



Trade Science Inc.

Environmental Science

An Indian Journal

Current Research Paper

ESAIJ, 8(4), 2013 [123-131]

Assessment of natural resource conservation in Boki local government, Cross river state, Nigeria

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ABSTRACT

The purpose of the study was to establish the extent of community participation in natural resources conservation in Boki local Government Area, Cross River State. Likert-scale questionnaire was structured and randomly administered on (5) five out of (ten) wards in Boki Local Government Area. The data collected was presented and analyzed with descriptive statistics using tables and simple percentages. The study revealed that members of Boki community participate significantly in forest, land and water resources management. Based on the findings of this study, it was recommended that a timely harmonization of local and scientific knowledge on community's participation in environmental conservation should be carried out in setting a genuine agenda for sustainable resources conservation and protection. Participatory monitoring should be built into projects design when the process itself is open to the ideas and awareness of members of the community. © 2013 Trade Science Inc. - INDIA

KEYWORDS

Natural resources;
Community;
Participation;
Management;
Conservation.

INTRODUCTION

In recent times the development communities in Africa have moved away from “top-down” approach toward more participatory “bottom-up” approaches. The shift in paradigm has occurred in recognition of the fact that local cooperation, participation and management are crucial to achieving both short-term development result and long-term sustainability. Along the same lines, the conservation community is beginning to appreciate the necessity of incorporating local participation in environmental conservation efforts.

Participation has no meaning unless the people involved have significant control over the decisions con-

cerning the organization they belong. Community participation is an active process by which beneficiary influence the decision and direction of the development project with a view to enhancing their livelihood in terms of income, personal growth, self-reliance or other values they cherish^[6]. This implies that the context of participation in development project is the involvement of beneficiaries and a process of sharing project benefits.

In the context of development, community participation may be viewed as a process that serves as instrument of empowerment, building beneficiary capacity, increase effectiveness desire to share cost, improve efficiency in relation to the project^[31].

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Community participation in natural resources conservation project cannot therefore be over emphasized. This is because the rapid loss of natural resources in developing countries has become a subject of increasing international and national concern. This is evidence in the substantial increase in the interest accorded to environmental conservation by various governments, donors and conservation agencies. The level of interest in conservation as an environmental and development problem requires practical action.

To maximize the chances of sustainable conservation initiatives, rural communities need to be involved in both the concept and approach. This means that participation in decision-making process and in the evaluation, monitoring and management of resources and the environment is crucial. This inclusiveness is more likely to build a conservation ethics where people understand that their livelihood depends on healthy maintenance of the environment. Many studies have shown community participation to be one of the critical empowerment of success in irrigation, livestock, water, forestry and agriculture projects^[39] community participation has become therefore very important to scholars, organizations and Nations. For instance, Ajake^[3] remarked that participation has been used to justify the extension of state forest control as well as the building of local capacity and self-reliance. It has been used to justify decision imposed by external agencies as well as describe the process of devolving real power and decision making. Experience has shown that participation grows more out of practical than normative considerations. One of the most expansive forestry programmes with community participation is that operated by village forestry associations in South Korea^[2,13] and the afforestation sub-project in Nepal^[44]. Other experiences include community conservation in Tsavo West National park Kenya where the local communities are involved and have benefited from conservation of protected areas. A reforestation project in Senegal gained impressive results as Senegal forest service works with rural community and councils providing them with inputs, while the village councils contribute labour to plant trees. Income generated from the sale of wood was used by the council according to its own priorities^[41].

The need for communities to invest in natural resources conservation and to reduce the effect of envi-

ronmental degradation is indisputable in Nigeria and particularly in Boki Local Government Area of Cross River State. The people in the study area are highly dependent on forest ecosystem for its diverse and abundant natural, wildlife, land, food and water resources. The importance of these resources has caused indigent people to diverse way of managing them sustainably. But, evidence has shown that the activities of the rural people are not given consideration in research and government policies and decisions on the management of natural resources neglects their activities in the study area.

The Cross River State forestry commission has taken the initiative to institutionalize participatory forest management and community forestry as a valuable and sustainable forest management option in Boki local government area and some other Local Government Areas. The establishment of National Park by the federal government in Okwango area of Boki and managing the drill ranch in Bwanchor, strengthen the drive for community participatory approach to management and conservation of natural resources. Yet, evidence of degradation and depletion of natural resources are observed in the study area. This may be attributed to the non-involvement of the local people in management activities.

Rapid degradation of natural resources globally, nationally and locally has continued to be a subject of concern and uncertainty among scholars. For instance, the rate of forest destruction has accelerated significantly since the turn of the century. This is most critical in the tropics where over 2.5 billion people depend on forest resources for a variety of services^[30,37,40]. Cunningham and Cunningham^[12] report that an estimated 12.5 million km of tropical forest lands were covered with closed canopy forest a century ago and 9.2 million ha or 0.6 percent of the remaining forest is cleared each year. However the rate of forest lost at the global level is not significantly different from the current trend in Nigeria and Cross River State. Nwoboshi^[28] reported that forest clearance in Nigeria is put at an average of 400,000 ha per annum, while afforestation has only 32,000 ha annually. The cumulative effect of these is that the country has lost 50 million of forest in less than 100 years. Ajake^[4] observed in Cross River State that between 2000 to 2005, about

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20,000ha of reserved areas are converted to agricultural plantation.

As a result of the magnitude and speed of forest and land resources degradation, a demonstration of different strategies especially in the tropics has been documented by various scholars over the time^[4,20,22,30,34-36,38]. In Nigeria and Cross River in particular, natural resources conservation has been through the creation of protected area or landscapes such as national parks, wildlife sanctuaries or the extractive type which allow limited exploitation of natural resources from national forests (Parks), forest reserves, hunting and fishing zones^[4].

In spite of the numerous function of conservation strategies, natural resources are increasingly under threat as a result of the growing population and expanding consumption of the resources^[20] especially in Boki local government area of Cross River State. This may be attributed to the non recognition and participation of indigenous communities whose livelihood depends on such resources and are the custodian of the natural landscapes. It is in this regards that this study seek to investigate the level of local people participation in natural resource conservation in Boki local Government area in Cross River state, Nigeria.

MATERIAL AND METHODS

Study area

The study was carried out in Boki local government area of Cross River State. Boki is one of the eighteen local government areas of Cross River State and the second largest in terms of landmass (344,952km²). It is located between latitudes 5°82' and 6°40'N and longitudes 8°50' and 9°00'E. The area is bounded to the North by Obudu and Obanliku local government area, to the south by Ikom, to the west by Ogoja and to the East by Cameroun Republic.

From 2006 National population census, Boki has a projected population of 146,192. The population is unevenly distributed across the ten political wards such as Ekapask 1, Agba 2, Boje, Abo, Truan, Alankv, Abu-Borum, Njua, Kakwagom/Buyop, Wula and Bateriko. Boki is situated at the southern end of the eastern highlands, a chain of hills along the eastern Nigeria border

with Cameroun. Elevation ranges 150m to 1000m above sea level. The most notable are the Boje and Nsadop hills, Erruan Mountains and Mbe Mountains. Boki is well drained with many streams and rivers such as Afi, Okorn and Aren rivers. Minor streams exist across the entire area that constitutes the tributaries of the main rivers.

The study area has a tropical climate typified with distinct wet and dry seasons. It has a mean annual temperature of 25°C and annual rainfall of between 2000mm to 3500mm. The rainfall is of double maxima regime (July and September). The above climatic conditions and rich soils derived from cretaceous and tertiary shale and sand stone produced a Luxuriant vegetation.

Population of the study and sampling techniques

The population of study involved male and female, farmers, civil servants, NGOs works, forest product collectors, community leaders, and government representative comprises of members of selected communities namely: Abon Takon, Kanyang/Botantong, Buanchor, Boje and Abo who were able to read and write.

For a successful collection of primary data from the field, 250 respondents were selected from five communities in the local government area. The selection of the communities was based on the equal opportunities of the various units of being selected. The study adopted a simple random sampling technique for the selection of sampled population. This gives a greater representation of the sample across the five communities randomly selected. Such communities include Abon-Takon, Kayang/Buitong, Buanchor, Boje and Abo.

To achieve the selection of the above five communities, the researcher labeled pieces of paper numerically and folded them thoroughly into a bag and shuffled, before a research assistant is asked to pick the first five (5) out of the ten wards. This same method was adopted to select 50 respondents from each community sampled.

In order to obtain information necessary in tackling the problem of community participation in environmental conservation, a community participation in conservation rating scale (CPCRS) will be used. This is Likert type of questionnaire.

The questionnaire is divided into three section i.e. 'A', 'B' and 'C'. Sections 'A' helped illicit personal

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and demographic data such as sex, age, highest educational qualification.

Section 'B' was constructed on a four (4) point Likert Type Scale containing twenty (20) items based on all the variables on community participation in environmental conservation. The variables are community participation in forest resources conservation, community participation in wildlife conservation, water conservation, land conservation, and Section C measures attitude to conservation.

The four (4) point Likert continuum for community participation include

VO - Very Often (4 points)

OF - Often (3 points)

SOT - Some of the time (2 points)

NA - Not at all (1 point)

The respondents indicated their degree of agreement or disagreement with each statement on Section B and C of the questionnaire by placing a tick () on one of the four options against each statement:

SA - Strongly agree (4 points)

A - Agree (3 points)

D - Disagree (2 points)

SD - Strongly disagree (1 point)

This was reversed for negatively worded items

The research instrument was administered personally to the respondents on market days on the invitation of the village heads. Members of each community were fully briefed on the essence of the exercise. The purpose of the briefing was to encourage the respondents to participate in the exercise and be honest in their responses. To reduce the rate of loss of the instrument, the researcher retrieve all copies of the questionnaire administered to the respondents on the day they were administered in the community.

RESULTS

Descriptive presentation of result utilized frequency and percentage to describe the variables of the study based on the four point's likert – scale of very often (VO), often (OF), some of the time (SOT) and not at all (NA). Equally the study, also used strongly agrees (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) to analyze the data. The results are presented in TABLE 1 to 4.

TABLE 1 shows that a greater proportion of those who participated in this study agreed that they participated often in forest resources conservation activities such as; planting two trees when one is cut down (70 percent), stopping people from felling trees to harvest fruits (71.2 percent), and stopping people from setting fire on bush that is not to be cultivated (62 percent). On the other hand, the result indicates that a smaller proportion seem to participate sometimes in forest resources conservation activities such as: stopping people from cutting down trees to cutting down trees to cultivate the land (48 percent) and stopping people from cutting down trees for firewood (42.8 percent).

The result on TABLE 2 shows that a greater proportion of people who participated in this study agreed that they participated often in wildlife conservation activities, such as: educating people on the dangers of hunting around residential areas (60.8 percent). On the other hand, the result shows that a smaller proportion of the people agreed that they participate often in wildlife conservation activities such as restraining people from hunting monkeys (47.6 percent), stopping people from over dependence on bush meat as a source of protein (48.4 percent); stopping people from keeping monkeys as domestic animals (43.2percent). This result implies

TABLE 1 : Patten of participation in conservation of forest resources

| Forest resources | VO | OF | SOT | NA |
|--|------------|-----------|-----------|-----------|
| 1. Planting of two trees when one is cut down | 138(55.2%) | 32(12.8%) | 36(14.4%) | 44(17.6%) |
| 2. Stopping people from felling trees to harvest fruits | 134(53.6%) | 44(17.6%) | 56(22.4%) | 16(6.4%) |
| 3. Stop people from cutting down trees to cultivate the land | 75(30%) | 45(18%) | 57(22.8%) | 73(29.2%) |
| 4. Stop people from cutting down trees for firewood | 48(19.2%) | 59(23.6%) | 58(23.2%) | 85(34%) |
| 5. Stop people from setting fire on bush that its not to be cultivated | 84(33.6%) | 71(28.4%) | 39(15.6%) | 56(22.4%) |

Source: Field work, 2012

that the level of participation in conservation of wildlife is rather low.

TABLE 3 shows that a greater proportion of respondents in this study agreed that they participate of-

TABLE 2 : Patten of participation in conservation of wildlife resources

| WILDLIFE RESOURCES | VO | OF | SOT | NA |
|---|-----------|-----------|-----------|-----------|
| 1. Restrain people from hunting monkeys | 67(26.8%) | 52(20.8%) | 60(24%) | 71(78.4%) |
| 2. Educate people on the dangers of hunting around residential areas | 95(38%) | 57(22.8%) | 58(23.2%) | 40(16%) |
| 3. Stop people from excessive hunting of bush meat | 44(17.6%) | 50(20%) | 8(35.2%) | 68(27.2%) |
| 4. Stop people from over dependence on bush meat as a source of protein | 51(20.4%) | 70(28%) | 84(33.6%) | 45(18%) |
| 5. Stop people from keeping monkeys as domestic animals | 72(28.8%) | 36(14.4%) | 75(30%) | 67(26.8%) |

Source: Field work, 2012

TABLE 3 : Patten of participation in conservation of land resources

| LAND RESOURCES | VO | OF | SOT | NA |
|---|------------|-----------|-----------|-----------|
| 1. Discourage people from bush burning | 98(39.2%) | 44(17.6%) | 72(28.8%) | 36(14.4%) |
| 2. Discourage farmers from over cropping on a particular parcel of land | 100(40%) | 67(26.8%) | 59(23.6%) | 24(9.6%) |
| 3. Encourage farmers to practice agro-forestry | 119(47.6%) | 51(20.4%) | 39(15.6%) | 41(16.4%) |
| 4. Campaigning against land tenure system | 72(28.8%) | 65(26%) | 46(18.4%) | 67(26.8%) |
| 5. Drive out herbs men farm lands | 108(43.2%) | 30(12%) | 47(18.8%) | 65(26%) |

Source: Fieldwork, 2007

ten in land resources conservation activities such as: discouraging people from bush burning (56.8 percent); discouraging farmers from over cropping on a particular parcel of land (66.8 percent), encouraging farmers to practice agro-forestry (68 percent), campaigning against land tenure system (54.8 percent) and driving out herbs men farm lands (55.2 percent). This result suggests that the level of participation of the people in land conservation is very high.

The result on TABLE 4 shows that a greater proportion of the people sampled in the study agreed that they participate often in water conservation activities such as: cleaning activities around the streams in their community (71.2 percent); blocking herdsmen from taking cattle to drinking water source (76 percent); preventing fishermen from using chemicals for fishing (75.6 percent); driving out young children from swimming inside drinking water source (84 percent); and preventing people from defecating inside drinking water source in their community (88.8 percent). This data implies that

the people in the communities used for this study participate actively in conservation of water resources.

DISCUSSION

Community Participation and Forest Conservation

The study considered the active participation of members of Boki community as a result of the increasingly complex challenges of reconciling the demands of various forest users. The Boki community being a rainforest zone relies on the forest as major sources of fuel, income, food and construction materials.

High participation is engendered by the establishment of forest management committees by the Cross River State Government. The establishment of the committees shows a shift towards a democratic decentralization of forest management. It allows full participation of local people in decision making, planning, and implementation of forest resources management programmes.

TABLE 4 : Pattern of participation in conservation of water resources

| WATER RESOURCES | VO | OF | SOT | NA |
|--|------------|-----------|-----------|-----------|
| 1. Joined in cleaning activities around the streams in your community | 133(53.2%) | 45(18%) | 40(16%) | 32(12.8%) |
| 2. Blocked herdsmen from taking cattle to drinking water source | 149(59.6%) | 41(16.4%) | 20(8%) | 40(16%) |
| 3. Prevent fishermen from using chemicals for fishing | 174(69.6%) | 40(16%) | 24(9.6%) | 12(4.8%) |
| 4. Drive out young children from swimming inside drinking water source | 170(68%) | 40(16%) | 32(12.8%) | 8(3.2%) |
| 5. Prevented people from defecating inside drinking water source in your community | 206(82.4%) | 16(6.4%) | 16(6.4%) | 12(4.8%) |

Source: Field work, 2007

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It shows a dialogue between the state and the indigenuous people who have no knowledge of the forest environment.

The result agrees with Ajake^[3], which indicates that the stability of the forest and sustainability of their management can only be achieved as forest management activities incorporate the rural people who are knowledgeable about the forest and depend on the resources for their socio-economic livelihood.

The findings agree with Bisong^[8] study of various models of participatory forest management in which he opined that the Biajua approach conforms to the indigenuous local perception type. This was based on the fact that the decision to enter into an arrangement for forest management with concession firms was largely community initiated and motivated through spontaneous activities arising from the local organization. This finding is in agreement with Pretty (1988) who outlined various approaches if community participation in forest resources conservation. Apart from this position, the result confirm the drive by some countries to enacting laws at various levels to compel development practitioners to involve local communities in the management of natural environment. To further confirm the importance of this programme, the finding was in line with Edet (2006) study on "environmental awareness programme and sustainability." He found that community participation in forest management facilitates environmental sustainability in Cross River State.

The finding also agreed with Bisong^[8] study on "managing the forest resources in the South Eastern Nigeria. He discovered that several associations of rural women in the rain forest of South Eastern Nigeria had increased benefits of sharing through their participations in environmental programmes that bring about sustainable forest management.

The study stressed as pointed in Inyang-Abia^[24] that actions against environmental problems should involves everybody. This implies that individuals and their families, local hamlets and villages, and local communities constitute different levels and authorities that should be involved in the action against ecological problems.

In spite of this, community members must be courteously encouraged with some financial benefits to check exploitation of forest resources. This confirms the position of Ibor (2001) who stated that resources should

be made available to replace the existing sources of income for the rural dwellers for sustainable forest resources preservation.

For greater sustainability the finding agreed with Aladeselu^[5] which revealed that sustainable forest management plans should be put in place in order to support the activities of the communities for sustainable conservation. The findings however, are in line with the role Cross River State Government is playing through the (CRSCFP) Cross River State community forest project in donating seedlings and nursery tools to rural environmental protection to encourage forest resources conservation.

Community participation and wildlife conservation

It was revealed that the Boki community does not participate significantly on wildlife conservation. The reason for the significantly low participation in wildlife conservation is due to the fact that the establishment of the National Park and the Drill Ranch project led to loss of hunting areas. The rural people had been deprived of wildlife, which essentially provided an economic base as well as nutritional needs. Majority of members of Boki community are hunters and depend on hunting for livelihood. Any meaningful wildlife policy ought to ensure that those who use and benefit more directly from wildlife to participate in the management and planning process.

However, the study also agrees with Ite^[26] who pointed that the establishment of the National Park project perceived negative effects mainly on traditional forest resources use pattern in the area of loss of hunting areas. The findings supports the activities of bush meat crises task force A consortium of conservation organization professionals working for the conservation of wildlife population, threatened by illegal commercial hunting of wildlife for sale or meat.

More so, the findings confirm the position of the Peregrine Fund (PF), which holds that much of Africa's habit and its wildlife is threatened by over population and unsustainable use of natural resources by poor people. However, before this study, it had been established that commercial-scale trade threatens the survival of numerous species as well as pore consideration of health and economy threatened future generation. Even with the intervention by non-governmental orga-

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nization (NGOs) and the new strategy of Conservation With Development (CWD), communities are still neck-deep in wildlife depletion. The findings of Emerton^[14] confirmed an earlier study by Ite^[26] in Cross River National park project of the Okwango Division in area. This study asserted that the project had perceived negative effects mainly on traditional forest resource use patterns which include mainly loss of hunting areas.

In conservation the findings of Emerton^[14] seems to be the most viable approaches in wildlife benefits and community participation. The programme has strong economic rationale, which encourages a shift from wildlife encroachment to participation in wildlife management. The economic benefits from participation will arise whereby wildlife is conserve with a corresponding community welfare improvement.

Community participation and land conservation

The result revealed that members of Boki community participation in land conservation are significantly high. The probable reason for the outcome is largely as a result of a cultural believes that the local people have which make them see themselves as the custodians of the land, wildlife and ecosystems. More so the Boki community had involved traditional agricultural practices that ensured adequate food supply, nutrition and farming as minimal damage to the soil. To the rural people land is considered next to life and must be nurtured and conserved through the land tenure system, shifting cultivation and crop rotation farming methods.

The traditional agricultural practice is strengthened by the activities of agricultural extension services provided by the ministry of agriculture and non-governmental organizations. The extension services provide for local empowerment and sustainable land management. This findings is in accord with the decentralization act of 1982 in Ejido (Mexico) designed to strengthen local management capabilities.

Apart from this, Bisong^[9,15] noted sustainability was more in respect to good farming systems which serves to supply adequate food and nutrition, reliable income base and farming at minimal damage to the soil. This of course will provide an ultimate stabilization of land use around the forest region.

The findings also confirmed Chileshe^[11] study on “approaches to local community participation in the

conservation of land resources in Zambia” which reasoned that the starting point of winning local communities into participation in conserving land is to sensitize them as being an integral part of the ecosystem being conserved. The researcher observed that enlightenment campaigns on land use system promoted high level of participation in land conservation as upheld By Boserup^[10] in Bisong^[9,15].

Community participation and water conservation

The result showed that members of Boki community significantly participate in water conservation. The reason for the high participation in water conservation is largely due to the importance of adequate supply of potable water for man’s health and other economic activities. Also of some benefit, ground water through effective watershed management regulates soil erosion; provide a source for wood products, animals and other medicals herbs, which are consumed by human beings. Provides good climates and dams, promote fishing and other agricultural activities to a rural community. The result specifically indicates the development trends in quality water supply to modern communities being emphasized by world standards. Most governments, NGO’s and donor agencies have initiated integrated water supply schemes in the area. Notably the Cross River State poverty reduction agency embarked on community based counter funding water project, which have been very successful. Community groups and individual on the own now own and maintain bore holes. More, so watersheds along natural streams are being strengthened. The findings agree with Obot and Fayose^[29], Aboyade^[1], Popoola^[33], USEPA^[43] and Eze^[15] who have variously stressed the importance of water conservation and need for community participation. The findings further revealed that the Boki community is responsive to the efforts of government and non-governmental organization to promote community participation in water conservation and management.

The study further observed that exploitation of ground water resources apart from natural stream have become popular in Boki communities. Most communities have resorted to digging of wells and boreholes. This is done as an alternative source of water supply mainly for their needs.

Apart from ground water the finding agree with

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Eze^[15], in Bisong^[9,15] which advocated the need for watershed protection as a means of community development. The benefits forested water protection to rural communities include among others soil erosion and protection of surface and ground water resources, regulation of micro-climate and precaution of silting of drainage channels, dams and canals.

CONCLUSION

Based on the outcome of the data analysis, it is concluded that some factors or variables have a relationship with community participation in environmental conservation. Members of Boki Community significantly participate in forest, land and water conservation more than they do in wildlife conservation. This shows that community members are keener at conserving some resources than others

Based on the findings of the study the following recommendations are made:

1. Government agencies, Non-governmental organization donor agencies should involved the local communities in the planning and execution of forest, land, water and wildlife resources.
2. Communities should be encouraged to manage environmental resources of local value to them.
3. Conservation bodies such as the National Park, Drill Ranch operating in the area should support immediate needs and priorities of local people as well as provide incentives that promote sustainable development.
4. Donor agencies and the forestry commission should develop a capacity building programme aimed at empowering the people with the necessary skills to sustain effective management of environmental resources.

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