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# FOREST AS A REDEEMER: EXPERIENCES DRAWN FROM SELECTED RURAL EJAGHAM COMMUNITIES IN ETUNG LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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## ABSTRACT

*The role of forest in sustaining the lives of man generally cannot be over-emphasised. Generally, forest provides opportunities for food, shelter, trado-medical services, ecological services and income. The objective of this study is to evaluate the role of forest resources in the provision of food for the people of Etung in Cross River State. Six communities were chosen for the study. They include, Abia, Agbokim, Ajassor, Abijang, Etomi and Nsofang. One thousand, nine hundred copies of questionnaires were distributed to household heads in the study area. The student 't' test was used to test for the seasonal variation in the number of persons involved in the exploitation and utilization of forest resources. The result of the study indicated that forest is a major source of food as it provides mushrooms, seed and spices, fruits, vegetables and a great variety of animals for the people of Etung. Also income generated in the area ranged from N10,000 to over N100,000 during the dry and rainy seasons. The student 't' test analysis for the variation in the level of involvement of the people in the exploitation and utilization of forest resources revealed that there was significant seasonal variation in the level of involvement of the people of Etung in only two forest resources – medicinal plants, ( $t(1938) = 3.416, P < 0.05$ ) and leafy vegetables, ( $t(1938) = 3.335, P < 0.05$ ). On the other hand the number of people involved in the exploitation of the other nine forest resources was not significant.*

**Keywords:** Forest, Redeemer, Rural, Communities, Livelihood, Sustainability.

## Contribution/ Originality

This Study documents the role of forest resources as a source of food for livelihood sustainability in the rural communities of Ejagham in Etung Local Government Area of Cross River State. This study also examined the level of involvement of the people of Etung in forest resource exploitation and utilization. Finally, this paper examined the seasonal variation in the level of involvement of the people in the study area in forest resource exploitation.

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## 1. INTRODUCTION

A forest is an area that is predominantly covered with woody vegetation often trees, grasses, shrubs and herbs which have closed canopy scattered in close or open formation. It is a term coined by Schimper [1] in his great classic work 'plant geography' forest is conceptualized within the framework of high rainfall and characteristically evergreen vegetation and it lies between the two tropics carrier in the north and capricorn in the southern hemisphere, Okpiliya [2]. Indeed, forest is a supporter and a redeemer based on the enormous role it plays in alleviating hunger, poverty and death of thousands of souls inhabiting it. The forest is valued for a vast array of products. They form an integral part of the household economy and provide resources and multitude of products which feature in people's day to day lives. Forest products contribute directly to livelihood sustainability in at least five key areas; food security, health improvement, income generation, reduced vulnerability and ecosystem services, Koziddii and Mcneill [3].

Forest and its products add to people's livelihood security especially for rural dwellers. Most of these forest products have a cultural value, because most people in the tropical rainforest region use wild plants to meet some of their health and nutritional needs. These forest products sometimes viewed as the product of the poor are also an integral component of the livelihood of a sizeable proportion of urban households

Forest attributes that redeem the rural dwellers of Etung from hunger, starvation and total collapse include: bush meat, wrapping leaves, forest food medicinal plants, canes, chewing stick, building materials, pestle, sponge fibbers mushroom fruits and nuts leafy vegetable etc. Over 700 different useful forest products have been identified and harvested in Cross River State, Alexander and Effa [4]. The financial yield of forest products is very enormous for example poles and Raphia have a market value estimated at N92 million [5]. These forest products not only provide income, but also provide self-employment for the rural people. Apart from these tangible resources, forest also provide service function such as carbon sequestration, soil protection against erosion and strong winds, protection of water shade, and enhancement of nutrient cycling for maintaining soil fertility. Miah [6] noted that forests are habitats for many plants and animal species.

In Etung Local Government Area forest resources have traditionally been valued as a major source of subsistence to the local populace. The rural people see these forest resources as natural endowment, which they believe that they are free to exploit because of their income generating capacity.

Generally, the 'soul-redeeming' tendency of forest resources as evident in its various forms of utilization for sustainable livelihood in the rural areas have been influenced by multiple factors such as growing rural population with limited income opportunities, the related widespread poverty and migration of landless people into the forest areas. This pattern has intensified agricultural cultivation and inappropriate exploitation of forest resources resulting in depletion

and degradation of the natural asset, in order to supplement their diets and household income, notably during certain periods of the year.

It is against this background of the role of forest as a supporter of life and in generally changing the life pattern of the rural dwellers that this research was undertaken.

### 1.1. Objectives of the Study

The objectives of this study include:

- (i) To evaluate the role of forest resources as a source of food for redeeming lives in the study area
- (ii) To examine the level of involvement of the people in forest resources exploitation.
- (iii) To assess the seasonal variation in the level of involvement of the people in forest resources exploitation and utilization in the study area.
- (iv) To examine the amount of income derived from forest resources which form the basis for survival within communities in the study area

### 1.2. Hypothesis

$H_0$  : There is no significant seasonal variation in the level of involvement of the people in forest products utilization/exploitation

$H_1$  : There is a significant seasonal variation in the level of involvement of the people in forest products utilization/exploitation

### 1.3. Study Area

Etung was created as a predominately rural local government area out of Ikom Local Government Area in Cross River State. Etung Local Government is the product of two extensive ward viz Northern Etung and Southern Etung, which came into existence in 1996. It has a total land area of 903.22km<sup>2</sup>. The area lies roughly between longitudes 8<sup>0</sup>55 and 9<sup>0</sup>02 east of Greenwich and between latitudes 5<sup>0</sup>55 and 01 north of the equator. It is bordered to the south by Obubra and Akamkpa Local Government Area, Ikom and Boki Local Government Areas lies to the north, west is Ikom Local Government Area and Republic of Cameroon to the east.

Due to its latitudinal location, Etung Local Government Area receives abundant insolation (lying generally between latitude 5<sup>0</sup>55' and 6<sup>0</sup> north of the equator). By virtue of this location, sunray is almost vertical over this area all through the year. Atmospheric temperature in Etung is therefore constantly high and only changes slightly within the year. The mean daily maximum temperature is usually above 27<sup>0</sup>C all through the year. It is highest from February to April but does not usually exceed 35<sup>0</sup>C. The effects of sunshine are rarely felt in the high forest as sun rays tends to be intercepted by forest cover.

The land is generally undulating rising north-east ward towards the Cameroon Mountain. There are extensive lowland plains (30m in height approximately), especially, in the northern part

of Etung, these lowland plains extend northwards into Boki Local Government Area, terminating at the foothills of Obudu plateau area. In southern Etung, the land is undulating (with much higher plains (above 30m) and rises precipitously towards Etara/Onughi highlands of the Oban hills.

The area is well drained with many rivers and fresh water streams. Cross River is the main river and its major tributaries are Etughi, Abum and Akarim. The Cross River flows from the east to the west, dividing Etung into two halves viz northern Etung and southern Etung. The streams and rivers found in the area drain the valleys and extensive lowlands giving rise to a fairly fertile sandy loamy soil typical of the forest belt [7].

Accordingly, crops that do well on well drained soils are predominantly cultivated in small farm holdings and large government plantations in the area. Hence plantains and bananas, cassava, yams, cocoyams, rubber, palms and cocoa are grown here. The traditional economic activities of the Etung people is farming. They produce varieties of food and cash crops such as cocoa, maize, yams, cassava, plantain, banana, cocoyam, melon, groundnut and several species of beans, which are produced at both commercial and subsistence level. The rural people in the various communities are also involved in the logging of valuable tree species such as *Entandrophragma spp* (Mahogany), *Tripolchiton scheroxylon* (Obeche), *Lououtrichilliades* (Ceda), *Milicia excels* (Iroko), *Pterocarpus osun* (Camwood), *Terminalia superb* (Black afara), *Terminalia worensis* (White afara), *Bailonelia toxisperm* (Memosop), *Naulea diderrichi* (Opepe), *Oeiospyros spp* (Ebony) amongst others for timber products, they also hunt various species of wild life animals such as *Antiarus africanus* (Porcupine), *Potarnochoerus scriptus* (Antelope), *Potarnochoerus porcus* (Bush pig), *Cicetomya gambianus* (Giant rats), *Phasianidea* (bush fowl), *Thrynomys swinderlianus* (Cane rate), *Cephlophus spp* (Duiker), *Funtsciurus spp* (Squirrel), *Manisticupsis* (Pangoline), birds and bats among others which are used for both subsistence and commercial purpose.

They also harvest forest leafy vegetables such as *Piper guineensis* (hot leaf), *Gnetum africanum* (Okazy), *Lasianthera africanum* (Editan), *Heinsia crinata* (Atama), *Gongronema latifolium* (Otazy), *Pterocarpus soyauxii*, *Pterocarpus santalinoides*, *Vitex doniana*, *Myrianthus arboreus*, *Ceiba pentandra* amongst others.

Etung local Government Area has a total population of 80,196 (Eight thousand, one hundred and ninety six persons) and is inhabited by the Ejagham speaking people of Etung North (Mbuma), Etung central (Abonita) and Etung south (Nyimaya). There exists a similar cultural affiliation in terms of dressing and traditional festivals with their neighbours. Their religion is predominantly Christianity, though that does not remove the practice of African traditional worship in some areas.

## 2. Methods

Six major communities in Etung Local Government Area were selected for the study. These communities were noted generally in the area for the exploitation of the forest for livelihood

sustainability. They include Abia, Agbokim, Ajassor, Abijang, Etomi and Nsofang. 1,940 copies of questionnaire were distributed to household heads which were randomly selected.

**Table-1.** Distribution of Copies of Questionnaire to the Respondents

Villages	Household Heads	Sampled Population
Abia	3114	310
Etomi	2594	260
Agbokim	3336	335
Ajassor	3618	360
Abijang	2900	290
Nsofang	3859	385
Total	1940	1940

Source: Authors Field Survey, 2015

The questionnaire contains information on the major useful forest resources, number of people involved in the extraction of each of the forest resources, and the income generated. The distribution of copies of questionnaire is shown in Table 1.

The students ‘t’ test was used to test for the seasonal variation in the number of persons involved in the exploitation and utilization of forest resources. It has the form:

$$t = \frac{[\bar{x} - \bar{y}]}{\sqrt{\frac{X^2}{N_x} + \frac{y^2}{N_y}}}$$

Where t = Student t test, x = sample 1 (dry season exploitation, sample 2 (rainy season exploitation,  $\sqrt{x^2}$  = square of standard deviation of x,  $\sqrt{y^2}$  = square of standard deviation of y,  $N_x$  = sample size of x and  $N_y$  = sample size of y. simple percentage were also used for the analysis of the data.

### 3. DATA PRESENTATION AND DISCUSSION OF FINDINGS

#### 3.1. Age of Respondents

Respondents distribution based on age reveal that, 855 (44.1 per cent) are in the age bracket of 41 years and above; next in the list are those between ages 31-40 years, 565 (26.8 per cent) and the least group were those below 30 years, 520 (26.8 per cent).

**Table-2.** Age Distribution of Sample Respondent in the Study

Age of respondents		Percentage
Below 30 years	520	26.8
31-40 years	565	29.1
41 years and above	855	44.1
Total	1940	100

Source: Authors Field Survey, 2015

**Table-3.** Forest Resources as a Source of Food for Redeeming Lives

<b>Mushrooms</b>	<b>Seed/spices</b>	<b>Fruits</b>	<b>Vegetables</b>
<i>Cookenia sulstipes</i>	<i>Afromomum</i>	<i>Afromum sceptrum</i>	<i>Albizia zgia</i>
<i>Termitomyces</i>	<i>meleguata</i>	<i>Canarium schwein furthii</i>	<i>Gnetum</i>
<i>mammiformis</i>	<i>Afrostryx</i>	<i>Chrysophyllum albidum</i>	<i>africanum</i>
<i>Termitomyces globulus</i>	<i>lepiatophyllus</i>	<i>Cola lepidota</i>	<i>Hensia crinata</i>
<i>Pleurotus squarrobulus</i>	<i>Monodora myristaca</i>	<i>Cola pachycarpa</i>	<i>Lasianthera</i>
<i>Chlorophyllum molybditis</i>	<i>Tetrapleura</i>	<i>Dacrefodes edules</i>	<i>Africana</i>
<i>Volvariella exculenta</i>	<i>tetraptera</i>	<i>Antrocaryon</i>	<i>Piper</i>
<i>Polyporus dermatoporus</i>	<i>Xylophia aethiopica</i>	<i>Klaineianum</i>	<i>umbellatum</i>
<i>Auricularia polytricha</i>		<i>Angylocalyx oligophyllus</i>	
		<i>elaeis guinensis</i>	

Source: Authors Field Survey, 2015

From table 6, it could be seen that majority of the people in the study area exploit the forest for bush meat as 242 (13%) of the respondents were involved in it. This was followed by the exploitation of the forest for leafy vegetables as 237 (12%) of the total respondents were engaged in this trade. Also, the study revealed that 206 respondents (11%) made use of the forest for building materials. The use of the forest for medicinal plants and for fruits and nuts had 216 (11%) and 215 (11%) respondents respectively. 198 (10%) of the respondents exploit the forest for mushroom. Other forest resources exploited include, Cattle stick 164 (8%), chewing stick had 156 (8%), birds 158 (8%) and honey 148 (8%) respondents. In this study therefore, the least exploited forest resource was honey.

**Table-4.** Forest Animals/reptiles/mollusc as sources of Food

<b>Name</b>	<b>Common name</b>
<i>Thryonomys swinderianus</i>	Cutting grass
<i>Tragelapusscriptus</i>	Antelope
<i>Potamochoerus porcus</i>	Bush pig
<i>Helix pomatisa</i>	Land snail
<i>Python sebae</i>	Python
<i>Cricatomys gambianus</i>	Rat
<i>Littorina spp</i>	Periwinkle
<i>Cephalopus spp</i>	Duiker
<i>Atherurus africanus</i>	Porcupine
<i>Mamis tricuspis</i>	Pangolin
<i>Loxodonta Africana</i>	Elephant
<i>Cercopithecus spp</i>	Monkey
<i>Crocodilus spp</i>	Crocodile
<i>Iguanidae</i>	Iguana
<i>Kinixyx belliana</i>	Tortoise
<i>Cancridae</i>	Crab

Source: Authors Field Work, 2015

**Table-5.** Different Kinds of some Medicinal Plants found in the Study Area

Family	Name
Apocynaceae	<i>Funtumia elastic</i>
Cesalpinoideae	<i>Cassia alata</i>
Guttiferae	<i>Garcinia Kola</i>
Guttiferae	<i>Garcinia manii</i>
Mimosoideae	<i>Acasia Kamenunensis</i>
Mimosoideae	<i>Acasia Africanum</i>
Polygalaceae	<i>Capolobia lutea</i>
Ochnaceae	<i>Lophira alata</i>
Papilioideae	<i>Plerocarpus osum</i>
Moraceae	<i>Ficus exasperate</i>
Mimosoideae	<i>Piptadinastrum africanum</i>

Source: Authors Field Survey, 2015

**Table-6.** Level of Involvement of the People in Forest Resources Exploitation

Sampled villages	Bush meat	Building materials	Medicinal plants	Fruits and nuts	Chewing stick	Cattle rod	Mushroom	Birds	Honey	Leafy vegetable	Total
Abia	48	28	26	35	30	28	33	26	20	36	310
Etomi	36	29	27	24	20	25	26	25	24	24	260
Agbokim	38	30	36	37	31	32	30	32	31	43	335
Ajassor	36	39	48	36	33	27	35	31	31	44	360
Abijang	34	32	33	36	24	16	38	20	22	35	290
Nsofang	55	48	46	47	26	28	36	24	20	55	385
Total	242	206	216	215	164	156	198	158	148	237	1940
Percentage	(12.5%)	(11%)	(11%)	(11%)	(8%)	8%	10%	8%	8%	12%	100%

Source: Authors Field Survey, 2015

#### 4. INCOME GENERATED FROM FOREST PRODUCTS DURING DRY SEASON IN THE STUDY AREA

According to Okpiliya, et al. [8] income remained a major drive for the continuous extraction of the forest of any kind. As indicated in table 7, 1560 (80.4 percent) of the respondents agreed that they generated between N10,000 – N50,000 from the sale of bush meat during the dry season. 350 respondents (18.07 per cent) respondents indicated that they generate between N51,000-N100,000 from bush meat sales during the same seasons and only 30 of the respondents (1.5 percent) indicated that they generated N101,000 and above within this period. Greater proportion of the respondents 1460 representing (75.3 percent) were of the opinion that they generate between N10,000–N20,000 from building materials during dry season, while 470 respondents (24.2 percent) indicated that they generate between N51,000–N100,000 from building materials during dry season. 10 respondents (0.6 percent) agreed that they generate above 101 from building materials during dry seasons.

Income arising from fruits and nuts show that 1150 respondents (59.3 percent) generated between N51,000–N100,000 during dry seasons, while 735 respondents (37.9 percent) generated above N101 during the same seasons. According to the respondents, 1200 (61.9 percent) generated between N10,000 –N50,000 from chewing stick and 690 respondents (35.6 percent) indicated that they generate between N51,000–N100,000 from chewing stick during the dry

season. 50 respondents (2.6 percent) generated above N101,000. For cattle rods, 1480 respondents (76.3 percent) generated between N10,000-N50,000 while 45 respondents (23.2 percent) generated between N51,000-N100,000 during the dry season. 10 respondents (0.5 percent) generated above N101,000 from this forest resource. The income derivable from the sales of mushroom showed that 1585 respondents (81.7 percent) generated between N10,000-50,000, during dry season, while 350 respondents (18.0 percent) generated between N51,000-N100,000. One respondent (0.3 percent) generated above N101,000 from mushrooms during the period.

In the case of periwinkle/snails, 1450 respondents (74.7 percent) generated between N10,000-N50,000 during the dry seasons, and 485 respondents (25.0 percent) generated between N51,000-N100,000 during this same period. 5 respondents (0.3 percent) indicated to have generated above N101,000. Bird is also sold for cash in the study area. Here, it was realised that 1685 respondents (86.9 percent) generated between N10,000-N50,000 from during the dry seasons, while 255 respondents (13.1 percent) generated between N51,000-N100,000. In the same vein, 1575 respondents (81.2 percent) generated between N10,000-N50,000 from honey/bee wax during the dry seasons, while 36 respondents (18.8 percent) generated between N51,000-N100,000. No respondent seems to have generated above N101,000 from honey/bee wax during the dry season.

In the case of leafy vegetables, 1135 respondents (58.5 percent) indicated that they generate between N10,000-N50,000 during the dry season, while 785 respondents (40.5 percent) were of the opinion that they generate between N51,000 – N100,000 during the same period. Only 20 respondents (0.10 percent) indicated that they generate between N51,000-N100,000.

**Table-7.** Income Generated from Forest Resources during Dry Season in the Study Area

Forest Resources	Amount	Amount	Amount
	N10,000-50,000	N51,000-N100,000	N101,000 and above
	Frequency %	Frequency %	Frequency %
Bush meat	1560=(80.4)	350=(18.7)	30=(1.5)
Building materials	1460=(75.3)	470=(24.21)	10=(0.6)
Medicinal plants	1505=(77.6)	435=(22.4)	0=(0.0)
Fruits/nuts	735=(37.91)	1150=(59.3)	55=(2.8)
Chewing sticks	1200=(61.9)	690=(35.6)	50=(2.6)
Cattle rod	1480=(76.3)	450=(23.2)	10=(0.5)
Mushroom	1585=(81.7)	350=(18.0)	5=(0.3)
Snails/periwinkles	1450=(74.7)	485=(25.0)	5=(0.3)
Birds	1685=(86.4)	255=(13.1)	0=(0.0)
Honey/bee wax	1575=(81.2)	363=(18.8)	0=(0.0)
Leafy vegetable	1135=(58.5)	786=(40.5)	20=(0.10)

Source: Authors Field Survey, 2015



## 5. INCOME GENERATED FROM FOREST PRODUCTS DURING RAINY SEASON

As revealed in table 8, 1625 (83.8 percent) respondents indicated that they generate between N10,000-N50,000 from bush meat and 315 respondents (16.2 percent) showed that they generated between N51,000-N100,000 within this same period. No respondent seem to have generated above N100,000 from bush meat during the rainy season. Similarly, 1395 respondents (76.5 percent) generated between N10,000-N50,000 from building materials. From this same forest resource 455 respondents (23.5 percent) generated between N51,000-N100,000. In the case of medicinal plants, 1385 (71.4 percent) respondents generated between N10,000-N50,000, and 525 respondents (27.1 percent) generated between N51,000-N100,000. Only 30 respondents (1.5 percent) indicated that they generated above N101,000 during rainy season. 1185 respondents (61.1 percent) generated between N51,000-N100,000 from fruits and nuts during the rainy season, 745 (38.4 percent) of the respondents generated between N10,000 –N50,000 from fruit and nuts and 10 respondents (0.5 percent) got above N101,000 from fruit and nuts during this same season. From the sale of chewing sticks during the rainy season, 1255 respondents (64.7 percent) generated between N10,000-N50,000, 680 respondents (35.1 percent) generated between N51,000-N100,000, while 5 respondents (0.3 percent) sold above N101,000. For cattle rod, 1375 respondents (70.9 percent) got between N10,000-N50,000 during the rainy season, while 565 respondents (29.1 percent) sold between N51,000-N100,000. The sales of mushroom indicated that 1620 respondents (83.5 percent) generated between N10,000-N50,000 during rainy seasons, and 320 respondents (16.5 percent) generated between N51,000-N100,000 within this period.

1540 respondents (77.3 percent) indicated that they generate between N10,000-N50,000 from snails/periwinkles during the rainy seasons, while 440 respondents (22.7 percent) indicated that they generate between N51,000-N100,000 from snail/periwinkles during the same period. 1730 respondents (89.2 percent) attested to have generated between N10,000-N50,000 from birds during the rainy seasons and 210 respondents (10.8 percent) generated between N51,000-N100,000 from birds in this same season.

**Table-8.** Income Generated from Forest Resources during Rainy Season in the Study Area

Forest Products	Amount N10,000-N50,000	Amount N51,000-N100,000	Amount N101,000 and above
	Frequency %	Frequency %	Frequency %
Bush meat	1625=(83.8)	315=(16.2)	0=(0.00)
Building materials	1395=(76.6)	455=(23.5)	0=(00)
Medicinal plant	1385=(71.4)	525=(27.1)	30=(1.5)
Fruits and nuts	1185=(38.4)	745=(61.1)	10=(0.5)
Chewing stick	1255=(64.7)	680=(35.1)	5=(0.3)
Cattle rods	1375=(70.9)	565=(29.1)	0=(0.0)
Mushroom/Ebuya	1620=(83.5)	320=(16.5)	0=(0.0)
Snails/periwinkles	1500=(77.3)	440=(22.7)	0=(0.0)
Birds	1730=(89.2)	210=(10.8)	0=(0.0)
Honey/bee wax	1540=(79.4)	370=(19.1)	5=(0.3)
Leafy vegetable	1180=(38.9)	755=(60.8)	5=(0.3)

Source: Authors Field Survey, 2015

In the case of income generated from honey/bee wax, 1540 (79.4 percent) generated between N10,000-N50,000 during rainy season, while 370 respondents (19.1 percent) generated between N51,000-N100,000 during rainy season. Only 5 respondents (0.3 percent) indicated to have generated above N101,000 from honey/bee wax during rainy season.

Leafy vegetables are also harvested and sold in the study area. It was discovered that 1180 (60.8 percent) generated between N51,000-N100,000 during rainy seasons and only 5 respondents generated above N101,000.

## 6. TESTING OF HYPOTHESIS

It was discovered in the field that the number of people involved in the exploitation of forest resources vary from one season to the other, hence a hypothesis on the seasonal variation in the level of involvement of the people in forest resources exploitation was tested and the result presented in table 9.

From the result presented, there was significant seasonal variation in the involvement of the people for only two forest products; medicinal plants  $t(1938) = 3.416$ ,  $p < .05$ , and leafy vegetables  $t(1938) = 3.335$ ,  $p < .05$ , but there was no statistical seasonal variation for nine (9) forest products; bush meat  $t(1938) = 0.329$ ,  $p > .05$ ; building materials  $t(1938) = 1.343$ ,  $p > .05$ ; fruits and nuts  $t(1938) = 1.141$ ,  $p > .05$ ; chewing sticks  $t(1938) = 1.413$ ,  $p > .05$ ; cattle rod  $t(1938) = 0.766$ ,  $p > .05$ ; mushroom/Ebuya  $t(1938) = 1.154$ ,  $p > .05$ ; snails/periwinkles  $t(1938) = 1.066$ ,  $p > .05$ ; birds  $t(1938) = 0.329$ ,  $p > .05$ ; and honey/bee wax  $t(1938) = 0.003$ ,  $p > .05$ . By this result, the null hypothesis which stated that, there is no significant seasonal variation in forest products utilization for nine (9) forest products in the study area was retained while the alternate hypothesis was retained for two (2) forest products only (medicinal plants and leafy vegetables).

**Table-9.** Independent t-test of Seasonal Variation in the Level of Involvement of People in Forest Resources Exploitation/ Utilization in the Study Area

Grouping variable		N	Mean	SD	t-value	Mean diff.	Sig
Bush meat	Rainy season	1940	1.77	0.94	.329	0.020	0.743
	Dry seasons	1940	1.70	0.79			
Building materials	Rainy season	1940	1.91	0.85	1.343	0.084	0.180
	Dry season	1940	1.83	0.89			
Medicinal plants	Rainy season	1940	1.75	0.87	3.416	0.208	0.001
	Dry season	1940	1.96	0.82			
Fruits and nuts	Rainy season	1940	2.43	1.05	1.141	0.087	0.254
	Dry season	1940	2.35	1.08			
Chewing stick	Rainy season	1940	1.58	1.38	1.413	0.141	0.158

	Dry season	1940	1.44	1.39			
Cattle rod	Rainy season	1940	1.40	1.59	0.766	0.079	0.444
	Dry season	1940	1.48	1.29			
Mushroom	Rainy season	1940	1.69	0.88	1.154	0.074	0.249
	Dry season	1940	1.76	0.91			
Snails/periwinkles	Rainy season	1940	1.76	1.02	1.066	0.079	0.287
	Dry season	1940	1.68	1.06			
Birds	Rainy season	1940	1.14	1.05	0.329	0.025	0.742
	Dry season	1940	1.11	1.13			
Honey/bee wax	Rainy season	1940	1.21	1.15	0.003	0.000	0.998
	Dry season	1940	1.21	1.22			
Leafy vegetables	Rainy season	1940	2.24	0.89	3.335	0.216	0.001
	Dry season	1940	2.46	0.91			

Source: Authors Field Survey, 2015

## 7. CONCLUSIONS

Etung Local Government falls within the rainforest area of Cross River State. Consequently, the area is endowed with a great variety of plants and animal species. Most of these plants and animals species sustain the rural economy. In this study area, forest resources form the basis for food, medicine, fuelwood and furniture. The subsistent rural dwellers have continued to exploit the forest resources for income throughout the seasons. This utilization of forest resources by the rural people in various forms in the study area tends to provide solutions to the question of rural poverty, unemployment and backwardness. Finally, since rural dwellers generally are involved in transforming forest resources into simple utilization products which can attract higher prices within rural and urban markets, however, it should be stressed here that there is the dire need for sustainable exploitation of these forest resources so that the future generations can benefit from what the forest offers to mankind.

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