

Sustainable Forest Resources Utilization: Implications for Poverty Alleviation in Some Rural Communities in Edo State, Nigeria.

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ABSTRACT

Rural poverty is real and undesirable. The utilization of forest resources by the rural communities possesses a great potential to alleviating rural poverty, as forests mean everything to the people of rural communities. It is against this backdrop that this study find its relevance. This research examines the role of forest resources in alleviating poverty among the rural communities in Edo state, while maintaining forest resources richness. The data for this study were captured through questionnaire administration, focus group discussion, interview schedules, oral testimonies, field observation and institutional decomposition. A total of 100 respondents were interviewed from 20 rural communities in the forest zones of the state. The result of the study show that 70% of the rural people utilize non-timber forest resources, 25% engage in lumbering and 5% are involved in hunting; for their livelihood, maintenance, medicare and for social, cultural and religious purposes. The average income earned by the people of the rural communities form forest resources, ranges between N100,000 and N200,000 per annum. And thus contributing to poverty alleviation. The study recommends the establishment of Agroforestry which combines forest and food production, with or without livestock to earn higher productivity and income; that the state government should initiate policy to promote non-farm employment in the densely populated rural communities, encourage research in sustainable agriculture, as these will enhance poverty alleviation and sustainable forest resources utilization in rural communities in Edo State.

Keywords: Sustainable, forest resources, poverty alleviation, rural community.

I. INTRODUCTION

A major hurdle to achieve sustainability is the alleviation of poverty. It has been widely acknowledged that poverty is one source of environmental degradation. Such acknowledgment has been made by the Brudtland Commission report; Our Common Future and the Millennium Development Goals (Brundtland, 1987). According to the Brudtland report, "Poverty is a major cause and effect of global environmental problems". It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality. Individuals living in poverty, rely heavily on their local ecosystem as a source for basic needs (such as nutrition and medicine) and general well being. As population growth continue to increase, increasing pressure is being placed on the local ecosystem to provide these basic essentials. According to the UN population Fund (UNDP,1996), high fertility and poverty have been strongly correlated, and the world's poorest countries also have the highest fertility and population growth rates.

Fwatshak (2012) revealed that Nigeria, since 1970 has been among the community of poor nations. Nigeria that was ranked 31st among the world poorest nations in 1980, became the 24th poorest nation in 1999. And the trend continues in a downward pattern. The Federal Office of Statistics (1999) stated that in 1999, about 67 million people representing more than 65% of the population in Nigeria were poor. In Nigeria, the rural areas where majority of the peasants live are more heated by poverty.

Adams (1990) stated that poverty and environment are linked in close and complex ways.

The poor live in and suffer from degraded environments, often create problems. Poor people are driven to exploit their natural resources in an unsustainable manner, resulting in environmental degradation. Poverty is more severe in areas, where there is much environmental degradation. The poor remain the victims as well as agents of forest resources degradation.

II. CONCEPTS

2.1 Sustainability

The word sustainability is derived from the Latin 'sustinere' (tanere, to hold, maintain, support, endure etc). However, since 1980s, sustainability has been used more in the sense of human sustainability on planet earth and this has resulted in the most widely quoted definition of sustainability and sustainable development, that of the Brundthland Commission of the United Nation on March 20, 1987. "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987).

At the 2005 World Summit, it was noted that this requires the reconciliation of environmental, social and economic demands as illustrated with the three pillars of sustainability. This view has been expressed using three overlapping ellipses indicating that the three pillars of sustainability are not mutually exclusive but can be mutually reinforcing.



Figure 1: A diagram indicating that both economy and society are constrained by environment.
 Source : Gibson, 2007.

The UN definition is not universally accepted and has undergone various interpretations. What sustainability is, what its goals should be, and how these goals are to be achieved are all open to interpretation.

For many environmentalists the idea of sustainable development is both pleasant and unpleasant as

development also entails environmental degradation.

Ecological economist Herman Daly asked, "what use is a sawmill without a forest." As sawmill without forest establishment, means accelerated deforestation. From this perspective, the economy is a subsystem of human society, which is itself a subsystem of the biosphere. And gain in one sector is a loss from another. This can be illustrated as three concentric circles.

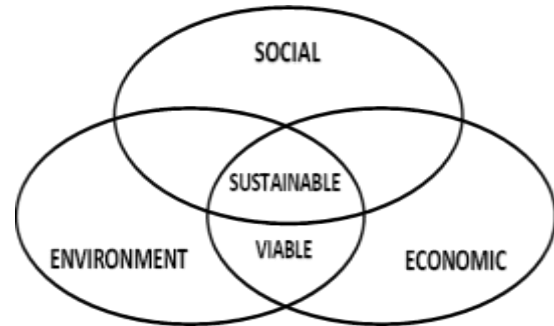


Figure 2: Scheme of sustainable development: at the confluence of the constituent parts.
 Source: Gibson, 2007

A universally accepted definition of sustainability remains elusive as it is expected to achieve many things. Therefore, sustainability is improving the quality of human life while living within the carrying capacity of supporting ecosystem.

2.2 Sustainable Forest Resources Management

According to Evans, Alexander and Effa (2010), principles of sustainable development include; peoples' right to the resources at their domain, respect to the carrying capacity of ecological systems, balancing consumption with regeneration rates, local people to benefit from the proceeds of their resources, involvement of all the stakeholders in the management of resources as well as equitable distribution of proceeds from resources among stakeholders.

Food and Agricultural Organization (FAO, 2001) defined sustainable forest management as: The stewardship and use of forest and forest lands in a way, and at a rate, that maintains their biodiversity, production, regeneration capacity, vitality and their potential to fulfill, now and in the future, relevant ecological, economic and social functions at local, national, and global levels and that does not cause damage to other ecosystems.

In similar terms, Froylan (2009) described the concept as the attainment of balance — balance

between society's increasing demands for forest products and benefits, and the preservation of forest health and diversity, and that this balance is critical to the survival of forests, and to the prosperity of forest-dependent communities. Therefore, foresters must consider forests not, just as a growing stock, but also as a complex ecological system which should be sustainably managed.

2.3 Community

The concept of community has been given different meanings by different people of different works of life. It has also been accorded various contextual meanings; by the ecologists, business experts, religious leaders, academic administrators, the ordinary man etc.

But the sociologists have defined community both in descriptive and evaluative terms; which have been adopted in this research.

According to Girigiri (2010) communities refers to indigenes of a locality or a group of people usually residents in a particular locality, having a homogenous culture and shared interest. However, Haralambos et al (2000) defined community as a group of people having social relationships in a particular geographical areas, such as villages, towns, districts of a city, suburbs or slums. Community describes first, people of common decent in a locality like village, town or city in relation to their mutual goal, interest, which brings about bonding and interaction in a given locality either in a village setting or town or metropolis. Edo State is a large and compartment of recognizable communities.

2.4 POVERTY ALLEVIATION

The term poverty is best described than defined. CBN (1997) described poverty as a state where an individual is neither able to cater adequately for his/her basic needs of food, clothing and shelter, nor meet social and economic obligations, as a result of lack of gainful employment, skills, assets and self-esteem. A poor person has limited access to social and economic infrastructure such as health, portable water, and sanitation; and consequently has limited chance of advancing his/her welfare to the limit of his/her capabilities.

UNDP(1996) noted that poverty has various manifestations, including lack of income and productive resources sufficient to ensure sustainable livelihood; others include hunger and malnutrition, ill health, limited or lack of access to education and other basic services, increased morbidity and mortality from illness, homelessness,

inadequate, unsafe and degraded environment and social discrimination and exclusion.

Two basic concepts of poverty are usually recognized. These are absolute poverty and relative poverty. Absolute poverty refers to a condition under which there is a serious deficiency in or lack of access to basic necessities of life. Relative poverty relates to the condition of an individual, house hold, group or community when considered against some reference standard or parametal (Ukwu, 2002).

Poverty alleviation among rural communities, is through the proper management and utilization of forest resources, to ensuring forest resources continue to serve, sustain the people for the present and the future, as the people and forest resources are inseparable. This makes sense because forests provide, food, income, employment and shelter. Apart from timber, forests provide leaves, plant parts for medicine, edible fruits, mushroom, sponge, fibres, gums, chewing sticks, canes, bushment, cooking oils, condiments, spices, vegetables, honey, palm produce among others. Shortage in the supply of forest resources could result in ecological problems, poverty and other socio-economic problems.

2.5 Aim of the Research

The aim of this research is to profer solution to sustainable forest resources utilization in order to alleviate poverty among the rural communities in Edo State.

III. STUDY AREA

3.1 Location and Size

Edo State, Nigeria occupies land area of 19,707km² and a medium diversity of 163% per km² (Collins, 2010). It lies approximately between latitudes 5°45¹ and 7°W¹ and 6°52¹ East of the Greenwich Meridian. The state hah neighboring states as Delta to the South, Kogi and Ekiti to the North, and Ondo to the West. The eastern boarder runs along the River Niger.

3.2 People and Population

Politically, there are 18 local government areas in Edo State. There are five major ethnic groups in the state, which include the Benins, Esan, Ora, Afemai and the Akoko-Edo. The Benins occupy the southern part of the state, Esan and Ora occupy the central part and Afemai and Akoko-Edo occupy the northern part of the state. The state has a population of 3,218,332 (1,640.46 males and 1,577,87.1 females) (NPC, 2006).

3.3 Climate

The climate is tropical with distinctive wet and dry seasons, classified under the Koppen (1918), as tropical rainforest climate. The mean annual temperature is about 30°C with annual range of 5°C as the annual range of temperature. Mean annual rainfall ranges from 1900mm and 4035mm, while the rain days range from 116 to 170mm annually.

3.4 Relief

Edo State has a fairly gentle topography. The relief is generally low with some pockets of highlands in the northern parts of the state, where elevations are as high as 30 meters above sea level.

3.5 Soils and Geology

In Edo State, Savanna, rainforest and wetland soils are closely parallel to the underlying geology (Beak, 1995). Savanna soils are found in the northern part, the area is underlain by undifferentiated gneisses and magmatic basement complex rocks. The soils are deep, well-drained and sandy loam. On the hills and ridges however, the soils are shallow, sandy, sometimes gravelly and over bedrock.

Some of the soils also overlay sedimentary units, sandstone scarp and sedimentary rocks. The soils are deep to moderately deep and shallow in places; well or imperfectly drained loam, sandy loam and sandy clay warm (Break and Geometrics, 1997).

3.6 Vegetation

The vegetation is tropical rainforest as described by Keay (1959) and Hopkins (1974). The vegetation zones of Edo State more or less coincide with the political zones in the state; Edo South is in the moist rainforest; Edo Central in the dry rainforest/derived savanna while parts of Edo North is in the derived savanna/southern guinea savanna vegetation (Beak, 1998). Popular economic trees found in the state include Iroko, African Walnut, Obeche, Ebony, Cedar, White Afara, Mahogany, Oil Palm, Raphia Palms etc. The bulk of the raw materials that sustain the state's wood based industries (formal and informal) is sourced from the high forest zones.

IV. LITERATURE REVIEW

4.1 Introduction

There is considerable amount of knowledge available about the techniques to achieve various dimensions of sustainable forest resources management.

It is generally believed that enough is known to manage forests on a more sustainable basis. However, it is also believed that a significant

portion of the world's forest is not utilized in a way that could be described as sustainable.

4.2 Forest Reserves and Sustainable Forest Resources Utilization and Management

Forest reserve is the most popular approach to sustainable forest resources utilization and management, world-wide.

Forest reserves as a legal tool, of sustainable forest management in Nigeria was inherited from the British Colonial Administration. In 1890, the colonial administration in Nigeria had established forestry department for Southern Nigeria. Its primary role was to constitute forest reserves, provide for protection and control of the removal of forest products. Ever since, reserves have become first choice management technique in forest resources management and utilization.

Adeyoju (2011) argued that global standard against deforestation was the establishment of reserves with a ratio of forest to land of 30%. World Bank (2002), recommended forest-land ratio of 30-40% as sustainable method of conserving forests. Forest Resources Management and Evaluation Unit of the Federal Republic of Nigeria (FORMECU, 2012) as a matter of policy recommended to the thirty-six states of the federation to adopt forest-land ratio of 30% through reservation.

World Bank (2005) carried out forestry survey in Nigeria; and observed that Nigeria's remaining forest comprising reserves (788,053ha) and off-reserve -tree (1,854,360ha), have been degraded. In the 1960s, forest cover was estimated at close to 10 million hectares. By 1978, it diminished to 4 million hectares (ha).

The latest landsat imagery analysis of data (1955) showed that forest cover had further decreased to 3.1 million which is grossly below 10% of its land area.

Land Use Study (1995), revealed that forest reserves in Edo State declined from 310,800ha in 1978 to 21,900ha in 1995. Edo State Department of Forestry (EDF, 2004), declared that the forest reserves in Edo State stood at 23% of its land area. Aimufia (2003), evaluating Edo State forest estate and biodiversity, stated that forest land ratio in Edo State stood at 21% in 2003.

According to EDF (2004), forest reserves in Edo State in 2004, stood at 439,139.02ha. And since forests continued to decline, as harvests continued, since forestry constitute a reasonable percentage about 12% of the state's GDP and employed about 20% of the state's population (Okoro, 2013). And also being a major source of livelihood to the indigenous people of the state.

4.3 Participatory Forestry

Participatory forestry is synonymous with democratic forestry. Participatory forestry therefore means the opportunity given by government to all forest stakeholders to participate in forest resources utilization, management and decisions, having full access to forest resources and sharing social and economic benefits accruing from all forest resources (Jimoh, 2001). Forest policies in the country that have to do with participatory forest resources management, are not fully implemented to involve all forest stakeholders in protecting the forest. Empowering local people to own forest or participate in decision making, with other forest stakeholder to promote sustainable forest resources utilization. Jimoh (2001) opined that in Nigeria, forest resources management has been left in the hands of government for too long and the resultant effect is the massive forest degradation and deforestation. When the local people who live in and around forest and depend on forest for livelihood are given opportunity to suggest how forest should be managed, every passion will be committed to protect the forest.

FAO (2003) stated that most countries have initiated policy and legal changes, decentralizing forest resources management and enabling community ownership and participation in forest resources utilization. This means that when all forest stakeholders in protecting the forests, take forest management and decision jointly between the local people, the state and federal governments, there will be strong commitments. The private sector is being assigned a major role in forestry management in some countries even when there are some problems associated with privatization of forests. Promoting private forestry in the country through incentives by government can also encourage sustainable forestry utilization.

In USA, about 72% of the nation's forest, is owned by private sector (USDA, 1990). Also in many parts of the world, increasingly, civil society organizations are given opportunity to play active role in forest resources management by giving them opportunity to criticize government policies that impact negatively on forest. They are allowed to address the public in the area of deforestation, illegal logging, corruption, transparency in the forestry sub-sector. The local communities can be involved in seed collection, raising of nurseries, transplanting and planting of nursery stock, maintenance of plantations, collection of minor and major forest products, processing, distribution and marketing of forest products in addition to forest decision-making. All these activities will generate employment and income, provide food and shelters

or better the living standards of the rural populace, thereby reducing conflicts between forest stakeholders, alleviating poverty and enhancing sustainability in forest resources utilization and management in the state. Poverty is occasioned by inequality in the distribution of natural resources, income and employment. These conditions have forced the people who have no choice than to devastate their environments in desperate struggle to survive. Lack of resources drives the peasants to migrate to areas that will not sustain their livelihoods (Eighemhenrio, 2015).

4.4 Role of Forest in Alleviating Poverty

Nigeria forests are also the source of a variety of non-timber forest products (NTFPs), such as honey, beeswax, medicinal products, mushroom, vegetables, bushment etc, apart from timber. Idumah (2001) opined that the crucial uses of forest are the production of fuelwood, honey beeswax, collection of mushrooms, forage for animals. Non-timber forest (NTFPs) (plants and animals sources) often constitute the staple cash produce of tropical forest communities. Forest also provides outstanding opportunity for equal national income distribution, alleviation of poverty and generation of employment. Forestry is closely associated with food production through direct contribution to subsistence food production, supplementation of animal protein and the provision of wild plants and fruits.

Forest resources account for a significant share of household income in the country. FAO(2003) stated that bushment is the most important sources of protein and income for substantial number of people in a number of countries in West Africa. Deforestation and forest degradation are major problems facing food security and income levels of rural Nigerians. Poverty generates conflicts between forest stakeholders. Forest is obviously the nation's important asset for the overall nation's economic growth as well as poverty alleviation.

V. METHODOLOGY

Several approaches that helped to capture the required data for the study were employed. They include structured questionnaire, focus group discussions, interview schedule, oral testimony, field observation, institutional decomposition and analysis.

Data on forest resources management and utilization were collected from selected 20 rural communities across the forest areas of the state. Five research assistants were employed. One hundred persons formed the sample population for this study, derived from 20 communities within the

forested areas of the state. However, at least a community was selected from 14 out of the . 18

local government areas of the state, with preference given to the communities with large population.

Table 1: Sampled Communities

Communities	L.G.A	Population	Sample Size
Ehor *	Uhunmwode	120813	5
Ekiadolo *	Ovia North East	153849	5
Ekosodin	Ovia North East	153849	5
Idogbo	IkpobaOkha	371106	5
Iguobazuwa *	Ovia South West	135356	5'
Irrua *	Esan Central	105310	5
Iyelen *	Esan South-East	167721	5
Ogba *	Oredo	374671	5
Ogwa *	Esan West	125842	5
Okhuesan	Esan South East	167721	5
Opoji	Esan Central	105310	5
Sabogida Ora *	Owan West	97388	5
Otuo	OwanEast	97388	.5 .
Oza	Orhionmwon	182717	5
Siluko	Ovea South West	135346	5
Udo *	Igueben	69639	5
Ugboha *	Esan South East	167721	5
Urhonigbe *	Orhionmwon	182717	5
Usse	Egor	339899	5 .
Uzea	Esan North.East	119346	5
Total		3218332	100

Source : National Population Commission (2006)
***Communities with Government Forest Reserves**

VI. SELECTION OF RESPONDENTS

Having selected the communities as well as determine the sample size for the study, in order to get appropriate responses, household heads were interviewed. Random sampling was employed to select household heads for questionnaire administration.

4.3 Oral Testimony/Focus Group

Structured interviews and focus group discussions were used to collect information from forest stakeholders; environmental NGOs, free-range loggers, government forest guards, community opinion leaders, youth groups on the general management of forest resources in their communities.

4.4 Use of Structured Questionnaire

The questionnaire was used to elicit information from operators of Sawmills and the aforementioned stakeholders in order to gain understanding of the existing realities and experiences and their expectations especially with respect to sustainable forest resources utilization.

4.5 USE OF CAMERA/FIELD OBSERVATION

Cameras were also used to capture in photograph, the true position and nature of the forests. The researcher also carried out field observation and assessment of the study area for generating socio-economic, environmental and forest resources attributes of the study area.

VII. DISCUSSION OF RESULTS AND FINDINGS

7.1 Introduction

The role of forests as life, support system and ready source of income generation to the

people and the government has long been recognized as significant. A plethora of economic activities exist in the rural areas of Edo State. This can be traceable to the diverse cultural practices of the tribes that constitute Edo State.

Table 2: Economic activities engaged in by the people

Occupation	Frequency	Percentage	Validity%
Farming / NTFPs Gathering	50	50	50.0
Forest / Lumbering	28	28	28.0
Trading	11	11	11.0
Fishing	6	6	06.0
Others	5	5	05.0
Total	100	100.0	100.00

Basically, farming, forest resources gathering are the major rural economic activities in the state. This is due to the fact that climate and adaptive factors prevailing in the state, support all forms of agricultural activities.

Farming and forestry have become generational inheritance among the people, as they are the only occupations that provide food and income generation.

The study also revealed that local people engage in more than one occupation to ensure survival against the weight of prevailing economic crunch and poverty ravaging Nigeria.

7.2 Forest Reserves as Method of Sustainable Forest Resources Management and Utilization in Edo State

Forest reserve is one of the most effective methods of managing and utilizing forest all over the world. It is one of the seven thematic areas, as consensus on the key elements of sustainable forest management of the United Nations Forum on forestry and the 16th session of the 'committee on forestry (Evans, Alexandar and Effa, 2010). This method had long been adopted in the study area as far back as 1927, when the reserves were called "inviolable plots" (EDF, 2004).

TABLE 2: FOREST RESERVES IN THE STUDY AREA

Community	Name of Govt. Forest	Govt. Forest in Hectares	Name of Community Forest	Estimated Community Forest in Hectares
Ehor	Govt. Reserve	24,805	Egbo - Evbohia	248
Ekiador	Govt. Reserve	25,517	Egbo - Evbohia	200
Ekosodin	--	--	Egbo - Evbohia	200
Idogbo	--	-	Egbo - Evbohia	200
Iguobazuwa	Govt, Reserve	15,925	Egbo — Evbohia	150
Irrua	Govt. Reserve	399	Egbo — Orhebhe	30
Iyeten	Govt. Reserve	109	Egbo — Orhebhe	10
Ogba	Govt. Reserve	3,371.24	Egbo — Evbohia	327
Ogwa	Govt. Reserve	693	Egbo-Oghebhoh	60
Okhuesan	Govt. Reserve	2,138.50	Egbo — Ebhohoho	238
Opoji	--	--	Egbo — Orhebhe	45
Sabogida Ora	Govt. Reserve	13,376	Egbo-Orhebhe	130

Otuo	--	--	Egbo - Okanyan	. 50
Oza	--	--	Egbo—Evbohia	250
Siluko	--	--	Egbo-Evbohia	300
Udo	Govt. Reserve	1,344	Egbo—Ebhooho	130
Ugboha	--	--	Egbo—Ebhooho	250
Urhonigbe	Govt. Reserve	24,432.	*Egbo-Evbohia	400
Usse	--	--	Egbo-Evbohia	250
Uzea	--	--	Ebo-Orhebhe	80
Total	--	118,690.7		3,803

Source: Edo State Department of Forestry (2021) Author’s Field, Survey (2021)

There are 48 government forest reserves, totaling 439, 139.02ha, spread across 16 Local Government Areas in Edo State. Additionally, all the communities in the forest region of the state have between 2-3 community forest reserves. These forests are in three categories; those maintained as sacred forests, those set aside as burial grounds and those exploited as community forests.

The rights and privileges of members of the communities to these forests are equal and access to them is based, on needs. For example, access to burial forests only comes when a dead member of the community is to be buried.

The sacred forests are used for ancestral worships. They are only accessed during festivals. For examples at Udo, Ugboha and Okhuesan, whenever a new king is installed, he must worship and perform rites in such forests to legitimize his stool and reign. The forests are managed by either appointed committees that serve on 3-5 years term basis or by council of elders, whose term is permanent as long as the council members live and in the event of death of any members a new appointment is made to replace such only on age basis.

For example, at Egwiye-Ekosodin, a small community behind University of Benin, the community forest, especially that, at the river bank, is managed and administered by council of elders. The proceeds from the forest (revenue paid by

private loggers) are shared among the families that make up the community. Monitoring and protection of the forest is the responsibility of the entire local people. In the case of Okhuesan, a standing committee has been put in place that administers the forest for the community. The proceeds from the sales of timber to private loggers are submitted to the council of elders who share it among families according to laid down byelaws.

Community forests in the study area are managed by traditional byelaws, stipulating monitoring, prevention of harm to the forests, offences and fines, no go areas of the forests, access and time of access, the portion to be cleared for farming or for other uses. The king or chief or the paramount ruler in each community is the overall head of the management teams and also supported by council of elders or chiefs who are advisers.

VIII. NON-TIMBER FOREST PRODUCTS IN THE STUDY AREA

Non-timber forests products (NTFPs) include fruits, edible leafy vegetables and others which include tropical bush meat, palm nuts, palm kernel, palm wine, ropes, fence and thatch materials, medical products, such as herbs, roots, bark etc. for the treatment of malaria, dysentery, convulsion, diabetes, high blood pressure, ante-natal and post-natal care etc.

Table 3 Non-Timber products in the Study Area

S/N	Grouping	Non-Timber Forest Product	
1.		Bush meat, chewing sticks, irvingia wrapping leaves, antelopes, bats, bush rats, medicinal herbs, roots etc.	Palm nuts, palm fronds, snails, flowers fruits, leaves, bark, stem, roots, walnuts, mushrooms, sponge, ropes, honey, bush rats, grass cutter, porcupine, monkeys, bats, antelopes, deer, medicinal

			herbs, palms oil, palm kernel, palm, wine, fence and thatch materials etc
2.	Group A (Edo North) communities: sabogida Ora, Otuo	Same as above	The list above not available here
3.	Group B (Edo Central) Communities: Irrua, Iyelen, Ogwa, Okhuesan, Opoji, Udo, Ogboha, Uzea	Same as above	The list above is available here
4.	Group C (Edo South) Communities: Ehor, Ekiadolor, Ekosodin, Idogbo, Igwuobazuwa, Ogba, Siluko, Urhonogbe, Ussc, Oza	Same as above	The list above is available here

Source: Author's Field Survey, 2021

Table 3 presents the availability and distribution of non-timber forest products in the study area.

IX. NON-TIMBER FOREST PRODUCTS (NTFS)

The availability of enormous forest resources in the study area holds a great potential to the survival of the people in the forest communities. The people, in all ramifications are inherently tied to the forest, whether for food, income generation, medicals social relationships, religious purpose, and preservation of their culture and tradition. Besides, the forest has an already made solution to the reduction of rural poverty, unemployment and backwardness. For example, the study discovered that availability of forest and its exploitation in ogba, Okomu and NIFOR communities have influenced government presence, in the area which has brought infrastructural development, thereby reducing the backwardness of these communities.

Observation and interviews held with opinion leaders, foresters as well as farmers in the area, revealed some disparity in the availability and distribution of non-timber products in the study area. The non-timber forest products are collected from different sources, such as fallow lands, mature forests and forest reserves. The study also revealed that the forest and its resources together with the benefits they provide, in form of food, income and water shed protection, enable the local communities to secure a stable livelihood and raise their income, for poverty alleviation.

Specifically, barks, leaves, roots of plants, such as *Allium ascalonicum* (ginger), *Azadirachta Indica* (Neem, Dogoyaro-Hausa), *cucurbita pepo*

(pumpkin) etc are used for curing diseases such as malaria, dysentery, convulsion and blood loss.

X. COMMUNITY APPROACH TO SUSTAINABLE FOREST RESOURCES UTILIZATION.

10.1. Land Tenure System

Land tenure system in Edo State varies with tribe, clan or community. It can be broadly classified into 3 categories as follows:

a. Tenure Based on Individual Inheritance or Free-Hold Ownership

This is the commonest method of ownerships of land in the study area. Virtually all the communities sampled operate this method of land ownership, whereby some portions of land are owned and controlled by individuals or families. The right to such land can be inherited or by outright purchase. This often leads to massive deforestation and little or no efforts are made to conserve the forest.

b. Tenure Based on Community Ownership

Under this system, land is generally the property of the community. Every member of the community has restricted access to such land. The forests on such land are controlled and managed either by council of elders or appointed committee. This system was also observed in all the sample communities. The council charges prospective logger: 1st class tree N5,000, 2nd class tree N3,000 and 3rd class tree N2,000. Only matured trees are

approved to be felled and this method proved very useful in conserving forest resources.

c. Lease — Hold Tenure

Tenure agreement, under this system, stipulates land owner gives out a piece of land for a fixed length of time and under stipulated conditions. The land owner may be an individual, government or community. This system was also observed in some communities in the study area (Sakponba, Urhionigbe etc).

d. Burial Grounds/Sacred Grooves

These lands/forests are special areas reserved by traditional and cultural norms in each community in Edo State. These were observed in all the communities in the study area for burial and worship. These forests were handed down from generation to generation. They are no go areas, especially to non-indigenes. No farming or other activities are allowed in these forests. The control is vested in the council of elders (paramount rulers, priest of deities, traditional worshipers, and leaders). They were observed in Udo, Opoji,

Urhonigbe, Sabogida Ora, Iyelen, Irrua, Okhuesan etc. The sacred grooves represent the cultural identity of the people. No human activity takes place in the sacred grooves tagged taboos forests, except occasionally for traditional sacrifices and rites.

However, it was observed that some of the forests were tampered with in terms of extraction of some products. Research revealed that since the advent of Christianity, which prohibits some traditional observances, access and movement to these forest were no longer strict, non-timber forest products; gathering and hunting are common in these forest, nonetheless, extraction of trees from these forests are rare. These methods are considered useful in sustainable forest resources utilization.

The benefits of these approaches are;

- i. Equal access by all to the forests
- ii. Promotion of forest conservation
- iii. Intra and inter communal conflicts are minimized
- iv. Cultural identity is preserved

Table 4 Respondents Average Annual Incomes from Forest Resources in the Study Area

Occupation	Frequency	Percentage	Group A 100,000- 150,000(N) PA	Group B 150,000- 200,000(N) PA	Group C 200,000(N) and above PA
NTFP _s Gathering	70	70	7,000,000- 10,500,000	10, 500,000- 14,000,000	14,000,000-
Lumbering	25	25	2,500,000- 3,750,000	3,750,000- 5,000,000	5,000,000-
Hunting	05	05	500,000-750,000	750,000- 1000,000	1000,000-
Total	100	100	10,000,000- 15,000,000	15,000,000- 20,000,000	20,000,000-

Source: field survey, 2021

Many of the rural households in the study area, derived reasonable income from the utilization of forest resources in the study area. Table 4 Shows that 70% of the rural communities are involved in harnessing non-timber forest products for their wellbeing in the study area. The incomes they earn play important roles in meeting their needs and reducing poverty among rural communities in the study area.

XI. CONCLUSION

This study has shown that forests play important roles in rural poverty alleviation, through the provision of income, food, medical materials etc, to rural households in the study area. Despite the enormous role being played by forest resources in poverty alleviation, the incidence of poverty is still massively high in Edo State and in Nigeria as a whole. The study has revealed that the poorest rural

community dwellers generally, have the highest degree of reliance on forest products as free access resources, for food, incomes and others.

Recommendations

The utilization of forest resources by the rural people in Edo State, possesses a great potential to the solution of rural poverty, unemployment and backwardness.

Recommendations to address and alleviate rural poverty include; establishment of Agroforestry. Agroforestry is one of the options that can be employed to alleviate poverty and reduce pressure on forest and enhance its richness. Agroforestry is a sustainable land management system, which combines forest and food crops production with or without livestock so as to get higher productivity, more income returns and other benefits. Edo state government should initiate

policy aimed at alleviating poverty in poor densely populated rural communities, mostly those adjacent to forests, promote non-farm employment and encourage research in sustainable agriculture. Since forest play important role in the lives of rural people. Rural people should, and should be encouraged by the state government to embark on private forestry and also promote community forestry.

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