

Non-Timber Forest Products Utilization among the Ikwerre Farmers of Rivers State: Implications for Community Development Education

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Abstract

The study assessed the utilization of Non-timber Forest products (NTFPs) among the Ikwerre farmers in Rivers State, Nigeria. The study adopted a descriptive survey design. Four hundred and forty seven (447) registered farmers were purposively selected from Emohua and Ikwerre Local Government Areas of Rivers State, Nigeria and studied. The instrument used for data collection was the questionnaire containing structured items developed through literature. Data analyses used frequency counts, percent and the mean. Based on the data collected and analysed, it was found out that Non-timber forest fruits and vegetables, oils, spices and condiments, fodder and forages, nuts and seeds, medicinal plants and wild animals were frequently used by farmers in Ikwerre while fibres, stimulants, dye, gum and resins were rarely used, among other findings. These findings by implication therefore presupposes that for improvement and community empowerment, any sensitization, mobilization, environmental adult education, empowerment, agricultural extension training programme on forest products and alternative medicine among the Ikwerre people will be successful. It was therefore recommended that, government departments, non-governmental agencies, government ministries and stakeholders interested in developing the Ikwerre people of Rivers State should regularly organize workshops, seminars, farmers training, campaigns, mobilization and training programmes for Ikwerre farmers to update their knowledge and skills on identification, conservation and utilization of non-timber forest resources.

Keywords: Forest products utilization, non-timber forest products, community development education, Ikwerre farmers.

Introduction

In Africa, more than two-third (2/3) of the people which is about 600 million as estimated depend on forest resources either in a type of subsistence use or as source of revenue (Ogundele, Utin, Iwara, Njar & Deekor, 2012; Timko, Waeber & Koza, 2010). The forests apart from providing timber also provide biological products called non-timber forest products (NTFPs). Non timber forest products are rich and valuable resources that provide a variety of goods and services for millions of people particularly those living in the rural areas in the developing countries including Nigeria. According to Agbogidi and Okonta (2003), a large proportion of urban and rural household depend on the collection or extraction and sales of NTFPs to earn their livelihood. Non-timber forest products according to Center for International Forest Research, CIFOR (2013) refers to any produce or provision other than wood or timber that is gotten from the forest. Such as; nuts, vegetables, fruits, fish, medicinal

plants, resins, essences, a range of bark and fibre, bamboo, rattans, honey, insects, animals, fodder, fertilizers, medicinal extracts, construction material, cosmetic and cultural products, natural dyes, latex, tannins, and gums. They also include essential oils, spices, edible oils, mushrooms, horns, tusks, bones, decorative articles, pelts, plumes, hides and skin, non-wood ligno-cellulosic products, phytochemical and aroma chemicals. They may be gathered from the wild, or produced in forest plantations, agro forestry schemes and from tree outside forest.

Non-timber Forest Products (NTFPs) cover a wide range of products with different uniqueness, which are utilized in a variety of context and play significant roles in a range of household livelihood strategies. This involves thousands of plant and tree species, most of which are consumed within the household of the gatherers and are not traded in markets. Studies carried out by Shackleton and Shackleton (2004) showed that extraction, processing, and trading of NTFPs is often the only employment accessible for the population in remote rural areas. Adepoju and Salau (2007) pointed out that NTFPs are a reliable source of income and food supply in the rural areas. Several opportunities for improved rural development are allied to NTFPs.

In many areas, rural populations are traditionally depending on local forest resources to provide supplementary income through collection and marketing of NTFPs. Being able to collect and use NTFP to meet daily needs of energy, shelter, food and medicine, allows the scarce cash resources to be used to secure other household needs and attempt to congregate the necessary asset base for a more secure livelihood. This includes the education of children, investment in agricultural tools, or capital for activities that generate income. Such a cost saving strategy would best be reflected by replacement values of the goods that the NTFPs substitute, rather than direct-use value based on farm gate prices (Shackleton and Shackleton 2004). According to FAO (1995), the role of NTFPs in the daily life of people have been very significant in subsistence livelihood support in rural economies and biodiversity conservation since time immemorial due to their richness of varieties. About 80% of the population of developing countries depends on NTFPs for their primary health and nutritional needs. NTFPs play an important part in supporting household and therefore can be used to raise the perceived value of forest resources (Arnold, 2002). NTFPs contribute to poverty alleviation through generation of income, providing food and improved nutrition, medicine and foreign exchange earnings (Chikamai & Kagombe, 2002). Falconer (1992) in her study within the high forest zone of Ghana, observes that NTFPs provide a form of safely cushion to the rural households in times of economic hardship and to support farming.

Rural farmers from a wide range of socio economic, geographical and cultural context harvest and utilize NTFPs for a number of reasons and the utilization pattern vary by ecological zones and socio economic areas. In other words some utilize it for household subsistence, maintenance of culture, spiritual fulfilment as well as physical and emotional well-being, house heating and cooking, self-employment, income generation and for medicinal purposes (CIFOR, 2013). However, the purpose for utilization is set by individual household and these depend on their needs. In Nigeria about 80% of the people utilize forest products for food and personal care (Anon, 2000). whereas rural household utilizes NTFPs as food in the form of wild fruits, vegetables and nuts, edible roots, as bush meat, snails, edible insects and honey (Agbogidi 2010). Okpachu, Okpachu and Obijesi (2013), also pointed out that farmers differ in their level and pattern of utilization, such diversity among farmers could be related to various socio economic and educational level attained by the individual farmers. Writing uncover that while women search for vegetables and natural products for family utilization, their male partner as a rule go to the forests looking for wild animals, for example, grass cutter, antelope and other non-consumable plants. Notwithstanding, accessibility of NTFPs is not the main

factor that decides their gathering, but the socio-economic status of the general population. The investigation uncovers that gender assumes an essential part in the gathering of NTFPs and in addition, usage as a wellspring of country occupations.

In Nigeria and among the Ikwerre people of Rivers State, the most common forms of forest activities are timber extraction and non-timber forest products (NTFPs) harvesting. The NTFPs contribute to the improvement of the livelihoods of rural communities by providing food, medicine, additional income, building materials and employment opportunities and foreign exchange earnings of the country. In addition, complements wood-based management, offer a basis for managing forests in a more sustainable way thereby supporting biodiversity conservation. Despite the potential value of the non-timber forest products and its useful contributions to sustainable livelihood, Utilization is also significantly low when compared to other food products supplied through improved agricultural practices and industrial sources. There is however, dearth of information on the empirical evidence on utilization of non-timber forest products among the Ikwerre people of Rivers State. It is against this background that the study was planned to investigate the extent of utilization of Non-timber Forest Products (NTFPs) among the Ikwerre people of Rivers State with the following objectives.

1. To determine the socio-economic characteristics of farmers in Ikwerre.
2. To identify non-timber forest products available in Ikwerre.
3. To examine the frequency of utilization of non-timber forest products among farmers in Ikwerre.
4. To determine the extent of utilization of non-timber forest products among male and female farmers in Ikwerre.
5. To examine the extent of utilization of non-timber forest products among literate and non-literate farmers in Ikwerre.

Methodology

The study covered Emohua and Ikwerre Local Government Areas in Rivers State of Nigeria . Though the Ikwerre people are found in Obio-Akpor and some parts of Port Harcourt Local Government Area, Port Harcourt and Obio-Akpor Local Government Areas were not included in the study area owing to rapid urbanization which was not suitable for the purpose of the study. The study adopted descriptive survey design. Descriptive survey design according to Nwankwo (2016) is a study in which the researcher collects data from a large sample drawn from a given population and describes features of the sample as they are without manipulating any independent variable. The descriptive survey design was therefore considered appropriate for this study as it sought to examine the extent of non-timber forest products utilization among farmers in Ikwerre with implications drawn for community development education. A population of 447 registered farmers consisting of 235 farmers from Emohua and 212 from Ikwerre Local Government Areas were purposively chosen and studied without sampling. The instrument used for data collection was the questionnaire containing structured items and developed through literature titled “Non-Timber Forest Products Utilization Inventory (NTFPUI).” Section A of the instrument sought responses on the socio-economic characteristics of the respondents and section B was designed to elicit responses on the availability of Non-timber forest products. While Section C of the instrument was designed to elicit responses on the frequency of utilization of NTFPs, Section D sought responses on the extent of utilization of NTFPs among farmers. In addition to a checklist design, the instrument adopted a 5-point summated rating scale of frequency of utilization and extent of use. The instrument was administered personally by the researcher and 5 trained research assistants. Data analyses used frequency counts and the mean statistic.

Results

Table 1: Socio-economic characteristics of farmers in Ikwerre

N=447			
S/N	VARIABLE	FREQUENCY	PERCENTAGE %
	SEX		
	Male	179	40.04
	Female	268	59.96
	AGE(Years)		
	≤30	96	21.48
	31-40	127	28.41
	41-50	210	46.98
	51 and above	14	3.13
	Marital status		
	Single	13	2.91
	Married	397	88.81
	Divorced /separated	12	2.68
	Widowed	25	5.59
	Educational Background		
	Literates	316	70.69
	Non-literates	131	29.31
	Livelihood Activities		
	Employed	38	8.50
	Unemployed	32	7.16
	Self employed	43	9.62
	Farming /collection of NTFPs	334	74.72

Source: Field Survey, 2019.

Table 1 shows the socio-economic characteristics of the respondents. Out of 447 respondents, 179 (40.04%) were males while 268 (59.96%) are females. About 46.98% of the respondents were between the age range of 41-50 years and majority (88.81%) were married. Literate farmers recorded a high percentage of 70.69%. The livelihood activities indicated that majority (74.72%) were into full time farming and harvesting of NTFPs.

**Table 2: Non- timber Forest Products (NTFPs) available in Ikwerre
N = 447**

NTFPs	Frequency (%) of respondents who chose the item as available
Fruits/Vegetables	334 (74.72)
Oils	352(78.75)
Fibres	121 (27.07)
Stimulants	76 (17.00)
Spices and condiments	306 (64.46)
Dye	94 (21.03)
Gum and resins	83(18.57)
Fodder and forages	238 (63.31)
Nuts/seeds	322(72.03)
Animal (bush meat)	192(42.95)
Medicinal plants	303(67.79)
Medicinal animal products	189(42.28)

Source: Field survey, 2019.

The results in table 2 show fruits and vegetables, oils, spices and condiments, fodder and forages, nuts and seeds and medicinal plants as NTFPs available in abundance among the Ikwerre people. However, fibres, stimulants, dyeing material, gum and resins, and wild animals were not available in abundance as indicated by majority of the respondents.

Table 3: Mean ratings on frequency of utilization of Non-timber Forest Products (NTFPs) among farmers

NTFPs	FU	M U	U	RU	N U	Mea n	Remark
Fruits/Vegetables	206 (1030)	40(120)	188(752)	12(24)	1(1)	4.31	FU
Oils	145 (725)	65(195)	207(823)	15(30)	15(15)	4.60	FU
Fibres	15 (75)	95(285)	23(92)	130(260)	184(184)	2.00	RU
Stimulants	23 (115)	34(102)	70(280)	124(248)	196(196)	2.11	RU
Spices / condiments	218 (1090)	30(90)	177(708)	18(36)	4(4)	4.31	FU
Dye	10(50)	38(114)	12(48)	202(404)	185(185)	1.79	RU
Gum and Resins	15 (75)	98(294)	23(92)	135(270)	176(176)	2.03	RU
Fodder and forages	210(1050)	45(135)	165(660)	18(36)	9(9)	4.23	FU
Nuts/seeds	218(1090)	41(123)	148(592)	38(76)	2(2)	4.21	FU
Animal (bush meat)	225(1125)	35(105)	156(624)	18(36)	13(13)	4.26	FU
Medicinal plants	145 (725)	65(195)	207(823)	15(30)	15 (15)	4.00	FU
Medicinal animal products	177 (885)	70(210)	165(660)	25(50)	10(10)	4.06	FU
Grand mean						3.28	

Source: Field Survey, 2019. FU-Frequency used, MU – Moderately used, U – used, RU – Rarely used, NU- Not used

Table 3 shows the frequency of utilization of NTFPs among farmers in Ikwerre. Specifically, fruits and vegetables, oils, spices and condiments, fodder and forages, nuts and seeds,

medicinal plants, and wild animals were frequently used by the respondents. It was also found out that fibres, stimulants, dye, gum and resins were rarely used by the respondents.

Table 4: Mean responses of male and female farmers on their extent of utilization of NTFPs

NTFPs	Male (n=179)			Female (n= 268)		
	Mean	S D	Decision	Mean	S D	Decision
Fruits/Vegetables	3.74	1.16	HE	4.15	1.02	HE
Oil	2.45	1.46	LE	4.00	1.10	HE
Fibres	2.01	1.34	LE	2.53	1.23	LE
Stimulants	2.34	1.54	LE	2.07	1.7	LE
Spices and condiments	2.58	1.54	LE	3.98	1.09	HE
Dye	1.87	1.28	LE	2.18	1.3	LE
Gum and resins	1.95	1.30	LE	2.02	1.17	LE
Fodder and forages	3.21	1.52	HE	3.75	1.67	HE
Nuts /seeds	3.51	1.40	HE	4.08	1.09	HE
Animal (bush meat)	4.00	1.10	HE	2.62	1.28	LE
Medicinal plants	3.54	1.41	HE	3.84	1.13	HE
Medicinal animal products	3.79	1.23	HE	3.68	1.31	HE
Grand mean	2.92	1.36		3.06	1.28	

Source: Field Survey, 2019.

Table 4 shows a consensus in the utilization of forest fruits and vegetables, fodder and forages, nuts and seeds, medicinal plants and wild animals among male and female farmers to a high extent. It was also found out that while the female farmers utilizes forest oil plants, spices and condiments to a high extent, the male counterparts utilize oils, spices and condiments to a low extent.

Table 5: Mean responses of literate and non- literate farmers on extent of utilization of NTFPs

NTFPs	Literate(n=316)			Non-Literate(n=131)		
	Mean	S D	Decision	Mean	S D	Decision
Fruits/Vegetables	3.92	0.94	HE	3.97	0.94	HE
Oils	4.01	0.91	HE	4.39	0.93	HE
Fibres	2.79	0.92	LE	3.14	0.91	HE
Stimulants	2.49	0.99	LE	2.76	1.16	LE
Spices and condiments	3.96	0.98	HE	3.78	1.34	HE
Dye	2.00	0.93	LE	2.65	1.32	LE
Gum and resins	1.54	0.65	LE	1.84	1.11	LE
Fodder and forages	4.39	0.93	HE	4.14	1.21	HE
Nuts/seeds	4.41	0.85	HE	4.12	0.99	HE
Animal (bush meat)	3.92	1.37	HE	4.47	0.70	HE
Medicinal plants	3.78	0.99	HE	4.01	0.91	HE
Medicinal animal products	2.95	0.94	LE	3.07	0.73	HE
Grand mean	3.19	0.81		3.32	1.06	

Source: Field survey, 2019.

Table 5 presents the mean response of literate and non-literate farmers according to their extent of utilization of NTFPs. Results indicate that both literate and non-literate farmers to a high extent use forest fruits and vegetables, oils, spices and condiments, fodder and forages, nuts and seeds, medicinal plants and wild animals. Results also indicate that the two groups of respondents use stimulants, dye, and gum and resins on a low extent with mean ratings lower than the criterion mean.

Discussion of findings

The result of the socio-economic characteristics of the respondents presented in table 1 showed that majority of the respondents were females 268 (59.96%) while 179 (40.04%) were males. It also indicated that 88.81% were married while only 2.90% were single. This means that the respondents were dominated by farmers who are married. The result further revealed that 46.98% of the respondents were between the age ranges of 41-50 years, an indication that the respondents were within active workforce who could be linked with vigour at that age. The educational attainment of the respondent revealed that majority (70.69%) were literates, while only 29.31% were non-literates, who can neither read nor write. This means that majority of the respondents can read and write and, as such are knowledgeable of the usefulness of NTFPs. This finding is agreement with the study of Dishan, Aghishi and Akosim (2010) in their position that, the attainment of high level of education did not constitute a hindrance to NTFPs collection so long as women lived in the support zones and enclaves of the people. The livelihood activities revealed that the respondents were predominantly farmers, depending on agricultural products and forest resources for subsistence and income generation, while negligible percentage are engaged in other economic activities. The socio-economic characteristics of respondents therefore show that rural farmers in the study area harvest NTFPs to supplement other agricultural activities.

Findings in table 2 shows that most of the NTFPs fruits and vegetables were available in abundance in the study area. This result means that appreciable percentage of NTFPs fruits and vegetables were still available for use by the rural farmers in the study area. This finding is in line with Salisu (2015) who posited that forests in Nigeria contain many NTFPs despite that the forests are suffering from degradation and loss of biodiversity.

The findings in Table 2 also showed that among the NTFPs surveyed, fibre, dyeing, gum and resins were not available in abundance. This means that the respondents may not have been familiar with the forest products that yield fibres, dye, gum and resins. This non-abundance could also be as a result of deforestation. However, this result is expected because majority of the forested lands has faced serious deforestation as a result of urbanization while some have been converted to secondary forests. This finding is in consonance with those of Ogundele *et al* (2012) that genetic resources of most of those species are under intense pressure and that many of them are ecologically threatened, endangered or even extinct in a number of cases. The result in table 2 further showed that NTFPs consumed as spices and condiments were significantly available while NTFPs used as stimulants were not available in abundance as indicated by the respondents. This corroborates Ogundele *et al* (2012) in which spices and condiments were identified as one of the most commonly used NTFPs.

The result presented in table 2 showing the availability of NTFPs used as fodders for feeding domestic animals and for medicinal purposes proved to be significantly available. The findings of this study is in tandem with that of Adebayo and Akindele (2003) which posited that forests are common property resources that plays a united role in rural livelihood. Various NTFPs species of plants origin of high medicinal value were also indicated to be available in the area under study by the respondents for the treatment of various ailments. The finding here agrees with the report of CIFOR (2013) that NTFPs are utilized for household subsistence, maintenance of culture, spiritual fulfilment and medicinal purposes among others.

The results in table 3 showed the frequency at which NTFPs are utilized among farmers in the study area. The findings revealed that among the various NTFPs studied, fruits and vegetables, oils, spices and condiments, fodder and forages, nuts and seeds, medicinal plants, and wild animals were frequently used by the respondents in the study area. This means that NTFPs were frequently utilized for food, income generation and medicinal purposes. The finding agrees with Agbogidi (2010) that NTFPs range from being used as food or food additives (nuts) as plant materials (fiber, creepers, flowers), plant derivatives, rattan cork and essential oil to animals (such as snails), and animal products (such as honey and silk). From the result in table 3, it could be deduced that the farmers in the study area relied on NTFPs for most of their daily needs. This agrees with Arnold (2002) who posited that rural dwellers in developing countries depend on NTFPs for livelihood.

Table 4 shows the extent of NTFPs utilization among male and female farmers in the study area. Findings show a consensus in the utilization of forest fruits and vegetables, fodder and forages, nuts and seeds, medicinal plants, and wild animals among male and female farmers to a high extent. Findings here also show that while the female farmers use forest oil plants, spices and condiments to a high extent, the male counterpart utilizes the same forest oil plants, spices and condiments to a low extent.

The finding is in line with Ogundele *et al* (2012) that while women search for vegetables and fruits, their male partners usually go to the forest to hunt for wild animals such as grass cutter and antelope. Goheen (1996) similarly reported that it is the sole responsibility of women to feed the family and engage in the cultivation of crops while men clear bush, grow trees, hunt animal, lumbering and provide the traditional luxuries of oil, salt and meat. The finding also is in agreement with the findings of Ndoeye, Awono and Preece (2006) that women collect traditional low value products (plant based and fish) for family consumption, while men focus on timbers and high value traded species particularly hunting. This result in table 4 therefore falsifies the findings of Fumuyide, Adebayo, Bolaji-Olutunji, Awe, Owoeye, Awodele and Adeyemo (2013) that variables such as age and sex were not significant in determining the

variation in the levels of utilization of NTFPs. Indeed sex determines variation in the levels of utilization of NTFPs as showed in table 4.

Table 5 showed the extent to which NTFPs are utilized among literate and non-literate farmers. Results indicate that to a high extent, both literate and non-literate farmers uses forest fruits and vegetables, oils, spices and condiments, fodder and forages, nuts and seeds, medicinal plants and wild animals. This finding by implication means that literacy does not influence the extent of utilization of NTFPs in the study area.

Implications for Community Development Education

Based on the findings of this study, the following implications are drawn for community development education among the Ikwerre people.

1. That farmers in Ikwerre depend on agricultural products and forest resources for sustainable livelihoods and income generation, for improvement, will call for community programmes on environmental protection, harvesting, processing and utilization of forest products that could be achieved through environmental adult education, agricultural extension and training.
2. That majority of the farmers in Ikwerre are literates implies that farmers in Ikwerre will form healthy target population for community empowerment training programmes.
3. That non-timber forest products (NTFPs) are available in abundance in Ikwerre presupposes that any sensitization, mobilization and training programme on forest products among the Ikwerre people will be successful.
4. That farmers in Ikwerre frequently use forest medicinal plants presupposes that any campaign, mobilization and training programme on alternative medicine or organic living health-wise will be successful.

Conclusion and Recommendations

Based on the findings of this study, it is concluded that non-timber forest fruits and vegetables, oils, spices and condiments, nuts and seeds, medicinal plants and wild animals are available in abundance and frequently used by farmers in Ikwerre while fibres, gum and resins, stimulants, and dyeing were rarely used which could be attributed to ignorance of utilization of forest resources.

It was therefore recommended that government departments and ministries interested in community development should regularly organize workshop and seminars, farmers training, campaigns, mobilization and training programmes for rural farmers to update their knowledge and skill on identification, conservation and utilization of non-timber forest resources.

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