

FORESTRY, POVERTY ALLEVIATION AND HUMAN LIVELIHOODS SUPPORT IN CROSS RIVER STATE, NIGERIA: AN ANALYSIS OF SUB-NATIONAL AGRO-FORESTRY DEVELOPMENT POLICY IN A POVERTY-STRICKEN BIOREGION

By: Richard Ingwe, C.C.C. Ikeji and Walter Mbotu

ABSTRACT

Cross River State, in south eastern Nigeria, hosts the last vestiges of the Tropical High Rainforest (THF) that once stretched across vast areas of West African coast to areas that are currently covered by savanna or woodland vegetation. This THF has been undergoing rapid depletion due to several reasons. Some of these reasons include: high rhythms of population growth leading to increasing pressure on available natural resources, including forestland, prolonged failure to transform the traditional agrarian economy into industrial manufacturing, services, and quaternary stages; lack of alternative livelihood opportunities apart from agriculture, economic depression, and poverty, among others. Poverty affliction in CRS might have exceeded the national averages (about 70% and 90.8% of the total population living on less than US \$1/day and US \$2/day respectively) in 1997 (UNDP, UNEP, World Bank, and WRI, 2005), considering that the region was described by economic geographers as “economically backwards” compared to most of Nigeria. Agro-forestry has been increasingly acknowledged as one of the most effective ways of addressing the challenges sustainable development because of the way it contributes immensely towards earning incomes by the poor, facilitates environmental stability or restoration after deterioration, and stabilizing societies/communities that suffer traumatic or turbulent socio-economic and environmental stress. This paper examines the sub-national policy of the Cross River State Government pertaining to the development of the forestry sector as part of the region’s poverty reduction strategy. The issues examined include recent forestry sector development including: agro-forestry development, establishment of the CRS Forestry Commission as the pioneering specialized

public agency with a bias in forestry development; and the challenges that the agency has faced since its establishment. The results show that while the state government's policies on promoting agro-forestry and food/nutrition security were laudable, sustainable development management, including plan formulation and implementation, has been marred by mediocrity and problems associated with the exclusion of stakeholders in the process, especially civil society.

Keywords: agro-forestry, poverty reduction, developing country, Nigeria, Cross River State.

INTRODUCTION

Several factors are making the need to design and implement local strategies that promote ecologically sound methods of achieving stable economic, social, and environmental systems urgent and imperative. Until 2007-2008, the problem of climate change, whose impacts are becoming increasingly dangerous, abrupt and unpredictable, made governments and non-governmental entities advocated for development projects that consider the well-being of the environment as the framework on which all lives depend. Then, between 2007 and 2008, the global crises in the integrated financial and economic sectors happened as one of the numerous cyclical crises that have plagued the free-market neoliberal capitalist system. While these crises have traumatized almost all countries to varying degrees, poor and desperate developing countries are bound to be more severely afflicted in multiple dimensions because, beyond their own suffering of the crises, the financial aid that has been promised to them but not fulfilled over the years, including the pledge by the G8-Nations in Glenagles (Scotland) in 2005, among others, may either not get redeemed at all or at best delayed because the advanced nations might cite the crises as excuses for failing to assist developing countries (CTA Spore. 2009). Therefore, more than ever before, these are the times for the billions of people who have been wallowing at the bottom of the world's social, economic, and environmental systems at various regional scales (national, sub-national, and multi-nationally) to research, and adopt the best strategies of surviving, staying alive before awaiting the fulfillment of promises of assistance from abroad.

Agro-forestry as the new “invisible hand” in the economic-ecological setting

The increasing impacts of climate change has made the world realize that forests are essential as sinks for the increasing quantities of carbon (dioxide) being released from various anthropogenic and natural sources into the environment. Agro-forestry presents a means of providing livelihoods for vulnerable poor people living in environments that are water stressed due to climate change impacts. It is projected

that by 2020, between 75 and 250 million people will be living in water stressed environments. Agro-forestry's capability for providing ecosystem services, such as protection of watersheds and resuscitation of aquifers, has made it to be recommended as one of the components of climate change mitigation (Pachauri, 2009). Sadly, forests around the world are being rapidly depleted and threatened by high rhythms of population growth globally, but especially in poor developing countries that exert high pressure on the forest as well as other environmental resources. While some of the forest areas that are transformed into other uses include farms, it being increasingly suggested that those farms under agro-forestry (i.e. involve the planting of trees for the purpose of earning income and also providing food for the family, among other uses for medicine, fodder, and so forth) offer big advantages to farmers and to the larger society for several reasons. There is an interesting point that is similar to what Adams Smith proposed in economics here. An agro-forestry farmer who undertakes his/her activity for the profit of him/her-self initially actually cultivates trees that offer tremendous (but unintended) benefits to the society because the trees on farm serve as carbon sink for the society while simultaneously yielding other economic profit to the farmer and his family or friends.

Agro-forestry is increasingly proving to be a veritable means of achieving sustainable development because of its multiple advantages to the environment, society, and economy. Agro-forestry is a basic strategy of increasing the number of trees on farm for achieving several advantages, including poverty reduction, increasing household income, provision of medicine, provision of food, and basic nutrition (Shapiro, 2009). It has been discovered that while the number of trees in natural and non-farm forests have been declining worldwide, the number of trees in agro-forestry of various (yet to be comprehensively classified forms) have been increasing. This increase in trees on farm has been attributed to the gains which farmers derive from their agro-forests (Coe, 2009) around the world. These points were made about the reforestation of areas hitherto deforested into aridity in Niger Republic (UNEP, 2008) and during the recent second World Congress of Agro-forestry in Nairobi (Kenya) (Ingwe, Ushie, Ojong, & Okeme, 2009).

Agro-forestry and sustainable development

Roger Leaky (2009) stated the role of agro-forestry in the pursuit of sustainable development goals very succinctly. He refers to recent evaluation of the impacts of agricultural knowledge, science, and technology on sustainable development of rural areas globally, which resulted in the proposition and

recommendation of the new concept (paradigm) of multi-functional agriculture. This paradigm appreciates the production of multiple outputs from agriculture, including: commodities, non-commodity externalities, public goods such as environmental services, landscape amenities, and cultural heritage. After the assessment was undertaken under the auspices of the International Assessment of Agricultural Knowledge, Science, and Technology (IAASTD) from 2005 to 2008, and reviewed by 62 governments and reputable specialists, who also signed the resulting paradigm, There is a coincidence of the goals of multi-functional agriculture and those of agro-forestry including: the placement of premium on low-input, application or practice of resource conservation, promotion of social relevance, and pro-poor technologies. Since agro-forestry has been a tested and proven technology that has been achieving these goals, it is perceived as an existing mechanism for implementing the proposed multi-functional agriculture. Apart from being a low-input technology, agro-forestry addresses the challenges which multi-functional agriculture aims to tackle, including infertile soils, degraded land, biodiversity losses, carbon emission, and unprotected soil and watershed. Additionally, agro-forestry also provides marketable tree products, ecosystem services usually offered by natural woodlands, and supplies cultural goods and services, such as food. Therefore, agro-forestry provides an entry point for the achievement of sustainable development through the implementation of multi-functional agriculture (Leaky, 2009).

The problem

Several advantages are associated with agro-forestry. It has been credited as a means of poverty reduction, increasing household income, providing medicine, and providing food and basic nutrition security. Therefore, increasing adoption of agro-forestry has resulted in a revolutionary movement in several countries. For example, in Niger Republic, voluntary peasant farmer-led agro-forestry has occurred through the planting of the *Faidherbia* tree, credited with natural fertilization or regeneration of soil fertility, environmental stabilization, and provision of livelihoods for local populations. In Malawi, agro-forestry revolution has involved improvement in food and nutrition security, increasing household income through tree crops planting in homesteads thereby benefitting widows and children created by HIV/AIDS pandemic. In Cross River State and elsewhere in Nigeria and West Africa, private and public agro-forestry has yielded the associated benefits to investors. Ruefully, the government of Cross River State is yet to systematically promote agro-forestry as a veritable strategy for achieving sustainable development despite the rather high incidence of poverty, environmental degradation, and social disorder in the state and country. Although the literature on agro-forestry development is increasing

globally, the subject is yet to receive the serious attention of researchers focusing on bio(resource)-regions like Cross River State, whose precious human and natural environments have been suffering enormous degradation under combined contexts and vicissitudes of neoliberal globalization and its fossil-fuel-induced climate change and their associated multiple dimensional traumas. Irrespective of the increasing intensity of challenges to sustainable development (including ecological disasters such as climate change and environmental degradation, poverty, among others), the Cross River State Government policy on promoting agro-forestry development as a response to these challenges remains, by and large, unchanged. The adequacy of the policy response to these challenges is poorly understood.

Focus of this paper

This paper examines the promotion of agro-forestry as a veritable strategy for achieving sustainable development in a developing country, Nigeria. The sub-national region Cross River State, Nigeria is chosen for analysis due to the way the bio-region has been serving as one of the last vestiges of the precious tropical high rainforest of the world that has been under increasing pressure by the rapidly expanding population. Owing to interrelationship between agro-forestry development and the problems of poverty and food and nutrition insecurity in Nigeria, like most developing countries, these two issues are examined together in this paper.

Objectives

The objective of this paper is to assess the effectiveness of recent government policies on agro-forestry development in the state. The specific objective is:

- To analyze policies, projects and programmes of the governments of the state pertaining to two sectors that is most related to poverty: agro-forestry and food and nutrition security.

Organization of the paper

In the rest of the paper, we present a description of the study area including the geographic-ecological setting, demographic characteristics, poverty, and so forth. Later, we present a conceptual framework that satirically describes an inappropriate approach to policy making on issues associated with traumas such as massive degradation of human environment (e.g. poverty) and also of the natural environment (e.g. erosion among others). This is followed by methods and data for analyses, as a basis for actually analyzing the policies, projects, and programs on agro-forestry and food/nutrition security. Then, we

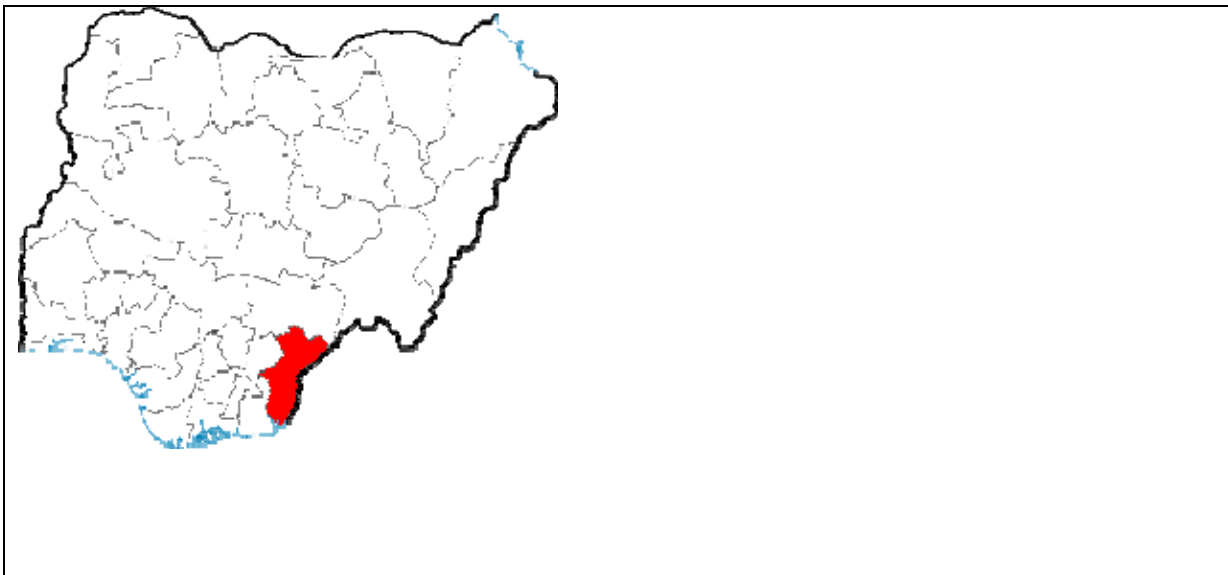
discuss the issues arising from our findings, including the achievements and failures of the policies, projects, and programs. Finally, we conclude the paper and offer some recommendations for policy on sustainable development.

The study area: Cross-River State:

Historical and geographical characteristics

Cross River State is one of the 36 states forming Nigeria’s Federal Republic. Located in southeastern coastal areas of Nigeria, it was created and named South Eastern State in 1967 together with 11 others under General Yakubu Gowon’s civil war-time military dictatorship. During one of the subsequent political restructuring (i.e. creation of more states and local government areas) in Nigeria in 1975, another former military dictator, the Late General Muritala Ramat Muhammed, changed the name of the state to Cross River State. After another state (Akwa Ibom) was carved out of it in 1987, the total area of the region was reduced to about 23,000 square kilometers. That also considers and includes the award of Nigeria’s territory called Bakassi Peninsula to the Cameroun Republic in 2005.

Figure 1: Nigeria showing study area: Cross River State is the shaded portion



Population and Socio-economic Conditions

With an estimated population of 2.89 million people in 2006, the active population, comprising of subsistent farmers, traders, and service providers in transportation, telecommunication, and so forth, form 40 percent of the total. The state has a few urban centers: Calabar is the largest and administrative capital city of the State, while other smaller towns include Ikom, Obudu, Ogoja and Ugep. The proportion of the state's total population living in urban centers was 479,276 (i.e. 25 percent compared to the national average of 36.28 percent) in 2006, placing it at the nineteenth position of the rank of the most urbanized state/territory in Nigeria. With 36 states forming Nigeria, the states nineteenth position on the urbanization scale places it at above the 50 percent mark on the ladder. Therefore, the state is easily described as a rural region and economy (Nigeria, 2006 a). The growth rate of the population has been put at 2.38 percent, based on an estimate in 2006, while total sex ratio for the population was estimated at 1.02 percent males to females in 2006. However, official estimate of the state's population engaged in the agriculture occupation in Cross River State is 30 percent, approximately, which translates into 866,689.8 farmers (Nigeria, 2005a).

The State's economy has been frequently described as agrarian economy by public functionaries, who claim that the regional economy is dominated by peasant farmers reportedly employing about 80 percent of the total population and contributing 40 percent to the gross domestic product of the state. This claim is contradicted by published official statistics showing that description as erroneous based on reports of the 1960s up to the 1970s. Recent statistics report a considerable decline of the population employed in the agricultural sector to lower levels because of increasing employment by tertiary (services and information and communications technologies, administration, and management) sectors (National Population Commission, 1991). For example, official statistics showed that the proportion of the state's population in agricultural employment in 2005 was only 29.97 (Nigeria, 2005). Moreover, the Cross River State Government of the state has, since the early 2000s, been forging of a budding tourism sector, which is currently undergoing development in an effort to diversify the economy away from its historically agrarian (peasant agriculture) that renders it vulnerable to the vicissitudes associated with dependence on financial allocations from the Federal Government-managed federal pool account. Recently, tourism infrastructure has been developed in various parts of the state since the inauguration of the Fourth Republic in 1999.

The state is reported to be one of Nigeria's most endowed, with forestry and biodiversity, mineral, and other (e.g. scenic) resources. The region's cultural resources (language, entertainment, and so forth) have also been well documented in the literature as well as has been the serious ecological problems ranging from erosion, deforestation, desertification, among others (State Planning Commission- Cross River State, Nigeria, 2008).

Citing the United Nations Development Programme, the natural resources of the state include vast reserves of crude and gas deposits at the Calabar Estuary, Akpabuyo, and the Bakassi Peninsula, which was ceded to the Republic of Cameroun in the World Court Judgment in 2005. Mineral deposits include: limestone, barites, clay, amezite, salt, kaolin, tin, sand, granite, feldspar, basalt, uranium, lead, zinc, titanium, manganese, mica, and gypsum (Cross River State, n.d.).

Economic conditions in Cross River State compared to the rest of Nigeria

Apart from deepening the understanding of the economic development level of the study area, a comparison of the economic conditions of the state, with the rest of Nigeria, should elucidate on the need for development interventions and, also, facilitate the assessment of the impact of the UNDP's contribution. A study reported in 1977, based on analysis of data on the gross regional product of Nigeria's former provinces, claimed that the Cross River State was an "economically backward region" due to its low contribution per capita to the gross domestic product (GDP) for the nation (Omuta and Onokerhoraye, 1986; Olaore, 1977).

Poverty, unemployment and other challenges in Cross River State

Using the estimate by international development organizations that 70.2 and 90.8 percent of Nigerians lived on less than US \$1/day and US \$2/day in 1997, the proportion of Cross River State people who lived on less than US \$1/day and US \$2/day in 2006 were 2.03 million and 2.62 million people (UNDP et al., 2005; Nigeria, 2007a,b). Nigeria's official estimates of poverty might be lower than this. Reports of various forms of poverty incidence in Cross River State were as follows: 55.04 (poor) and 44.96 (non-poor) using 2900 calories limit plus a component of non-food expenditure of ₦ 8,385 (Nigeria's currency), 51.46 and 48.36 (using US \$1/day adjusted purchasing power parity), 21.70 (very poor), 55.24 (averagely poor) and 23.06 (non-poor) (using self-assessment of poverty). Very important to this study is the fact that a substantial proportion of all the reasons given by respondents to the survey on

self-assessment of poverty for their condition of poverty revolved around agriculture and indicated strong linkages between poverty and the sector. The scores (in percent) included: rather expensive agricultural inputs (28.54), lack of capital to expand agricultural business (7.48), low agricultural production (7.30), low salaries (6.81), non-availability of agricultural inputs (6.15), high commodity prices (4.45), very low prices for agricultural produce (3.07), lack and inadequacy of land (2.46), other reasons (2.36) and lack of agricultural inputs due to other reasons (1.45). The scores for others reasons were: lack of credit facilities to expand agricultural activities (1.40), lack of buyers for agricultural produce (0.74), drought (0.35), loss of property (e.g. land and other inputs) due to conflict (0.19), loss resulting from the death of livestock (0.19), and so forth. The scores for these agriculture-related reasons for poverty added up to over 72 percent out of a total of 100 percent (Nigeria, 2005).

Other forms of poverty in the region

Some of the indicators of poverty in the state include the following: 2.4 percent of households had no iodized salt in 2007; while the percent of households and their salt possession/use was: 5.6 for those with less than 15 parts per million (ppm); and 92 percent for those with 15 or more ppm (Nigeria, 2007a,b). The proportion of children, ages six to 59 months, who had never received vitamin A in 2007 was 51.9 percent. The proportion (in percent) of households in Cross Rive State who used primitive (solid fuels by type) for cooking was as follows: charcoal (0.9), unprocessed wood (73.7), straw/shrubs/grass (0), and solid fuels generally (74.9) (Nigeria, 2007 a,b).

Owing to the fact that the state does/has not operate an autonomous statistical data generating agency, most of the indicators for the state will be derived from the national averages provided by the Nigeria's Federal Government agencies, such as the National Bureau of Statistics, National Planning Commission, and so forth. The total employment generated in agriculture in Nigeria rose from 79,540 in 1999 to 123,761 in 2004, representing a change of 116,107 (or 55.6%). The employment generation rank of the agricultural sector was six and was the ninth highest. The first three highest employment-generating sectors (out of 17 sectors) in Nigeria (in descending order) were: mining and quarrying, tourism, including hotels and restaurants; and utilities (Nigeria, 2006a,b). The unemployment rate in the country declined from 18.01 in 2000 to 10.80 in 2004. Although government sources reported that employment rose by 17 percent between 1999 and 2004, government functionaries argue that public perception of that high unemployment was persisting was attributable to the gradual nature of the rate of absorption of

population growth (of 2.3 percent) by the emerging economic changes due to the high rate of graduation from educational institutions. The labor force increased by 15.8 percent between 1999 and 2004. This implied that there was a net employment generation of 2.2 percent between 1999 and 2005 (Nigeria, 2006a,b). However, it has been suggested that governments of developing countries frequently make their reports unreliable through their manipulation of the development indicators to portray their performance on employment, poverty, and so forth as good and deserving of further political support by the public. Expectedly, there has been a wide disparity between development indicators reported by governments of developing countries (including Nigeria and their agencies) and those of international development organizations, such as the United Nations agencies, World Bank, and international Non-Government Organizations. For example, while the Nigerian government reported that poverty incidence in Cross River State declined from 66.9 in 1996 to 53.63 in 2004 (Nigeria, 2005), international organizations reported that the proportion of Nigerians who lived on less than US \$1/day and US \$2/day in 1997 were: 70.2 percent and 90.8 percent, respectively (UNDP, UNEP, World Bank and WRI, 2005).

Poverty, food and nutrition insecurity scenarios

The diet structure of most of the state's population has been deficient due to its high content (80%) of carbohydrate. There have been problems of both ignorance of proper nutrition or choosing to take balanced diets and affording balanced diet if the consciousness or awareness has been achieved. Consequently, there has been a high prevalence of malnutrition, especially during a hunger gap, mostly after the planting season. The prevalence of stunting and wasting in Nigeria has been as high as 33.5 and 15 percent, respectively. The high prevalence of low birth weight (of 12%) in Nigeria was expected to be even higher in the state due to the higher degree of poverty in the region. The need to improve the farming systems through introduction of a wide variety of crops in order to increase the diet variety as a way of resolving the rather monotonous diet, especially in the rural poor areas, was acknowledged by the government. The level of food processing technology is low and requires improvement or development (State Planning Commission, 2005).

The proportion of the state population who used various sources of drinking water by type were as follows (in percent): piped into dwelling (1.7); piped into yard or plot (1.3), public tap or standpipe (3.5), tube well/borehole (16.6), protected well (2.6), protected spring (5.0), rain water collection (0) and bottled water (0.2) (Nigeria, 2007a,b,c). Recently, sanitation facilities and services in the state were

poor. The percent of household members using various means of disposal of human faeces were as follows: flush to pipe sewer system (0.9), flush to septic tank (12), flush to pit latrine (0.1), ventilated improved pit latrine (VIP) (0.6), pit latrine with slab (17.8) and composting toilet (0.0). It was reported that only 31.5 percent of the household population used improved toilet facilities (Nigeria, 2007a,b).

The percentage of Cross River State children of primary school entry age who were attending grade one in 2007 was only 55.7 percent out of a total of 83 percent of children of primary school entry age (Nigeria, 2007a,b). Various forms of underdevelopment of children aged 5–14 years who were suffering under child labor activities were as follows (in percent): those who worked outside the household for paid and unpaid work were: 1.0 and 9.7, respectively; involvement in household chores for 28 hours and longer per week was 0.6; working for family business was 41.9; and total child labor was 47.3 (Nigeria, 2007,a, b, c). A high proportion of the state's girls (under age 15–18 years) were involved in marriage or union as follows: 10.2 percent before their 15th birthday and 27.8% before their 18th birthday (Nigeria, 2007 a, b, c). The percentage of Cross River State girls and women aged 15-49 years who had had access to HIV services were as follows: 57.1 knew a place to get tested; 20.8 had been tested; 89.1 of those who had been tested were told the result (Nigeria, 2007 b, c).

Natural Ecological resource zones and agro-forestry

The ecological zones of the state have been estimated to comprise: about 480 square kilometers of mangrove forests, 520 square kilometers of swamp forest, 7290 square kilometers of tropical high forest (THF), which is regarded as one of the largest in Nigeria, and about 216 square kilometers of derived or woodland savanna. The ecological diversity of the state has been hailed as natural physical and climatic factors that support a wide range of both natural and agricultural biodiversity. A list of some tree and food crops that have been cultivated in plantations in Nigeria is shown in table (1). Apart from containing a wide range of trees in the forests and non-forested areas from which a wide range of timber products are derived, the various eco-zones of the state support the cultivation of numerous tree and food crops in plantation forms, especially bananas and plantains that have export and local trade potentials. The state government has listed 23 of the region's numerous timber-producing tree species and their derivatives (uses) and another 17 food-producing (tubers, grains, fruits, nuts, etc) crops that can be cultivated under mixed cropping in agro-forestry as advertisement to investors (Cross River State, Nigeria, n.d.).

Table 1: Selected primary crops commonly cultivated in plantations by zones in Nigeria

Primary crop grown in last 12 months	South South	South East	South West	North Central	North East	North West
Avocado pears	0.5	1.01	0.5	0.45	0.64	0.53
Bananas	1.05	1.07	0.47	0.2	0.11	0.15
Coconut	0.03	0.39	-	0.11	0.04	0.03
Coffee	0.02	0.03	0.11	-	0.02	-
Cotton	0.36	0.14	0.08	0.29	0.63	1.98
Cocoa	1,29	0.34	21.59	0.14	0.03	0.11
Kolanut	0.09	0.25	1.09	0.17	0.15	0.27
Mangoes	0.07	0.86	0.12	0.61	0.1	0.41
Oil palm	1.88	7.3	1.13	0.54	0.06	-
Oranges	0.13	0.83	-	0.49	0.21	0.01
Pineapples	0.09	0.12	0.1	-	0.02	0.02
Plantain	1.54	1.12	0.52	0.02	-	-
Rubber	0.05	0.04	-	0.12	-	-
Sugar cane	0.08	-	-	0.14	0.07	0.14
Wood	0.23	0.05	0.29	-	-	0.02
Paw paw	0.15	0.15	-	0.07	-	-

Sources: Nigeria 2005 a, Ingwe, Ushie, Ojong, and Okeme, (2009)

The states plantations concentrate on several tree-crops among which the most prominent. They are oil palm, rubber, cocoa, and kola nuts (State Planning Commission, 2005).

The area under forest reserve in Cross River State was officially reported to be about 610,129 hectares (Ha). There has been disparity in reporting the area under all forms of forest plantations (i.e. large scale agro-forestry) in the state. While the Federal Ministry of Agriculture estimated that it was 19,000 ha in 2005, thereby putting the percent of forest plantation to forest reserve at 65% (Nigeria, 2006 a), the Government of Cross River State represented it by putting the total area under public and private plantations at only 460 square kilometers (State Planning Commission, 2005).

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Relating the Incrementalist theory of policy / decision making and planning to forestry and poverty reduction in a poor but bio-diverse region

The way the government of Cross River State, Nigeria has responded to problems of severe poverty, environmental-ecological disasters, and climate change depend on the culture (attitude) of the ruling elite towards making decisions or policy on sustainable development. Therefore, incrementalism, a theory classified as one of the procedural theories of regional planning concerned with the content of planning and the things manipulated within the environment, provides a framework for understanding agro-forestry development and poverty reduction in the state (Omuta and Onokerhoraye, 1986). Incrementalism is anchored on the belief that government decision making is usually undertaken in relatively small adjustments (contrasted to radical shifts) to existing development policy. It is concerned with defining, examining the necessity or otherwise of various ways of substantiating change by small, disjointed steps, various forms of centrism and defense of the adoption of middle paths to decision making, at which point diverges radicalism and conservatism on the one hand and revolution and maintenance of the status quo on the other. It has been suggested that the preference for incrementalism arises from the consideration of the history and culture of the nations where it has been applied, while these and other factors could make radicalism and revolution more preferable.

The origin of this theory is credited to the works of Charles Lindblom, published in 1953 (with Robert Dahl), 1959 and thereafter. Lindblom and colleague's conception of incrementalism has been considered an extreme denunciation of the theory of synoptic rational approach to policy and decision making and planning, which emphasized comprehensiveness and rationality in addressing development problems and realities. To Lindblom, decision makers infrequently approach development situations with ideal goals in mind but only apply marginal changes to the existing problems that are raised to their attention and visibility. Therefore, policy reviews cover a limited number of the catalogue of problems or issues which are usually known to professionals in the fields of planning, including academic research. Wyn Grant is among those who agree with Lindblom's claim that incrementalism describes decision makers' response to development problems and attitude to budgeting in stable Western democracies. However, Grant rejects incrementalism as a suitable approach to development scenarios characterized by considerable shocks (such as wars and other crises) in the decision making process (Grant, 2003;

McLean and McMillan 2003). Geographers and Regional Development Planners have highlighted Lindblom's conception of incrementalism as a more direct attack on development problems based on his conviction that the comprehensive rational approach to decision making is un-operable, idealistic, and impracticable, even though it can be described, but only theoretically. To Lindblom, incrementalism offered realistic, feasible, and immediate remedies to pressing development problems. He rationalized the significance of incrementalism by arguing that the urgency of issues raised to the attention of decision makers' tables do not deserve to be delayed in order to await the creation of comprehensive rational plans. The concern of incrementalism is to model reality by creating simple ideas, which reduce the confounding complexity of real world problems, which only professional planners and scholars deal with for creating information and understanding for decision makers. Another rationalization of incrementalism is that it facilitates linkages between the past, present, and future problems, thereby, assisting in understanding the history and knowledge of development issues. Radical adjustments to situations are seen to be capable of breaking the evolutionary and historical trend of problems. Incrementalism has been defended as being cheaper and faster because it facilitates savings from resources (money, time, etc.) that could have been frittered away if the comprehensive approach was adopted. It is considered to be suitable for systems framework, which are perceived to be fragmentary and disjointed due to their constituent sub-systems and elements. It has also been seen as suitable for decentralized political systems, but unsuitable for centralized totalitarian systems, where its disjointedness causes breakdown because of the need to clear all actions at the central power systems (Omuta and Onokerhoraye, 1986).

Other advantages of incrementalism include: its facilitation of stable management, greater predictability of its outcomes, its greater appreciation of realism and pragmatism, ease of its implementation, its prevention of popular protests against public decisions; and its reduction of idealism and low requirement of intellectual capital from its implementers. It has been criticized for being biased towards certain ideologies and classes, retrogressive, myopic, and expensive in the long term as a consequence of its involvement of prolonged avoidance of the comprehensive rational and radical decision making and planning approaches. Moreover, it involves prolonged application of far too many of the "small" old solutions to the extent that the more dynamic problems make these solutions that were created long ago to become misfits for the newer solutions, thereby complicating the new problems. The claim that incrementalism is cheaper is considered fallacious because and dubious because of its involvement of

postponement of radical solutions that differ from the old practice. By this characteristic, it allows problems the time they require to build up and acquire devastative characteristics for affecting society. Some have argued that, like its peers in the theories of decision making, it is only one of the varieties of the one single decision making approach: rational comprehensive approach and not necessarily separate from it. In this regard, incrementalism assumes some conspicuous characteristics depending on prevailing circumstances (Igwe, 2005). Yehezkel Dror's criticism of incrementalism centers on its suitability only in situations of unusual social stability and impracticability under conditions of social dissatisfaction with policy when problems are dynamic (ever changing) and availability of resources is characterized by transiency, featuring shortages (Grant, 2003).

That is, the choice between incrementalism and other decision making approaches is determined by several factors, including ethics, class, ideology, and expediency of change required as conditioned by specific circumstances. While the level of socio-economic development determines the practicability of incrementalism, the fact that there remains scope for improvement in the most advanced societies makes the debate about the suitability of incrementalism in the advanced Western democracies doubtful and difficult and makes a case for other approaches, including revolution and radicalism. Incrementalism, reformism, and gradualism (in terms of the tentativeness of the latter two) cannot be easily distinguished from pragmatism and eclecticism because they smack of drawing their rationales from "practicality" instead of utopianism and their reliance on immediate utility contrasted to general laws and guiding principles (Igwe, 2005; Grant, 2003).

The incrementalist theory is suitable for this paper because of the way it offers a framework for understanding the decision making attitude and disposition of the government of the state under the context of severe poverty and climate change.

The value of tree crops in the era of climate change and food insecurity in developing countries and Africa

Tree crops have been recognized as a means of achieving resilience against problems of poverty, food and nutrition insecurity, medicine, climate change, and ecosystem degradation. This global knowledge has been altered by the fact the productivity and benefits accruing from cocoa tree crops in West and Central Africa, including Cross River State, has been diminishing due to cocoa diseases, declining prices

of commodities, and the emergence of alternatives (e.g. logging) which appear to be more lucrative to cocoa and tree crops. It has been reported that it takes greater quantities of West African cocoa (2,900 kg in Ghana and 5,500 kg in Ivory Coast) to buy a motorcycle than it takes (8,000 kg) to achieve the same feat in Indonesia. Therefore, some private firms (e.g. Mars Incorporated, USA), are aiming at increasing cocoa yields by 500 percent by focusing on improving cocoa productivity by investing in research in cocoa crop health as a means of improving yields by examining key areas, such as investment in cocoa germplasm, improved cocoa seed supply, and improved management of soil, forest, and water resources. It is expected that that related aspects, such as sustainable livelihoods, good nutrition, healthcare, and participation of stakeholders, including community members and the private sector in making decisions that affect people who are involved in cocoa cultivation (Shapiro, 2009).

Methods and data

The methods of description and case study were used for this study. We preferred description because the experience of researchers who have used it has led to its presentation in the literature as a suitable method for investigating the status of things, events, and phenomena. In this study, we used it to investigate government policies and programs pertaining to the promotion of forestry as a poverty reduction strategy in Cross River State. Previous studies and assessments have shown that the method of description offers an important background for undertaking research that produces results, which give insights and highlight hunches for formulating hypothesis for implementing further studies that might employ experimental research methods. Therefore, description facilitated the study of forestry and poverty reduction and development at the sub-national level (Cross River State) in a developing country.

The case study is the specific method of description that we used. As confirmed by previous research and reviews of research methods, the case study method was adopted to assist in analyzing the promotion of forestry, especially agro-forestry, as a strategy of reducing poverty in Cross River State. This involves selecting one sector out of the multiple and encompassing spectrum of development sectors. Moreover, forestry and agro-forestry are being implemented in Nigeria's 36 states but it was difficult for this study to cover all the 36 states and federal capital territory. Therefore, we applied the case study approach with the purpose of using the findings of this study provide insights (through generalization) into similar forestry programs and their contributions to sustainable development in the country (Ogunniyi, 1992; Isangedighi, Joshua, Asim, and Ekuri, 2004).

Data and sources

We used data from secondary sources. These included publications by the Governments of Cross River State, Federal Government of Nigeria, and the UNDP. We obtained data on various aspects of the study area from the Cross River State Planning Commission (one of the agencies of the Cross River State Government) and the National Bureau of Statistics (NBS). The National Bureau of Statistics is Nigeria's official agency responsible for producing statistics for supporting development planning and management for the Federal Republic of Nigeria. The State Planning Commission is the official agency that is responsible for planning and managing development in Cross River State. As described under the case study, we used data from the public statistical agencies to conduct comparative analyses of some development scenarios in Cross River State and the entire country (see table 1). Data on policies, projects and programs concerning agriculture and agro-forestry and food and nutrition security were obtained from the Cross River State Government agency called the State Planning Commission (established by the Cross River State Government for undertaking development planning and related activities), under whose auspices two planning cycles of so called Cross River State Economic Empowerment and Development Strategy have been implemented. They include: CR-SEEDS-I (covering the years between 2005 and 2007) and CR-SEEDS-II (covering 2009 to 2012), which were prepared and presented to the public in 2005 and 2008/9 (State Planning Commission- Cross River State, 2005; Government of Cross River State, 2009). Data analysis involved the use of qualitative methods.

RESULTS

The state government has appreciated the importance of forestry to sustainable development by pioneering the establishment in the 2000's of the Cross River Forestry Commission, which operates almost autonomously and separate from the Ministry of Agriculture and natural resources, where forestry has been hosted over the years. This Forestry Commission is expected to provide a framework for more effective management of the region's numerous agro-forestry (tree crop) plantations (rubber, cocoa, oil palm, etc). One notable agro-forestry in the state is oil palm plantation by big and small holder plantations. Some fruit trees with potentials for agro-forestry include: citrus, mangoes, papaya (pawpaw), guava, castor, cashew, and bananas (Cross River State, Nigeria, n.d.).

Governments recent resuscitation of oil palm agro-forestry for poverty reduction includes a plan to put over 588 Ha into oil palm cultivation and to produce 300,000 tons of oil palm (see table (2) below).

Table 2: Oil palm production by area and quantity produced in Cross River State

Year	Area (000 Ha)	Production (000 tonnes)
1996	284.00	121.00
1997	284.00	87.57
1998	Na	91.91
Total	568	300.48

Sources: *Nigeria 2006 a,b, citing Federal Ministry of Agriculture and Rural Development, Abuja,.*

The state's recent socio-economic characteristics include: population of 2,888,966 in 2006, with 29.97 percent of the state's population employed in agriculture (i.e. 865,823.1) in 2005, area under forest reserve (610,129 hectares), and area under agro-forestry variously quoted to be 460 square kilometers (State Planning Commission, 2005) while Nigeria's Federal Ministry of Agriculture is cited as projecting the area under agro-forestry to have been and 19,000 Ha (Nigeria, 2006a). This provides us the basis to compute some agro-forestry development scenarios. Therefore, using the two reports and units of measurement reported above, we computed per capita agro-forestry for the total population. The agricultural population was: 6.58×10^{-03} Ha or 1.59×10^{-04} km². Similarly, the per capita agro-forestry for the farmers' population in the state in 2005 was: 0.022 Ha and 5.31×10^{-04} square kilometers.

Poverty reduction-related policies in the state's agro-forestry sector

The state government established an agro-forestry-based parastatal called the Cocoa Development Board, with the purpose of supporting the production of cocoa. However, the Board was transformed into a Cocoa Development Unit in 1995, under the office of the State Commissioner in the Ministry of Agriculture and Natural Resources. Shortly, after its inauguration on May 29, 1999, the state government, under the governorship of Donald Duke, created an agricultural program that included the identification of some tree crops (including cocoa, oil palm, castor oil seeds etc) as significant for the pursuit of poverty reduction and economic growth in the underdeveloped bio-region. Therefore, an expansion of the development of tree crops was undertaken.

The policy thrust of the Duke administration aimed at sustainable development of cocoa plantation estates in different parts of the state. These plantations used mixed farming system during their early stages because of the need to ensure that the land on which they were operated were fully maximized or used in a way that the farmers involved gained economically during the early (gestation) period of development of the cocoa. The targets set under that program included:

- Development of hybridized cocoa nurseries and distributing them to farmers or prospective farmers;
- Pursuing an integrated agriculture and rural development program, involving cocoa estate development under the partnership with rural communities;
- Improving the management of cocoa estates involving rehabilitation and expansion of existing government-owned plantations;
- Facilitating the transformation of small-scale cocoa farm holders into larger holders through the inheritance of the government-owned plantations.

Table 3: Cocoa development program in Cross River State 2004-7

Year	Hectares	Seedlings required
2004	10,000	12,000,000
2005	5,000	6,000,000
2006	3,000	3,600,000
2007	2,000	2,400,000
Total	20,000	24,000,000

Sources: State Planning Commission, 2005

Strategies

Government strategies include expansion of cocoa production through plantations. The government adopted the following strategies: employment of a participatory approach involving collaboration between the agencies and agents of government and communities from where farmers were to be drawn and in which cocoa farmers were to operate and support in form of providing farmers with necessary agricultural (farming) inputs, such as improved varieties of cocoa seedlings. Others are subsidizing implements and chemicals at half the cost or market price, supporting farmers with extension services

after evaluating their effectiveness, and government-managed human power (capital) development program involving training and retraining; and development of farm infrastructure (State Planning Commission, 2005).

Policies for promoting food and nutrition-security in the state

To improve the dietary habits of the people, the government specified the following policies for reducing the high levels of insecurity pertaining to food and nutrition in the state by setting the following targets: to reduce the prevalence of anemia by 50 per cent by the year 2006 and reduce post-harvest losses by 80% at the end of 2007. These were accompanied by the establishment of at least two food processing centers in each of the 18 Local Government Areas in the state by the end of 2007. Others were to undertake awareness raising programs on the benefits of proper dietary habits and also mainstreaming cross-cutting issues, such as HIV/AIDS, environment, and gender into food and nutrition security programs between 2005 and 2007.

Strategies

The state government planned to adopt strategies involving provision of information on market situation for farmers and on nutrition habits (changes or otherwise) for the public. To improve storage of agricultural produce, the government promised to provide silos, produce drying surfaces, cold-storage or refrigeration houses for different categories of people. Others were promotion of agro-processing centers and provision or distribution of nutrient-rich crops to farmers, and provision of agricultural produce processing tools and equipment to farmers (State Planning Commission, 2005).

Performance of the Duke administration in agro-forestry and food/nutrition security:

Achievement of the policy targets (1999-2007)

Despite the laudable policies aimed at promoting agro-forestry in the state, subsequent government and civil society sources report that most of the targets were not achieved. The government reports that most of the policies and programs in the CR-SEEDS (I) 2005-2007 were implemented only in the 2007 fiscal year. It is curious to note that 2007 was the same year in which the 8-year Duke administration (1999-2007) completed its second term, left office, and handed over to the current Imoke administration on May 29, 2007 i.e. the first month of the second quarter! Moreover, the CR-SEEDS (I) was, by and large, a public sector driven, presented very poor participation and involvement of other stakeholders such as

civil society, communities, etc. irrespective of its claim that most programs, including agro-forestry, were to be implemented based on partnership between the government and communities.

Other failures of the CR-SEEDS (I), including its opacity or non-transparency, included its failure to identify and cost activities, procurement and projects that were stipulated for the achievement of specific outcomes, the absence of fiscal strategy documents specifying revenue sources, strategies and projecting expenditure, clarifying public debt management especially by a regime that had a high tendency for borrowing to implement the white elephant tourism project (TINAPA tourism and leisure resort) that was advertised around the world as Nigeria's equivalent of Dubai and the absence of tax reforms and foreign investment details. It featured an unacceptably enormous failure to predict budgetary factors, mainly prediction of revenue and expenditure, thereby, presenting a high variance in budget implementation of between 60 and 70 percent and the absence of guidelines for the effective monitoring and evaluation program (Government of Cross River State, 2009, State Planning Commission-Cross River State, 2008). Civil society organizations, including the network of over 20 member organizations concerned with gender and sustainable development, had previously raised most of the foregoing issues pertaining to the inappropriateness in the economic empowerment and development strategizing performance of the government (Gender Action and Development Action (GADA). 2008, Ingwe 2009 a, Abam, 2008.).

Agro-forestry development policy lacked creativity in terms of selecting some common and simple plantation crops that are very cost-effective because of their suitability to the ecological and climatic conditions of the state. Irrespective of public knowledge that bananas and plantains have been easily cultivated statewide in all the eco-zones of the state, and innovations exist for improving their yield beyond the current levels, it is disappointing that a government that was interested in promoting food and nutrition security failed to capitalize on the climatic and ecological conditions that favor the cultivation of plantains and bananas in most of the state. Apart from the potentials of bananas and plantains for increasing food and nutrition security of the poor people, these crops are easily amenable to cultivation in both small and large holdings and are exportable. The potentials of bananas and plantains for improving food/nutrition security, as well as export, makes them to be too big to be ignored by the government, which simply hid them under the unspecified mixed cropping farming system of the cocoa development program.

Performance of the Imoke administration in Agro-forestry development (2007-present)

The Imoke administration has been less noticeable in terms of agro-forestry development because of its focus on the wider, general, and vague activities in agriculture. The priorities of the administration's agriculture sector include: promotion of cooperatives and produce groups, improving farmers' accessibility to credit facilities and small business development, stimulating the creation of institutions for agricultural produce marketing, and facilitation of the adoption of technologies for promoting environmental safety. Apart from enforcement of forest conservation laws promoting resource exploitation while replenishing forest trees and strengthening of nurseries for distribution of seedlings to farmers for planting by farmers, most activities planned under CR-SEEDS-II are only indirectly related to agro-forestry. They include awareness raising on the benefits of cooperatives, farmers' groups, opportunities for credit facilities, and sound environmental, creating and managing, institutions for providing credit to farmers, building of capacity in produce marketing, proving transportation and communication infrastructure (roads) for improving accessibility to rural areas, and establishment of rural agro-allied industries. Other activities planned are protection of land tenure through enactment and enforcement of land-use statutes, offering extension services, and related innovation diffusion services (Government of Cross River State, 2009, State Planning Commission-Cross River State, 2008). Comments have been made concerning the perpetuation of the government-driven culture of the incumbent Imoke administration (Ingwe, 2009a). Despite constant scientific and technological advancement and innovation in agro-forestry, the Fourth Republic governments of Duke and Imoke have performed poorly in terms of devising policies aiming to promote the use of improved inputs, such as high yielding varieties of tree plantation type crops (e.g. cocoa, bananas, etc.), as a means of improving the quality of agro-forestry produce for export and ensuring food-nutrition security through local consumption.

Pro-poor tourism potentials in the National Park

The governments have also been characterized by weak policies in related sectors, which synergizes with agro-forestry. For example, the Cross River National Park, covering an area of 5480 km², contains one of the most bio-diverse (bio-regions) due to its wealth in various species of flora and fauna in the world. It hosts species of primates that were thought to have become extinct before they were seen in the CRNP. Therefore, the region is considered to be a valuable bio-region that is perceived as an unexploited tourism potential (State Planning Commission, 2005). Despite the fact that agro-forestry can

be synergistically developed to support tourism and trade by creating employment opportunities, raise income, and reduce poverty to be undertaken in the State.

Conclusion

The immense potentials of Cross River State to support agro-forestry remains underexploited. While the policies of recent governments to promote agro-forestry development in the state are commendable, they have remained at the level of unfulfilled promises, verbalization of good intent because implementation of agro-forestry policy has been abandoned in the pursuit of grand schemes, such as non-pro-poor tourism development projects (TINAPA business resort) which, although developed within less than the 8-year tenure of the Duke administrations, has failed to take-off the ground four years after completion of its construction and official commissioning in April 2007 to the time of writing this paper, April 9, 2010. The way government has abandoned agro-forestry development, which requires less financial investment and has shorter gestation period in favor of elitist white-elephant tourism projects, shows that it has paid “lip service” to the agro-forestry sector, thereby, failing to bring about the reaping of numerous advantages associated with it. This situation has not changed during the incumbent Imoke administration (May 29, 2007-present). This finding shows that the adoption of incrementalist policy making is not neutral to all sectors of the economy. Its adoption discriminates against some economic sectors specifically agro-forestry, in this study while radicalism was adopted to develop tourism infrastructural facilities for the leisure and businesses of the elite. This indicates the need for increased advocacy in rapid and massive implementation of agro-forestry in the state. Therefore, civil society must wade into this matter to salvage the poor peasants (farmers), people, and the environment which are all suffering degradation.

Recommendations

There is need for international development organizations, such as the UNEP, World Agro-forestry Center, and other partners working in the area of agro-forestry, to collaborate more seriously with civil society operating in Cross River State in order to create and implement more feasible agro-forestry projects for which the bio-region has comparative advantages. While government should be involved in such projects, the need for them to be led by civil society for and on-behalf of communities arises clearly from the myriad of problems of poor conception of agro-forestry projects in the CR-SEEDS-I and II cycles.

Acknowledgement

The authors gratefully acknowledge the Center for Research and Action on Developing Locales, Regions, and the Environment (CRADLE) for providing financial support for implementing the research from which this paper was written. Thanks are due to the organizers of the BIOCON conference in Italy, 27-28 September, 2010 for inspiring the drafting of this article.

REFERENCES

- Abam, TiDevelopment Strategy” (CR-SEEDS-1), (Unpublished paper presented at the Stakeholders Consultative Forum on Engendering CR-SEEDS, Calabar: UNIFEM/CIDA).
- Development Strategy” (CR-SEEDS-1), (Unpublished paper presented at the Stakeholders Consultative Forum on Engendering CR-SEEDS, Calabar: UNIFEM/CIDA).
- Addison, D. (1996). Nigeria: Poverty Assessment. In: M.O. Ojo, A.P. Awoseyila, A.S.F. Atoloye, FCO Analogbei, AM Akinyelu, A. Englama, and O.L. Akinboyo (eds.). Nigeria: Prospects for Development a.k.a. Vision 2020. (Proceedings of the Workshop organized by the Central Bank of Nigeria in collaboration with the World Bank, at Sheraton Hotel and Towers in Abuja, 15-17. April 1996).
- Akpokodje, E.G. (1998). Environmental Degradation and Human Welfare: New Challenges for Geologists (An inaugural lecture series No. 18). Port Harcourt: University Port Harcourt Press. 55.
- Atoloye, F.C.O., Analogbei, A.M., Akinyelu, A., Englama, and Akinboyo, O, L. (eds.). (1997). Nigeria: Prospects for Development a.k.a. Vision 2020. (Proceedings of the Workshop organized by the Central Bank of Nigeria in collaboration with the World Bank, at Sheraton Hotel and Towers in Abuja, April 15-17, 1996).
- Ayaode, J.O. (1988). On drought and desertification in Nigeria. In: Sada, P.O. and Odemerho, F.O.O. (eds.). Environmental Management in Nigeria’s Development. Ibadan: Evans Brothers: 271-290.
- Coe, R. (2009). The extent of trees in agricultural landscapes. Nairobi: World Agroforestry Centre.
- Cross River State, Nigeria. (n.d.). Giant Strides into the New Millennium. Calabar: SKKOR Services. 24.
- CTA Spore. (2009). Global problems, local solutions. *Wageningen, the Netherlands* (A bimonthly Journal of the Technical Centre for Agricultural and Rural Cooperation, CTA, of the ACP countries/group), 139, February 3.

- Developments. (2008). (MDG 8) Develop a global partnership for development. (A Journal of the DFID i.e. United Kingdom Department for International Development), 40, (visit).
- Food and Agriculture Organization (FAO). (2001). Forestry Division. Forestry Outlook Studies in Africa: Country Report-Nigeria.
- Food and Agriculture Organisation (FAO). (2005). Forestry Division. Global Forest Resources Assessment 2005.
- Gender Action and Development Action (GADA). 2008. Report of the Meeting of Stakeholders on Gender and CR-SEEDS, Calabar: 3 July (A report issued after the “Training course on Engendering the CR-SEEDS process, organized by the Gender And Development Action, Axari Hotel, Muritala Muhammad Highway, Calabar, 1-3, July, 8pp.
- Garrity, D., Okono, A., Grayson, M., and Parrott, S. (eds.). (2006). World Agroforestry into the Future. Nairobi: World Agroforestry Centre, WAC.
- Government of Cross River State (2009). Cross River State Economic Empowerment and Development Strategy 2 (CR-SEEDS 2). Calabar: State Planning Commission -Cross River State.
- Grant, W. (2003). Incrementalism. In: Iain McLean & Alistair McMillan (eds.). Oxford Concise Dictionary of Politics. Oxford: University Press. 606.
- Hornby, A.S., Wehmeier, S., McIntosh, C., Turnbull, J. & Ashby, M. (eds). (2005). Oxford Advanced Learners Dictionary of Current English. Oxford: University Press.
- Igwe, O. (2005). Politics and Globe Dictionary. Aba: Eagle Publishers.
- Ilori, B. (1996). The Nigerian Perspective Plan. In: Ojo, M.O., Awoseyila, A.P., Atoloye, A.S.F., Analogbei, F.C.O., Akinyelu, A.M., Englama, A., and Akinboyo, O.L. (eds.). 1997. Nigeria: Prospects for Development a.k.a. Vision 2020. (Proceedings of the Workshop organized by the Central Bank of Nigeria in collaboration with the World Bank, at Sheraton Hotel and Towers in Abuja, 15-17 April 15-17, 1996).
- Ingwe, R. (2009a). Persisting poverty, unemployment/underemployment in Nigeria: The urgency of improving governance of the Cross River State Economic Empowerment & Development Strategies. *International NGO Journal* (available online at rous unemployment, poverty and militancy in Nigeria’s Niger Delta: An analysis of premeditative rural economic development programmes in Bayelsa state (A full-length article being reviewed for publication).

- Ingwe, R., Ushie, M.A., Ojong, F.E., and Okeme, I. (2009). Pursuing sustainable development through Agro forestry in Nigeria: A spatio-temporal analysis of agro-forestry implementation by Nigeria states and territory. *Journal of Sustainable Development in Africa (JSDA)*, 11(4), 101-133. (Available online at: [able Development Through Agroforestry.Pdf](#)).
- Ingwe, R., Ebegbulem, J., and Ikeji, C.C.C. (2009). Ecocentric and anthropocentric policies and crises in climate-environment, finance, and economy: Implications of the green policy of the Obama Administration on Africa's sustainable development. *African Journal of Political Science and International Relations (AJPSIR)*, 4(1), 001-012, (Available online at: [Eja I. Eja & Ukwai, J. K. \(2008\). Federal Government Assistance for Web-based Secondary Education Under Poor Socio-economic Development Conditions in Nigeria: Geodemographic and Qualitative Analyses. *Journal of Geography and Regional Planning*, 1\(4\), 072–084. \(Aailable online at: \[angedighi, A.J., Joshua, M.T., Asim, A.E., & Ekuri, E.E. \\(2004\\). Fundamentals of Research and Statistics in Education and Social Sciences. Calabar: University of Calabar Press, 308.\]\(#\)](#)
- Leaky, R. (2009). Multifunctional agriculture and agroforestry. In: World Agroforestry Centre. (2009). Conference Highlights. Nairobi: World Agroforestry Centre.
- Lindblom, C.E. (1959). The Science of Muddling Through. *Public Administration Review*, 19, 79-99.
- Lindblom, C.E. and Dahl, R. (1953). Politics, Economics and Welfare. In Igwe, O. 2005. Politics and Globe Dictionary. Aba: Eagle Publishers.
- McLean, Iain and McMillan, Alistair (eds). 2003. Oxford Concise Dictionary of Politics. Oxford: University Press:
- National Population Commission (1991). Nigeria At A Glance. Lagos and Abuja: National Population Commission.
- Nigeria, Federal Republic of. (2006 a). Annual Abstract of Statistics 2006. Abuja: National Bureau of Statistics (NBS). 491.
- Nigeria, Federal Republic of. (2006 b). Economic Performance Review. Abuja: National Planning Commission. 70.
- Nigeria, Federal Republic of. (2007a). The Nigerian Statistical Fact Sheets on Economic and Social Development. Abuja: National Bureau of Statistics, December, 131.
- Nigeria, Federal Republic of. (2007b). Gender and Poverty Monitoring, Abuja: NBS. 59.
- Nigeria, Federal Republic of. (2007 c). Official Gazette. Lagos: Federal Government Printer.

- (Report of 2006 National Census by state/territory). 94(24).
- Nigeria, Federal Republic of. (2005a). Poverty Profile for Nigeria. Abuja: National Bureau of Statistics (NBS). 98.
- Nigeria, Federal Republic of. (2004). National Economic Empowerment and Development Strategy (NEEDS). Abuja: National Planning Commission.
- Ogunniyi, M.B. (1992). Understanding Research in the Social Sciences. Ibadan: University Press PLC. 132.
- Olaore, G. (1977). Simplified Methods for Estimating Gross Regional Product as a Tool of Policy Analysis: A Demonstration Study of Nigeria, PhD. Thesis, Cornell University, N. Y.
- Omuta, G.E.D. & Onokerhoraye, A.G. (1986). Regional Development and Planning, Benin-City: University of Benin (Department of Geography and Regional Planning), 255.
- Ofomata, G.E.K. (1981). The Land Resources of Southeastern Nigeria: A Need for Conservation. In: UM. Igbozurike (ed.) Land Use and Conservation in Nigeria, Nsukka, University of Nigeria Press, 94-108.
- Okumade, F. (1996). Nigeria: Poverty Reducing Growth Strategies and Options. In: M.O. Ojo, A.P. Awoseyila et al (Eds.) Nigeria: Prospects for Development, (a.k.a Vision 2020), (Abuja: Central Bank of Nigeria with support from the World Bank), 6.
- Osemebo, G.J. (1988). "The Human Causes of Forest Depletion in Nigeria" Environmental Conservation, (15) 17-28.
- Pachauri. (2009). World Agroforestry Centre 2009. Conference highlights. Nairobi: World Agroforestry Centre.
- Pandit, B.H., Albano, A. & Kumar, C. (2008). Improving Forest Benefits for the Poor: Learning from community-based forest enterprises in Nepal. Bogor: CIFOR.
- Robbins, N., Glover, R., & Singh, C. (2009). A Climate for Recovery: The Color of stimulus goes green. London: HSBC Climate Change Global Research. Available online at: [http://www.hsbc.com/climatechange](#), retrieved from the web on April 3, 2009.
- Salau, A.T. (2008). Environmental Crisis and Development in Nigeria. (Inaugural lecture series, No. 13) Port Harcourt: University of Port Harcourt.

- Salau, A.T. (1991). Ecology and Economics: Economic Strategies for natural resources conservation in Nigeria. (A keynote address presented at the National Workshop on mobilizing finance for natural resource conservation in Nigeria, organized by NACCR, Zaria, 7-9 May).
- Salau, A.T. (1992). Global Environmental Change: A Research Agenda for Africa (Working paper 2/1992, CODESRIA, Dakar (Senegal).
- Sao Paulo Government/Secretariat of Agriculture and Food Supply. (No date). Technological Agribusiness Development Regional Centre, Pindorama-SP. (Brochure). Sao Paulo, Brazil.
- Shapiro, H. (2009). Generating income for small holders. In: World Congress of Agroforestry 2009. Congress Highlights. World Agro-forestry Centre. 33.
- State Planning Commission- Cross River State, Nigeria. (2008). Cross River State Economic Empowerment and Development Strategy – 2 (CR-SEEDS-2) 2009 – 2012 (Zero Draft for Public Comments), Calabar: State Planning Commission, Cross River State, 150. (SEEDS: Cross River State Economic Empowerment and Development Strategy. 2005 – 2007, Calabar: State Planning Commission, 184.
- Stern, N. (2006). The Economics of Climate Change – The Stern Review. Cambridge, Cambridge University Press.
- Stiglitz, J. and Stern, N. (2009). Obama’s chance to lead the green recovery (A paper published: March 2 2009.) (arson.
- UNEP. (2007). Global Environment Outlook GEO 4 environment for development, Valletta (Malta): Progress Press Ltd.
- UNEP. (2008). “AFRICA: Alas of Our Changing Environment.” (Division of Early Warning and Assessment (DEWA), Nairobi: United Nations Environment Programme (UNEP) and Valletta: Progress Press (<http://earthprint.com>).
- UNEP. (2007). Global Environment Outlook (GEO₄): environment for development. Valletta: Progress Press for UNEP.
- UNDP, UNEP, World Bank & WRI. (2005). World Resources 2005: The Wealth of the Poor (Managing Ecosystems to Fight Poverty), Washington, D.C.: World Resources Institute (WRI), 254.
- Verheij, E. (2003). Agroforestry. (Agrodok-series No. 16). Wageningen: AGROMISA/CTA.
- World Agro-forestry Centre (ICRAF). (2009). The story of Agro-forestry in Malawi. A documentary and poster used to open the Second World Congress of Agroforestry. Nairobi, Kenya.

Xinghua News Agency. 2009.“Obama Administration unveils new Financial Bailout Package“. Special Report on the Global Financial Crisis. Retrieved on 13th March, 2010 from ees on Farm: Analysis of Global Extent and Geographical Patterns of Agroforestry. Nairobi: World Agroforestry Centre, WAC.