

Research Article

Assessment of Community Participation in Forest Conservation in Ekiti State, Nigeria

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Abstract

This study investigated the role of community participation in forest conservation in Ekiti State, Nigeria, focusing on the socio-economic characteristics of respondents, their level of participation, factors influencing community participation in forest conservation and the challenges they face. Primary data were collected from 90 respondents from three different Local Government Areas through a well-structured questionnaire and analyzed using descriptive and inferential statistics. The results revealed that community participation in forest conservation was limited, with many respondents not actively involved in conservation efforts. Key factors influencing community participation included level of education, forest policy awareness, and land ownership. Conversely, major obstacles to effective participation were identified as lack of awareness and education, inadequate institutional frameworks, and limited access to technology and resources. The study concluded that the level of community participation in forest conservation in the study area is not encouraging; level of education, forest policy awareness and land ownership were the factors responsible for community participation in forest conservation in the study area and that lack of awareness and education, inadequate institutional framework and limited access to technology and resources were the challenges to community participation in forest conservation in the study area. To address these challenges, the study recommends the development of awareness and education programs, strengthening of institutional frameworks, and provision of access to technology and resources. These initiatives would support community-led forest conservation efforts and enhance community participation in forest conservation, ultimately contributing to sustainable forest management and biodiversity conservation in Ekiti State, Nigeria.

Keywords

Forest Conservation, Community Participation, Probit Regression

1. Introduction

The forestry sector plays a vital role in Nigeria's economy, accounting for approximately 3.5% of the country's Gross Domestic Product (GDP) [3]. Forests provide valuable re-

sources, including timber, fuel wood, and non-timber forest products (NTFPs), which generate income for millions of Nigerians. The forestry sector also supports various indus-

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tries, such as wood processing, paper production, and eco-tourism, creating employment opportunities and stimulating economic growth. Additionally, forests play a critical role in maintaining environmental services, including water regulation, soil conservation, and climate regulation, which underpin agricultural productivity and overall economic development.

Effective forest conservation can also generate significant economic benefits for Nigeria. For instance, sustainable forest management can provide a steady supply of timber and other forest products, reducing the need for imports and generating foreign exchange earnings [12]. Furthermore, eco-tourism and wildlife conservation can attract foreign investment and create jobs, contributing to poverty reduction and economic growth. Estimates suggest that Nigeria's forest ecosystem services could generate up to \$1.3 billion annually [11]. By prioritizing forest conservation, Nigeria can unlock these economic benefits, support sustainable development, and improve the livelihoods of millions of people dependent on forest resources.

Forest conservation is crucial for maintaining biodiversity, regulating climate change, and ensuring sustainable development [11]. Nigeria's forests cover approximately 10% of the country's land area, providing ecosystem services and livelihood support for millions of people [3]. However, deforestation and forest degradation pose significant threats to Nigeria's forests [1]. The main drivers of deforestation include agricultural expansion, urbanization, and logging [8]. Community participation is recognized as a critical factor in forest conservation (Larson et al., 2010). Local communities have traditional knowledge and cultural practices that can support sustainable forest management.

Community-based forest conservation initiatives have been implemented in Nigeria, but their effectiveness remains limited [9]. Factors such as lack of awareness, inadequate funding, and weak institutional frameworks hinder community participation. Nigeria's forest policy emphasizes community involvement in forest management [3]. However, implementation remains challenging due to limited capacity, inadequate resources, and conflicting interests. Research has shown that community participation can improve forest conservation outcomes [4]. Effective community engagement can also enhance local livelihoods and well-being. Community-based forest management (CBFM) has been identified as a promising approach to forest conservation [6].

The role of traditional institutions in forest conservation cannot be overstated [8]. Traditional institutions have historically managed forest resources. In Nigeria, traditional institutions have been involved in forest conservation efforts [9]. However, their effectiveness remains limited. External factors, such as market demand and government policies, also influence forest conservation outcomes [4]. Understanding these factors is crucial for developing effective strategies to promote community participation in forest conservation.

2. Methodology

2.1. The Study Area

This study was conducted in Ekiti State, Nigeria. The state is one of the states in the South Western Region of Nigeria. The state is within the tropics. The state was created on the 1st of October, 1996 and comprises of 16 Local Government Area (LGAs). Ekiti State occupies land mass of approximately 6,6028 km² and a population of 2,432,321 (NPC 2006). Ekiti state is predominantly an agricultural area whose main cash crops are cocoa, timbers, oil-palm and kola-nuts. The food crops grown are cassava, yam, cocoyam and grain crops such as maize and rice. The State has two main seasons i.e. the rainy season and dry season. It has a population of 3,423,535 (National Population Census, 2006). The area is predominantly agrarian, with agriculture being the main source of their livelihood in the area. Tree crops cultivated includes cocoa, mango, cashew, citrus, oil palm and arable crops cultivated includes maize, yam, cassava, cocoyam, tomatoes, and vegetables among others. The state has 16 Local Government Areas and three Agro Ecological Zones (AEZs) namely rain forest, derived savannah, and savannah zones.

2.2. Method of Data Collection

Primary data was used for the study. The data was collected with the aid of a well-structured questionnaire and analyzed using descriptive statistics and inferential statistics.

2.3. Sampling Technique

A multi-stage sampling method was employed in this study. In the first stage, three Local Government Areas [LGAs], with the availability of forest reserves, were purposely selected. These are; Ise/Orun (Ise forest reserve), Moba (Ikun forest reserve) and Ekiti West (Aramoko forest reserve). At the second stage, thirty individual respondents were randomly selected from each community, making the total of ninety (90) respondents for the study.

2.4. Analytical Techniques

The data collected was analyzed using descriptive statistics and probi regression analysis.

2.4.1. Descriptive Statistics

Descriptive statistics is concerned with the efficient methods of organising, summarising and presentation of statistical data. This included the mean, frequency distribution, variances, percentages and standard deviation.

2.4.2. Probit Regression Analysis

This was used to analyze the factors determining community participation in forest conservation in the study area. The Probit is used to model dichotomous or binary outcome variables. In the Probit model, the inverse standard normal distribution of the probability is modeled as a linear combination of the predictors. The Probit model (Greene, 2003) employed was of the form;

$$P^1 = \beta X_i + \mu_i \text{ that is } P^1 = f(\text{Sex, annual income, etc.})$$

Algebraically expressed as

$$P^1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n + \mu_i$$

Where P^1 = probability function

$P^1 (Y=1)$ = Participation in forest conservation (yes =1 otherwise = 0)

X_1 = Age (years)

X_2 = Sex (male =1, female =0)

X_3 = Level of education (no formal education = 0, primary education = 1, secondary education = 2, tertiary education = 3)

X_4 = Household income (₦.....)

X_5 = Forest policy awareness (yes =1 otherwise = 0)

X_6 = Farming experience (years)

X_7 = Household size (number)

X_8 = Land ownership (yes =1 otherwise = 0)

X_9 = Membership of community organization (yes =1 otherwise = 0)

X_{10} = Primary occupation (farming =1, civil service =2, artisanal job =3)

standing of the importance of this activity in forest conservation. This finding is consistent with previous studies, such as [2], which found that only 30% of respondents in Nigeria were involved in conducting surveys and interviews for forest conservation. Similarly, only 44.4% of respondents were involved in observing community meetings and events, suggesting that community members are somewhat interested in participating in forest conservation activities.

The level of community participation in other activities, such as reviewing community-led initiatives, assessing community awareness and knowledge, and evaluating community involvement in decision-making, is also a concern. For example, only 50% of respondents were involved in reviewing community-led initiatives, while 41.1% were involved in assessing community awareness and knowledge. Furthermore, only 16.7% of respondents were involved in evaluating community involvement in decision-making, indicating a significant lack of awareness or understanding of the importance of community involvement in decision-making for forest conservation. These findings suggest that community members may not be fully aware of the importance of their participation in forest conservation activities, or may lack the necessary skills and training to participate effectively.

The overall level of community participation in forest conservation in the study area is relatively low, with many respondents not involved in key activities such as analyzing community participation in forest management, examining community benefits and outcomes, and assessing community collaboration and partnerships. For instance, only 35.6% of respondents were involved in analyzing community participation in forest management, while 14.4% were involved in examining community benefits and outcomes. Similarly, only 23.3% of respondents were involved in assessing community collaboration and partnerships, and only 10% were involved in monitoring and evaluating community participation over time. These findings highlight the need for increased awareness and education among community members about the importance of their participation in forest conservation activities, as well as the need for training and capacity-building programs to support community-led initiatives.

3. Results and Discussion

3.1. Level of Community Participation in Forest Conservation in the Study Area

The level of community participation in forest conservation in the study area is a significant concern, with varying degrees of involvement in different activities. For instance, only 41.1% of respondents were involved in conducting surveys and interviews, indicating a lack of awareness or under-

Table 1. Distribution of the respondents according to the level of community participation in forest conservation in the study area.

Items	Not involved at all		Somewhat involved		Very involved	
	Freq.	%	Freq.	%	Freq.	%
Conduct surveys and interviews	37	41.1	30	33.3	23	25.6
Observe community meetings and events	27	30	40	44.4	23	25.6
Review community-led initiatives	45	50	35	38.9	10	11.1
Assess community awareness and knowledge	22	24.5	31	34.4	37	41.1

Items	Not involved at all		Somewhat involved		Very involved	
	Freq.	%	Freq.	%	Freq.	%
Evaluate community involvement in decision-making	15	16.7	40	44.4	35	38.9
Analyze community participation in forest management	32	35.6	18	20	40	44.4
Examine community benefits and outcomes	13	14.4	32	35.6	45	50
Assess community collaboration and partnerships	21	23.3	42	46.7	27	30
Monitor and evaluate community participation over time	9	10	45	50	36	40

Source: Computed data survey, 2024

3.2. Factors Influencing Community Participation in Forest Conservation in the Study Area

The probit regression analysis table provides insights into the factors that influence community participation in forest conservation in the study area. The goodness of fit of the model is measured by the pseudo R-squared value, which is 0.71, indicating that the model explains about 71% of the variation in community participation in forest conservation. The LR chi-square value is 51.00, which is statistically significant at the 1% level, indicating that the model is a good fit to the data. The results of the probit regression analysis suggest that the model is robust and provides a good explanation of the factors that influence community participation in forest conservation in the study area.

The results show that the level of education, forest policy awareness, and land ownership are significant factors that influence community participation in forest conservation. The coefficient for level of education is 0.103, which is statistically significant at the 5% level, indicating that an increase in the level of education is associated with an increase in the likelihood of community participation in forest conservation. This finding is consistent with the study by [7], which found that education was a significant predictor of

community participation in forest conservation in Kenya. The coefficient for forest policy awareness is 0.516, which is statistically significant at the 1% level, indicating that an increase in forest policy awareness is associated with an increase in the likelihood of community participation in forest conservation. This finding is consistent with the study by [2], which found that awareness of forest policies was a significant predictor of community participation in forest conservation in Nigeria. The coefficient for land ownership is 0.098, which is statistically significant at the 1% level, indicating that land ownership is associated with an increase in the likelihood of community participation in forest conservation. This finding is consistent with the study by [10], which found that land ownership was a significant predictor of community participation in forest conservation in Ghana.

In contrast, the results show that age, sex, household size, farming experience, household income, membership of community organization, and primary occupation are not significant factors that influence community participation in forest conservation. The coefficients for these variables are not statistically significant, indicating that they do not have a significant impact on community participation in forest conservation. This finding is consistent with the study by [5], which found that demographic characteristics such as age and sex were not significant predictors of community participation in forest conservation in Uganda.

Table 2. Probit regression analysis of factors influencing community participation in forest conservation in the study area.

Parameter estimate	Coefficient	Std. Error	P-value
Age	-.027	.022	.213
Sex	.238	.348	.493
Level of education	.103**	.050	.039
Household size	-.558	.454	.219
Forest policy awareness	.516***	.155	.001
Farming experience	-.045	.080	.572

Parameter estimate	Coefficient	Std. Error	P-value
Household income	.284	.339	.402
Land ownership	.098***	.086	.007
Membership of community organization	-.190	.316	.548
Primary occupation	.035	.026	.174

Source: Computed data survey, 2024

LR chi square = 51.00

Pseudo R^2 = 0.71

3.3. Challenges to Participation in Forest Conservation in the Study Area

Table 3 shows the frequency and percentage of challenges faced by community members in participating in forest conservation in the study area. The table reveals that the top three challenges are lack of awareness and education (67.8%), inadequate institutional framework (66.7%), and limited access to technology and resources (65.6%). These challenges are significant because they can hinder the effective participation of community members in forest conservation efforts.

The lack of awareness and education (67.8%) is a major challenge, as it can limit the understanding of community members about the importance of forest conservation and their role in it. This finding is consistent with the study by [2], which found that lack of awareness and education was a significant challenge to community participation in forest conservation in Nigeria. The inadequate institutional framework (66.7%) is also a significant challenge, as it can create uncertainty and confusion among community members about their roles and responsibilities in forest conservation. This finding is consistent with the study by [7], which found that inadequate institutional framework was a major challenge to community participation in forest conservation in Kenya.

The limited access to technology and resources (65.6%) is another significant challenge, as it can limit the ability of community members to effectively participate in forest conservation efforts. This finding is consistent with the study by [5], which found that limited access to technology and resources was a major challenge to community participation in forest conservation in Uganda. The other challenges, such as limited economic benefits (58.9%), cultural and traditional practices (50%), lack of trust and confidence (35.6%), conflict and competition (43.3%), corruption and governance issues (33.3%), climate change and environmental uncertainty (50%), and land tenure and property rights issues (47.8%), are also significant and can hinder community participation in forest conservation efforts.

The results of this study have implications for policy and practice, as they highlight the need for awareness and education programs, institutional strengthening, and provision of technology and resources to support community participation in forest conservation. Additionally, the results suggest that addressing the challenges of limited economic benefits, cultural and traditional practices, lack of trust and confidence, conflict and competition, corruption and governance issues, climate change and environmental uncertainty, and land tenure and property rights issues is crucial for effective community participation in forest conservation.

Table 3. Distribution of the respondents according to the challenges to participation in forest conservation in the study area.

Challenges	Frequency	Percentage
Lack of awareness and education	61	67.8
Limited economic benefits	53	58.9
Cultural and traditional practices	45	50
Lack of trust and confidence	32	35.6
Inadequate institutional framework	60	66.7
Conflict and competition	39	43.3
Limited access to technology and resources	59	65.6

Challenges	Frequency	Percentage
Corruption and governance issues	30	33.3
Climate change and environmental uncertainty	45	50
Land tenure and property rights issues	43	47.8

Source: Computed data survey, 2024

4. Conclusion

Arising from the results obtained from this study, it is concluded that;

The results concluded that the level of community participation in forest conservation in the study area is not encouraging.

It was also concluded that level of education, forest policy awareness and land ownership were the factors responsible for community participation in forest conservation in the study area.

Lastly, it was concluded that lack of awareness and education, inadequate institutional framework and limited access to technology and resources were the challenges to community participation in forest conservation in the study area.

5. Recommendations

It is therefore suggested to;

- 1) awareness and education programs should be developed to educate community members about the importance of forest conservation and their role in it.
- 2) institutional frameworks should be strengthened to provide clear roles and responsibilities for community members, government agencies, and other stakeholders.
- 3) access to technology and resources should be provided to support community participation in forest conservation efforts.
- 4) economic and social benefits should be provided to community members who participate in forest conservation efforts.
- 5) community-led forest conservation initiatives should be supported and empowered to take ownership of forest conservation efforts.

Abbreviations

Freq.	Frequency
%	Percentage
WWF	World Wildlife Fund
UNEP	United Nations Environment Programme
FMEEnv	Federal Ministry of Environment

Author Contributions

Rufus Sunday Owoeye: Formal Analysis, Methodology, Supervision

Jumoke Ajayi: Conceptualization, Funding acquisition, Project administration, Resources

Timileyin Oyeniran: Data curation, Software

Conflicts of Interest

The authors declare no conflicts of interest.

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