

Influence of Community Participation on Sustainability of Water and Sanitation Projects in Rhonda Slum in Nakuru County, Kenya.

Otieno David Alelah & Mumo Mueke

University of Nairobi, Department of Extra Mural Studies P. O. Box 30197-00100, Nairobi
Email of corresponding author: davidalelah2@gmail.com

ABSTRACT: Adequate access to water and sanitation is an assurance of good health and stable community. An increase of slums in an urban environment is an impediment to sustainable development. To meet the challenges of WASH projects failure, sustainability concept forms the basis for the study. Despite several initiatives by the government and other agencies through projects, sanitation remains a challenge, especially in slum areas. Efforts put by various stakeholders in upgrading the slum through water, sanitation, and hygiene projects are of no use if they stop after a period. The purpose of this study, therefore, was to establish the influence of community participation on sustainability of water and sanitation projects within the slum of Rhonda in Nakuru. The study targeted a population of 296 households. A 30% sample size was used to select respondents. The sampling technique used was cluster sampling. Data collection involved the use of questionnaires. Data were analyzed for both descriptive and inferential statistics using a statistical tool (SPSS V. 20.0). From the findings, the study established that there was a significant positive influence between community participation and sustainability of WASH projects with correlation values of ($r=0.671$, $p<0.05$). The study therefore recommended that the community should be involved in implementation and evaluation of projects at every stage of development. The study also recommends that the government and other agencies should advocate for proper planning in the design of the new technologies.

Keywords: Influence, Community Participation, Sustainability, Water & Sanitation Project (WASH).

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I. INTRODUCTION

According to the 2013 Human Development Report (UNDP, 2013). It recommends that to walk in the human development pathway, people should engage fully in activities that reform the lives and they should be able to participate in policy making process and results. Studies have shown a paradigm shift towards hardware interventions with regards to sanitation access (Murray & Ray 2010). A good example is the physical components that improve waste management by use of different facilities (Van Wyk 2009; Tremolet et al...2010). The existence of WASH infrastructure without sustainability concept results in the destruction of facilities or never used at all (Mara et al. 2010). This results in wastage of resources. According to the studies conducted by Evans and Tremolet (2010). We contend that slums require sanitation services that are efficient and effective in all dimensions. Sanitation includes the principles and practices of collection and removal of wastes with a high level of dignity (COHRE et al. 2008). Studies reveal that many development projects in developing nations are faced with challenges of sustainability (Gebrehiwot, 2006). The major contributors are among inappropriate legislations; inadequate institutional support; Poor management system and improper financial mechanism (Niyi & Felix 2007). Challenges on health issues have shifted the debate globally as to whether the facilities are improved or not (Gunther et al..2012). However other bodies like Joint Monitoring Programme (JPM) by WHO/UNICEF describes the services as unimproved.

Agenda 21 provides the basis for looking into the sustainability of WASH projects. It contends that sustainability concept incorporates environmental, economic and social issues of development that aims at enhancing the standard of living (UNDP-WSP, 2012) On the concept of sustainability, Habtamu (2012) in his research on factors influencing the sustainability of water supply systems recognizes sustainability as an indefinite functionality of the systems. Sustainability is viewed as an approach and policy programs in the development framework (Eckman, 2007). It was for this reason that scholars came to an agreement that sustainable development is critical for any community development.

Sustainable projects have the capacity to achieve their goals, continue with their principles and efforts to the extent of meeting the outcome (US Department of Labour, 2010). Many project beneficiaries confuse the fact that sustainability is about acquiring resources to continue operation after the grant period. A precise meaning of sustainability is to ensure the goals of the project are actualized through various programs which concur with people's needs (US Department of Labour, 2010).

With the preceding, a closer study of Kenya's sanitation projects leaves no doubt that sustainability is a challenge. The scenario is evident in most slums where such development projects are undertaken with little impact despite resource utilization. Situated in Rift Valley Province, Demographically Nakuru becomes the fourth biggest town in Kenya. Its population has been on the rise, with the UN Report indicating an annual growth rate between 1990 and 2006 at 13.3% (UN-HABITAT, 2010). The current population is approximately 600,000 of whom 32496 live in the slums of Rhonda. It is found within Mwariki sub-location with seven villages namely; Gikomba, Market, Jasho, Ponda Mali, Posta, Quarry, and Sewage. The population of the settlement has dwelling units ranging from semi-permanent to temporary structures. WASH projects are shared within the settlement. A good example is the bio-centre commissioned by Umade Trust in Partnership with Practical Action organizations. Efforts to improve the livelihood of residents have not succeeded much as envisioned by many NGOs working in the two slums.

II. LITERATURE REVIEW

2.1 Concept of WASH Projects Sustainability

Sustainability emphasizes on the functionality of projects over time. There is no definite time limit attached to these projects. In the context of WASH services, it explains the continual gain that brings a long-lasting change to the society. The debate surrounding the concept of sustainability is considered beyond technology. The goal of sustainable development is anchored in various aspects, namely; economic, social and environmental pillars (Jansz, 2011). The concept of sustainability has been used to show how turbulence of the environmental hinders other systems like economic and social. A fundamental question derived from sustainability concept is whether programs of human are self-reliant. Figure 1 below illustrates the scheme of sustainable development.

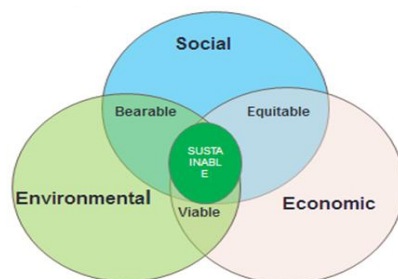


Figure 1: Scheme of sustainable development

According to Bellagio principles which focus on sustainability and sustainable development in sanitation and wastewater management, he proposes alterations in sanitation practices and policies which are grouped into four principles. The first principles emphasize on the holistic well-being of human together with environmental security that should be prioritized in the new approach; it should be responsive and accountable to the local demands. It goes further to explain that solutions should focus concerns of social, economic and environmental; Protection of the environment to the community and economic opportunities for waste management should be enhanced (Carvalho & Junior, 2011).

The second principle is tailored towards good governance in which decision-making should incorporate participation by all stakeholders. It argues that decisions at each level should focus on informed choices, service incentives should be in line with the goals and objectives of the project and that the wider community responsibility should balance consumer's right.

The third principle is on waste management. Waste should be considered as a resource; its management should be holistic which include integrated water resource, the flow of nutrients and all processes of waste management. He proposes that there should be reduced input to enhance efficiency and environmental security.

The last principle talks of the domain in which environmental sanitation problems are resolved. He proposed that it should be kept at a reasonable size within the household and wider community. This principle advocate for the management of wastes that should be close to the source; Little water should be used for the transportation of wastes and additional technologies be employed for sanitation interventions.

This model is similar to the sustainability of WASH system which is impacted by the interaction of different factors including environmental, social and economic. Water, sanitation and hygiene programs should incorporate structures and systems that monitor the functionality of the facilities to ensure sustainability.

2.2 WASH Project in Kenya

In Fafi Constituency, Garissa County Kenya a study was conducted by Kamau (2015) to establish factors influencing the sustainability of water, sanitation and health projects implemented by Sustainable Development and Peace Building Initiatives. The target population for the study expected beneficiaries and employees of SYPD. This particular NGO has been listed among the best performing NGOS in Kenya by the United Nations. It undertakes several humanitarian projects in Somalia and the whole region of Northern Kenya

The research scope was on projects sustainability and to identify significant challenges that NGOs are faced with to come up with a lasting solution aimed at improving the standard of living. The study also addressed the effect of community participation, utilization of funds, technical expertise and political factors on the sustainability of the WASH interventions (Kamau, 2015).

On community participation, the study pointed out various activities undertaken by the management committee in boosting participation. Experts from different fields were found to be essential in enhancing projects sustainability. Findings also revealed discontinuity of project with donors fund withdrawal. There was clear evidence that most projects were not self-sustaining after withdrawal of funds by the donor (Kamau, 2015). On technical expertise, the study revealed that the management system was effective since many people had undergone training relevant to the project works. People were committed and competent in their fields (Kamau, 2015).

On funds utilization, there was the timely disbursement of project funds. The timelines and policies set by the donor were useful. However, the study revealed that the projects were not sustainable since they would stop after withdrawal of donor funds. Inadequate resources result in a failure of projects and deprivation of long-term rewards. Funds limitation also leads to little or no accountability in the project implementation (Kamau, 2015).

2.3 Community Participation and sustainability of WASH projects

According to Marsden (2007), community engagement is an integral part of stakeholders support. Involvement of the community plays a critical role in the water supply systems sustainability. There is an increase in Sustainability rate of projects due to ownership and management schemes at the community level. Chappel (2005) supports the fact that community participation increases project efficiency. In his study, he recommended that there should be adequate community involvement during the planning stage of the project. Community participation is described as a process by which various individuals from all sects take control of decisions which affect their lives. It involves collaboration of both men and women in decision making, design and implementation of the projects (Mushtaq, 2004). Participation of the community increases project effectiveness because of the objectives which are met and the benefits to the society. It also helps in building beneficiary capacity through active participation and training during project planning and implementation

Communities willingness to participate both socially and economically is a good indicator of the need for improved water and sanitation service (Bhandari & Grant, 2007). Referring to the findings of Mbata (2006), when the community interest to pay for particular service increases, it implies their awareness towards ownership also rises for the services. Similarly, when members of a given family cooperate by giving cash and through labor necessary for the services, then it can be concluded that the service they receive from the source is of significance to them thereby promoting its sustainability.

According to Van (2008) women, involvement in water and sanitation projects have a significant impact on the community. Research conducted on community water and sanitation projects in fifteen countries revealed that women involved in specific projects were more sustainable as compared to those projects where they did not participate. This gives emphasis to the result by the World Bank where women participation was linked to water and sanitation projects effectiveness. The women are become active in decision making, providing education to children on matters of sanitation and hygiene, the building of capacity in the community and mobilization of political will (World Bank, 2010).

Community participation is essential in all sanitation projects implemented within the slums. It involves creating an enabling environment for the community to assist one another. By collaborating and making use of their skills and resources, they are capable of moving away from poverty towards sustainable development. Community participation is that process where stakeholders from all sectors of the community influence decisions which impact on their lives. This will entail participation of beneficiaries, both men, and women in design, implementation and decision making of the project. (Keen, 2007)

To enhance community engagement, International Rescue Committee (2012) suggests that regional educational centers are established and every move documented in regards to information, good practices, and

innovation. The community should focus on capacity building and linkages on increased participation in resource management specifically water to achieve the desired sustainability. Regional learning should also be enhanced and used to promote community commitment in the administration of resources. Modalities should be worked to institutionalize learning as a strategy for identifying best practices on innovation and information sharing (Baur & Woodhouse, 2009). It is also an avenue of influencing policy issues at the national level.

Research conducted by McIvor (2008), on water and sanitation programs in the Zambezi Valley, revealed that there was the total failure because the local people did not regard the facilities. They considered such projects as originated from outside hence was not their responsibilities to take part in any activity. Further investigation revealed that there was little community involvement before establishing the facilities; people were left with an impression that they do not belong in the management function of the project. This absence of ownership changed the services to appear like open access resource (Harvey & Reed, 2007). The communities were also separated by the technology utilized. It was not regarded as a village level regarding operation and maintenance in most programs (Mwakila, 2008). In a study undertaken to assess the influence of community participation on a water project performance in Kiserian. It portrayed a low level of participation all the way from identification, planning, implementation, and monitoring stage. All those processes influenced the overall performance of the project negatively (Mukunga, 2012).

On stakeholders ownership, a study conducted by Pollnac and Pomeroy (2005) revealed that many projects fail to bring sustainable benefits because of lack of good will by the stakeholders, they do not show ownership and commitment. Genuine community participation is not well discussed if the main agenda is only running programs which are not transparent. Some practical steps to achieve sustainability suggested by Pollnac and Pomeroy (2005) include ensuring that the design phase is given adequate time and resources and is regarded as an investment in a successful outcome; ensuring that the design involves activities required in the implementation of participatory strategies; Clearly outlining the roles and responsibilities and who is expected to benefit; defining the level and type of participation to be realized and finally ensuring that the team are competent enough and skilled in participatory approaches.

However, when projects are executed in partnership with different agencies, it is crucial for sustainability that agencies have an agreement and that there are elaborate channels for giving out resources and receiving feedback. This in most cases is important when the national level body ability is limited to active communication and quick action on the ground (Asamoah,2003).

Communities should participate in all stages of the project development, by doing so, long lasting solutions are found that fit their requirement including resources. Instead of external influences, different agencies should strive to solve communities' problems. Participation is significant especially at the onset of the project. With clear understanding of the system, community will be more concerned and committed to service delivery and feel a sense of ownership. This study will, therefore, focus on factors influencing sustainability of WASH projects in Nakuru County due to recognition of the fact that such projects are fundamental to the development in the area.

OBJECTIVE OF THE STUDY

To establish how Community participation influence sustainability of water and sanitation projects in Rhonda slum in Nakuru county, Kenya.

RESEARCH QUESTION

How does Community participation influence sustainability of water and sanitation projects in Rhonda slum in Nakuru county, Kenya ?

III. METHODOLOGY

The study used a descriptive survey research design employing both qualitative and quantitative approaches. The design was appropriate for extensive research since it allowed for collection of information through administering of questionnaires. The target population comprised household heads of the community WASH projects in Rhonda slum. Therefore the study targeted a population of 296 household who formed the cross section of people who have been involved in such projects. Data was collected using questionnaires and key informant interviews to acquire primary data. Data were analyzed for both descriptive and inferential statistics using a statistical tool (SPSS V. 20.0).

IV. FINDINGS AND DISCUSSIONS

Influence of Community Participation on WASH Projects sustainability

The study sought to understand how community participation influences sustainability of WASH projects. The findings are presented in the tables that follow.

Decision on Water and Sanitation issues between genders

The study sought to find information from the respondents in regards to decision making on water and sanitation issues. The findings were presented in Table 1

Table 1: Decision on Water and Sanitation issues between genders

Responses	Frequency	Percentage
Men	23	27.1
Women	62	72.9
Total	85	100

The findings in Table 1 shows that majority of the respondents 62(72.9%) indicated that women dominated decision making as compared to 23 (27.1%) of the respondents who reported men taking part in decision making. It suggests the fact that females are sensitive on matters of hygiene at the household levels.

Decision on selection of construction site

The study sought to find out the opinion of the respondents on decision making during the selection of construction site. Below were the findings.

Table 2: Decision on selection of construction site

Responses	Frequency	Percentage
Community leaders	63	74.1
Women groups	4	4.7
WASH Management committee	12	14.1
Community members	5	5.9
Other	1	1.2
Total	85	100

Table 2 shows findings of who made decisions on selection of construction site for WASH facilities, 63 (74.1%) agreed decision was made by community leaders, 4 (4.7%) by women groups, 12(14.1%) by WASH management committee, 5(5.9%) by community members and 1(1.2%) by other parties. This indicates that decision at the community level within Rhonda slum is made by leaders who play a vital role in the development of WASH projects. Representation of the community is proper which significantly enhances participation.

Roles played by the community in project implementation

The study sought to find out the opinion of the respondents on roles played by the community in project implementation. Below were the findings.

Table 3: Roles played by the community in project implementation

Responses	Frequency	Percentage
Provision of locally available materials	28	32.9
Financial contribution	1	1.2
Provision of communal land	53	62.4
Other	3	3.5
Total	85	100

Table 3 shows the roles community members play in project implementation. The majority of the respondents 53(62.4%) indicated that the community provided land, 28(32.9%) provided materials, 1(1.2%) contributed financially and 3(3.5%) stated that the community offered other things for the project. This reveals that there is community participation in Rhonda slum; land is a resource resident set aside for the development of projects.

Extent of Community participation in the planning and implementation of projects

The study sought to find out the opinion of the respondents on roles played by the community in project implementation. Findings were presented in Table 4.

Table 4: Extent of Community participation in the planning and implementation of projects

Responses	Frequency	Percentage
Great extent	30	35.3
Moderate extent	34	40.0
Neutral	6	7.1
Small extent	8	9.4
No extent	7	8.2
Total	85	100

Table 4 shows that 34 (40.0%) of the respondents believed that community participated in the planning and implementation of the projects to a moderate extent. An additional 30 (35.3%) to a great extent. This gives a total of 75.3% of the respondents who reported that there was community participation during planning and implementation of the projects. This shows that community participation has a significant impact on planning and implementation of WASH projects in Rhonda slums.

Influence of Community participation on sustainability of WASH Projects

The study sought to find out the opinion of the respondents on whether community participation influences sustainability of the projects. Their views were as shown in Table 5

Table 5: Influence of Community participation on sustainability of WASH Projects

Responses	Frequency	Percentage
Great extent	36	42.4
Moderate extent	31	36.5
Neutral	12	14.1
Small extent	5	5.8
No extent	1	1.2
Total	85	100

Table 5 shows that 36 (42.4%) of the respondents believed that community participation influences sustainability of projects to a great extent. An additional 31 (36.5%) to a moderate extent. This gives a total of 78.9% of the respondents who reported that community participation has an influence on project sustainability. This shows that active involvement by the community is likely to lead to project success..

Correlation analysis

To establish the strength of relationship between the variables, the study adopted Karl Pearson’s coefficient of correlation. Results were presented in Table 6.

Table 6: Correlation analysis

	WASH projects Sustainability	Community Participation
WASH projects sustainability (r) (p) Sig. (2 tailed)	1.000	
Community participation (r) (p) Sig. (2 tailed)	0.671 0.022	1.000

According to Table 6, there is a positive relationship between WASH projects sustainability and community participation with a magnitude of 0.671 with a significant p-value ($p < 0.05$) at 95% confidence level. The significance values for relationship between WASH projects sustainability and community participation was 0.022.

V. CONCLUSION

It was concluded that there is a significant positive relationship between community participation and sustainability of WASH projects in Rhonda slums Nakuru County. Community participation is enlightened about the importance of their engagement in identifying and resolving matters that affect them which are geared towards sustainable development.

VI. RECOMMENDATIONS

The study recommended that the community should be involved in implementation and evaluation of projects at every stage of development and that when WASH management committees are formed, women participation and membership should be encouraged to avoid gender disparity. This can be achieved through organizing meetings on the project site before implementation.

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