

Determinants of Rural Dwellers Participation in Forest Resources Exploitation and Management in Southern Cross River State, Nigeria.

By

Ekengita, Edemanwan Ekeng

Department Of Geography and Sustainable Development

Faculty of Arts and Social Sciences

University of Calabar

Calabar

Email: edemekengita39@gmail.com

Abstract

The thrust of this study was to examine the Determinants of rural dwellers participation in forest resources exploitation and management in Southern Cross River State, Nigeria. To achieve the purpose of this study, five hypotheses were formulated to guide the study. Literature review was carried out accordingly. Survey research design was adopted for the study. A sample of seven hundred and eighty-six (556) youths was used for the study. The sample was selected through the multi-stage sampling approach involving *stratified random sampling technique and accidental sampling techniques*. The instruments tagged: Determinants of Rural Dwellers Participation in Forest Resources Exploitation and Management Questionnaire (DRDPFREM) was the instrument used for data collection. The instrument was subjected to face validation by one expert from Environmental Education and two experts in measurement and evaluation in the Faculty of Education, University of Calabar. The reliability estimate of the instruments was established through Cronbach Alpha reliability method. One Way analysis of Variance (ANOVA) and Independent t-test analysis were the statistical technique employed to test the hypotheses under study. Each hypothesis was tested at .05 level of significance. The result of the analysis revealed that, the variables rural dwellers gender, age, educational status, income level and attitude significantly influenced influence participation in forest exploitation and management in Calabar Education Zone of Cross River State, Nigeria. Based on the findings of the study it was recommended that government should put in place a sustainable governance structure in the forests communities for a conducive and friendly environment that will ease the burden of the women, being the most vulnerable.

Introduction

The forest zone in Nigeria consists of a very rich biodiversity which is of immense value to man's existence. Their historical, economic, scenic, domestic as well as cultural value

requires that forests be protected. Tropical rainforest is especially rich in species and their fate has many implications for many crops. Tropical forests contain wild population of thousands of crops such as coffee, rubber, mango as well as new crops and livestock. Cross River State is known for its rich biodiversity and contains some of Nigeria's last remaining rainforests and protected areas.

Cross River is blessed with abundant area of forest cover, yet this valuable resource is not utilised, managed, or conserved in a sustainable manner. Forest is a valuable environmental and economic resource for supporting natural systems and human welfare. The high degree of biological diversity within the tropical rainforest is reflected not only in genetic resources but also in the array of established and potential products and commodities they contain. In every part of the countries of the world, forests are designated according to their function such as productive, protective and socio-economic functions. These functions of the forest have provided opportunities for livelihood sustenance among the rural people. Unfortunately, the increased demand for forest resources and the technology adopted by man for extraction has caused severe degradation of forest resources (FAO (2018).

Overall, forest exploitation and management are interconnected processes that play a crucial role in achieving the delicate balance between human needs and environmental preservation. Sustainable forest management is essential to safeguarding the planet's biodiversity, mitigate climate change, and ensure the well-being of both present and future generations. Forest exploitation refers to the utilization and extraction of resources from forest ecosystems for various purposes, primarily for economic gain. It involves the removal of trees and other non-forest products, such as timber, fuelwood, non-timber forest products (NTFPs), and minerals. This process can be carried out manageably or carelessly, depending on the practices employed and their impact on the forest's ecological integrity. Sustainable forest exploitation involves practices that ensure the regeneration and long-term health of the forest ecosystem, as well as the equitable distribution of benefits among different stakeholders. This approach aims to meet the needs of the present without compromising the ability of future generations to meet their own needs. On the other hand, unsustainable forest exploitation involves practices that lead to the degradation and depletion of forest resources, often resulting in deforestation, habitat loss, soil erosion, and biodiversity decline. Unsustainable exploitation can have severe environmental, social, and economic consequences, threatening the livelihoods of local communities and the ecological balance of the region. Forest management is the systematic and planned approach to conserve, utilize, and sustainably develop forest resources while considering ecological, economic, and social factors. The primary goal of

forest management is to ensure the long-term health and productivity of the forest ecosystem while meeting various human needs and aspirations.

Statement of the problem

Cross River State in Nigeria faced significant challenges related to forest exploitation and management. Despite being home to various conservation sports, the state has faced issues with illegal logging, poaching, and unsustainable agricultural practices, leading to deforestation and habitat degradation. Nigeria had the highest rate of deforestation in the world between the years 2010 to 2020. Between 1990 and 2005, Nigeria lost 35.7 per cent of forest land due to human activities (FAO, 2020). Nigeria's forests decreased gradually from 16.6 per cent in 1996 to 7.7 per cent in 2018 (Emeodilichi, 2018).

Cross River State in Nigeria faced significant challenges regarding forest resource exploitation and mismanagement, contributing to an alarming state of environmental degradation and biodiversity loss primarily driven by illegal logging, agricultural expansion, and infrastructural development. Valuable and biodiverse forest areas have been cleared, leading to habitat destruction and loss of critical ecosystems. Illegal logging activities have been widespread in Cross River State, leading to the depletion of valuable timber species and undermining sustainable forest management efforts. The lack of proper law enforcement has allowed illegal loggers to operate with impunity. The state's diverse wildlife attracts poachers and illegal wildlife traders, contributing to the illegal trade of endangered species and further threatening biodiversity. Forest exploitation and mismanagement have posed threats to the livelihoods and cultures of indigenous communities that rely on forests for sustenance and traditional practices. There is an urgent need to investigate the determinant of rural dwellers participation in forest resources exploitation and management in Southern Cross River State.

Purpose of the study

The main purpose of this study is to examine the determinants of rural dwellers participation in forest resources exploitation and management in Southern Cross River State. Specifically, the study seeks to:

- i. Examine whether rural dwellers gender influences participation in forest exploitation and management.
- ii. Ascertain whether rural dwellers age influences participation in forest exploitation and management.

Research Questions

The following research questions will be formulated to guide the study:

- i. How does rural dwellers gender influence participation in forest exploitation and management?
- ii. To what extent does rural dwellers age influence participation in forest exploitation and management?

Statement of hypotheses

The following null hypotheses will be formulated to guide the study:

- i. There is no significant influence of rural dwellers gender on participation in the forest exploitation and management.
- ii. There is no significant influence of rural dwellers age on participation in forest exploitation and management.

Gender and participation in the forest exploitation and management

Gender role analysis refers to methods used to assess and understand the differences in the lives of female and males, girls and boys and the relationships between and amongst them including: their access to resources and opportunities, their activities, and the constraints they face relative to each other (Nwimo, 2022). It is a process that identifies the varied and different roles and responsibilities that female and males, girls and boys have in the family, the community, and in economic, legal, political, and social structures. Where women's roles are more prominent, this is primarily due to gender orientated interventions by external agencies. They concluded that several constraints to foster women's empowerment were identified, with some easier to overcome than others (Kugouza, 2019). Shackleton and Campbell (2001) averred that male and female roles vary enormously from one society to another. There can be significant differences depending on socioeconomic class, family status, and ethnic or religious background. They further observed that men tend to play a greater role than women in extracting timber and non-timber forest products for commercial purposes. Like in Akamkpa and indeed Cross River State and other forest communities, Women typically gather non-timber forest products (like Afang, hot leaf, otasi, pepper, bitter kola, bush mango etc.) and wood for fuel, fencing, food for the family, fodder for livestock and raw materials to produce natural medicines, which help to increase family income.

There are gender disparities in the uses of, access to and control over resources in many communities in sub-Saharan Africa (Mukadasi & Nabalegwe, 2019; Mukoni, 2020), where eight out of 10 people who engage in farming are women, produce 80% of the food consumed, and do 90% of the work to process it. Women's livelihoods and social roles rely directly on

forest resources to meet the nutritional, health and cultural needs of families and communities; forest resources are crucial to women's ability to generate income, whereas men are involved in timber extraction and the use of non-timber forest products for commercial purposes (Murray, 2021).

Age and participation in the forest exploitation and management.

Demographic variables are noted to be some of the key factors responsible for the lack of community participation in forest conservation. Age is said to be merely a measure of the number of revolutions that the earth has made around the sun since a person's birth, indicating that age provides a convention index of the passage of time. Kimmel (2018) sees age as merely a measure of the number of devolutions that the earth has made around the sun since a person's birth. Indicating that, age provides a convention index of the passage of time. Rodger (2019) observed that, age is the central variable in the demographic model. He stressed that age is the most important variable in the study of mortality, fertility, mutuality and certain other areas of demographic analysis. According to Feeney (2010), exact age is as time elapsed since birth.

The age of people as a demographic variable segment forest conservation project according to the age of the community members. It is based on the premise that typical community participation changes as the residents ages This variable classifies community members' age into four stages: children (8-11 years), teenagers/youths (12-18 years), middle-aged (25-45 years) and older population. People of all ages can be forest dependent, however young people may be more dependent on forest products than elderly people. The reason for this is that the young people may have multiple uses of the forests and more so forest products collection is labour intensive (Robe & Kinfé 2021). On the other hand, the elderly people may not take a risk of going into the forest to undertake forest activities particularly that the elderly people may not have the strength to carry out forest related activities. Age may be an important factor in explaining conservation commitment. Elderly people may perceive the commitment to conservation of resources as a constraint to their livelihood because of cultural practices and traditions e.g. collection of medicinal plants and herding livestock. In that case, age may have negative influences on conservation attitude (Nwimo, 2022).

Research design

The research design adopted for this study will be Ex-post facto design. Joshua, Isangedighi, Asim and Ekuri (2004) asserted that Ex-post facto research design is a systematic empirical inquiry in which the researcher does not have direct control of the independent variables because their manifestations have already occurred or inherently not manipulable. Inferences

about relations among variables are made without direct intervention from concomitant variation of independent and dependent variables.

The researcher has no direct control over the independent variables since they have already occurred in the population. The Independent variables are; gender, age, educational status, income level and attitude. While the dependent variable is forest exploitation and management.

Area of the study

The study area is the Southern Cross River State. The Southern Cross River State is located between latitudes 4°28' and 6°31' north of the equator and longitudes 7°50' and 9°28' east of the Greenwich meridian. It covers an area of 18,074, 4.35km². The Southern Cross River State consist of local government areas such as Akamkpa, Akpabuyo, Bakassi, Biase, Calabar Municipality, Calabar south and Odukpani local government areas. It is bounded by Yakurr Local Government Area to the north, Atlantic Ocean and Akwa Ibom State to the south, Abia state to east and the republic of Cameroon to the west. It is has an undulating topography, which rises and falls gradually. The inhabitants in the rural area in Southern Cross river state are mostly farmers, traders, stone merchant and fishermen. The inhabitants in the urban areas are mostly civil/rural dwellers who reside in Calabar south and Calabar Municipality.

Southern Cross river state is a growing industrial, commercial and educational centre. It is noted for the production of cash crops such as oil palm nuts, rubber and other farm products like yam, rice, cassava, fish and crayfish. It also has granite industries in Akamkpa. Mary Slessor Home at Akpap Okoyon in Odupani Local Government Area.

Population of the study

The population for this study consisted of 5639 rural dwellers (male and female) in Southern Cross River State, Nigeria.

Sampling techniques

The stratified random sampling technique was used for the study. The stratified sampling *were* adopted to select seven Local Government Areas in *Southern Cross River State*. In each of the Local Government Area, *the* simple random sampling technique was used to select the respondents for the study. The names of Local government in Southern Cross River State *were* documented in piece of papers according to the number of rural dweller found in each Local Government Area that make up the Southern Cross River State, mixed in a container. A different person *were* allowed to pick one paper after the other till the ten percentage of rural dweller are selected. 10% of the rural dwellers in each local government area was used

for the study. Simple random sampling was adopted for the selection of respondents. Here, the researcher wrote yes and no on paper balls, rural dwellers were allowed to pick.

Sample

The sample consists of 564 rural dwellers which comprised 10% of the estimated population from the seven Local Government Areas in Southern Cross River State. The researcher used 10% since it is large enough to make generalization.

Results and discussion

This chapter deals with the result of the statistical analysis of data gathered for this study as well as their interpretation and discussion. The presentation of data was done following the trends of the five hypotheses directing the study.

There is no significant influence of rural dwellers gender on participation in the forest exploitation and management. Independent variable is rural dwellers gender (male and female). Dependent variable is participation in the forest exploitation and management. Independent t-test analysis was adopted to test this hypothesis.

Table 1 Independent t-test analysis of the influence of Rural dwellers gender on participation in the forest exploitation and management (N=556)

Participation	Gender	<i>x</i>		Std. Deviation	t-value	p-value
		N				
Forest Exploitation	Male	322	22.6677	1.51775	7.063*	.000
	Female	234	21.5598	2.18035		
Forest management	Male	322	20.1739	2.39565	-3.759*	.000
	Female	234	20.8718	1.78952		

* Significant at $p < .05$ level, $P\text{-value} = .000$, $df = 554$.

The result in Table 5 revealed that the t-values of 7.063 for forest exploitation and -3.759 for forest management are each significant at $p = .000$. Since the $p (.000)$ is less than $p (.05)$, the null hypothesis is rejected. With this result the null hypothesis that there is no significant influence of rural dwellers gender on participation in the forest exploitation and management was rejected. This implies that there is a significant influence of rural dwellers gender on participation in the forest exploitation and management.

H₀₂

There is no significant influence of rural dwellers age on participation in the forest exploitation and management. The independent variable in this hypothesis is rural dwellers age (20 –30, 31---40 and 41and above); while the dependent variable is participation in the

forest exploitation and management. To test this hypothesis, participation in the forest exploitation and management from age 20 –30, 31---40 and 41and above were compared using One-Way Analysis of Variance (ANOVA).

The result on Table 6 revealed that the calculated F-values of 910.490 for forest exploitation and 70.337 for forest management are each higher than the p-value of .000 at .05 level of significance with 2 and 553 degree of freedom. With this result the null hypothesis was rejected. This result therefore implied that, rural dwellers age significantly influenced participation in the forest exploitation and management. Since rural dwellers age had a significant influence on participation in the forest exploitation and management, a post hoc analysis was employed using Fishers' Least Significant Difference (LSD) multiple comparison analysis.

Summary of the study

Literature review was carried out accordingly. Survey research design was adopted for the study. This design was considered appropriate because it allows the researcher to make inference and generalization on the population by selecting and studying the sample for the study. A sample of five hundred and six (556) youths was used for the study. The sample was selected through the multi-stage sampling approach involving stratified random sampling and accidental sampling techniques. The instruments tagged: Determinants of Rural Dwellers Participation in Forest Resources Exploitation and Management Questionnaire (DRDPFREM)Q) was the instrument used for data collection. The instrument was subjected to face validation by one expert from Environmental Education and two experts in measurement and evaluation in the Faculty of Education, University of Calabar. The reliability estimate of the instruments was established through Cronbach Alpha reliability method.

One Way Analysis of Variance (ANOVA) and Independent t-test analysis were the statistical technique employed to test the hypotheses under study. Each hypothesis was tested at .05 level of significance. The result of the analysis revealed that, rural dwellers gender, age, educational status, income level and attitude significantly influenced influence participation in the forest exploitation and management in Calabar Education Zone of Cross River State, Nigeria. Based on the findings of the study, it was recommended that government should put in place a sustainable governance structure in forest communities for a conducive and friendly environment that will ease the burden of the women, being the most vulnerable.

Conclusion

Based on the results of the study, it was concluded that rural dwellers gender, age, educational status, income level and attitude significantly influenced participation in the forest exploitation and management.

Recommendations

On the basis of the findings of this study, the following recommendations were made:

1. Government should put in place a sustainable governance structure in the forests communities for a conducive and friendly environment that will ease the burden of the women, being the most vulnerable.
2. All age brackets in the communities should be encouraged and incorporated for effective community participation in forest conservation for sustainability and inclusion in community based organization on forest conservation.
3. The government should intensify awareness creation and public education on the need for collaborative forest management between local communities and forest management staff.

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