



Community Awareness and Participation in the Management of Akanga Forest Reserve, Nasarawa State, Nigeria

Kuje, E.D.; Falade, L.O. and Obadiah, C.

Department of Forestry and Wildlife Management, Faculty of Agriculture, Nasarawa State University, Keffi-Nigeria.

Email: dauda19emmanuel@gmail.com [orcid: 0000-0001-9536-4277](https://orcid.org/0000-0001-9536-4277).

Abstract

Globally, community participation in forest management works. However, forest management policies in developing countries have mostly ignored Forest Adjacent Communities' (FAC) role in resource management. In Nasarawa State's Akanga Forest Reserve, this study examined community forest management awareness and participation. The 967 km² reserve is home to families who primarily farm. The study used a structured questionnaire to collect demographic, community awareness, and forest management data from 40 random respondents. Data analysis included descriptive statistics and ANOVA. Most respondents (75%) were landowners. The majority (57.5%) of respondents had attended secondary school and lived in the study area for over six years. Sixty-five per cent of respondents were unhappy with their farm earnings, and 80% knew about forest regulations. However, only 15% had forest management training. The study found that 87.5% of respondents agreed community forest management was necessary. Only 27.5% participated in forest management, while 72.5% did not. This indicates low community participation in forest management in the study area, which must be addressed to reduce forest degradation. The findings also suggest community involvement in forest management and sustainable forest management training.

Keywords: Awareness, conservation, sustainability, community- participation, environment.

Introduction

Biodiversity loss in tropical forests has prompted the establishment of protected areas, which often conflict with local economic interests (Rao et al., 2009). The sustainability of these protected areas is contingent upon the support of local communities, as their absence undermines the long-term viability of conservation efforts (Khan & Bhagwat, 2010). Local communities are less likely to support protected areas if they harbour negative perceptions and attitudes towards them (Htun et al., 2011).

Africa has experienced substantial deforestation, with approximately 4.0 million hectares cleared annually (Borokini et al., 2012). Nigeria and Sudan were particularly affected by the depletion of natural forests between 2000 and 2005, primarily due to logging and agricultural expansion (Borokini et al., 2012; Purity, 2011). In response, Nigerian communities must prioritise the conservation of natural resources and mitigate environmental degradation, as emphasised by Takon et al. (2013). The populations residing near community forests are heavily reliant on these ecosystems for vital resources, including

wildlife, land, food, and water (Takou et al., 2013).

Community involvement is widely recognised as a crucial strategy for effective forest management (Bisong et al., 2017). However, forest management policies in many developing countries, particularly in Africa, have often overlooked the significant role of Forest Adjacent Communities (FAC) in the stewardship of forest resources (Bisong et al., 2017). Despite this, limited research has been conducted on community perceptions of forest conservation and management across various study sites (Marcus, 2001; Törn et al., 2007). This study aims to examine the socio-demographic characteristics of participants, assess their understanding of forest management, and evaluate the extent of community involvement in forest management practices within the study area.

Materials and Methods

Description of the Study Area

The study was carried out at the Akanga Forest reserve in Obi Local Government Area of Nasarawa State. It lies within the latitudes 8°-22° N and longitudes 8° - 46°E, with a land area of 967 km² based on the 2006 population census. Rainfall ranges from 1143 mm to 1397 mm yearly. The average monthly high temperatures vary from 35.060C to 36.400C and 20.160C to 20.500C, with relative humidity ranging from 40-89% and an average daylight duration of 9-12 hours. (Jajeoba, 2013). Red Ferrallitic soils (Rhodic Ferrasols), Ferruginous Tropical soils (Eutric Cambisols), Juvenile soils on the Riverian, Groundwater Laterite (Gleyic Luvisols), Hydromorphic soils, and other land types such as iron stone outcrops, iron stone hills, and eroded areas along the stream make up the study area (Dachung *et al.*, 2018; 2019). Local people frequently burn the property for hunting adventures from December to April. The major occupation of the people is farming.

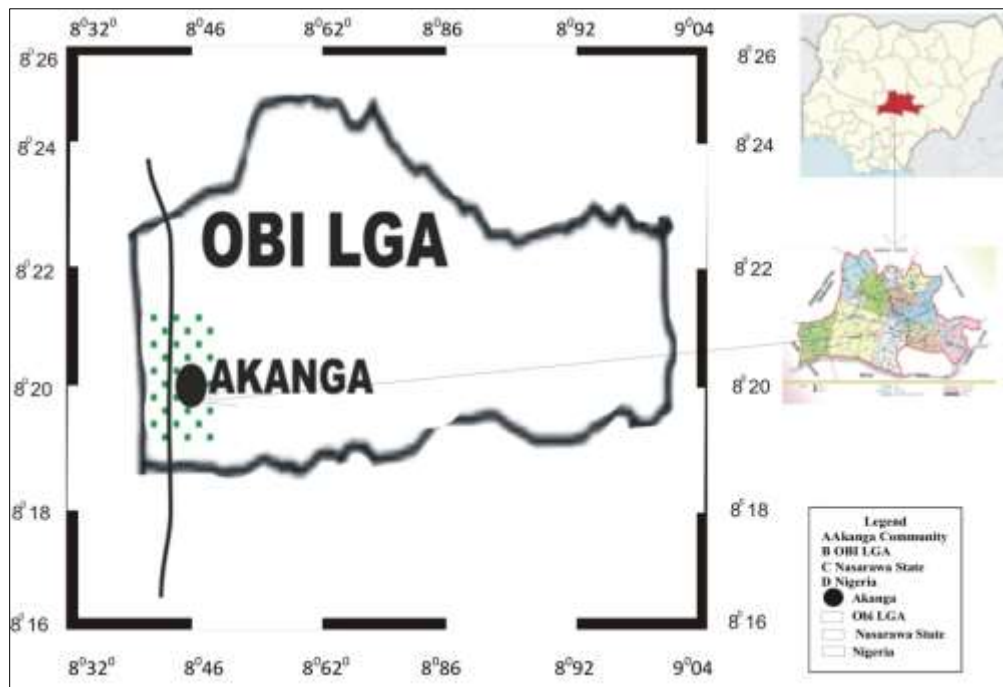


Figure 1: Map of the study area

Sampling Procedure

A random sampling was adopted for the study. A reconnaissance survey was carried out to

identify the respondents' settlement within the study area. The survey covered only the respondents living within the forest reserve. Due to the constraint of time and money, a sampling intensity of forty (40) respondents was chosen. A total of forty (40) respondents were purposively selected for the study.

Data Collection and Analysis

Primary data for the study was collected using a structural questionnaire that was administered to the respondents in the study area. Data collection includes demographic information of the respondents, such as sex, age, educational level, etc. Also, information on community awareness of forest resources management and community participation in forest management was collected. Data collected were analysed using descriptive statistics such as mean, percentage, and standard deviation, which was used to analyse objective one, while Analysis of Variance (ANOVA) was employed to analyse objectives two and three.

Result

Table1. Socio-economic and Demographic Attributes of the Respondents

Variables	Variables Description	Frequency of Respondents	Percentage of respondents
Gender	Male	25	62.5%
	Female	15	37.5%
	Total	40	100%
Marital Status	Married	24	60%
	Single	13	32.5%
	Widow	3	7.5%
	Divorce	0	0%
	Total	40	100%
Age	18- 30	12	30%
	31-40	18	45%
	41-50	4	10%
	51-60	3	7.5%
	61 and above	3	7.5%
	Total	40	100.%
	Mean Average	2.667	
Educational Level	Never School	6	15%

The results in Table 1 showed that 62.5% of the respondents were males, while 37.5% were females. The marital status results revealed that 60% of the respondents were married, 35.5% were single or unmarried, 7.5% were widows, and none were divorcees. The age distribution results indicated that 30% of the respondents were between the age group 18 to 30 years, 45.0% were between the age group 31 to 40 years, 10% were between the age group 41 to 50 years, 7.5% were between the age group 51 to 60 years while 7.5% were between the age group above 61 years old.

The educational status results showed that 15% of the respondents had no formal education, 10% (4) had only primary school education, 57.5% had secondary school education, and 17.5% had tertiary education. This indicates that most respondents (57.5%) stopped schooling at the secondary level. The findings also revealed that all respondents (100%) had lived in the study area (Akanga) for more than six years. Additionally, 52.5% (21) of household sizes consisted of 1-5 family members, 22.5% (9) had 6-19 family members, and 25% (10) had 11 or more family members.

	Primary	4	10%
	Secondary	23	57.5%
	Tertiary	7	17.5%
	Total	40	100%
Duration of Staying in Akanga	1-5yrs		
	6 and Above	40	100%
	Total	40	
Household size	1-5	21	52.5%
	6-10	9	22.5%
	11 and above	10	25%
	Total	40	100%

Results on household satisfaction and alternative means of survival are shown in Table 2 in the study area. Based on the results of the land tenure, 75% (30) of the respondents are landowners, while 25% (10) of respondents don't own the land they cultivate. Results also indicated that 30% (12) of the respondents owned land less than 1heacters, 27.5% (11) owned farmland between 1-2ha, 35.5% (14) owned land within 3-4 hectares while 7.5% (3) of the respondents owned 5ha and above. Farm distance from the forest: based on the findings, results indicated that 32.5% (13) respondent lands are less than 1km from the forest reserve, 30% (12) were within 1-2km of the forest reserve, 25% (10) respondents land distances were within 3-4km to the forest reserve, while 12.5% (5) were between 5km and above.

The result on family satisfaction from farm produce showed that 37.5% (15) were satisfied with proceeds from the farmland, while 62.5% (25) respondents were not satisfied with the proceeds obtained from their farm. This implies that the majority (62.5%) of the respondents were not satisfied with the annual proceeds from their farm. The result from the experiment also revealed that 7.5% (3) of the respondents cultivated the forest to meet their family demand, 40% (16) respondents bought from the market, 2.5% (1) respondents got relief from NGOs, 15% (6) respondents were into lease tenure system to meet their family demand, while 35% (14) respondents are supplementing their means for survival from other sources.

Table 2: Household Satisfaction and Alternative Means of Survival

Variables	Variables Description	Frequency of Respondents	Percentage of respondents
Landowners	Yes	30	75%
	No	10	25%
	Total	40	100%
Farm size	Less than 1ha	12	30%
	1-2 ha	11	27.5%
	3-4 ha	14	35%
	5 and above	3	7.5%
	Total	40	100%
Land distance from the forest	Less than 1km	13	32.5%
	1km	7	17.5%

	2km	5	12.5%
	3km	2	5%
	4km	8	20%
	5km	5	12.5%
	Total	40	100%
Household Family satisfaction from farm proceeds	Yes	15	37.5%
	No	25	62.5%
	Total	40	100%
Alternative means of survival	Cultivate the forest	3	7.5%
	Buy from market	16	40%
	Get relief food	1	2.5%
	Lease land	6	15%
	Other means	14	35%
	Total	40	100%

Various questions were posed to the respondents in order to determine the extent of community participation in forest management. The purpose of these questions was to elicit the facts behind the factors that either impede or facilitate community participation in forest management. The findings (Table 3) indicate that 80% (32) of the respondents are cognisant of the diverse forest regulations, while 20% (8) are unaware of any forest regulations. The results of the experiment also showed that 40% (16) of the respondents believe that the forest resources are being properly managed in the study area, while 60% (24) of the respondents believe that the forest resources are not being properly managed in the sampled area.

In addition, the results showed that 15% (6) of the respondents received training in forest management, while 85% (34) of them never attended any seminar or workshop on forest management. Similarly, 2.5% (1) were trained in selective exploitation, while 7.5% (3) were

trained in tree cultivation. Five per cent (2) were trained in afforestation. In reference to the significance of community involvement in forest management, the experiment's findings indicate that 87.5% (35) of the respondents believe it is both necessary and important for the community to participate in forest management, while 12.5% (5) disagree and believe that it is neither necessary nor important for the community to participate in forest management.

The community sensitisation results indicated that 10% (4) of the respondents reported that there are organisations involved in sensitising the community on forest management, while 90% (36) reported that there were no organisations involved in sensitising the community on forest management. The results also indicated that 5% of the respondents received training on non-timber resources, 2.5% were taught on afforestation, and the remaining 2.5% were trained on forest regeneration.

Table 3 Level of Community Awareness in Forest Management

Variables	Answers	Frequency	Percentage
Are you aware of any forest regulations	Yes	32	80%
	No	8	20%
	Total	40	100%
Are the forest resources managed well?	Yes	16	40%
	No	24	60%
	Total	40	100%
Have you ever attended any seminars regarding forest management	Yes	6	15%
	No	34	85%
	Total	40	100%
Knowledge obtained from the seminar	Afforestation	2	5%
	Regeneration	0	0%
	Selective exploitation	1	2.5%
	Taungya system	0	0%
	Tree planting	3	7.5%
	None	34	85%
	Total	40	100%
	Total	40	100%
Is it important for the community to participate in forest management	Yes	35	87.5%
	No	5	12.5%
	Total	40	100%
Are there organisations involved in sensitising the community on forest management	Yes	4	10%
	No	36	90%
	Total	40	100%
If yes, what are they involved in	Non-timber resource	2	5%
	Natural Forest Regeneration	0	0%
	Afforestation	1	2.5%
	Reforestation	1	2.5%
	Other	36	90%
	Total	40	100%
	Total	40	100%

Findings from the experiment showed that 95% (38) of the respondents responded "Yes" that they expected to be given a permit before they could access any forest product, while 5% (2) said "No" that they were not to be given any permit to access any forest product (Table 4). Regarding the consequences of accessing the forest product without a permit, the result also

showed that 72.5% (29) of the respondents responded that they pay fines when they enter the forest without a permit, 7.5% (3) responded that offenders are taking to court, 15% (6) responded that offenders give bribe, while 5% (2) of the respondents mentioned other punishments. Results also showed that 60% (24) of the respondents responded "Yes" that

the fee charged for the permit was fair, while 40% (16) responded "No". Table 4 shows that 57.5% (23) of the respondents are of the opinion that the permit is necessary, while 42.5% (17) said that the permit was unnecessary. Meanwhile, 7.5% (3) of the respondents are aware of where the fee charged for the forest permit is taken, while 92.5% (37) are not aware of where the offender's fees are

taken. Results on the total right to access the forest resources indicated that 27.5% (11) of the respondents felt they have the right to access the forest resources without a permit, while 72.5% (29) said they have no right to access any forest product without a permit from the forest management.

Table 4. Permit to Assessed the Forest Resources

Variables	Variables Description	Frequency of Respondents	Percentage of Respondents
Are you expected to hold a permit to access any forest product?	Yes	38	95%
	No	2	5%
	Total	40	100%
What happens if you are caught	Fined	29	72.5%
	Taken to court	3	7.5%
	Bribe	6	15%
	Others	2	5%
	Total	40	100%
Is the fee charge fair?	Yes	24	60%
	No	16	40%
	Total	40	100%
Is the fee paid for the permit necessary?	Yes	23	57.5%
	No	17	42.5%
Do you know where they are taking the fee?	Yes	3	7.5%
	No	37	92.5%
	Total	40	100%
Do you think you have the right to access the forest resources without a permit?	Yes	11	27.5%
	No	29	72.5%
	Total	40	100%

After establishing what the community knew about forest rules, they were asked whether they observed these rules in their endeavours to acquire any forest products. Findings from the experiment showed that the majority of respondents, 82.5% (33), always complied with the regulations, while 17.5% (7) did not

always comply. The impression created here is that the majority of the people observe and comply with the forest rules. This shows that the majority, 80% (32) of the respondents, always collect permission to access any forest product, while 20% (8) did not collect permits before they accessed any of the forest products

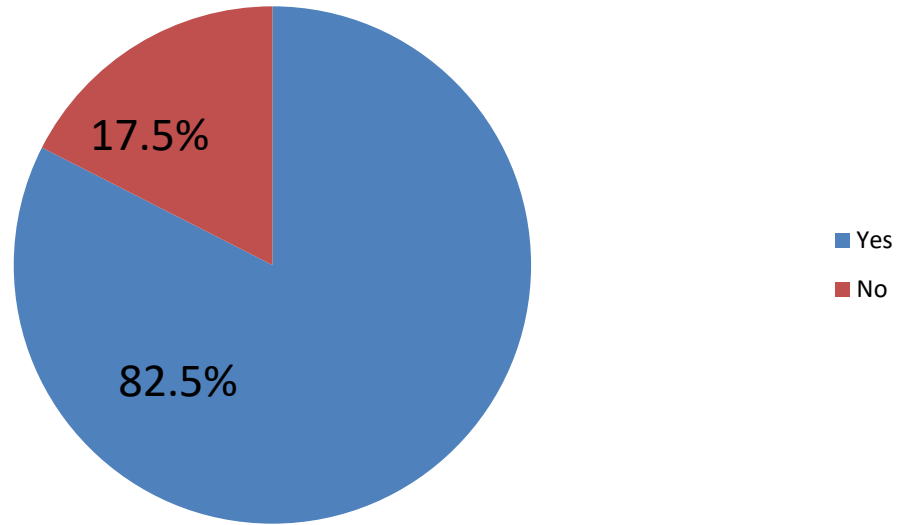


Figure 2. Level of compliance with the forest regulation

Table 5 indicates that 27.5% of respondents affirmed that community members participate in the decision-making and management of the forest in the sampled area, whereas 72.5% denied such participation. The experiment's findings indicated that 57.5% of the youth respondents engaged in forest management within the sampled area. This is succeeded by men, comprising 27.5% of respondents, while women constituted the lowest percentage at 15% of respondents.

The experiment's results indicated that 80% of respondents reported changes in the vegetation of their neighbourhood during the past decade, while 20% stated there were no changes in vegetation during the same period. The results indicated that 52.5% of respondents have participated in forest management, whilst 47.5% have not engaged in any forest management activities in the sampling area. The research findings indicated that 80% of

respondents expressed interest in participatory forest management, whilst 20% indicated a lack of interest in engaging in any forest management activities.

Table 5 indicates that 77.5% of respondents who participated in tree planting exercises reported having previously planted trees, whereas 22.5% stated they had not engaged in tree planting. Likewise, 35% indicated that their primary obstacle in tree planting is insufficient land, 35% reported inadequate seedlings as their challenge, 2.5% cited unfavourable weather conditions, and 27% identified other challenges. The research findings indicated that 47.5% of respondents planted trees in cropland, 22.5% in agroforestry land, 20% in their home boundaries, 7.5% in their home compounds, and 2.5% in woodlots.

Table 5 Community Participation in Forest Management

Variables	Answers	Frequency of respondents	Percentage of respondents
Do the community members participate in the decision-making and management of the forest?	Yes	11	27.5% %
	No	29	72.5%
	Total	40	100%
Which of these participated more in forest management	Men	11	27.5%
	Women	6	15%
	Youth	23	57.5%
	Total	40	100%
Have you noticed any changes in vegetation in your community in the last decade?	Yes	32	80%
	No	8	20%
	Total	40	100%
Have you ever participated in forest management	Yes	21	52.5%
	No	19	47.5%
	Total	40	100%
Would you like to be involved in participatory forest management	Yes	32	80%
	No	8	20%
	Total	40	100%
Do you ever plant trees before?	Yes	9	22.5%
	No	31	77.5%
	Total	40	100%
	What challenges do you face in tree planting	Lack of Land	14
Lack of Seedlings		14	35%
Unfavourable weather		1	2.5%
Others		11	27.5%
Total		40	100%
Where are the trees planted		Home compound	3
	Agroforestry	9	22.5%
	Cropland	19	47.5%
	Woodlot	1	2.5%
	Home Boundaries	8	20%
	Total	40	100%

Discussion

The community in the study area was mostly made up of males, with most (62.5%) of respondents being male, which is in line with

the research by Alhassan (2010). A large percentage (57.5%) of the participants had completed secondary school, indicating a limited level of formal education, possibly due

to financial difficulties or a lack of understanding of the value of education (Alhassan, 2010). Individuals between the ages of 18 and 35 were more involved in forest management compared to other age groups, which aligns with findings from a previous study by Alhassan in 2010. Significantly, every participant had resided in the research area for over six years, indicating that they are residents of the area.

Many (80%) of respondents were knowledgeable about forest laws, which could potentially reduce deforestation (Kiragu, 2002). Additionally, the vast majority (87.5%) agreed that community involvement in forest management is essential and significant. Nevertheless, there is a notable disparity between knowledge and involvement, with only a minority (27.5%) of community members taking part in forest decision-making and management. This shows the common exclusion of local communities from forest management practices (Asante, 2005). The government's significant influence on managing Akanga forest resources, which excludes forest-dependent communities, points to the importance of involving and including local people in forest management and conservation efforts (Eshun, 2008).

Conclusion

The research showed that there is restricted involvement of the community members in

managing Akanga Forest, with just a few (27.5%) of the participants stating that community members are involved in making decisions and managing the forest. Even though most (80%) of the participants were familiar with forest regulations, only a few (15%) had undergone training in forest management. Additionally, 62.5% of participants expressed dissatisfaction with their farm earnings, indicating the importance of enhancing forest management techniques. The research also indicated that community involvement in forest management was seen as necessary by the majority (87.5%) of respondents, while 80% expressed interest in participatory forest management. Therefore, it is paramount to have more community participation in making decisions about managing forests and implementing training initiatives to improve sustainable forest management techniques. Hence, it is recommended that the management of the Akanga Forest Reserve should collaborate with NGOs and community members to assist in enhancing community capacity and involvement in forest management. Furthermore, the government needs to work along with local communities and involve them in forest management initiatives and training sessions focused on forest conservation.

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