

FOREST MANAGEMENT PRACTICES OF THE DRYLAND ZONE OF NIGERIA: POLICIES, CHALLENGES AND UTILISATION

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ABSTRACT

Nigerian forest policies are said to be conflicting with a lot of duplications and inconsistencies in formulation when compared with other countries of the world. The dryland areas consist of a number of potential uses as reflected in the number of trees and shrubs which are grouped. An Agroforestry initiative contributes greatly by increasing products and services on farm. The challenges in future dryland forest are enormous to all stakeholders which needs to create sustainable balance between utilisation and conservations. The management of dryland forest in Nigeria, its utilisation, policies and challenges are reviewed in this paper.

Keyword: *dryland, forest management, policies, challenges*

INTRODUCTION

The dryland forest is any type of vegetation outside the rainforest and the desert because it varies in their climate, soil, plants, animals, land use and people (Ffolliot, Brooks, Gregersen and Lundgren, 1995). It comprises most of the sub Saharan countries in the African continent or region where natural habitats and the management of the ecosystem becomes a serious problem. This is the region where growth and development are particularly hampered by inadequate variability of rainfall (Fedder and Norranha, 1987). The forest in a dryland environment of sub Saharan Africa is an important natural resource which provides environmental, social, economical and cultural factors (Jama'a, Nju and Njenga, 2003). Millions of people are estimated to live in dryland areas taking the hazard of desertification (Jama'a, Nju and Njenga, 2003). The consequences of this are environmental degradation, low level of economic development and lack of good agricultural practices which directly affect the livelihood of people in addition to factors such as population growth, poverty, migration and political disturbances (FAO, 2003). In some developing countries, wood is the primary source of energy which most of the people rely upon for domestic and commercial activities thereby creating an additional burden on forest resources (FAO, 2003). Substantial amount of deforestation has taken place in tropical forests over the few decades. The rate of deforestation in tropical countries is estimated to be about 1% per year with forest clearing for agricultural land being the major

contributing factor to forest loss (FAO 2005). Dryland forests receive low amount of rainfall, as little as 20 inches (50cm) per year, and occupied by species well adapted to drought. Trees of tropical dry forest are usually smaller than those in rain forests, and many lose their leaves during the dry season. The forests often have fewer species than rainforests. Many dryland plants possess some characteristics that make them to adapt and survive in dry environments (FAO, 2003). These unique adaptive features include the extensive root system spread across vast distance, deciduous habits, reduced leaf size, waxy or hairy leaf surface.

The variability of rainfall and the occurrence of prolonged periods of drought are characteristics of dryland forest region which according to Ffolliott, Brooks, Gregersen and Lundgren (1995) must be recognised in the planning and management of natural and agricultural resources. Therefore rainfall intensity is a parameter that must be considered in planning and management of forest (natural) resources. Because the soil of dryland environment often cannot absorb all of the rain that fall in large storms, water is often lost from a site by runoff process (Ffolliott, Brooks, Gregersen and Lundgren, 1995). Nigeria has a land area of 92.4 million hectares and population of about 134 million people, making it Africa's most populous country (FAO, 2001). The climate is humid in the south and hotter and drier towards the north. There are two major vegetation zones: the forest zone, which occurs in a belt 50 to 250km wide adjacent to the Atlantic coast; and the savannah zone to the North, which can be divided into the wetter Guinea zone and the drier Sudan zone (Figure 1).

Estimates of forest cover range from 9.7 million hectares to 13.5 million hectares (FAO, 2005a). The dry region of Nigeria lies between latitude 13°E, covering a land mass of 342,158km² or 85% of the total land area of Nigeria (FAO, 2001). The region has a population of about 42.6 million (FAO, 2001) and generally has a lower precipitation with an annual rainfall of about 400-1140mm. The trees are often very scattered and tend to be well adapted to drought (FAO, 2001). In the northern part of Nigeria, rainfall seldom exceed 1000mm (Aruofor, 2001). This area constitutes largely the dryland part of the country. In addition to inadequate precipitation the area has a low relative humidity and a high rate of evaporation (FAO, 2005a).

Policy and approaches to forest planning in Nigeria

Nigerian government policies on forestry are still largely conflicting. There was a forest proclamation in 1901 which stipulated that a tree must be planted in place of any tree removed (FAO (2002)). This was a measure taken by the authority at that time to regulate log exploitation and introduce forest resource management. A forest ordinance to establish forest reserve was also put in place in 1908 (FAO, 2002). The federal constitution of 1954 empowered the management of forests to the regional government at that time while the federal government was responsible for training and research matters (FAO, 2001). The policy of 1988 outlined ten national objectives which include the expansion of the forest estate from 10 to 20% (Aruofor, 2001).

At present, there is a lot of duplications and inconsistencies in policy formulation in Nigeria when compared with other countries like Cameroon in which a policy was adopted in 1995 to bring sustainability and economic development and maintaining

the ecosystem to function (ITTO, 2006). In Nigeria, the Federal Department of Forestry, created in 1970, is currently under the Ministry of Environment. It has no authority over the forest management and is mainly responsible for international treaties and for providing policy guidelines to the forest authorities of the states. The National Forestry Development Committee (NFDC) is responsible for drawing up national forest policy and technical guide lines on forest management (Aruofor, 2002). In order to facilitate field operations, the Federal Department of Forestry fosters forestry and environmental development through six divisions: (i) Forestry management, (ii) Forest Resource Survey, (iii) Forest Resource Utilization, (iv) Agro forestry, (v) Support services and (vi) Extension and Environmental conservation. At the Federal level, the Forestry Research Institute of Nigeria (FRIN) has the mandate for research and education of forestry and the utilization of forest products (Aruofor, 2001).

Utilisations of dryland forest products

Trees and shrubs of the Sahel provides many uses which have been categorized as timber, fuel wood and charcoal, food, forage, medicine, raw materials as well as protection and soil improvement (Teketay, 2003) (Table 1). The great potential use of these resources is also reflected in the number of trees and shrubs grouped in each of the used categories. In Nigeria, the dryland forest provides an important source of different non-wood forest products, such as gums and resins, honey and beeswax, medicinal and aromatic plants, dyeing and tanning materials and bamboo, also account for a significant share of household income (Jama'a, Nju and Njenga, 2003). This is an important aspect of the forest, when fully developed it increases the income of household without much damage to the forest. At present, gums, resins and honey are probably the NWFP that are marketed most from the drylands. Medicinal and aromatic plants are used for many domestic purposes but this area is largely untapped for external markets.

Table 1: Uses of trees and shrubs in the dry land sahel zone

Item for use	Specific Use of Plant Parts
Timber	Structural uses, tools, arts, crafts, furniture, fences, etc.
Fuel wood and charcoal	
Food	Leaves, flowers, fruits, seeds, gum, other exudations
Forage	Leaves, twigs, flowers, fruits, seeds, etc.
Medicine	
Raw materials	Gums, tannins, dyes, ash/salts/saponins, fibres
Protection and soil improvement	Shade, erosion control, dune fixation, nutrient enrichment, improvement of soil structure, wind protection, improvement of water budget, other positive effects (e.g. fire protection)
Amenity	

Source: Teketay (2003).

Importance of Agro forestry practice in the dryland forest of Nigeria

There is a good example of agro forestry practice in the dryland region of the world. A multipurpose tree are agro forestry in themselves e.g. in Nigeria *faidherbia albida* farmers value the tree for fodder and green manure and it is at the same time harvested for tannin and gums, charcoal and wood for carpentry (Hocking,1987). Because of its unique feature which its leaflessness in the rainy season, minimises its

competition with agricultural crops. Alley cropping system of growing food crops between hedgerows of planted shrubs and trees is also practiced in Nigeria (Nair, 1993). Agro forestry initiatives can contribute by increasing access to tree products and services on farms. A traditional agro forestry system with scattered trees in croplands are found throughout dryland forest of the Sahel.

Soil and water conservation: planting trees on terraces for soil and water conservation are an important function in drylands. It is expected that the trees provide more products apart from soil and water conservation. For example, in meru district of eastern Kenya, terrace planting of trees increased after farmers realised that boundary planting was not very successful if the trees are not weeded (Jama'a, Nju and Njenga, 2003).

Fruits trees: The product of fruits trees serves as a major source of income and food supplement in form of nutrition for farmers in the drylands. Both exotic and indigenous fruits trees have profitable potentials. Mango, citrus and papaya are some of the common fruits trees. Grafted mangoes are in high demand particularly in the dryland of Nigeria (Jama'a, Nju and Njenga, 2003).

Challenges in Dryland Forest Management

The challenges in the future dryland forest management are enormous to all stakeholders. There are very many complex factors that lead to the causes of dryland forest degradation. These factors according to Teketay (2003), are natural, anthropogenic and socio economic policy related in nature. The challenges associated could be summarised as:

- i Try to arrest or minimize any further destruction of the dryland forest resources
- ii Concentrate more to rehabilitation degraded areas.
- iii Provide and expand alternative to forest resources to meet demands for energy, construction, non timber forest product and wood base industries.
- iv Create sustainability between utilisation and conservation of dryland forests to improve the quality of human life.
- v Provide resources to meet the urgently needs of socio-economic development.
- vi Provides habitats for more than 250 species of birds and mammals likewise more than 30 species of trees, although there are no remarkable forest species by global standards, there are some rare and/or endangered species (Corvallis, 2000).

These challenges according to Teketay, (2003) could be tackled by preparing and implementing appropriate management plan for the degraded dry land forests.

CONCLUSION

The efficacy of the forest be it rainforest or dryland to the global environment is invaluable. It harbours salient potentialities that are economically, socially, financially, nutritionally and medically beneficial to man. The need therefore to jealously protect and manage the forest and its resources are never overemphasized. Though this study is particular about dryland, however, the future of drylands forests lies on enhancing people's participation in the utilization and conservation of its natural resources.



Figure 1: Vegetation and forest map of Nigeria FAO (2001)

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