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IMPACT OF POPULATION GROWTH ON TIMBER INDUSTRIES AND FOREST RESOURCES IN KURMI TARABA STATE, NIGERIA

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ABSTRACT

As population density increases, the demand for forest product increases which results to deforestation and forest resources depletion. This in turn affects the survival of timber industries. This research work was carried out to assess the impact of population growth on forest resources depletion in Kurmi forests in Taraba State, Nigeria. The investigation was based on the trends of population growth in the area, causes of population growth, and impacts of population growth on forest resources, factors responsible for forest resources depletion, effects of forest resources loss and the economic benefits from the Kurmi Forest Reserves. Primary data were collected by the used of structured questionnaire, and the secondary data were collected through documented literature and cartographic maps. Data obtained were analyzed using descriptive statistics. Findings revealed that there was steady population growth (55.6% in 24 years) around the forest reserves which was attributed to forest resource depletion by 86% of the respondents and 100% of the respondents affirmed that there was decline of forest resources in the study area. Other factors responsible for forest resources depletion was found to include poverty (61%), lack of indigenous people participation in the management of the forests (53%), illiteracy (80%) and combination of these factors (80%). Thus, it is recommended that government should enact supportive forest conservative and regenerative policies involving the indigenous people and support it with, along with other stakeholders, funding. Proper reorientation and education should be carried out in the area on forest restoration and conservation.

Key Words: Population growth; Timber industries; Forest resources; Conservation; Forest regeneration.

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INTRODUCTION

Rapid population growth and the resultant anthropogenic activities have exerted great pressures on the natural and as well as man-made environments. Most of these activities such as agriculture, industrialization, urbanization, mineral exploitation, and others are driving factors to forest depletion globally (Oriola, 2009; World Bank, 1992). While the world population has reached 7 billion, the world natural resource base has continued to be at a diminishing state leading to changes in every aspect of the natural environment. Estimates of forest losses in Africa and Nigeria were observed to be higher in the past two decades. Between 1990 and 2000, the continent lost about 52 million hectares of the forest, accounting for about 56 percent of the global reduction of forest cover (Debel *et al.*, 2014).
It is reported that from1956 to 1986 the country lost about 23,000ha of the gazette forest estates per annum through government de-reservation which shows high rate of forest depletion in Nigeria (Defries *et al.*, 2004).

Nigeria lost 60 percent of her forest within the period of 1950-1960. Forest clearance in the country is put at an average of 400,000ha per

annum, while afforestation has only 32,000ha annually. The cumulative effect of these is that the country has lost 50 million hectares of forest in less than 100 years (Gebre *et al.,* 2020). The increasing loss of forest land implies loss of biodiversity and other numerous forest resources with high potential value for the sustenance of the people of Taraba State and Nigeria at large.

With the increasing population pressures at local, regional, and even global scales, an understanding of both the nature change and the responses of natural systems to change becomes pertinent. Human beings generally have been viewed as destructive intruders to natural ecosystems; hence, this suggests stringent rules and legislation that will protect the vegetation and its resource deposit by (Mmom and Arokoyu, 2010; Simachew, 2020). In as much as human beings are viewed this way, human population and the environment have a very strong complementary linkages or relationships. In actual fact, biodiversity conservation efforts especially vegetation can be sustained if human beings give their support.

Rapid population growth is the major cause of much vegetation resource degradation especially in developing countries like Nigeria. Major direct causes of forest depletion brought on by humans include overharvesting of industrial wood, fuel wood and other forest products, and overgrazing (Joachim *et al.,* 2013; Mmom and Arokoyu, 2010). The underlying causes include poverty, markets and trade in forest products, and macroeconomic policies Forests are also susceptible to natural factors such as insect pests, diseases, fire and extreme climatic events (Oko *et al.,* 2022; Southgate, 1988).

The implications of these developments on the forest reserve are huge. In some extreme cases government has lost substantial earnings. A study by Nigerian Environmental Study/Action indicated that over 350,000ha of vegetation in Nigeria are being lost annually due to farming alone (Olajuyigbe *et al.,* 2018). Oriola (2009) concluded that scientific studies of the vegetation in Nigeria illustrate the apparent effect of farming activities resulting in the modification of the original vegetation while some vegetation resources such as wildlife have gone to extinct.

Forest depletion is akin to deforestation, which broadly speaking refers to the gradual or rapid process of temporary or permanent removal of trees, resulting in partial or complete eradication of tree cover in a locality (Patrícia *et al.,* 2021). The forest cover in Kurmi Local Government Area is depleting at an alarming rate which impact negatively on the livelihood of the people through potential loss of forest resources such as food, medicines, fodder, and construction materials, thereby underpinning the local economy.

METHODOLOGY

Study Area

The Study was conducted in Kurmi LGA of Taraba State, Nigeria. The area is located roughly between Latitudes 5^0 31' and 7^0 18' North, Longitudes 10^0 18' and 11^0 37' East (Taraba State Government Diary, 2016). Kurmi in Hausa language means forest. The Local Government area was named Kurmi because its location in the rain forest zone of the State. The LGA harbours three prominent old forest reserves gazette in the defunct Northern Nigeria and North Eastern authorities namely; Amboi, Baissa, and Bisaula with gazette number NE4/22/1/76, NE2/25/1/68 and NE18/15/5/69 respectively. Most communities in the LGA either share boundaries with these protected forests or are surrounded by free forest areas. The Local Government is bounded in the South by the Republic of Cameroon, in the South-east and North-east by Sardauna and Donga LGA respectively. It is also bounded in the North by Bali LGA in the North-west and South-west by Donga and Ussa LGAs respectively (Taraba State Government Diary, 2016). The LGA lies on the south border with Cameroon and the vegetation of these areas are richly blessed with fertile soil which grows a number of cash crops and food crops such as bananas, plantains, rice, groundnuts, oranges, palm trees, cocoyam and cocoa . Kurmi is also a producer of high quality timber and the only local government with the state that owned Timber Company which was called Baissa Timber Development Corporation (Taraba State Government Diary, 2016). The LGA is also endowed with various natural resources including precious stones like gemstones, waterfalls, and mountains. The main occupations of the people are farming, hunting and trading (Figure 1).

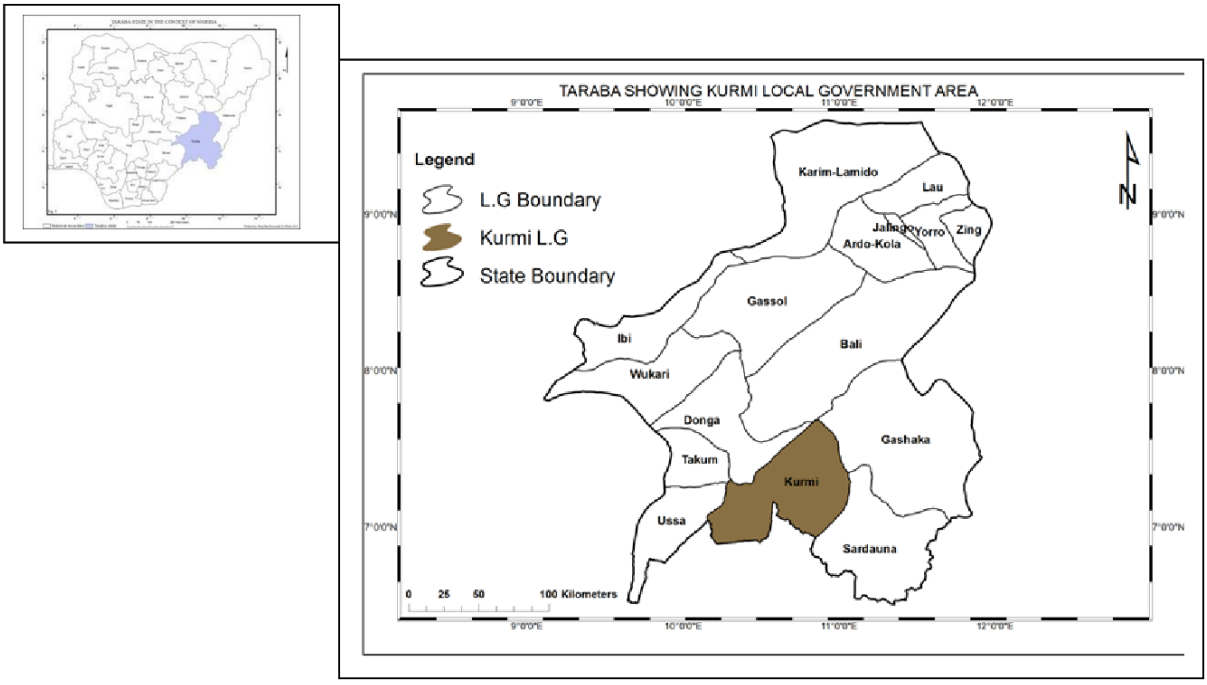

Figure 1: Map of Taraba State showing Kurmi Local Government Area.

Sampling Technique

The three wards in which the three natural forest reserves are located were purposively selected as the sampling population for this study. The wards are Ashuku/Eneme, Baissa, and Bisaula. The primary data was collected through the administration of semi-structured questionnaires to timber operators and other forest resources stakeholders. A total of 300 copies of questionnaires were administered randomly to the selected sampling population. Each ward was allocated 100 copies of the questionnaires. The questionnaire contained both close and open ended questions. The closed-ended questions were predetermined and gave useful information to support theories and concepts in the literature while the open-ended question were to explore reasons behind the participant's responses and to obtain more information on the participants knowledge. The secondary data were collected through documented literature and cartographic maps. Data obtained were analyzed using descriptive statistics of tables, averages and percentages.

RESULTS

The results of population growth from the three (3) selected wards are presented on Table 1. The study revealed that there was a steady population increase in the study area. From an interval of 15 years (1991-2006), there was an increase of 10,189, while from an interval of 9 years (2007-2016) there was an increase of 16,290. The steady growth of population as indicated in the study means an additional demand for forest products which had led to forest resources depletion in the area.

Table 1: Population growth in Kurmi LGA

S/N	Name of ward	1991 Population	2006 Population	Projected 2016
1	Ashuku/Eneme	6,110	7,520	8,310
2	Baissa	18,041	25,310	30,320
3	Bisaula	5,440	6,950	7,440
	Total	29,591	39,780	46,070

As shown in Table 2, 21% of the respondents affirmed that large family sizes due to uncontrolled birth is a major cause of population growth in the area, followed by economic activities (19.5%), improved health care facilities and use of traditional medicine (18.1%) and immigration of people to the study area (14%). However, 27.4% stated that combination of all the factors are responsible for population growth.

Table 2: Causes of population growth in Kurmi LGA

S/No.	Factors of population growth	Frequency	Percentage (%)
1	Large family sizes	220	21
2	Immigrants	146	14
3	Improved health care	189	18.1
4	Economic activities	204	19.5
5	All of the above	287	27.4
Total		1046	100

Source: Researcher's field work, (2023)

Data analysis on the impacts of population on forest resources depletion (Table 3) showed that as a result of population growth in the area, the subsistence farmers were forced to clear more land in attempt to increase food supply (8.3%), there was increased in illegal forest trees cutting (6.7%), illegal lumber activities (8%), increase cutting of trees for fuel wood (10%), building poles (4%), medicinal plants (2.7%) and hunting activities (2.3%) were the major impacts of population growth on forest resources depletion in the study area.

Table 3: Impacts of population on forest resources in Kurmi LGA

S/No.	Impact	Frequency	Percentage (%)
1	Increased illegal forest tree cutting	20	6.7
2	Clearing for new farm land	25	8.3
3	Increased illegal lumber activities	24	8.0
4	Cutting of trees for fuel wood	30	10.0
5	Cutting of trees for building poles	12	4.0
6	Harvesting of medicinal plants	8	2.7.
6	Hunting	7	2.3
7	Settlement expansion	20	6.7
7	All of the above	154	51.3
	Total	300	100

Source: Researcher's field work, (2023)

The results on the factors responsible for forest resources depletion ((Figure 2) revealed that 86.6% of the respondents accept that population growth is a major factor of forest resources depletion in the study area. Poverty (61%), lack of indigenous people participating in management and protection of the forest (53%), illiteracy (80%) and population increase mainly due to large family sizes and immigration (86%) were other factors that are responsible for forest resources depletion. While 80.0% of the respondents affirmed that these factors work simultaneously causing forest resources depletion in the study area.

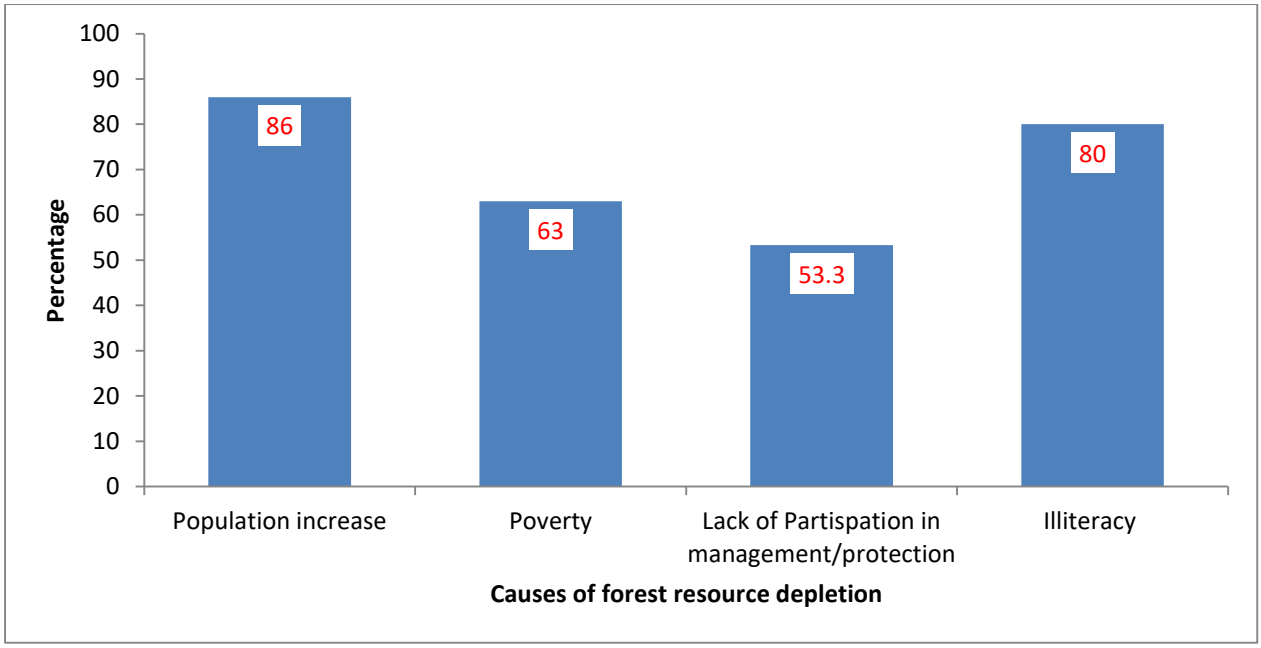

Figure 2: Factors responsible for forest resources depletion in Kurmi LGA

The analysis on impact of population growth on forest resources depletion (Table 4), shows that 6.7% of the respondents affirmed that it has resulted to loss of natural ecosystem, loss of wild life habitat (6%), soil nutrient depletion (5%), soil erosion (2.7%), loss of watershed (3.3%), the changed in climate (5%), other effects such as deforestation, and degradation of forest lands (1.3%). However, 70% of the respondents stated that population growth leads to combination of all the effects stated above.

Table 4: Effect of forest resources loss in the Kurmi LGA

S/No	Effect	Frequency	Percentage (%)
1	Loss of natural ecosystems	20	6.7
2	Loss of wildlife habitat	18	6.0
3	Soil nutrient depletion	15	5.0
4	Loss of watershed	10	3.3
5	Soil erosion	8	2.7
6	Climate change	15	5.0
7	Others	4	1.3
8	All of the above	210	70.0
	Total	300	100

Source: Researcher's field work,(2023)

Data analysis on forest resources being exploited and used revealed that the forests in the study area provide timber, fire wood, bush meat, edible fruits, vegetables, and nuts, mushrooms, and medicinal plants to the people (Table 5).

Table 5: Forest products exploited and used in Kurmi LGA

S/N	Forest product	Use/Economic value
1	Economic trees	Timber, fire wood, construction materials, carpentry and furniture
2	Bush meat	For food and income generation
3	Fruit, vegetables, nuts and mushrooms	For food and income generation
4	Medicinal plants	Treatment of some ailments and income generation

Source: Researcher's field work, (2023)

DISCUSSION

The Adjacent communities of Amboi, Baissa, and Bisaula Forest Reserves were used in the assessment of the impact of population growth on forest resources depletion in Kurmi Local Government area. The study revealed that there has been steady population growth in the area. The population growth has led to the increased in demand for forest resources leading to high forest resources depletion. Currently, Kurmi LGA is experiencing significant environmental implications of forest exploitation. Larger parts of the environment especially the protected forests are being degraded. This is in agreement with the work of Soini, (2002) who reported that densely populated areas had led to disappearance of ecological systems.

The findings on the causes of population growth revealed that large family sizes as a result of uncontrolled birth, immigrants, availability of improved health facilities and the use of traditional medicine and economic activities such as high numbers of farmers, employment of casual labourers from nearby areas and petty businesses are major causes of population growth in the study area. The findings agreed with the work of Ekpetere and Ekelu (2019) and (Mmom and Mbee 2013). The result on the impact of population growth on forest resources depletion revealed that there have been several forest resources depletion challenges in the area. A total of (51.3%) of the respondents agreed that population growth has resulted in increased illegal forest tree cutting, clearing for farm land, illegal timber harvesting, collection of building poles, cutting of trees for medicine, collecting fuel wood, and encroachment into the forests and wetlands. This is in line with FAO report that population growth depletes forest resources (FAO, 2015). Factors that are responsible for forest resources depletion are many and are well known globally such as deforestation and over harvesting. According to FAO Forest Resources Assessment, about 14.6 million hectares of natural forests were lost annually to deforestation (FAO, 2015; Simachew, 2020).

In Nigeria, forest resources depletion is caused by many factors such as agricultural expansion, commercial logging, and hunting. Others include oil drilling, pollution, mining, and government allocation of forest land, de-reservation and grazing. In the study area forest depletion has majorly resulted from rapid population growth and over exploitation aggravated by poverty, illiteracy, and lack of participation of the indigenous people in the management and protection of the forests. The finding in this study is in agreement with the work of Patrícia *et al.*, (2021) who reported that the rate at which forest is being depleted today due to population growth is alarming. Finding on the effect of population growth on forest resources depletion showed there was many losses of natural resources including loss of wildlife habitat, soil nutrient, land degradation, deforestation, soil erosion and others. This corroborate with the works of Debel *et al.*, (2014) and, Umesh and Nautiyal (2015), who reported that rapid population growth has been associated with various aspects of resource degradation, including deforestation, overgrazing, soil erosion, soil nutrient depletion and other problems. Finding on the forest resources exploited and used in the study area revealed that both wood and non-wood products are being exploited and used by respondents in the area and this has adversely affected Timber industries as their raw materials are being depleted more rapidly than it is being replenished. The wood products include timber used as construction materials, furniture, carpentry, building materials and fire wood. While the non-wood products are major sources of food, and herbal medicine.

CONCLUSION

Population growth is exacting an immense pressure on forest resources in Kurmi LGA. Economic trees and medicinal plants are some of the timber forest products that are being exploited in the study area. This exploitation has adversely impacted the study area leading to loss of natural ecosystem, loss of wildlife habitat amongst others. Lack of good conservation and restoration practice has also led to poor regeneration of forest and depletion of raw materials for timber industries. It is thus recommended that Government through the relevant agencies should engage the study area with supportive forest conservation and restoration policies. Government, timber industries and other stake holders need to support the policies with funding and good forest management.

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