ASSESSMENT OF DEFORESTATION IMPACT ON LIVELIHOODS OF RURAL DWELLERS IN ETCHE LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

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ABSTRACT

Deforestation is a global environmental concern. Many developing nations are affected by deforestation due to industrialization, urbanization that occur in rural and peri-urban areas. There is dearth of information on the impact of deforestation on the livelihood of rural dwellers in River State, Nigereia. This study assessed the impact of deforestation on livelihood of rural dwellers in Etche local government area of Rivers State, Nigeria. Demography of residents in the study area was investigated in relation to causes of deforestation and their consequences on the livelihood of rural dwellers in the study area. Strategies for reducing deforestation were explored. Data were collected with the aid of a well-structured questionnaire. A total of 100 copies of the questionnaires were randomly distributed in the research communities (Okehi, Igbo, Mba, Ozuzu, and Ulakwo) clans. Also, direct oral interviews were conducted. Descriptive statistics were used to analyse the data collected. The findings revealed negative effects of deforestation had on rural dwellers. The population increased by 10%. The forests had been converted to other purposes: farmland (3.5 %), Infrastructure (30 %), There was36% biodiversity loss, 20% Environmental degradation and 3% flood incidence. The Strategies for reducing deforestation recommended include implementation of awareness/sensitization programmes by 11% of respondents, reforestation (11%), formation of forest monitoring teams (27%), prohibition of indiscriminate harvesting of Forest Products (26%).

Key Words: Deforestation, Climate Change, Global Warming, Rural Dewellers' Livelihood, Environmental Degradation.

INTRODUCTION

Deforestation is an indiscriminate anthropogenic activities contributing to erosion, flooding, loss of soil nutrients, poor agricultural produce, global warming, climate variability, climate change and desertification (Audu, 2013; Mfon *et al.,* 2014). Deforestation has many global consequences, primarily because of the influence on carbon exchange (Alamu and Agbeja, 2011) with the atmosphere which cause global warming and climate change (Mfrekemfon and Konwea, 2014, Ogbuene, 2010). It accounts for 87 percent of total carbon emission in Nigeria. Health problems associated with global warming include heat stroke, climate stress on agriculture predisposing to malnutrition, increase in the number of malaria-carrying mosquitoes putting 65% of the world population on the risk of malaria infection. These diseases increase morbidity and

mortality rate (Mfrekemfon and Konwea, 2014).

Many developing countries, like Nigeria, suffer serious environmental degradation because of the rapid growth in population which has not only brought about encroachment and damage to natural forest, wildlife, land, water and even air but has also brought unacceptable quality of life conditions in the human community environment (Oduntan *et al.*, 2013). The forest reserve in Nigeria is estimated to cover about 10 million hectares, which accounts for more than 10% of land area approximately 96.2 million of ha (Ikuomola *et al.*, 2016). However, Nigeria has one of the the worst deforestation rates in the world which is attributed to her increasing population with high poverty level. The annual rate of deforestation in Nigeria is 3.5% which is approximately 350,000-400,000 hectares per year (Mfrekemfon and Konwea, 2014); resulting in more than 50% loss of primary forests in the past decades through unsustainable logging, agriculture, as well as fuel wood collection (Mfon *et al.*, 2014).

Some policy measures were put in place by government such as ban on logging (1975), Annual Afforestation (1988), National Forest Action Plan (NFAP) (2005), educating farmers about dangers of environmental degradation, providing farmers with high yielding varieties of crop and irrigation equipment. In spite of these policy measures, deforestation continued to increase at alarming rate (Ibrahim *et al.*, 2015). The Federal Ministry of Environment, (2006) also reported that the first ever National Forestry Act has been evolved to back the policy and have since been presented to the Council for ratification and to be passed into law (Ojekunle, 2014). Nevertheless, in recent times the area marked as forest lands have been decreasing steadily due to the indiscriminate felling of trees and activities of illegal loggers which have continued in virtually every part of the country (Alamu and Agbeja, 2011; Ikuomola *et al.*, 2016).

Nigeria has a population of over 170 million people with an average population growth rate of 2.5%, while a large percentage (70.8%) are living in abject poverty, below $1 per day with 0.826 metric tons carbon dioxide emissions per capital per year. With this population growth and without economic growth or technological advancement the high rate of deforestation is unavoidable (Mohammed, 2014). Nigerians have always depended on the forest for their survival, economic development, as well as environmental amelioration. However, only half-hearted efforts have been made to control deforestation, leading to the almost destruction of Nigerian forests. Therefore, sustainable development is yet to be achieved (Mfon *et al.*, 2014).

The main cause of deforestation in tropical forests is clearing for agriculture to feed the growing population or (to a lesser degree) to earn foreign exchange from export (Oduntan *et al.*, 2013). Also, the economy of fuel wood market is booming as a household preferential choice of energy because of its qualities: availability, accessibility, affordability, source reliability, flexibility, and taste (Mohammed, 2014); without realizing that a substantial amount of carbon stored in the vegetation in the dry zones averaging about 30 tons per hectare, declines when the vegetation is depleted. Carbon rich soils are found in dry zones hence the destruction of these trees has a very powerful effect on the carbon cycle and boosts the greenhouse effect as a result of the depletion of carbon (Alamu and Agbeja, 2011). The use of fuel wood is currently gaining more popularity among the medium and high income earners in urban centres such as Makurdi, Kaduna, Kano, Lokoja, Ibadan, Sokoto, Ilorin, Jalingo and Minna among others due to the scarcity and cost of kerosene as well as local gas (Audu, 2013).

A consequence of the rapid increase in human populations, settlements, and encroachments globally is the concomitant rapid decline in biological diversity, with significant shifts in species community composition and severe disruption to established food webs, which are directly tractable to land-use change and deforestation (Aaron *et al.*, 2016). Deforestation is a major problem occurring in many parts of Nigeria and the most serious affected region is the less endowed northern part of the country with the forests and game reserves being intensively and extensively exploited. As a global challenge, tropical deforestation has gained greater impetus in policy and research. Mahapatra and Kant (2003) stated that since the early 1980s, policy makers have responded to tropical deforestation with various bilateral and multilateral initiatives such as Tropical Forestry Action Plan, International Tropical Timber Organization and Forest Principles.

This research focused on deforestation in one of the rural areas in densely populated River State, Nigeria. Over 60% of Nigerian population lives in rural communities and depend largely on agriculture, cottage industries and other forms of informal and small-scale natural resources exploitation activities, for rural household income. These activities are often unsustainably carried out, given the paramount motivation to increase household income (Mfon *et al.*, 2014). They also indicated that there is increasing research on various dimensions of tropical deforestation by many scientists, such as Mfon, *et al.* (2014) on challenges of deforestation in Nigeria and the Millennium Development Goals, Ogbuene, (2010) on environmental consequences of rainfall variability and deforestation in Southeastern Nigeria, Aliyu *et al.* (2014) on

Impacts of deforestation on socioeconomic development of Akwanga and Nasarawa state, and Ojekunle (2014) on the effects and linkages of deforestation and temperature on climate change in Nigeria. The impact of deforestation has really affected the means of providing the necessities of life for the rural dwellers in Etche. In spite of the various research conducted on deforestation, little or no research has been carried out on The Impact of Deforestation on Livelihood of Rural Dwellers in Etche Local Government Area, Rivers state, Nigeria.

Objectives

The objectives of the study were to:

i. evaluate the demographic information of the study site from residents of the study area,

ii. Iinvestigate the status of the forest in the study area,

iii. determine the causes of deforestation and consequences on livelihood of rural dwellers in the study area,

iv. determine the strategies for reducing deforestation from the view point of residents of the study area.

MATERIALS AND METHODS

Study Area

This research was carried out in Etche, Rivers State. Etche is a Local Government Area (LGA) in Rivers State, Nigeria (Figure 1). The area was named after the Etche (Echie) people of Southern Nigeria. The Etche are a sub-group of the Igbo people and they speak a dialect of the Igbo language. The Etche land located around Latitude 4° 59' 27.00" N and Longitude 7° 03' 16.00" E.
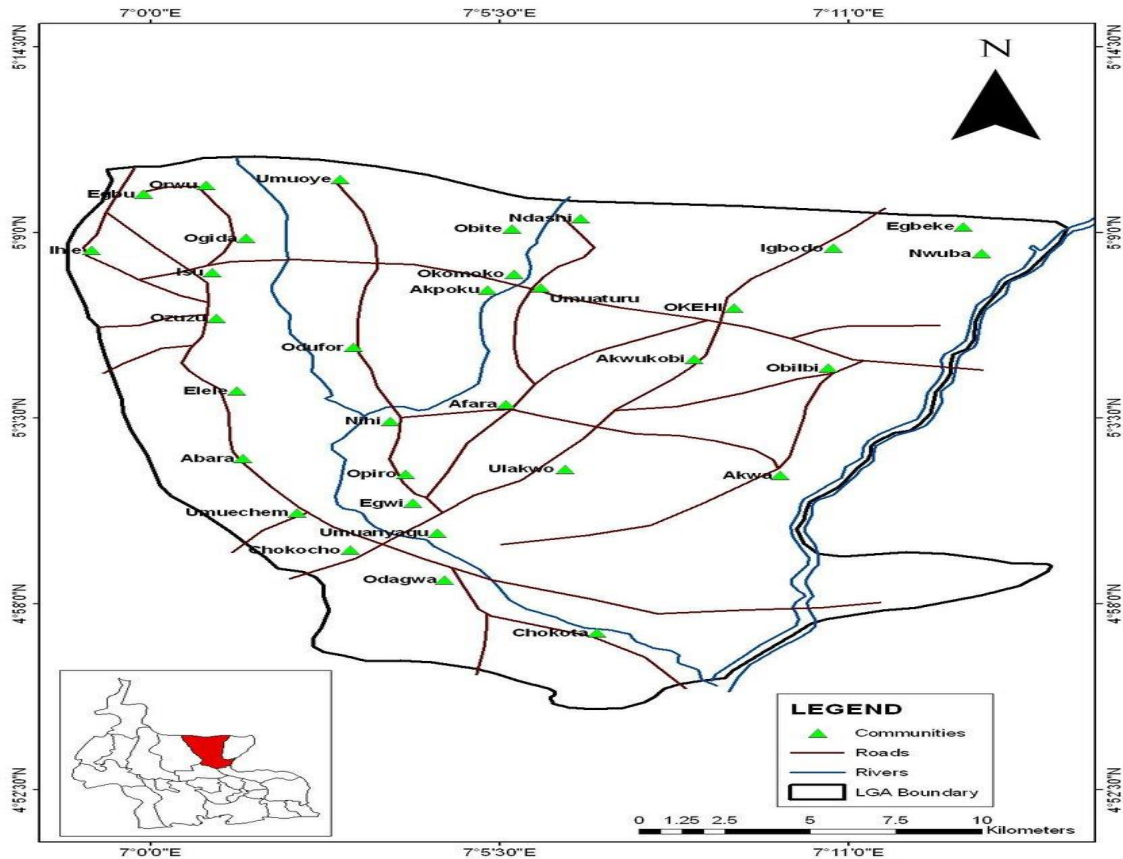
Map of Etche Local Government Area showing the selected communities for the study. Inset: Map of Rivers State, Nigeria.

Data Collection

Data was collected with the aid of a well-structured questionnaire in the study area. The data for the study was collected through primary sources following the recommendatons of Nachmaise and Nachmaise (2009) who posit that primary data describes how data usually obtained through questionnaire, interviews or observation.

Distribution of questionnaires

A total of One hundred copies of questionnaires was randomly distributed among youths and adults in the research area which includes Communities in Okehi clan, Igbo group, Mba clan, Ozuzu and Ulakwo clan. All theone hundred questionnaire copies were retrieved.

The questions in the questionnaire were structured to elicit information about the respondents, the status of the forest in Etche Local Government Area, causes of deforestation were investigated with the used of questionnaire possible causes, and strategies for addressing deforestation challenges in the area.

Data Analysis

The data were analysed and presented using descriptive statistics with the use of frequency, percentage, table, charts and figures.

RESULTS

Establishment of Demographic Information of Respondents around the Study Area.

In table 1, the demographic characteristics of the respondents in the study area are displayed. Practitioners of Christian religion (78%) are more than Islam (1%) in number. Traditional worshippers accounted

for 15% and Pagan adhrerents, 2%. The male respondents are 50% and female 50%. Respondents age 18-30 were 18%, 31-43 (21%), 44-56 (37%) and 57 and above (26%). Some 25% of respondents weree single and 37% were married, 21% were divorced while 16% were widow(er)s. The percentage of married respondents was higher than single, divorced and widow(er)s.

Status of the forest in the study area

Information obtained from the respondents on whether the forest was intact as they first saw it is presented in Figure .1. The figure shows that one hundred percent (100 %) of the respondent in the study area are of the opinion that their forest is not intact. Figure 2 shows that 91% are of the opinion that the forest was depleted while sparsely populated and extinct at 9% and 0% respectively. Figure 3 shows that 100% respondents affirmed that the forest land has been converted to other purposes.

Causes of deforestation in the study area

Figure 4 shows that the causes of deforestation includes infrastructure with 30%, over population with 10%, conversion to farmland 35%, over dependence 13% and uses for other purposes 12%. Figure 5 shows the information gotten from the respondents about the frequency at which some rural dwellers fell trees. 19% were of the opinion that it is carried out daily, 63% weekly, 16 % monthly and yearly 2% respectively.

Consequences of deforestation on livelihood of rural dwellers in the study area

Figure 6 shows the consequences of deforestation on livelihood of rural dwellers in the study area are as follows; erosion (3%), environmental degradation (20%), loss of species/biodiversity is (36%), Climate change (38%) and flooding (3%).

Strategies for reducing deforestation

The strategies suggested are: carrying out awareness/sensitization programmes (11%), reforestation (14%), placement of monitoring team (27%), encouraging substitutes (22%) and prohibition of indiscriminate harvesting (26%).

Table 1: Personal characteristics of the respondents at Etche Local Government Area , Rivers State, Nigeria

Variable	Frequency	Percentage (%)
RELIGION		
Christian	78	78
Islam	1	1
Traditional worship	15	15
Pagan	2	2
SEX		
Male	50	50
Female	50	50
AGE		
18-30	16	16
31-43	21	21
44-56	37	37
57 and above	26	26
MARITAL STATUS		
Single	16	16
Married	21	21

Widow(er)	37	37
Divorce	25	25
Primary	9	9
Secondary	77	77
Tertiary	13	13
None	1	1
OCCUPATION		
Contractor	1	1
Farmer	46	46
Students	23	23
Self employ	22	22
Civil servants	12	12

Table 2: Respondents response on condition of the forest at Etche Local Government Area , Rivers State, Nigeria

Variable	Frequency	Percentage
Yes	0	0
No	100	100
Undecided	0	0

Source: Field study, 2022
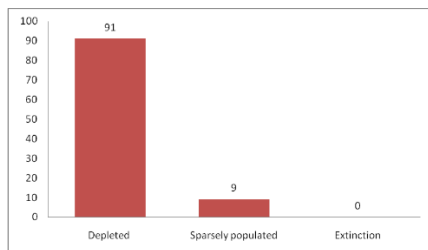
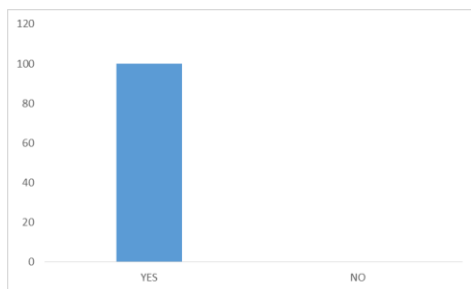**Figure 1: Description of the Forest in the study area at Etche Local Government Area , Rivers State, Nigera**

Figure 3: Causes of Deforestation in the study area at Etche Local Government Area , Rivers State, Nigeria

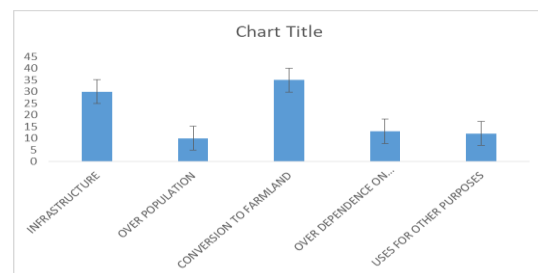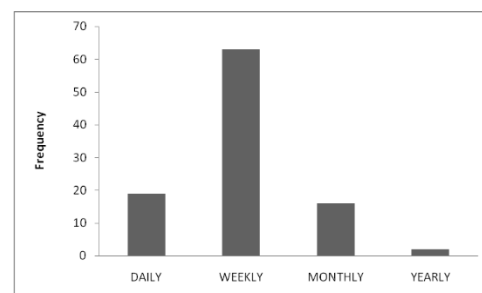**Figure 2 Respondents on Conversion of forest land at Etche Local Government Area , Rivers State, Nigeria**

Figure 4: Frequency of how trees are often fell at Etche Local Government Area , Rivers State, Nigeria
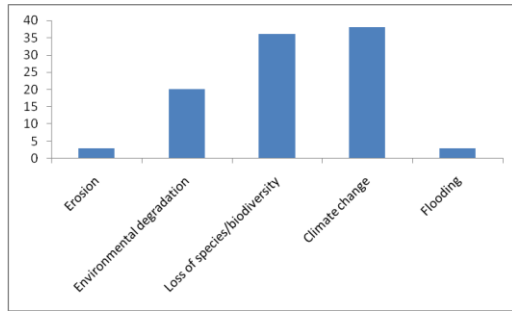
Figure 5: Effect of deforestation in the study area at Etche Local Government Area , Rivers State, Nigeria
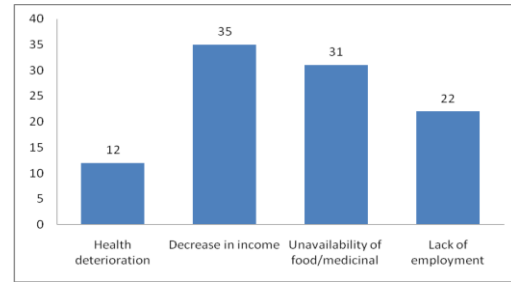

Figure.6: Effect of deforestation on livelihoodat Etche Local Government Area , Rivers State, Nigeria
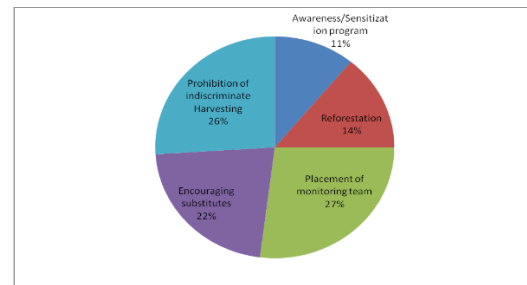

Figure 7: Strategies to reduce deforestation at Etche Local Government Area , Rivers State, Nigeria

DISCUSSION

The study revealed that a higher percentage of the respondents indicated that the Forest has been depleted. The result of the conversion of deforestation to other use in the study area reveals that most forest lands have been converted to other use in the study area. This agrees with the report of Pearce and Brown (1994) that one of the major causes of deforestation is as a result of conversion to other use such as agriculture, infrastructure and resident buildings. It was also observed that there are various othere causes of deforestation in the area such as infrastructure development, overpopulation and conversion to farmland. This research shows that most of the rural dwellers converted the Forest land to farmland which is the major cause of deforestation in the area. This finding agrees with the report of (Myers, 1994; Anon., 1991) which stated that about 60 percentage of the clearing of tropical moist forests is for agricultural settlement.

Also the frequency at which rural dwellers fell trees in their area was high daily, weekly, monthly and yearly. This research agrees with the report of Ajayi and Ilem (2015) which reported that over fifty trucks of wood leaves the northern axis of Cross River State weekly before the advent of the task force.

The result of the effects of deforestation on rural dwellers which reveals that 38% % of the respondents indicated loss of species and biodiversity as effects of deforestation in rural dwellers in the study area that deforestation activities in the study area have reduced the wild species of both plants and animals, some of which are of great economic importance, these in turn affects the local community and reduce the quality of life. The result conforms to the findings of Magala (2015) who found that biological diversity and animal species are threatened due to loss of wildlife habitats and degradation of water-shed areas, hence leading to deterioration of the quality of life and reduction of options for development.

Deforestation negatively affected the climate in the study area and consequently affects agriculture, crop harvest, which tells greatly on the livelihood of the people. This agrees with the findings of Chomitz *et al*, 2007) which stated that deforestation affects wind flow, water vapour flows and absorption of solar energy thus clearly influencing local and global climate, environmental degradation and flooding senerios of the area.

A good number of the respondents wanted creation of monitoring teams as a strategy for reducing deforestation. Some agreed to reforestation as an effective means of reducing deforestation. According to the findings, the respondents have some knowledge of reforestation programs which were not fully implemented and supervised. This agrees with Warren (2017) who reported that another solution to deforestation is to plant more trees to replace those already lost. They also supported prohibition of indiscriminate harvesting and creation of awareness/sensitization program as a means of reducing deforestation.

CONCLUSION

The study revealed the drastic negative effects deforestation has on rural dwellers, ranging from climate change, loss of species biodiversity, flooding, erosion to environmental degradation. Most rural dwellers depend on farm and off-farm activities to create or generate all the necessities of life in order to sustain their life. Forest resources are one of the major resources on which most of the communities depend on to generate necessities for their family. This results in resource over exploitation and ultimately deforestation with dire consequences on the livelihoods of residents of Etche Local Government Area , Rivers State, Nigeria.

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