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# Land Tenure System and Conservation of Forest Resources: Implication for Climate Change Mitigation in Cross River State, Nigeria .

**Etuki Eborty Egbonyi,( Ph.D)**
etukieborty@gmail.com

&

**Oham Sunday Bassey (Ph.D)**
basseyoham@gmail.com
&
**Augustine Onyi Ushi, PhD**

Department of Environmental Education
Faculty of Science Education
University of Calabar.

## Abstract

This study investigated Land tenure system and conservation of forest resources, implication in Climate change mitigation in Cross River State, Nigeria. To achieve the purpose of the study, one research question was raised and one hypothesis was formulated and tested at .05 level of significance. Review of literature was carried out according to the variable of the study. The study adopted the descriptive survey research design. The population of the study comprised 73,755 registered farmers in Cross River State. A sample of 495 registered farmers was used for the study. The instrument used for data collection was 18 item structured questionnaire. The research instrument was subjected to validity test by relevant authorities. The instrument was titled Land tenure system and conservation of forest resources, implication in Climate change mitigation Questionnaire (LTSCFRCCMQ). Cronbach alpha method was utilized to establish the reliability of the research instrument. The testing of hypothesis in the study was done with simple regression statistical tool. The result obtained from data analysis revealed that, land tenure system, was a significant predictor of conservation of forest resources in Cross River State, Nigeria. With an F-value of 8.453 and an adjusted $R^2$ of .015. which implies that 1.5 percent of the variance of the dependent variable (conservation of forest resources) can be predicted from the independent variable (land tenure system). It was therefore concluded that, Land tenure system practices conserves forest resources and contributes as a measure of climate change mitigation in Cross River State. It

was therefore recommended that, **t**he ministry of Agriculture in collaboration with the Forestry Commission and Famers Associations should continue to collaborate in order to promote the use of Land rights in the study areas as a means of conserving the forest resources and mitigating climate change.

**Keywords**: Land tenure system, conservation of forest resources, and Climate change mitigation.

## Introduction

Land tenure system is the framework of rules, customs, and laws that defines how land is owned, used, managed, and transferred by individuals, families, communities, institutions, or governments, establishing rights and responsibilities for purposes of access and control of land. These systems determine which land can be use by who, for how long, and in what conditions. Land tenure system have influence on social, economic, and political structures through formal legal procedures or customary practices. Forests are found on land, so there is also forest tenure. According to Al Hasnat and Mahadi. (2023) Responsible Forest governance and forest tenure security are crucial in helping to reduce deforestation, combat climate change, and sustain the planet. Like Land tenure, Forest tenure and property rights determine who owns and manages forest resources. Forest tenure tends to be complex, as there is an array of stakeholders with different interests to forests, ranging from national and local state officials to local communities and (seasonal) users, including Indigenous Peoples.

Land tenure system which has to do with securing land rights from indigenous people and rural communities can activate critical change agents in the fight against climate change around the world. Land tenure system is one of the approaches employed in climate change mitigation. Indigenous and rural communities are among those least responsible for climate change, yet they are often the first to suffer from its impacts. Communities in rural areas are severely impacted by sudden and slow onset effects of climate change such as land and soil degradation and more frequent and intense floods (Janis (2016). Indigenous people live on lands governed by customary tenure and other community agreements. Securing access to natural resources and formalizing land tenure rights is an essential foundation for vulnerable indigenous peoples to maintain their livelihoods, exercise their civil, social, cultural, political and economic rights and contribute to local, national and global sustainable development (United Nations (2009).

Therefore, it necessarily requires engagement and partnership with indigenous and rural population, who are critical change agents in the global fight against negative impact of climate change. Indigenous peoples have a vast depth of ecological knowledge which they have honed and passed down over generations, making them invaluable leaders in

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constructing climate mitigation and adaptation strategies and solutions. Food and Agriculture Organization (2022) provided evidence-based insights into how indigenous culture and traditional knowledge help protect forest.

Land tenure system is a social construct which refers to the "bundle of rights" held over a given portion of land (Abane, 2017) these "bundle of rights" can be held by people, group of people and or political entities. These bundles of rights can be broken up, be redivided and/or passed to others depending on the contemporary and traditional laws and regulations regarding ownership and accessibility of land within a given society (Acharya, Adhikari, & Khanal, 2008). Also, depending on the laws and regulations, the rights could come in various forms, such as tenancy, assess, partition, freehold, leasehold, acquisition, labour, an extraction of products/ benefits (Alagba, Obiefuna, Ibeawuchi & Okoli, 2012). Worthy of mention is that it is also concern with the farming systems and values attached to land for land usage/ ownership. In Nigeria, land tenure is governed by the land use degree of 1978 which fundamentally vests all lands in each state in the governor, except land(s) already vested in the federal government and its agencies, (Ogunwusi 2013). In other words, land is owned by government on behalf of the community.

Rights and Resources Initiatives (RRI) (2018) postulated that with secure land tenure, indigenous peoples and local communities can realize human rights, achieve economic growth, protect the environment, and maintain cultural integrity. The gap between formally recognized and customarily held and managed land is a significant source of underdevelopment, conflict and environmental degradation. Strong rights to land are vital for indigenous people and local communities. When community land rights are weak, such areas are vulnerable to land grabbing, exploration without compensation and encroachment by outsiders. Without secure tenure rights, meaning rights that are enforceable and recognized by government and others, communities face increased risk of poverty, poor health and human rights abuse. Securing community tenure rights are not only crucial from a human rights and socio-economic development perspective, it is also necessary to mitigate climate change, faster sustainable development and promote peace building across the globe.

RRI, (2018) noted that unprecedented exposure, pressure and risk to local people and their forest is being met by unprecedented levels of local organization and political influence, providing nations and the world at large tremendous opportunity to right historic wrongs, advance rural development, and save forests.

Feeney (2018) argued that in most cases, indigenous people have been overlooked completely in natural resources management activities. Rural communities are supposed to be involved

in resource management through the process of gradual handling of the harvesting and management activities of their natural resources. This is because community members are usually considered as people with low level of knowledge and capacity of effectively managing their natural resources. This necessitated the introduction of community education as an approach that would build the capacity of local people towards the sustainable management of natural resources. This approach has yielded positive outcomes in areas where it has been practiced effectively.

White (2016) maintained that in recent years, the inability of the state to control degradation of forest has been recognized in many countries of the world. Governments have seen the benefits of handling over forest areas to local communities under a variety of community education programmes. Sustainability regarding forest conservation can be sufficiently land properly maintained, if the community is given the privilege to manage it for the betterment of the citizens. This approach has encouraged members of forest communities to develop greater commitment towards conservation of forest resources.

Oru (2018) also reported that the principle and practices of public participation provide a catalyst for genuine collaborative efforts between different organizations and local communities toward protecting and conserving the environment. Community participation has been seen as a tool to improve sustainable forest management.

Indigenous rights and rights to land as reasserted in the Unite Nation Conference on Human Rights in Vienna in 1993, human rights are indivisible political, social, cultural, economic and civil rights all interrelate and provide the basis for justice, equity and dignity. Indigenous people's right are no less indivisible. Rights to land are only one element crucial to their existence and future. Indigenous people view securing ownership, control and access to their lands, territories and natural resources as only one part of their quest for self-determination.

A study carried out by the World Resource Institute (WRI) (2016) revealed that securing tenure rights in forest areas can help mitigate climate change by reducing deforestation. The study entitled securing rights, combating climate change presented several major findings, including that, when communities have no legal rights or weak legal rights, their forest tend to be vulnerable to deforestation and thus become a carbon dioxide emissions source but legal forest rights and government protection of their rights can reduce carbon dioxide emissions and deforestation. Using Brazil as a case study, the WRI (2016) noted that only 0.6% of forest was lost inside indigenous lands in the Brazilian Amazon between 2000 and 2012, compared with 7.0% outside such lands. Furthermore, with a follow up report entitled climate costs and

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tenure benefits it was shown that, the economic benefits, such as ecosystem service benefits of securing community forest tenure outweigh community forest areas not secured.

Sanga (2021) carried out a study by utilizing a mixed research method to ascertain the importance of indigenous knowledge towards conserving natural forests in the face of modernization in Tanzania. The people within the country's southern highland formed the population while purposive and simple random sampling technique was used to select 242 respondents. Data was collected both quantitatively and qualitatively. The study's posers included ascertaining the existence and power of taboos in conserving forests and its natural resources and also the effectiveness and sustainability of conserving forests and its natural resources in modern times. The results revealed that almost all the respondents agreed that forest resources be conserved.

According to a study carried out by Eneji, Ogundu and Ojelade (2019) titled an indigenous cultural practices and conservation of natural resources in Nigeria. The research used a survey research method. All local dwelling in proximity of forests in Imo State formed the population while simple random sampling technique was used to select 240 participants. Data was obtained using questionnaire and the study's hypotheses were that, each of totemism, traditionally protected areas, evil forests, sacred grooves, sacred ponds and shrines do not contribute significantly to the conservation of wildlife resource. The data was analysed with Pearson Product Moment Correlation and the result showed that all of totemism, traditionally protected areas and sacred ponds/shrines did contribute significantly to conservation of wildlife resources. Therefore, based on the result, all the study's three alternative hypotheses were accepted while their null hypotheses were rejected.

Mulenga, Nkonde and Ngoma (2015) reported the extent which customary land tenure system encouraged conservation of forests and its resources in Zambia by applying a descriptive survey method. The population was sourced from agro-forestry land user in each of the country's central and eastern provinces. 68 participants were drawn using purposive and simple random sampling techniques. Data was collected qualitatively with focus groups discussions and data was analyzed with thematic content analysis. The study was concerned with verifying the local forest conservation interventions established for customary land administration and effectiveness of the local forests conservation intervention in preventing loss of forests and their resources. With the aid of the thematic content analytical technique, the result showed that there were some local forest conservation interventions that were ineffective due to informal rules; rules were not design based on well-informed decision-making processes and lack enforcement institution/structure. The findings of the aforementioned studies were found relevance to the present study in that among other

assessment, it sought to assess the importance of indigenous people's land rights and the conservation of forest resources in protected area. Benzeev, Braz, Lyons, and Newton, (2025) observed that, Land tenure for Indigenous peoples and local communities in forested areas can improve livelihoods and protect forests while recognizing territorial and human rights. According to Gordon (2021) The quest to foster sustainable forest management (SFM) in the era of sustainable development goals has reignited the debate on forest tenure concerns. Adding that, Land and forest tenure insecurity has remained a major underlying cause of deforestation in Africa, which suggests that addressing tenure issues could effectively foster sustainable forest management.

In comparison to statutory law, customary tenure tends to be more flexible, dynamic, and adaptive, and can accommodate a broad spectrum of resource users. Yet, customary tenure systems can also be rigid, biased in favor of elites, discriminatory against women and/or youths, or lack accountability mechanisms. That said, tenure rights do not only need to be secure but also provide inclusive and equal access and control over forest resources. (Baynes & Jack 2016).

**Statement of the problem**

The study area Cross River State has been regarded as one of the major states with natural forest cover in Nigeria and beyond. But today most of the natural vegetation has disappeared as a result of human activities like deforestation, unsustainable agricultural practices, bush burning, illegal hunting, logging activities and mining activities. As a result, most of the forest reserves are being converted to farm land, plantation farm, housing sites, quarrying sites, roads and construction sites.

Despite the glaring consequences of climate change facing the people in study area, many people do not seem convinced on the need to carry out sustainable agricultural practices as a means of reducing the advert effect of climate change. Resident of the study area still indulging in farming practices that promote the emission of greenhouse gases into the atmosphere. Government and other concerned stake holders have made efforts in creating awareness and sensitizing people on adaptation strategies and on the need to consider alternative farming practices that constitutes severe climatic problems. These efforts have yielded no significant results as the incident of forest destruction seem to be on the increase in the study area.

Urgent steps must be taken to tackle the problem of forest destruction in the study area by raising a citizenry that is aware of and committed to finding lasting solution to the conservation of forest resources, that will ensure eco system sustainability, regulate

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temperature and ensure continuity of the society. This emphasizes the need to consciously promote climate change adaptive strategies among the people in the study area. This informs the researchers resolve to carry out a research on Land tenure system as a climate change adaptive strategies in Cross River State, Nigeria.

**Purpose of the study**

The purpose of the study is to investigate whether Land tenure system as a climate change adaptive strategy predicts conservation of forest resources in Cross River State.

**Research question**

How does land tenure system predict conservation of forest resources?

**Statement of hypothesis**

Land tenure system does not significantly predict conservation of forest resources in Cross River State.

**Research methodology**

Descriptive survey research design was used for the study, while the stratified, systematic, proportionate and simple random sampling techniques were used to stratify the study area Cross River State into three (3) Education Zones, Calabar, Ikom, and Ogoja Education Zones and into Eighteen (18) Local Government Areas. The simple random sampling techniques was used to select 10 LGAs from the 18. Proportionately 10% of communities were selected from each of the 10 LGAs sampled for the study, from the communities selected systematic random sampling technique was then employed to select 5% of the farmers. Using the list of registered farmers in each selected community, every $10^{th}$ name on the list representing 5% was selected for the study. A sample of four hundred and ninety-five (495) registered farmers were therefore selected from a population of seventy-three thousand, seven hundred and fifty-five (73,755) registered farmers in the study area. A structured questionnaire made up of Eighteen (18) items, six from the independent variable (Land tenure system) and Twelve from the dependent variable (conservation of forest resources) was the instrument used for data collection in the study, using a four-point scale of (Strongly agreed, Agreed, Disagreed and Strongly disagreed) the instrument was subjected to validity and reliability test and was found valid and reliable for the study. The final data was then analysed using the Simple linear Regression Analysis Statistical Tool.

**Results and discussion**

To analysed the data obtained from the study, scores of respondents on Land tenure system and their scores on conservation of forest resources were obtained and analysed using Simple

linear Regression Analysis Statistical Tool of Computer SSPS. The result is as presented. The descriptive statistics of the research variables, land tenure system and conservation of forest resources is as presented in table 1.

**Table 1:**Descriptive Statistics of research variables

| | N | Mean | Std. Deviation |
|---|---|---|---|
| Land tenure system | 495 | 18.68 | 2.87 |
| Forest conservation | 495 | 19.63 | 2.74 |

Table 1 showed the descriptive statistics of the total respondents used for the study as well as the mean and standard deviation. The table showed that there were 495 respondents who responded to the items in the instrument. According to the variables in the tables, Land tenure system as an independent variable had mean of 18.68 with a standard deviation of 2.87, while the dependent variable (forest conservation) had a mean of 19.63 and a standard deviation of 2.74. The summary of data and simple linear regression analysis of the prediction of Land tenure system on conservation of forest resources in Cross River State is as presented in table 2

**Table 2:** Summary of data and simple linear regression analysis on the prediction of land tenure system on the conservation of forest resources in Cross River State.

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| | .130 | .017 | .015 | 2.71592 |

ANOVA

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| | Regression | 62.352 | 1 | 62.352 | 8.453 | .004[a] |
| | Residual | 3636.464 | 493 | 7.376 | | |
| | Total | 3698.816 | 494 | | | |

Coefficients[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| | (Constant) | 17.324 | .804 | | 21.552 | .000 |
| | Land tenure system | .124 | .043 | .130 | 2.907 | .004 |

a. Dependent Variable: Forest conservation

The simple regression analysis in Table 1 showed the prediction of land tenure system on conservation of forest resources in Cross River State which produced an adjusted $R^2$ of .015. This implies that only 1.5 percent of the variance of the dependent variable (conservation of forest resources) can be predicted from the independent variable (land tenure system). The F-value of 8.453of the Analysis of Variance (ANOVA) obtained from the regression table with a p-value .004 with 1 and 493 degrees of freedom at .05 level of significance showed that the null hypothesis was rejected. This result therefore signifies that land tenure system significantly predicted conservation of forest resources by 1.5 percent. The result therefore implies that there was a significant prediction of land tenure system on the conservation of forest resources in Cross River State.

The research hypothesis which addresses the prediction of land tenure system on the conservation of forest resources revealed that land tenure system significantly predicted conservation of forest resources in Cross River State. This is because land tenure system that, is of Inheritance, Leasehold, and Communal ownership does not support land rights. When land is gotten by Inheritance, the land is shared among those who Inherited the land, and this results to land fragmentation which does not enhance tree planting and hardly encourage forest conservation. When land is gotten by Leasehold, the Leasehold period may be so short to enable the planting of perennial and tree crops. Communal and family ownership are also subject to sharing and fragmentation that does not support sustainable agriculture and forest conservations. land tenure system by Gift, Freehold, and Individual, have more land rights, the owners have free access and control over their land and can decide to plant perennial and tree crops which supports forest conservation and the sustainability of other forest resources. This result is in tandem with Sanga (2021) who noted that land tenure systems influence the use to which land is put for economic and social development. Yet land use determines whether a resource cold be conserved or not; and the level of conservation attainable for natural resources. Land tenure is a tool for conservation and it involves sets of rules and regulations used to control and manage natural resources: soils, water, wild life resources and the environment. Land tenure systems are dynamic. They respond to socio-economic and political changes put in place for resource utilization. Tenure systems are however not monospecific: they vary from one rural community to another but pivoted by three broad systems of communal, individual and family ownership. Land tenure systems influence the use to which land is put for economic and social development. Yet land use determines whether a resource could be conserved or not; and the level of conservation attainable for natural resources. Land tenure system not only helps a cultivator to establish rights of ownership of land by farmers but boost the conservation of the forest. This would help the farmers to establish a link between the cultivators is the government. Remarkably land tenure system makes the ownership of land more secure and permanent, which is very much

important for the development of agriculture thereby advancing forest resources. Social structure of a country is also influenced by the land tenure system. If the land distribution pattern in a country is skewed or uneven then it paves the way for exploitation of forest by the farmers thereby leading to deforestation. But when the farmer's right over the land is already established, it may lead to equitable distribution of income and thereby the society will become comparatively peaceful, and forest conservation as well.

## Conclusion

Based on the result of the study, it was concluded that:
Land tenure system practices conserves forest resources and contributes as a measure of climate change mitigation in Cross River State

## Recommendation

The researchers therefore recommended that**. t**he ministry of Agriculture in collaboration with the Forestry Commission and Famers Associations should continue to collaborate in order to promote the use Land rights in the study areas as a means of conserving the forest resources and mitigating climate change.

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