Transformation of the Nigerian Forest Ecosystems: A State of Knowledge Assessment of their Socio-Economic Effects

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Abstract: The Nigerian forest ecosystem has been undergoing drastic transformation, with far-reaching consequences on the socio-economic welfare of the areas concerned, if not of the entire national economy and society. This study is an attempt at an assessment of the present state of scientific knowledge of those consequences in Nigeria. And with it as a baseline, efforts are underway to undertake in-depth studies particularly of the basic issues raised in this paper regarding human adjustments to the on-going transformations of the forest ecosystem — especially their social, cultural, spatial and economic effects.

Introduction

A great deal of scientific investigation has been conducted into man's transformation of humid tropical forest ecosystems, not least those of Nigeria. An impressive fund of knowledge appears to have existed as a result (Grove, 1951; Keay, 1955; Ofomato, 1964; Adejuwon, 1968). However, comparable studies and body of knowledge do not exist in respect of the effects of such transformations of forest ecosystems on man's socio-economic welfare. Evidence of increasing human encroachment on forest ecosystems abound and have almost become common knowledge. The main reasons for the increasing interference and degradation have been identified as the ever-increasing population pressure (i.e. increasing man/land ratio) and the increasing diversification of land use demand. That the socio-economic effects of increasing assault on forest ecosystems are also on the increase is only to be expected. In this paper, attention is focused on those effects. The aim is to provoke scientific enquiry into the extent of knowledge of such socio-economic consequences, and research into problem areas hitherto vaguely, if at all, known.

The Geographical Scope

The humid tropical forest region embracing the geographical scope of this enquiry is as specified in the UNESCO Man and Biosphere programme. According to Document No. 16, (p. 7), the areal extent “should be limited to dense humid evergreen and semideciduous forests of low to medium altitude . . . (in which) although some trees may be deciduous at one time or another, the forest is never completely leafless.” The area so described covers S Nigeria, roughly from latitude, 8° N to the coast (Fig 1). However, it is the elements of water balance, not latitude, that dictate the limits; and the present extent of the forest area of the humid tropics does not at all present the full areal picture. This is because a great deal of the humid forest region has, through human interference, been reduced to the ranks of “derived savanna” (Keay, 1959; Clayton, 1961; Adejuwon, 1968). For example, out of the estimated 208,424 km² of tropical forest area of Nigeria (that is about 24% of the country’s land area) about 75,707 km² (8% of all land area) constitute derived savanna (Nigeria, 1975). This extent of loss of the tropical forest is by no means a full representation of the total areal extent of forest degradation since it does not include farm lands, roads, building and construction areas at least.

The Rationale

Ecologically, the tropical forest region favours the root economy and the production of forest fruits and trees. The roots are notably yams, cassava, cocoyams and sweet potatoes. Of the four, yams and cassava are grown in nearly all parts of the region outside the brackish water swamps.
The effects of the various forms of transformation of tropical forest ecosystems in Nigeria may be considered under the following five major areas, viz:

a) Soil degradation
b) Depletion or total loss of forest resources
c) Population drifts
d) Floods
e) The national economy

Here transformation refers to a wide spectrum of changes undergone by a forest ecosystem especially in the process of selective, total or even occasional assaults on the elements of the forest ecosystem, both organic and inorganic. And since the problems related to each of the above areas are not necessarily mutually exclusive, repetitive reference is inevitable but may be minimized through very brief mentions.

Changes due to Soil Degradation

Considerable work has been done (Stamp, 1938; Sykes, 1940; Grove, 1951; Keay, 1962; Arkroyd, 1962; Egunjobi, 1963; Ofomata, 1964) to show that one major consequence of the transformation of the tropical forest (a climatic climax) is soil degradation. Decline in soil fertility is itself a direct cause of reduced agricultural productivity. As yield per acre drops, revenue from agriculture goes down and in turn affects the level of capitalization of subsequent cultivation and farm management. But more generally, decline in agricultural productivity reduces farmers' income and purchasing power, adversely affecting the level of living and quality of life of the farming family. Also declining production on a regional scale does adversely affect both the quality and quantity of food in circulation and, of course, the health welfare of the society.

Although decline in agricultural output as a result of soil deterioration has been observed through many studies, especially by the Nigerian agricultural research centres in Umudike, Ibadan and Samaru, sufficient data of a time series nature do not seem to exist as yet over periods of time long enough to provide a safe basis for valid generalizations. Such generalizations could, for instance, relate to the point in soil nutrient status at which a given crop or cropping practice becomes so unprofitable as to be dropped in preference to another with better promise of economic returns. In the absence of such a scientific guide, farming communities all over the affected parts of the tropical forest region are known to have been shifting their emphasis from one crop to another on a trial-and-error basis. Alternatively resort to short-term migration is often the case. Families or farming units undertake seasonal migrations to more promising districts for the cultivation of their traditional staple crops. Studies by Udo (1964, 1975) in the SE and different parts of Nigeria give a good insight into this kind of economic effects of soil degradation. However, Nye and Greenland (1960) have made the point that farm abandonment as a result of declining productivity does not always relate to declining fertility of the soils. Here we are concerned with cases when it does. And in that respect, what still remains to be more precisely understood is the degree of social and economic stress involved in the spatial and cultural adjustments made as remedial measures. For instance, it is of considerable interest to know to what extent the adoption of new cultural practices in preference to the time-honoured cropping practice is affecting traditionally defined functions and perquisites of the wife in relation to her husband in a farming household. Is society relaxing its abhorence to the housewife's engagement in work and travels involving the unaccompanied passage of a couple of nights away from home and husband during trips to distant farms and markets? Are social activities being disrupted by such spatial and...