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**SUSTAINABILITY OF WATER, SANITATION AND HEALTH  
PROJECTS IMPLEMENTED BY AFRICAN MEDICAL AND  
RESEARCH FOUNDATION IN NAIROBI CITY COUNTY,  
KENYA**

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**SUSTAINABILITY OF WATER, SANITATION AND HEALTH PROJECTS  
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NAIROBI CITY COUNTY, KENYA**

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**Abstract**

**Purpose:** Sustainability of community based and managed water sanitation and health projects in Kenya remains a challenge. This study sought to investigate the factors influencing sustainability of water sanitation and health projects implemented by AMREF in Nairobi County-Kenya.

**Methodology:** A descriptive sample survey was used to describe the findings on water sanitation and health projects as they are on the ground without bias in selected households in Kibera slums in Nairobi County. A target population of 10,515 respondents was targeted. The researcher selected a sample of 433 from the target population using stratified random sampling. Data was collected by the use of a semi-structured questionnaire. The results were presented by using frequency tables and figures for ease of reference. The data was analysed using descriptive and inferential statistics.

**Results:** The study found that that there is a significant positive influence of community participation, technical expertise, funds utilization and political factors on sustainability of water sanitation and health projects.

**Policy recommendations:** The study therefore recommends that the policy makers should ensure that the policies are favourable to the private sectors to make them have the will to participate in the project. The study also recommends that all the staff should be frequently trained to acquire the right skill to enhance expertise in execution of responsibilities. The research suggests that the same studies should be conducted on the other parts of the country to enhance better sustainability of water sanitation and health projects in all parts of the country.

**Key words:** *Sustainability, Funds utilization, Community participation, Political factors, Technical expertise*

## 1. Introduction

Project management is a key factor in for the success of any project (Binder, 2012). Project managers use management tools to plan and implement their projects to optimize the probability of success. To achieve this success, managers must ensure effective communication, develop controls, provide feedback, coordinate activities and resources, make objective decisions, ensure continuous monitoring, create a cost-effective structure, and schedule to be followed (Walker & Vines 2011). In their opinion, several factors affect effective project management such as the system of communication, type of controls, feedback mechanisms, planning activities, organization structure, safety and quality assurance program, control of subcontractor's works, and finally the overall managerial actions. The sustainability of WASH projects is usually understood as a complex and tenacious problem facing societies, governments and international development partners (Gebrehiwot, 2006). According to UNICEF, about half of the developing world's population of about two and half billion people do not have enhanced health facilities, and over eight hundred million people still use water that is unsafe for consumption. This is attributed to the unsustainable water and sanitation projects that are initiated by both government and private organizations.

Project sustainability is viewed as the continuous operation of resources in a way that it ensures the present and future generations continue enjoy their benefits. Sustainability measures the growth, maintenance and/or degradation of resources that affect a community's ability to keep itself (Dungumaro & Madulu 2013). Studies conducted by Binder (2012) and Nikkhah and Redzuan (2010) have agreed on the definition, pointers and metrics of sustainability as endeavors to satisfy the service expectations and needs of communities in the long-term. Research has shown that projects implementation in sub-Saharan Africa; often demonstrate low levels of sustainability (Gebrehiwot, 2012). The key causes for this include inappropriate policy or legislation; insufficient institutional support; unsustainable financing mechanisms; ineffective management systems; and lack of technical backstopping (Niyi, 2011). Evaluation studies done by Agevi (2012), Muttagi (2011), Ashley and Barney (2012) and Cedric (2013) widely linked poor management of community projects to the increase in the cycle of poverty and failure of many donor funded projects in developing countries.

Studies also indicate community participation and proper project organization management skills are important for successful development projects. However, it is not clear whether participation of the community members in CBD projects results in project sustainability. There is gap in terms of studies already done locally to investigate the correlation between community participation and sustainability of WASH projects in Kenya. This indicates a local knowledge gap on WASH projects' sustainability issues. It is on the basis of this background that this study sought to fill this gap through an investigation of relationship between community participation and sustainability of water, sanitation and health projects implemented by AMREF, with a focus on Kibera in Nairobi County.

## **2. Literature Review**

### **2.1 Stakeholder Theory**

Theory as suggested by Miles and Friedman (2006) will be used. This theory illustrated it through two principles, the organization legitimacy and stakeholder fiduciary principles. The principle of organization legitimacy which argued for the management of the organization by considering the benefit of the stakeholders, the rights of various groups are considered as well as their participation in decisions that substantially affect their welfare. On the other hand, the stakeholder fiduciary principal proposed that managers were to act in the interests of the stakeholders as well as the corporate while safeguarding the long-term stakes of each party. Jensen (2002) considers the linkage of objective function and stakeholder theory as enlightened value maximization: implying that whenever managers make trade-offs, they consider how the value gets created.

### **2.2 Institutional Theory**

This theory considers the procedure by which structures including tenets, standards, and schedules, wind up plainly settled as legitimate rules (Cole, 2011). Cole affirms that organization are social structures that have accomplished a high level of versatility, they are made out of social intellectual, standardizing and regulative component that, together with related exercises and assets, gives steadiness and importance to social life. The measurement of decoupling suggests that for association to be believed to be embracing sure institutional practices will even establishment formal procedures went for executing these practices. In this manner, making a formal budgetary establishment suggests extra expenses and limitations as the benefactor foundations ends up plainly managed and directed. Benefactor must have an institutional ability to deal with various diverse items and administrations and assembling assets and improve data frameworks to hold fast to administrative revealing necessities (Edwin, 2009).

### **2.3 Empirical Literature Review**

#### **2.3.1 Project Sustainability**

Eckman (2007) stated that the notion of sustainability has been regarded as both an objective in community development projects and as an avenue to policy development and design. Further, it was contended that the idea of maintainability has a horde of definition in the writing accessible, and additionally in down to earth utilization among improvement specialists. This is on account of the idea is emphatically dependent upon the circumstance in which it is connected. In view of this contention, Brown et al. (2007) opined that a decent definition must determine plainly the specific circumstance and the estimation scales to be utilized.

It is on the premise of the previous that Nikkhan and Redzuan (2010) arrived at the conclusion that reasonable advancement picked up money over the most recent couple of decades as a critical idea for the improvement of groups. In any case, Bradshaw and Winn (2010) stress that, supportability is significantly established in a natural perspective, particularly in the created

nations. In any case, maintainable advancement is gone for building up a harmony between three mainstays of groups to be specific the social, financial and natural (Sneddon, 2006).

### **2.3.2 Community Participation and Projects Sustainability**

Participation of the users in the preparation, execution, performance, protection and conservation of water, sanitation and health projects is critical to the sustainability of community based projects. The contributions of community members may be in monetary form, employees, raw materials and equipment. The community may also be involved in meetings that make decision related to projects (Davis & Lyer, 2002).

Studies have established that support from a community for a project a key predictor of its sustainability. This is manifested in the collaboration of community organizations, government agencies and the implementers of the project. Mulwa, (2013), emphasized the significance of strengthening the sense of ownership among the beneficiaries of the project in the community with a view to increasing their motivation to sustain it. It is critical to have a robust sense of ownership and honest participation in the project design, implementation, monitoring and evaluation to ensure successful implementation and sustainable benefits.

### **2.3.3 Technical Expertise and Projects Sustainability**

Suitable technical expertise is vital to the success of any project. To enhance project sustainability, the choice of the knowledge to be transferred should be based on its relevance in terms of financial and technical measures, as well as social suitability (Natasha, 2003). It is essential to train the key stakeholders to ensure sustainability of any project intervention. The training should be relevant and suitable and follow-up training should be considered as well. In the majority of cases, a one-off externally funded training activity is inadequate (Kim, 2005).

One of the most common inputs of the donor funded projects is expatriate technical assistance. How expatriate technical assistance works with the development partners and colleagues has a major effect on the possibility of project sustainability (Rigby, 2007). The exit of the expatriates should not signal a significant reduction in the benefits associated with the program or project. Some of the key strategies to avoid weakening include allocating the partners and expatriate teams the same office; adopting a team approach, developing specific sustainability strategies, clearly outlining the differences between advisory and executive roles; reducing the number of expatriates to a bare minimum, ensuring that the short and medium term technical assistance is not managed on an ad hoc basis. They should work with people in line positions instead of newly created project positions (Gebrehiwot, 2006).

### **2.3.4 Political Factors and Projects Sustainability**

Scheirer (2005) progressed political help as a factor advancing venture manageability. In view of the power and steadiness of institutional projects, it is vital to adjust undertakings to government approaches and directions and other applicable bodies (Sarriot, 2004). Activities are executed in a more extensive strategy setting. Seemingly, the administration arrangements can affect the

supportability of group improvement ventures. It is vital to inspect the strategy blueprints and mull over them amid venture outline. Ventures in which government strategy is watched have higher potential outcomes for supportability since they will probably have more noteworthy political and institutional help amid and after usage.

As indicated by a report by the United Nations Economic and Social Council, Economic Commission for Africa (2005), a fitting lawful system and foundations at national level to supervise water and sanitation administrations arrangement are fundamental to operational national strategies, ensure property rights, and produce even handed profits for private ventures through effective tax structures and levels, benefit measures and extension targets.

The UNESCESA (2005) takes note of that there is requirement for focused measures that take into account close oversight of water and sanitation ventures, general wellbeing and ecological security by applying administration models and punishments for default. The Government needs to concoct impartial standards to guarantee reasonable rivalry in subcontracting and acquirement strategies and duty risk and frameworks. There must be social strategy measures went for ensuring the privileges of helpless gatherings of recipients, for example, tax alteration rules, Government appropriation arrangements, detachment methodology for postponed or unpaid water bills and question determination components

### **3.0 Research Methodology**

This study adopted a descriptive survey design. The targeted projects in this study included shelter, water health and sanitation. The target population consisted of AMREF staff and Household beneficiaries. In total, the target population was 10,515.

#### **3.1 Sample Design**

The researcher adopted Cochran's (1963) formula to compute the sample size of household's respondents and a stratified random sampling technique was used in order to identify the employees of AMREF. A sample size of 385 household beneficiaries was also obtained using Cochran formulae. The sample size of households at 5% level of significance was obtained by using the following formula:

$$n = \frac{N}{1+N(e^2)}$$

In which n refers to the sample size

N refers to the target population (no of household beneficiaries) =10,443

E is the level of significance = 0.05

$$n = \frac{10,443}{1+10,443(0.05^2)}$$

$$1 + 10,443 * 0.0025 = 385 \text{ household beneficiaries}$$

**Table 1: Sampling Frame**

Target group	Target population	Sample size
AMREF staff	72	48
Household beneficiaries	10,443	385
<b>Total</b>	<b>10,515</b>	<b>433</b>

**Source: Research Data (2017)**

The sample size of respondents is calculated above in proportions to each group that bears the whole population. From each household, a single individual was considered for this research and was deemed a representative of the household. In total 433 respondents, were considered in this study for the data collection. The beneficiaries were picked randomly while the AMREF staff were picked from the list given from the human resource department of the organization. A Primary data was collected using a questionnaire. Data was analyzed using descriptive and inferential statistics.

**4.0 Results and Discussions****4.1.1 Long-Term Vision and Goals for the Project and its Partners**

All respondents indicated that their projects had a long-term vision and goals. This indicates that majority of the respondents were focused on making their projects grow and succeed. This shows that most donors and the NGOs implementing WASH the projects are committed in making sure that the projects are sustainable. According to the findings, majority of the respondents greatly agreed that they involved the local leaders as indicated by a mean of 3.57. Further majority of the respondents indicated that they involved the committee members in all their activities as indicated by a mean of 3.45. The respondents further indicated that they involved the advisory board which advised the organisation on key issues pertaining to the projects sustainability. According to the respondents, involvement and participation of stakeholders and target beneficiaries does the following; promotes ownership of the project, enhance resources mobilization, ensures 'planning is participatory, provides oversight and feedback mechanism to the project, ensure success and failure are shared together and enhance smooth take over and maintenance of the projects operation. This shows that the respondent agreed fully that community and other stakeholder's participation was fully incorporated during the projects implementation. Pollnac and Pomeroy (2011), study reviewed in the literature who asserted that donor-led and top-down projects generally fail to bring sustainable benefits because they do not lead to stakeholder ownership and commitment.

**Table 2: Committee Activities for Involvement and Participation**

<b>Institution</b>	<b>Mean</b>	<b>Standard</b>
Committee members	3.45	0.13
Advisory board	3.24	0.34
Local leaders	3.57	0.22
Religious leaders	3.10	0.25
Opinion leaders	3.21	0.54

**Source: Research Data (2017)**

#### **4.1.2 Technical Expertise**

From the findings respondents agreed that staff are regularly trained on project management as shown by a mean of 3.99. This was followed by the statement that staff working in this project are very competent as shown by a mean of 3.79. It was further established that there are contingency plans for key personnel and partnership changes and AMREF engages experts at all times as shown by a mean of 3.55 and 3.28 respectively.

**Table 3: Technical Expertise Statements**

<b>Statements</b>	<b>Mean</b>	<b>Standard deviation</b>
Staff working in this project are very competent	3.79	0.43
There are contingency plans for key personnel and partnership changes	3.55	0.54
Current levels of staff training affect the sustainability of this project	3.26	0.76
Staff are regularly trained on project management	3.99	0.48
AMREF engages experts at all times	3.28	0.76

**Source: Research Data (2017)**

On recommendations in terms of knowledge acquisition that the respondents would make to help improve the sustainability of projects funded by AMREF, the respondents indicated that the project staff must possess relevant technical skills for proper implementation and sustainability of the project (Walker & Vines, 2011). They also indicated this could be through local capacity building; once the donor's leaves the project needs to function independently of aid.

#### **4.1.3 Effectiveness of the Following Donor Financing Policies**

From the findings, the respondents indicated with a mean of 4.30 that financial management systems are very effective. In addition, they indicated with a mean of 3.93 that budget policies



are very effective. They also indicated with a mean of 3.89 that internal audit on funds utilization are very effective. The respondents further indicated with a mean of 3.85 that timely disbursements of projects funds are effective. In addition, the respondents indicated with a mean of 3.81 that donor planning timeline is effective. This shows that the existing donor policies play a significant role on the sustainability of funded WASH projects (Rigby, 2007).

**Table 4: Effectiveness of the Following Donor Financing Policies**

<b>Policies</b>	<b>Mean</b>	<b>Standard deviation</b>
Timely disbursement of projects funds	3.85	0.19
Internal audit on funds utilization	3.89	0.25
Donor funding timeline	3.81	0.32
Budget policies	3.93	0.27
Financial management systems	4.30	0.28
Feedback on funds utilization	3.48	0.22

**Source: Research Data (2017)**

#### 4.2 Model Summary

The analysis of variance in this study was used to determine whether the model is a good fit for the data.

**Table5: Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.901 <sup>a</sup>	.811	.798	.88195

The R-Squared is the proportion of variance in the dependent variable which can be explained by the independent variables. The R-squared in this study was 0.798, which shows that the four independent variables (Community participation, Technical expertise, Funds utilization) can explain 79.8% of the dependent variable. This shows that the other factors not studied in this study explain 20.2% of the dependent variable (Project sustainability).

**Table 6: Analysis of Variance**

<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>1</b>	Regression	0.084	4	0.021	15.52	.018 <sup>b</sup>
	Residual	109.21	335	0.326		
<b>Total</b>		<b>109.294</b>	<b>339</b>			

**Source: Research Data (2017)**

From the findings, the p-value was 0.018 which is less than 0.05 and hence the model is good in predicting how the four independent variables (community participation, technical expertise and funds utilization) influence sustainability of project. Further, the F-calculated (15.52) was more than the F-critical (3.44) which shows that the model was fit in predicting the influence of the independent variables on the dependent variable.

#### 4.2.1 Regression Coefficients

A table of coefficients was developed to show the strength of each independent variable.

**Table 7: Coefficients**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.825	0.392		2.105	0.000
Community participation	1.027	0.403	0.321	2.548	0.021
Technical expertise	0.972	0.323	0.642	3.009	0.000
Funds utilization	1.432	0.524	0.401	2.733	0.002

**Source: Research Data (2017)**

$$Y = 0.825 + 1.027X_1 + 0.972X_2 + 1.432X_3$$

According to the intercept ( $\beta_0$ ), when the four independent variables are held constant, the value of project sustainability will be 0.825. In addition, holding all the other independent variables constant, a unit increase in community participation would lead to a 1.027 improvement in project sustainability. The relationship was significant as shown by a p-value of 0.021. Further, holding on the other independent variables constant, a unit increase in technical expertise would lead to a 0.972 improvement in project sustainability (Niyi, 2011). The relationship was significant as shown by p-value of 0.000. In addition, holding all the other variables constant, a unit increase in funds utilization would lead to a 1.432 improvement in project sustainability. All the study variables were significant for this study.

#### 5. Conclusion and Recommendations

The study concludes that there is a positive significance relationship between community participation and sustainability of water sanitation and health projects implemented by AMREF in Nairobi County Kenya. The study also concludes that community groups and the government involvement and participation in the project were rated fair. The study further concluded that that the projects are fully owned by the stakeholder of the project. The effect of target groups involvement and participation on sustainability of the project, is very important since they own and support the project after completion. The effect is found to be positive as it leads to bring

about desired change and creates a sense of ownership and there is accountability. The study also concludes that there is a positive significance relationship between technical expertise and sustainability of water sanitation and health projects. Technical expertise influence sustainability of water sanitation and health projects. Most of respondents were found to have undergone training that was related to the job. The level of the staff competence has an impact on the sustainability of water sanitation and health projects. In terms of knowledge acquisition, the project staff must possess relevant technical skills for proper implementation and sustainability of the project.

The study also concludes that there is a positive significant relationship between funds utilization and sustainability of water sanitation and health projects. Timely disbursement of projects funds and donor planning timeline was effective. The study further concluded that budget policies, financial management systems and internal audit on funds utilization were effective. Inadequate funds lead to incomplete project and deprivation of long term benefits and hence not serving the purposes.

NGOs should keep on focusing on the conveyance of intercessions that expansion access to water, social insurance, employable aptitudes, and credit because of the insufficient conveyance of these administrations by the neighborhood experts. To upgrade the manageability of these ventures, there ought to be Community-NGO-Donor arrange amid the outline and execution of mediations. This ought to be finished by receiving participatory administration approaches at the hierarchical and recipient levels to guarantee more noteworthy neighborhood support with the end goal that these intercessions broadly mirror the necessities of recipients to make them sufficiently feasible to achieve the required advantages to make recipients non-subordinate.

Further, NGOs should specialize on their core capabilities to functionally position themselves in the delivery of interventions to meets the needs of beneficiaries. These functional capabilities will over time raise the credibility of NGOs to source funds in that intervention area rather than amassing series of interventions without any specialty which potentially could lead to the delivery of unsustainable interventions. The donor should assess the target beneficiaries and stakeholder capacity to handle and continue running of the projects. The project handing over should only be done once the donor is fully convinced beyond reasonable doubt that the target beneficiaries and stakeholder have adequate capacity, knowledge and skills to effectively run the project. This will ensure sustainability of the projects.

## 6. References

- Agevi, T. (2011) Conceptual Frame Work on Self- Reliance in Community Development in Nigeria. *International Social Work*, 25(13):13-22.
- Ashley, S. & Barney, T. (2012) “Linking two dimensions of orientation to firm performance: The moderating role of environment and life cycle”. *Journal of Business Venturing*, 16(5), 429-451
- Binder, D. (2012). *Sustainability of Water Service Delivery in Rural Environment: Past Approaches and the Way Forward*. Emerging Markets Group, Ltd.
- Bradshaw, L. (2010). Our dream is a world full of poverty indicators: the US, the World Bank, and the power of numbers. *New Political Economy*, 15(4), 473–492.
- Brown, L.& Covey, J. (2007) ‘Organizational Development in Social Change Organizations: Some Implications for Practice’, in Sikes, W., Drexler, A. and Grant J. (eds) *The Emerging Practice of Organizational Development*, Alexandria,
- Cedric, N. (2013). *Factors affecting financial sustainability of NGOs funded projects in Kenya*. Unpublished MBA dissertation-Kenyatta University. Nairobi-Kenya. -.
- Cole, D. (2011), Sustainability indicators for natural Resource management and policy: A review of indicators of Agricultural and rural Livelihood sustainability.
- Davis, R. (2006), Community Managed Water supplies in Africa: stainable or dispensable? *Community Development Journal Advance*.
- Dungumaro, A. (2013). *The Quest for Financial Sustainability: Foundations in Southeast Asia*. Introduction to Financing Development in Southeast Asia: Opportunities for Collaboration and Sustainability.
- Eckman, K. (2007) Gleaners, Do-gooders, and Balers: Options for Linking Sustainability and Economic Development. *Community Development Society*, Vol. 31, No.1, Pp 112-129.
- Edwin, L. (2009). *Managing external resources in the health sector in South Africa*. Centre for Health Policy, University of the Witwatersrand, and Health Policy Unit, London School of Hygiene and Tropical Medicine.
- Gebrehiwot, M. (2012). *An Assessment of Challenges of Sustainable Rural Water Supply: The Case of Oflla Woreda in Tigray Region*. Msc Thesis, Regional and Local Development Study (RLDS). A.A.U. Ethiopia.
- Hosain, F. (2001) Administration of Development Initiatives by NGOs: A Study of their Sustainability in Bangladesh and Nepal. Pp 1-88.
- Jensen, J. (2012), *Promoting Practical Sustainability*, Quality Assurance Group-PIA/OPRE. The Australian Agency for International Development. AUSAID government publications.
- Kim, D. (2005) ‘Community Organizations and Rural Development: A Learning Process Approach, *Public Administration Review*. No. 40, Pp 480-510.

- Miles, A. (2006). *The Quest for Financial Sustainability: Foundations in Southeast Asia. Introduction to Financing Development in Southeast Asia: Opportunities for Collaboration and Sustainability.*
- Mulwa, N. (2013). *Factors affecting financial sustainability of NGOs funded projects in Kenya.* Unpublished MBA dissertation-Kenyatta University. Nairobi-Kenya. -.
- Muttangi, D. (2011) 'Community Organizations and Rural Development: A Learning Process Approach, Public Administration Review. No. 40, Pp 480-510.
- Natasha, A. (2003). *The Quest for Financial Sustainability: Foundations in Southeast Asia. Introduction to Financing Development in Southeast Asia: Opportunities for Collaboration and Sustainability.*
- Nikkha, R. & Redzuan, M. (2010). *Community-based coastal resource management in the Philippines: A review and evaluation of programs and projects, 1984-1996.* Marine Policy; 21(5):445-64.
- Niyi, G. & Felix, O. (2011). Assessment of Rural Water Supply Management in Selected Rural Areas of Oyo State, Nigeria. *ATPS Working Paper, Series No. 49.*
- Rigby, D. (2007), Sustainability indicators for natural Resource management and policy: A review of indicators of Agricultural and rural Livelihood sustainability.
- Sarriot, E. (2004). *Qualitative research to make practical sense of sustainability in primary health care projects implemented by nongovernmental organizations.* Int J Health Planning Management
- Sneddon, C. (2006) Sustainability in Ecological Economics, Ecology and Livelihoods: A Review. *Progress in Human Geography, 24(4): 521-549.*
- United Nations Report (2009). *World Commission on Environment and Development.* Enhancing Global environmental sustainability. Brunt land Commission. United Nations.
- Walker, R., & Vines, E. (2011), "*Evaluation of donor-funded information technology transfer projects in China: a lifecycle approach*", unpublished manuscript, Institute for Development Policy and Management, University of Manchester, Manchester