



RESEARCH PAPER

Effects Of Deforestation On Some Communities In Kusopa, Mokwa Local Government Area, Niger State, Nigeria

Mohammed A.

Department of Geography, Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria

ABSTRACT

Vegetation degradation is results of the dynamic inter play of social economics, institutional and technological activities. Vegetation declining may be driven by some factors including economic growth, population growth, urbanization, intensification of agriculture, rising energy use and transportation. Poverty still remains a key issue all the root of several environmental challenges. This paper is on remotely sensed multi-temporal landsat imageries of 1995 Landsat MT, 2005 Landsat ETM and 2015 Landsat 8 ((OLI) with structured questioners on field studies. The result indicate that forest land cover reduces by 38.6% from 74%- as at 1995 to 35.4% as at 2015 which highly might be as a result of massive logging and poaching, settlement growth, increase in agricultural activities coupled with weather anomalies. No measures appeared to have been taken to address deforestation and it impacts on the people and the physical environment of Kudu and Labozhi wards leaving the people and the environment on the peril. Therefore it could be that relevant agencies should strictly monitor deforestation going on within Kudu and Labozhi wards, the stake holders should make standard adaptation strategies and alternative to deforestation with full implementation.

Keywords: Deforestation, Impact, Environment, Agriculture, Landsat

INTRODUCTION

Humans have destroyed many prairies, wetlands and old growth forests and only remnant of these habitats remains is relatively natural condition. Nigeria is undergoing not only economic stress but, also social, political and environmental stress. Nigeria has a considerable diversity of habitats, from savanna in the extreme north of frees water swamp forest in the south (Adewuyi, 2009). Despite the unquantifiable value of the rich biodiversity of resources, the general ecosystem is under the threat of mass elimination of species and genetics resource through the man's activities (Shaw, M et al, 2000);. Uncontrolled logging and falling of trees and with increased pressure from hunter, poachers and bush burning. Nigeria's natural resources are declining (Adewuyi, 2009). Vegetation degradation is a result of the dynamic consequence of social economic, growth in institutional and technological activities. Vegetation declining may be driven by a number of factors including economic and population growth. Urbanization, intensification of agriculture, rising energy used and transport. Poverty still remains a problem at the root of several environmental

problems, because ecological challenges association by human activities (Adewuyi, 2009).

Population is reported to be an important source of development, yet it is a major source of environmental degradation, if it exceeds the threshold limits of the support systems (FAO). Unless the relationship between the matching population growth and the life support system amenities, developmental programs may not be guaranteed. Population impacts on the environment are primarily through the use of natural resources and production of wastes which are associated with environmental stresses life loss of biodiversity, air and water pollution and increased pressure on arable land (FAO, 1993). Understanding deforestation and degradation is fundamental for the development of policies and measure that aim to alter current trend in forest org activities toward a more climate and

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Address Correspondence to:

abdulkadirmohammed98@yahoo.com

biodiversity friendly outcomes (UNFCCC, 2011). Despite this relevance, quantitative national level information on activities causing deforestation and degradation are widely unknown (Riebsame, et al. 1994). For example, the question of how much or what fraction of deforestation (emission) in a country is caused by specific activities such as expansion of agriculture and infrastructure cannot be answered by many developing countries (Giest and Lambin, 2001).

Boucher and Rudoff (2011) highlighted the importance of differentiating between proximate drivers and indirect causes. Proximate of deforestation are human activities that directly affect the loss of forest and thus constitute proximate source of change, that result from complex interaction of underlying forces in social, political, economic and cultural domains. Direct driver can be grouped into different categories such as agriculture expansion, infrastructure expansion, and wood extraction (Geist and Lambin, 2001). Although, agriculture expansion has been determined as the key driver of deforestation in the tropics (Gibbs et al., 2010). Drivers vary regionally and change over time (Boucher and Rudoff, 2011). The aim of this study is to assess the level of deforestation and its impacts on the people and environment of Kudu land Labozhi wards in Mokwa Local Government with a view to

Determine the level of deforestation for the space of thirty (30) years in Kudu Labozhi wards. Also, identify and assess the various causes of deforestation in the study area, impacts of deforestation on the people and the environment of the study area and assess the various control measures taken to stop deforestation and its impacts on the study area.

METHODOLOGY

Study Area

Kudu and Labozhi wards are constitute Kusopa communities in Mokwa Local Government Area of Niger State, Nigeria with fast growing villages. It lies at coordinate of longitude 9° 27' North and Latitude 5° 35' East. The people are Nupes with few other tribes (non-indigenes) amidst of them. The study area experiences two distinct seasons, the wet and dry season. The average annual rainfall is about 1,200-1,400mm. The duration of the rainy season is approximately seven (7) to eight (8) months beginning mostly from March ending and ends in early October but at peak by August-September. The mean monthly temperature is highest in March which is around 34°C and lowest in August at 26°C (NSME, 2008). The communities under the study include, Kudu, Kinbokun, Chiji, Dankogi I, Dankogi II, Tutuntiko., Kusogi, Yelwa, Jekpagi, Bangi, Nakupa, Tyabo, Labozhi, Ibbu, Kukpanti and Kiagi.

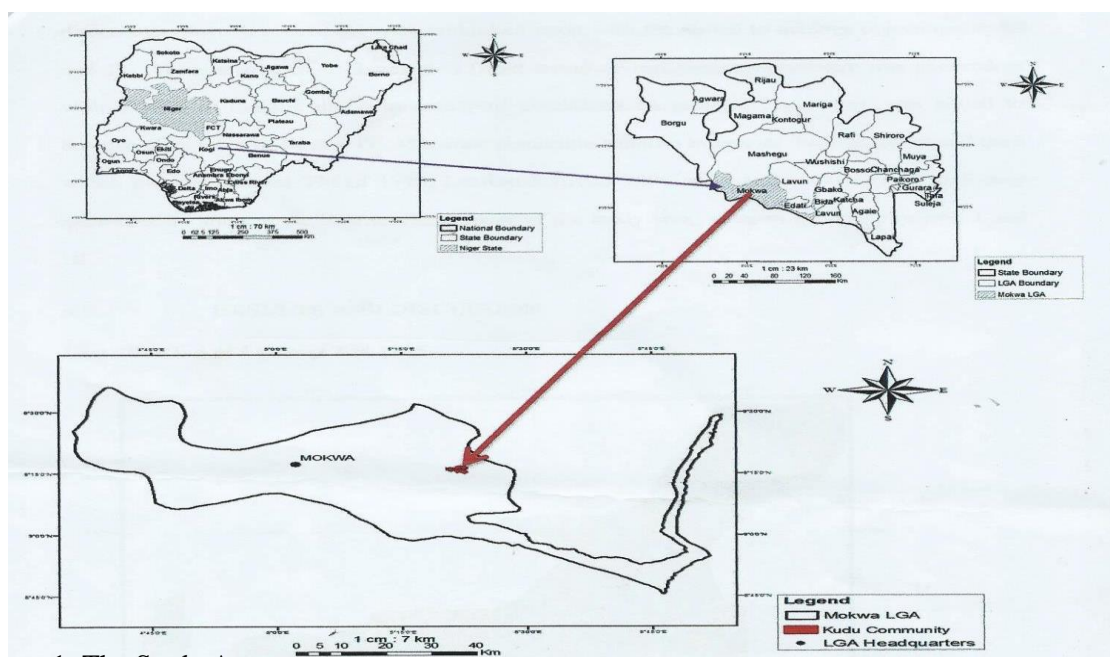


Figure 1: The Study Area
Sources: Data Net (2016)

Method

One thousand two hundred (1,200) structured questionnaires were administered throughout the various settlements within the study area but one thousand and twenty six (1,026) were received back. Structured questionnaire data was aimed to achieve objectives intensive direct interviews were embarked upon with the aimed to achieve objective. An extensive field

observation was undertaken with a view in making detail inventory of conditions on ground. Field work was aimed to support achieve objects of the study. Moderate resolution satellite imageries were acquires and used which include Landsat TM of 1995, Landsat ETM of 2005 and Landsat8 (OLI) of 2015 to analyze the land use-land cover of the study.

RESULTS AND DISCUSSION

Classification of Landsat TM 1995

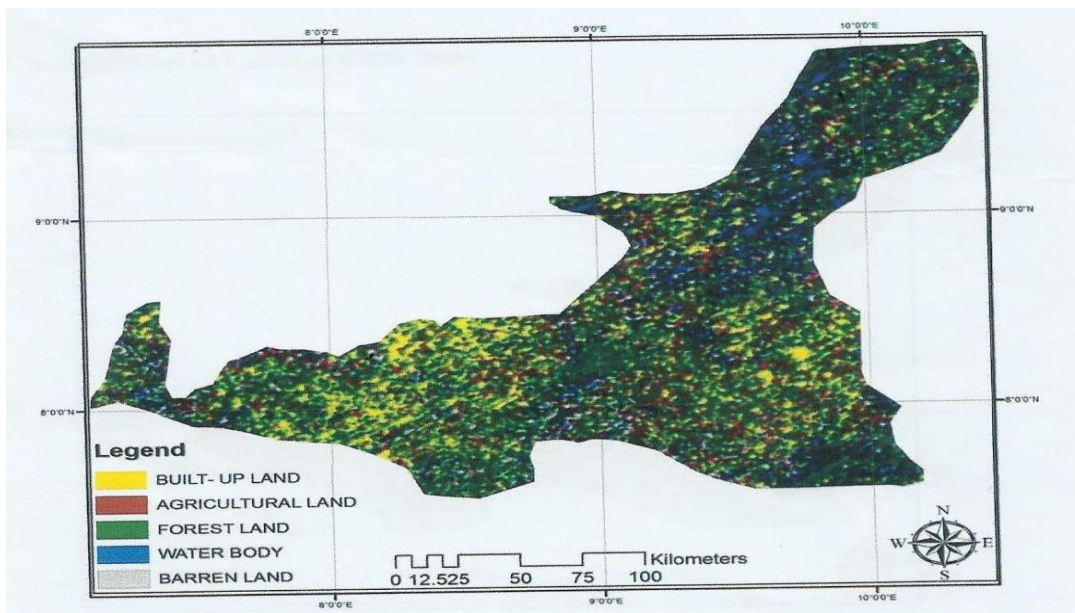


Figure 4.1: 1995 Landsat TM Imagery of Kudu and Labozhi Wards
Sources: Authors Data Analysis (2017).

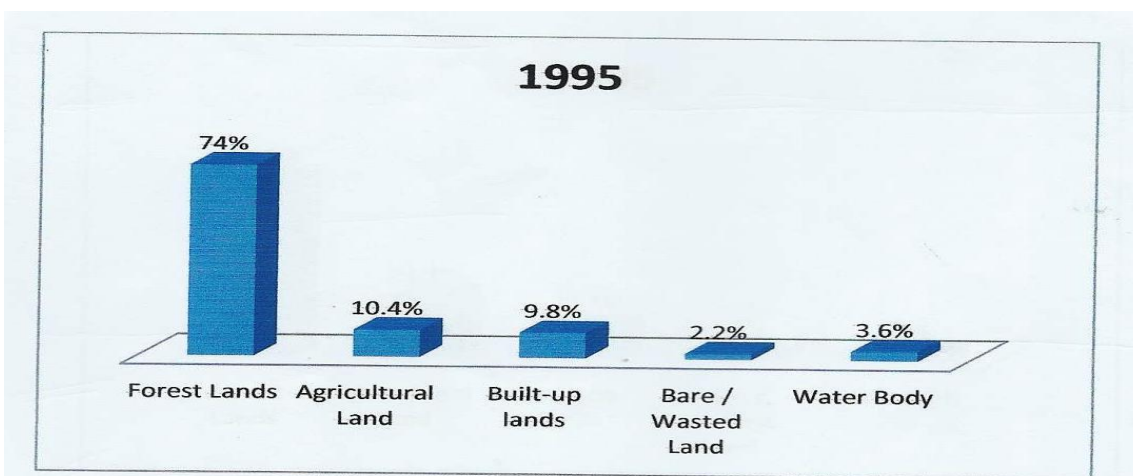


Figure 4.2: Percentage coverage of Land use cover category in 1995
Source: Authors Data Analysis

Classification of Landsat ETM 2005

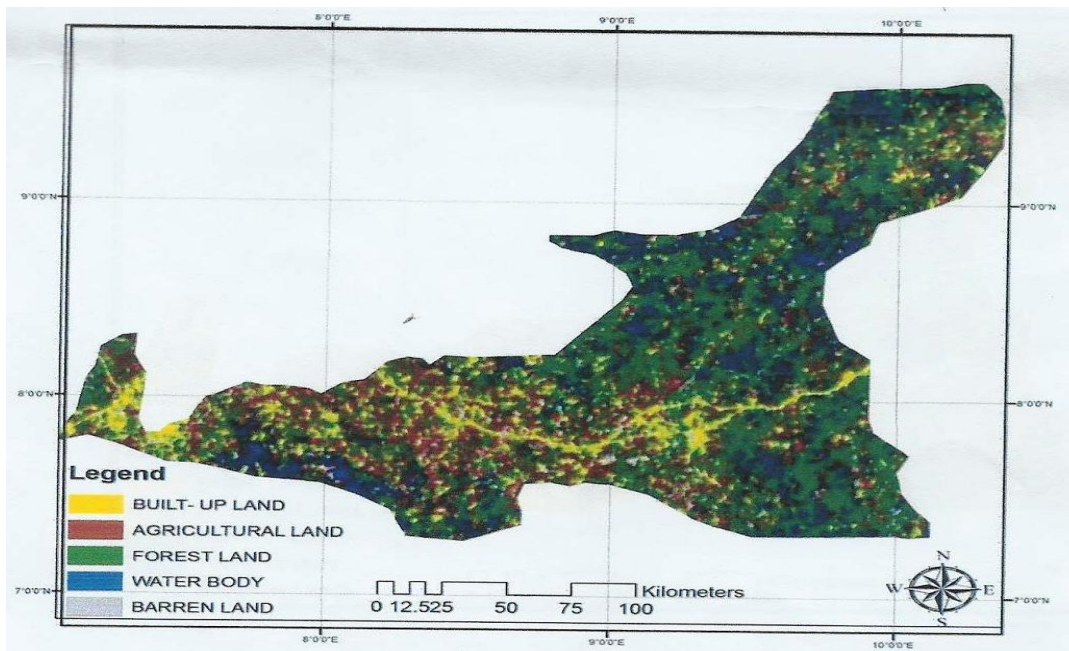


Figure: 4.3: 2005 Landsat ETM Imagery of Kudu and Labozhi Wards
 Source: Authors Data Analysis(2017)

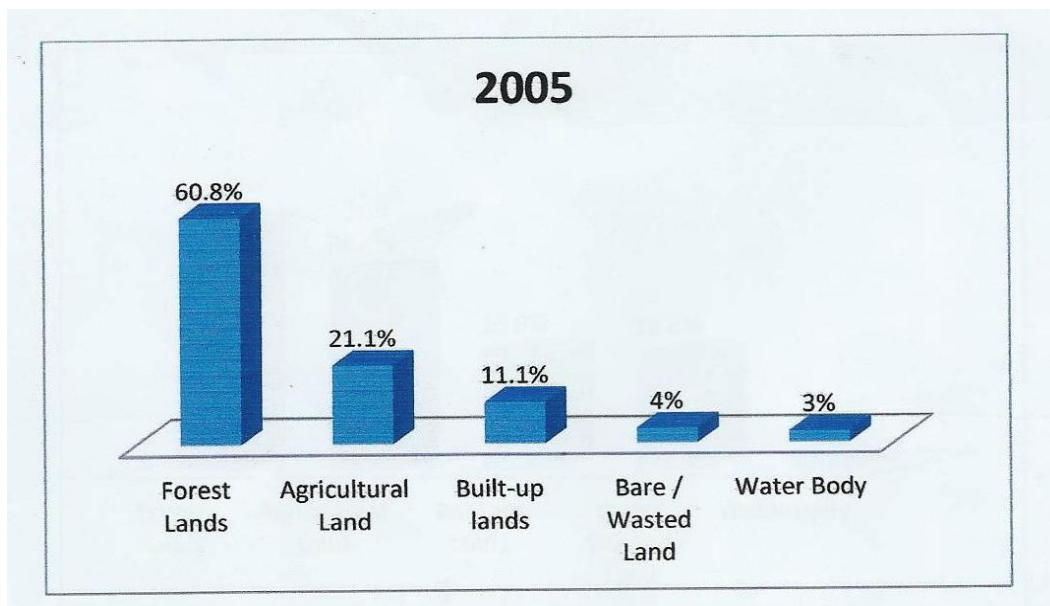


Figure: 4.4: Percentage Coverage of Land use cover category in 2005
 Source: Authors Data Analysis

Classification of landsat8 (OLI) of 2015

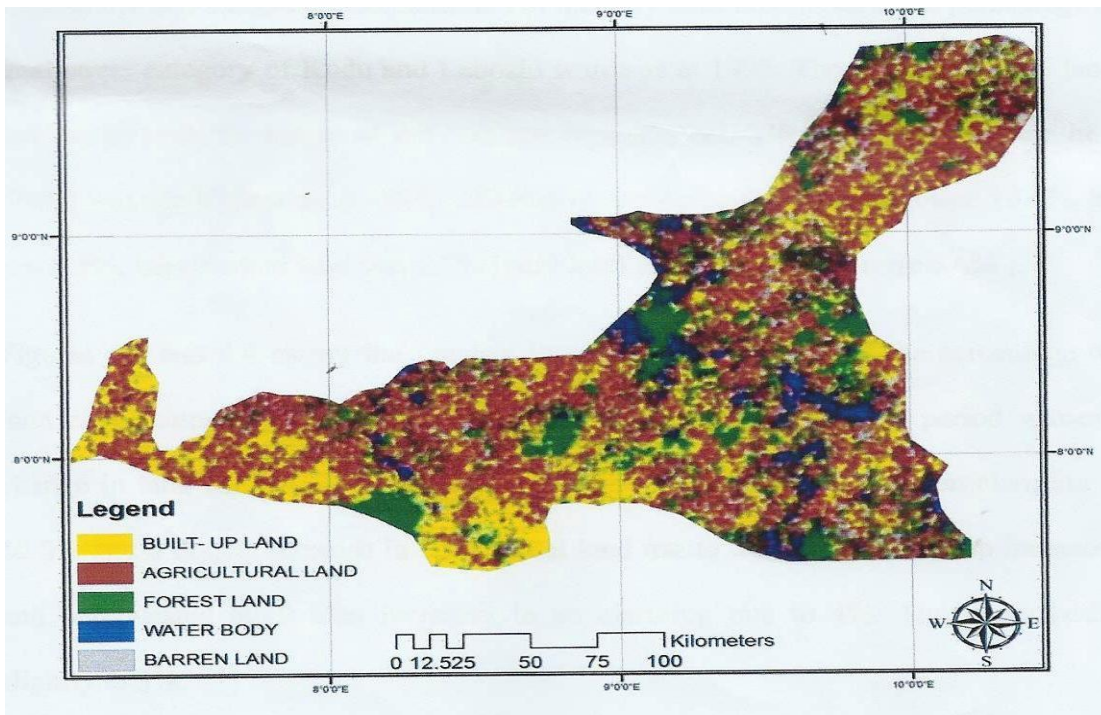


Figure: 4.5: 2015 Landsat 8 (LOI) Imagery of Kudu and Labozhi wards.
Source: Authors Data Analysis

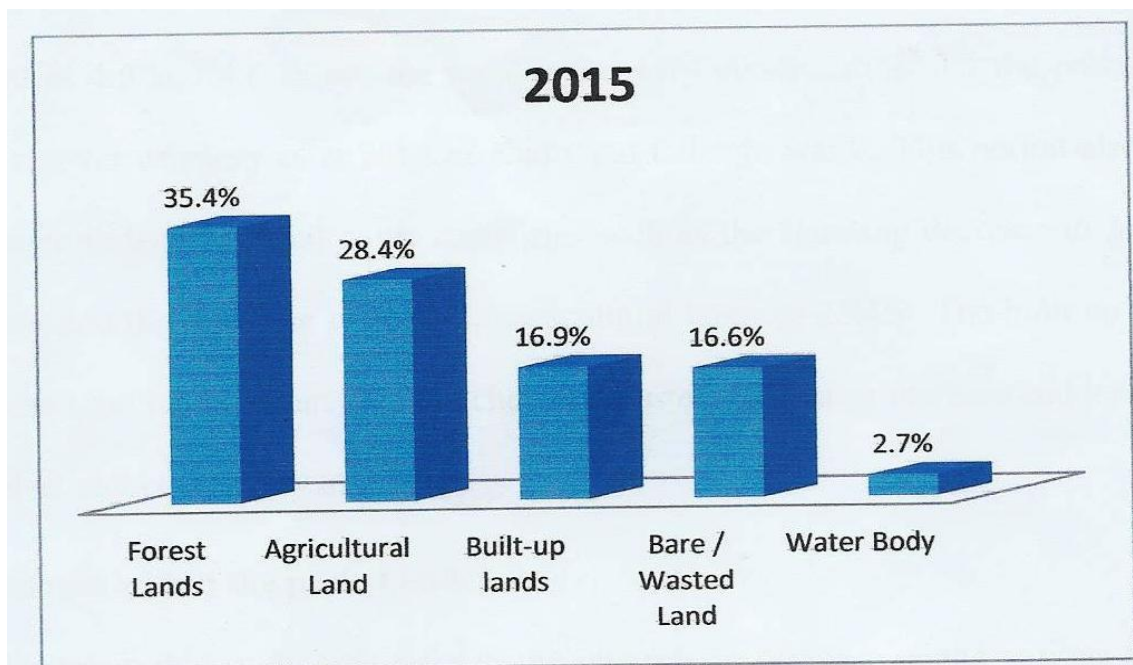


Figure: 4.6: 2015 Percentage Coverage of Land use land cover category in 2015
Source: Authors Data Analysis

Figures 4.1 and 4.2 indicate the Landsat TM imagery classification and the percentage of land use land cover category of Kudu and Labozhi wards as at 1995. They indicate the total land mass and land cover with the nature of the land use type in 1995. The figures indicate that the forest land (74%) was the highest as at 1995, followed by agricultural lands which was 10.4%, built up was just 9.8% bare/wasted land was 2.2% (very low) and water bodies were 3.6%.

Figures 4.3 and 4.4 indicate the Landsat imagery classification and the percentage of Land use land cover categories as at 2005 of Kudu and Labozhi wards. This period witness a great change in land use category especially as of the forest cover that had an alarming decrease to 60.8% and a drastic increase in agricultural land use to 21.1%. The build up increases to 11.1% and bar/wasted lands also increases in an alarming rate to 4%. The water bodies reduced slightly to 3%.

Figures 4.5 and 4.6 indicate the Landsat imagery classification and the percentage of Land use land cover category as at 2015 of Kudu and Labozhi wards. This period also witnessed a great change in land use land cover categories such as the alarming decrease to 35.4% of forest land cover and the alarming increase in agricultural lands to 28.4%. The built up increases to 16.9% of the total land use land cover. The bare/wasted lands also increase suddenly to 16.6%. Water bodies reduces slightly to 2.7%.

Changes within the period under study.

Changes in this study area refer to the increase or decrease of the various land use/land cover types as of the period under the study. Figures 4.2 and 4.4 indicate the percentage coverage of land use land cover category of Kudu and Labozhi wards as of 1995 and 2005. In considering the two figures, the forest land cover reduced by 13/2% (74%-60.8%), the agricultural land increases by 10.7% (21.1%-10.4%), while build up increased by 1.3% (11.1%-9.8%), and bare/wasted lands increased by 1.8% (4%-2.2%). Water bodies reduce by 0.6% (3.6%-3%).

Figure 4.4 and 4.6 indicate the percentage coverage of land use land cover category of Kudu ward as of 2005 and 2015. In considering the two figures, forest land cover reduced by 25.4% (60.8%-35.4%), the

agricultural lands increases by 7.3% (28.4%-21.1%), while built up increased by 5.8% (16.9%-11.1%), and bare/wasted lands increased in an alarming rate by 12.6% (16.6%-4%). Water bodies reduce by 0.3% (3%-2.7%).

Total land use land cover changes within the period of the study (between 1995 and 2015).

Figure 4.2 and 4.6 are the percentage variance of land cover as at 1995 and 2015. Between 1995 and 2015, the forest land cover reduces by 38.6% (74%-35.4%), while agricultural land increased by 18% (28.4%-10.4%), and build up increased by 7.1 (16.9%-9.8%). Bare/wasted lands increased by 14.4% (16.6%-2.2%), while water bodies reduced by 0.9%-2.7%). This shows that the study area that used to be a highly vegetation cover environment showing good characteristics of rain forest within guinea savanna is now highly deforested.

Causes of deforestation in the study area

It is very true that the forestry cover of the study area (Kudu and Labozhi wards) was more dense and tickler than what is now; 100% of the respondents indicated this. This confirms true the result of the analysis of the imageries (see figures 4.2,4.4 and 4.6). according to respondents and the results from personal field studies, the major factors what causes changes (extinction) on forest cover are; the massive logging of tress by loggers and poachers, indeed this is the most major facto of deforestation in the study area; increase in development and expansion (growth) of the settlements within the study area; increase in domestic use of trees and shrubs for fire wood, charcoal production and constructions; and increment in agricultural activities (farming) in which mechanized farming companies such as Shepherds farms, Guinea Farms, Sunti farms and other as converted vast forest lands to farmlands. All these are done without a forestation (replanting). 8% of the respondents indicated the issues of weather animalizes such as rainfall been low as of recent compare to years back couple with constant droughts which do cause great extinction of many vegetal cover. These are confirmed through the statement of Adewuyi (2009) in which he said uncontrolled logging and felling of trees are rampant and with increased pressure from

hunter poachers and bush burning. Nigeria's natural resources are declining. Goldewijk and Rmanakutty (2004) also stated that since civilization human activities have impacted on the natural ecosystem through the aggressive drive for development.

Impacts of deforestation on the community

According to the respondents and the result from the field studies, the impacts of deforestation on the people of Kudu and Labozhi wards and the physical environment include: land degradation such as erosions and bare/wasted lands; infertility of the soil which is causing low yield to their primary means of living which is farming; the study area in getting hotter the more because of lack of good vegetal cover as of the years back; extinct of many prominent economic and herbal trees and shrubs such as mahogany trees, iroko trees, baobab trees, share butter trees, palm trees, Kola nut trees, mango tree and bamboo trees which women do fetch or harvest to sell as their major means of livelihood. The herbal practioners also bitterly complained that these trees and shrubs that are in serious extinct has made their profession handicap to some extent; and the increase in occurrences of some natural disasters such persistence whirl winds due low vegetal cover of these days.

According to Adewuyi (2009), despite the unquantifiable value of the rich biodiversity resources, the general ecosystem is under the threat of mass elimination of spices and genetic resources through the man's activities. Goldewijk and Ramanktty (2004) stated that Human actions especially those involving biomass fuel consumption, land-use change, and agricultural activities have direct interaction with the land surface and negative consequences on vegetation and environmental qualities. Deforestation creates serious social consequences, especially for indigenous communities and the rural poor, by disrupting delicately maintained livelihood systems. Traditional livelihoods have lost, but the new systems are often less productive and even more frequently they are less sustainable (Sharma, 1992).

Measures and mitigations taken against deforestation and its impacts

The result from all the respondent (100%) and the of the field studied indicates that no any measure is taken or has been taken by anyone,

community/settlements or by various authorities and agencies to prevent and reduce deforestation and its impacts on the people and the physical environment of Kudu and Labozhi wards. All the respondents (100%) indicated that no measure is taken or has been taken by anyone, any community/settlement or any authority to avert or mitigate the impacts of deforestation on the environment or non socio-economic life of the people of Kudu and Labozhi wards. Indeed carelessness to the environment and its future consequences to man are normal attitude of the developing world in which Nigerian is a typical example.

Conclusion

Between 1995 and 2015, the forest land cover of Kudu and Labozhi wards reduces by 83.6% (74%35.4%), because of the increase in massive logging and poaching, increase in development and expansion (growth) of the settlements and the increase in agricultural activities coupled with weather anomalies which is very common to middle belt (North central) of Nigeria just as they are in tropics. Deforestation has affected the means of livelihood of the people of the study area leading most of them that depend on these forestry elements and farming to serious poverty. As usual, there is no any measure taken by anyone, community/settlement or by various authorities and agencies of prevent and reduce the alarming rate of deforestation and its impacts on the people and the physical environment of Kudu and Labozhi wards leaving the people and the environment on the peril. Although many Northern states embarked on fake green land (afforestation) projects which has become dead programs in many states already.

Based on the findings of this study, the following recommendations have been made; relevant agencies should strictly monitor deforestation going on in Kulu and Labozhi ward for strict stoppage of it; forestry protection policies should be reviewed and reinforced throughout the nation; the stake holders should make standard adaptation strategies of alternative means to domestics used of forestry resources with full implementation; the stake holder should develop and implement comprehensive awareness strategies on the impacts of de forestation to lives and the environment; and studies should be embarked upon on how to

stop deforestation in the rural communities of Nigeria.

REFERENCES

Adewuyi, B.T. (2009) Problem of urban open space” Paper presented at the National workshop on land Administration and Management in Nigeria. Department of Geography, Obafemi Awolowo University, Ile Ife, Osun State.

Bauchers, J. and Rudoff, M. (2011) Soil response to forest clearing in the united states and in the tropics: Geological and Biological factors. *Biotropica* 11, 15–27.

(FAO,1993), Food and Agricultural Organization of United Nations FESLM: AN international framework for evaluating sustainable land management. World Resources Report 73. FAO, Rome, Italy.

Gibbs, M., Adams P W and Boyle JR (2010) Soil changes following clear cut and whole tree harvesting and burning in central Michigan. *Soil Science. Society. AM. J.* 46, 639-640.

Giest, R B and Lambin, C ER (2001) Erosion tolerance for cropland: Application of soil survey data base, ASA Spec. Publ. No.45. ASA, CSSA and SSSA, Madison, WI.

Goldewijk K.K. and Ramankutty N. (2004) Land cover change over the last three centuries due to human activities: The availability of the new global data sets. *GeoJournal*, 61: 335-344.

(NSME, 2008). Niger State Ministry of Environment. Environmental report, 2008.

Sharma, N.P. (1992) in Humphreys, D. (1996) *Managing the World's Forests – Looking for Balance between Conservation and Development.* Dubuque, Iowa: Kenda/Hunt Publishing Company. *Forest Politics, the Evolution of International Cooperation.* London, UK: Earth scans Publication Ltd.

(UNFCCC, 2011) United Nation Frame Work Convention on Climate Change Whole tree harvesting impact on site quality. In

Proc. TappiAnn. Meet. NY 24-26 Feb. pp 29-32. Technical Association of Pulp and Paper Industries, Atlanta, GA.

Riebsame, W.E., Meyer, W.B., and Turner, B.L. II. (1994); *Modeling Land-use and Cover as Part of Global Environmental Change.* *Climate Change.* Vol. 28. p. 45.

Shaw, M.K Sandhov, and T. Turner (2000); ‘Modernization of the Global Positioning System GPS World; Vol.11, No.9 PP36-40.