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Full Length Research Paper

Assessing the contribution of Community-Based Natural Resources Management Programme to environmental sustainability in Ondo State, Nigeria

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This study assessed Community-Based Natural Resources Management Programme (CBNRMP) for environmental sustainability in Ondo State, Nigeria. Data were gathered through a structured interview schedule from 120 rural dwellers participating in CBNRMP. Data collected were described with descriptive statistical tools such as frequency counts, percentage, mean and standard deviation while correlation was used for the inferential to test the hypothesis set. The study showed that the mean age of rural dwellers participating in CBNRMP in the study area was 56.2±16.8 years, many (56.7%) of the respondents were married and spent an average of 12.3±9.5 years in formal schooling. The majority (83.3%) of the respondents took farming as a main occupation; information about CBNRMP was sourced through extension workers (66.7%) and television/radio (60.0%). In addition, majority (81.7%) of the respondents asserted that they are well aware of the programme before its commencement and it has improved their socio economic status. There was a positive significant relationship (r=0.578; P≤ 0.01) between improvement in socio economic status of the participating communities and their perception about the programme. Since improvement was noticed in the socio economic status of participating communities, CBNRMP is recommended for other states outside the Niger Delta region.

Key words: Assessment, community-based, natural resources, socio-environmental sustainability, management.

INTRODUCTION

A resource is a source or supply from which benefit is produced, also resources are assets that are transformed to produce benefit and in the process may be consumed or made unavailable. Social benefits of resource utilization may include increased wealth, meeting needs or wants, proper functioning of a system, and/or enhanced well-being (Miller and Spoolman, 2011). Resources have three main characteristics: utility, limited availability and potential for depletion or consumption. There are many categories of resources and 'natural resources' are part of them.

Natural resources occur within environments that are relatively undisturbed by humans. A natural resource is often characterized by amounts of biodiversity and geodiversity in various ecosystems. A natural resource may exist as a separate entity such as fresh water, and air, as well as a living organism, or it may exist in an alternate form which must be processed to obtain the

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resource such as metal ores, oil and most forms of energy. There is much debate worldwide over natural resource allocations; this is partly due to increasing scarcity (depletion of resources) but also because the exportation of natural resources is the basis for many economies (particularly for developed nations such as Australia) (Ricklefs, 2005; United Nations, 2002).

Some natural resources such as water in its cycle, sunlight and air can be found everywhere, and are known as ubiquitous resources. However, most resources only occur in small sporadic areas, and are referred to as localized resources. There are very few resources that are considered inexhaustible (will not run out in the foreseeable future) these are solar radiation, geothermal energy, water in its cycle and air (though access to clean air may not be available at all the time and in all circumstance especially in industrialized nations). The vast majority of resources are exhaustible, which means they have a finite quantity, and can be depleted if managed improperly (Salvati and Marco, 2008; Schilling and Chiang, 2011).

Natural resource management is a discipline in the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations. Natural resource management involves identifying the resources by researchers, determined who has the right to use the resources and who does not for defining the boundaries of the resource (Salvati and Marco, 2008). The resources are managed by the users according to rules governing when and how the resource is used, and local condition (Van Dyke, 2008; United Nations Development Programme, 2005).

The successful management of natural resources should engage the inhabitants (men and women) of the specific community because of the nature of the shared resources; individuals who are affected by the rules need to participate in setting or changing them. This implies that members of a specific location are the custodians of the natural resources; they utilize them for their own benefits and would be interested in their sustainability.

Globally, community-based natural resources management (CBNRM) is an approach under which communities become responsible for managing natural resources (forests, land, water, biodiversity) within a designated area. It implies that the community is expected to assist in the planning and management of the resources within their locality and can be monitored by outside technical specialists. They are utilized and protect natural resources within established guidelines, following mutually agreed plan. The active participation of stakeholders in natural resource decision making and use increases economic and environmental benefits. According to Brown et al. (2002) critical investment areas include the introduction of viable management systems, securing legal control over resources and resource utilization, improving environmental governance, and information management. It has also been established that population growth and economic development are increasing pressure on land, water, forest, and biodiversity resources. Government attempts to conserve natural resources through top-down regulatory systems have often failed. Limited government capacity to enforce laws and regulations compounds management problems, particularly when regulations are inappropriate to the social, cultural and ecological context. The role of local people in managing their natural resources is often suggested by environmentalist as the most appropriate solution to sustainable natural resources management.

CBNRM as a sustainable approach to natural resources management gives communities full or partial control over decisions regarding natural resources, such as water, forests, pastures, communal lands, protected areas, and fisheries. In his own contribution, Brown (1999) opinion that the extent of CBNRM control can range from community consultations to joint management or to full responsibility for decision making and benefit collection, using tools such as joint management plans, community management plans, stakeholder consultations and workshops, and communal land tenure rights. By this, community-based institutions are key to any CBNRM project, and selecting and building the capacity of local institutions is critical. This ensures stakeholder participation, increases sustainability and provides a forum for conflict resolution.

Community-Based Natural Resources Management Programme (CBNRMP) in Ondo State: Explorative review

The Community-Based Natural Resource Management Programme (CBNRMP) in Ondo State, Nigeria, carries out projects based on the needs and aspiration of the people in the selected communities using a bottom-top approach. The approach allows the community to identify their pressing needs that the programme can proffer solution to them. The programme was promoted by the International Fund for Agricultural Development (IFAD) and Federal Government, but funded by the IFAD, Federal Government, Niger Delta Development Commission (NDDC), participating States and Local Government Areas for a period of eight (8) years. The programme started in the year 2005 in River State but took off in Ondo State in the year 2006. There are Community Base Animator Teams (CBAT) which consist of six (6) people: threemale (including one youth) and 3 female (including one youth). The CBAT are to co-ordinate and monitor the project(s) in their community in order to ensure performance.

The selection of Local Government Areas (LGAs) which is the closet arm of government to the people to

benefits from the programme in the study area were based on their poverty level. By this, the communities that will participate are the extreme poor communities in terms of basic social and economic facilities. Nine (9) out of eighteen (18) LGAs in Ondo State were purposively selected for the study, and covers 27 communities. The objectives of the Community-Based Natural Resources Management Programme as outlined by IFAD, (2006) are as follows:

1. Provision of improved standard of living and quality of life.
2. Provision of development for women and youth in the economy.
3. Provide market information dissemination.
4. Provide empowerment and development for farmer and fishermen.
5. Provide community management of natural resources (woodlands, rivers, watershed, fishing area).
6. Provision of improved planting materials.
7. Provision of community access improvement (small culvers, village access road, land sites).

The importance of rural communities cannot be over emphasized in the developing nation's economy because rural areas predominantly provide food for a growing population and raw materials for agricultural based industries. Also rural areas serve as a place of refuge during political crises and most urban dwellers visit rural areas to relax. In general, the rural areas provide primary activities that form the foundation of any developing nation's economy. Unfortunately, in some developing nations like Nigeria, rural areas have suffered long time neglect in such a way that has created wide gap between the rural and urban areas most especially with regards to social and economic opportunities, physical development and available infrastructural facilities.

Poor social well-being especially the provision of basic social and infrastructural facilities and deplorable working condition calls for development that involves the transformation of rural areas into a socially, economically, politically, educationally and materially desirable condition, with a purpose of improving the quality of life of the rural population (Jibowo, 2000; Ekong, 2010).

Participating rural dwellers have recently taken a central role in project identification and implementation. This role change was put in place between the year 2005 and 2013 in selected LGAs of Ondo State. After over a decade of the programme, it was considered necessary to ascertain the contribution of the programme to overall development of the study area.

The main objective of this study was to assess the CBNRMP in Ondo State. The specific objectives of this study are to i. Describe the socio-economic characteristic of CBNRMP's participating rural dwellers in the study area; ii. Examine the degree of awareness of rural dwellers about the programme; iii. Examine rural dwellers perception of CBNRMP.

Hypothesis for the study

The following null hypothesis was set for the study: There is no significant relationship between rural dwellers perceptions of the programme and improvement in the socio economic status since the inception of the programme.

METHODOLOGY

The study was conducted in Ondo State, one of the NDDC members in Nigeria. Multi stage sampling technique was used to select respondents for the study. At the first stage, four (4) out of nine (9) participating LGAs were purposively selected. The selected LGAs were Idanre, Ondo- East, Okitipupa and Ile-Oluji/Okeigbo. At the second stage, fifty percent of rural communities participating in the programme were proportionally selected making a total of twelve communities. The selected communities were Oloruntedo, Kajola-ojurin, Ebijaw, Ikota, Ibutitan, Elemo, Araromi Fasawe, Ayede-oja, Kajola-usama, Owena Egbeda, Abalaka and Oniyewu. At the final stage, one hundred and twenty rural dwellers (120) were proportionately selected and interviewed for the study. Duly validated and pretested structured interview schedule was used to collect the data. Test re-test method was used. The instrument was given to five CBAT in a Local Government Area which was not included in the final sampling frame. The instrument was pre-tested at an interval of two weeks in January 2012. The data from the pre-test was subjected to Spearman Rank Correlation Coefficient and a value of 0.865 was obtained which was higher than the empirical and acceptable coefficient of 0.84 (Ogunfiditimi, 1986) and are regarded as good enough to measure the validity of the instrument. Necessary correction and adjustments that was observed/ suggested during the pre-test were incorporated to the final instrument. Data were summarized with percentages, means and standard deviation, while Chi-square and Pearson Product Moment Correlation (PPCM) were used to analyse the data using SPSS 16 statistical package.

Measurement of variables

Dependent variable

The dependent variable for this study was conceptualized as level of improvement in socio economic status of the participating rural communities. It was measured by listing and scoring the extent of improvement in health, education, economy and agriculture observed in the communities as a result of the introduction of CBNRMP against a 4-rating scale of large extent (4), some extent (3), little extent (2), no extent (1) as used by Adisa and Adeloye (2012). The perception of the people was measured using declarative statement which was rated against a four-point rating scale: SA = strongly agreed, A = agreed, DA = disagreed, SD = strongly disagreed. These indicated their decisive position as regards their perception of the project.

RESULTS AND DISCUSSION

Results in Table 1 reveal that majority (62.5%) of the

Table 1. Distribution of respondents according to their socio-economic characteristics. n = 120.

Variable	Frequency	Percentage	Mean	Standard deviation
Age (years)				
< 30	9	7.5		
30-50	36	30.0	56.2	16.8
> 50	75	62.5		
Sex				
Male	58	48.3		
Female	62	51.7		
Years of formal education				
>12	53	44.2		
7-12	33	27.5	12.3	9.5
1-6	21	17.5		
No formal education	13	10.8		
***Major occupation**				
Farming	100	83.3		
Trading	52	43.3		
Public service	15	12.5		
***Source of information about CBNRMP**				
Extension workers	80	66.7		
Television and radio	72	60.0		
Neighbors	55	45.8		
Marital status				
Married	68	56.7		
Widowed/widower	24	20.0		
Single	28	23.4		

Source: Field survey, 2012; *Multiple choices.

respondents were over 50 years of age, while 7.5% were less than 30 years of age; the mean age of the respondents was 56.2 with a standard deviation of 16.8. These results suggests that the respondents comprise few young people, which might be as a result of high rate of rural-urban migration of able bodies in search of white-collar jobs in big cities. Furthermore, it was revealed that there was a marginal (48.3:51.7) difference between the number of male (48.3%) and female (51.7%) respondents. Table 1 also shows that the mean of years respondents have spent in formal education is 12.3 years with a standard deviation of 9.5; this result reveals that the majority of respondents could read and write which could affect their participation in CBNRMP positively. The vast majority (83.3%) of respondents were farmers by occupation while few engaged in trading and public service; in addition, many (66.7%) of the respondents had information about the programme from extension workers. The table also revealed that many (56.7%) of the respondents was married. This finding is in consonance with earlier reports of Adisa and Jibowo (2006) who reported that a high percentage of married people in the rural communities of Osun State are involved in community based development projects.

The result in Table 2 revealed that the respondents had high degree of awareness about the programme, this might be connected with the channels (extension workers and mass media) used in disseminating information concerning the programme in the study area.

The result in Table 3 reveals that perception means

Table 2. Distribution of respondents according to their degree of awareness about CBNRMP. n = 120.

Degree of awareness	Scores	Frequency	Percentage
High degree	> 35.6	98	81.7
Low degree	< 35.6	22	19.3

Mean score = 35.6; Standard deviation= 7.2; Source: Field survey, 2012.

Table 3. Distribution of the respondents by perception about the programme. . n = 120.

	SA	A	DA	SD
	F (%)	F (%)	F (%)	F (%)
Information dissemination about the project is inadequate.	-	4 (3.3)	49 (0.8)	67 (55.8)
The project implementation is good the way it has always been carried out.	30 (25)	86 (71.7)	4 (3.3)	-
The project agency has carried the people in the community along properly.	54 (45)	61 (50.8)	5 (4.2)	-
The project needs improvement in some areas.	26 (21.7)	57 (47.5)	34 (28.3)	-
There is proper utilisation and monitoring of the project by the rural people.	58 (48.3)	58 (48.3)	4 (3.3)	3 (2.5)
The project is relevant to community needs and aspiration of the people.	41(34.2)	71 (59.2)	8 (6.7)	-
The consultation with members of the community was not enough on the choice of project	-	5 (4.2)	44 (36.7)	-
The project has impact positively on the well being of the community.	69 (57.5)	50 (41.7)	1 (0.8)	-
The staff agencies are not easily accessible and capable of ensuring project success.	6 (5)	15 (12.5)	70 (58.3)	71 (59.2)
The project is a waste of resource by the government	-	95 (79.2)	25 (20.8)	29 (24.2)

SA = Strongly Agreed, A = agreed, DA = disagreed, SD = strongly disagreed; Mean = 72.7 Standard deviation = 1.8. Source: Field survey 2012

score was 72.7 with standard deviation of 1.8. This analysis shows that many (71.7%) of the respondents have a favourable perception towards CBNRMP. It could be deduced that their favourable perception of the programme would lead to their active participation in various projects embarked upon by CBNRMP. This result is similar to that of Adisa et al. (2003) which reported similar favourable perception to community-based development among rural dwellers in Osun State.

The result in Table 4 revealed that the improvements grand mean score was 3.35. Agriculture has the highest grand mean of 3.5, this was followed by economy and education, 3.4 and 3.3, respectively.

The grand mean for health was 3.2. Table 4 also shows that the communities participating in CBNRMP had recorded an increase in level of improvement in socio economic status as a result of their participation in the CBNRMP. Results further revealed that the highest level of improvement (3.5) was recorded in agriculture, followed by economy (3.4), education (3.3), and health (3.2).

This finding might be connected to the fact that majority of the study area were farming communities that need improvement in their farming activities.

Hypothesis testing

Result in Table 5 show that there is a positive and significant relationship ($r = 0.578$; $P \leq 0.01$) between the level of socio economic status of the participating communities and their perception towards CBNRMP. The contribution of respondents' perception towards CBNRMP to their improvement in socio economic status was 33.4% ($r^2=0.3341$). This suggests that the more favourable the respondents' perception is towards the CBNRMP, the higher their socio economic status.

Conclusion and recommendation

Based on the findings of this study, it was concluded that the CBNRMP has contributed to agricultural, economical, educational transformation of the benefiting communities in Ondo State.

It also established that active participation of the benefiting communities contributed to the success recorded since improvement was noticed in the socio economic status of the study area, CBNRMP is then recommended for other states outside Niger Delta region.

Table 4. Distribution of extent of improvement on the socio economic status of the participating communities as a result of programme. n = 120.

	Large extent	Some extent	Little extent	No extent	Grand mean
	F (%)	F (%)	F (%)	F (%)	
Health					
Provision of portable water	33(27.5)	46(38.3)	32(26.7)	9(7.5)	
Access to quality health facilities	39(32.5)	33(27.5)	30(25)	18(15)	3.2
Reduction in mortality rate	26(21.7)	33(27.5)	35(29.2)	26(21.7)	
Education					
Access to quality education	29(24.2)	19(15.8)	36(30)	42(35)	
Reduction in illiteracy level	22(18.3)	27(22.5)	37(30.8)	34(28.3)	3.3
Empowerment opportunities for the youth	22(18.3)	21(17.5)	32(26.7)	45(37.5)	
Economy					
Provision of processing industries	59(49.2)	46(38.3)	15(12.5)	0	
Access to good transportation network	68(56.7)	41(34.2)	10(8.3)	1(0.8)	3.4
Provision of marketing facilities	66(55)	41(34.2)	12(10)	1(0.8)	
Agriculture					
Provision of mproved seeds and seedlings for planting	71(59.2)	36(30)	13(10.8)	0	3.5
Provision of agricultural implement like tractor	66(55)	47(39.2)	7(5.8)	0	
Access to agric. loan	66(55)	33(27.5)	21(17.5)	0	

Source: Field survey, 2012.

Table 5. Correlation analysis showing the relationship between level of improvement in the socio economic status of the participating communities and their perception towards CBNRMP. n = 120.

Variables	Correlation coefficient (r)	Coefficient of determination (r^2)
Perception	0.578**	0.3341

Source: Field survey, 2012; **Significant at the 0.01 level.

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