

**THE CHALLENGES OF SUSTAINABLE NATURAL RESOURCE MANAGEMENT:
THE CASE OF FOREST RESOURCE IN NIGERIA**

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Abstract:

Landscape deforestation and degradation in the Nigerian environment has been remarkable over the past decades, causing natural havoc and a fall in the agricultural production. This drop in production leads to a loss of income and lower standards of living to the rural farmers and nation at large. The Nigerian rural environment is dominantly made of ethnic groups involved in varied anthropic activities which result in the deteriorating of the forest resources with their attendant negative impacts. The man-induced ecological crisis has necessarily provoked a response from researchers and the academia on the possible ways of reversing the level of degradation on our environment. This paper examines the significance and challenges of natural resources management and the forest resource situation in Nigeria. It proposes various ways of promoting sustainable forest resource management in the country.

Keywords: Deforestation, Degradation, Forest, Environment, Rural and Sustainability.

Introduction:

Nigeria is blessed with a wealth of natural resources: forest, soil, minerals, water and numerous wild life. Rapid population increase which stands at about 180 million and the resultant need for energy, food and other commodities have led to deforestation, intensification of agricultural production and overall environmental degradation. Hence, there has been a transformation of the ecosystems (Charlier and N'cho-Oguie, 2009). The opportunity cost of these adverse actions includes; loss of sustainable

food production, water shed, recreation, tourism potentials and slow economic development (Omaka, 2004). Sustainable management of our natural resources is crucial in the country's future development prospects.

Evolution of Natural Resource Management:

Natural Resource Management has a long history in Nigeria. It began before colonial administration within villages, communities and continues through today's numerous ministries. The development of protected areas and

reserves begun in colonial times and created tensions between rural communities, and newly formalized administrative structures. Today's forestry policy is linked with the Federal Environmental Protection Agency (FEPA) and takes into consideration ecosystem perspectives for management activities. In addition, economic development, involvement of women, and support for local NGO involvement are taken into consideration (Mengang, 2001).

Importance of Natural Resources:

Natural resources are the primary and virtually the sole means of survival of a large majority of the Nigerian population especially the rural communities. The local population draws from the natural resource base for agriculture, fishing, forest exploitation, construction and a host of other purposes.

Agriculture:

It is a truism that over 75% of the population of Nigeria depend on agriculture for their livelihood. They

therefore explore and exploit the soil potentials of their communities for a living. Access to cultivable land is the most important natural resource for rural development and is key in determining the livelihood strategies of the rural poor. The ownership, management and productive use of cultivable land is a key determinant of economic growth and has a direct, though complex effect on how other natural resources such as water, forests, pasture and biodiversity are used. The future role of agriculture is one of the key unresolved issues in the current rethinking of poverty environment-agriculture linkages. The notion that agriculture growth based on small farms would drive rural development is being called into question especially as very poor farming techniques tend to threaten the suitability of agricultural land for future crop production (Ashley and Maxwell 2002). However, though access to land and management of agricultural land poses a threat to the Nigerian population, there are a number of opportunities for access to land. Table 1 shows a summary of constraints and opportunities for access to land.

Table 1: Constraints And Opportunities In Access To Cultivable Land

Constraint	Opportunities
<ul style="list-style-type: none"> -Limited natural capital and poor Natural Resource base; -Limited financial capital to invest in conservation -Little information and awareness of rights limited; -Property rights to natural resources insecure; -Limited political inclusion in decision-making on development; -Local institution capacity to support adaptation to livelihood constraints limited -Lack of opportunities leads to negative 	<ul style="list-style-type: none"> -Ability to maximize trade-offs and substitution of capital assets; -Local awareness of environmental degradation leads to positive action that supports agriculture; -Local production can make use of new technology and markets; -Household labour deployed to maximum advantage -Social capital networks support adaptation to livelihood constraints; -Participatory processes build political capital; -Opportunities for positive diversification lead

diversification and further depletion of capital assets -Gender issues on access to land which disfavours women	to capital asset accumulation and reduced vulnerability
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Challenges of Natural Resources Management:

Forests and trees, in particular, are under pressure from unprecedented rates of deforestation and forest degradation. For a Nigerian, a resource base which meets the basic needs (e.g., fuel wood, fodder, and fiber) of most of their people, and which contributes valuable environmental services (e.g., soil protection, biological diversity, and carbon sequestration) is at risk.

Forest Resources Management Issues:

The nexus or inter linkages between rapid population growth, and environmental degradation are taking place in Nigeria. The processes involved are complex and interrelated. At the local level, the direct agents of forest degradation and depletion include agriculture expansion, uncontrolled fuel-wood and timber harvesting, infrastructural

development, and overgrazing. Underlying these direct agents are dynamic driving forces such as growing and migrating populations, poverty, international trade, accessibility, and technology, as well as accelerating forces, namely, market, policy, and institutional failures.

While it is evident that access to forests continues to play a vital role in rural livelihoods; research suggests that some of these strategies are unlikely to be sustainable whereas others present viable opportunities for sustainable capital accumulation. However, ‘Community’ forestry and other instances of subsistence forest use are not in fact sustainable especially within the Nigeria context where protected areas seem to exist mostly in text books. However, there are a number of constraints and opportunities involved in access to forests which are summarized in Table 2 below.

Table 2: Rural Livelihood and Access to Forests

Scenario of Forest Access	Context: Constraints and Opportunities	Policy and Technical Issues
Forests continue to be central to livelihood systems	Principally, hunter-gathers/shifting cultivators who use forests as common pool resource. Labour	Policies needed that recognize local rights and provide holders with legal and regulatory support in

==== *The Challenges of Sustainable Natural Resource Management* ====

	intensive livelihood practices difficult to sustain in the face of seasonal migration and little scope for improvement. Possible forest-based options include: expansion of market outlets for NTFPs; transformation into commercial agroforests; employment in forest opportunities.	protecting them. Policies to support trade also important although can expose people to risk as markets in forest products volatile.
Products from forests play important supplementary/safety-net role	Users agriculturalists who draw on forest for inputs that cannot be produced on-farm. Likely to be multiple users with overlapping claims on the resource; internal differentiation of asset endowments among households leads to competing claims and poor find it difficult to benefit from commercialization in this context and in danger of losing resource access to more powerful.	Need for policy legal framework that legitimizes participation by poor; assistance in resource sharing and monitoring mechanics; projects to rebuild social capital and technical assistance for forest management.
Forest product activity opportunities are increasingly base on agroforest sources	Potential for increased tree-growing on farms due to decline in sources from forest; demand for tree products; and changes in factor availability and allocation. Most farm-level tree management mainly tree household needs; capacity of poor to take advantage of market is limited though out grower schemes have enabled some participation	Tenure conditions have to be clear; policies to improve market access; technical support to small farmers; flexible options appropriate to the incremental niche approach to tree growing.

Opportunities exist to expand artisanal and small enterprise forest product activities	Forest product activities a major source of employment in rural manufacturing. New entrants driven by need to sustain livelihoods; others responding to market opportunities.	Intervention may be necessary to ensure policy environment does not discriminate against informal sector; support services generic to small enterprise sector; sustainable use of raw material.
People need to move out of declining forest product activities	Forest products provide only a marginal and unsustainable existence	Balanced policies that enable people to exit and find better opportunities as well as supporting the use of forests as an interim support base.

Source: Drawn from Arnold (2001)

Population Increase:

Population is an important source of development, yet it is a major source of environmental degradation when it exceeds the threshold limits of the support systems. One in every five Africa is a Nigerian. Not only is Nigeria Africa’s most populous State, it has the sixth highest population growth rates in Africa. In 1987, the estimated population was 102 million. By the year 2000 it is predicted that it will have grown to 163 million and will stabilize in 50 years to 529 million!

Unless the relationship between the population and the life support system can be stabilized, development programmes, howsoever innovative are not likely to yield desired results. Population impacts on the environment primarily through the use of natural resources and production of wastes and is associated with environmental stresses like loss of biodiversity, air and

water pollution and increased pressure on arable land.

Conflicts between local and national development interests and the protection objectives laid down in international environmental conventions must be reconciled to ensure sustainable natural resource management. People who live in protected forest areas harness the forest’s potential in a sustainable manner for their own development.

The “Tragedy of the commons” by Garret Hardins (1986) is operating here, like in most parts of Nigeria. This can be used to explain the issue of deforestation and forest resources (forest in this case) which are owned by none and available to all. Most are potentially renewable such as forests, rivers and pasture land. It happens because according to each user

“if I don’t use this resource, someone else will, the little I use or pollute is not enough to matter”.

The State of Nigerian Environment:

Nigeria, once in the heart of the tropical rainforest belt, has lost about 95% of its total forest cover and now has to import 75% of the timber it needs for its own purposes. Until recently, forests in the East were largely spared, because the terrain made it difficult for heavy machinery and road building. Now that the Western forests have almost gone and roads in the East have improved, logging companies are moving eastwards. In 1991, the government set up the Cross River National park in order to protect Nigeria's last large remaining area of rainforest. This forest is particularly important because it is one of the most species rich in Africa. As well as the huge diversity of plant life, many endangered animal species live there, including gorillas, leopards, chimpanzees, forest elephants and drill monkeys.

As a result of the peculiar geographical and geological setting of Nigeria, the country is characterized by the combination of natural features that make it uniquely susceptible and highly fragile. It is bounded in the south by over 850km long active coastline and in the north by a similar length of the Sahara Desert. Hence, the country is constantly being ravaged by coastline erosion to the south, as the coastal inhabitants are under constant threats of sea-level rise. There is desertification in the North. Nigerians who dwell along the fringes of the Sahara are under the unabated threats of desertification. United Nations Environment Program (UNEP) in 2006 estimated that annual deforestation in Nigeria covers 663,000ha with an

annual national deforestation rate 0.76%. Deforestation rate in the Southwest geopolitical zone is as high as 1.36% which is double the national average; that the area covered by undisturbed forests in Nigeria decreased by 53.5% from 25,951sqkm in 1976 to just 12,114sqkm in 1991.

Between 50% and 75% of Bauchi, Borno, Gombe, Kano, Jigawa, Katsina, Kebbi, Sokoto, Zamfara and Yobe States are under threats of desertification. These ten states, with a population of about 27 million people, account for about 38% of the country's total land area. In these areas, population pressure, resulting in overgrazing, over exploitation for fuel, wood and aggravated drought due to global warming has accelerated the rate of desertification. Entire villages and major access roads have been buried under sand dunes in the extreme part of Katsina, Sokoto, Jigawa, Borno and Yobe States. It is therefore safe to say, in ecological terms, that Nigeria is a land of extremes and had remained constantly at risk for ages, with the more recent phenomenon of global warming further accentuating the rate of environmental degradation. Similarly, the low-lying nature of much of the coastal parts of Nigeria due to its natural geological setting also constitutes a natural threat to the Nigerian environment.

Generally, rising to less than 5 meters above sea level, these coastal regions are highly prone to flooding even with small rises in sea level. Nigeria lies in the middle latitudes in the Gulf of Guinea. It is therefore characterized by generally high and strong wave systems which have more destructive impacts

on the shoreline and constantly causing shoreline erosion. Nigeria lie within the equatorial belt characterized by generally high torrential rainfall. Annual rainfall ranges from over 3000mm along the coastline to about 600mm in the extreme North.

paradoxically, notwithstanding the short season, rainfall in the north is often characterized by heavy rains and high impact torrents contributing largely to gully erosion. Over 40% of Nigeria's land area is covered by loose Cretaceous Sandstone and deeply weathered Basement. Complex rocks giving relatively fragile at the surface region. This profile is highly susceptible to deep gully erosion, particularly when combined with torrential precipitation. Most of her rain forests have been cleared with small isolated reserves in few locations. Available data reveals that only 1.7% of Nigeria's land area is included within protected areas (Asiodu, 1992). Worst still most of these "protected areas" are being pilfered by poaching, illegal hunting, farming, grazing, road construction and at times, housing. Consequently, some of the best reserves are suffering damage and encroachment. At least for now, there is no gainsaying that the contemporary world is a beneficiary of a fairly rich earth. Unfortunately, this relatively "beautiful earth" is being despoiled at an appalling rate by man in a mindless and mad pursuit of modern ways of life. Obviously, there is a need for change of attitude if future generations are to enjoy the relative "safe environment".

The Sahara Desert daily advances outwards into the Northern States of

Nigeria. Over-grazing, forest burning, indiscriminate firewood hunting and wasteful extensive farming methods are all destroying the erstwhile fertility of large tracts of land all over the country and turning them into unproductive areas. This is a dangerous signal for an important country like Nigeria world economy. (Asiodu, 1999).

In the southern states of Nigeria, erosion is a big threat to the environment and if adequate steps are not being taken to contain coastal erosion the whole area will be degraded. In the area of urbanization, it has its ugly report. Industries generate, in the process of production, unwanted and dangerous wastes: effluents, fumes, air laden with particles of noxious fumes and dangerous gases. Fossil carbon monoxide, methane and chlorofluorocarbons, which causes acid rains are major contributors to global warming and ultimately ozone depletion.

Sustainable Forest Resource Management in Nigeria:

Nigeria stakeholders must find solutions to promote sustainable forest resource use from a broad development perspective, recognizing the role of forests in economic development, conservation of biological resources, and maintenance of natural systems. The country faces the following fundamental challenges:

- Prevention of wasteful deforestation and forest degradation through:
 - (a) correction of distortionary policies; and
 - (b) conservation and sustainable use.
- Augmentation of the resource base through tree planting and

regeneration in broader context of land use.

- Revitalization of the wood industry to enhance efficiency and competitiveness.
- The involvement of all the major stakeholders (e.g., public agencies, the private sector, NGOs, local communities, and informal local institutions) is essential for efficient management of forest resources.
 - The need to reconcile economic development and natural resource conservation (Lambi, 2008)
 - The need to adopt a cross-sectoral approach to forest sector development, placing forestry firmly within a natural resource management framework, that is, a nexus of interactions among forestry, agriculture, poverty, population, and technology.

Recommendations:

Based on the significance of forest and forest resources to the economy of Nigeria, the following recommendations are made;

- Through improved land use zoning and judicious development of infrastructure, Government and Stakeholders can allocate forest lands for different purposes (conservation of biology diversity, wildlife protection, timber production, etc.). Population, energy, and industrial policies also have a strong influence on forest sector performance.
- There is a need to make markets for forest products work better, and to take account of non-marketed

benefits in decisions regarding forest utilization. Market and policy failures should be addressed through a process of dialogue among various stakeholders.

- Capacity building and human resources development is necessary. Strengthening forestry institutions should be part of a systemic civil service reform process for improved governance, with emphasis on accountability and transparency, the rule of law, and improved financial management and budgetary process. The mandates of government forestry agencies should be reoriented by granting rights and developing responsibilities for forest sector activity to farmers, local communities, and the private sector, as appropriate. State forestry departments will also need to fulfil some of the capacity building requirements of these important forest sector agents.
- Involving farmers and local communities in forestry activities through policy and legal change. Training in participatory planning will also enable forestry agencies to develop partnerships for forest management and reforestation with local communities and NGOs. In addition, government support for participatory negotiation processes involving forest management by local people and help resolve local conflicts.
- Enhancing private sector involvement in forestry and forest industry. Governments must shift their role from direct involvement in production toward an enabling function, providing a policy and legal environment, and information

services that stimulate private investment in forestry as well as a more efficient wood industry. Private sector involvement in planning and policy making can help towards this end.

- Improving and disseminating forest-related knowledge and technology. Governments need to conduct a national forest inventories which will serve as a basic framework for planning, implementing, monitoring and evaluating forest sector activities. Lessons learned from pilot field activities need to be disseminated more widely, and the relevance and efficiency of forestry research needs to be improved by closer cooperation between researchers and the potential users of their results.

Natural resources management is particularly well suited to decentralization and local democratic control because of the following reasons. Unlike sectors such as health and education, natural resources are a direct source of wealth as well as a target for investment. Thus, natural resources can help finance both development and local governance. Because most rural people in developing countries rely on natural resources for their popular input in decisions about natural resources management and use. Effective management of diverse natural resources with multiple uses requires often generates overlapping claims and conflicts that must be settled locally.

Conclusion:

Despite diversification in livelihood strategies, access to cultivable land and

agricultural development is still the main factor affecting rural livelihood; and also one of the principal determinants of natural resource management and degradation. The constraints and potentials that exist for rural people with regard to access to cultivable land are related and similar to those determining access to natural resources

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