



Research Paper

## Influence of Non-Timber Forest Products (NTFPs) Utilization on the Socio-Economic Wellbeing of Rural Farmers in Etche ethnic nationality, Rivers State, Nigeria.

<sup>1</sup>Emiri, U.N & <sup>2</sup>Nnodim, A.U

<sup>1</sup> Department of Agricultural Education, Isaac Jasper Boro College of Education, Sagbama Bayelsa State, Nigeria.

<sup>2</sup> Department of Vocational and Technology Education, Rivers State University, Nkpolu Oroworukwo, Port Harcourt, Nigeria.

### ABSTRACT

The study investigated the influence of non timber forest products utilization on the socio-economic wellbeing of farmers in Etche ethnic nationality of Rivers State, Nigeria. Descriptive survey design was adopted for the study. The population of the study consisted 786 registered farmers in Etche ethnic nationality consisting of 584 and 202 registered farmers in Etche and Omuma Local Government areas respectively. Out of which 360 respondents; 270 and 90 from Etche and Omuma respectively were selected as the sample size, through random sampling techniques. Three research questions were answered and data were collected through the administration of self structured questionnaire complimented with an interview schedule for illiterate farmers. Collated data were analyzed descriptively using mean and standard deviation. The findings identified most NTFPs as being available for collection and utilized in the form of fruits and vegetables, oil, fiber, fodder/forages and animals (bush meat). Most of these identified NTFPs were utilized to a high extent. However, they were utilized to a higher extent by females relative to males, with the exception of fiber and animals (bush meat) which were utilized to a higher extent by males. The utilization of these products improved the socio-economic status of the rural farmers in the study area. It is therefore recommended that the rural farmers should be encouraged to utilize NTFPs adequately in order to meet their socio-economic needs.

**KEYWORDS:** Forest, rural, socio-economic, farmers, Non-timber.

Received 23 Jan, 2021; Revised: 04 Feb, 2021; Accepted 07 Feb, 2021 © The author(s) 2021.

Published with open access at [www.questjournals.org](http://www.questjournals.org)

### I. INTRODUCTION

Forest provides products for different uses by rural and urban households (Appiah 2009). In the forest are a wide range of economic or subsistence materials that come from the forest excluding timber called the Non-Timber Forest Products (NTFP). They range from food or food additives (nuts, Mushrooms, wild fruits, herbs, spices, aromatic plants); plant materials (fibres, creepers and flowers); plant derivatives raffia, bamboo, rattan, cork and essential oils); to animals and animal products (honey, silk etc), (Malik, 2000).

The NTFPs play important roles in the livelihoods of millions of rural and urban people across the globe. (Areki & Cunningham, 2010). It is well established that NTFPs fulfill multiple functions in supporting human wellbeing. The NTFPs provide the products for food, medicines, fibres, energy and cultural artifacts for many of the world's poorest people and a considerable proportion of the less poor (Belcher et al, 2005, Chauhan et al., 2008, FAO, 1995).

Apart from meeting the economic needs of rural people for food and shelter, tropical forests are also a major source of industrial wood products and firewood. According to World Commission on Forest and Sustainable Development, firewood and charcoal make up 56% of global wood production and approximately 90% of this is produced in developing countries. 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 (IEA, 2002). The contribution of these daily net resources to livelihoods typically ranges from 10 – 60% of total household income (FAO, 2006, GOI, 2000). The NTFPs also provide many households with a means of income generation, either as supplementary income to other livelihood activities, or as the primary means of cash generation. (Kaimowitz, 2003).

Non-timber forest products (NTFPs) are goods of biological origin other than timber from natural, modified or managed forested landscapes. The NTFPs can also be referred to as all the resources or products that may be extracted from forest ecosystem and are utilized within the household or marketed or have social, cultural or religious significance. Mallik (2000), noted that majority of rural households in developing countries and a large proportion of urban households depend on the products to meet some part of their nutritional, health, house construction or other needs. The NTFPs create high economic value and large-scale employment. The NTFPs have attracted global interest due to the increasing recognition of the fact that they can provide important community needs for improved rural livelihood. (Marshall *et al*, 2003; 2006).

Globally, more than a billion people depend directly on forests for their livelihoods and the remaining six billion of us depend on forests for a variety of economics, social and environmental benefits such as the rainfall, biodiversity, pollinators, carbon storage and clean water they provide. Out of which NTFPs contribution is significant in providing adequate food, fuel, feed, health and fiber for growing populations. The importance of NTFPs in rural livelihoods in developing countries has become widely acknowledged. Considering the importance of NTFPs in the livelihoods and wellbeing of local people, especially in the developing world. It is intriguing why the sector still receives so little attention in development policies and budgets as well as in programs and budgets from relevant government departments, such as for forest, rural development or environment.

In spite of these roles, a major challenge persist in the accurate evaluation of NTFPs as a revenue component for the livelihoods of indigenous people (Ngali 2011). Furthermore, the importance of NTFPs in household income is not well known due to the absence of a systematic and rigorous data collection system at national level in many developing countries (FAO 2012).

Etche ethnic nationality is predominantly rural in nature and endowed with forest and its products. From time immemorial the people depend on its products, especially the non-timber products (NTFPs) as a livelihood support. Though an agrarian society, the utilization of forest products seems to be on the increase just as environmental factors seems to be adversely affecting crop production, the primary source of their livelihood. It therefore, becomes imperative to determine the influence Non-Timber forest products (NTFPs) utilization on the socio-economic wellbeing of rural farmers in Etche ethnic nationality.

The purpose of this study therefore is to investigate the influence of non-timber forest products (NTFPs) utilization on the socio-economic wellbeing of rural farmers in Etche ethnic nationality of Rivers State, Nigeria.

Specifically the objectives are to;

1. Identify the NTFPs available in the study area.
2. Determine the extent of utilization of the NTFPs by farmers in the study area.
3. Determine the influence of utilization of NTFPs on the socio-economic wellbeing of the farmers in the study area.

## **Research Questions**

The following research questions guided the study.

1. What are the NTFPs available in Etche ethnic nationality?
2. What is the extent of utilization of the available NTFPs in Etche ethnic nationality?
3. What is the influence of utilization of the NTFPs on the socio-economic wellbeing of the farmers in Etche Ethnic Nationality?

## **II. METHODOLOGY**

The study was conducted in Etche, an ethnic group made up of Etche and Omuma Local Government areas in Rives State, Nigeria. Descriptive survey design was adopted for this study. According to Nwankwo (2016) descriptive survey is that study in which the researcher collects data from a large sample drawn from a given population and describe certain feature of the samples as they were at the time of the study. The population of the study comprised of 786 registered farmers in Etche ethnic nationality. The choice of Etche was informed by the presence of vast forest areas, the active participation of the people in Agriculture and a record of poverty in the area. As at the time of the study, there were 584 and 202 registered farmers in Etche and Omuma Local Government Areas respectively. (Source: Rivers State Ministry of Agriculture). A sample size of 360 registered farmers (270 and 90 illiterate and literate farmers from Etche and Omuma local Government areas), were used for the study. 20 respondents were randomly selected from 18 communities in the study area giving a total of 360 respondents. The instrument used for data collection was a self developed questionnaire designed in a pattern of 4-point likert scale and complimented with an interview schedule for the illiterate farmers to elicit responses on the research questions. The instrument was duly validated and reliability Coefficient ( $r$ ) of 0.75 established using test-retest method.

Data obtained were analyzed descriptively using means and standard deviation with a criterion mean score of 2.50 as the benchmark for acceptance.

### III. RESULTS

**Research Question 1:** What are the NTFPs available for utilization by farmers in Etche ethnic nationality?

The following are the NTFPs available in the study area.

**Table 1: Non Timber Forest Products (NTFPs) Available in Etche ethnic nationality**

Items	Available		Not Available	
	Yes	%	No	%
<b>A. Fruits and Vegetable</b>				
1 African star apple	342	95	18	5
2 Bush mango	285	79.16	75	20.83
3 African bread fruit	340	94.44	20	5.55
4 Monkey kola	278	77.22	82	22.77
5 African pear	352	97.77	8	2.22
6 palm fruits	360	100	0	0
7 Locust bean	24	6.66	336	93.33
8 Plum	216	60	144	40
9 Bitter cola	301	83.61	59	16.38
10 Cashew nut	259	71.94	101	28.05
11 Avocado pear	332	92.22	28	7.77
12 Alligator pepper	308	85.55	52	14.44
13 Mango	360	100	0	0
14 Lickylicky	78	21.66	282	78.33
15 Pawpaw	360	100	0	0
16 Cocoa	18	5	342	95
17 Pepper fruit	281	78.05	79	21.94
18 Bitter leaf	360	100	0	0
19 Scent leaf	360	100	0	0
20 Otazi	328	91.11	32	8.88
21 Uziza	350	97.22	10	2.77
22 Okazi	356	98.88	4	1.11
23 Oha	360	100	0	0
24 Orange	360	100	0	0
25 Green	319	88.61	41	11.38
26 Atama	203	56.38	157	43.61
27 Nkanka	296	82.22	62	17.22
28 Mushroom (Ero)	352	97.77	8	2.22
<b>B. Oil</b>				
29 Coconut oil	237	65.83	23	6.38
30 Cotton seed	119	33.05	241	66.94
31 Olive plant	18	5	340	94.44

32	oil palm	360	100	0	0
33	Castor plant	10	2.77	350	97.22
34	Soya bean	110	30.55	250	69.44
35	Rose mary	-	-	360	100
36	Lemon	63	17.5	297	82.5
37	Palm kernel	336	93.33	24	6.66
38	Shea butter	130	36.11	230	63.88
39	Groundnut	332	92	28	7.77
	<b>C. Fibres</b>				
40	Bamboo	167	46.38	193	53.61
41	Raffia	75	20.83	285	79.16
42	palm fruits	302	83.88	58	16.11
43	Kenaf	-	-	360	100
44	Jute	24	6.66	336	93.33
45	Sisal	50	13.88	310	86.1
46	Coconut	240	66.66	120	33.33
47	Rattam	116	32.22	244	67.77
48	Pineapple	157	43.61	203	56.38
49	Cotton	10	2.77	350	97.22
	<b>D: Fodder/Forage</b>				
50	Guinea grass	291	80.83	69	19.16
52	Elephant grass	325	90.27	35	9.72
52	Puero	283	78.61	77	21.38
53	Clover	12	3.33	348	96.66
54	Alfalfa	-	-	360	100
55	Amaranthus	323	89.72	37	10.27
56	Stylo	328	91.11	32	8.88
57	Centro (Butterfly pea)	280	77.77	80	22.22
58	Goat weed	350	97.22	10	2.77
59	Sorghum	-	-	360	100
60	Cassava leaf	360	100	0	0
61	Cowpea	82	22.77	278	77.22
62	Soya bean	-	-	360	100
63	Wild mary gold	12	3.33	3.48	96.66
	<b>E. Animals (Bushmeat)</b>				
64	Grass cutter	355	98.61	5	1.38
65	Antelope	325	90.27	35	9.72
66	Porcupine	306	85	54	15
67	Squirrels	351	97.5	9	2.5
68	Rabbits	360	100	0	0
69	Leopard	102	28.33	258	71.66
70	Monkeys	86	23.88	274	76.11

71	Crocodile	128	35.55	232	64.44
72	Tortoise	73	20.27	287	79.72
73	Bat	186	51.66	174	48.33
74	Wild pig	271	75.27	89	24.72
75	Hawks	283	78.61	77	21.38
76	Frogs	188	52.22	172	47.77
77	Kite	233	64.72	127	35.27
78	Land snail	360	100	-	-
79	Insects (palm maggot), flight insects, etc.	360	100	-	-

Source: field survey 2019. Range 50% available, less than 50% not available

The result in table 1A showed that out of 30 fruits and vegetable surveyed, only three items (7,14 and 16 ) had their acceptance range below 50%, indicating not available. While others were available to a high percentage.

Table 1 B and C showed that among the forest resources, (oil and fiber) surveyed, items 29,32,37,39,42 and 46 were available with their percentage range above the acceptance range of 50%.

Table 1 D: showed that among the items used for fodder/forages, 53,54,59,61,62 and 63 recorded percentage score below 50% hence were not available, while other items recorded percentage scores higher than 50%, indicating they were available. However, items used as animals (bush meat) were available except items 69,70,71 and 72 which recorded less than 50% as seen in table 1 E.

**Research Question 2:** What is the extent of usage of the available NTFPs in Etche Ethnic Nationality?

**Table 2: Extent of Utilization of NTFPs**

S/N	ITEMS A: Fruit and Vegetable	Male (90)			Female (270)		
		$\bar{X}$	SD	Remark	$\bar{X}$	SD	Remark
1.	African star apple	3.50	0.73	VHE	3.80	0.85	VHE
2.	Bush mango	3.45	0.81	VHE	3.60	0.80	VHE
3.	African bread fruit	2.73	0.92	VHE	3.10	0.82	VHE
4.	Monkey cola	3.18	0.52	VHE	3.90	0.65	VHE
5.	African pear	3.20	0.83	VHE	3.95	0.70	VHE
6.	Palm fruits	3.00	0.85	VHE	3.80	0.80	VHE
7.	Locust bean	3.57	0.82	VHE	3.93	0.70	VHE
8.	Plum	3.00	0.85	VHE	3.13	0.82	VHE
9.	Bitter cola	3.42	0.75	VHE	3.00	0.90	VHE
10.	Cashew nut	2.50	1.08	VHE	3.52	0.82	VHE
11.	Avocado pear	3.00	0.97	VHE	3.60	0.80	VHE
12.	Alligator pepper	3.03	0.84	VHE	2.90	0.89	VHE
13.	Mango	3.51	0.92	VHE	3.85	0.90	VHE
14.	Lickylicky	3.00	0.97	VHE	3.70	0.70	VHE
15.	Pawpaw	3.50	0.73	VHE	3.96	0.89	VHE

**Table 2 Continued**

16	Cocoa	2.50	0.81	VHE	3.00	0.76	VHE
17	Pepper fruit	3.30	0.83	VHE	3.80	0.86	VHE
18.	Bitter leaf	2.90	0.94	VHE	3.56	0.80	VHE
19	Scent leaf	3.00	0.97	VHE	3.80	0.66	VHE
20	Otazi	2.09	0.86	HE	3.20	0.83	VHE
21	Uziza	2.88	1.02	VHE	3.70	0.95	VHE
22	Okazi	3.40	0.80	VHE	3.60	0.92	VHE
23	Oha	3.60	0.80	VHE	3.83	0.90	VHE
24	Orange	3.55	0.94	VHE	3.88	0.80	VHE
25	Green	3.48	1.00	VHE	3.61	0.97	VHE
26	Atama	3.14	0.68	VHE	3.50	0.91	VHE
27	Nkanka	2.93	0.95	VHE	3.14	0.73	VHE
28.	Mushroom	3.07	0.88	VHE	3.40	0.80	VHE
	<b>Grand Mean/SD</b>	<b>3.02</b>	<b>0.86</b>	<b>VHE</b>	<b>3.56</b>	<b>0.80</b>	<b>VHE</b>
	<b>B. Oil</b>						
29	Coconut oil	2.38	1.07	HE	3.70	0.86	VHE
30	Cotton seed	1.46	0.90	VLE	1.48	0.95	VLE

31	Olive plant	1.14	1.00	VLE	1.07	0.90	VLE
32	Oil palm	3.60	0.70	VHE	3.90	0.82	VHE
33	Castor plant	1.00	0.95	VLE	1.67	0.98	VLE
34	Soya bean	1.40	0.90	VLE	1.71	0.95	VLE
35	Lemon	1.00	0.95	VLE	0.82	0.60	VLE
36	Palm kernel	3.00	0.84	VHE	3.90	0.78	VHE
37	Shea butter	3.52	0.80	VHE	3.85	0.90	VHE
38	Groundnut	3.10	0.84	VHE	3.80	0.90	VHE
	<b>Grand Mean/SD</b>	<b>2.16</b>	<b>0.89</b>	<b>LE</b>	<b>2.60</b>	<b>0.86</b>	<b>HE</b>
	<b>C. Fibre</b>						
39	Bamboo	3.50	0.60	VHE	3.00	0.85	VHE
40	Raffia	3.62	0.62	VHE	3.43	0.76	VHE
41	Palm fruits	3.00	0.65	VHE	3.90	0.80	VHE
42	Kenaf	2.00	0.80	LE	1.08	0.72	VLE
43	Jute	2.74	0.86	HE	1.00	0.70	VLE
44	Sisal	1.00	0.90	VLE	1.08	0.72	VLE
45	Coconut	3.42	0.77	VHE	3.90	0.90	VHE
46	Rattan	3.88	0.66	VHE	2.69	1.11	VLE
47	Pineapple	3.07	0.78	VHE	3.76	0.80	VHE
48	Cotton	1.76	0.76	VLE	1.62	0.81	VLE
	<b>Grand Mean/SD</b>	<b>2.80</b>	<b>0.76</b>	<b>HE</b>	<b>2.50</b>	<b>0.81</b>	<b>HE</b>
	<b>D. Animal (Bush meat)</b>						
49	Grass cutter	3.80	0.72	VHE	3.65	0.65	VHE
50	Antelope	2.68	0.73	HE	2.30	0.82	LE

**Table 2 Continued**

51	Porcupine	3.80	0.76	VHE	3.62	0.70	VHE
52	Squirrels	3.84	0.86	VHE	3.64	0.95	VHE
53	Rabbits	3.91	0.78	VHE	3.80	0.93	VHE
54	Leopard	1.83	0.80	LE	0.98	0.54	LE
55	Monkeys	1.86	0.80	LE	1.48	0.80	LE
56	Crocodile	2.93	0.98	HE	1.85	0.82	LE
57	Tortoise	3.60	0.80	VHE	2.08	0.80	LE
58	Bat	2.01	0.75	HE	1.72	0.65	LE
59	Wild pig	2.54	0.80	HE	2.06	0.78	LE
60	Hawks	2.23	0.72	LE	1.51	0.68	LE
61	Frogs	2.81	0.78	HE	2.95	0.76	HE
62	Kite	2.54	0.82	HE	1.31	0.83	LE
63	Land snail	3.80	0.83	VHE	3.95	0.90	VHE
64	Insects (palm maggot)	3.87	0.79	VHE	3.63	0.70	VHE
	<b>Grand Mean/SD</b>	<b>3.00</b>	<b>0.79</b>	<b>VHE</b>	<b>2.30</b>	<b>0.77</b>	<b>HE</b>

*Source: Field Survey 2019* VHE-very high extent, HE-high extent, VLE – very low extent.

The result on the mean response on the extent of utilization of fruits and vegetable forest products (Table 1.A showed that female respondents utilized fruits and vegetable forest products to a higher extent with the grand mean value (3.56) than male respondents 3.60 with the grand mean value 3.02. Pawpaw was utilized to a higher extent (3.96) by female respondents while Oha was utilized to a higher extent (3.60) by male respondents.

Table 2 B showed that female respondent utilized oil forest products to a higher extent with the grand mean value (2.60) than males (2.16). Among the variables Oil palm was utilized to a higher extent (3.90 and 3.60) for female and male respondents respectively.

Results on Table 2.C showed that male respondents utilized fibre forest products with the grand mean (2.80) to a higher extent than female with the grand mean (2.50). Among the variables measured Rattan was utilized to a higher extent by male respondents (3.88), while palm fruits and coconut were utilized to a higher extent (3.90) by female respondents.

Table 2 D showed that male respondent's utilized animals (bush meat) forest products to a higher extent to a higher extent with the grand mean (3.00 and 2.30) for male and female respectively. Rabbits were utilized to a higher extent (3.91 and 3.80) for male and female respondent respectively.

### Research Question 3

What is the influence of NTFPs utilization on the socio-economic wellbeing of farmers in Etche ethnic nationality?

**Table 3: Influence of NTFPs Utilization on the Socio-economic wellbeing of Farmers**

S/N	ITEMS	Male (n=90)			Female = 270		
		Mean	SD	Decision	Mean	SD	Decision
1.	Improved financial security for rural farmers	2.66	0.23	Agreed	2.53	0.35	Agreed
2.	Improved standard of living for rural farmers	2.26	0.09	Disagreed	2.22	0.23	Disagreed
3.	Rural farmers can diversity their source of income	2.33	0.11	Disagreed	2.20	0.35	Disagreed
4.	Rural farmers can become employers of labour	2.50	0.11	Agreed	3.11	0.41	Agreed
5.	Farmers can take financial responsibilities in the community	2.33	0.04	Disagreed	2.11	0.47	Disagree
6.	Farmers will be able to provide for his household	2.66	0.00	Agreed	2.77	0.33	Agreed
7.	Farmers will be able to asses a better health care.	1.66	0.20	Disagreed	2.11	0.23	Disagreed
8.	Farmers can embark on projects for their community	2.00	0.23	Disagreed	2.22	0.23	Disagreed
9.	Farmers can afford a good education for their children	2.13	0.00	Disagree	1.87	0.11	Disagreed
10.	Their standard of living will improve	1.66	0.20	Disagreed	1.66	0.00	Disagreed
11.	The farmers will be able to take up leadership position	3.33	0.35	Agreed	3.44	0.50	Agreed
12.	They will become financial member of a club or other associations	2.66	0.23	Agreed	2.88	0.95	Agreed
<b>Grand Total</b>		<b>2.07</b>	<b>0.14</b>		<b>2.43</b>	<b>0.34</b>	

*Source: Field Survey 2019*

(M) Mean = 2.50; Accept if  $M \geq 2.50$ , Reject if  $M \leq 2.50$

Table 3 shows that the various recorded mean values less than the criterion mean of 2.50 for both male and female respondents, except item 1 which had mean values (2.66 and 2.53) for male and female respectively and item 5 which recorded mean values (2.50) and (3.11) for male and female respectively. Thus the respondents agreed that NTFPs can increase their financial security and also make them employers of labour.

#### IV. DISCUSSION OF FINDINGS

The finding of the study in table 1a,b,c,and d showed that a higher percentage of NTFPs utilized as fruits and vegetables, oil and fiber, fodder/forages and small size animals (bush meat) were available for collection in the study area. This finding affirms the assertion of Agbogidi (2010) who posited that NTFPs being used as food or food additives range from nuts, plant material (fiber, creepers, flowers), plant derivatives, rattan, cork and essential oil to animals. Similarly, Arnold (1995) reported that rural dwellers in developing countries depend on NTFPS for various levels of uses. The result of the study in table 2; the extent of utilization of available NTFPs indicated that fruits and vegetable, oil and fiber products were utilized by both male and female respondents to a high extent. However, females appeared to utilize these NTFPs to a higher extent than the male respondents as observed in table 2a,b and c. Furthermore, table 2d unveils that animals (bush meat) were also utilized to a high extent, however, they were utilized to a higher extent by male respondents relative to the female. It therefore implies that male are predominantly given to harvesting of animals (bush meat ). This result was expected because experience shows that women naturally harvest non-timber forest products (NTFPs) except bush meat for sales and consumption, reason being that hunting for wild animals exposes them to risk and health hazard, hence it is viewed as a man's business. This result is in agreement with the findings of earlier researchers. Ogundele *et al* (2013) noted that while women search for vegetables and natural products for family utilization, their male partner as a rule go to the forest looking for wild animals (bush meat).

Analysis of results in table 3; research question 3 indicated that NTFPs enhances improved financial security and can also enable rural farmers become employers of labour as seen in item 1 and 4. This is supported by the findings of Olumide (2009) who reported that the Nigerian rural economic is highly dependent on these

forest products to generate income and to provide medical care. Similarly, Osemeobo and Ujo (1999) posited that in Nigeria NTFPs is a tried source of wage and nourishment supply and it stays focal in financial prosperity and sustenance of the local populace. Items 6,11and 12 shows that utilizing NTFPs will enable rural farmers provide for their household, take up leadership position in their community and also become financial member of associations. This result was not unexpected, on account of the fact that income generated from forest products enable the rural dwellers pay their levies in their various clubs or associations and also meet their family needs. This observation is in consonance with the report of Pandey *et al.*, (2011) which noted that majority of rural households in Nigeria and large proportion of urban households depend on the products to meet some part of their nutritional, health, house construction, or other needs. The NTFPs create high economic values and large scale employment. Marshal *et al* (2006), also reported that the NTFPs can provide important community needs for improved rural livelihood globally. Areki and Cunningham, (2010), posited that NTFPs play important roles in the livelihoods of millions of rural and urban people across the globe. It is well established that NTFPs fulfill multiple functions in supporting human wellbeing. According to Belcher *et al*, (2005); Chauhan *et al.*, (2008), NTFPs provide the products for food, medicines, fibres, energy and cultural artifacts for many of the world's poorest people and a considerable proportion of the less poor.

Zaku *et al.*, (2013) noted that over 70% of the country's households depend directly on fuel wood as their main sources of energy, with daily consumption estimated at 27.5 million kg/day. Thus, harvesting and processing of NTFPs in many areas of the country have shifted from subsistence exploitation and sales at local markets to international cross-boundary trade. For example, in the high forest zones of eastern and Western Nigeria, harvesting of game meat and snails for sales are now major income generating activities almost all year round (Onuche, 2010). While in the savannah zone of central and Northern Nigeria, honey, fuel wood, locust bean seeds, gum Arabic, and charcoal production generate lots of incomes for the rural households (Jimoh *et al.*, 2013). It is therefore, seen that NTFPs play vital role to socio-economic wellbeing of rural farmers and can also generate enormous financial income. Respondents also agreed that utilizing NTFPs will enable them provide for their household, take up leadership position in their community and also become financial member of associations. This result was not unexpected, on account of the fact that income generated from forest products enable the rural farmers pay their levies in their various clubs or associations and also meet their family needs. This observation is in consonance with the report of Pandey *et al* (2011) which noted that majority of rural households in Nigeria depend on forest products to meet some part of their nutritional, health, house construction, or other needs. The NTFPs create high economic values and large scale employment. Marshal *et al* (2006), also reported that the NTFPs can provide important community needs for improved rural livelihood globally.

## V. CONCLUSION

Based on the findings of the study, the following conclusions were made.

NTFPs used as fruits, vegetable, oil among others were relatively available for utilization to a high extent in Etche ethnic nationality while some such as fibers, were not available which could be attributed to lack of appropriate knowledge on the utilization of the products. NTFPs contribute significantly to the social-economic wellbeing of the rural people in Etche.

## VI. RECOMMENDATION

Based on the foregoing the following recommendations were made.

1. The government at federal, state, ministries of forest and environment should regularly organize workshop and seminars for the rural farmers, to update their knowledge on the uses and health benefits of some forest products ,particularly NTFPs.
2. Forest based activities should be prioritized by government and other stake holders to enhance the social and economic wellbeing or rural farmers.

## REFERENCES

- [1]. Agbogidi, O.M. (2010). Ethno-botanical survey of the non-timber forest products in Sapele Local Government Area of Delta State, Nigeria. *African Journal of Plant Science*.4(3), 183-189.
- [2]. Appiah, D.O. (2009). Personifying sustainable rural livelihoods in forest fringe communities in Ghana: A historic rhetoric? *J. Food Agric*, 7(3 & 4), 873 – 877.
- [3]. Areki, F. & A.B Cunningham, (2010). Fiji: Commerce, Carving and Customary Tenure. In: Laird, S.A., R.J. McLain and R.P. Wynberg (Eds). *Wild Product Governance: Finding Policies that Work for Non-Timber Forest Products*, London, Earthscan.
- [4]. Arnold, J.E.M & Ruiz Perez M. (1995). The Role of Non-Timber Forest Products in Conservation and Development. In Wollenberg, E and Ingles A. (eds). *Incomes from the Forest Method for Development and Conservation of the Forest Products for Local Communities*. *Begor, Indonesia*.



- [5]. Belcher, B., M. Ruiz-Perez & R. Achdiawan, (2005). Global Patterns and trends in the use and management of commercial NTFPs: Implications for livelihoods and conservation. *World Development, Elsevier*, 33(9) 1435-1452.
- [6]. Chauhan, K.V.S., A.K. Sharma & R. Kumar, (2008). Non-timber forest products Subsistence and Commercial uses: Trends and Future Demands. *Int'l forestry. Review*, 10(2); 201-216.
- [7]. Chilato & Wiersum K.K (2011). The Rule of Non-Timber Forest Products for Livelihood Diversity in Southwest Ethiopia. *Agriculture and Forestry Issue*, 3(1), 44-59.
- [8]. Contreras-Hermosilla, A. (2000). The Underlying causes of Forest Decline. *CIFOR Occasional Paper No. 30*. Centre for International Forestry Research, Indonesia.
- [9]. Dishen, E. E., Agishi, R., & Akosim, C., (2010). Women's involvement in non timber forest products utilization in the support zones of Gashaka Gumti National Park. *Journal of Research in Forestry Wildlife and Environment*. 2(1)
- [10]. Endomano, D. Angu K.A, Akwah G.N, Shepherd G., Ntumwel B.C. (2016). Contribution of non-timber forest products to cash and non-cash income of remote forest communities in Central Africa. *Int. for Rev*, 18(3), 280 – 295.
- [11]. FAO (2012). State of the World's forest 2012. FAO, Rome, <http://www.fao.org/3/a-i3010e.pdf>. Accessed July, 2018.
- [12]. International Energy Agency (2002). Energy and Poverty. In: *World Energy Outlook*, 365-406.
- [13]. Jimoh, S. O. & Haruna, E. A. (2007). Contribution of Non-timber forest product to household food security and income around Onigambari forest reserve, Oyo State. *Nigeria Journal of Environment and Extension*. 6. 28-33
- [14]. Kaimowitz, D., (2003). Not by Bread Alone: Forest and Rural Livelihood in Sub-Saharan Africa. In: Oksanen, T., B. Pajar and I. Tuomasjukka (Eds.). *Forest in Poverty Reduction Strategies*, European Forest Institution, Joensuu, Finland.
- [15]. Malik, R.H, (2000). Sustainable Management of Non-timber Forest Products in Orissa: Some Issues and Option. *Indian J. Agric. Econ.*, 55, 384 – 397.
- [16]. Marshall, E., K. Schreckenber & A.C. Newton (2006). Commercialization of Non-Timber Forest Products: Factors Influencing Success: Lessons Learned from Mexico and Bouvia and Policy Implications for decision makers. *UNEP World Conservation Monitoring Center*, Cambridge, UK
- [17]. Ngalim O.Y (2011). Revenue components and conflicts in the use of natural resources in the peripheral zone Northeast of Korup National Park. Unpublished Master's thesis, Department of Forestry. The University of Dschang, Cameroon, 93.
- [18]. Nwankwo, O.C. (2016). *A Practical Guide to Research Writing*. (Reviewed edition.). Port Harcourt: M & J Grand Orbit and Communication Ltd.
- [19]. Ogundele, F.O. Utin, E.O, Iwara A.I, Njar, G.N & Deekor T.N (2013). An assessment of Non-Timber Forest Products Utilization on Rural livelihood in Ini Local Government Area of Akwalbom State Nigeria. *Journal of Biodiversity and Environment Sciences*, 2(8), 1-13.
- [20]. Olumide, J.O. (2009). Ensuring Food Security through optimizing the marketing of Non-Timber Forest Products in Oyo State, *Nigeria African Crop Science proceedings*, 9, 773-776.
- [21]. Ononi, O.E (2009). Effects of Forest Resources Exploitation on the Economics well-being of Rural Households in Delta State, Nigeria. *Agricultural Tropica Et Subtropica* 42(1), 20-28.
- [22]. Onuche, U. (2010). Impacts of Poverty on the Sustainable of Forests in Nigeria: Implication for Sustainable Forests and Reduction in Global Warming. *Journal of Sustainable Development in Africa*, 12(6); 208-215.
- [23]. Osemeobo, G.J & Ujor, G (1999). The Non-wood Forest Products of Nigeria. EC-FAO Partnership Programme (1998-2000).
- [24]. Pandey, A.K. & D.C. Kori, (2011). Non-Destructive harvesting Practices of Terminalia Arjuna, Phyllanthus Emblica and Andrographa Paniculata (kalmegh). *Indian forester*, 137, 1269-1279
- [25]. Zaku S. G., Tukur A. A., Kabir A., Jimento I. G. (2013). Wood fuel consumption in Nigeria and the energy ladder: A review of fuelwood use in Kaduna State. *Journal of Petroleum Technology and Alternative Fuels*. 4(5), 85-89