

Full Length Research Paper

Effect of community participation on sustainability of rural water projects in Delta Central agricultural zone of Delta State, Nigeria

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This study was conducted to assess the effect of community participation on sustainability of rural water projects in Delta Central Agricultural Zone of Delta State, Nigeria. The study was concentrated in the rural settlements where water projects were executed. The community citizens were rarely often or always involved in the various stages of the projects as the community development committees' executives represented the communities. In most communities, the water projects were funded by the respective communities and other bodies. Those counter partly funded were highly sustainable than those solely funded by governments. The various communities were mostly organized through formation of community development committees, weekly meetings and formation of social groups. There was significantly relationship between participation and sustainability of water projects ($r\text{-cal} = 0.652$ and $r\text{-critical} = 0.632$). It is recommended that the level of participation in projects should be increased; and the communities should continue with their methods of organization with more emphasis on regular conference and institution of sanctions/rewards to encourage citizens to participate in development projects.

Key words: Effect, community participation, sustainability, rural, water, projects.

INTRODUCTION

Participation is a process through which stakeholders influence and share control over development initiatives and the decision and resources which affect them. Unless the poor are given an opportunity to participate in the development of interventions designed to improve their livelihood, they will continue to miss the benefits of any intervention. Ekong (2003), defined participation as playing active though not necessarily direct, roles in community decisions, knowledge of local issues, attendance at public meetings, related attempts to influence proposed measures through individual and groups actions, belonging to groups and committees and financial contributions towards communities programmes. Community participation is a social process whereby specific groups with shared needs, often but not always living in a defined geographical area, actively pursue identification of their needs, make decision and establish mechanism to meet these needs (Ekong, 2003). Community members' participation in a programme or activity can be thought of in terms of a continuum from

minimal to very high. At the low end, community members may attend an event such as a health fair that has been planned and carried out by health service providers, for instance, the community members may identify the need for family planning methods and information, petition the ministry health to request services and supplies, train local community members to distribute and manage their own fund and inventory, etc.

The provision of adequate and suitable infrastructural facilities is a *sin-qua-non* for rapid economic development (Akinbile et al., 2006). Facilities such as water supply, refuse and sewage disposal services, housing and electricity greatly affect the health, well-being and general quality of life of individuals in a society (Oludimu, 1984). As a result, factors influencing the health status of rural populace include the source of drinking water, house type, environmental sanitation, personal hygiene and nutritional status and literacy levels. That the Nigerian society, like other developing countries, has a large rural sector and small urban components is a well-known fact.

The rural area in most parts of the country generally exhibit great poverty, poor health conditions and ignorance as a result of varying degrees of geographical, social and political isolation (Steven, 2000). The rural areas have been long neglected. According to Taiwo (1998), this neglect has led to rural-urban migration, which in turn has created problems for urban and rural areas. But the situation should not continue the way they are since it will tell adversely on national development. There is therefore the need to focus attention on rural development to alleviate the suffering of the majority of the world population who are concentrated in the rural areas. According to Anyanwu (1981), men have sought to improve their lot from the earliest periods of human history and community development through self-help is the tool for doing this. Even within the context of the socio-economic problems of underdeveloped countries, self-reliance has relevance only when it suggest the need for the entire internal social system to be self reliant, that is the need for self-liberation from foreign domination and exploitation.

Ekong (2003) stated that the western nations foresaw that leaving the rural people to their own initiatives and resources is not enough but that planned intervention from external sources such as the local, national and international bodies will prompt balanced patterns of development.

The United Nations refers to community development as the process that unites the efforts of the people themselves with those of the governmental authorities (Curtis, 1995; Ekong, 2003). The goal of this unity of effort is to improve the economic, social and cultural conditions of communities, to integrate these communities into the life of a nation and to enable them contribute fully to national progress (Ekong, 2003). The idea of citizen participation which cannot be removed from community development issues is used to as an antidote to psychological alienation and rootlessness among the masses thereby making people develop a sense of belonging and meaningful achievement. It also allows for the tapping of under-used human resources and gets many people to understand and cooperate with measures called for in the planners' strategy for development. To the neglected masses, organized participation taking advantage of the weight of numbers, offers the only real hope of obtaining from the society more favourable responses to their immediate needs.

The principle of participation gives assurances of the success of any project if the effort of a local community is supplemented by the direction of governmental authorities. There is wide districting views on how to satisfy the needs of the present generation without compromising the ability of the future generations to meet their own needs (Fri, 1992; Taiwo, 1998). It is generally accepted that sustainable development implies a better integration of economic, environmental and social goals (UNRISD, 1999). Sustainable development can therefore

be said to be the designing and execution of projects that can be kept alive even after intervention, while its development strategies must be based on investment in future growth and not only on quick fixes to meet immediate demand (Steven-Hagen, 2000). There is therefore the need for major institutional reforms that will ensure people centered development and more participatory and responsible engagement by all actors in the developmental efforts to ensure sustainability.

Water is considered by everyone as a gift of nature and it is very important in every household as it is required in household for drinking, cooking, washing, agricultural purposes and other activities. This therefore means that water is very important in every community.

Riley et al. (2005) stated that many communities in Nigeria, particularly in the rural areas do not have access to potable water sources. They further revealed that most of the rural communities depend on streams, ponds and rivers which often harbour water-borne diseases such as Guinea worm and river blindness for water. This has adverse effect on the health of the rural dwellers and forms an important hindrance to their productive abilities. This implies therefore, that adequate provisions of deep wells, pipe-borne water or boreholes are basically necessary for the socio-economic welfare of rural dwellers. The issue of infrastructural facilities has become a great concern to Nigerians and nationals of other developing nations for the purpose of increased production of farm produce and other production processes. This is of the fact that it is used to partly assess development, in addition to the traditional indices of per capita income (Akinbile et al., 2006). Various Nigerian governments have embarked on numerous water projects to discourage rural-urban migration which is reducing farming population. The federal government has embarked on many water projects through its agencies such as petroleum trust fund (PTF), oil mineral producing areas development commission (OMPADEC), river basin development authorizes (RBDAs), directorate of food, roads and rural infrastructure (DFRI); and state governments through rural development board and local government through their works department that sink boreholes and dig wells in rural communities. Since sustainability of project benefits is crucial to every development effort, it is necessary to assess the extent to which resources invested on water projects can be said to be worthwhile through its perceived sustainability. This is because of the fact that projects are conceived and designed by government, while few projects are conceived by rural people to satisfy their felt needs. These few projects are done by the rural dwellers alone or in collaboration with governments.

Sustainability is a crucial factor in every project implementation. Since the paradigm shift from top-down to bottom-up approach to development, studies have not been carried out in the study area on participation in water projects, meanwhile, water is a very necessary

resource to man. The result of the study will serve as a guide to policy formulation in order to execute sustainable projects. Without sustainability of water projects the objectives of sustainable rural development will be defeated.

Objective of the study

The major objective of this study was to assess the effect of community participation on sustainability of rural water projects in Delta Central Agricultural Zone of Delta State. Specifically the study aims to;

- i. Ascertain the extent to which the rural dwellers are involved in the implementation of water projects in their communities;
- ii. Define the people's perception of the sustainability of the water projects; and
- iii. Identify the factors that influence their perception.

Hypothesis

H₀₁: There is no significant relationship between community participation and perception of the water projects colleague.

METHODOLOGY

The study area is Delta Central Agricultural Zone of Delta State, Nigeria. It is located in the fresh water forest. It is constituted by eight (8) local government areas. These include Ethiope East and West, Okpe, Sapele, Uvwie, Ughelli North and South, and Uvwie local government areas. The population for this study will include all communities in Delta Central Agricultural Zone. Purposive sampling was used in selecting communities, while systematic sampling was used in selecting respondents for the study. Out of the eight local government areas in the zone, four were randomly selected and two villages were purposively selected from each of the four local government areas based on the presence of rural water projects. Each selected village was divided into four sections on compound basis for the purpose of this study. Five households were systematically selected from each section, that is every 4th household and a respondent was interviewed in each house. This will give a total of twenty (20) respondents in each villages and a total sample size of one hundred and sixty (160) respondents. Data for the study was collected through the use of interview schedule which were administered by the researcher and some secondary school teachers in the selected village or close to the selected villages. Data collected were subjected to statistical analysis by the use of frequency counts, percentage and means derived from 4 and 5-point likert's scale of never involved, rarely involved, often involved and always involved and strongly agree (SA), agree (A), undecided (U), disagree (D) and strongly disagree (SD) respectively.

The stated hypothesis will be tested with the use of Pearson product moment correlation (PPMC). The formula of PPMC to be used is as follows:

$$R = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

RESULTS AND DISCUSSION

Socio-economic characteristics of respondents

Majority (52.5%) of the respondents were males, while 47.5% were females (Table 1). This implies that the selection of the respondents was almost proportionate based on gender. This is important because of the role women play in community development and in particular households. Most of the respondents (33.1) were in the age bracket of 40 to 49 years, while 25% were in the age range of 30 to 39 years; 20.6% below 30 years, 6.3%, 50 to 59 and 15%, 60 years and above. The implication is that most of them were in their youthful ages and very active. The results agree with Gaya and Benisheik (2006) as they discovered that most of the people in the youth ages were in the Fadama areas of Borno State, Nigeria. Majority of the respondents (73.1%) were married, others 7.5% single and 19.4% divorced or widowed. This shows that most of the respondents were responsible. As for level of education, 46.9% had secondary education, while 35% had tertiary education and 17.5% had no formal education. Conclusively, most of the respondents had one form of education or the other. With respect to occupation, majority (33.1%) of the respondents were farmers, while 25.6% were artisans, 16.9% civil servants; 13.8% traders and 11.3% retirees.

Level of participation in water project

Table 2 shows that the respondents were rarely involved in identification of water project (mean = 2.0) sharing of the idea in the community (mean = 2.18), taking decision and planning for the project (mean = 1.99), organizing of fund raising for the project (mean = 2.20), provision of labour (mean = 2.24) and monitoring of the project. They always participated at the stages of financial contribution for the project (mean = 2.89), project site clearing (mean = 2.61), decision on project location (mean = 2.76), supply of needed materials (mean = 2.56). The result implies that only the communities' development unions' executives were involved at the stages where the respondents were rarely involved. The communities unions in different names like community development committee, community progressive union, etc have the executives who represent the interest of the communities. This is contrary to the approach used by ACTIONAID (2006) in Kenya where they involved the community right from the beginning. By so doing, they feel the project belongs to them and they strive towards sustaining.

Sources of fund and mode for the water project

Table 3 shows that the sources of funding for the water project included the communities (95.0%), local

Table 1. Socio-economic characteristics of respondents.

Variables	Frequency	Percentage (%)
Gender		
Male	84	52.5
Female	76	47.5
Age		
< 30	33	20.6
30 – 39	40	25.0
40 – 49	53	33.1
50 – 59	10	6.3
60 and above	24	15.0
Marital status		
Married	117	73.1
Single	12	7.5
Divorced	31	19.4
Level of education		
No formal education	28	17.5
Secondary education	76	46.9
Tertiary education	56	35.0
Occupation		
Farming	53	33.1
Trading	22	13.8
Civil Servant	27	16.9
Artisans	41	25.6
Retirees	18	11.3

Table 2. Level of participation of community in water project.

Participation variables	Score	Mean
Identification of the water project as a need	331	2.07
Sharing of the idea in the community	349	2.18
Taking decision to carry out the project/planning	318	1.99
Financial contributions	463	2.89
Organizing of fund raising	352	2.20
Project site clearing	417	2.61
Provision of labour	358	2.24
Deciding the project location	442	2.76
Supply of needed materials	409	2.56
Monitoring of the project	371	2.32

Cut-off score = > 2.5. (2.5 = often involved; >2.5 = always involved; 1.99-2.49 = rarely involved; <1.99 = never involved). *The cut-off score is the lowest limit of the mean meant for decision making.

government (1.3%), and state government (2.5%), European union's (EU'S) micro programme project (MPP3) (95.0%) and oil production companies. The mode of funding for most of the water projects included counter-parts funding for the ones executed by the communities in collaboration with the EU'S MPP3. The ones executed by the Local and State governments and oil producing

companies were solely funding by the bodies without financial input of the Communities. This implies that the communities only participated in the other stages of the projects in the communities that benefited from the state and local governments and oil producing companies. It is expected that the project will be more sustainable in those companies that made financial contribution.

Table 3. Sources of fund and mode.

Sources	Frequency	%	Mode	Frequency	%
1. Community	152	95.0	Part funding	152	95.0
2. Local Government	2	1.3	Full funding	4	1.3
3. State Government	4	2.5	Full funding	4	2.5
4. Federal Government	0	0	Nil	0	0
5. European Unions					
6. Micro Programme Project	152	95.0	Part funding	152	95.0
7. Oil Companies	2	1.3	Full funding	2	1.3

Source: Field survey (2008).

Table 4. Respondents' perception on sustainability of water project in their communities.

Community	Mode of funding	Total score	Mean (X)
Aghalokpe	Counterpart	549	3.43
Elume	Counterpart	589	3.68
Kokori	Full (external)	405	2.53
Agbarha	Full (external)	412	2.58
Eruemukohwoarie	Full (external)	471	2.94
Oria-abraka	Counterpart	590	3.69
Orogun	Full (external)	438	2.74
Okpara w/s	Counterpart	608	3.80
Aladja	Counterpart	509	3.18
Oginibo	Counterpart	537	3.36

Source: Field survey (2008). Cut-off Mean score = 2.50 (2.50 = sustainable; 2.51 – 2.99 = moderately sustainable; >3.0- highly sustainable ; < 2.50 = lowly sustainable). *The cut- off score is the lowest limit of the means for positive inference on the sustainability of the projects.

Respondent's perception on sustainability of water projects in their communities

Table 4 shows that none of the water project was lowly sustainable, with those funding through counterpart arrangement being highly sustainable than those solely funded by state and local government and oil producing companies. The sustainability of those funded through counterpart arrangement by the communities and EU's MPP3 is higher than those solely funded by the local and state government and oil producing companies without financial contribution from the communities because in the former, they were more committed to the project because of their formal involvement. This is congruent with Dudeswell (1999) as he opined with regard to a community water project in Kenya, there is active community participation. They are not just sitting and watching others work. The community was responsible for identifying the problem, seeing a solution and now they are providing the labor. This is the ideal. "When the people are involved right from the beginning, they feel the project belongs to them and they strive towards sustaining it long after the initial sponsor has left"

(ACTIONAID, 2006).

Community organization

Table 5 indicates that the communities were organized through formation of community development committees (50.6%) regular (weekly) meetings of the council of chiefs (56.3%), formation into social groups (46.9%) and division of tasks (36.9%). Mainly, other methods involved in community organization included institution of sanctions/rewards (12.5%) and regular annual conference (12.5%). The community development committee (CDC) is formed to take care of development projects of the community. The membership is by election by the community during appropriate annual general meetings. The membership cuts across the various adult social groups in the community. The committee represents the community with respect to the community development project executed in the community. Annual conference is held in the various communities either on Boxing day or New Year day. In this meeting, issues relating to the development of the communities are discussed and their efforts towards development of the

Table 5. Method of community organization.

Variables	Frequency	Percentage (%)
Formation of community development committee	81	50.6
Regular (weekly meeting)	90	56.3
Institution of sanction/reward	20	12.5
Division of tasks	59	36.9
Formation into social groups	75	46.9
Regular conference	20	12.5

Source: Field survey (2008). * There were multiple responses, hence the value of the percentages.

Table 6. Relationship between participation and sustainability of water projects.

Variables	N	ss	df	rcal	r-critical	Sig
Participation (X)	10	21488.000	8	0.652	0.632	0.05
Sustainability (Y)	10	605.333				

communities are assess to see how they have progressed in the past year. There are always weekly meetings of the chiefs with the oldest man, Okarho as he is called in the study area, presiding and assisted by the most senior chief and the community spokesman. In such meetings the day to day management of the community is deliberated and solutions sought to solve immediate and long term problem facing the community.

According to the Asian Development Bank (2006), community based organizations (CBOs) were also used to mobilise the people in water projects in Siri lanka. Tasks are divided among the men, women and the youths in the community. For examples, sanitations, security, etc in the community involve all the groups in the community. Social groups such as age-grade, men, women and youth groups are formed. This is for easy access to the member of the groups when community development tasks are carried out. Sanctions are applied against defaulters in the community for crimes and failures to participate in community development tasks. Rewards are also given for good performance. This is a source of motivation for community members.

Hypothesis

H_{02} : There is no significant relationship between participation and sustainability of water projects.

RESULTS

The results on Table 6 indicates that there is a significant relationship between participation and sustainability of water projects ($r = 0.652$, r critical = 0.632; the r calculated is higher than the r -critical this shows a

positive relationship. This implies that the more the community citizens level of participation in such water project the higher will be the sustainability of such project. This is because the people will see it as theirs and so will do everything to protect and maintain it.

CONCLUSION AND RECOMMENDATIONS

Various communities in the world see water as a very important requirement for life sustenance and will do anything to have easy access to it. Before water projects were executed in the study area, the people trekked long distances in the mornings, afternoons and evenings to fetch water from the streams and wells. The community citizens participated in the water project but did not participate fully in them. There was a positive relationship between participation and sustainability of the water projects. It is therefore concluded that the level of participation influenced the sustainability of the water projects in the study area. Water projects will remain more sustainable when the beneficiaries are involved right from the beginning. When the people are actively involved in projects, they see it as their property and as such guard it jealously. Communities should be involved right from the onset in water and other projects meant to solve the problems of the communities. Based on the findings, it is recommended that;

- i) The level of participation of community members in project should be increased so as to attain high level of sustainability of such projects.
- ii) The communities should continue with their methods of organization, but should put more emphasis on regular conference and institution of sanction/reward to encourage citizens to participate in development projects.

iii) The citizens of the community should be involved in projects, whether water or not as this will enhance their perception on such projects positively.

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