



## EVALUATION OF NON TIMBER FOREST PRODUCTS TRADE IN IHIALA LOCAL GOVERNMENT AREA, ANAMBRA STATE, NIGERIA

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### ABSTRACT

The trade of NTFPs contributes largely to rural economy and livelihood hence; rural dwellers are involved in NTFPs trade in Ihiala Local Government Area of Anambra State, Nigeria. Sixty (60) traders were interviewed using structured questionnaire in the four largest markets in Ihiala LGA namely; Nkwo Okija, Nkwogbe, Afor uzorigwe, and Umudara for the assessment of trade in the locally available NTFPs. Data collected were analyzed using descriptive statistics, and Rate of Returns on investment (RORI). Results revealed that women (75.0%) are more involved in NTFPs trade than men (25.0%), the initial take off capital for traders were mostly raised from personal savings (73.3%) and cooperative societies (21.7%). Twelve NTFP species were valued and commonly traded in the local markets during the period of data collection. Profitability analysis showed that trade in NTFPs is profitable with average profit margin of ₦500/kg (guinean pepper), ₦1000/basket (Rattan) among others. RORI was calculated as 23.8% based on current lending rate. Some of the identified NTFPs are processed for improved value and higher returns. Improved marketing facilities have been suggested for enhanced livelihood, maximum benefits and sustainable NTFPs trade in rural forest communities of Nigeria.

**KEY WORDS:** NTFPs trade, Ihiala LGA, rural economy, livelihood, RORI.

### INTRODUCTION

Forest products are essential for subsistence and economic activities all around the world. Non-timber forest products (NTFPs) have sustained rural families for centuries globally and are prominent among internationally traded commodities over centuries. A large proportion of rural population earns their living from collection and sales of Non-Timber Forest Products (NTFPs), thereby improving the quality of life and standard of living of rural population living near the forestlands, (Agbogidi and Okonta, 2003). Total values of world trade in NTFPs have been estimated in the order of US\$11billion, UNCTAD (2001). NTFPs have been described as all biological materials, other than timber, extracted from natural and managed forests for human subsistence and economic activities, (Wilkinson and Elevitch, 2011, de Beer and McDermott, 1989). Examples of NTFPs include fruits, mushrooms, wild games, nuts, seeds, oils, spices, resins, gums, medicinal plants (stem barks, leaves and roots) and fibres, all these contribute, in a raw or processed form, to rural livelihoods by improving food security and healthcare. Many NTFPs are commercial products that can make a significant contribution to the cash economy of households and national economies such as gum Arabic and medicinal plants.

NTFPs are often gathered from natural, plantation forests or other managed ecosystems across the globe. Ruiz Pérez *et al* (2004) noted that many NTFPs support subsistence and income generation to rural livelihoods. In some cases, NTFPs may be important than the regular cash income gained from commercial logging while the preservation of NTFPs is fundamental to maintenance and continuation of

many traditional ways of life. Research works directed towards the contributions of NTFPs to household livelihoods, trade and market issues have been suggested by (Angelsen and Wunder, 2003).

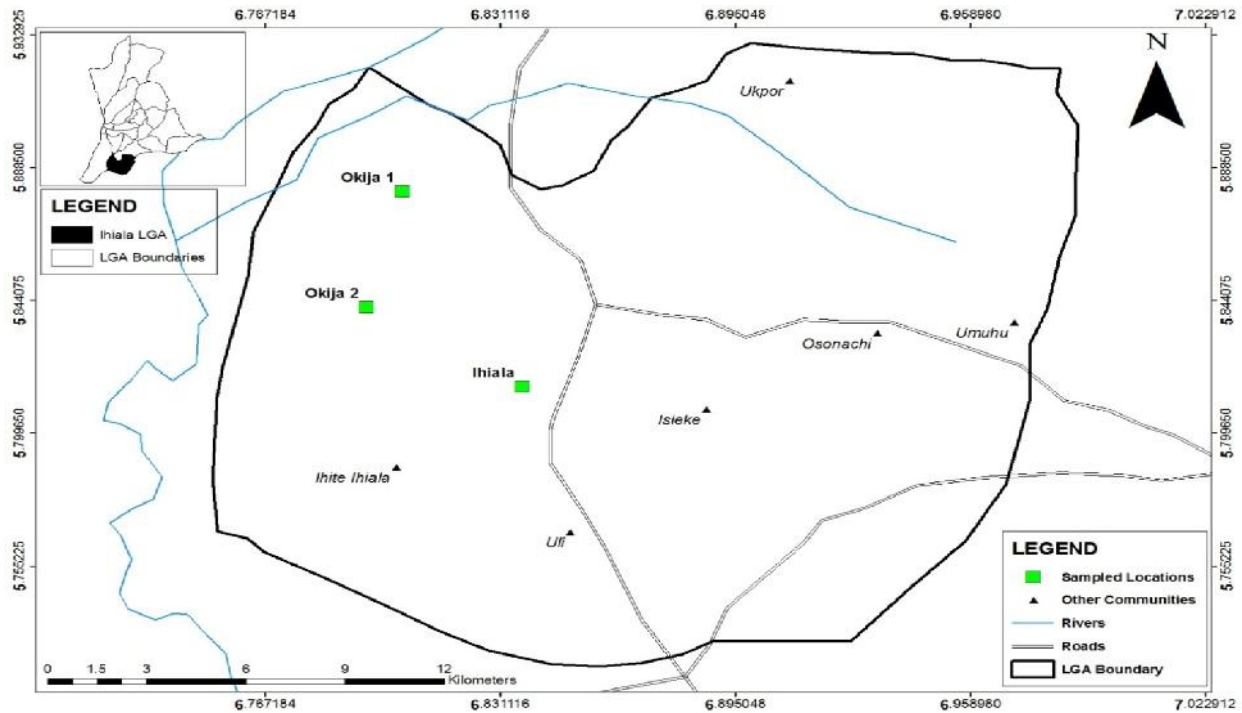
Nkwatoh *et al.* (2010) identified about 36 important NTFP species sourced from Ejagham forest reserve for local and external trade and household consumption. From the list, *Irvingia*, *Gnetum*, *Carpolobia*, *Massularia*, and *Ricindendron* species were identified as the five tradable NTFPs in the trans - boundary trade between Cameroon and Nigeria. Trades in NTFPs generate employment opportunities, substantial income and support livelihood among rural populations in tropical regions globally. Currently about 75% of poor people in the world depend on NTFPs for their subsistence while 80% of forest based people in the developing countries use NTFPs daily (Noubissie *et al.*, 2008). Local NTFP traders deal with many products which allow them to diversify among different NTFPs, (Ndoye *et al* 1998). In Anambra State of Nigeria, the commonly traded NTFPs include bush meat, Raphia wine, rattan, bitter cola, *Piper guineensis*, *Irvingia gaboneensis*, *Garcinia mannii*, *Gnetum africana*, *Gongronema latifolia*, *Pentaclethra macrophylla*, *Dacryodes edulis*, *Bambusa vulgaris*, *Treculia africana*, *Xylopia aethiopica*, among others. Ndoye *et al.*, 1998 observed that sale of NTFPs enables forest-dependent households realise a substantial part of their cash income. In this study we attempt to evaluate the prevalence and contributions of NTFPs trade to the livelihood of the rural inhabitants of Ihiala Local Government Area in Anambra State, Nigeria.

**MATERIALS AND METHODS**

The study was carried out in Ihiala local Government Area of Anambra State, Nigeria between June and September 2011. Ihiala is located in the southern part of Anambra state, and has long served as the local administrative capital of the area. The population is about 87,796 persons. Its geographical coordinates are latitude 5°51'14"N and longitude 6°51'36"E, (Microsoft Encarta 2011). The people predominantly engaged in peasant agriculture and fishing. Ihiala lies in the tropical rainforest and this informed their dependence on the forest for their basic needs in food and health delivery. The forest serves as a source of income for the inhabitants of this study area.

A total of sixty (60) traders of NTFPs were randomly selected for interview in the four (4) largest markets in the

study area. Pre-tested structured questionnaire was used to interview the traders and their responses well documented. Respondents were basically traders in NTFPs comprising wholesalers, retailers and minor collectors from the forests. Fifteen (15) traders were selected in each of the markets. The markets visited were Nkwo Okija, Nkwogbe, Afor uzorigwe and Umudara. Descriptive statistics was used to analyze the data obtained from the questionnaires and presented in percentages and charts. Prevalent NTFPs commonly traded in the area were extracted from the questionnaires and simple profitability method was used to evaluate the income from identified NTFPs. Rate of Returns on Investment (RORI) was calculated to determine the rate at which the money invested in NTFP trade could be realised.



**FIGURE 1:** Map of Ihiala Local Government Area showing the study sites

**RESULTS**

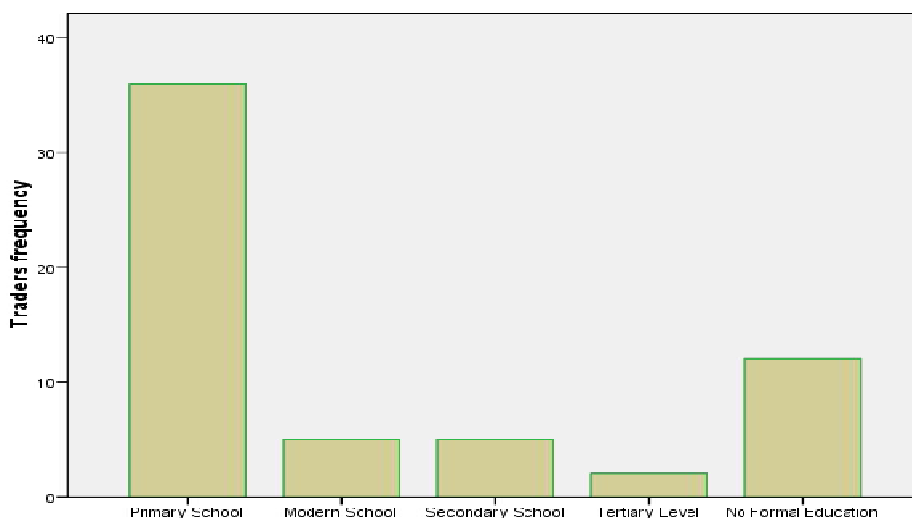
Table 1 revealed a gender ratio of 3:1 (Female: Male) among the NTFPs traders in the study area, 75% of the respondent were females while 25% were males, this is an indication that females are more involved in the NTFPs trade than the male. Traders between 31 – 40 years old form the majority (31.7%) and closely followed by those aged 51- 60 (26.7%), others are aged between 41 – 50 (21.7%). The young traders form about 10.0% of the sampled population. Average family size of the traders in NTFPs in the study area was between 6-10 persons representing 50.0%. Substantial percentage (60%) of the traders in NTFPs possess only Primary school education and 20% had no formal education

while few attended post primary education, (Fig 2). Majority (75%) of NTFPs traders possess between 1 -10 years of experience in the business of gathering and selling NTFPs (Fig. 3), however some had above 20 years experience. Fig 5. Revealed that NTFPs are mainly used for food (35%), medicine (15%), food and medicine (25%) as well as construction (13.3%) in the study area, others are used for hygiene. The traders depend mainly on individual personal savings and loans from cooperative societies. About 73.3% of respondent obtained the initial capital used for NTFPs trade from personal savings, 21.7% secure loans from coopeartives, 3.3% obtain loan from the bank and 1.7% obtain loan from relatives and friends, (Fig.6).

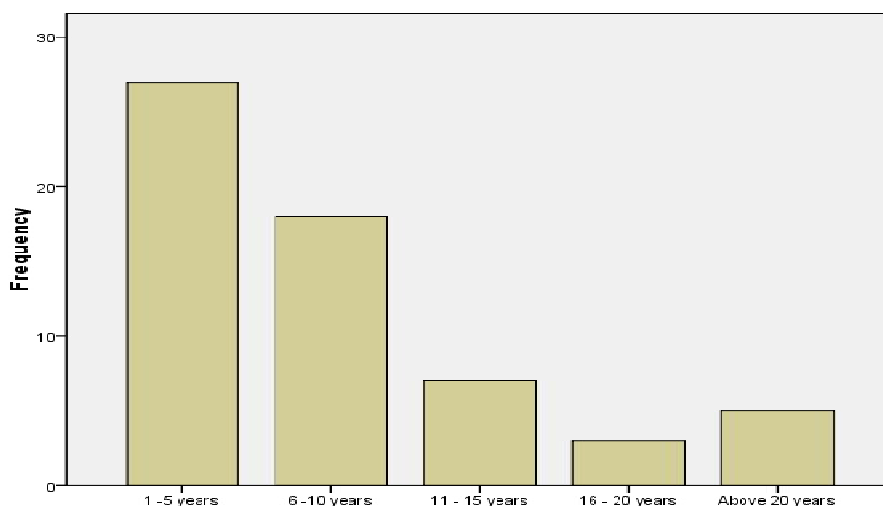
**TABLE 1:** Demographic factors of NTFPs traders in Ihiala LGA

Gender distribution of NTFPs traders	Frequency	Percentage (%)
Male	15	25.0

Female	45	75.0
Total	60	100.0
<b>Age of NTFPs traders</b>		
20 - 30 years	6	10.0
31 - 40 years	19	31.7
41 - 50 years	13	21.7
51 - 60 years	16	26.7
61 - 70 years	4	6.7
Above 70 years	2	3.3
Total	60	100.0
<b>Family size of NTFPs traders</b>		
1 – 5	27	45.0
6 – 10	30	50.0
Above 10	3	5.0
Total	60	100.0



**Fig 2: Educational level of NTFPs traders in Ihiala LGA**



**Fig 3: Experience of NTFPs traders in Ihiala LGA**

**TABLE 2: Uses of Commonly Traded NTFPs in Ihiala L.G.A, Nigeria**

Botanical name	Common name	Local name (Ibo)	Processing method	Local uses	Plant parts used	Average sales price (N) July 2011
<i>Bambusa vulgaris</i> Schrader ex Wendl. (Gramineae)	Bamboo	Achara	Stems are cut to desired sizes	Construction staking, firewood	Stem	N50/metre
<i>Calamus spp</i> (Palmae)	Cane	Ekpe	Cut stem and remove thorns,	Construction of	Stem	N1000/basket

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<i>Dacryodes edulis</i> (G.Don Local Pear f.) Lam. (Burseraceae)	Ube		soak in water for few days Pluck fruit and gather in baskets	baskets, chairs, tables and decorations Food as snacks	Fruit	<i>N195.7/kg</i>
<i>Garcinia cola</i> L (Guttiferae)	Bitter cola	Agbuinu	Allow mature fruit to fall freely, gather, cover for 4 days, depulp, wash and sundry then baggage	Medicine	Seed	<i>N1225/kg</i>
<i>Garcinia mannii</i> L (Guttiferae)	Chewing stick	Atu	Cut stems to straps	Hygiene (oral)	Stem and twigs	<i>N120/kg</i>
<i>Gnetum africana</i> L (Gnetaceae)	Okazi	Okazi	Cut leaves and slice	Vegetable	Leaves	<i>N300/kg</i>
<i>Gongronema latifolia</i> (Endl.) Decne, (Asclepiadaceae)	Utazi	Utazi	Stem and leaves are cut to size and bundled	Vegetable and medicine	Leaves and stems	<i>N130/kg</i>
<i>Iringia gaboneensis</i> Baillon (Simaroubaceae)	Ogbono	Ogbono	Allow mature fruit to fall freely, gather, cover for a week, depulp, sundry, break off pod, remove seeds with penknife, sundry seed very well and baggage	Soup thickener	Seed	<i>N1400/kg</i>
<i>Pentaclethra macrophylla</i> Benth (Leguminosae)	Ukpaka	Ukpaka	Break off pod of fruit, sundry the seeds	Food as soup	Seed	<i>N356/kg</i>
<i>Piper guineensis</i> Schum. & Thonn. (Piperaceae)	Guinean pepper	Uziza	Pluck fruits, sundry, gather, remove chaff and packed to measurement sizes	Soup additive, preservative in medicine	Seed (spice) and leaves (vegetable)	<i>N700/kg/seed</i> <i>N350/kg/leave</i>
<i>Treculia africana</i> Decne. ex Trecul. (Moraceae)	African bread fruit	Ukwa	Allow mature fruit to fall freely, gather, cover for a week, wash in river/stream, steam remove chaff and cook with potash	Food (soup)	Seed	<i>N220/kg</i>
<i>Xylopia aethiopica</i> (Dunal.) A.Rich (Annonaceae)		Uda	Pluck and sun dry	Spice	Fruit	<i>N700/kg</i>

Twelve (12) taxa of NTFPs belonging to eleven (11) families were observed to be commonly traded by the people of Ihiala, Anambra State during the rainy season, (Table 2). *Piper guineensis* and *Xylopia aethiopica* are used as spices and/or soup condiment. *Garcinia cola* is used as medicine to treat snake bites, cough and as anti-poison. Water extracts of *G. cola* is also used in cloth colouring, and the seeds are valued culturally in Ibo land for entertainment of important guests. *Gnetum africana*, *Gongronema latifolia* and *Piper guineensis* leaves are important delicacies at household level. Table 3 showed the profitability of NTFPs trade in the study area, *Calamus spp* have the highest profit of N490/basket (standard), while *Treculia africana* seed have a profit margin of N20/kg at the local level. However, the rate

of turnover and species importance in the community was highest for *G. cola*, *T. africana*, *P. guineensis* and *I.*

*gaboneensis*. The average rate of returns on investment in NTFPs trade (RORI) in Ihiala LGA was calculated as;

$$\begin{aligned} \text{RORI} &= \text{TR} - \text{TC} / \text{TC} \times 100 \\ &= 6746.7 - (4100.5 + 641.5) / (4100.5 + 641.5) \times 100 \\ &= 42.3\% - 14\% (\text{Int. rate}) \\ \text{RORI} &= 28.3\% \end{aligned}$$

The rate of returns on investment of NTFPs in the study area showed a high returns in the trade (28.3%). Interest rate of 14% on loans for agricultural business as approved by Central Bank of Nigeria was used to compute the RORI, (CBN, 2010). The average current bank interest rate for investments other than agriculturally based in Nigeria is 22.5%, trade in NTFPs will compete profitably even if investment on capital is sourced from the banks at the current interest rate for other businesses.

**TABLE 3:** Profit margins of commonly traded NTFPs in Ihiala LGA

NTFPs Species	Family	Plant parts traded	Average Cost price/kg (N)	Average Processing cost/kg (N)	Average sales price/kg (N)	Average Profit margin/kg (N)
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<i>Bambusa vulgaris</i>	Poaceae/Gramineae	Stem	-	-	N50/metre	N50/metre
<i>Calamus spp</i>	Arecaceae/Palmae	Stem	N10/kg	N500/basket	N1000/basket	N490/basket
<i>Dacryodes edulis</i>	Burseraceae	Fruit	N152.5/kg	N06.5/kg	N195.7/kg	N36.7/kg
<i>Garcinia cola</i>	Guttiferae	Seed	N918/kg	N50	N1225/kg	N257/kg
<i>Garcinia mannii</i>	Guttiferae	Stems and Twigs (straps)	N10/kg	-	N120/kg	N110/kg
<i>Gnetum africana</i>	Gnetaceae	Leaves	N240/kg	-	N300/kg	N60/kg
<i>Gongronema latifolia</i>	Asclepiadaceae	Leaves and stems	N100/kg	-	N130/kg	N30/kg
<i>Irvingia gabonensis</i>	Irvingiaceae	Dried seed	N1000/kg	N20	N1400/kg	N380/kg
<i>Pentaclethra macrophylla</i>	Mimosaceae	Seed	N270/kg	N15/kg	N356/kg	N71/kg
<i>Piper guinneense</i>	Piperaceae	Dried fruit	N500/kg	N50/bag	N700/kg	N200/kg
<i>Piper guinneense</i>	Piperaceae	Fresh leaves	N200/kg	-	N350/kg	N150/kg
<i>Treulia africana</i>	Moraceae	Seed	N200/kg	-	N220/kg	N20/kg
<i>Xylopia aethiopica</i>	Annonaceae	Fruit	N500/kg	-	N700/kg	N200/kg
		Total	N4100.5	N641.5	N6746.7	N2054.7

(Note: N – Nigerian Naira, IUSD = N165)



Fig. 4: Processing of rattan (*Calamus spp*) for the production of local baskets in the study area.

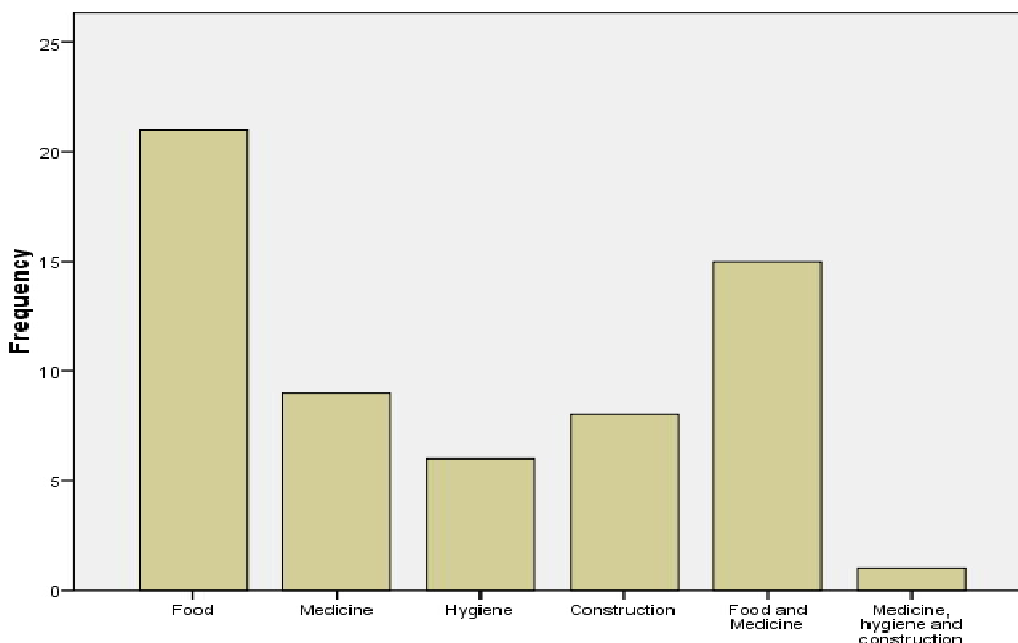


Fig 5: Uses of NTFPs in the study area

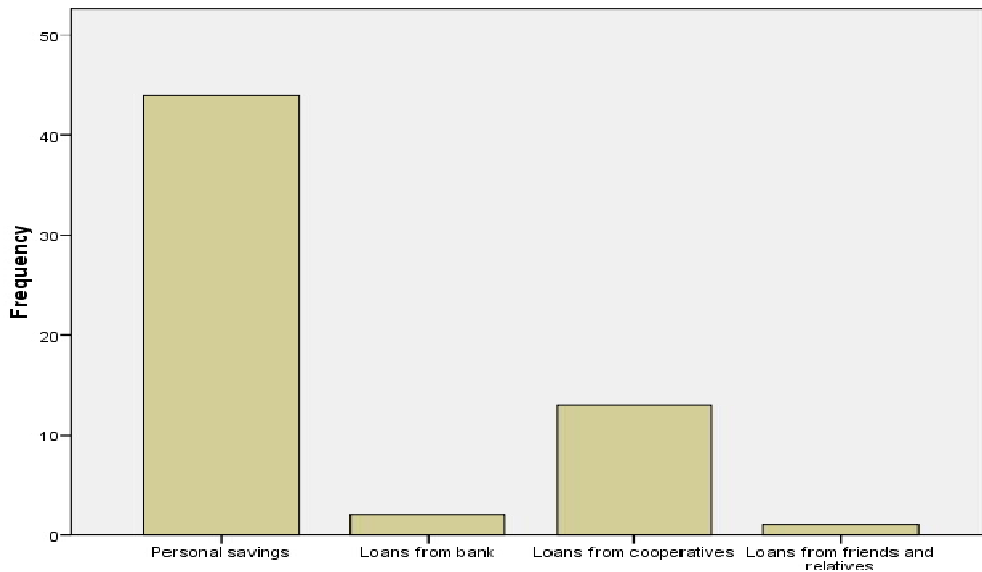


Fig 6. Source of capital for trade in NTFPs

**DISCUSSIONS**

Many studies document the fact that forest-dependent people often have few options except to gather and hunt NTFPs for their food, medicines and cash income (FAO 1995; Falconer 1996; Ros-Tonen 1999). It is only relatively recently that non-timber forest products have become the focus of research and development initiatives (Neumann and Hirsch 2000). Arnold (2004) noted that while much is known about the characteristics of individual NTFPs, less is known about their commercial performance and developmental linkages.

In the south Eastern Nigeria, where this work was carried out, females were the major traders in NTFPs as reflected in Table 1, the result corroborate findings of Ndoye *et al.* (1998) where women form ninety-four percent of NTFPs traders operating in the markets of Cameroon. Males are mostly involved in collection of NTFPs from difficult terrain or those that require climbing. Extractions of species such as *Garcinia manii*, Calamus, Bamboo and oil bean (*Pentaclethra macrophylla*) are executed by men. Women and children execute gathering, processing and trading of fruits such as *Treculia africana*, *Irvingia gabonensis*, *Dacryodes edulis* and *Garcinia cola*. In most households difficult tasks are reserved for men while children assist the women to perform simple tasks of fruit and leaf gathering as well as selling the items in local markets. Gender distribution of the NTFPs traders showed females outnumbering the males, indicating that women are involved in NTFPs trade than men.

The age of traders in NTFPs spread across all age classes, this was also observed in Sapele, Nigeria, (Agbogidi (2010). Married people are mostly involved in the trade of NTFPs than unmarried individuals, in the study area. Large family size contribute to the rate at which individuals are involved in collection and trade of NTFPs to support the household (Table 1), FAO (1995), have noted that families with higher household number collect and trade in NTFPs to enable them meet up their family needs. Processing of NTFPs add

value for higher profits, for example the average price of rattan species processed into standard basket is about NGN1000, (approximately USD\$7) at time of this survey, Plate 1.

Fruits and seed items such as *G. cola*, *Irvingia gabonensis* and *Piper guineensis* are available all-round the year as a result of processing (drying) while some forest vegetables have problems with storage, they are easily perishable and cannot be preserved beyond few days. It was also observed that majority of the traders engaged in farming to supplement their cash income and food production. The unavailability of some NTFPs at the time of this survey suggests seasonality of certain NTFPs which are not captured in this report, for example *Tetracarpidium conophorum* and *Pterocarpus spp.* (Oha). Seasonality sometimes leads to increase in price as observed by Okafor (1981). Distance from point of collection to the market also influence the price of NTFPs, this affects transportation cost which may reduce the profit margin of the traders. NTFPs contribute to food security in the study area, many of the NTFPs recorded in the study are mainly used as food and medicine by the rural people, for example *Piper guineensis* and *G. latifolia*; others are used for construction and hygiene (Fig 5). Ruiz Pérez *et al* (2004) asserted that product use is shaped by local markets and institutions, resource abundance, and the relative level of development.

The non-accessibility to credit facilities by the rural poor made NTFPs traders to source initial investment capital for their trade from personal savings, loans from cooperative societies, friends and relatives as shown in (Fig 6). Highly valued species of NTFPs such as *Xylopia aethiopica* and *Irvingia gabonensis* are retained largely on farms and cultivated in home gardens. Average NTFPs production cost and market prices obtained during the survey was used to calculate the simple rate of returns on investments (RORI = 28.3%), this value indicate the profit potentials of trade in

NTFPs in Ihiala LGA. The profits obtained at the local market level are marginal compared to profits generated at the regional and national markets levels.

## CONCLUSION

NTFPs are important part of forest products which provide cash income to the poor rural inhabitants especially in Ihiala Local Government Area as shown in this study. It has contributed to the improvement of the livelihood of the people by providing job opportunity, income generating, medicine and food. NTFPs have huge trade transactions and income generating potentials, in order to sustain the expanding trade in NTFPs, sustainable management plans and increased production via cultivation in agroforestry farms must be encouraged. Sustainable management plans is a measure against over exploitation and unsustainable harvesting methods of the wild resources. Stake holders and agencies needs to employ policies and regulation that will promote conservation, trade and sustainable utilization of NTFPs in the study area. Improved marketing facilities such as good roads and processing are also a panacea for efficient and profitable trade in NTFPs.

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