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PERCEPTION OF HOST COMMUNITIES ON IMPACT OF PROTECTED AREAS ON LIVELIHOODS: A CASE STUDY OF OKOMU NATIONAL PARK ADJOINING COMMUNITIES, NIGERIA

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ABSTRACT

The perception of the fringe communities of Okomu National Park (ONP) in Nigeria on the impact of the Protected Area on their livelihood was investigated. Two groups of respondents were interviewed for this study while a two-staged sampling technique was employed in selecting the respondents which were residents of adjoining communities of ONP and officers of the Park. The responses in the questionnaires from the individual respondents was processed and analyzed. Descriptive statistics such as frequency counts, percentage and mean scores were used to present the data collected. The positive response of the adjoining community residents on the awareness of ONP protection indicates clearly that most individuals (76.6%) in the communities are aware that ONP is a strictly protected area while 23.4% claimed ignorance. Although, the respondents completely agreed that biodiversity would be preserved for future generation (at a mean score of 4.26), their responses showed that the community claimed there was little or no economic benefit derived from proximity to the National Park. While the mean values of the benefits derived from the park, in the opinion of the community respondents ranked from 2.10 - 2.91, the mean scores of ONP officers' responses ranked from 3.0 - 4.31. These results indicate that the host communities and ONP officers held contrary views as to the benefit communities derive from the park. Nevertheless, both groups of respondents agreed that the host communities participated in the management of the National Park.

Key Words: Perception, Adjoining Communities, Okomu National Park, Protected Areas, Livelihood

INTRODUCTION

Forest loss affects the livelihoods and the environment of particularly the rural poor in different ways. These include shortages of fuelwood, non-timber forest products (NTFPs), accelerated soil erosion and reduction in agricultural productivity (Abeney and Owusu, 1999). The increase in human population continues to create land hunger, survival needs- especially the rural dwellers whose means of livelihood depends almost completely on the forests' resources.

The establishment of protected areas, such as Okomu National Park is an important tool for mitigating tropical deforestation. Parks are also effective in preventing deforestation and thereby protecting biodiversity despite the constant land pressure and underfunding (Bruner *et al*., 2001). National Parks have been described as natural area of land and/or sea, designated to protect the ecological integrity of one or more ecosystems for present and future generations while providing a foundation for spiritual, scientific, educational, and recreational as well as visitor opportunities - all of which must be environmentally and culturally compatible (IUCN, 2004). Currently, Okomu National Park (ONP) is the only protected part of Okomu Forest Reserve (OFR).

However, strict protection of such areas is often resented by local people (Bhagwat, 2006) who continue to press into the areas. For instance, in Nigeria, Protected Areas like the National Parks are constantly faced with various challenges that threaten their sustained growth and existence. Members of the host community around many National Parks see the Park as a means of livelihood, thereby destroying the natural flora or fauna of the Park (Nwakwo and Halilu, 2016). This study was therefore conducted to assess the perception of the host communities of Okomu National Park on biodiversity conservation in the Park and how their livelihood has been impacted.

MATERIALS AND METHODS

Study Area

Okomu National Park (ONP) is a forest block within Okomu Forest Reserve (OFR). The Reserve, which lies between latitudes 6ºN and 6º10'N, and longitudes 5ºE and 5º30'E is bounded by Rivers Okomu and Osse to the west and east respectively. A number of rural communities surround the Park and consists of about 42 communities, some of which form boundaries with the National Park. During a reconnaissance visit to the study area, the communities identified as having close boundary to the National Park (Fig. 1) were Iguowan, Mahokhioba, Anah Camp, Nikorowa, Mile 3 camp, Sikoloba and Okumu communities. Iguowan, Mahokhioba, Anah Camp, and Mile 3 camp were the four communities selected for the study since they had common boundaries with the national Park. These surrounding communities farm within and around the Forest Reserve. The major occupation observed to be engaged in by the fringe communities includes farming, lumbering, hunting and trading.

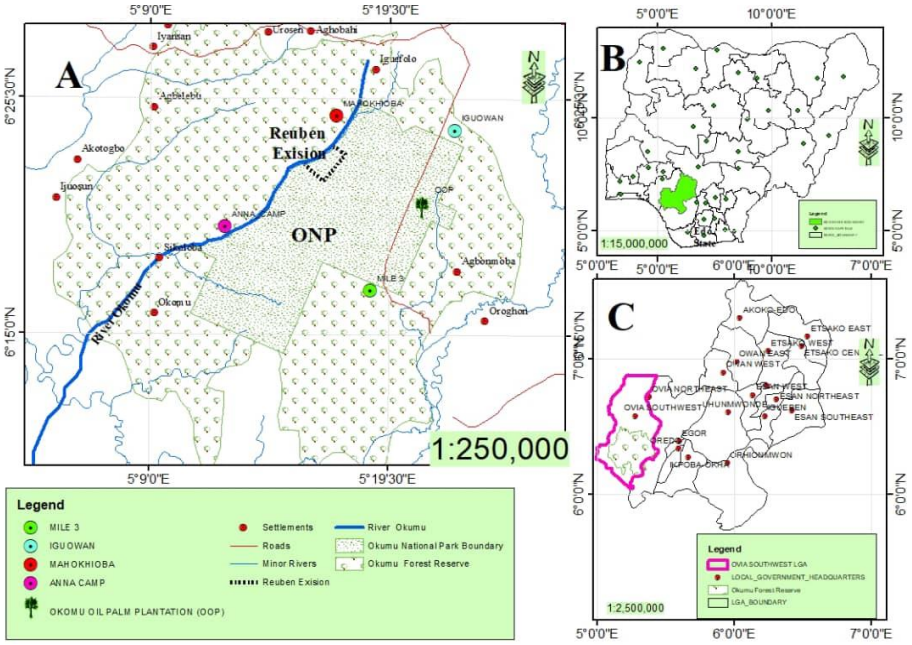

Figure 1. Okomu Forest Reserve (OFR) showing the study areas

Experimental Design

For the purpose of this study, two sets of questionnaires were administered to members of Okomu National Park adjoining communities and staff of the National Park. This was to ascertain the position of the two main stakeholders involved in the protected areas- the host communities and the Park management. A two-staged sampling technique was therefore employed in selecting respondents for this study. Firstly, 10% sampling intensity was used to select from the 42 communities surrounding the National Park. The sampling was based on

the proximity to the Park and intensity of farming and hunting activities. The sample size was a total of four communities which had a common boundary with the National Park. The selected communities were Iguowan, Mile 3, Anna Camp and Mahokhioba communities. Secondly, 30 respondents were randomly selected from households of each of the four communities. A total of 120 copies of structured questionnaire were administered to the respondents from the adjoining communities. The researcher was accompanied by a local guide and interpreter. Fifty copies structured questionnaire were administered to Administrative and field Officers of the Park. Information was required on the attitude of communities, the Park protection as well as benefits that are derived; involvement of these communities in the management of the Park and the activities of the communities around the Park.

Data Analysis

Descriptive statistics such as frequency counts, percentage and mean scores were used to analyze the data collected. SPSS was employed for the study.

RESULTS

Socio-economic characteristics of the respondents of ONP Adjoining communities

The demographic characteristics of the respondents such as gender, age, marital status, family size, educational qualification … is presented in Table 1, with 111 retrieved questionnaire. The interview with the respondents shows that more than half (59.5%) of the respondents were males, while 40.5% were females. The mean age of the respondents was 43.91. Furthermore, the result of the family size of the respondents revealed that those who had 4-7 members in their families made up 69% of the total number; 8-11 family size made up 19%; 12-15 family size was 10.8% while those with 1-3 members made up 7.2%. The mean family size was 7.0 members. The educational status revealed that 5.4% of the respondents interviewed had no formal education, 61.3% had primary education, 29.7% had secondary education and 3.6% had tertiary education. The respondents were also asked about their awareness of the reason for the protection of the ONP. A larger percentage (76.6%) claimed they were aware of the reason for protecting the Park while 23.4% said they were unaware.

Community respondents' perception of the benefits derived from the presence of ONP

The results of the perceived benefits derived from the presence of Okomu national Park in the area (Table 2) indicates that according to the response of the residents, there were no significant benefits among the variables considered. However, tourism (mean, m = 2.91) ranked first while farming and hunting around Park boundaries ranked least (m =2.10) among the listed variables.

Community respondents' opinion on the importance of ONP protection

The response of the adjoining communities on the importance of protecting Okomu National Park (Table 3) showed that the respondents highly asserted that protection of the Park was important for the preservation of biodiversity (m = 4.26), and therefore was of significant importance and ranked first among the variables. Also, the involvement of the communities in the management of the Park (m = 3.41) was significantly important and ranked second on the list. However, improvement of the livelihood of the people (m = 2.79), permission of farming/hunting within protected areas (m = 2.21), reduction of land for farming because of the Park (m = 1.99) were of no significant importance and the variables ranked third, fourth and fifth places, respectively.

Table 1. Personal Characteristics of the Adjoining Communities Respondents

Variables	Description	Frequency	Percentage	Mean	Std. dev
Gender	Male	66	59.5		
	Female	45	40.5		
	Total	**111**	**100**		
Age	21 - 30	18	16.2	**43.91**	**12.94**
	31 - 40	32	28.8		
	41 - 50	34	30.6		
	51 - 60	10	9.0		
	61 - 70	17	15.3		
	Total	**111**	**100**		
Marital Status	Married	101	91.0		
	Single	7	6.3		
	Divorce	3	2.7		
	Total	**111**	**100**		
Family Size	1 - 3	8	7.2	**7.00**	**3.03**
	4 - 7	69	62.2		
	8 - 11	22	19.8		
	12 - 15	12	10.8		
	Total	**111**	**100**		
Educational Qualification	No Formal Education	6	5.4		
	Primary Education	68	61.3		
	Secondary Education	33	29.7		
	Tertiary Education	4	3.6		
	Total	**111**	**111**		
Awareness of Reasons for Protection of Okomu Park	Not Aware	26	23.4		
	Aware	85	76.6		
	Total	**111**	**100**		

Socio-economic characteristics of ONP respondents

The result of the demographic characteristics of the respondents of ONP such as gender, age, educational qualification and work experience of the staff monitoring the Park is presented in Table 4. Forty-five questionnaire were retrieved and the aggregate sex distribution value indicates that a greater proportion (76%) of the ONP staff were males while 24% were females. The average age of the respondents was 41 years. Also, the result revealed that a great proportion about 84.4% of the respondents had tertiary education as their highest level of educational attainment, while 13.3% and 2.2% respectively had secondary and primary education. Furthermore, the work experience of the respondents as shown in the table indicates that 15.6% of the staff had 1-5 years' experience, 37.8% had 6-10 years' experience, 13.3% had worked for 11-15 years, 28.9% had 16-20 years' experience and 4.4% of the respondents had worked for 21-30 years respectively.

Opinion of ONP respondents on the Importance of the Park Protection

The results in Table 5 provides that Protection of the Park to preserve biodiversity (m = 4.89) was the most significant usefulness of ONP and was ranked first on the list of identified variables. Improvement of livelihood of the people (m = 4.00) was second place in ranking according to the response of ONP officials and was also a significant usefulness of the Park. On the other hand, the response by the Park officials shows that Land reduction because of the Park (m = 2.49) and permission of farming/hunting within the Park (m = 1.67) ranked 4th and fifth and were of no significant importance.

Table 2. Responses by Respondents from the Community on the Perceived Benefits Derived from Presence of Park

Perceived Benefits from ONP Park	Responses by Respondents from adjoining Communities of ONP										Mean	Rank
	Strongly disagree		Disagree		Indecisive		Agree		Strongly agree			
	F	%	F	%	F	%	F	%	F	%		
Employment	26	23.4	31	27.9	21	18.9	20	18.0	13	11.7	2.67	2nd
Farming/hunting around Park boundaries	43	38.7	32	28.8	20	18.0	14	12.6	2	1.8	2.10	5th
Occasional collection of fuel wood, NTFPS around Park boundaries	43	38.7	29	26.1	20	18.0	15	13.5	4	3.6	2.17	4th
Tourism	14	12.6	33	29.7	24	21.6	29	26.1	11	9.9	2.91	1st
Additional income	23	20.7	51	45.9	24	21.6	13	11.7	0	0.0	2.24	3rd

Key: F = frequencies; % = Percent; *Significant Benefits: *Mean $\geq$ 3.0*

Table 3. Responses by Respondents from the Community on their Opinions of the Importance of Park Protection

Importance of ONP Park	Responses by Respondents from adjoining Communities of ONP										Mean	Rank
	Strongly disagree		Disagree		Indecisive		Agree		Strongly agree			
	F	%	F	%	F	%	F	%	F	%		
Protection of the Park is important and will preserve biodiversity	1	0.9	4	3.6	18	16.2	30	27.0	58	52.3	4.26*	1st
The community is involved in the management of the Park	5	4.5	23	20.7	27	24.3	33	29.7	23	20.7	3.41*	2nd
The presence of the Park has improved the livelihood of the people	19	17.1	35	31.5	15	13.5	34	30.6	8	7.2	2.79	3rd
Farming/hunting should be permitted within the protected areas	44	39.6	29	26.1	19	17.1	9	8.1	10	9.0	2.21	4th
The presence of the Park has reduced lands for farming	53	47.7	23	20.7	21	18.9	11	9.9	3	2.7	1.99	5th

Key: F = frequencies; % = Percent; *Significant Usefulness: *Mean $\geq$ 3.0*

The observed activities of the fringe communities around ONP

According to the results of the observed activities of the fringe communities (Table 7), the respondents of the National Park asserted that, tree planting within the buffer zones by farmers (m = 4.07) was the most important activity carried out by the fringe communities around ONP, and ranked first. This was followed by increasing farmland in Park boundaries (m = 3.20), which ranked second among the listed variables. On the contrary, the responses of the Park staff show that illegal logging within the Park was the least ranked, and was not a significant activity carried out by the fringe communities within the National Park.

Opinion of ONP Respondents on the Benefits Fringe Communities derive from the Park

The results of the benefits derived from the Park is presented in Table 6. According to the respondents of ONP reveals that Employment of the members of the adjoining communities ranked first (mean = 4.31) and was the most significant benefit identified. This was followed by Tourism (m = 4.04), collection of fuel wood and NTFPs (m = 3.22). Farming/hunting in Park boundaries well as Additional income both ranked least at m = 3.00. It is important to note that all the responses of the Park respondents showed that all variables outlined were of major benefits to the communities.

Table 4. Personal Characteristics of the ONP Respondents

Variables	Description	Frequency	Percentage	Mean
Gender	Male	34	76.0	
	Female	11	24.0	
	Total	**45**	**100**	
Age	21 - 30	3	6.7	**41.0**
	31 - 40	23	51.1	
	41 - 50	14	31.1	
	51 - 60	5	11.1	
	Total	**45**	**100**	
Educational Qualification	Primary Education	1	2.2	
	Secondary Education	6	13.3	
	Tertiary Education	38	84.4	
	Total	**45**	**100**	
Work Experience	1-5	7	15.6	**11.0**
	6-10	17	37.8	
	11-15	6	13.3	
	16-20	13	28.9	
	21-30	2	4.4	
	Total	**45**	**100**	

Table 5. Responses from ONP respondents/officers on the Importance of Park Protection

Usefulness of ONP Park	Responses by Respondents/officers of ONP										Mean	Rank
	Strongly disagree		Disagree		Indecisive		Agree		Strongly agree			
	F	%	F	%	F	%	F	%	F	%		
Protection of the Park is important and will preserve biodiversity	0	0.0	0	0.0	0	0.0	5	11.1	40	88.9	4.89*	1st
The presence of the park has improved the livelihood of the people	1	2.2	3	6.7	2	4.4	28	62.2	11	24.4	4.00*	2nd
The community is involved in the management of the Park	3	6.7	7	15.6	2	4.4	29	64.4	4	8.9	3.53*	3rd
The presence of the Park has reduced lands for farming	12	26.7	15	33.3	4	8.9	12	26.7	2	4.4	2.49	4th
Farming/hunting should be permitted within the protected areas	28	62.2	10	22.2	1	2.2	6	13.3	0	0.0	1.67	5th

Key: F = frequencies; % = Percent *Significant Benefits: Mean ≥ 3.0

Table 6. Responses from ONP respondents/officers on the perceived benefits derived from the Park by the communities

Benefits	Strongly disagree		Disagree		Indecisive		Agree		Strongly agree		Mean	Rank
	F	%	F	%	F	%	F	%	F	%		
Employment	0	0.0	0	0.0	4	8.9	23	51.1	18	40.0	4.31*	1st
Tourism	0	0.0	3	6.7	4	8.9	26	57.8	12	26.7	4.04*	2nd
Occasional collection of fuel wood, NTFPS around Park boundaries	5	11.1	11	24.4	2	4.4	23	51.1	4	8.9	3.22*	3rd
Farming/hunting around Park boundaries	6	13.3	15	33.3	1	2.2	19	42.2	4	8.9	3.00*	4th
Additional income	4	8.9	13	28.9	11	24.4	13	28.9	4	8.9	3.00*	4th

Key: F = frequencies; % = Percent; *Significant Benefits: *Mean ≥ 3.0*

Table 7. Perception of the Okomu National Park officers on activities fringe communities

Activities fringe communities	Park officers on the activities of ONP fringe communities										Mean	Rank
	Very low		Low		Moderate		High		Very high			
	F	%	F	%	F	%	F	%	F	%		
Tree planting by farmers within buffer zones and fringe communities	3	6.7	1	2.2	6	13.3	15	33.3	20	44.4	4.07*	1st
Increasing farmlands in Park boundaries and buffer areas	3	6.7	10	22.2	11	24.4	17	37.8	4	8.9	3.20*	2nd
Overexploitation of forest resources around boundaries and buffer zones	8	17.8	15	33.3	12	26.7	6	13.3	4	8.9	2.62	3rd
Illegal logging and poaching within the national Park	12	26.7	13	28.9	11	24.4	7	15.6	2	4.4	2.42	4th

Key: F = frequencies; % = Percent; *Significant Benefits: Mean ≥ 3.0

DISCUSSION

The average family size of communities in ONP was seven (7) individuals. Most rural dwellers have large families to provide labour for farming activities (Oyebamiji *et al*., 2012). The positive response of the farmers on the awareness of the reason for the protection of ONP indicates clearly that most individuals in the communities were aware that ONP is a strictly protected area. According to the responses from the respondents on the possible benefits derived from the presence of the Park, the communities in their opinion saw little or no benefits from the presence of the Park in the area. This agrees with the submission of Abukari and Mwalyosi (2020) that some residents around the protected areas surveyed in Ghana and Tanzania indicated that the Park did not support their livelihoods nor contribute to community development. The respondents of ONP adjoining communities completely agreed that biodiversity would be preserved for future generation, therefore agreed that protecting the area was necessary. Tumbaga *et al*., (2020) noted that the community surveyed in Philippines had good knowledge of the threats to biodiversity implying that the respondents knew the different threats which could impair the status of biodiversity in an area. Although, ONP adjoining communities understood that conservation of biodiversity was important, yet the community claimed there was little or no economic benefit or improvement of their living in proximity to the National Park. This position of the community respondents is explained by the findings of Htay and Roskaft (2020), that community dependency on the protected area was not significant enough for the local communities to recognize as the benefits. According to Ogogo *et al.* (2010), the impact of Cross River National Park on respondents' economic status showed that 74.42% of the respondents asserted that the Park has made them poorer while only 11.21% agreed that the Park has improved their economic fortunes. Consequently, the people believed that prohibition of hunting within the Park and its buffer zone as well as restriction of assess to collect Non-Timber-Forest Products (NTFPs) made them poorer. Nonetheless, the response of the respondents indicated that the communities understood the essence of protecting the Park by asserting that it was totally unacceptable to farm or hunt in the protected area.

The age distribution of ONP Staff showed that majority of the Park workers were males. This may be attributed to the nature and demands of the job. The mean age of the respondents was 41 years and the mean work experience was 11 years. Tertiary education was the highest level attained by the respondents. On the subject of the benefits the communities derive from the Park's presence, the staff of Parks strongly asserted that the communities benefit a great deal from the presence of ONP in their area. The benefits as expressed from their responses include employment, tourism, collection of fuel wood and also additional income. These assertions by the ONP staff were contrary to the position of the community respondents who maintained that little or nothing is derived from the presence of Park in the area. The research conducted by Vodouhe *et al*. (2010) in Benin, suggested that perception is relative to benefits, which subsequently influences the perception of people and their attitude to biodiversity conservation. The ONP respondents also posited that preserving the Park biodiversity was of utmost importance.

Going further, the staff of ONP were of the opinion that the community was actively involved in tree planting in the buffer areas around the community, and this was ranked first among the list of activities engaged in by the communities around the National

Park as observed by the ONP staff. Although the ONP respondents agreed that there was an increase in farmlands at the Park boundaries, the respondent asserted that illegal logging was not a serious activity within and around the National Park. Nonetheless, studies have shown a decline in the forest cover of some National Park due to suspected illegal logging activities. Nwankwo and Halilu (2016) stated that Kainji, Kamuku, Cross River and the Old Oyo National Parks showed a steady decline in forest cover from 1995 to 2007, while Gashaka Gumti National Park recorded a rejuvenation of forest cover to the tune of about 2,185 sq. km between 1995 and 2001 which may have been due to amounted reforestation program during the period.

In terms of community involvement and participation in the Park management, both the adjoining communities and National park respondents agreed that the communities were involved in the Park activities and management. According to Tumbaga *et al*., 2020, community participation in biodiversity conservation is a critical aspect of environmental management which implies that if the community is actively participating in any programs or projects, this will eventually lead to the continuous implementation of the projects.

CONCLUSION

The respondents of fringe communities of ONP were aware of the need for protecting ONP and its biodiversity but claimed that there were little benefits from the National Park; the respondents however asserted that protecting the Park was important to preserve biodiversity. The information provided by ONP staff indicated that the communities were engaged in biodiversity conservation. It is important for government and relevant stakeholders to support these host communities become gainfully engaged in other alternative and profitable sources of livelihood to minimize communities' reliance on the forests' resources for survival.

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