

# Contribution of Non-Timber Forest Products to Household Food Security among Rural Women in Iseyin Local Government Area of Oyo State, Nigeria

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## Abstract

The study examined the contribution of non-timber forest products gathering on household food security among rural women in Iseyin Local Government Area of Oyo State, Nigeria. Simple random sampling technique was adopted in the selection of respondents for the study, while structured interview schedule was used to obtain relevant information from the sample of one hundred and thirty (130) rural women in the area. Data collected were analyzed with appropriate statistical tools. The respondents sampled are aware of availability of different NTFPs in the study area and they are involved in NTFPs gathering at different levels. The NTFPs gathered by rural women include: vegetables, mango fruit/orange fruits, firewood and herbs. Result further revealed that the rural women derived a variety of benefits from gathering of NTFPs and it has helped to improve their household food security level of the respondents in the study area. Majority (76.1%) of the respondents were food secure. The study found significant relationship between some selected socio-economic characteristic variables such as education ( $X^2 = 6.240$ ,  $p < 0.05$ ), household size ( $X^2 = 10.296$ ,  $p < 0.05$ ), Marital status ( $X^2 = 5.126$ ,  $p < 0.05$ ), income ( $X^2 = 7.088$ ,  $p < 0.05$ ) and level of involvement of respondents in gathering of NTFPs. Also positive and significant relationship exists between level of household food security of the respondents and their level of involvement in gathering of NTFPs. The study therefore recommended that, there is need to encourage rural women in the gathering of NTFPs as part of the means of livelihood in the rural area of Nigeria due to varieties of benefits attached to it, which could assist to curb the menace of food insecurity in the Nigeria.

**Keywords:** Contribution, Non-Timber, Rural, Women, Forest, Food Security, Nigeria

## 1. Introduction

The terms non-timber forest products (NTFPs) and non-wood forest products (NWFPs) are used interchangeably. They are products of biological origin, other than wood, derived from forests, other wooded land and trees outside forests. NTFPs may be gathered in the wild or from trees outside forests or produced in forest plantations and agroforestry schemes. Examples of NTFPs include food additives (edible nuts, mushrooms, honey, fruits, herbs, spices and condiments, aromatic plants, game); fibres (used in construction, furniture, clothing or utensils); resins and gums; and plant and animal products (used for medicinal, cosmetic or cultural purposes) (FAO, 1991). Non-timber forest products (NTFPs) constitute an important source of livelihood for millions of people across the world. In India alone it is estimated that over 50 million people are dependent on NTFPs for their subsistence and cash income (Shaanker et al., 2004). Mulenga et al (2011) reported the contribution of NTFPs to rural household income and food security in Zambia as well its influence on the national economy. Forest-based activities in developing countries Nigeria inclusive, which are mostly in NTFPs area, provide an equivalent of 17 million full-time jobs in the formal sector and another 30 million in the informal sector, as well as 13-35% of all rural non-farm employment (Duong, 2008). NTFPs are important forest products especially in dry land areas where they form alternative sources of livelihoods. They also contribute to poverty alleviation through generation of income providing food and improved nutrition, medicine and foreign exchange earnings (Chikamai and Kagombe, 2002). There is therefore a growing awareness of the contributions of NTFPs to household economies, food security, national economies and conservation of biodiversity. Non-Timber Forest Products provide food, medicines, fibres and cash income for rural households (Okafor *et al*, 1994).

Much has been written about the negative impact of globalization on the world's poor people, and especially on women in relation to household food security. But globalization also opens up new economic opportunities if poor women producers and workers are able to take advantage of them. Nowhere is this more evident than in the non-timber forest products (NTFPs) sector. NTFPs have traditionally provided a source of nutrition and income for millions of indigenous women and men in some of the most remote areas of developing countries (IFAD, 2008).

The importance of non-timber forest products goes beyond meeting basic needs since the products are also among the rapidly growing markets sectors. The estimated total value in world trade on NTFPs as of today is

approximately US \$1,100 Million (Kalu and Anigbere, 2011). Indication is that the marketing has grown by nearly 20% annually in the last couple of years (Hammett, 1998). Future development of NTFPs offers potentials for increasing income, expanding opportunities and diversifying enterprises in rural areas. People all over the world have been living on NTFPs because these come in a variety of items namely: food, forage, roughage, medicine, fuel, fibres, tannin, resins oils, spices and a host of others (FAO, 1991).

Research carried out in six communities in Tanzania found that farmers were deriving up to 58% of their cash income from the sale of honey, charcoal, fuel wood, wild fruits and vegetables (CIFOR, 1999). According to Gardei (2006), the majority of farming communities in South West Ethiopia are forest dependant. The forest is the major source of their livelihood and subsistence by providing them a variety of NTFPs (Muzayen, 2009). There has been renewed interest in the development of non-timber forest products (NTFPs) as an instrument for sustainable rural development (Tieguhong and Ndoye 2004). In this paper, NTFPs can be defined as forest products other than timber, such as vegetable, mushroom, palm fruit, locust-bean, mango fruit, orange fruit, guinea pepper, honey, gums, palm wine, etc.

### **1.2 Objective of the study**

This study investigated the contribution of non-timber forest products (NTFPs) to household food security among rural women in Iseyin Local Government Area of Oyo State, Nigeria.

Specifically, it examined the socio-economic characteristics of respondents; identified the NTFPs available to the respondents in the area; determined the level of involvement of rural women in gathering of NTFPs; ascertained the level of household food security of the respondents in the area. It was hypothesized that there is no significant relationship between selected socioeconomic characteristic variables, level of household food security and level of involvement of rural women in NTFPs gathering.

## **2. Methodology**

The study was carried out in Iseyin Local Government Area (LGA) of Oyo State, Nigeria. The LGA consist of One hundred and sixty (160) villages, from which five percent of the total villages were randomly selected, which amounted to a total of thirteen (13) villages in all. From each village ten rural women were randomly selected summing up to a total of one hundred and thirty (130) respondents that constituted the sample size for the study. Descriptive statistical tools used in data analysis include frequency counts, percentages and mean. Chi-square and Pearson correlation were used as inferential statistical tools to test the formulated hypotheses of the study.

### **2.1 Measurement of Variables**

There are two variables measured in the study. The independent variables measured in the study are as follows:

**2.1.1 Age:** Respondents' age was measured in actual years.

**2.1.2 Marital status:** measured as either married, single, divorce or widow

**2.1.3 Educational status:** measured by the numbers of years spent in school

**2.1.4 Nativity:** Measured as indigene or non-indigene

**2.1.5 Occupation:** Respondents were asked to state their primary occupation for livelihood.

**2.1.6 Benefits derived from gathering** was measured in 5 point Likert scale of strongly agreed = 5, Agreed= 4, undecided = 3, disagreed = 2 and strongly disagreed = 1

**2.1.7 Household food security** was measured on Household Food Security Access Scale (HFSAS) with 9 items, on a 5 point scale of Not at all = 0, Rarely = 1, sometimes = 2 often = 3, very often=4. The possible maximum Household food security score is 27 points and the minimum is zero (0). This was used to categorize the respondents into food secure (0 – 9), moderately food secured (10 – 18) and food insecure > 19.

**2.1.8** The dependent variable for the study is the level of Involvement in NFTP gathering. This was measured on a 4 point rating scale of Not at all = 0, Rarely = 1, sometimes = 2 and Always = 3.

## **3. Results and Discussion**

### **3.1 Socioeconomic Profile of the Respondents**

The socio-economic characteristics of the respondents were described in Table 1. The result revealed that majority (66.2%) of the respondents were indigene of the study area while 33.8% were non-indigene. Table 1 shows that majority (80.0%) of the sampled women in the study area were between age  $\leq 30$  and 49yrs and the remaining 20 percent were 50yrs and above. This result indicates that the most of the respondents were in active age and are expected to contribute immensely to productive enterprise and food security. Most (76.9 %) of the respondents were married while 18.5 % of the respondents were widow/divorce and about 5percent were single. Higher percentage of married population in the study area indicates that they are expected to be responsible. The finding of this study is in line with Jibowo (2000) that a high percentage of rural population are married. Data on household size revealed that many of the rural women (69.2%) had between 6 and 10 members in their

households. From this, it could be inferred that family labour would be readily available especially in gathering NTFPs in the study area. In terms of educational status of the respondents, it was revealed that a high percentage (67.7%) of the sampled women had no formal education while the remaining (32.3%) were literate ranging from primary education to tertiary education.

The same Table 1, It shows that majority (82.3%) of the respondents has been living in the study area for a quite a long – time. They must have been able to know the areas very well and determine where to gather those NTFPs. Furthermore, the result shows that majority (73.1%) of the women indicated farming as their primary occupation, 23.1% and 3.8% indicated trading and artisan as primary occupation. It implies that majority of the sampled rural women engaged in farming as primary occupation. This may be due to the fact that farming is the major economic activity in the rural area (Ekong, 2003). Also, majority (54.6%) of the women earned less than ₦5,000 monthly from the sales of NTFPs while 43.9% earned between ₦5,001 and ₦10,000 monthly and only the remaining (1.5%) of the respondents earned between ₦10,001 and above monthly on the sales of NTFPs. This implies that the women realized income from the sales of the NTFP which could influence their food security status in their family.

### **3.2 Availability of NTFP for Gathering**

Table 2 showed the distribution of respondents according to availability of various NTFPs in the study area. All the sampled rural women indicated the availability of bush meat, vegetable, mushroom, snail, palm fruit, locust bean, orange /mango fruit, chewing-stick, firewood, ginger, alligator pepper, ropes, honey and palm wine, 42.3% and 63.8% indicated pearl and gum as NTFPs that are available in the area. The variation in availability may be due to differences in the type they are involved in its gathering. This implies that there are varieties of NTFPs for rural women to gather and expected to make them to be food secured. This finding corroborates IFAD (2008) that NTFPs offer great promise for women producers in the informal economy.

### **3.3 Involvement of Women in NTFP Gathering**

Table 3 revealed that rural women were highly involved in gathering of vegetables, mango fruits/orange fruits, firewood, herbs and palm fruits as they ranked 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> respectively. This shows that level involvement of women in NTFPs gathering are more of economic value items. Kalu and Anigbere (2011) had earlier reported that gathering of NTFPs are of the great potentials for increased income and expanding of opportunities among rural women. Those NTFPs that are least gathered by rural women include ginger, alligator pepper and pearl. This could probably attributed to the fact that they are not always consumable forest products though they have economic value. This finding suggested that rural women are involved at the different level of gathering NTFPs in the study area, especially, those that are nutritious and have economic relevance. This implies that NTFPs could serve as livelihood sector for the rural women in the study area and it is expected to have positive influence on the household food security of the rural women in the area. This is in line with the study of Carr and Hartl (2008) that Non-Timber Forest Products is a sector that offers great promise for women, but to enhance the effectiveness of poverty reduction programmes, opportunities for the greater involvement of women are essential.

### **3.4 Benefits Derived in NTFP Gathering**

Table 4 revealed the various benefits derived by rural women in gathering of NTFPs in the area. It was revealed that income generation and food/nutrition ranked first, which suggest that majority of rural women indicated income generation and food/nutrition as the most important benefits they derived from NTFPs gathering in the study area. Medicinal purpose, cultural/ social purpose and prevention of soil erosion ranked 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> with WMS of 4.95, 4.19 and 3.92 respectively, while improvement of soil quality and NTFP as raw materials ranked 5<sup>th</sup> and 6<sup>th</sup> with WMS of 3.15 and 2.99 respectively. This implies that rural women derived varieties of benefits in gathering of NTFPs in the study area and this expected to influence their household food security level. This finding follows the assertion of Chamberlain *et al.* (1998) that people have benefited from NTFPs for many generations and that in some cases; NTFPs contribute significantly to family income, local and regional economies.

### **3.5 Household Food security Index**

Table 5 indicate the household experience related to food security and the result showed that majority agreed that eat limited variety of food due to lack of resources had the highest weighted mean score (WMS) of 2.77 and was ranked first; not able to eat the kind of food you preferred due to lack of resources; worry that your household would not have enough; and eat food you really not want to eat because of lack of resources ranked 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> respectively. Eat a smaller meal than you felt to eat due to lack of resources, eat fewer meal in a day due to there is no enough food and no food to eat of any kind due to lack of resources with WMS of 0.21, 0.04 and 0.02 ranked 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup>, while member go to sleep at night hungry due to there is no enough food; and go a whole day and night without eating due to there is no enough food ranked 8<sup>th</sup> the least of all. This finding indicates that those items on household food security access scale with high WMS are of food insecure and vice versa for those with low WMS respectively.

Table 6 shows the categorization of the respondents based on level of household food security. It was revealed that about 44.0 percent of the respondents were food secure in their household with the food security score between 0 and 9 points on household food security access scale, 32.3 percent were moderately food secured and about 24 percent of the rural women were food insecure. This finding revealed that majority of the rural women were household food secure as a result of gathering NTFPs in the study area.

### **3.6 Relationship between Selected independent variables and level of involvement of rural women in gathering of NTFPs.**

The result of Chi-square analysis is summarized in Table 7. It was revealed that education ( $X^2 = 6.240$ ,  $p < 0.05$ ), household size ( $X^2 = 10.296$ ,  $p < 0.05$ ), marital status ( $X^2 = 5.126$ ,  $p < 0.05$ ), income ( $X^2 = 7.088$ ,  $p < 0.05$ ) significantly influenced the level of involvement of rural women in gathering of NTFPs. This implies that all the aforementioned variables (level of education, household size, marital status and income) have decisive influenced the involvement of rural women in gathering of NTFPs in study the area. Also the result of Pearson correlation established that positive and significant relationship ( $r = 0.355$ ;  $P < 0.05$ ) exist between level of household food security of the respondents and level of involvement in gathering of NTFPs. This implies that increase in level of involvement of the rural women would lead to increase in their level of food security in the study area.

### **4.0 Conclusion and recommendations**

Based on the findings of this study, it was concluded that rural women had a high level of involvement in NTFPs gathering especially those products that are nutritious and economic relevance and it had contributed to food security of rural households. The study revealed a significant relationship between some selected socio-economic characteristic variables and level of involvement of respondents in the gathering of NTFPs; there is positive and significant relationship between level of household food security and level of involvement of respondents in the gathering of NTFPs.

The study therefore recommended that there is need to encourage rural women in the gathering of NTFPs as the means of livelihood in the rural area of Nigeria because of varieties of benefits attached to it, which could assist to curb the menace of food insecurity in Nigeria; government should sensitize the various stakeholders serving Nigeria rural communities about the importance of NTFPs so as to consider it as part of the livelihood among the rural dwellers due to its international recognition and usefulness of NTFPs in the world as a whole. Finally, the study also suggested that enlightenment programme should be organized for rural women in order to create more awareness on the importance of NFTP gathering so as to improve their income generating capacity and invariably influenced their household food security status.

### **5.0 Acknowledgements**

The input of Mrs Hammed, L. in the process of data collection as an enumerator is gratefully acknowledged.

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Table1: Distribution of Respondents by socio-economic characteristics N= 130

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Nativity</b>		
Native	86	66.2
Non-native	44	33.8
<b>Age (Years)</b>		
≤ 30	08	6.2
31-39	34	26.2
40-49	62	47.6
50-59	18	13.8
60 and Above	08	6.2
<b>Marital status</b>		
Single	06	4.6
Married	106	76.9
Widow	24	18.5
<b>Household size</b>		
1-5	40	30.8
6-10	90	69.2
<b>Level of education</b>		
No formal education	88	67.7
Primary education	20	15.4
Secondary education	17	13.1
Tertiary education	15	3.8
<b>Primary occupation</b>		
Farming	95	73.1
Trading	30	23.1
Artisan	5	3.8
<b>Years of Residency</b>		
≤ 20	61	46.9
21-30	46	35.4
31-40	10	7.7
41 and Above	13	10.0
<b>Income realized from sales(Naira)</b>		
≤5000	71	54.6
5001 – 10000	57	43.9
10,000 and above	2	1.5

Source: Field Survey, 2010.

**Table 2: Distribution of respondents by availability of NTFPs for Gathering**

Non-timber forest Products Available	availability of NTFPs	
	Frequency (Percentage)	
	Yes	No
Bush meat	130 (100.0)	0 (0.0)
Vegetable	130 (100.0)	0 (0.0)
Mushroom	130 (100.0)	0 (0.0)
Snail	130 (100.0)	0(0.0)
Palm fruit	130 (100.0)	0 (0.0)
Locust bean	130 (100.0)	0 (0.0)
Mango fruit/ Orange fruit	130 (100.0)	0 (0.0)
Firewood	130 (100.0)	0 (0.0)
Chewing stick	130 (100.0)	0 (0.0)
Ginger	130 (100.0)	0 (0.0)
Alligator pepper	130 (100.0)	0 (0.0)
Pearl	55 (65.4)	45 (34.6)
Ropes	130 (100.0)	0 (0.0)
Honey	130 (100.0)	0 (0.0)
Herbs	130 (100.0)	0 (0.0)
Gum	83 (63.8)	47( 36.2)
Palm wine	130 (100.0)	0 (0.0)

Source: Field Survey, 2010.

**Table 3: Distribution of Respondents by their Level of Involvement in Gathering of NTFPs**

Non-timber forest products	Level of involvement					
	Frequency (Percentage)					
	Not at all	Rarely	Sometime	Always	WMS	Rank
Bush meat	0(0.0)	93(71.5)	26(20.0)	11(8.5)	1.37	11 <sup>th</sup>
Vegetable	0(0.0)	0(0.0)	0(0.0)	130(100.0)	3.00	1 <sup>st</sup>
Mushroom	0(0.0)	0(0.0)	110(84.6)	20(15.4)	2.15	9 <sup>th</sup>
Snail	0(0.0)	0(0.0)	116(89.2)	14(10.8)	2.11	10 <sup>th</sup>
Palm fruit	0(0.0)	1(0.8)	0(0.0)	129(99.2)	2.96	3 <sup>rd</sup>
Locust bean	0 (0.0)	0(0.0)	102 (78.5)	28(21.5)	2.22	8 <sup>th</sup>
Mango fruit/ Orange fruit	0(0.0)	0(0.0)	0(0.0)	130(100.0)	3.00	1 <sup>st</sup>
Firewood	0(0.0)	0(0.0)	0(0.0)	130(100.0)	3.00	1 <sup>st</sup>
Chewing stick	0(0.0)	1(0.80)	15(11.5)	114(87.7)	2.87	4 <sup>th</sup>
Ginger	0(0.0)	120(92.3)	10(7.7)	0(0.0)	1.07	13 <sup>th</sup>
Alligator pepper	0 (0.0)	126 (96.9)	4 (3.1)	0(0.0)	1.03	14 <sup>th</sup>
Pearl	53(40.8)	77(59.2)	0 (0.0)	0(0.0)	0.59	15 <sup>th</sup>
Ropes	0(0.0)	0 (0.0)	64(49.2)	66(50.8)	2.51	5 <sup>th</sup>
Honey	1(0.8)	6 (4.6)	0 (0.0)	59(45.4)	2.39	6 <sup>th</sup>
Herbs	0 (0.0)	0(0.0)	1(0.8)	129(99.2)	2.99	2 <sup>nd</sup>
Gum	121(93.1)	8 (6.2)	83(63.8)	0(0.0)	1.34	12 <sup>th</sup>
Palm wine	0(0.0)	0(0.0)	84(64.6)	46(35.4)	2.35	7 <sup>th</sup>

Source: Field Survey, 2010.

**Table 4: Distribution of respondents and Rank order according to benefits derived from NTFPs gathering.**

Benefits	Level of agreement with benefits derived from NTFPs						
	Frequency (Percentage)						
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	WMS	Rank
Income generation	130(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	5.00	1 <sup>st</sup>
Medicinal purpose	128(98.4)	0(0.0)	1(0.8)	0(0.0)	0(0.0)	4.95	2 <sup>nd</sup>
As raw materials	0(0.0)	5(3.8)	123(94.6)	0(0.0)	0(0.0)	2.99	6 <sup>th</sup>
Food and nutrition	130(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	5.00	1 <sup>st</sup>
Cultural and social purpose	25(19.2)	105(80.7)	0(0.0)	0(0.0)	0(0.0)	4.19	3 <sup>rd</sup>
Prevention of soil erosion	0(0.0)	119(91.5)	11(8.5)	0(0.0)	0(0.0)	3.92	4 <sup>th</sup>
Improvement of soil quality	0(0.0)	26(20.0)	102(78.5)	0(0.0)	0(0.0)	3.15	5 <sup>th</sup>

Source: Field Survey, 2010.

**Table 5: Distribution of respondent by level of household food security on household food security Access scale**

N= 130

Measuring household food security	Frequency (Percentage)						WMS	Rank
	Very often	Often	Sometimes	Rarely	Not at all			
Worry that your household would not have enough	0(0.0)	4(3.1)	125(96.2)	0(0.0)	1(0.8)	2.02	3 <sup>rd</sup>	
Not able to eat the kind of food you preferred due to lack of resources	2(1.5)	6(4.6)	121(93.1)	1(0.8)	0(0.0)	2.07	2 <sup>nd</sup>	
Eat limited variety of food due to lack of resources	25(19.2)	56(43.1)	45(34.6)	2(1.5)	2(1.5)	2.77	1 <sup>st</sup>	
Eat food you really not want to eat because of lack of resources	13(10.0)	19(14.6)	58(44.6)	28(21.5)	12(9.2)	1.95	4 <sup>th</sup>	
Eat a smaller meal than you felt to eat due to lack of resources	0(0.0)	0(0.0)	6(4.6)	15(11.5)	109(83.8)	0.21	5 <sup>th</sup>	
Eat fewer meal in a day due to there is no enough food	0(0.0)	0(0.0)	2(1.5)	1(0.8)	127(97.7)	0.04	6 <sup>th</sup>	
No food to eat of any kind due to lack of resources	0(0.0)	0(0.0)	1(0.8)	1(0.8)	128(98.5)	0.02	7 <sup>th</sup>	
Member go to sleep at night hungry due to there is no enough food	0(0.0)	0(0.0)	0(0.0)	0(0.0)	130(100.0)	0.00	8 <sup>th</sup>	
Go a whole day and night without eating due to there is no enough food	0(0.0)	0(0.0)	0(0.0)	0(0.0)	130(100.0)	0.00	8 <sup>th</sup>	

Source: Field Survey, 2010.



**Table 6: Categorization of respondents by level of household food security on access scale n=130**

Food security score	Category	Frequency	Percentage
0 – 9	Food Secure	57	43.8
10 – 18	Moderately Food Secure	42	32.3
19 – 27	Foods insecure`	31	23.9
Total		130	100.0

Source: Field Survey, 2010.

**Table 7: Chi-square analysis showing the relationship between socio-economic characteristics of the respondents and level of involvement in gathering NTFPs**

Variables	X <sup>2</sup>	Df	cc	P-Value	Remark
Age	0.492	1	0.061	0.483	NS
Level of education	6.240	1	0.214	0.012	S
Years of residency	0.770	1	0.077	0.38	NS
Household size	10.296	1	0.271	0.001	S
Marital status	5.126	2	0.195	0.001	S
Income	7.088	2	0.227	0.029	S

Source: Field Survey, 2010.

**Df: Degree of freedom, cc: Contingency Coefficient, NS: Not Significant**

**S: Significant**

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