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FOREST ECONOMICS AND THE NEED FOR CONSERVATION: THE NIGERIAN CHALLENGE

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Forests impact on human lives in many ways. They serve as safe places of solitude for animals and habitat for biological diversities. Forests support recreational activities and provide important natural resource for generations of people. Many rural populations including millions of impoverished people throughout the world are dependent on forests for their way of life. In other words, forests and their resources are important sources of food, shelter and livelihood. Notwithstanding this fact, the loss of forest has a continued downward trend. According to the International Union for Conservation of Nature (IUCN), 80 % of original forest that covered the Earth 8,000 years ago has been cleared, fragmented, or degraded by modern society. It was said that over nine million hectares of forest lands are lost each year throughout the world. In Nigeria, the situation is not different. Approximately 350,000 to 400,000 hectare of forest land is lost annually (FAO, 2007).

The degradation of forests has been gone for quite some time. It goes hand in hand with the continuous decline of biodiversity in these habitats (DuToit et al. 2004; Bruner et al. 2001). Without forest conservation there can be no climate protection (Stern, 2008). Local population of countries across the globe predominantly relies on utilizing forest resources. Although many protected areas have been designated in these regions, yet the acreage of natural forests continues to decline. Today only 36 percent of the world's forests are primary forests – forests that have never been disturbed by human activities on a large scale (Hirschberger 2007).

In Nigeria, deforestation has been identified as one of the causes of some other environmental problems in the country such as desertification and erosion and loss of biological diversity. Additional forest logging and timber production, oil and gas drilling as well as coal mining are all factors contributing to loss of forest in Nigeria. Several efforts to preserve the forests in Nigeria have been made, yet its decline has continued.

The essence of this paper, therefore, is to identify the causes for the lost of forest around the globe with particular interest in Nigeria and to suggest ways of effective forest conservation.

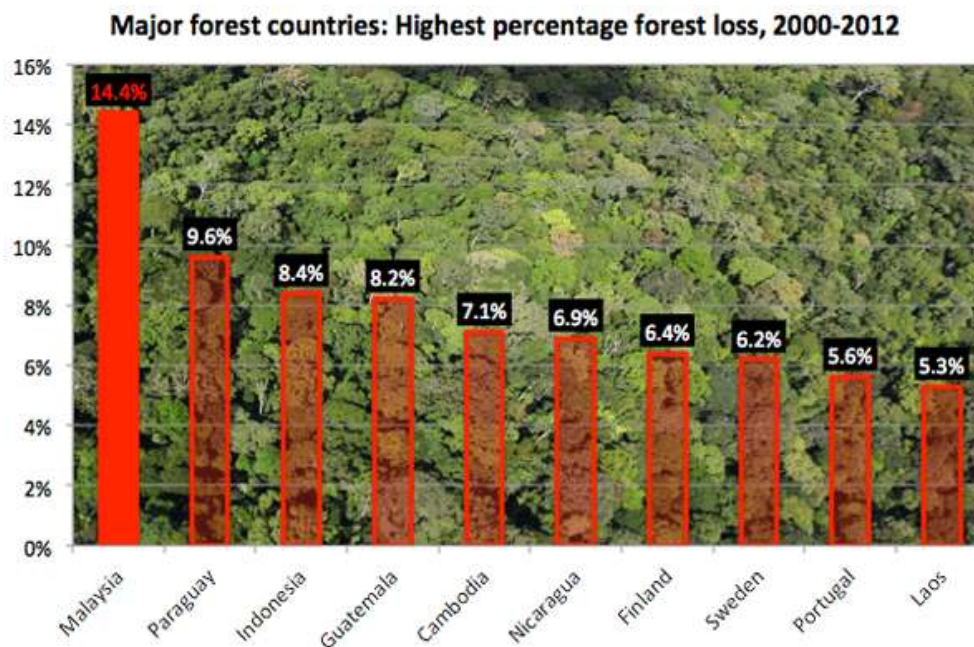
Key words: *Nigeria, deforestation, forest resources, degradation, biodiversity conservation, sustainable forest management.*

INTRODUCTION

Forests are central to all human life because they provide a diverse range of resources. In fact, over 40 % of the world's oxygen, according to research, is produced by rainforests. Forests purify water and mitigate natural hazards such as floods. They also contain roughly 90 percent of the world's terrestrial biodiversity (Stern, 2008). To put it differently, forests contribute to all other forms of life on Earth, because they have various environmental roles. They are globally important in regulating climate and locally important in sustaining communities and supporting biodiversity by offering habitat for the majority of the globe's species. They regulate water and other nutrient cycles; filter pollutants from the air; reduce the rate of global warming by absorbing the greenhouse gas, like carbon dioxide. The amount of carbon in forests is estimated to exceed the amount of carbon currently in the Atmosphere. Forests

reduce soil erosion with their root systems, provide watersheds by absorbing rainfall and releasing it slowly into streams. (Mazulak 2010). According to data from the U.N. Food and Agriculture Organization, deforestation was at its highest rate in the 1990s, when each year the world lost on average 16 million hectares of forest. In the first decade of this century, the rate of deforestation was slightly lower, but still, a disturbingly high 13 million hectares were destroyed annually. Africa also suffers from extensive deforestation, having lost 34 million hectares from 2000 to 2010. Firewood harvesting and charcoal production are important drivers. Four sub-Saharan nations — Nigeria, Tanzania, Zimbabwe, and the Democratic Republic of the Congo — each cleared more than 300,000 hectares per year (FAO 2012).

Global rates of deforestation do not show the full damage done to the world's forests. Forest degradation from selective logging, road construction, climate change, and other means compromises the health of remaining forests. Each year the world has less forested area, and the forests that remain are of lower quality. For example, replacing natural old-growth forests with a monoculture of an exotic species greatly reduces biodiversity. Below is a chart showing countries with highest percentage of forest lost. (See figure 1)



*Figure 1 – Countries with highest percentage of forest loss
Source of data: Global forest map 2012*

The degradation of forest and its resources have always been justified with basic reasons. These justifications more or less continued to pose threat to the sustenance of forest and its resources across the globe.

Some of the threats to forest are summarized in the table below, showing the activities that have brought about them, reasons, main effects and the primary regions where it is predominantly practiced (see table 1).

Table 1 – Basic threats to forest: cross-regional analysis

Activities	Reasons	Main Effects	Primary Regions
Bush clearing (also known as clear-cutting)	Urban development	Pollution, erosion, habitat destruction	Global (All Regions)
	Timber harvesting	Erosion, carbon dioxide production, habitat loss, desertification	Russia, China, Mexico
	Agriculture, livestock	Erosion, degradation of soil quality, habitat loss, desertification	Africa (predominantly Nigeria), Central America, South America
	Mining	Pollution, mountain destruction	North America, Africa, (Ghana and Nigeria)
Invasive species	Intentional or accidental release of Nonnative plants	Ecosystem destruction	Global
	Vineyards	Loss of native animals, insects	North America, Europe
	Urban tree planting Programs	Possible invasive species	North America, Europe
	Illegal drug cultivation	Pollution, erosion, habitat destruction	South America, North America, Asia
Fragmentation	Development	Habitat degradation	Global
Vehicle Roads	Recreation, road-building	Soil erosion, transmittance of disease	North America, South America, Australia, Asia
Conversion to monoculture	Commercial tree plantations	Loss of native animals, insects	South America
Climate change	Vehicles, population growth, industrial waste	Pollution, habitat loss, disease and pests, ecosystem destruction, desertification	Global

Table is reconstructed by author.

Source of data: Maczulak 2010

The Nigerian National Environmental Summit of 2008 listed the following as the key environmental challenges in Nigeria:

- deforestation and land degradation;
- biological diversity depletion;
- erosion;
- drought and desertification;
- flooding;
- pollution (marine, coastal, industrial);
- waste disposal;
- climate change.

Among these environmental problems, loss of forest areas (deforestation) has been identified as one of the main causes of biodiversity depletion, desertification and drought and other environmental problems, such as erosion and flooding. Invariably, this means that deforestation contributes to all the major environmental problems in Nigeria

The rate of the loss of primary forests in Nigeria ranked among the highest in the world as undisturbed forest cover decreased by 53.5 % from 25,951 square kilometers in 1976 to 12,114 square kilometers in 1991 (Formecu,1988). The worst deforestation rate of primary forest in Nigeria occurred between 2000 and 2005. This is represented in the chart below (see figure 2).

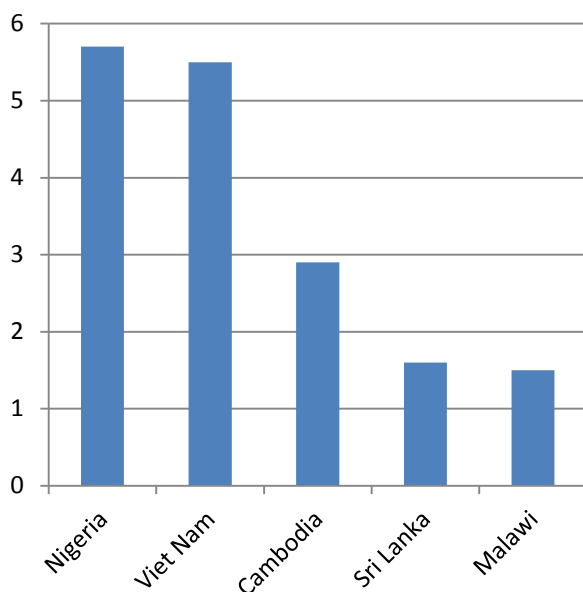


Figure 2 – Deforestation chart representing five most affected countries, 2000–2005 [Source of data: Mongabay, 2006]

Within this year under review (2000–2005), 5.7 % of Nigerian forest was deforested ranking the highest among the five countries with the highest deforestation rate namely: Viet Nam 5.5 %, Cambodia 2.9 %, Sri Lanka 1.6 % and Malawi 1.5 %.

Again, the table below shows that by 2005, forest cover in Nigeria had an estimate of about 11,089,000 hectares. Wooded land was estimated at 5,495,000 hectares and primary forest at 326,000 hectares. The total land area was estimated at 92,377,000 hectares. In 2010, it was 9,100,000 – total forest area; 8,234,000 – wood land; 336,000 – primary forest. When these figures are compared from 1990 to 2010, it clearly shows that there was a continuous downward trend of loss of forest in Nigeria except for an improvement on wood land. These facts are represented distinctively in table below (see table 2).

Table 2 – Estimated hectare of forest cover and wooded land in Nigeria within 1990, 2000, 2005, 2010

Period	Total Forest Areas	Other wood Land	Primary Forests	Plantations	Unit
1990	17,234,000	9,717,000	1,556,000	251000	Hectare
2000	13,137,000	6,902,000	736,000	316000	Hectare
2005	11,089,000	5,495,000	326,000	349000	Hectare
2010	9,100,000	8,234,000	336,000	468000	Hectare

Table is reconstructed by author.
[Source of data: Mongabay]

According to the revised deforestation figures of ten most affected countries from the Food and Agricultural Organization of the United Nations (FAO), Nigeria has lost an average of 55.7 % of its forest areas, again ranking highest among countries whose forest areas have been lost. The pyramid chart below gives the details (see Figure 3).



*Figure 3 –Percentage of lost forest areas among the most affected countries
Source of data: www.illegal-logging.info*

In Nigeria, “70 % of the population, approximately, depends largely on biomass-based fuels which is said to be 0.4 metric tons of fuel wood, average per person. This invariably increases the rate of deforestation which has been estimated at approximately 350ha per year” (Obioh & Fagbenle, 2009). According to data of International Union for the Conservation of Nature (IUCN), Nigeria is home to 1,417 known species of fauna and at least 4,715 species of vascular plants. The degradation of forest invariably means the loss of these species and other biological diversity.

In the view of Mathew (2001), he attributed the loss of forest in Nigeria to indiscriminate conversion of the forest for agricultural use and fuel wood extraction and the use of marginal land for agricultural purposes. Other factors that have necessitated the loss of forest in Nigeria include: animal grazing, indiscriminate bush burning, logging of trees and poverty. The latter have driven the rural population to depend on the forest and its resources for survival. From the above, one could sum up that economic and agricultural reasons contribute largely to loss of forest in Nigeria.

Increasing population is another reason for the rampant loss of forest in Nigeria. The 1991 census puts Nigerian population figure at 89.2 million. By 2006, it was 140.1 million and by 2013, Nigeria has a population estimate of about 170 million people. So it follows that the more the population, the more the forests go down because of increased dependence and the need for shelter.

Also with increased population, wooded land disappears for various urban developmental projects.

Inefficient public regulating agencies with lack of clear roles and responsibilities has also encouraged deforestation in Nigeria. There are not enough policy instruments and conservation measures aimed at sustaining the forest and its resources, and where these have existed, they have not been effective. For example, most forests are left at the mercy of local people who are paid stipends by illegal loggers just to have their way. Again mining and oil drilling have had the worst impact on Nigerian forests, yet the activities of the oil companies seem to go unchecked.

CONCLUSION

From the foregoing, it is evident that loss of forest is on a high side in Nigeria, yet only few steps have been taken to arrest this trend. However, loss of forest can be controlled if not curbed in Nigeria if the following steps will be considered:

First and foremost, Sustainable Forest Management (SFM) practice should be inculcated into the Nigerian environmental law and adequate punishment stipulated for offenders. SFM attempts to ensure a balance between the objectives of conservation and the use of forest resources. It means making use of forests and its resources in a way and at a rate that allows them to maintain their long-term health and fulfill ecological, economic, social and cultural functions now and in the future. When this practice is put into law, it will inevitably checkmate degrading forest activities such as unmonitored oil drilling and mining, illegal logging, unrestricted animal grazing, indiscriminate bush burning and other activities that have encouraged loss of forest and woodland in Nigeria.

Secondly, effective machinery for mass enlightenment and orientation campaign on the use of forest and its sustainability should be put in place. This will invariably raise the awareness level of the people on how to properly treat forest and its resources. Most of the degrading activities, that were carried out on forests in Nigeria, were as a result of ignorance. Many local people do not understand the negative effect their activities have on the forest. They believe the forest is a natural endowment that should serve their needs without restraint. To realize this objective, 'all hands must be put to desk'. This means the government should not be left alone to do this. All stake holders – Nature Conservation Unions, NGO organizations, Community leaders, the educational system etc., must actively be involved in this enlightenment and orientation process.

Finally, The Forest Department of the Ministry of Environment should come up with operational forest protection policy that will restrict potentially damaging activities. According to the International Union for Conservation of Nature (IUCN), a protected area is: "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values". Although this policy is folled: for example, there are 8 national parks in Nigeria, 1,129 forest reserves, 30 game reserves, 5 game sanctuaries and thousands of gazette forest reserves and grazing areas. However, inadequate mechanism of policy realization; uncoordinated implementation of strategic direction of government, and lack of operational budget have rendered many of forest conservation efforts – redundant and

ineffective. Therefore, the government should re-strategize and re-enact operational and effective policies that will not only achieve a long-term conservation of forest and woodland but will strengthen the existing policies and put them to work.

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