



Nemis Journals

Nemis Journal of Environmental Science

VOL. 1(1), pp. 01-015, AUGUST 2015

ARTICLE NUMBER: NJES15016

ONLINE: <http://www.nemisjournals.org/NJES>

Full length Research Paper

Contribution Of Non-Timber Forest Products (ntfps) To Poverty Reduction In Nagi Community, Gwer-West Local Government Area Of Benue State, Nigeria.

BY

Nyibiam Benjamin and Ogwuche Jonathan Ali

Department of Geography, Benue state university, Makurdi, Nigeria

Accepted: 5 AUGUST, 2015.

ABSTRACT

This study assessed the contribution of NTFPs to poverty reduction in Nagi Community of Gwer West Local Government Area of Benue State, Nigeria. A total of 120 persons involved in the NTFP business chain were selected randomly for this research. Using questionnaire, observation and Focus Group Discussion, the research identified a variety of NTFPs in the 3 forest types in the area. The gains accruing to those in the business include increase in social status, human capacity building, economic empowerment, and employment. The study established that 98.01 percent of the variation in the income generated by the respondents is explained by increase in NTFP business. This means therefore that NTFP business contributes significantly to poverty reduction in the area. The study recommends the strengthening of NTFP business through the creation of more markets, provision of road infrastructure, and establishment of NTFP processing industries in the area.

Keywords: NTFPs, NTFP business, poverty reduction, sustainable livelihoods.

Corresponding Authors Email: Ogwuche.jonathan@yahoo.com

INTRODUCTION

The concept of NTFP is defined not by what it is, but by what it is not, hence the debate has raged over its definition since the term was coined in 1989 (Belcher 2003). It evolved from the term “minor forest products” because it does not reflect its economic, social, religious or conservation importance. Non-timber forest products (NTFPs) are one of the most valuable products of natural resources contributing to the development of mankind, as they play vital roles in the life and economy of people living in and around forests. According to the Centre for International Forestry Research (2009) NTFPs are any product or service other than timber that are produced in forests. Such products include fruits, nuts, vegetables, honey, game, medicinal plants, resins, bark and fibers (such as bamboo and rattan) and other palms and grasses. Many NTFPs are important subsistence products while others are a valuable source of income, especially for the rural people. Buttressing this, the UN Millennium Project (2005) asserts that the dependence on NTFPs is greatest among the poor for whom these products often serve the safety-net function during periods of stress.

Before now, the Nigerian natural forests have been managed exclusively over the years for timber production rather than an independent, highly diverse ecosystem of potential multiple value (Panayotou and Ashton 1992). This perception has culminated in goods undervaluation of the forest as various non-timber resources, which, in most cases are much more valuable than timber resources, have been ignored. With the unique diversity of plants and animals, tropical rainforest represent biologically renewable resource of food, fibre, medicine and fuel. Accordingly, if managed, could be a valuable natural asset for improving the livelihoods of the rural people, providing income, health, cultural and social resilience, self-esteem and environmental sustainability. This follows the shift from a classical income-based to a multi-dimensional perspective of poverty (World Bank, 2003).

The sustainable livelihoods approach to poverty reduction places the people and the environment in which they live at the Centre of the development process, starting with their capabilities and the assets they have (Lloyd-Jones 2002). NTFPs are essentially a niche for the poor (Arnold and Perez 1998), and so, any effort aimed at maximizing the benefits of this asset is *sine qua non* for sustainable livelihoods and poverty reduction.

REVIEW OF THE POTENTIALS OF NTFPs

The potentials of NTFPs result from the business involved in the extraction and the products are subjected, and range from social, economic and environmental.

Social

To Schreckenberg (2004), NTFPs have health, cultural and spiritual importance, and according to Thomas and Schumann (1993), NTFP entrepreneurs are attracted for other reasons such as practicing a more traditional way of life.

The World Health Organization (WHO) (2003) maintains that 80 percent of the populations of developing countries use NTFPs for primary health care and nutritional needs due largely to growing poverty which prevent them from affording the higher costs of pharmaceutical products. Several plant parts such as leaves, flower, stem, bark, roots, fruits, seeds and buds, as well as their products are used for medicinal purposes.

The National Centre for Human Settlements and Environment (1987) claims that NTFPs contribute wild fruits and nuts to the diet of rural dwellers in developing countries and their potentials in ameliorating prevailing food problems are enormous. Forest plants are important and cheap sources of vitamins, minerals, protein, carbohydrates and fats (Greenfacts 2007).

Income

The important contribution of NTFPs to economic well-being is gaining increasing recognition. The growing appreciation for NTFPs stem from an understanding that diverse investment and diverse ecosystems are a strong foundation for sustainable economic development (Hammet and Chamberlin 1998).

NTFPs extraction has multiplier effect in the economy by generating employment and income in downstream processing and trading activities. Studies by Adebayo (2002) in Kwara State revealed that a large number of rural dwellers in the state earn over N20,000 per annum from NTFPs marketing, and provide an equivalence of 17 million full time jobs in 13-35 percent of all rural non-farm employment (Duong 2008). Globally, WHO (2003) estimates that the global market for herbal medicine stood at US\$60 billion, and 25 percent of modern medicine are made from plants first used traditionally.

Environmental

NTFPs represent a way to meet environmental objectives such as conservation of forests, watersheds, biological diversity and genetic resources, and so help communities to meet their needs without endangering forest ecosystem (FAO 1995). This means that by complementing timber-based management, NTFPs offer a basis for managing forests in a more sustainable way. Also, ecosystem services are an expression of the definition of NTFPs, and include the provision of clean water, air and social, as well as carbon sequestration (Nwokeabia 2003).

For the several benefits of NTFPs, communities dwelling in or near forests have in the past ensured that the rich and diverse forest areas are preserved and protected for the continuous production of these goods and services (Tiwari 2010).

STATEMENT OF THE PROBLEM

Despite the numerous strategies for poverty reduction by both the local, state and federal governments in Nagi community, poverty still persists as majority of the people seem to lack access to basic amenities of life. Energetic and vibrant as the people may be, coupled with abundant fertile soil and forest resources, the decline in the socio-economy of the community seems to be depicted in the lack of basic amenities for livelihoods. It is believed that the abundant NTFPs if harnessed by majority of the people can turn around the fortunes of the natural endowments in the area to achieve sustainable livelihoods, poverty reduction and environmental sustainability. This is clearly evidenced by the few prominently rich individuals in the area that are engaged in NTFPs. Also, the availability of information about NTFPs is low (Greenfacts 2005). Figures provided are likely underestimates since many of those products do not enter conventional markets and are not easily reported.

On the basis of these therefore, this study is set to identify the available NTFPs and their uses in Nagi Community, as well as to assess the contribution of NTFPs to the socio-economic advancement of the people in the area.

THE STUDY AREA

Nagi Community is located in Gwer-West Local Government Area of Benue State, Nigeria, on longitude 08° 09'E and latitude 07° 41'N (Fig, 1). It has a spatial coverage of 12.5km². The climate of the area is tropical sub-humid with a mean annual rainfall of between 120 and 200mm, and it falls within AW-climate (Tropical seasonally wet and dry), according to Koppen's classification scheme. Rainfall average 7 months a year while the mean annual temperature is 32°C.

Nagi community and the entire Gwer West LGA is found in the broadest vegetation zone in Nigeria; occupying a vast plain land lying in the transitional belt between the tropical rainforest and open grassland. The dominant soil type there is the tropical ferruginous soils. The conducive physical environment favours the abundance of forests, with viable economic trees for lumbering activities. The common trees include locust beans, Obeche, Melina, Walnut, Iron trees, Daniela oliver spp and Mahogany. Forests spread all over the area and include forest reserve, wild forest and gallery forest. All these also favour the abundance of wildlife such as monkeys, reptiles, buffalos, antelopes, grass cutter and a host of different types of avis.

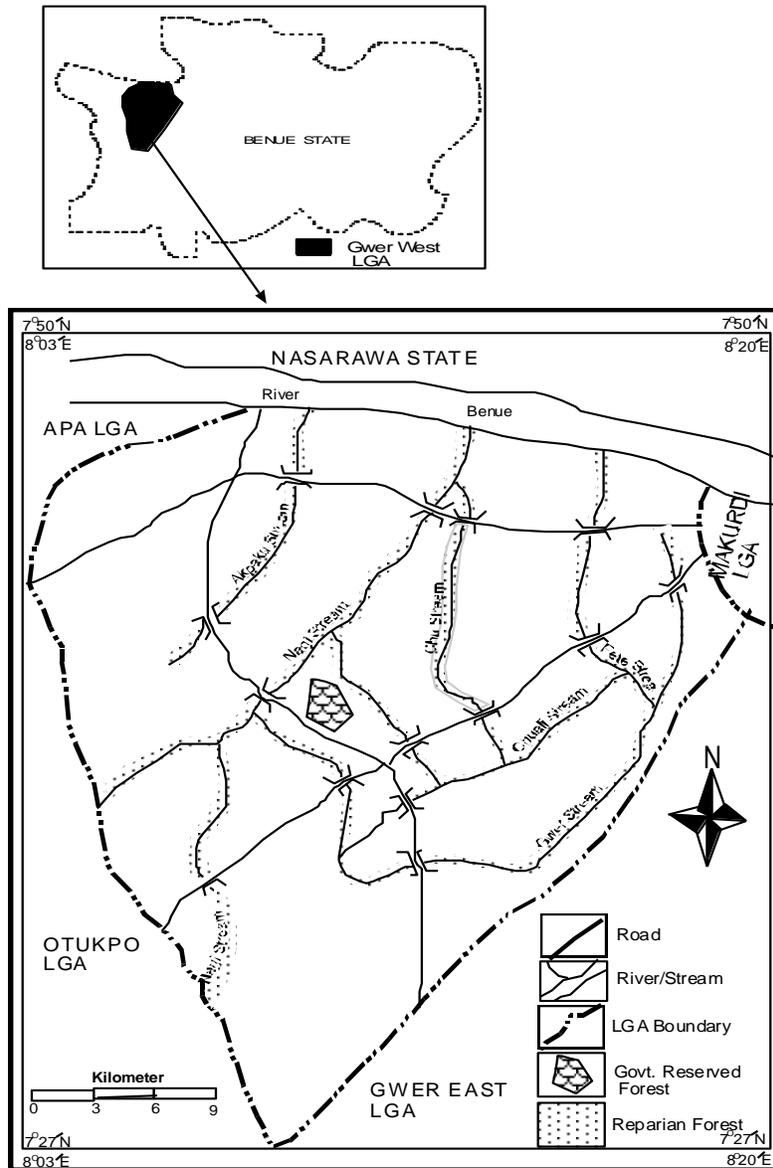


Fig. 1: Map of Study Area

METHODS

The survey research design was used, utilizing the following data collection methods of field survey, observation and Focus Group Discussion (FGD).

The population of the study covers the entire people engaged in NTFPs business in Nagi community that has 3 settlements – Nagi Town, Tse Nyion and Tse Ugbu.

A sample of 10 percent was drawn from each of the 3 sampled areas (settlements) to yield 60 from Nagi town, 30 each from Tse Nyion and Tse Ugbu, making a total of 120. This size is considered sufficient because of the homogeneity of information under investigation.

For data analysis, the descriptive technique of percentage was used as well as analytical technique of Pearson Product Moment Correlation to establish the relationship between NTFP major business in the area and income generation of the people. The formulae is given as

$$r = \frac{n\Sigma XY - \Sigma X \Sigma Y}{\sqrt{n\Sigma X^2 - (\Sigma X)^2} \sqrt{n\Sigma Y^2 - (\Sigma Y)^2}}$$

Where r = correlation coefficient, which is a measure of poverty reduction, and by extension the socio-economic wellbeing of the people.

n = sample size

x and y = NTFP business and income generation respectively.

Also, the t-test was applied to test the significance of the r , and is given as

$$t = r \sqrt{\frac{N-2}{1-r^2}} \quad \text{where } r \text{ is the correlation coefficient, and } N \text{ is sample size.}$$

RESULTS

Socio-Economic Characteristics

Majority (44 percent) of the respondents is within the age bracket of 31- 40, and so fall within the youthful and active age. Also, 80 percent of the respondents engage in NTFP business as their primary source of livelihood, utilizing the abundance of NTFPs in the area, whereas 19.2 percent engage in it as secondary means of livelihood.

Existing Forest Types and Spatial Areas

The survey carried out in the area indicates that there are 3 distinct forest types, with their spatial areas (Table 1) in the area that are exploited without restrictions.

Table 1: Forest Types and Their Spatial Coverage

FOREST TYPE	SPATIAL AREA (KM ²)
Wild	10.1
Gallery	0.056
Reserve	1.1
Total	11.258km²

The wild forest grows naturally with little or no attention to its management. The reserved forest is part of the wild forest that is protected by forest managers. It was declared in 1965 by the Tiv National Authority and named "Mbakpa Forest Reserve". The gallery forest occurs along the Nagi River Banks. The river cuts across the 3 settlements, with the moisture supporting the growth of the gallery forest along the river banks.

NTFP Resources Derived from Nagi Community

The NTFP resources derived from Nagi Community include prints, medicinal plants, honey, mushroom, roofing materials and firewood as well as wood for making charcoal. The study also revealed the native (Tiv) names of the trees that produce these resources as well as their uses as shown in Table 2.

Table 2: NTFPs and their uses in Nagi Community

Resource	Tree species		
	Local (Tiv) name	Scientific name	Uses
Fruits	<i>Apungwa</i>	<i>Lanpoldia owariensis</i>	Home consumption and income generation
	<i>Akoondu</i>	<i>Dialium guinensis</i>	
	<i>Gabela</i>		
	<i>Ahur</i>	<i>Annona senegalensis</i>	
	<i>Hulugh</i>	<i>Vitax doniala</i>	
	<i>Lienegh</i>	<i>Detarium microcarpum</i>	
	<i>Ishondough</i>	<i>Gardenia erubescens</i>	
Nuts and Berries	<i>Tugh</i>	<i>Ficus sur</i>	Home consumption and income generation
	<i>Nune</i>	<i>Parkia biglobosa</i>	
	<i>Gbaaye</i>	<i>Prosopis Africana</i>	
Medicinal Plants	<i>Shagher</i>	<i>Amaranthus spinosa</i>	Illness cured
	<i>Jiagba</i>	<i>Pericopsis laxiflora</i>	Swelling
	<i>Chiha</i>	<i>Daniella olivera</i>	Heart problems
	<i>Kpine</i>	<i>Bridella ferruginea</i>	Fertility problem
	<i>Chameh</i>	<i>Vitelaria paradoxa</i>	Swelling
	<i>Akinde</i>	<i>Ficus polita</i>	Yellow fever
	<i>Shough</i>	<i>Erythrina senegalensis</i>	Yellow fever

Income Generation from NTFPs

The people's perception of poverty is highly tied to income as it is the basis for measuring poverty and determining poverty reduction level in the area. According to them, it is the income that is used for attracting socio-economic well-being to them. In the area, NTFP business is a chain of activities involving extraction, storage, transportation, loading and trading (wholesale and retail), with people involved in each activity type.

The income per month derived from NTFP business is shown in Table 3.

Table 3: Income from NTFP Business

Income per month (Naira)	Respondents	%
Below 15,000	5	4.2
15,100 – 20,000	50	41.7
20,000 – 25,000	20	16.6
Above 25,000	45	37.6
Total	120	100

The amount earned above largely depends on the activity type and status in the NTFP business chain.

The FGD revealed that within the socio-economy of the rural areas, the monthly income of above N25,000 is sustainable for those involved in it as their primary source of livelihood as they can boast of basic necessities of life. Those involved as secondary claimed that with the support of the income from NTFP business, they have been able to acquire additional assets like flashy cars, built new houses or renovated the old one, married more wives, trained more of their children in school, have improved diet and other means of affluence. To a large extent, these are indicators of socio-economic well-being and poverty reduction (as they hitherto had not).

Socio-Economic Contributions of NTFPs

These are categorized into:

- **Social Status:**

There is an increase in the social status of those engaged in the business as a result of assets acquired, political positions attained, and philanthropy in the community. Four out of the five most prominent people in the area are into the NTFP business.

- **Human Capacity Building:**

Several of the children and relatives of those in the business are schooling in various tertiary institutions and some have graduated.

- **Medicinal Use:**

Sixty percent of the people prefer the use of NTFP to the orthodox Medicare. This preference is largely explained by the attributes of NTFPs, which include cheapness, availability, access and potency. According to them, the barks, leave and roots of plants such as pericopsis laxiflora (Jugba in Tiv), Daniella Olivera (Chiha in Tiv), Erythra Senegalensis (Shough in Tiv), and Ficus Polita (Akinde in Tiv) are used in curving diseases such as swelling, heart problems, and fertility problems.

- **Economic Empowerment:**

The income (sale and salary) from NTFP business empowers the people economically to achieve sustainable livelihoods; hence they acquire additional assets and have good living.

- **Employment:**

NTFP business has provided additional job opportunities to the people in the following areas – hunting, collection, storage, transportation and trading.

NTFP Business and Poverty Reduction

It is hypothesized that NTFP business does not significantly contribute to poverty reduction through income generation. To test this, two variables, NTFP business of honey extraction and sale (independent) and the income generated from it (dependent) were used. The product moment correlation analytical technique was used to generate the coefficient of determination, using Table 4.

Table 4: Income from Honey per Litre in Nagi Community

Respondents	Honey/Litre (x)	Income (y)	X ²	Y ²	XY
5	1	300	1	90,000	300
7	2	600	4	360,000	1,200
20	3	900	9	810,000	2,700
10	8	2,400	64	5,760,000	19,200
15	4	1,200	16	1,440,000	4,800
12	2	700	4	490,000	1,400
9	6	2,100	36	4,410,000	12,600
8	10	3,500	100	12,250,000	350,000
23	1	350	1	122,500	350
11	20	7,000	400	49,000,000	140,000
120	57	19,050	635	74,732,500	217,550

$$r = \frac{10 \times 217,550}{\sqrt{10 \times 635 - (57)^2}} - \frac{50 \times 19,050}{\sqrt{10 \times 74732500 - (19050)^2}}$$

$$r = 0.99$$

This indicates that the relationship is positive and very high, and yields a coefficient of determination of 98.01 percent.

The t-test was applied to test the significance of the result, and is given as;

$$t = r \sqrt{\frac{N-2}{1-r^2}} = 0.99 \sqrt{\frac{10-2}{1-0.99^2}} = 19.8$$

Given that the calculated value (19.8) is greater than the critical value (2.31, from the table, at 0.05 level of significance, the null hypothesis is rejected and the alternate, that NTFP business contribute significantly to the income generation (poverty reduction) of the people. The result of the t-test further strengthened the acceptance of the correlation coefficient (r = 0.99) that it did not occur by chance. It therefore means that 98.01 percent of the variation in the income generated from honey is explained by increase in the NTFP business.

CONCLUSION

This study has re-emphasized the need for and gains of livelihoods diversification and the role of natural resources in rural poverty reduction. Consciously or unconsciously, the preservation of the forest resources in the area would ensure sustainable livelihoods as well as environmental sustainability. This study has also shown that these gains have reduced their poverty and are effectively utilized in the area in enhancing their socio-economic status in the community and improving their standard of living.

RECOMMENDATION

The study recommends that:

- The people should be encouraged to pay more emphasis on NTFPs than timber.
- Governments should help the people to create more markets, even beyond the shores of the state and country, for the sale of NTFPs, provide storage facilities and good transportation networks to enhance preservation and accessibility to markets.
- Governments, well-to-do individuals and organizations should establish NTFP processing industries in the area to enhance treatment, packaging and trading of NTFPs for durability and marketing.

REFERENCES

- Adebayo, A.G. (2002). Gender Roles in Forest Resources Utilization and Its Impact on Rural Environment in Kwara State, Nigeria. *Nigerian Journal of Forestry*, 33 (1 & 2), 17-22.
- Arnold, J. E. M. and Perez, R. M. (1998) "The Role of Non Timber Forest Products in Conservation and Development", in Wollenberg, E. and Ingles, A. (eds). *Incomes from the first Methods for the Development and Conservation of Forest Products for Local Communities*; 17-41. CIFOR, Bogor, Indonesia.
- Belcher, B.M. (2003). What isn't an NTFP? *International Forestry Review* 5, 2:161-168.
- Centre for Human Settlements and Environment (1987) *Institutionalizing the Environmental Planning and Management (EPM) Process*.
- Centre for International Forestry Research (2009). www.cifor.cgiar.org/ntfpd.
- Duong, M. H. (2008) Hierarchical fusion of expert opinion in the Transferable Belief Model, application to climate sensitivity. *International Journal of Approximate Reasoning*, 49 (3):555-574, November 2008.
- FAO (1995) *Planning for Sustainable Use of Land Resources Towards a New Approach*. FAO Interdepartmental Working Group on Land Use Planning, Rome.
- Greenfacts (2005) *Millennium Ecosystem Assessment Summary and Details*
- Greenfacts (2007). *Scientific Facts on Forests*: Produced by Food and Agricultural Organization (FAO). <http://www.greenfacts.org/en/forests>.
- Hammett, A. L. and J. L. Chamberlain. (1998) "Sustainable Use of Non-traditional Forest Products: Alternative Forest-based Income Opportunities". in: *Natural Resources Income Opportunities on Private Lands*. University of Maryland, Hagerstown, MD. p. 141-147.
- Lloyd-Jones (2002) "The Sustainable Livelihoods Approach and the DFID" in Rakodi with Lloyd-Jones (eds) *Urban Livelihoods: A People-Centered Approach to Reducing Poverty*, Earth scan Publications Ltd, U.K.

- Nwokeabia, H. (2003) Why Industrial Revolution Missed Africa: A “Traditional Knowledge” Perspective 11–12 (U.N. Economic Comm’n for Africa, Working Paper No. 01/02, 2002), available
http://www.uneca.org/eca_resources/conference_reports_and_other_documents/espd/2002/tkb.pdf
- Panayotou, T. and Ashton, P. (1992). *Not by Timber Alone*. Economics and Ecology for Sustaining Tropical Forest. Island Press, Washington.
- Schreckenber K (2004). “The Contribution of Shea Butter (*Vitellaria Paradoxa* C.F. Gaertner) to Local Livelihoods in Benin”. In. Sunderland.T. and Ndoye O. (eds). *Forest Products, Livelihoods and Conservation. Case Studies of Non-Timber Forest Product Systems in. Africa*. CIFOR, Indonesia.
- Thomas, M. G. and Schumann, D. R. 1993. *Income Opportunities in Special Forest Products – Self-Help Suggestions for Rural Entrepreneurs*. Agriculture Information Bulletin AIB-666, U.S. Department of Agriculture, Washington, DC.
- Tiwari, B.K., Tynsong, H. and Lynser, M.B. (2010). Forest Management Practices of the Tribal People of Meghalaya, *North-East India*. *Journal of Tropical Forest Science* 22 (3): 329-324.
- World Bank (2003). *World Development Report 2004. Making Services Work For Poor People*. The World Bank, Washington DC.
- World Health Organization (2003). Traditional Medicine. *Fact Sheet No. 134*.
<http://www.who.int/mediacentre/factsheets/fs134/en/>