project work could range from participating largely as an observer (as an audience member or source of moral support) to contributing skills and leading community participation efforts. These can range from attending community meetings and even voting for committee members on the low side and on the higher side a person can serve as a committee member. The second aspect is labour where a community member can choose to donate manual/physical labour, be a committee member or even offer skills to give services to the community members.

In addition, Beyene*et al* (2006) aver that physical resources are associated with community members providing material resources for the project to be implemented e.g. providing material for construction like bricks, hay, trees or construction tools like spades. Lastly Beyene*et al*,(2006) observed that community participation could also be in monetary resources/donations which is generally most demanded by development initiatives and is considered by many to be a less active form of community participation because relatively little time is involved. Depending on the level of poverty of a community, if there is proper mobilization community members can participate in community initiatives through monetary support. None of these forms of community participation can be assigned priority over the other, though it is evident that each form of participation can yield a varying degree of quality and impact on the project implemented.

Community Based Planning (CBP) is important as it attempts to make planning and resource allocation systems more responsive to local people's needs. This improves quality of services while deepening democracy through promotion of community action and involvement in planning and managing local development as it leaves the community empowered. Active CP improves the match between community needs and what the community obtains from a project. According to the International Association of Public Participation (IAPP), of all the empowerment principles, active participation is the most important as it leads to higher rates of resource acquisition and yield better results, higher levels of volunteerism and a brighter community spirit.

Mamburi (2014) asserts that active community participation also enhances and leads to actualization, maintenance and sustainability of their projects. Through community participation, community members gain ownership and skills for a collective action that enhances sustainability of projects (Olukotun, 2008). The researcher concurs with World Bank (1981), Olukotun (2008), Rimbera (2012) and others that community participation enhances skill development and sense of ownership that leads to effective implementation and sustainability of projects. Nonetheless, the reviewed studies (Mamburi, 2014; Mwangi, 2007 &Beyene*et al*, 2006) did not quantify the resources mobilized, the type and level of involvement in decision making as well as the skills acquired for purposes of operating and management of the water project. The studies relied on likert scale to assess dimensions of participation. The current study explored the metric measures of monetary value of the participation dimensions.

## 3. METHODOLOGY

### 3.1 Sampling and data collection:

This study adopted a cross-sectional survey design to collect both quantitative and qualitative data. A survey is suitable when descriptions of events such as water project sustainability. The target population comprised of 1346 households served by twenty community based water projects in central Nyakach Sub-County. It's from this population that a representative sample was drawn.This study employed stratified random and purposive sampling techniques to select the individual respondent who ordinarily fetch water from the various project sources.

### 3.2 Data Analysis:

The quantitative data were analysed using descriptive statistics such as frequencies, percentages and means to describe the collected data and determine the relationships between the independent and dependent variables. Qualitative content analysis from focus group discussions allowed the researcher to study selected issues in detail.

## 4. RESULTS

### Project Initiation and decision on Project Location:

The study sought to find out who the decision makers were at the point of the project initiation and the project facility site location. The results are presented in Table 4.1 below.

**Table 4.1: Decision on Project Initiation and Location**

| Stakeholder | Project Initiation | Project Location |
|---|---|---|
| | N=25 | N=25 |
| Opinion leaders | 7 (28.0) | 5 (20.0) |
| Donors | 6 (24.0) | 5 (20.0) |
| Community members | 12 (48.0) | 15 (60.0) |

- *Figures in parentheses are percentages

On project initiation 7(28.0) of the respondents stated that opinion leaders initiated talks on the need for the project, 6 (24.0) stated that donors initiated talks on the need for the project, with 12 (48.0) stating that community members initiated talks on the need for the project. On project location 5 (20.0) respondents stated that opinion leaders played a role in choosing the project site, 5 (20.0) stated that donors were involved in identifying the project site while 15 (60.0) respondents stated that community members were involved in choosing the project location.


**Plate 4.1: World vision sponsored water tank**

The results in Table 4.1 indicate that the decision to initiate the water project emanated from diverse sources. Nonetheless, it implies that indeed the community is significantly represented by its members during the consultative meetings and decision making on project initiatives. These findings are similar to those of Ababa (2013) and Roseland *et al.*, (2005) who argue that involving community members in a collective decision-making process could enhance community participation, ownership and hence sustainability

**Role played by community during Project Implementation:**

The committee members were asked to state the role played by the community during project implementation. The results are presented in Table 4.2 below.

**Table 4.2: Role played by community during Project Implementation**

| Role | f | % |
|---|---|---|
| Provision of land | 8 | 32.0 |
| Finance construction | 3 | 12.0 |
| Materials | 5 | 20.0 |
| Labour | 9 | 36.0 |
| **Total** | **25** | **100** |

The results in Table 4.2 indicate that the greatest contribution made by the community members was labour, followed byland, locally available materials such as sand, gravel, poles, and lastly finance. This finding concurs with those of Kanyanya et *al* (2014). However, in monetary terms, these contributions were relatively low. This could be attributed to the fact that large proportions of the initial capital outlay were funded by donors and NGOs with the community members only being asked to make small amounts of contribution. However, it was not possible to obtain the actual monetary value of these contributions due to unavailability of project records. This is an indictment to the process of project documentation and archiving that was inherent in all the community water projects studied.

Despite the low levels of contributionsby the community members, the researcher concurs with Mamburi (2014) that community members involvement in roles such as contributing resources, decision on the technology used, location of facilities, operation and maintenance of the community water projects and so on would enhance ownership and ultimately the project sustainability.

**Influences of Community Participation on Sustainability of water Projects:**

| Community Participation | SA | A | NU | D | SD |
|---|---|---|---|---|---|
| Project planning | 20 (14.1) | 66(46.5) | 18 (12.7) | 21 (14. 7) | 17 (12.0) |
| Project site selection | 30 (21.1) | 21 (14.8) | 19 (13.4) | 53 (37.3) | 19 (13.4) |
| Project budgeting | 19 (13.4) | 45 (31.7) | 34 (23.9) | 24 16.9) | 20 (14.1) |
| Project implementation | 61 (43.0) | 37 (26.1) | 10 (7.0) | 16 (11.3) | `18 (12.7) |
| Monitoring & Evaluation | 46 (32.4) | 25 (17.6) | 28 (19.7) | 18 (12.7) | 25 (17.6) |

The results in Table indicate that 20(14.1) strongly agreed to participating in project planning, 66 (46.5) agreed to taking part in project planning while 18 (12.7) were neutral in their response. 21 (14.7) disagreed to participating in project planning while 17(12.7) strongly disagreed that they participated in project planning.

30 (21.1) of the respondents strongly agreed to having participated in project site selection, 21 (14.8) agreed to being involved in site selection, while19 (13.4) were neutral in their response. Nonetheless, 53 (37.3) disagreed to having participated in project site selection, with 19 (13.4) strongly disagreeing that they participated in project site selection.

On project budgeting, 19 (13.4) strongly agreed to having participated in the process, 45 (31.7) agreed to having been involved, 34 (23.9) had neutral response, while 24 (16.9) disagreed to having participated in the project budgeting process with 20 (14.1) strongly disagreeing to having participated in project budgeting.

With respect to project implementation, 61 (43.0) strongly agreed to having participated in the process, 37 (26.1) agreed to having been involved in implementation, 10 (7.0) had a neutral response, while 16 (11.3) disagreed to having participated in the project implementation process with 20 (14.1) strongly disagreed to having participated in project implementation.

As regards project monitoring and evaluation, 46 (32.4) strongly agreed to having participated in the process, 25 (17.6) agreed to having been involved in monitoring and evaluation, 28 (19.7) had neutral response, while 18 (12.7) disagreed to having participated in the project monitoring and evaluation process with 25 (17.6) strongly disagreed to having participated in project monitoring and evaluation.

These findings are consistent with those of Kanyantya (2014) who found that community participation in the project cycle management is critical in creating self-reliant and empowered communities. Ananga (2015) contend that this enhancing ownership of community initiatives hence the water projects sustainability. Oino, Kirui, Towett and Luvega(2015) assert that community participation is key to the sustainability of projects as it is the genuine involvement of local people as active participants and equal partners whose concerns and experience are intrinsic to the project's success. According to Mwangangi and Wanyoike (2016) community members' involvement in all the project phases from planning through to the building and management of the community water projects would enhance ownership and ultimately sustainability. The researcher concurs with Rimbera (2012) that community participation enhances skills development and sense of ownership that leads to effective implementation, actualization, maintenance, and sustainability of projects.

## 5. CONCLUSIONS AND RECOMMENDATIONS

It is evident that community participation in the project cycle management is critical to the sustainability of projects as it is the genuine involvement of local people as active participants and equal partners whose concerns and experience are intrinsic to the project's success. Therefore, it was concluded that community members' participation in all the project phases from planning through to the building and management of the community water projects would enhance ownership and ultimately sustainability.

Given that community participation in the project cycle management is critical to the sustainability of projects it would be prudent that the development partners allow the community members to identify their needs, prioritize the type of water project, and actively participate in the budgeting process, participate in implementation as well as actively undertake monitoring and evaluation activities. This would be prudent because it is the genuine involvement as active participants and equal partners whose concerns are intrinsic to the project's success.

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