Contributions of Non-Timber Forest Products to the Standard of Living of Rural Dwellers in Edo State, Nigeria

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***Abstract*: Non-timber forest products (NTFPs) represent significant aspect of human existence and how they contribute to rural dwellers living standard should be explored. This study therefore assessed the contributions of non-timber forest products to the standard of living of rural dwellers in Edo State, Nigeria. Specifically, the study described the socio-economic characteristics of the rural dwellers in the study area, ascertained major NTFPs the rural dwellers gather, determined the income made from NTFPs and other sources, assessed the motivating factors for participating in NTFPs gathering, assessed the standard of living of the rural dwellers and determined the constraints faced by the rural dwellers in NTFPs gathering.**

Multistage sampling procedure was used to select 347 respondents; however 270 copies of questionnaire were usable giving a response rate of 77.8%. Data obtained were described using frequency counts, percentages and mean scores; Finding reveal that, non-timber forest products gathering in Edo State was male dominated (73.3%), 96% were married and 41% had formal education. Major non-timber forest products gathered in the area were Fuel wood (86.7%), vegetables (86.3%) and medicinal plants (58.1%).

***Key words*: Non-timber forest products, socio-economic, rural**

I. INTRODUCTION

The terms non-timber forest products (NTFPs) and non-wood forest products (NWFPs) are used interchangeably. They are products of biological origin, other than wood, derived from forests, other wooded land and trees outside forests. NTFPs may be gathered in the wild or from trees outside forests or produced in forest plantations and agroforestry schemes. Examples of NTFPs include food additives (edible nuts, mushrooms, honey, fruits, herbs, spices and condiments, aromatic plants, game); fibres (used in construction, furniture, clothing or utensils); resins and gums; and plant and animal products (used for medicinal, cosmetic or cultural purposes) (Shaanker , 1996). The use of non-timber forest products (NTFPs) is as old as human existence. In subsistence and rural economies, the role and contributions of NTFPs in the daily life and welfare of people all over the world are crucial because of their richness of variety as sources of food for example fruits, nuts, honey, insects, animals, fiber, and medicinal extracts and so on. These products are derived from a variety of sources plants, animals and other non-living components of the ecosystems (Aiyeloja and Ajewole, 2006).

Mulenga (2011) affirmed the contribution of NTFPs to rural household income and food security in Zambia as well its influence with the national economy. Forest-based activities in developing countries Nigeria inclusive, which are mostly in NTFPs area, provide an equivalent of 17 million full-time jobs in the formal sector and another 30 million in the informal sector, as well as 13-35% of all rural non-farm employment (Duong, 2008). NTFPs are important forest products especially in dry land areas where they form alternative sources of livelihoods.

II. METHODOLOGY

Area of Study

The study area was Edo State, south-south Nigeria. The state shares boundary with Delta State in the south, Ondo State on the west and Kogi State in the north. The state has 18 local government areas with Benin City the capital. The state has a population of about 4milion people, (National population commission, 2006) and is made up of three major ethnic groups namely; the Benin, Esan, Afemai and others. The state lies within the geographical coordinate of longitude 06°04'E and 0643'E and latitude 05°44N and 07°34'N. Edo State is endowed with abundant natural resources. The principal mineral resources include; crude oil, natural gas, clay, chalk, marble and limestone. Agriculture is the predominant occupation of people in the state. The climate is tropical with raining and dry season alternating annually. The wet (rain) season which lasts between April and November and the dry hot season between December and March.

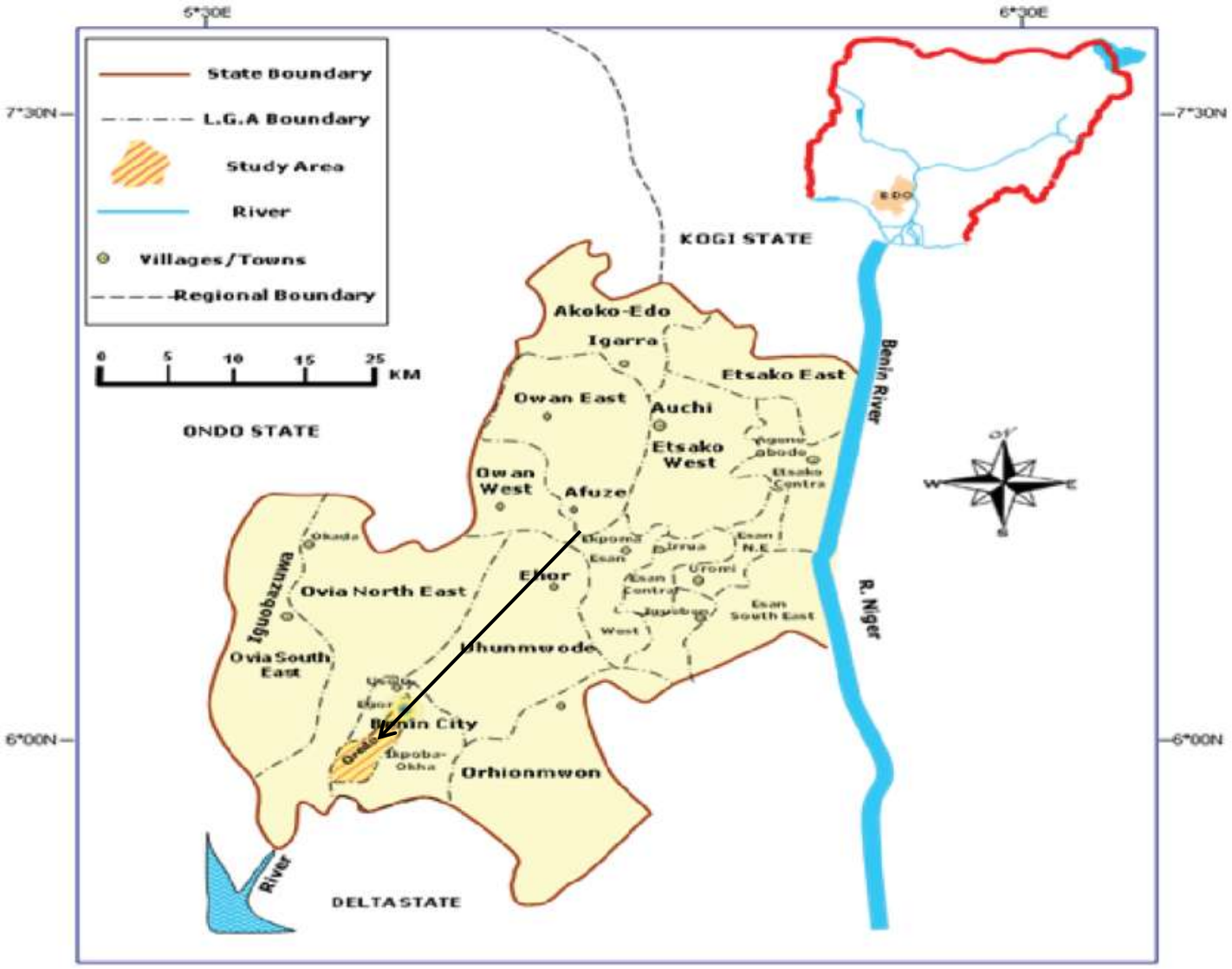

FIG. 1 MAP OF EDO STATE SHOWING THE STUDY AREA

Sampling procedure and Data Analysis

Multi-stage sampling procedure, comprising of purposive and random sampling was employed in selecting respondents from the study population.

Stage 1: This involved total enumeration of the three (3) agro-ecological zones in the State. This was done in order to cover the entire state. Hence, a total of 3 agro-ecological zones across the State were used.

Stage 2: Purposive sampling of 1 Local Government Area (LGAs) in each of the agro-ecological zones based on closeness to forest and where respondents had high intensity in gathering of non-timber forest products. This was obtained from the preliminary study. A total of 3 LGAs was sampled for the study.

Stage 3: Two (2) villages per Local Government Areas (LGAs) were purposively selected based on closeness to forest and high intensity of non-timber forest products gatherers. Thus, making a total of six (6) villages in the 3(three) zones.

The data generated were calculated as follows:

The formula is given as

- $\frac{Z_{\propto/2}.S^2}{e^2+(Z_{\propto/2}.S^2)/Ni}$ (Lohr, 2010)
- Where $Z_{\propto/2}$ =1.96
- e=0.05
- S^2= P (1-P)
- P = Population of ith stratum to total population ($\frac{Ni}{Nh}$)
- N_i = Total number of population per ith stratum.
- N_h= Total population.
- Based on the formula, a total of 347 respondents were obtained with response rate of 77.80%.

Stage 4: Simple random sampling technique was used to sample 347 respondents out of a total population of 556. Thus, a total of 270 respondents were used for this study.

Major NTFPs gathered in the study area

Results in Table 1, shows that in the three zones of Edo State the major non-timber forest products the gatherers collect in the forest are fuel-wood 86.7%, 75.9% and 92.6% for Edo South, Central and North respectively. Vegetables records 86.3%, 83.9 and 97.9% respectively. While Medicinal plants records 58%, 42.5% and 73.4% respectively. This implies that majority of the gatherers depend on fuel wood for cooking which could be as a result of the high cost of kerosene and gas. This is in line with the report of Aju and Uwalaka in Ijeomah and Aiyeloja (2010) that fuel wood is the primary source of energy amounting for over 90% of the total energy used for domestic purposes in Nigeria. Furthermore, NTFP of Guinea fowl, flying squirrel and Bitter bush records the least with the three zones of South, Central and North having 1.1%, 5.7% and 11.7%, 3.4%, 4.6% and 22.3, 3.4%, 24.1% and 22.3% respectively.

Socio-economic characteristics of respondents

All socio- economic characteristics considered in influencing respondents' opinions on contributions of non-timber forest products to the standard of living of rural dwellers are summarized in Table 2. As shown in Table 2, there are differences in some of the factors across the three zones selected for the study. Some of the differences are noticeable in respondents around the South zone who are older in age with the range of 41-50 with lower income and average years of formal education. These differences did not influence respondents' view on conservation. Result of Table 2 also shows that respondents' age, schooling years, income and religion were all significant variables in forest resources conservation across the three zones. In addition to the variables, occupation was a significant variable in the farming and utilization of forest resources across the three zones studied. While respondents' age, schooling years and income were positively related to forest resources utilization, religion does not have any significance in the utilization of forest resources in all the three zones the project covered. Furthermore, the respondents' age, schooling years and income implies that there is a strong influence on how far local people would appreciate the resources in the forest that are non-timber.

III. RESULT

Table 1: Major NTFPs gathered in the study area.

	Edo South, n = 89		Central, n = 87		North, n= 94		Pooled , n = 270	
Variable	F	%	F	%	F	%	F	%
Fuel wood	81	91.0	66	75.9	87	92.6	234	86.7
Palm wine	9	10.1	2	2.3	31	33.0	42	15.6
Oil palm (Fresh fruit bunches)	43	48.3	27	31.0	21	22.3	91	33.7
Medicinal plant	51	57.3	37	42.5	69	73.4	157	58.1
Mushroom	15	16.9	5	5.7	37	39.4	57	21.1
Bitter bush	3	3.4	21	24.1	21	22.3	45	16.7
Rope	14	15.7	3	3.4	36	38.3	53	19.6
Vegetables	68	76.4	73	83.9	92	97.9	233	86.3
Snails	33	37.1	31	35.6	32	34.0	96	35.6
Chewing stick	15	16.9	12	13.8	33	35.1	60	22.2
Bitter-kola	24	27.0	32	36.8	37	39.4	93	34.4
African pears	22	24.7	11	12.6	19	20.2	52	19.3
Pepper fruits	9	10.1	41	47.1	26	27.7	76	28.1
Cherry	23	25.8	57	65.5	25	26.6	105	38.9
Cotton plant	12	13.5	33	37.9	13	13.8	58	21.5
Rubber	8	9.0	9	10.3	27	28.7	44	16.3
Black walnut	29	32.6	21	24.1	45	47.9	95	35.2
Jartropha	12	13.5	17	19.5	32	34.0	61	22.6
Wrapping leave	30	33.7	22	25.3	77	81.9	129	47.8
Scent leaf	19	21.3	5	5.7	12	12.8	36	13.3
Monkey sugarcane	22	24.7	12	13.8	13	13.8	47	17.4
Flying squirrel	3	3.4	4	4.6	21	22.3	28	10.4
Guinea fowl	1	1.1	5	5.7	11	11.7	17	6.3
Fresh water fish	6	6.7	1	1.1	5	5.3	12	4.4
Tortoise	13	14.6	5	5.7	6	6.4	24	8.9
Grass cutter	29	32.6	14	16.1	32	34.0	75	27.8
Land squirrel	17	19.1	21	24.1	23	24.5	61	22.6
Giant rat	48	53.9	51	58.6	56	59.6	155	57.4

Table 2: Socio-economic characteristics of respondents

	Edo South n = 89		Central n = 87		North n= 94		Pooledn = 270	
Variable	F	%	F	%	F	%	F	%
Sex								
Male	65	73	60	69	73	77.7	198	73.3
Female	24	27	27	31	21	22.3	72	26.7
Age								
<= 30	3	3.4	1	1.1	3	3.2	7	2.6
31- 40	5	5.6	8	9.2	4	4.3	17	6.3
41- 50	44	49.4	37	42.5	33	35.1	114	42.2
51 – 60	29	32.6	28	32.2	41	43.6	98	36.3
61-70	8	9	13	14.9	13	13.8	34	12.6
Mean	49		51		51		50	
Marital Status								
No response	2	2.2			6	6.4	9	3.3
Married	77	86.5	86	98.9	80	85.1	219	81.1
Widowed	8	9	1	1.1	6	6.4	38	14.1
Separated	1	1.1			1	1.1	2	0.7
Single	1	1.1			1	1.1	2	0.7
Household Size								
<= 4	64	71.9	78	89.7	68	72.3	210	77.8
5 – 6	24	27	8	9.2	23	24.5	55	20.4
7-8	1	1.1	1	1.1	3	3.2	5	1.9
Mean	3		3		3		3	
Educational Qualification								
No response	1	1.1	10	11.5	7	7.4	18	6.7
Non-primary	15	16.9	3	3.4	14	14.9	32	11.9
Primary	32	36	42	48.3	34	36.2	108	40.0
Secondary	40	44.9	32	36.8	39	41.5	111	41.1
Tertiary	1	1.1					1	0.4
Major Occupation								
Non-Response	2	2.2	59	67.8	61	64.9	122	45.2
NTFPs gathering	50	56.2	11	12.6	17	18.1	78	28.9
Farming	25	28.1	15	17.2	8	8.5	48	17.8
Trading	4	4.5	1	1.1	6	6.4	11	4.1
	Edo South n = 89		Central n = 87		North n= 94		Pooled n = 270	
Variable	F	%	F	%	F	%	F	%
Artisanship	1	1.1					1	0.4
Working experience								
<= 10	7	7.9	15	17.2	20	21.3	42	15.6
11 – 20	16	18	7	8	12	12.8	35	13.0
21-30	66	74.2	65	74.7	62	66	193	71.5
Mean	22.1		19.3		19.6		20.3	
Source of credit								
Cooperatives	4	4.5	15	17.2	18	19.2	37	13.7
Personal savings	35	39.3	48	55.2	45	47.9	128	47.4
Family and friend	50	56.2	24	27.6	31	33	105	38.9
Source of labour								
No response	2	2.2	25	28.7	26	27.7	53	19.6
Family labour	24	27	42	48.3	34	36.2	100	37.0
Hired Labour	1	1.1	2	2.2	2	2.2	5	1.9
Self	36	40.4	12	13.8	26	27.7	74	27.4
Mixed	26	29.2	6	6.9	6	6.4	38	14.1
Nature of engagement								

Full Time	53	59.5	58	66.7	55	58.5	166	61.5
Part Time	36	40.5	29	33.3	39	41.5	104	38.5
Membership of Association								
Yes	10	11.2	7	8	2	2.1	19	7.0
Access to ext agent								
Yes	10	11.2	8	9.2	1	1.1	19	7.0
Length of stay								
<= 20	10	11.2	30	34.5	28	29.8	68	25.2
21 – 30	33	37.1	38	43.7	33	35.1	104	38.5
31-40	46	51.7	19	21.8	33	35.1	98	36.3
Mean	32.3		20.7		26.0		26.3	

IV. CONCLUSION AND RECOMMENDATION

The study concludes that the zones investigated (Edo south, Central and North) had good perception of the forests and the forest produce which are non-timber in nature. It is important to note that the contribution of NTFPs to income varies across ecological zones/settings, seasons, income level, etc. Non-timber forest products (NTFPs) also contribute to achieving household food security. It has been established that a significant number of rural, tribal and overall forest dependent communities to a large extent, derive a sizable part of their food, nutrition, healthcare needs and their income from NTFPs. They also contribute to the well-being of rural households, particularly the poor, in terms of food security, nutrition, health and subsistence. Augmenting livelihoods of the forest dependent communities requires some focused intervention on NTFPs. Facilities pertaining to storage, grading, processing and value addition through convergence of existing schemes and programs in private and public sectors should be promoted and created. Communities should be empowered with information about the market, policy and products to enable them strategizing and accessing better returns from NTFPs.

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