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Assessment of the effect of deforestation on the economic activities of rural dwellers of the Western Region of Kogi State, Nigeria

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Abstract

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The study examined the effects of deforestation on the economic activities of Okun-Yoruba people in the western region of Kogi State, Nigeria. Two hundred copies of questionnaire were randomly administered on respondents that were randomly selected from a total of 20 communities, from three of the five local Government Areas (LGAs) that make up the region. Ten respondents were randomly selected from each of the twenty communities. Both descriptive statistics and inferential statistics were used in the study. People in the study area perceived that deforestation has caused significant loss in soil fertility, water scarcity and non availability of wild fruits and vegetables. The study also showed that there was a significant relationship between age, education level, marital status, religion and their perception of the influence of deforestation on their economic activities. Only their gender was not significant. Hence the null hypothesis that there is no significant relationship between people's perception on deforestation and their socioeconomic characteristics holds for gender and is rejected for age, marital status, education and religion.

Key words: forests, perception, deforestation, chi-square, Kogi

Introduction

Forest resources have been a major source of development for many states in Nigeria. They do not only cater for wood, wild foods, medicines, soil conservation, carbon dioxide storage and landscape beauty but additionally contribute in stimulating, foreign exchange earnings, employment and economic growth. According to Food and Agricultural Organization (FAO) forestry sector contributes about $468 billion to national income, representing 1% of global GDP in 2006 (Jaunky & Lundmark, 2016). The forests have contributed to national economies all over the world in many aspects. The forests have had benefitted the Nigerian economy in areas relating to employment, exports, foreign exchange earnings, creation of industries etc.

Forests worldwide provide values which are classified as direct use values (timber and fuel, extraction of genetic material, tourism etc.), indirect use values (protection of watersheds and the

storage of carbon etc.), option values and non-use values (Pearce, 2001). Forests in Nigeria provide wood which is one of the major building materials and as a source of fuel in rural areas and urban areas as well. They also serve as source of raw material for charcoal which is an alternative or refined source of fuel (Oriola, 2009). According to Adeniyi (2016), the forestry sector is very important to the country's economy as it ranks among the highest revenue and employment generating sectors while providing a resource base for many forest industries.

Though Forestry sector contributes significantly to Nigerian economy, most of its resources can be said to be yet untapped. Forests provide products such as fuel wood, chewing sticks, timber, poles, rattans, fruits, seeds, pulp wood, leaves, mushroom and wildlife. They as well provide such services as environmental protection such as soil protection against erosion and strong winds, protection of watershed and enhancement of nutrient cycling for maintaining soil fertility. They have been direct provider of shelter and food for people and livestock, water, medicinal plants, building materials and fuel. Forests also provide habitats for many plant and animal species. On a global scale, forests are the basis for sustainable and predictable global progress and development (FAO, 2000, 2001). World over, forest is now being increasingly acknowledged for its importance and its resources in the improvement of human welfare. Natural and man-made forests have economic, social and environmental benefits and they play important roles in the economic development of any society.

Owing to various benefits derivable from the forests, there has been increasing demand for forest products, leading to increasing pressure on available forest resources which eventually results in degeneration, deforestation, desertification and subsequent general environmental degradation. The world's forest area unfortunately declined by about 0.2% (about 15.4 million ha) annually in the 1980s, and about 10% (about 1.5 million ha annually) of the global deforestation can be linked, at least indirectly to industrial logging (FAO, 1994).

Deforestation is one of the major environmental issues, not only in directly affected countries and locations, but also from a global perspective. The degree of international attention to deforestation is commensurate with the role of forests in the global, national and local ecosystems. Forests provide a wide variety of highly valuable ecological, economic and social services, including: the conservation of biological diversity; carbon storage; soil and water conservation; provision of employment and enhanced livelihoods; enhancement of agricultural production systems; and improvement of urban and peri-urban living conditions (FAO, 1999). Deforestation is increasing worldwide due to commercial logging, agricultural development, migration, resettlement and demand for charcoal and fuelwood.

In view of this, the study was aimed at determining the perceived effects of deforestation on the economic activities of the people in the western region of Kogi State, Nigeria, with a view to examining their economic activities before and now, examining the extent of the deforestation effects on their economic activities as well as determining the ways by which the effects of deforestation can be mitigated. Meanwhile, economic activities in this context refer to agricultural production.

Materials and Methods

Study Area

The study was carried out in the western region of Kogi State, Nigeria. The region comprises the Yoruba speaking people of the state, popularly called "The Okun-Yorubas". The area comprises five local government areas (LGAs), which are Ijumu, Mopa/Amuro, Kabba/Bunu, Yagba East and Yagba West. Okun area is agrarian and well suited for arable crops like maize, cassava, cocoyam and yam.

Sampling Technique

Data were obtained from both primary and secondary sources and were collected from three LGAs out of the five LGAs that make up the region. A multistage random sampling procedure was used for the study. The first stage involved random selection of two LGAs out of the five

LGAs in the region. The LGAs that were selected were Kabba/Bunu, and Ijumu. The second stage involved simple random selection of ten communities from each of the selected LGAs, making a total of twenty (20) communities in all. The third stage involved the administration of copies of questionnaire on ten randomly selected respondents from each of the communities, making a total of two hundred respondents. However, only 194 copies of the administered questionnaire were retrieved and used for analysis. Both descriptive and inferential statistics were used in analyzing the data. The inferential statistics used was Chi-square which is expressed as follows:

$$\text{Chi Square}(X^2) = \sum (O\text{-}E/E)^2 \qquad (1)$$

Where O = Observed frequency
E = Expected frequency
$\sum$ = Summation sign

This was done through test of goodness of fit for deciding whether the probability distribution is a close enough approximation to sample frequency distribution for the population from which the sample was drawn.

Hypothesis:

H_0: There is no significant relationship between people's perception on deforestation and their socioeconomic characteristics;

H_1: There is significant relationship between people's perception on deforestation and their socioeconomic characteristics

Results and Discussion

Table 1 shows the socioeconomic distribution of the respondents. More than 78% of the respondents were above 50 years of age. This is an indication of declining productivity stage, as most of the respondents may no longer have the strength to engage in active farming activities. The male respondents accounted for 60.82% while 39.18% were female; while about 60% of them were married. Majority (56.19%) of the respondents had no formal education while the rest had at least primary education.

Table 2 shows some of the economic activities the respondents had engaged in about thirty years ago as well as their current economic activities. Among the economic activities in the past thirty years were farming, gathering of fuelwood, collection of snails and many more. Some of the current economic activities included riding of commercial motorcycle, popularly called 'Okada', selling of smoked fish as well as selling of building materials. From this, it was observed that there was a noticeable difference between the past and present economic activities of the people. This could be attributed to the impact of deforestation, as perceived by the respondents; and this explains why 98.45% of the respondents perceived that deforestation has caused loss in soil fertility, leading to sharp decline in agricultural productivity. About 62% of them indicated scarcity of bushmeat as the problem they perceived with deforestation, while 78.35% and 61.34% of the respondents claimed shortage of fuelwood and water scarcity respectively were the problems they perceived with deforestation in the study area, as shown in Table 3. This is in line with the submission of Otegbeye and Onyeanusi (2006) that deforestation could lead to low crop yield, low returns on investment and food security.

In testing the relationship between people's perception on deforestation and their socioeconomic characteristics, it was discovered that a positive and significant relationships were found between age, marital status, religion, education and people's perception on deforestation at 5% level of significance. This implies that age, marital status, religion and educational level significantly influenced people's perception about the influence of deforestation on their economic activities in the study area. Age can be linked with the experience of individuals, since the older an individual is, the more history the individual will be able to relate. Therefore, the older ones are expected to have better information regarding deforestation than the younger ones. The years of marriage will also give better experience.

Table 1. Distribution of Respondents by their Socio-economic Characteristics

Variable	Frequency	Percentage
Age		
36-40	8	4.12
41-45	13	6.70
46-50	21	10.82
51-55	41	21.13
56-60	77	39.69
>60	34	17.53
Total	194	100
Gender		
Male	118	60.82
Female	76	39.18
Total	194	100
Religion		
Christianity	117	60.31
Islam	77	39.69
Total	194	100
Marital Status		
Single	15	7.73
Married	117	60.31
Widowed	27	13.92
Separated	22	11.34
Divorced	13	6.70
Total	194	100
Education		
No formal education	109	56.19
Primary education	40	20.62
Secondary education	29	14.95
Tertiary	16	8.25
Total	194	100

Source: Field survey, 2019

Table 2. Economic Activities of Respondents

Activities in the last 30 years	Activities Now
Gathering of medicinal plants	selling of smoked fish
Gathering of snails	riding commercial motor-cycle
Farming	working as labourers in rural areas
Collection of wild fruits and vegetables	selling of kerosene
Gathering of fodder crops	selling of provisions
Collection of fuelwood	Molding and selling of building blocks
	Movement to cities in search of job
Collection of root and tuber crops	selling of building materials
Hunting and selling of bushmeat	
Collection and selling of chewing sticks	

Source: Field survey, 2019

Table 3. Distribution of Respondents According to their Perceived Effects of Deforestation

Effect	*Frequency	Percentage
Loss in soil fertility	191	98.45
Scarcity of bushmeat	121	62.37
Shortage of fuel-wood	152	78.35
Shortage of fodder crops	102	52.58
Non availability of wild vegetables	98	50.52
Non availability of wild fruits/nuts	87	44.85
Reduction in crop yield	169	87.11
Non availability of mushroom	90	46.39
Soil erosion	95	48.97
Scarcity of snails	88	45.36
Water scarcity	119	61.34

*Multiple Responses
Source: Field survey, 2019

Table 4 reveals the relationship between socio-economic attributes of respondents and their perception about how deforestation had affected their economic activities. It was discovered that socio-economics of respondents significantly influenced their perception of deforestation. The study showed that there was a significant relationship between age, educational level, marital status, religion and respondents' perception about the influence of deforestation on their economic activities. This is therefore at variance with the null hypothesis which states that there is no significant relationship between socio-economic characteristics and people's perception about deforestation, except for gender that is not significant at 0.05 significant level. It can therefore be inferred that socioeconomic attributes play significant role in the way people in the study area perceive the impact of deforestation on their economic activities and means of livelihood.

Table 4. Chi-square analysis showing the relationship between socioeconomic characteristics of respondents and their perceived impacts of deforestation on their economic activities

Variable	df	P-value	X^2	Decision
Age	5	P<0.05	59.520	Significant
Sex	1	P>0.05	0.960	Not significant
Religion	1	P<0.05	51.880	Significant
Marital status	4	P<0.05	227.533	Significant
Education	3	P<0.05	137.840	Significant

Source: Computer Analysis

Conclusion and Recommendation

From the study, it was discovered that larger proportion of the respondents was at their old age. This explains the reason they were able to give information on the situation of the forests within and around their localities in the past thirty years. They claimed that their economic activities were forest-dependent have now been replaced by other activities like selling of kerosene, riding of commercial motorcycle, selling of smoked fish and many more, as a result of depletion of their forest resources. It was also discovered that socioeconomic characteristics of respondents significantly influenced their perception of deforestation. It was therefore discovered that deforestation had impacted negatively on the economic activities of the people in the study area, thereby resulting in loss of soil fertility, water scarcity, non availability of bushmeat and many more.

Consequent upon these, it is therefore recommended that deforestation impacts could be mitigated by the promulgation, by the government at different levels, policies that will regulate the use of forests and the resources. In addition, there should be adequate sensitization and enlightenment on the danger associated with uncontrolled depletion of forest resources and the resultant effect on environmental sustainability. Furthermore, governments at all levels should encourage afforestation and agroforestry practices in order to improve and maintain soil fertility and conserve the forests.

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