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Indigenous Communal Practices and Sustainable Forest Management in IkomEducation, Zone of Cross River State, Nigeria.

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Abstract
This study investigated the relationship between indigenous communal practices and sustainable forest management in Ikom Education Zone of Cross River State. Two variables were operationalized from indigenous communal practices - belief systems concerning forest management and land tenure system while sustainable forest management was treated as the dependent variable. A correlational survey approach was utilized for the study. The sample was drawn using a purposive sampling procedure and it was made up of 696 respondents. A data collection instrument tagged "Indigenous Communal practices and Sustainable Forest management Questionnaire" (ICPSFMQ) was used to elicit required data for the study and Cronbach Alpha was applied to estimate its reliability. The two hypotheses raised for the study were analysed using Pearson Product Moment Correlation and tested at .05 level of significance. The findings revealed that each of belief systems concerning forest resources and land tenure system served as significant correlates of sustainable forest management. Recommendations included those locals' tenets of belief systems and land tenure systems which favour appropriate sustainable forest management should be ceaselessly encouraged amongst them through non-formal education awareness forums even in the face of seeming westernization within the areas.
Key Words: indigenous communal practices, sustainable forest management, locals, forest resources.

Introduction

A forest and its resources are a valuable, naturally endowed and an integral part of the earth's life support system as they perform a wide range of ecological and socio-economic functions that are of high value to the continuous existence of life on earth. In terms of ecological functions, they facilitate air and water purification, they serve as a source through which regulation of soil and water flow (watershed protection) is ensured, they provide the structures which help conserve the soil by preventing and controlling erosion, they preserve natural scenery, they help maintain an ecological balance in terms of physical and climatic conditions, and they provide habitat for millions of species. Socio-economically, they provide a wide variety of timber and non-timber products which man depends on as a source of livelihood, development and survival. They also provide a wide range of employment opportunities and energy sources such as fuel wood. With the above stated, the worth of managing forests and its resources sustainably is a necessity both for man's continuous survival and the continuous existence of life on earth.

As at 1960 in Cross River State, there were 17 forest reserves established with the purpose of managing them (Enuoh & Bisong, 2014). These forest reserves are home to a very rare type of forest (the Lower Guinean Tropical Rain Forest) which is only typical to West Africa and also contains some of the rarest species of life on earth such as the rainforest elephant, the Miss Waldron's red colobus monkey, the Cross River gorilla, Sclater's Guenon Monkey and some exotic species of flora (Odey, Eyamba & Chapman, 2006). Out of the 17 forest reserves, 10 were within the confines of the present study area (Ikom Education Zone) (Cross River State Government (CRSG), 1994). The forest reserves (FRs) were the Afi River FR (Boki – 383.32 km^2); some portion of the Agoi FR (Akamkpa, Biase &Yakurr – 46.62 km^2); Boshi FR (Boki – 41.44 km^2); Boshi Extension FR (Boki – 67.34 km^2);Cross River North FR (Etung – 129.50 km^2);Cross River South FR (Etung &Ikom – 349.65 km^2); Ikom Fuel wood Plantation (Ikom – 1.06 km^2); Ikrigon FR (Ikom – 5.29 km^2); Okwangwo FR (Boki – 468.79 km^2), and the Ukpon River FR (Obubra &Yakurr – 313.39 km^2).

As at 1994, a Cross River State forest inventory report concerning the management of the forest reserves revealed the following - Afi River FR (31% cleared); Agoi FR (33% cleared); Boshi FR (51% cleared); Boshi Extension FR (35% cleared); Cross River North FR (61% cleared); Cross River South FR (21% cleared); Ikom Fuel wood Plantation (100% cleared); Ikrigon FR (100% cleared); Okwangwo FR (now part of the Cross River National Park), and the Ukpon River FR (16% cleared) (Cross River State Government (CRSG), 1994). Sadly enough, since then, there has been no "state involved or sponsored" available and accessible forest inventory report to reveal updates on how the forests have been managed. In place of that, issues like crude farming practices, establishment of large scale agricultural farms

(mostly illegal and unchecked), illegal and unauthorized logging, unauthorized large scale deforestation of trees, animal poaching, extinction of some rare and exotic fauna and flora species, and unchecked mining activities have rather been reported in recent times by researchers as ways in which the forest and its resources have been managed (Adedoyin, Jimoh & Omifolaji, 2017).

Sustainable forest management and its resources is a necessary requirement due to the unique ecological and socio-economic roles it plays to those who depend on it, the state, Nigeria and the global society. The forest is the major reason why Cross River State was being purposively chosen as the Biodiversity Hotspot of Nigeria in 2009 and among the 25 Global Biodiversity Hotspots since it harbours more than half of the country's remaining rainforest. It is also worthy of note that the purposive choice of the state's forest amongst the world's 25 Global Biodiversity Hotspots is due to reports by the Directorate for International Development (DFID) in 2003 and 2006 that the forest would most likely disappear before year 2037 based on the deforestation rate which their studies observed.

Still on the need for appropriate sustainable forest management and its resources, it is necessary to pay more attention towards managing the forest and its resources sustainably as the number of people who depend on it and its resources increase on a daily basis. On the other hand, continuous treatment of this rare and exotic type of forest as a liability would only favour its continuous and unchecked deforestation due to the pressure on both timber and non-timber products. Continuous and unchecked deforestation would not only lead to desolate, barren and uninhabitable lands devoid of the benefits of the forest, it would lead to the earth losing an integral component of its life support system to mankind (Eneji, Mubi, Husain & Ogar, 2015).

Inclusive among determinants which could be perceived to cause unsustainable management of the forest and its resources are indigenous communal-based variables (Ajake & Enang, 2012). The indigenous communal-based variables of interest here are the indigenous communities' belief systems concerning forest resources and land tenure system. Belief systems concerning forest resources refer to the complex mix of norms, values, taboos, age-long traditions, traditional laws, rituals, etc., which the communities have developed and adhered to over time in reverence to supernatural beings conceptualized as gods and goddesses. This variable has also been mostly revealed as a significant indicator of sustainable forest management strategies amongst indigenous communities (Ngoni, Oduro & Paul, 2016).

Land tenure system is concerned with the indigenous communities' patterns of "bundle of rights" which are used to own a given portion of land. It has been mostly found to serve as a

significant determinant of indigenous communities' sustainable forest resource management patterns (Oham, 2023). With the cited research evidences, it is presupposed that indigenous communal-based variables could apparently be connected with sustainable management of forest resources. Therefore, based on the premise that indigenous communal-based variables could probably be related with sustainable management of forest resources, this study ascertained indigenous communal-based variables as a correlate of sustainable management of forest resources in Ikom Education Zone of Cross River State, Nigeria.

Statement of the problem

The forest is a very valuable environmental and economic resource which plays a major role in supporting natural systems and human welfare. The forest within the study area is a rare type and only native to West Africa, this implying that they house some flora and fauna species exclusively endemic to the area. Within the study area, many forest reserves were previously established. A forest inventory report in late last century revealed worrisome ways of how the forest and its resources have been managed while projections made early this century have observed that forest will disappear before this century reaches half way. Based on the projections, the area was designated a global biodiversity hotspot by the United Nations in order to checkmate the worrisome ways of managing the forest and its resources. A global hotspot implies that the area has only 25% of its initial biodiversity left, this meaning that most flora and fauna species have become extinct and most others are certainly on the critically endangered list.

Despite the grave and alarming reports above in recent times, researchers have continuously revealed reports of unchecked forest clearings for large scale mono-crop agricultural land uses, unchecked and unauthorized forest clearings for mining purposes and many crude agricultural practices as ways in which the forest and its resources have been managed from an agro-based dimension. In addition to the agricultural issues, large scale fuel-wood extraction, unauthorized and illegal logging unsustainable harvesting of non-timber forest products, unauthorized and illegal poaching and utilization of chemicals/poisons for hunting and fishing are ways which have been reported of how the forest and its resources have been managed from the commercial dimension in recent times. It is as a result of the worrying issues stated above that this study seeks to address these pressing issues by exploring the relationship between indigenous communal practices and sustainable forest managements in Ikom Education Zone of Cross River State, Nigeria. The purpose of the study was to investigate the relationship between indigenous communal practices and sustainable forest management in Ikom Education Zone of Cross River State.

Research questions

1. How do indigenous communities' belief systems concerning forest resources relate with sustainable forest management?
2. To what extent does indigenous communities' land tenure system relate with sustainable forest management?

Statement of hypotheses

1. There is no significant relationship between indigenous communities' belief systems concerning forest resources and sustainable forest management
2. Indigenous communities' land tenure system has no significant relationship with sustainable forest management

Literature review

A belief system encompasses the complex mix of values, norms, traditional law, taboos, age-long cultural practices, rituals, etc., carried out in specified designated spots or carefully delineated areas during specifically given periods which people develop and adhere to that enable them show reverence to perceived supernaturally powerful beings known as a god or goddess. As a concept, it could be seen as a mental acceptance of an embodiment of processes and procedures carried out to show reverence to a specified supreme being (Ngoni, Oduro & Paul, 2016). A close look at the explanation of what a belief system encompasses coupled with its definition simply imply that this study is viewing it (a belief system) from a traditional/indigenous point of view. This implies that the belief system viewed here is concerned with tenets of traditional religions. The tenets of traditional religious belief systems are all about faith and belief in various forms of nature (Moyer, Sinclair & Diduck, 2014) and the various forms of nature include rocks, caves, trees, forest patches, water bodies, mountains and different types of animals (Fontein, 2006).

The reason for believing in the various forms of nature is due to the belief that they are the abodes of gods and goddesses (Gabriel & Mangahas, 2017). The belief systems are then developed from beliefs such as the god/goddesses protecting them from issues such as famine, drought, harm, impotence, barrenness, war, epidemics, etc., (Rim-Rukeh, Irerhievwie & Agbozu, 2013). Worthy of note within the belief systems are the existence of traditional laws and taboos designed to concretize the beliefs within peoples' psyche. In recent times, the tenets of traditional religions have been researched into and found to have profound impacts on management of natural resources including forest-based ones.

Ngoni, Oduro and Paul (2016) studied the effect of aboriginal belief systems on management of natural resources in Cameroon Republic. A case study design was applied and all locals in

proximity of the Mount Cameroon National Park (MCNP) made up the population. Posers inquired by the study included an assessment of – (i) availability of traditional beliefs in connection with forest resources; (ii) relationship between traditional beliefs and forest conservation practices, and; (iii) influence of belief system on resources' management. The result revealed the following – (i) majority of the respondents (67%) indicating that they had traditional beliefs connected with forest resources; (ii) traditional beliefs were found to have a statistically significant relationship with forest conservation practices, and; (iii) the traditional belief system had a significant influence on resources' management. Asante, Ababio and Boadu (2017) investigated utilization of cultural practices and forest conservation in Ghana by applying a case study approach. Locals of the Ashanti region made up the population. Using interviews to collect data, one of the posers was concerned with the various methods in which traditional belief systems used in facilitating forest conservation. The result revealed that beliefs, taboos, proverbs, myths and songs were the various methods used to enhance forest conservation.

The effectiveness of traditional religion as a strategic tool for wildlife management in Nigeria was studied by Shuaibu, Alarape and Bichi (2018). The study used a descriptive survey design and the population was sourced from indigenous people in Kogi State. An evaluation of sacred grooves as a strategy for wildlife management was enquired from the respondents. The result not only revealed that 77.6% of the respondents agreed that sacred grooves could mitigate wildlife destruction but also, sacred grooves were found to be a significant indicator for wildlife management. Chukwu, Ezeano, Ezenwenyi and Adeyemi (2019) explored the effect of cultural beliefs on the preservation of sacred forests in Nigeria by utilising a case study approach. Inhabitants in proximity of a renowned sacred forest in Ebonyi State made up the population. Inquiries obtained from them included identifying the prevalence of traditional laws among the people in line with preservation of wildlife within the sacred forest. The result showed that 85% of the respondents agreed that there were traditional laws which restricted the hunting of wildlife within the forest.

A scrutiny of indigenous cultural practices and conservation of natural resources in Nigeria was studied by Eneji, Ogundu and Ojelade (2019) in a research which was hinged on a survey research method. All locals dwelling in proximity of forests in Imo State formed the population. The study's hypotheses were that each of – (i) totemism; (ii) traditionally protected areas (evil forests and sacred grooves), and; (iii) sacred ponds and shrines do not contribute significantly to the conservation of wildlife resources. It was observed that all of totemism, traditionally protected areas and sacred ponds/shrines did contribute significantly to conservation of wildlife resources. Effectiveness of alternative conservation means in protecting sacred grooves in Nigeria was examined by Adeyemi and Oyinloye (2020) in a

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study hinged on a case study method. Locals in proximity of a sacred groove in Osun State served as the population. Enquiries posed by the study included ascertaining the effectiveness of the traditional worship system-based practices in ensuring conservation of wildlife within the groove. The result revealed that all the respondents agreed that the traditional worship system-based practices were effective in ensuring adherence to wildlife conservation in the groove.

Attitudes of locals towards cultural seasonal hunting bans for those in proximity to wildlife sanctuaries in Ghana with implication to sustainable wildlife management/tourism were investigated by Adom and Boamah (2020). A case study method was employed and the population was constituted from rural dwellers in proximity of a wildlife sanctuary within the country's Ashanti Region. Inclusive in the study's aim was to establish the locals' attitudes towards the traditional seasonal restrictions on hunting in the wildlife sanctuary. The result showed that all of the respondents had similar favourable dispositions of adhering to the traditional seasonal restrictions. Most of them went ahead to reveal that the seasonal restriction period was very necessary for the animals to replenish their stocks thereby enhancing conservation of the wildlife. Sinthumule and Mashau (2020) employed a mixed method in a probe of traditional ecological knowledge and practices for forest conservation in South Africa. The population was drawn from the country's Limpopo Province. Inclusive in the study's objectives was to ascertain the existence of taboos and punitive measures in place to ensure adherence with hunting related taboos. The result indicated that the taboos in the area strictly centred on absolutely no entry into some patches of the forest within the area while the punitive measures were said to be becoming blind, deaf, mad or disappearing.

Adedeji, Chikezie, Oyediran, Omotayo, Ayanwusi and Akinyode (2021) employed a case study method to verify perceived conservation approaches and conservation-related challenges among sacred grooves in Nigeria. Population was sourced from people in adjoining communities to a sacred groove in Osun State. One of the study's inquiries was concerned with verifying the wildlife conservation approaches employed within the sacred groove. The result indicated that the topmost conservation approach as reported by the people was enforcement through traditional worship-related practices/activities. Biodiversity conservation drivers in sacred grooves in Nigeria were analysed by Adeyanju, Bulkan, Onyekwelu, St-Laurent, Kozak, Sunderland and Stimm (2021) in a study framed on a survey research method. Population for the study consisted of inhabitants in proximity of sacred grooves across Ondo and Osun States. One of the study's aim was to examine extent which religio-cultural activities (specifically worship-based) served to enhance conservation of wildlife within the grooves. It was observed that the religio-cultural activities within the grooves did serve as very strategic drivers of wildlife conservation in the grooves. This they

revealed was mainly due to the belief attached to the responsibility assigned to the various wildlife species by the deities.

Oladeji, Osanyinleye and Lawal (2021) used a case study method to assess the conservation values of sacred grooves in Nigeria. The study's population was sourced from rural dwellers in proximity of a renowned sacred groove in Osun State. An inquiry of the forest function of the sacred groove was elicited from the respondents. The result showed that 95% of them indicated that the forest functions included serving as an abode for wildlife conservation. Approaches and challenges of traditional institutions towards biodiversity conservation in Nigeria with implications for sustainable management of forest resources was undertaken by Sambe, Yager, Ver and Ikape (2021) in a study hinged on a survey design. Population consisted of indigenous farmers/hunters from Benue State. Inquiries included assessing taboos practiced and adhered to within the community. The result revealed that not only were there periods of outright ban on hunting/fishing (also known as "off hunting/fishing season") but also, permission had to be obtained from community authorities before going to hunt/fish at times during the "on hunting/fishing season".

Sanga (2021) utilised a mixed research method to ascertain the importance of indigenous knowledge towards conserving natural forests in the face of modernisation in Tanzania. People within the country's Southern Highlands formed the population. 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 taboos in conserving forests and its natural resources in modern times. The result indicated that almost all of the respondents agreed that taboos do exist and they were very much revered. Using a case study design, Sibiri, Omukoro and Ameneye (2021) examined traditional systems and environmental sustainability in Nigeria. Inhabitants in proximity to forests in Bayelsa State made up the population. An evaluation of the taboos and ensuing punitive measures as it concerns hunting activities was part of the study's focus. It was observed that the taboo against hunting activities as revealed by all of the respondents was that no form of hunting was to be engaged in some forest patches. The punitive measures ranged from payment of fines to being punished by the gods of the forest patches.

An insight of African myths and sustainability of wildlife resources with specific focus on myths and totems and indigenous people in Nigeria was researched upon by Nomishan (2022) in a study which was predicated on a case study design. The study's population consisted of indigenous people in Benue State. An assessment of totemic beliefs practiced by the people was conducted and the result was analysed with the aid of thematic content analysis. The

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finding showed that the people had a wide variety of totems which include animals, snakes and birds.

Land tenure system is a social construct which refers to the "bundle of rights" held over a given portion of land. These "bundle of rights" can be held by individuals, group of individuals and/or political entities. They can be broken up, be re-divided 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, ownership, access, usufruct, partition, freehold, leasehold, acquisition, labour, an extraction of products/benefits (Alagba, Obiefuna, Ibeawuchi & Okoli, 2012). Worthy of mention also is that aside land, other objects of tenure include mineral resources, water, trees and forest, and they can be categorized into private holdings, commons and forest reserves.

In Nigeria, land tenure is governed by the Land Use Decree 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). The Decree also acknowledges the role of customary land law, thus ensuring that its role is upheld when deemed necessary. Land tenure systems within indigenous forest communities in Nigeria are mostly practiced in such a way that the objects of tenure are usually trees and forest while land is treated as an asset owned by any of extended maternal or paternal family groups, or the community itself. In recent times, due to issues of environmental degradation, land tenure systems are slowly being researched into in efforts to conserve and manage the few and gradually disappearing forests.

An assessment of impacts of tenure practices on management of forests in Nigeria was conducted by Ajake and Abua (2015). Applying a descriptive survey design, study's population was made up of locals in rainforest communities in Cross River State. The study's enquiries included determining whether difference in each of tenure and land tenure practices influenced forest use/management. The investigated tenure practices were land tenure, forest tenure and common property while the land tenure practices were private ownership, leasehold ownership, individual/family ownership, communal ownership and institutional ownership. The result revealed tenure practices as having an insignificant influence on forest utilization/management while land tenure practices did have a significant influence on forest use/management. An empirical analysis of obstacles hindering communities' roles in sustainable management of forest resources in Nigeria was researched by Eighemhenrio (2015) in a study which used a descriptive survey method. Population was made up of locals in rural forested communities in Edo State. Study's enquiries included an assessment of

barriers hindering sustainable forest resources' management. The result revealed insecurity of land tenure regimes as one of the topmost barriers which served to hinder communities in their roles towards enhancing sustainable management of forest resources.

Kanene (2016) examined indigenous practices concerned with environmental sustainability in Zambia by using a case study approach. All adults of the Tonga people in the country's southern part composed the population. An assessment of indigenous practices which enhanced environmental sustainability was obtained. Result revealed adherence to, and security of land tenure regimes as one of the instruments through which environmental sustainability was facilitated. Abane (2017) used a case method to investigate forest reserve policies and indigenous practices concerned with management of natural resources in Ghana. Communities adjoining the country's Bonsa Ben Forest Reserve served as the population. Using qualitative methods of data collection, responses were elicited about the various indigenous practices that were indulged in which favoured sustainable management of natural resources. Result revealed that the land tenure system in operation was one of the avenues through which the people ensured management of their natural resources.

Determinants of forestland utilisation decisions among rural dwelling farmers in Nigeria were examined by Adetoye, Adewuyi and Akerele (2018) in a study framed on a survey research design. All farmers in proximity of forest reserves across Ogun, Osun and Ondo States served as the population. The study obtained data to examine the determinants which influence engagement in agroforestry. The analysis revealed that land tenure security was a significant predictor of farmers' use of forestland for agroforestry. A survey research design was used by Dallimer, Stringer, Orchard, Osano, Njoroge, Wen and Gicheru (2018) in their analysis of sustainable land management practices and costs/benefits in Kenya. All agro-forestry land users in the country's Western Province made up the population. One of the posers was concerned with identifying determinants of use of sustainable forest conservation practices. The analysis revealed that land tenures systems was not a significant determinant of use of sustainable forest conservation practices.

Enuoh and Ogogo (2018) assessed tropical deforestation and biodiversity loss in Nigeria by using a cross-sectional survey design. All rural dwellers in proximity of tropical forests (both protected and unprotected) in Cross River State formed the population. The study's aim included ascertaining the various causes of deforestation and wildlife loss across the state. The result revealed that the community property regime of open access was an agreed determinant of deforestation/wildlife loss. Acheampong, Macgregor, Sloan and Sayer (2019) adopted a cross-sectional survey design to ascertain extent which deforestation was driven by agricultural expansion in Ghanaian forest reserves. Population consisted of inhabitants of

adjoining communities to forest reserves in the country's Ashanti Region. The study's posers included examining how land tenure regimes aided agricultural expansion to drive deforestation. The result revealed that the inheritance land ownership tenure regime was mainly responsible among other land ownership tenure regimes for agricultural expansion's drive of deforestation.

An analysis of conservation struggles in Nigerian forests with implication towards the future of primates was verified by Krause, Nielsen, Guia-Diaz, Lehsten, Olsson and Zelli (2019). Adopting a descriptive survey method, the population of the study consisted of inhabitants of adjoining communities to wildlife conservatories and a national park division including on-site staff of the conservatories and the national park division in central Cross River State. Inquiries elicited included verifying the issues concerned with conservation of primates in the forests. The result revealed that the open access local land tenure systems in the area served as a barrier to conservation of primates. Ngwira and Watanabe (2019) analysed reasons for deforestation in Malawi by employing a case study method. Locals in proximity of a marsh game reserve in the country's northern region formed the population. Enquiries centred on causes of deforestation among the people and obtained data was analysed with percentage scores. The result revealed that among institutional based drivers of loss of forests and its resources 97% of the respondents revealed lack of awareness of the country's Forest Use Act.

Ranjatson, McLain, Mananga, Randrianasolo, Razafimbelo and Lawry (2019) used a case study design to investigate tenure security and forest landscape restoration in Madagascar. The population was made up of locals in the country's Boeny Region. Posers inquired by the study included finding out the tenure systems associated with the forests in the area, and how the various tenure systems affect conservation of the forests and its resources. The result revealed that there were two distinct tenure systems - an endogenous tenure system rooted within the local customary system accompanied by weak state intervention, and an exogenous tenure system extensively influenced by external actors accompanied by limited legitimacy of the local customary systems. In addition, the finding also showed that the exogenous tenure system was found to encourage wanton destruction of forests and its wildlife resources.

Effectiveness of forest resources' management/conservation based on Land Use Act in Nigerian forest reserves was evaluated by Yusuff and Alamu (2019). A survey research method was employed and the population was composed of people in adjoining communities to a forest reserve in Oyo State. The study's objectives included ascertaining the respondents' views on the effectiveness of the Land Use Act in enhancing wildlife conservation in the forest reserve. The result revealed that the 1st ranked response was that deforestation was drastically reduced due to enforcement of the Act on forest use in the forest reserve.

A probe of socio-economic factors that determine use of indigenous forest conservation/management practices in managing forest products in Nigerian forests were identified by Chukwuone, Adeosun and Chukwuone (2020) in a study framed on a cross-sectional survey design. All locals in proximity of forests in Enugu State served as the population. Study's aim included enquiring whether land tenure systems have any predictability on conservation of forests and its resources. It was revealed that individually owned land had a significant and positive predictability on conservation of forests and its resources while all of purchase, rent and communal were significant but with negative predictability. This meant that those who owned the land they farmed/hunted were more likely to engage in forests/wildlife conservation while those who purchased, rented or were using community land were more likely not to engage in conservation of forests and its resources.

Ezihe, Agbugba and Ogale (2020) investigated land tenure system and farmers' use of land in Nigeria by applying a survey research design. All registered farmers in Benue State served as the population. The study's enquiries were concerned with finding out the tenure systems practiced, and problems posed by tenure system against land utilisation by the farmers. The result showed that the tenure systems practiced in descending order were as follows – individual, communal, purchase, rent, gift, leasehold, and government tenant. The result also showed that conservation of forests and its resources therein was the very least problem posed by land tenure system practiced, thus implying that the farmers were not made aware of the need for forest resources and wildlife conservation based on the tenure systems which they practiced.

Adesida, Nkomoki, Bavorova and Madaki (2021) investigated agricultural programmes and land tenure with implication to sustainable agricultural practices in Nigeria. A descriptive survey design was applied and the population comprised of beneficiary farmers of agricultural programmes across Ekiti, Ondo and Osun States. An enquiry of whether land ownership predicted adoption of sustainable agricultural practices was one of the study's research questions. The result showed that land ownership tenure was a significant predictor of sustainable agricultural practices.

Methodology

The study adopted a correlational survey approach. The population of the study consisted of the adult and youth population across all the six local government areas (LGAs) that make up Ikom Education Zone of Cross River State. From the population, a sample of 696 respondents was drawn using a multi-stage purposive sampling approach. The purposiveness was in line with selected LGAs and communities therein having large forest tracts within them. Four LGAs and one community each therein were sampled for the study. The data collection

instrument was tagged the "Indigenous Communal Practices and Sustainable Forest Management Questionnaire" (ICPSFMQ). It has sections A and B. Section A was designed to obtain data of the respondents' demographics while Section B elicited responses concerning belief systems concerning forest resources and land tenure system (6 items each) and sustainable forest management (9 items), all with a response rubric of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD).

The instrument was validated by two experts in Measurement and Evaluation Unit in the Department of Educational Foundations and two experts in the Department of Environmental Education who ascertained the degree to which the items on the instrument measured what it is expected to measure. The reliability of the instrument was ascertained by conducting a trial test with 30 respondents from communities that were not part of the sample and the obtained data was analysed using the Cronbach Alpha reliability method. The reliability coefficients for belief systems concerning forest resources and land tenure system were .88 and .74, respectively while that for sustainable forest management was .83. The data collection for the study was done by the researchers in conjunction with 4 research assistants lasted about 8 weeks. The data collected were analysed using Pearson Product Moment Correlation (PPMC) technique and tested at .05 level of significance.

Ethical considerations: The following ethical considerations were followed in the study; **(i)** permission was obtained from the head of each selected communities before data was collected from respondents (ii) the confidentiality of the information obtained from respondents was ensured in the course of the study (iii) the respondents were not coerced or deceived by the researcher in the course of gathering data for the study (iv) there was no bias in the sampling procedure, every respondent was given equal opportunity of being chosen for the study

Presentation of results

Ho_1

The first hypothesis stated that there was no significant relationship between indigenous communities' belief systems concerning forest resources and sustainable forest management. To test this hypothesis, belief systems concerning forest resources and sustainable forest management were compared using PPMC. The result of the analysis is presented in Table 1.

Table 1: PPMC analysis of belief systems concerning forest resources and sustainable forest management in Ikom Education Zone (N=696)

Variables	$\bar{x}$	SD	r	p-level
Belief systems concerning forest resources (X)	17.39	1.90	.317*	.000
Sustainable forest management (Y)	22.71	2.32		

*Significant at .05. p<.05; critical r-value=.088.

The result of the analysis in Table 1 revealed that belief systems concerning forest resources produced a mean score of 17.39 with a standard deviation (SD) of 1.90 while sustainable forest management produced a mean score of 22.71 with an SD of 2.32. The result further revealed that the calculated r-ratio of .317 obtained with a p-value of .000 is greater than the critical value of .088 and this met the condition required for significance at the .05 level. Hence, the null hypothesis that there is no significant relationship between indigenous communities' belief systems concerning forest resources and sustainable forest management was rejected, thus indicating that belief systems concerning forest resources had a significant positive relationship with sustainable forest management in Ikom Education Zone.

H_{O2}

The second hypothesis stated that indigenous communities' land tenure system have no significant relationship with sustainable forest management. To test this hypothesis, land tenure system and sustainable forest management were compared using PPMC. The result of the analysis is presented in Table 2.

Table 2: PPMC analysis of land tenure system and sustainable forest management in Ikom Education Zone (N=696)

Variables	$\bar{x}$	SD	r	p-level
land tenure system (X)	15.64	2.38	.149*	.000
Sustainable forest management (Y)	22.71	2.32		

*Significant at .05. p<.05; critical r-value=.088.

The result of the analysis in Table 2 revealed that land tenure system produced a mean score of 15.64 with an SD of 2.38 while sustainable forest management produced a mean score of 22.71 with an SD of 2.32. The result further revealed that the calculated r-ratio of .149 obtained with a p-value of .000 is greater than the critical value of .088 and this met the condition required for significance at the .05 level. Hence, the alternate hypothesis that

indigenous communities' land tenure system has a significant relationship with sustainable forest management was accepted, meaning that land tenure system had a significant and positive relationship with sustainable forest management in Ikom Education Zone.

Discussion of Findings

The result of the first hypothesis revealed that belief systems concerning forest resources had a significant positive relationship with sustainable forest management. This implied that the various complex mix of values, norms, traditional law, taboos, age-long cultural practices, rituals, etc., carried out in specified designated spots or carefully delineated areas during specifically given periods which people develop and adhere to that enable them show reverence to perceived supernaturally powerful beings had a significant link with sustainable forest management. Most probably, this result could have been not only due to the belief which the indigenous peoples have developed over time but also in reverence of the taboos attached to the gods/goddesses believed to protect them from issues such as famine, drought, harm, impotence, barrenness, war, epidemics, etc.

The finding is in consonance with that of Ngoni *et al*., (2016) who revealed that - (i) majority of the respondents (67%) indicated that they had traditional beliefs connected with forest resources; (ii) traditional beliefs were found to have a statistically significant relationship with forest conservation practices, and; (iii) the traditional belief system had a significant influence on resources' management. It is also in consonance with that of Asante *et al*., (2017). who found out that beliefs, taboos, proverbs, myths and songs were the various methods used to enhance forest conservation. Shuaibu *et al*., (2018) observed that majority of the respondents indicated that sacred grooves would not only mitigate wildlife destruction but also, sacred grooves were found to be a significant indicator for wildlife management. Eneji *et al*., (2019) reported that all of totemism, traditionally protected areas and sacred ponds/shrines contributed significantly to conservation of wildlife resources. Adeyemi and Oyinloye (2020) revealed that all the respondents agreed that the traditional worship system-based practices were effective in ensuring adherence to wildlife conservation in the groove. The finding of Adedeji *et al*., (2021) indicated that the topmost conservation approach as reported by the people was enforcement through traditional worship-related practices/activities. Lastly, Nomishan's (2022) result showed that locals had a wide variety of totems which included numerous fauna and flora.

The result of the second hypothesis revealed that indigenous communities' land tenure system has a significant relationship with sustainable forest management. This implied that the variety of the "bundle of rights" held over a given portion of land (tenancy, ownership, access, usufruct, partition, freehold, leasehold, acquisition, labour, an extraction of products/benefits,

etc.,) did have a significant connection with sustainable management of forest resources. Presumably, could it be that the finding is as a result of the statutory customary land law where objects of tenure are forests and trees while land remains as an asset to either a paternal/maternal family?

The finding is in line with that of Ajake and Abua (2015) whose result revealed land tenure practices as having a significant influence on forest use/management. The finding also corroborated with that of Kanene (2016) which showed that adherence to, and security of land tenure regimes was one of the instruments through which environmental sustainability was facilitated. The finding also was in consonance with that of Abane (2017) reported that the land tenure system in operation among a given indigenous people was one of the avenues through which they ensured management of their natural resources .Adetoye*et al*., (2018). revealed that land tenure security was a significant predictor of farmers' use of forestland for agroforestry. Yusuff and Alamu (2019) observed that deforestation was drastically reduced due to enforcement of the Land Act on forest use in a forest reserve. Chukwuone*et al*., (2020) revealed that individually owned land had a significant and positive predictability on conservation of forests and its resources meaning that those who owned the land they farmed/hunted were more likely to engage in forests/wildlife conservation. Lastly, Adesida*et al*., (2021) reported that land ownership tenure was a significant predictor of sustainable agricultural practices.

On the other hand, the finding is not in agreement with that of Dallimer*et al*., (2018) indicated that land tenure systems were not a significant determinant of use of sustainable forest conservation practices. In addition, Enuoh and Ogogo (2018) reported that the community property regime of open access was an agreed determinant of deforestation/wildlife loss. Acheampong *et al*., (2019) observed that the inheritance land ownership tenure regime was mainly responsible among other land ownership tenure regimes for agricultural expansion's drive of deforestation. Krause *et al*., (2019) revealed that the open access local land tenure systems in the area served as a barrier to conservation of primates. Lastly, Chukwuone*et al*., (2020) reported that all of purchase, rent and communal land tenure systems were significant but with negative predictability towards conservation of forests and its resources, implying that those who purchased, rented or were using community land were more likely not to engage in conservation of forests and its resources.

Conclusion

From the result of data analysis, the following conclusions were reached that; revealed that belief systems concerning forest resources and indigenous communities' land tenure system

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had a significant positive relationship with sustainable forest management in Ikom Educational Zone of Cross River State.

Recommendation

Based on the finding of the study, the following recommendations were made: indigenous knowledge and belief systems which favour appropriate forest management in the communities should be ceaselessly encouraged amongst the locals through non-formal education awareness forums even in the face of seeming westernization within the areas. Also, features of locals' land tenure systems which support effective management of forest resources should be promoted amongst them.

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