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Firewood Extraction and Forest Resources Degradation in Yakurr Local Government Area of Cross River State.

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Abstract

This study investigates the relationship between firewood extraction on forest resources degradation in Yakurr Local Government Area of Cross River State. To achieve the purpose of this study, a null hypothesis was formulated. The review of related literature was carried out accordingly in line with the specific objective raised. Survey research design was adopted for the study. The area of the study was Cross River State. The target population was all household members who are farmers aged 18-35 years. Multiple sampling techniques were adopted in selecting four hundred and fifty (450) respondents used for the study. A ten item modified four point Likert scale questionnaire titled "Firewood Extraction and Forest Resources Degradation Questionnaire (FEFRCQ)" was the instruments used for gathering data for the study. To test the hypothesis formulated for the study, Pearson product moment correlation statistical tools was used as statistical tool for data analysis. The hypothesis formulated was tested at .05 level of significance. The result of the analysis revealed that there is a significant relationship between firewood extraction and forest resources degradation.

Introduction

Forest are land areas above 0.5ha with a complex ecosystem consisting of a variety of plants, wild animals and microbes which interact with non-living abiotic factors (FAO, 2015), Forest is vital for rural livelihoods, biodiversity, climate change mitigation, energy supply, soil, water and wildlife protection (Ajake, 2012). They contribute significantly to the overall global energy supply particularly in rural areas; provide building materials and paper products: non-timber forest products including food, fodder and medicines, as well as cultural, spiritual and recreational values to millions of people (Agbogidi Eshegbeyi 2008). Despite the crucial importance of forest, each year some 13 million hectares of forest areas in the tropics are converted, mainly to agriculture (FAO, 2015). Over the years, there has been increased concern at both national and regional levels about the declining condition of forest resources. Ajake and Anyadike, (2012) Human pressure on forests and forest land has resulted into biodiversity loss, degrading forests, land and water, and emission of considerable amounts of carbon into the atmosphere, with the greatest threats (most especially deforestation) occurring in developing countries within tropical ecosystems. Hence, the degradation of forest became an issue of increasing priority and urgency.

Forest degradation is then needful, since it maintains all the essential functional components of the ecosystem in situate and constitutes the basis for the socio-economic livelihood of the rural people. Central to the concept of degradation is sustainability. The concerns from sustained forest yield to sustainable forest management was first internationally initiated by the Brundt land Report on Sustainable Development in 1987 World Commission on Environment and Development (1987) and later taken as focus for global development during the Earth Summit in Rio de Janeiro in 1992, with the adoption of the Forest Principles (Robert, 2003).

Forest reserves are portions of state lands under reservation where commercial harvesting of wood products is controlled in order to capture elements of biodiversity. They are managed by the state government under the auspices of their forestry departments (Olujobi, 2015). Historically, reservation of land for forestry purpose was at its peak during the colonial era; this was done in order to manage, maintain forest resources and provide a supply of timber (FAO, 1999; Ayeni, 2013). This was followed by exploitation of forest resources to meet both export and increasing local demand as well as to earn foreign exchange.

The management of forest reserves in Nigeria is the responsibility of the state governments. How well or how far these state governments and it communities managed and ensured the sustainability of these forest reserves, in the light of the threats enunciated above. It is on this background the study seeks to examine the livelihood activities and forest resources degradation in Yakurr Local Government Area of Cross River State.

Theoretical framework

Legal pluralism theory by Anne Griffiths (1986)

Legal pluralism has been conceptualized by Griffiths (1986) as a critic to the legal centralist point of view. The legal centralism states that the dominant conception of law is the one of state regulation, which is uniform for all people, exclusive of all other normative systems (or orders), and administered by a unique set of state institutions. According to the author legal pluralism is the existence of multiple sources of law (both state and non-state) within the same geographical area. Legal pluralism' is generally defined as a situation in which two or more legal systems coexist in the same social field (Griffiths, 1986 in Boelen, Roth & Zwarteveen, 2003).

According to Boelens, et al. (2003), resource use and management appear to occur under legally plural conditions. Therefore, the use of the concept of legal pluralism as an analytical tool emerged and disseminated particularly in studies about natural resources exploitation and management (Boelens, Roth & Zwarteveen, 2003). The same authors advocate for a link among the increasing recognition of the importance of legal complexity and the more general pattern allowing for ambivalence, conflict, complexity and contingency in analyses of resource harvesting and management processes. In fact, in forests, community members rarely share homogenous interests, as well as they also differ in which institutions they use in different contexts (Wollenberg, Anderson & López, 2005).

As a consequence, in forest management, different people engage in different ways in various social practices, such as tree cutting, timber processing transporting lumber, making laws, facilitating meetings, making charcoal, collecting non-timber product or trading forest products. Each of these roles requires a set of practices that are based on a proper understanding of what is legal. When operationalizing the concept of legal pluralism, it is important to recognize that the concept of law (what is legal) is not straightforward. It may mean different things to different people, and hence the meaning and significance have to be investigated, as well as the ways by which it becomes significant in strives over control and exploitation of people and natural resources by governments, business enterprises, individual rural people or local population groups (Benda-Beckmann, 2001). Actually, whether or not some claim or relation to resources is 'legal' indicates who has the right to exercise political control over people and resources, and who can exploit them economically and profit from it. As a consequence, the definition of what law is, and what legal rights are, is therefore highly political (Benda-Beckmann, 2001).

Nonetheless, both state legal and non-state legal institutions, whether identified or not in state law, are perceived as important factors that compose the existing reality of complex normative systems. Benda-Beckmann (2001) emphasizes that any significance that the state legal normative system may have on political, economic and social practices will always be relative to that of non-state normative systems for the same practices. As a consequence, the concept

of normative system should be examined more carefully with the purpose of better understanding interactions between different legal systems.

The relevance of this conceptual framework to this study is directly on the legal perspective of not only considering the direct gain of exploiting natural resources but also the legal implication. This will go a long way in controlling the unguarded usage of environmental resources that has environmental, physical and economic impact of the populace.

Statement of the problem

The state of forest resource degradation has been a source of concern to educational stakeholders, environmental health workers, and environmental management expert. It is often believed that livelihood activities are on the frontline of the battle to degrade the environment. How even, some livelihood activities have caused a major difficult condition within our environment. These appear to be increase of task of people on forest and wildlife resources which are the main source of their income.

The continuous exploitation of forest resources has in turn affected the ecosystem, crop cultivation, deforestation, timber exploitation, fishing, hunting, firewood extraction and exploitation of mineral has raised a serious threat to our environment. The incessant exploitation of forest resources has led to ecological environmental degradation. The have been increase evidence of degradation and depletion of forest resources in the study area over the year. It is on this backdrop or premise, this study seek to examine the relationship of firewood extraction and forest resources degradation in Yakur Local Government Area of Cross River State.

Research hypothesis

The following Hypothesis stated in null form was formulated to guide the study.
There is no significant relationship between firewood extradition and forest resources degradation.

Literature Reivew

Firewood extraction and forest resources degradation

Firewood extraction is the act of cutting wood from the forest for domestic fuel and other industrial purposes, these activities is common in rural areas, as some extract firewood as a source of livelihood. In addition, firewood extraction led to deforestation, and this is one of the most pressing environmental problems faced by almost all Sub-Saharan African nations, and one of the primary causes of deforestation is wood extraction for fuel. Many sub-Saharan countries have had over three quarters of their forest cover depleted. It is estimated that if current trends continue, many areas, will experience severe shortage of fuelwood by 2025 (Mulugeta and Zenebe, 2011).

Land clearing by farmers may contribute as much as fuelwood extraction in the depletion of tree stocks. An estimated 20 to 25 percent of annual deforestation is thought to be due to commercial logging. The remaining 15 to 20 percent is attributed to other activities such as cattle ranching, cash crop plantations, and the construction of dams, roads, and mines. Fire wood extraction is one of the major contributory factors to deforestation, which is already claiming about 10 million hectares of forest each year in the developing world (World Bank, 2006).

According to Smile (2015), the excessive extraction of firewood has reduced the availability of valuable soil nutrients and hence reduces soil fertility, contributing to slowdown in agricultural production. Furthermore, Forest and generally biomass degradation, as well as consequent land degradation, lead to the destruction and erosion of biodiversity of both plants and animals. More introduction habitats specifically, the destruction spectrum of crop varieties, recurring droughts is a major threat to Forest resource degradation. This includes traditional energy sources such as fuel wood, charcoal, branches, leaves and twigs, and current needs largely exceed the level of sustainable production (e.g. from dead wood and plantations), leading to massive degradations of the biomass

Heltberg (2016) Firewood is the most common sources of demotic energy for rural community in the world, about 65% of total population depends on firewood for energy sources/cooking and heating/ in the developing countries, he added that demand for fuelwood from forest causes forest resources degradation and leads to fuel wood scarcity, there are also numbers of consequences which includes Loss of plant species which may cause loss of biodiversity, deforestation, and deterioration of watershed and emission of carbon dioxide into atmosphere

Tadesse, (2007) Firewood extraction results in a change ecosystem, loss of biodiversity and increased incidence of drought and flooding. It also leads to a decline in food security due to a reduction of agricultural yields and the loss of valuable forest resources specially loss of soil fertility. Consumption of traditional fuels has negative environmental, economic and health impacts. That is, increased use of firewood and charcoal leads to destruction of forest resources and wildlife degradation, and result to ecological imbalance and increased use of agricultural residues and animal dung to deprives the land essential nutrients that are necessary for soil fertility (W.H.O, 2016).

The literature reviewed had portrayed that wood extraction activities, methods of land cultivation by rural dwellers and hunting practices, have greatly affected biodiversity degradation. It is deduced from the literature that logging operations are the main causes of deforestation, degradation or depletion of forest resources which results to destruction and extinction of biodiversity. The consumption of forest resource through logging has vast impact on the biodiversity. Though literature reviewed shows that there is no economic justification in leaving mature trees to continue growing after lots of them have exceeded their rotation period for a particular purpose, it has to do with sustainable utilization of forest resources.

Literatures reviewed were from both foreign and local sources. Despite the efforts by various authorities above on the relationship between forest resource exploitation and biodiversity degradation, enough has not been studied on the exploitation pattern of rural dwellers as it relates to forest resource degradation which bothered this study, and more so, none of such studies have been carried out in the present study area. This is therefore is the gap the present study intends to fill.

Research Methodology

Survey research design was use for the study, survey refers to the act of collecting data through asking questions either in person, phone, online or questionnaire from a target population. Survey research is used to gather the opinions, beliefs and feeling of selected groups of individual often chosen for demography sampling (Obasi 2016:18). This was used since part of the research objective could be achieved through conducting a field survey in order to collect data from the sample population.

There are quite a number of natural resources that are abound in Yakurr namely kaolin, sand glass and quartzite, dried coffee kola-nut (Natural honey). Many tourism arena are present in the research area these includes: popular cave in Ekori, which can carry the whole village, The cave located between Nkpani and Ekori is like a hide out during was period; Kosanmah River, which is blue in colour though not drinkable. Nobody fishes there and only a particular family sacrifices there once in a while. The Yakurr people have the same traditional attire with the Igbos, both men and women tie wrapper as the most popular dressing. Many important Festivals that brings glamor to the area includes: "Leoboku"-the most popular festival in Yakurr; "Obam - a traditional dance which men are initiated into at a particular age; Wrestling: "Ebilarbin"' Traditional dance which identifies somebody as a man in a community; "Ekelebi"' A dance strictly for women after that women might have attained certain age and Oban"- War dance (Okoi , 2017).

The population of the study covers the entire inhabitants of the 13 communities in Yakurr Local Government Area of Cross River State. Currently the have a projected population of 196.271 inhabitants from ar 374 housing units in the area and the constitutes. the population of the study (NPN, Calabar 2022). The breakdown of the population of the study is presented in Table 1

Table 1: Distribution of population by communities/wards

	Communities	Population
1	Abanapai	13,162
2	Afrekpe/epenti	14,881
3	Ajere	14,288

4	Assiga	15,149
5	Bikobiko	17,522
6	Idomi	16,623
7	Ijiman	12,118
8	Ijom-ugep	20,121
9	Ikpakapit	17,210
10	Inyima	11.760
11	Mkpani/agoi	17,117
12	Nkpolo/ukpawen	13,920
13	Ntan	18,027
	Total	196,271

Multistage sampling procedure was adopted for the study. First, the purposive sampling technique was used to select various communities with tropical high forest in Yakurr LGA, this is because there is concentration of forest in some areas than others in study area. The forest cover map of Cross River state produced by the GIS unit of the Cross River State forestry commission was used to purposively select communities with high concentration of forest.

At the second stage of the simple sampling technique was used to select Bur villages to be used in the study. And finally, the accidental sampling technique was employed to sample on the residents in the study areas, By occidental sampling technique, it implies that the researcher gave the instrument to the residents in the study area he was able to access. Here the researcher positioned himself in the strategic locations in the communities selected and administer the instrument, at the end of the process, 400 questionnaires were completed and retrieved and used as the sample for the study. A total of 400 persons from the research area were sampled using multistage sampling technique, and this constitute the sample for the study. The instrument used for the data collection is a structure questionnaire title: "Firewood Extraction and Forest Resources Degradation Questionnaire (FEFRCQ)". The questionnaire has two sections section A and B. Section A Contain personal data of the respondents and section B contain direct statement with multiple options such as Strongly Agree (SA), Agree (A), Disagree (D) and Strong Disagree (SD).

The research instrument for the work was designed by the researcher with reference to the major variables of the study. The questionnaire was face and construct validated by two experts were in Measurement and Evaluation and one from Environmental Education department, both from University of Calabar, Calabar Cross River State. The researcher included some important information to aid the experts in validating the instrument.

A total of 400 copies of questionnaires was designed and administered in person to the target respondents, a period of two weeks was allotted for this field work. Following the collection of the completed questionnaire codes/scores were given to each item. Each of the items were scored independently using the 4-point likert scale: 4 points for strongly agree (SA), 3 points

for agree (A), 2 points for disagree (D) and 1 point for strongly disagree (SD). The sum of scores for each respondent from section B determine their responses with regards to the variable under study. The Coding schedule for Research instrument is presented in Table 2.

Results and Discussion

General description of the research variables

The essence of this study was to examine the effect firewood extraction on forest resources degradation in Yakurr Local Government Area of Cross River State. The independent variable of the study is firewood extraction while the dependent variable is forest resources degradation. The results of the frequency distribution and descriptive data analyses are presented in table 3

Table 3: Means scores and standard deviations of subjects in the study variable

Variables	Mean	Std. deviation	Number
Firewood extraction	10.9966	1.51717	200
Forest resources degradation	26.46075	2.101739	200

Presentation of results

Hypothesis

There is no significant relationship between firewood extradition and forest resources degradation. In the present hypothesis the independent variable is firewood extradition while the dependent variable is forest resources degradation, in testing this hypothesis, Pearson Product Moment Correlation (PPMC) was used. The result of data analysis is presented in table 3.

Table 3

Variables	X	SD	r-ratio	df	p-level
Firewood extraction (x)	10.996	1.5171			
			.142	398	.003
Forest resources degradation (y)	26.460	2.1017			

The finding table 3 show that firewood extraction has a score of 10.996 with a standard deviation 1.517 while forest resources degradation has a mean score of 26.460 with standard deviation of 2.10173 the outcome further shows that the calculated r-value of 0.142 is greater that critical r-value of 0.113, tested at .05 level of significance and 398 degree of freedom. Also, the p<.003 is less than p.05. In light of this, the null hypothesis which expressed there is no significant relationship between firewood extraction and forest resources degradation was rejected indicating that there is significant relationship between firewood extraction and forest resources degradation in the research area.

Discussions of findings

Firewood extraction and forest resources degradation

The result of the hypothesis showed that there is a significant relationship between firewood extradition and forest resources degradation. This conclusion is in line with Smile (2015) who stated that the excessive extraction of firewood has reduced the availability of valuable soil nutrients and hence reduces soil fertility, contributing to slowdown in agricultural production. Furthermore, Forest and generally biomass degradation, as well as consequent land degradation, lead to the destruction and erosion of biodiversity of both plants and animals. More specifically, the destruction of habitats, the introduction of a narrow spectrum of crop varieties, recurring droughts is a major threat to Forest resource degradation. This includes traditional energy sources such as fuel wood, charcoal, branches, leaves and twigs, and current needs largely exceed the level of sustainable production (e.g. from dead wood and plantations), leading to massive degradations of the biomass.

Conclusion and Recommendations

Based on result of the data analysis these conclusions below was reached that there is no significant relationship between firewood extradition and forest resources degradation. The government and other environmental stakeholders should ensure that community participate mobilization awareness against unsustainable firewood extraction. The concept of traditional crop production should be enhanced hence it promote soil fertility but that should be done in a well-controlled environment devoid of excessive deforestation

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