

## **Effects of Various types of Forest Wood Products Exploitation on the Livelihood of Rural Households and their Intensity of Utilization in Benue State, Nigeria**

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**Abstract:** The study was carried out to assess the effects of various types of forest wood products exploitation on the livelihood of rural households and their intensity of utilization in Benue State, Nigeria. This was achieved through the use of structured interview schedule was purposefully administered to 300 eligible respondents in the study area. The study revealed from the empirical results that 82.0% of the live trees species were identified to be mostly exploited and very highly intensively utilized (60.0) while 80.0% of the live trees for charcoal and fuel wood were found exploited and very highly intensively utilized (80.0%) by the respondents in the study area. It was recommended that: government, private organizations and individuals should establish viable processing industries for the processing of forest wood products finished materials for use; community efforts should be made by all members of the community to protect and safeguard the forest wood products against unsustainable exploitation and access roads should be constructed by government or communal efforts and frequently rehabilitated and maintained in good order for easy transportation of the harnessed forest wood products in the study area.

**Key words:** wood products, exploitation, utilization, forest, households

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### **I. Introduction**

Forest resources obtained in both tropical and temperate regions of the world are important natural assets for rural households providing for them both subsistence and market oriented livelihood strategies (Campbell *et al.*, 2010). The expanding households use and commercialization of many wood forest products such as fuel wood, construction materials provide rural households with a range of subsistence and market oriented livelihood opportunities. These provide a wide range of goods for sale throughout the year; thus, rural households often turn to forest wood products in response to contingencies (Thankur, 2013). Harnessing of forest wood products have also been found to be a significant, income smoothing response that is to say that they are not only taken up following stress and shock, but prior to expected agricultural and other income diversifying commercial activities as a buffer (Pattanayak and Sills, 2011). Bwalya (2011) observed that households in Zambia consume 6.359 million cubic meters of wood per year, with fuel wood and charcoal accounting for 85.0% fuel wood and charcoal make up 56.0% of global wood production and approximately 90.0% of this is produced in developing countries such as Nigeria, Tanzania, Zimbabwe, Ghana and Liberia. Fuel wood also known as firewood is the most important source of energy for developing countries and the only source of energy for most of the world's rural areas ( Roper and Roberts,1999)

The main objective of the study was to assess the various forest wood products exploited and their intensity of utilization by rural households in the study area. The specific objectives are to: **1.** identify the various forest wood products exploited by the ruler households; and **2** examine the intensity of utilization of the forest wood products by the ruler households.

### **II. Methodology**

The study was carried out in Benue State. The State was created in 1976 with Makurdi as the State capital. It is found in the middle belt region of Nigeria, approximately located between latitude 6.5° and 8.5°N and longitude 7.5° and 10.5°E of the equator. The State has a total land area of about 30,995 square kilometers and a projected population of about 2,780, 398 people (BNARDA), 1995) and (NPC, 1995) in (Atongo, 2013).The State shares boundary with five states: Nassarawa to the North, Taraba to the East, Enugu to the South west, Cross River to the South east and Kogi also to the south west. The south eastern part of the state

shares boundary with the Republic of Cameroon. It is bordered to the North by 280km of River Benue, second largest river in Nigeria, which the state derived its name. The state is also traversed by 202km of River Katsina-Ala in the in-land area with its catchment area from Cameroon.

A three stage sampling procedure was used for this study. In the first stage, out of 23 LGAs in Benue State, 2 Local Government Areas (LGAs) from zone A, B and C were purposively selected because of the forest resources availability in such LGAs giving a total of 6 LGAs (Katsina-Ala, Kwande, Makurdi, Tarka, Otukpo, and Okpokwu) covered for the study. During the second stage, 4 communities from each of the 6 LGAs were selected using simple random sampling balloting technique giving a total of 24 communities. During the third stage, 50 households were randomly selected from the 4 communities in each of the 6 LGAs using simple random sampling balloting technique giving a total of 300 respondents for the study.

Data for this study was collected from the households through the use of structured interview schedule to elicit information from rural households. It was subjected to both face and content validity to avoid ambiguity of items as well as to ensure its validity. The interview schedule contained relevant questions on the study. It was pretested in one of each villages sampled for the study, the reliability of the instrument was determined using the split half technique. Secondary information was collected through the review of relevant literatures, maps, pamphlets bulletins, biographies, previous projects, theses, dissertations and materials from internet sources.

Multiple regression model was used to estimate the contribution of each variable to the dependent variable to determine the best variable predictive of livelihood activities by rural households and their effects on the livelihood of rural households in the study area due to forest resources exploitation and utilization activities.

### III. Results and Discussion

#### Identified forest wood products exploited and utilized by rural households

The results on identified forest wood products exploited and utilized by rural households in Table 1 shows that 82.7% of different matured tree species were identified as good source of timber, and 39.3% were identified as dried wood for charcoal/fuelwood respectively. The implication of the highest percentage (82.7%) for different matured tree species suitable for timber signified great trees lumbering activities in the forested rural communities by the local and those who move from urban areas to the rural communities to carry out lumbering activities for construction and sale for economic purposes. 72.3% of live or dried wood is also processed into charcoal or fuel wood to supply energy for cooking purposes, domestically and sale in the rural and nearby urban centres as source of cooking energy. Townson (2012) also agreed that income derived from such sources is used to promote agricultural production, off-set debts, ease the ability of paying hospital bills, sponsor wards in schools and purchase household items such as beddings, cooking utensils, Motorcycles, wheel barrow, electronics and chairs. Richard *et al.* (2010) also emphasized that the role of forest wood products continue to receive greater attention because of its importance to the rural communities as well as urban areas. They reiterated that importance of forest wood resources lies in the fact that they could be used for timber for various construction purposes in the rural communities and urban areas, charcoal and fuel-wood produced from wood forest resources is used as cooking energy both in the rural areas and urban centres, wooden poles are cut and are used for electric poles in urban centres while the moderate sized live and dry wooden poles are cut for maintaining houses in the rural communities.

**Table 1:** Distribution of respondents according to the identified forest wood products exploited and utilized

Forest wood products	Frequency*	Percentage
Live trees species for timber	248	82.7
Live/dead wooden poles	192	64.0
Live trees for charcoal/fuel wood	217	72.3
Dead wood for charcoal/fuel wood	118	39.3
<b>Total</b>	<b>775</b>	<b>258.3</b>

\*Multiple responses

Figure 1: Distribution of respondents according to the identified forest wood products exploited and utilized

#### Level of Intensity of Utilization of Forests Wood Products

The result of the analysis of level of intensity of utilization of forest wood products on Table 2 shows that live/dried wood were very highly intensively utilized (80.0%), highly intensively utilized and low intensively utilized (3.0%). The utilization of live/dried wooden poles at a very highly intensive rate was (75.0%), low intensively utilized (2.0%). Dried wood for charcoal/fuel-wood was at very highly intensive use (62.0%) and at low intensity utilization (5.0%). Different trees species for timber were found to be very highly intensively utilized (60.0%) and low intensively utilized (4.0%). The implication of the very highly intensive utilization of live/dead trees (80.0%) for charcoal and fuel wood primarily depend on the high energy

requirement for cooking both at rural households' level and surplus sold to urban areas also for cooking energy supply.

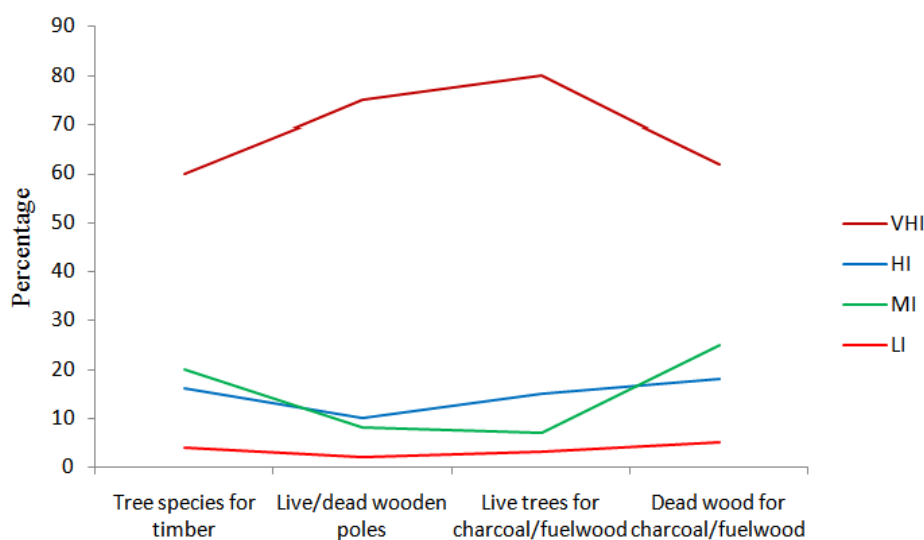
Ikurekong *et al.* (2009) also agreed that fuel wood and charcoal exploitation provides a good source of energy for domestic cooking in rural communities as well as urban areas. They further stressed that in many developing countries like Nigeria, Sierra Leone and Tanzania about 72.0% of total cooking energy consumed by both rural and urban sector is provided by fuel wood and charcoal. Richard *et al.* (2010) reported that in Nigeria, fuel wood provides energy for rural households, employment and income for rural farmers as well as part of the energy requirement for cooking in urban areas throughout the country. In Liberia, Marla (2011) stated that in Liberia, 70.0% of rural energy requirement and 50.0% of urban requirement is provided by fuel wood. He however, stressed that in Cote d' Ivoire, 84.0% of the country's total households' energy requirement is provided by fuel wood.

**Table 2:** Distribution of respondents according to their perception on the intensity of exploitation and utilization of forest wood products.

Forest wood products	VHI		HI		MI		LI	
	Freq*	%	Fre*	%	Freq*	%	Freq*	%
Tree species for timber	180	60.0	48	16.0	60	20.0	12	4.0
Live/dead wooden poles	225	75.0	30	10.0	24	8.0	6	2.0
Live trees for charcoal/fuelwood	240	80.0	45	15.0	21	7.0	9	3.0
Dead wood for charcoal/fuelwood	186	62.0	54	18.0	75	25.0	15	5.0

\*Multiple responses

NB: VHI=Very highly intensive; HI= Highly intensive; MI= Moderately intensive and LI= Low intensive



**Figure 1:** Distribution of respondents according to their perception on the intensity of exploitation and utilization of forest wood products

#### IV. Conclusion and Recommendation

The study concluded that the most identified wood forest products were live trees species for timber, and live trees species were intensively utilized by the rural households for charcoal and firewood. It was recommended that: the government, private sector organization and individuals should set up processing industries in the study area for processing the harnessed forest wood products into finished form for use; community efforts by members of the community should be geared towards indiscriminate exploitation of wood

forest resource; and access roads should be constructed by government and community efforts as well as maintained by communal efforts for easy transporting of harnessed forest wood products.

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