

Assessing the Impacts of Human Activities on the Sustainability of Forest Environment in Gokana Local Government Area, Rivers State

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Abstract: *Forestry is an important aspect of the ecological system. It plays significant roles not only in balancing natural environment but maintains standards in the built environment and economic survival of man. Forest is generally viewed as land that has at least 10 percent of its area in trees. The depletion of forests has caused shortage of timber, loss of biodiversity and genetic resources, uncontrolled flooding, high rate of siltation and erosion. This article aims to examine the concept of man- environment: causes and effects analysis of forest depletion with the purpose of proffering solutions. 4 out of 43 identified forests within the two sampled local communities of Gokana Local Government Area were sampled while 16 operators symbolizing 10% of the identified total operators were sampled. Findings revealed that the operators carried out deforestation activities mainly for economic interests. Government should create employment and protect forest areas through effective policies for restoration.*

Keywords: *Forestry, Depletion, Sustainability, Environment*

Introduction

The environment can be viewed from dual perspectives-socio-economic and physical. The socio-economic perspective relates to human beings and their activities, while the physical dimension portrays the natural state as well as attempts by man toward physical reformation. According to Karen (2004), man depends on the resources of the environment to provide for his sustenance and meet his basic needs such as food, water, air, shelter and clothing. Thus, the environment has influence on man and man has influence on the environment (U.S.EPA, 2002). The major influence of man on the environment manifests more on exploration. This is usually viewed as drastic reduction in the quality and quantity of resources without control and immediate replacement. During the process of exploration and exploitation of the environmental resources, man exerts impact of varying intensity and type on the environment. These actions usually have more of negative consequences on the environment except situations of effective management and control.

According to Daniels (2014), the nature and intensity of human impact on the environment in a given system depend basically on the nature of the environment, needs of man and the patterns in which environmental resources are exploited for the interest of man. The interests of man vary in forms such as population characteristics – density and distribution and the socio-economic levels. The exploited resources have direct effects on the environment such as desertification, air and water pollution, drought, erosion, perennial solid waste generation and pollution, global warming, endangerment and extinction of wildlife as well as biodiversity depletion and deforestation. Deforestation is the removal of forest and forestry resources in an uncontrolled manner.

Forestry is an important part of the working landscape in many rural communities and some suburbanizing areas. Apart from maintaining ecological balance, is the natural home for wildlife, controls erosion and provides materials for the built environment. The forests are the lungs of land, purifying air and giving fresh strength to man and animals. Therefore, its destruction may results in serious effects on the ecological system.

Many researchers and literatures have attempted to address the causes and effects of most of these identified problems in different part parts of the world, Nigeria and even in the Niger Delta. However, in Gokana Local Government, deforestation or forest depletion remains prominent and un attempted which has created serious gaps. This paper is designed to identify causes and effects of forest depletion and to proffer solutions to identified problems.

A forest is therefore defined as land that has at least 10 percent of its area in trees (Smith, Vissage, Sheffield and Dar, 2001). Forests are classified into different forms. According to Pincetl (2009), forest types are distinguished by the age of the trees, the tree species, public or private ownership, and private corporate or non corporate ownership. Thus, classification of forest depends on usage, period of existence and social responsibilities. These classifications maintain that old grown forests are ecosystems that include mature trees and have never been harvested. This generally produces the most board feet per harvested tree and is highly prized by timber companies.

Pincetl (2009) opines that second or third-growth forests grow on land that has been cut over once or twice already. These trees are typically smaller than old growth trees. In most cases these trees are planted by commercial timber companies or may sometimes naturally grow on their own. Another classification of forest is the publicly owned forests which serve a variety of purposes besides timber production. These include recreation areas, wildlife habitat, and wilderness and water storage. Also Randolph (2012) maintains that privately owned forests account for more than 90 percent of the wood harvested each year in America. This type of forests can be grouped into industrial and nonindustrial. While the industrial forest are owned by timber companies which have access to lumber and paper mills within the forests, nonindustrial forests are owned by rural residents, second home owners, farmers, and others. It is significant to know that nonindustrial forests made up two-thirds of all private timberland in 2007 in America and produced most of the hardwood harvested

within the period (A.M.R.C, 2011). Sequel to the unending roles and contributions of forest, it becomes an attractive environment of economic survival of human. This has created serious pressure on forest existence and sustainability.

Several factors are observed to be responsible for continuous demand and pressure on forests and their products. These can be viewed as follow;

1. The demand for wood and virgin paper products is likely to continue to grow due to increasing human population and corresponding concern for shelter, road, city expansion and the built environment.
2. The demand for wilderness areas, wildlife habitat, and recreation activities.
3. Urbanization due to expansion of metropolitan areas into the surrounding rural communities
4. Pressures to develop forest and for vacation homes, retirement homes, resorts or rural residences as exist in many rural areas.
5. Forests are vulnerable to insects, diseases, and acid deposition in the form of acid rain, snow and fog as well as carbon discharge.
6. Increasing demand on fire wood and charcoal for domestic cooking especially among rural residents as well as for subsistence farming especially in Africa and other developing nations.
7. Wildfire damage caused by human negligence and arson have resulted in more damage and destruction of forest areas.
8. Calculating acts of setting forests on fire either for the purpose of hunting animals or by smokers.

The above causes of forest pressure may be due to the contributions of forest to the physical, social and economic development of human society. Thus, the benefits of forests remain unending. The forest areas play significant environmental and socio-economic roles toward national development, maintenance of environmental quality and enhancement of socio-economic standards of the people. These benefits according to Cappiella, Schueler and Wright (2005) are categorized into environmental, economic, and community base. According to them, the environmental category ensures effective reduction in storm water runoff, improve regional air quality, reduce stream channel erosion, and improve soil and water quality as well as reduction in urban heat effects.

The economic category ascertains proper decrease in heating and cooling costs reduce construction and maintenance costs and increase property values. The community category maintains well-being, provide shade and block ultra-violet radiation, buffer wind and noise, increase recreational opportunities and provide aesthetic value to the community system. It is interesting to know that construction and sustenance of the built environment depends to a large extent on the forest products. due to the significant roles of forests to human society, human has continuously exerted serious pressure on forests. These pressures constitute serious effects on the entire environment.

The concept of forest pressure is one of the very popular phenomena in environmental concern. Its effects are numerous as is found to an extent to be responsible for global warming and green house effects, flooding, destruction of wildlife and gross deforestation. According to Maryland Department of Natural Resources (2012), deforestation occupies pivot point of the effects of pressures on forests. Therefore, deforestation or depletion of forest resources calls for concern in the field of environmental management.

Deforestation is the removal of forest and other forms of vegetative cover from a site without its replacement (NEST, 1991). Although, in most developing countries including Nigeria, the extent of forest depletion is difficult to estimate, it is reported that only 13% of the world is tropical rain forest and less than 10% of Nigeria's rainforest are intact (Ebin, 1995). It is also estimated that millions of tones of the rainforest resources especially in Nigeria, Niger Delta, Rivers State and Gokana in particular are destroyed yearly due to logging or timber exploitation, demand for fuel wood, agricultural expansion, bush burning, over-grazing by animals, infrastructural development and unsustainable farming practices etc. The socio-economic implications of deforestation for the human race are quite disturbing. Apart from the acute shortage of fuel-wood, we have:- shortage of industrial timber, loss of biodiversity and genetic resources, destruction of wildlife habitats, decline of watershed functions, uncontrolled flooding and higher rates of siltation, erosion, impoverishment of local communities who rely on forest resources for their livelihood, global warming and greenhouse effect (Anija-Obi, 1996). These effects are in line with different and diversified methods and types of forest cuttings which result in deforestation.

Deforestation and its elements can be classified into three main types. These are clear-cutting, selective cutting and high-grading. According to USDA (2016), clear cutting is highly devastating and practiced for the purpose of infrastructural development. However, removing all the trees destroys wildlife habitat. Runoff from clear-cut sites can lead to siltation of rivers and streams and destroy fish spawning grounds (SV ANR, 2018). Selecting cutting is operational in situation where mature trees are cut down for economic interest. This is more sensible where the trees have different ages and species. It enables the remaining trees to grow faster, healthier, and straighter. It is often associated with sustainable yield forestry and balancing timber harvesting with recreation, wildlife, and soil and water conservation. It has less impact on wildlife and the environment. High-grading is a form of selecting cutting in which loggers harvest the best trees and leave the lower-quality trees. This type can reduce the health of the forest and defeats the purpose of sustainable yield, especially in an even-aged forest. Despite the type and pattern applied in the cutting of forest trees, the very aim and objectives of forests should be maintained for effective management of forest resources and environmental sustainability.

Cappiella et al (2005), have advocated three basic goals and several objectives toward sustenance and management of forestry. These are;

- (1) Protection:- (a) Protect priority forests, (b) Prevent forest loss during development and redevelopment and (c) Maintain existing forest canopy.
- (2) Enhancement:- (a) enhance forest fragments
- (3) Reforest:- (a) Plant trees during development and redevelopment, (b) Reforest public land and (c) Reforest private land.

Sequel to the unending roles and significance of forest to the environment and man, it has become necessary to provide solutions to challenges of deforestation especially in the Niger Delta Area of Nigeria. According to Anija-Obi (1996), solutions to deforestation will depend on the conservation of existing forests through: sustainable agricultural practices, controlled and limited logging, tree planting and re-forestation, reduction in fuel wood consumption, control of grazing practices, conservation, education, creation of National Parks and buffer zones, legislation, and adoption of agro-forestry practices. Accordingly, the above points remain pertinent in the protection and conservation of forestry in Nigeria. However, the Nigeria Governments at different levels and time have attempted to provide effective environment for the conservation of forestry through the provisions of different legal frameworks. These laws are calculatedly designed and provided for practical implementation by Nigerians.

Nigeria Legal and Institutional Framework for Forest Preservation

In Nigeria, different ethnic groups set up traditional institutions toward the maintenance of the environment. Thus, these traditional institutions were arranged among indigenous people before incursion of Europeans to manage their natural resources. The basic areas of traditional interest were in the areas such as fishing, hunting, lumbering and deforestation especially along flood plains and wetlands etc. However, Nigeria Government has set up various legal principles to address challenges of deforestation. These laws or Acts were instituted toward the protection and maintenance of the natural resources including forestry. Some of these regulatory legal instruments designed to address challenges of deforestation are as follow;

Environmental Impact Assessment (EIA) Decree No. 86, 1992.

This is the principal law that prescribes environmental impact assessment. It stipulates clearly that the potential impact of forestry (deforestation) like logging or conversion of forest land to other land use, conversion of mangrove swamps for industrial, housing or agricultural use in covering an area of 50 hectares or more be assessed. This assessment takes cognizance of the basic expected impacts of the proposed project. In relation to deforestation, it examines impacts on the soil, vegetation, fauna, and the atmosphere. Environmental impact assessment becomes a basic legal tool to be adhered to before commencement of any sizeable project.

Natural Resources Conservation Council CAP 286

This council is established by CAP 286 laws of the Federal Republic of Nigeria to co-ordinate matters concerning the conservation of natural resources including forestry; formulate national policy for natural resources conservation and to monitor regularly, activities of the various natural resources conservation agencies. The council is expected to monitor activities relating to deforestation and to ensure conservation of forest resources.

Land Use Act. CAP 202

This law vested the power and control of all lands within the urban or rural areas under the authorities of the Governor and Local Government Chairman. Thus, the local government chairman is vested with the authority to ensure that activities that may affect the environment are put under control. These activities which basically are domicile in the rural areas also include deforestation. Full implement of this law will to a large extent protect forestry in Nigeria.

Nigerian Urban and Regional Planning Decree as amended by Decee No. 18 of 1999. 88, 1992

It charged the Federal Government with the responsibility to:

Formulate national policies for urban and regional planning and development, as well as necessary standards. Among others, it maintains that the State Government is to its physical planning responsibilities within the framework of the National physical development plan to ensure consistency in physical development at all levels of planning in Nigeria. It is the responsibility of the Local Government to prepare and implement a town plan; a rural area plan; a local plan; a subject plan and to control development within its area of jurisdiction other than developments over Federal or State lands. It defines development as the carrying out of any building, engineering, mining or other operations in, on, over or under any land, or the making of any environmentally significant change in the use of any land or demolition of buildings including the felling of trees and the placing of free standing erections used for the display of advertisement on the land.

The Act makes a development permit a condition precedent to commencement of development by a developer (whether Government or private). However, an application for a development permit may be rejected if the plan is not in accordance with an approved plan. In the opinion of the Control Department, the development is likely to cause a nuisance to the inhabitants of the community or contains such additional facilities that are not within the estimation of the Physical Development Plan for that community. Thus development like felling of trees which may cause significant impacts on the environment may environmental impact assessment as stated in the Act. The Act reveals that a developer must submit a detailed environmental impact assessment statement at the time of the submitting his application for development.

Forestry, Wildlife and Protected Natural Area Board

This body is established and charged by laws with promoting rational exploitation of forest resources to meet domestic consumption needs; regulate and environmentally sound management practices as well as monitor the quantity and quality of changes of forest cover etc.

National Park Governing Board

This body is charged to promote the preservation, enhancement, beauty, protection, conservation and management of vegetation and wild animal in the National Parks as well as encourage general education in the knowledge of wildlife and domestic animals, fauna and flora and vegetation.

Federal Environmental Protection Agency (FEPA)

This agency is established by Decrees No. 59 and 14 of 1992 and 1999 respectively, CAP. 131. It established the FEPA to have responsibility for the protection and development of the environment and biodiversity conservation and sustainable development of Nigeria's natural resources in general and environmental technology. The Agency prepared the comprehensive National Policy on the Environment.

Methodology

This entails identification of forest areas in some selected communities of Gokana Local Government Area through personal observation. A total of 16 communities were identified to possess a significant percentage of forest areas. These communities are as follow

1. Nweol
2. Bera
3. Barako
4. Nwebiara
5. Biara
6. Deeyor
7. Deken
8. Yeghw
9. Lewe
10. Bomu
11. Mogho
12. Kpor
13. B. Dere
14. K. Dere
15. Bodo

However, 10% of the total identified communities were randomly selected as sampled study for personal observation and questionnaire administration.

The sampled communities were

1. Bomu
2. Nweol

A total of about 43 isolated forest areas in which lumbering and deforestation related activities usually went on were identified in the sampled communities. 4 of these forest areas symbolizing 10% were sampled for detail study. Also, a total of about 162 operators were identified in the sampled communities. 16 operators representing 10% were sampled for questionnaire administration. Findings revealed that operators mostly involved in lumbering were male within the age bracket of 28- 54 years (96%) and (68%) respectively who usually carried out deforestation activities for economic survival (98%). However, 5 out of the 16 total respondents representing 28% of the operators carried out these activities for the purpose of fire wood business while 72% symbolizing 12 of the 16 sampled respondents used as sales for building construction. Though, deforestation for agricultural purpose was in a marginal number and seasonally carried out 24% portraying 4 of the 16 total respondents. However, 14 representing 88% were aware of the consequences of deforestation but attached their activities in line with gross unemployment and economic hardship.

The Way Forward

Deforestation remains one of the major challenges confronting key environmental agencies in Nigeria. This is due to monitoring and inability to connect the rural areas where deforestations usually take place. However, forest areas play significant roles in the stabilization of the environment and the ecosystem. Sequel to the series of roles exhibit by the forest community, the following recommendations are made to address the impacts of deforestation in Nigeria especially in the the Niger delta.

- The various Government institutions and Agencies responsible for monitoring forest activities should be strengthened.
- Government at all level should create enabling environment for economic empowerment especially in the rural areas of the niger Delta and Ogoni in particular.
- Proper penalties should be speit out for defaulting forestry regulations.
- National Orientation Agencies should be established in all local Government areas of the federation.
- Town Planning Authority should be established and supported to carry out land zoning as well as local plans and subject plans in the various local communities.

Conclusion

Forestry is an important aspect of the ecological system due to several functions it plays toward environmental balance. Forestry still plays serious roles in the development of infrastructure, craftsmanship and provision of bio-fuel and protection of fauna in the wider system.

However, depletion of the forest for any use many constitutes serious environmental problems without proper control. The continuous depletions of forest areas by human needs to be addressed through legal and strategic applications.

This article has attempted to assess serious environmental problems caused by depletion of forest areas and recommend solutions such as control and reforestation to address identified problems.

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