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## Biodiversity Conservation and Community Participation in Kainji Lake National Park, Nigeria

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### ABSTRACT

*This study examined the participation of communities in the biodiversity conservation of Kainji Lake National Park (KLNP) with a view to improving the relationship between the community and the park. Structured questionnaire were used for the study. Four villages, two each from the two sectors of the park (Borgu and Zugurma) that makes up the human communities in close proximity and with vast population growth were purposively selected for the study. The communities studied were Wawa, Bussa, Ibbi and Kaima. A total of one hundred and thirty-two questionnaires were administered randomly to the respondents. Retrieved data were analysed using descriptive method (pie and bar charts and frequency distribution) and chi-square statistic was used to elicit the relationship between community participation and conservation in KLNP. The result obtained shows that park effort in sustainable conservation is far from being excellent but improving. Challenges facing the park were mostly based on alienation of the communities from active participation. 70.2% of respondents were of the view that community involvement in conservation activity is good for KLNP. The study revealed, that 64.0% of respondent from communities agreed that park-assisted projects were put up for the community solely by park authority without understanding their feelings and needs, this shows that there is a clear distinction between imposed park assisted community development project and community needed projects. Respondents view on stage at which community participation should be sought in KLNP indicated, decision making 26.20%, implementation stage 15.07%, monitoring and evaluation 20.63% while 38.10% of the respondents believed community should be involved in all the above stages. All the identified barriers to community participation in KLNP such as bureaucracy, poor sensitization and mobilization, taboo/custom and poverty should be removed or reduced greatly, if full support for park is being expected from the communities. Host communities are valuable asset which must be carefully incorporated into management strategies for successful conservation programme.*

**Keywords:** Biodiversity, Conservation, Community Participation, Kainji Lake National Park

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### INTRODUCTION

At the 1992 United Nation Conference on environment development “Earth Summit” in Rio de Janeiro, Brazil, there was an important indication on growing international concern about diversity loss, and its transformation from a scientific issue to popular, political and ultimately diplomatic issues.

Biodiversity has been defined as the variability among living organism from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this include diversity within species, between species, and of ecosystems [UNEP, 1992].

The convention has its objectives as conservation of biological diversity, the sustainable use of its component and the fair and equitable distribution of benefits arising out of the utilization of genetic resources, thus covering the ecological, economical and social aspects of biodiversity. This new concept (sustainable management), should involves all stakeholders such as local communities (farmers, nomadic, fisherman, pastoralist among others), civil society, scientists and Non-Government Organizations, indigenous people and many arms of government) coming together to ensure that biological resources are utilized sustainably.

Biodiversity conservation can be seen as avoiding and eliminating any steps that can seriously disturb KLNP biodiversity ecosystem. Conservation should also be addressed as sacrifice (not inimical to conservation objectives) in some ways by the park authority to the community to achieve mutual cooperation. In broader view, management system for conserving biodiversity encompasses a general use. The primary objectives must be to enable local communities manage the diversity of their local system, to ensure productivity [McNeely, 1997].

The multiple satisfaction approach to renewable natural resources concept emphasizes resources should generate satisfaction which will give rise to human benefits rather than game conservation alone. Human race will cease to exist without the abundance and diversity of biodiversity. Forest from time immemorial was homes to millions of people providing them their needs in terms of food, shelter and clothing materials.

Rural life in surrounding Kanji Lake National Park largely depends on biodiversity resources as obtained in major rural settings of the world. Their ways of life and existence is linked directly to sustainable use of biodiversity resources. Rural economy is largely nature dependent in spite of advancement in science and technology.

## **MATERIALS AND METHODS**

### **Study Area**

Kanji Lake National Park was established on 29th July 1979 by the amalgamation of the two existing Game Reserves. Borgu and Zugurma under decree 46 of 1976 replaced by decree 36 of 1991. KLNP is the premier park in Nigeria. It has an area of 5340. 82sq km and is bounded by Lake Kanji to the east and Benin Republic to the west. Zugurma sector covers an area of 1370.89km<sup>2</sup> and it is situated in Mashegu Local Government Area of Niger State while Borgu sector is located in Borgu Local Government Area of Niger State and Kaiama and Barutten local government areas of Kwara state. It covers an area of 3970.02sqkm. The park is located between latitude 9<sup>o</sup> 40<sup>1</sup>N and longitude 10<sup>o</sup> 23<sup>1</sup>N and longitude 3<sup>o</sup> 40<sup>1</sup> and 5<sup>o</sup> 47<sup>1</sup>E. The climate is characterized by two distinct weather conditions: dry and wet seasons. The park is sand witched between the Guinea and Sudan savannah in the North [Keay, 1959]. Seven vegetation sub-types have been identified in the park [Afolayan, 1980].

The park is surrounded by different towns, and villages which cut across different ethnic groups. Some of which are Bussa, Wawa, Kamberi, Kainji, Babana, Kaiama, Ibbi and so on. The cultural occupation of the people is farming, [guinea corn, maize and rice farming]; dyeing, blacksmithing, weaving, hunting and pottery making. Others engaged in fishing and petty trading.

## MATERIALS AND METHODOS

The main data were collected through the administration of semi-structured questionnaire on the four villages purposively selected (based on population size, and active agrarian- related rural economy) from two sectors of the park (Borgu and Zugurma). A total of 132 questionnaires were administered (*Wawa 40, Ibbi 37, Kaima 25 and Bussa 30*) this is to elicit genuine feelings of the villagers to given questions. 129 questionnaires were retrieved in all. Three questionnaires were discarded for incomplete answers. One hundred and twenty-six questionnaires were eventually analyzed.

All questionnaires were randomly distributed to the respondents. Interpreters were used for some respondents. In addition, there was repeated visit to the study area in other to make an on spot assessment of the true situation in terms of biodiversity conservation, rural support and park growth. All these were done to obtain relevant data on the research work.

## RESULTS

**Table 1: KLNP staff WHO are native of surrounding communities**

Variable	Frequency	Percentage%
Yes	34	26.98
No	92	73.02
Total	126	100.00

Result from table 1 indicated, 26.98% of the respondents agreed to know at least one neighbour or more that were park staff, while the remaining 73.02% are non-member of the surrounding communities. The park should gear up in recruiting more of indigenous community members into workforce.

**Table 2: Use of flora /fauna resources by klnp surrounding communities**

VARIABLE	WAWA	BUSSA	IBBI	KAIMA	%
Hunting & fishing	11	13	7	8	30.95
Firewood / lumbering	8	10	4	8	23.81
Farming	6	5	9	9	23.02
Cattle grazing	13	7	3	5	22.22
Total	38	35	23	30	100.00

The analysed data from table 2, revealed different uses to which biodiversity resources are put in the surrounding communities of KLNP.

Hunting & fishing 30.95%, firewood / lumbering 23.81%, farming, 23.02% and cattle grazing 22.22%. This is in consonance with agrarian life style in rural setting in Africa.

**Table 3: ESTABLISHMENT OF COMMUNITY DEVELOPMENT PROJECT BY KLNP**

VARIABLE	FREQUENCY	PERCENTAGE%
Yes	115	91.26
No	11	8.74
Total	126	100.00

Result on establishment of community development project by KLNP shows that 91.26% of the respondents were of the views that, park-assisted development projects exist in the communities in one way or the other, whereas 8.74% disagreed with this. This is a plus for KLNP management team.

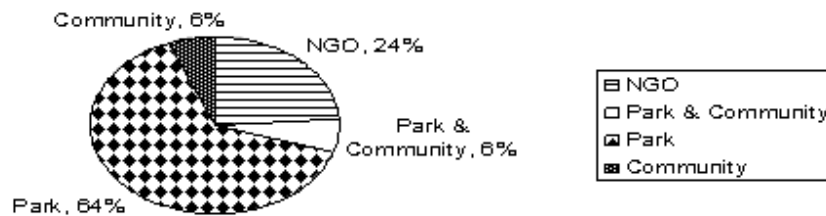


Figure 1: Determination of Park-Assisted Project for Surrounding Communities

Figure 1 shows that 64% of the park-assisted projects for surrounding communities are determined solely by KLNP. 6% of the projects are determined by community, 24% of the projects are determined by non governmental organizations and finally 6% of the projects are determined collaboratively by park and community.

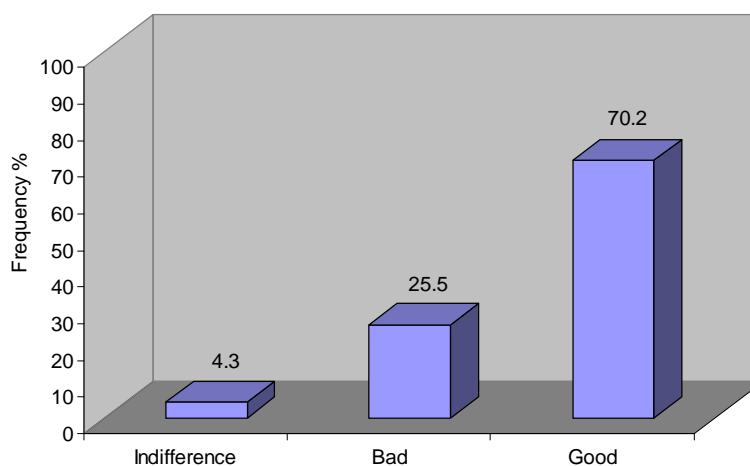
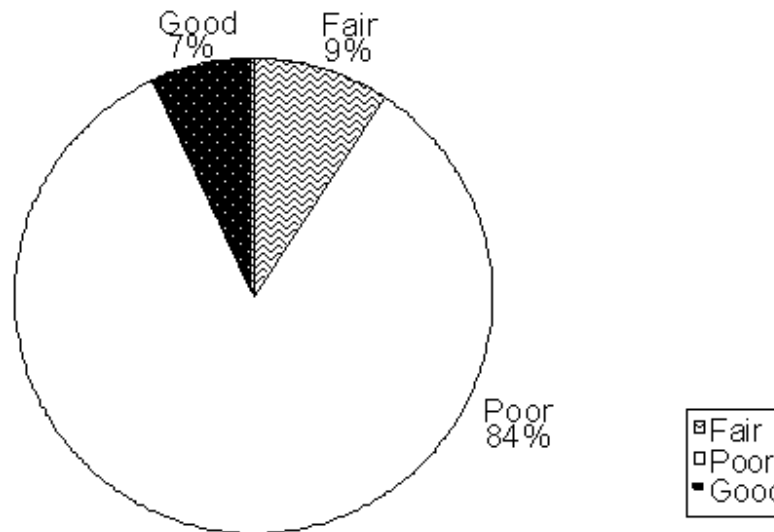


Figure 2 community perception on participation in KLNP resources conservation

Result from figure 2 shows that 70.2% of respondents see community involvement in KLNP as good for resources management, 25.5% of the respondents see community participation in KLNP as bad for the resources management while 4.3% were indifferent.



**Figure 3: Present Level of Community Participation in KLNP**

Figure 3 is on the present level of community participation in KLNP, 84% of the respondents agreed that for now community participation in KLNP conservation activities is poor, 9% of the respondents were of the opinion that it is fair and 7% of the respondents see the level of present community participation as being good.

**Table 4: Stage at which community participation should be sought in KLNP**

STAGE	WAWA	BUSSA	IBBI	KAIMA	TOTAL	%
Decision making	7	9	8	9	33	26.20
Implementation	3	6	4	6	19	15.07
Monitoring and Evaluation	4	7	5	10	26	20.63
All of the above	24	13	6	5	48	38.10
Total	38	35	23	30	126	100.0

**Table 5: Likely barriers to community participation in KLNP**

VARIABLE	WAWA	BUSSA	IBBI	KAIMA	TOTAL	%
Poor sensitization and mobilization	12	10	5	8	35	27.77
Bureaucracy	5	4	4	2	15	11.90
Poverty	9	8	7	9	33	26.19
Taboo/custom	2	3	3	1	9	7.14
Religious belief	4	2	2	7	22	17.46
Time/nature of work	6	8	2	3	19	15.07
Total	38	35	23	30	126	100.00

Result of stage at which community participation should be sought in KLNP clearly indicated the following: 26.20% of respondents supported participation at decision level, 15.07% of respondents agreed that community is relevant at implementation stage, 20.63% of respondents

choose participation at monitoring and evaluation stage, and 38.10% of respondents supported community participation at all of the above stages.

Table 5 shows different barriers to community participation in conservation in KLNP. Poor sensitization and mobilization had the highest percentage with 27.77%, this is followed closely by poverty with 26.19% and religious belief with 17.46%. 15.07% of the respondents were disturbed by time / nature of work, whereas bureaucracy as barrier represents 11.90% and finally, taboo/custom accounts for 7.14%.

**Table 6: Communities are relevant in determining the success of KLNP objectives**

LEVEL	FREQUENCY	PERCENTAGE%
Yes	98	77.78
No	28	22.22
Total	126	100.00

From table 6 above, 77.78% of the respondents were of the opinion that surrounding communities have strong influence on the outcome of conservation efforts. 22.22% are of the contrary opinion. Majority of respondents stated that they are important weapon which could be carefully utilized by management in the actualization of park objectives if the dream of Kainji Lake National Park is to meet world set conservation goals.

**Table 7: Residents views on KLNP creation in the community neighbourhood**

VARIABLE	WAWA	BUSSA	IBBI	KAIMA	TOTAL	%
Illegal acquisition of community land heritage	14	8	7	9	38	30.16
Denying the community the right of exploration	8	16	5	7	36	28.58
Ideal for community development	2	1	3	1	7	5.55
Good for government alone	10	8	5	12	35	27.78
Preservation for present and future use	4	2	3	1	10	7.93
Total	38	35	23	30	126	100

Community views on the existence of the park in the neighbourhood as far back as 1979, was analysed on table 7 as follows: 30.16 % were of the view that park creation is an illegal acquisition of community land heritage and 28.58% belief park establishment means denying the community the right of exploration of natural resources. Furthermore, 5.55% see park existence as being ideal for community development, whereas 7.93% supported preservation for present and future use and lastly, 27.78% choose ideal for government alone.

**Table 8 Empowerment programme for community development by KLNP**

PROGRAMME	FREQUENCY	PERCENTAGE%
Domestication	16	13.33
Improved livestock breed	39	32.50
Improved crop farming	47	39.17
Fish farming & Fingerlings	18	15.00
Total	126	100.00

Table 8 indicated different rural empowerment programmes supported by the KLNP management team in the neighbouring communities. KLNP is located in the northern part of the country, where farming is the major pre-occupation of the vast community dwellers. Results obtained were: improved crop farming 39.17%, improved livestock breed 32.50%, fish farming and fingerlings 15.00% and domestication 13.33%. As modernization is creeping into every society, there is change in economic structure and activities; thus the park authority should consider the incorporation of petty trading and other forms of artisan into their empowerment programme.

## DISCUSSION

Biodiversity conservation has multivariate problems which can only be addressed with the recognition of the relationship between social, cultural, ecological, historical, economic and political factors on global, regional, national and local levels [Furze, et al, 1996].

It is in this light that the interrelationship between the park and community has been appraised to serve as basis for sustainable management of the park resources.

From the table 1, the park workers who are native of the communities are small in numbers 26.98%. The number of native working in KLNP has to increase, to promote sense of belonging and commitment to protect their source of income.

From figure 2, 70.2% of the respondents are of the view that involving communities in conservation would be of great help to park programmes. Alienation of people from ancestral land area and from the wildlife that they had once used to dismembered the entire holistic philosophy underlying the structure of African rural setting. Depriving communities from right of use of natural resources evoked sense of injustice and distortion of natural ecosystem which man is part of. Today natural resources can not be sustainably managed without the incorporation of local communities in either decision making process or distribution of the resulting economic benefits [Bromley, et al, 1989].

The result of figure 1 reveals that park authority (64%) is the sole determinant of the projects that were erected to assist each surrounding communities. The top bottom approach would not work for development, but bottom up strategy where the end –users determines what project the community needs.

Result of finding in table 8, shows there are different empowerment programmes in different parts of the community. The analysis indicated empowerment programmes (domestication, improved livestock breed, fingerlings production, etc.) are good but many of the projects ideology and terminology are alien to the villagers and as such most of the participants abandoned the programme half way. Empowerment strategies demand that participants design as well as implement activities, thereby placing highest levels of responsibility and control in participants' hand, potentially resulting in high level of sustainability [USAID, 1993].

The analysis on table 6 on strength of communities in determining the success of KLNP objectives reveals that 77.78% of the respondents were of the view that surrounding communities

can actually destroy park resources. The lives and aspirations of the local people are tied to the conservation areas from time immemorial; a fact that can not be disputed [Ajayi and Milligan 1975].

The view of communities on park creation on table 7 shows that, 30.16% of respondents sees it as illegal acquisition of community ancestral land, 27.78% as good for government alone and 28.58%, of the respondents saw park creation as denying them the right of exploitation. This figure is significant which is evident that there is need for intensifying extension and communication between the park and the communities. 5.55% of the respondents chose ideal for present and future uses, this value is insignificant. The definition of conservation [IUCN, 1980] is quoted as an effort to manage the use of the environment in such a way that it will meet the needs of the present as well as have potential to meet the aspiration of future generations.

The result of figure 3 indicated that communities' involvement in conservation for now in KLNP is poor; it will be of great benefit to park if participation could be improved. This result conforms to earlier findings [John and Kathy, 1998]. The existence of community policing and formation of community conservation society will go a long way in reducing the incidence of encroachment and poaching drastically as communities can easily get information about activities in their society.

The finding on barriers to community participation in KLNP conservation programme indicates: illiteracy, taboo, poverty, lack of awareness, religious belief and bureaucracy as factors. This is a poser for extension and education unit of the park.

## CONCLUSION

Sustainable conservation have not worked on significant level to date in KLNP, probably because of neglect of socio-economic factors which compel people to abuse the use of park resources.

One means of conserving KLNP resources lies heavily in the elevation of rural people where they are now, to high socio-economic status. It is thus pertinent on KLNP management to convince community on the potential of the park in bringing about these desired socio-economic changes.

The long term sustainability of the park will inevitably depend on winning communities support. Communities that successfully combine traditional livelihood with conservation are likely to contribute significantly to the biodiversity management of the park. For concrete park growth and community development, what has to be aimed at is a process of consultation, negotiation and participation which has to be done in an atmosphere of mutual partnering between local residents and park.

Park should appreciate indigenous knowledge on biodiversity conservation where it is not in conflict with park objectives. Furthermore, the creation of functional forum of communication between the park and community, where information could be shared on regular basis need to be



established. Re-invigoration of extension and educational units of the park is vital to woo more community members on the side of the park.

In conclusion, all identified barriers to community participation should be removed or reduced to the barest minimum.

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