

**ECONOMIC ANALYSIS OF NON-WOOD FOREST PRODUCTS IN IKOLE
LOCAL GOVERNMENT AREA EKITI STATE**

BY

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DEDICATION

This piece of work is dedicated to the Glory of Almighty God, the giver of all good and perfect gifts. Also to my Parents, Mr Sesan and Mrs Martina Medale for being there for me and to all my family members and friends who made my dream come to reality.

Medale Ayodele John.....

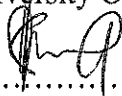
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CERTIFICATION

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ABSTRACT

This study identified Non-Wood Forest Products (NWFPs) and income generated from them, estimate the cost and return structure of non-wood forest products in the study area, describe the socio-economic characteristics of the rural people engaging in harvesting of non-wood forest products, investigate the constraint hindering rural people to access non-wood forest products, and their role in the rural livelihood of inhabitants of Ikole Local Government Area of Ekiti State. Primary and secondary data was used to obtain the necessary information required. The primary data was used to obtain data from the field by the use of well structured questionnaire that will be administered on rural households involve in non-wood forest products in the study area and total of 60 copies of the questionnaire were administered to respondents While the secondary data was used to obtain information from published journals, past projects, internet facilities, libraries and other relevant sources.

Two-stage random sampling was used in this study; in the first stage three (3) towns were randomly selected from the fourteen towns in the Ikole local government area. The second stage involve the selection of twenty (20) harvesters involve in non-wood forest products from each of the selected towns which gave a total of sixty (60) respondents. The non-wood forest products (edible mushroom, honey, root (Itakun igi iru *Parkia biglobosa*, Itakun igi oju ologbo- *Abrus prectorious*, itakun igi botuje pupa- *Jatropha gossypifolia*), vegetables (waterleaf, amaranth, worowo, scent leaf), nuts (cashew nut, bush mango), fruits (mango fruit, cashew fruit, Africa star apple, palm fruit, iyeye- *Spondias mombin*), spices (alligator pepper, turmeric, scent leaf). Result shows that majority of the respondents (76.7%) were female, 65% possess secondary education, (76.7%) of the respondents were married, majority of the respondents (33.3%) had their age falling between 40-49years, 56.7% of the respondents were farmers, The result of budgeting analysis showed total revenue was found to be ₦ 347,655.55. The Total Variable Cost was ₦96, 444.75 while the Total Fixed Cost was ₦ 39, 753.75. The Net Income and Gross Margin levels for all respondents were ₦ 211,457.05, ₦ 251, 210.80 respectively with rate of return on investment amounting to ₦ 0.7716 per product sold, and this implies that harvesting of non-wood forest was profitable in the study area.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Nigerian forest is renewable natural resource that provides timber for domestic and industrial uses, food for man and wild animals, protective covers for environmental resources such as soil and recreational facilities for tourist attraction (Popoola, 1992; Nathaniel and Adebobola, 2001). Cognizance has been taken of the importance of forest resources to the socio-economic and political development of the Nigerian people (NEST, 1991). Beside timbers, forest contains some other useful products like chewing sticks, wrapping leaves, medicinal plant, camwood, sheabutter, sheanut, gum arabic, bees wax, snail, mushroom, etc. These products are referred to as minor forest products, because of inadequate documentation of their trade in international markets. However, with appropriate market development, foreign exchange can be earned from these minor forest products (Osemeobo and Ujor, 1999).

Nigeria is an agrarian society with about 70 percent of her over 140 million populace engaged in agricultural production. The agricultural sector provides food, employment, foreign exchange as well as raw materials for the nation's agro-allied industries among other benefits (NBS/CBN, 2006). Varieties of livelihood objectives in rural household in Nigeria are met by depending on forest resources, and these objectives include food security, income generation and social security (Falconer,

1992, F A O, 1992, Adeniyi, 2008). Rain fed agriculture has continued to be the backbone of the Nigeria economy and presently account for about half of the national income, contributing to three quarters of the exports and is a source of livelihood for households in the rural area (Hedge and Enter, 2000).

According to (Noubissie *et al*, 2008) 75% of poor people in the world living in rural forest areas depend on non-wood forest products for their sustenance and 80% of forest people in the developing countries, like Nigeria, use non-wood forest products (NWFPs) daily.

Agricultural productivity fluctuations have made rural people to engage themselves on alternative livelihood strategies such as exploitation of non-wood forest products (Anderson, 1990).

FAO, (1990) and De-Rijsoort, (2000) postulated that non-wood forest products are plants and animals or parts other than industrial timber, which are harvested for human use at the level of self-support or for commercial purposes. In Nigeria, rural communities derive substantial revenue from the collection, processing and marketing of these non-wood forest products, which improve their economic status. Non-wood forest products are not only nutritious but also serve as strategic reserves of essential nutrients that are available at certain critical periods of the year, when other sources of these nutrients are scarce or completely unavailable (Arnold and Ruiz, 2001).

In Central Africa, 65 million people living in or around the rainforests depend on natural forest resources for their feeding. These natural forest resources called non-timber forest products (NTFPs) include all forest goods and services, excluding commercial timber (Eboh et al, 2005).

Therefore, this study focused on the benefit derived from non-wood forest products such as food, traditional medicinal value and income generation and as well seeks to know how viable non-wood product is in investing into.

1.2 Problem Statement

Nigeria economy has depended on oil over the years, since 1963 oil has been the primary area of income generation for the government. The supply (production), marketing and processing of timber were given prominent consideration with little or no attention to the non-timber forest products in Nigeria (Adeyoju, 1975). However, non-wood forest products respond to market failures because they are not reflected in GDP calculations (Osemeobo and Ujor, 1999).

However issues of accessibility and dependency on non-wood forest products are not well synthesized and documented. Moreover scarcity of NWFPs, that contribute to the household food security directly or indirectly, is already being experienced as a result of increase in population, non-domestication of NWFP sources and dilution of indigenous knowledge in the wake of modernization. In addition, it had been noted that data collection on NWFPs is constrained by many factors. These

include information loss, poor storage facilities, inadequate inventory, high rate of poaching, low level forest management and mode of resource harvesting. Despite these set-backs, improvement in data collection can be attained through intensive research, involvement of local communities in the conservation of NWFPs and partnership in the development of forest resources (Osemeobo and Ujor, 1999). Hence, no study had been carried out on the economic analysis of non-wood forest product especially in the study area. The following set of questions would reflect the thrust of this study:

- i. What are the socio-economic characteristics of the respondents?
- ii. What are the various types of non-wood forest products and income generated from them?
- iii. What is the cost and return structure of the non-wood forest product in the study area?
- iv. Is there any constraint hindering accessibility to non-wood forest products?

1.3 Objectives of the Study

The main objective of this study was to determine economic analysis of non-wood forest products in Ikole local government area of Ekiti State.

The specific objectives are to:

- a) Describe the socio-economic characteristics of the rural people engaged in harvesting of non-wood forest products;

- b) know the various types of non-wood forest products and income generated from them;
- c) Estimate the cost and return structure of non-wood forest products in the study area; and
- d) Investigate the constraint hindering rural people to access non-wood forest products.

1.4 Justification for the Study

The aim of the study was to provide adequate information that can be used to improve performance of non-wood forest products by identifying the major hindrances of people to accessibility of non-wood forest products and as well determine the viability of the business. The study is therefore timely as it assesses the economics of non-wood forest products in the study area. The study also stands to expose the government to other areas of generating income as well as to create awareness of the industrial benefit to the general public and Academicians and Scholars will also find this research valuable to their study and advancement of knowledge thereby using the gaps identified for criticisms, and propound further concepts and theories in the areas of inventory management.

1.5 Plan of the Study

This research report is to be divided conventionally into five (5) Chapters. The first Chapter is the introductory Chapter where the background of study was presented. The research problem was stated along with the objectives of the research study. The research questions were presented. Chapter Two is a review of selected relevant literature on economic analysis of non-wood forest products in Ekiti State. Following a purely conceptual and theoretical expositions, the Chapter considered the views of numerous scholars in non-wood forest and their contributions to rural people. The third Chapter will consider the research methods to be adopted in the conduct of this study in section like; sampling technique, data collection sources as well as the statistical techniques to be used.

The findings of the study will be presented and analyzed in the Chapter four where basic facts and figures derived from the data analysis was subjected to detailed discussion using appropriate analytical tool. Finally, the fifth Chapter will present the researcher's summary of his findings from the comparative performances of non-wood forest products harvested in selected towns within the local government area, conclusion on the its economic analysis. The Chapter would end with general recommendations by the researcher, contributions of the study to knowledge, and suggestions for further research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter, relevant literature were reviewed to explore the concepts of the study, consideration was given to theories related to it, review of related studies took place, and a conceptual framework was developed to show the relationships between the various variables relating to this study.

2.1 Conceptual Review

2.1.1 Definition of non-wood forest Products

Non-wood forest products (NWFP) follows the classification given by FAO, (1999) where these are referred to as all biological materials (other than wood) which are extracted from natural forests for human use as well as services derived from forests and allied land uses.

NWFPs' broadly include all non-timber biological resource-derived products (animal, plant, or mushroom) harvested from forested lands (Mbuvi and Boon, 2009) by rural households, and which are intended primarily for domestic consumption or small-scale trade, with no, or limited capital investment (Shackleton *et al.* 2007). NWFPs include roots, fruits, medicinal plants and essential oils, and fibres such as bamboos, mushroom, bush meat and other palms used for weaving and structural applications (Belcher 2005). While we exclude timber products that are derived from large scale

industrial forestry enterprises, we include small-scale value added products in this discussion (furnishings, carvings, etc.).

NWFPs have been studied by researchers from many different academic fields and each field used a slightly different definition of NWFPs. NWFPs are any product or service other than timber/wood that is produced in a forest (CIFOR, 2004). They include fruits, nuts, vegetables, fish and, medicinal plants, resins, and a range of barks and fibers such as bamboo and a host of other palms and grasses. NWFPs are indispensable part of the livelihood strategy of communities living in and near forests. Non-wood forest products (NTFPs) constitute an important source of livelihood for millions of people across the world.

Osemeobo and Ujor, (1999) also submitted that NWFPs are defined as forest materials derived from soil mineral, water, fauna and flora resources other than round wood (sawn wood). The NWFPs are classified into non-wood and non-timber products. The non-wood products are derived from wild animals, herbs, leaves, latex, gum, resins, ropes, fruits, seeds, fungi, fodder, forage, gravel, clay, limestone and natural salt. The woody but non-timber products include poles, fuel-wood, charcoal, rattan canes, sponge, chewing sticks, bamboos and others.

2.1.2 The Importance of Non-Wood Forest Products (NWFPs) to Forest-Based Livelihoods in Africa

The importance of many NWFPs to rural livelihoods cannot be overstated, as a wide variety of forest products are used as natural subsidies by rural households across Africa. These can entail products that are collected directly for subsistence, or those that are 'transformed' through processing (e.g., wood carving for sale) to earn an income. Some of those NWFPs listed below (e.g., fuel wood) are used for both subsistence and for sale in order to earn income:

- i. Medicinal plant (Arnold, 1994; Belcher *et al.* 2003; Ndam and Marcelin, 2004; Novy, 1997);
- ii. Animal food sources, including insects, molluscs, fish, crustaceans, amphibians, and bush meat (Jenkins and Racey, 2008; Jenkins *et al.* 2009; Shackleton and Shackleton; 2004a; Van Dijk and Wiersum, 1999);
- iii. Plant food sources, including mushrooms, seeds, edible fruits, vegetables, and root crops (Arnold, 1994; Shackleton and Shackleton, 2004a; Van Dijk and Wiersum, 1999);
- iv. Gums and resins (Arnold, 1994; Tadesse *et al.* 2007);
- v. Grass or twigs for making hand brushes (Shackleton and Shackleton, 2004a);
- vi. Wood for woodcarving and fuel wood (Belcher *et al.* 2003; Cunningham *et al.* 2005; Horning 2003, Horning 2004; Shyamsundar and Kramer, 1997);

- vii. Charcoal (Horning, 2003; Horning, 2004; Monela *et al.* 2000);
- viii. Honey (Arnold, 1994; Monela *et al.* 2000; PaupertRazafierisera, 2005); and
- ix. Canes, raffias, and twines for framing houses, and grass, bamboo, reeds, and leaves for roofing (Arnold, 1995) and chewing sticks (Arnold, 1994; Horning 2003).

Several large-scale comparative studies on NTFPs (Angelsen and Wunder, 2003; Shackleton and Shackleton, 2004a; Shackleton *et al.* 2007; Sunderland *et al.* 2004) have sought to obtain quantitative information on individual NTFPs in an effort to identify some generalize truths or trends to help inform policy-making.

2.2 Empirical Framework

Beer and McDermott, (1996) reported that in south-eastern Nigeria about 35.7% of the rural population collects non-wood forest products daily. In Ghana household incomes obtained range between 49% and 87%, from non-wood forest products, while in Cameroon attractive activities around forest contribute to over half of the local income (Boot,1997). However, it is estimated that over 50 million household depend on Non-wood forest products for their living and cash income in India (Falconer, 1995). For many rural women the collection of non-wood forest products is the only means to earn an independent income (Falconer, 1995).

Olawoye, (1996) opined that rural households spend income realized from non-wood forest products to buy food to maintain their families. This provides a

supplement to the economic status in the lives of the generality of the rural dwellers. In recent times, attention is now focused on non-wood forest products because of the immense benefits they provide for man. Non-wood forest products are not only nutritious but also serve as strategic reserves of essential nutrients that are available at certain critical periods of the year, when other sources of these nutrients are scarce or completely unavailable (Arnold and Ruiz, 2001).

2.2.1 Income and Non-Wood Forest Products

Non-wood forest products include extract such as bark, roots, tuber, leaves, fruits, flower seeds, resins and honey and mushroom (Ayeni et al; 2003). Jimoh, (2006) reported that in Nigerian, Non-wood forest products contribute significantly to household income.

Sale, (2006) and Shomkegh *et al*, (2008), regards selling non-wood forest products as means of earning a living which is being used to purchase food for their household. Non-wood forest products (NWFPs) as part of forestry sector in any economy have always been supportive for many rural dwellers that live within and around the forests estates. In many rural communities, the people depend solely on farming and marketing of non-wood forest products in order to generate income, and boost their economic lives, In some cases non-wood forest products are the only source of income for some rural communities and they form an integral part of rural economy which enables them to have the resources and ability to access and purchase

their required household food demands (Wollenberg and Septiani, 1998). Prices of non-wood forest products fluctuate but they are higher during the off season than in the producing season (Osemeobo and Ujor, 1999).

It is difficult to measure precisely the proportion of household income which comes from non-wood forest products because forest based activities are closely interwoven with farm activities (Arnold, 1994). It is however, indisputable that they contribute significantly to both the household and the general economy. Individual contribution of each non-wood forest products may be little but collectively they contribute significantly to the rural economy and can add to export revenues. Non-timber forest products play a vital role in many developing countries especially Nigeria. This is as a result of population concentration in the rural areas relying directly on forests (Soladoye, 1990). According to Egunjobi, (1996) non-wood forest products contribute to the rural economy in Nigeria is as much if not more as that of timber.

Activities such as mat-making, fuel wood sales fetch a lot of money to rural households. Sales of leaves of various species earlier enumerated, chewing sticks from various species, sales of fruits and seeds of all kinds, bush meat, snails and fish in rural and urban markets also generate a lot of income. Trades in gum arabic from Northern Nigeria, as far as Niger Republic across Nigeria border to Europe and Asia runs into several millions of Naira annually. The Nigerian rural economy is highly dependent on

these forest products to generate income (Osemeobo, 1991; Okafor, 1998). The non-wood forest products are important sources of income for the rural poor in Nigeria. In many communities, people are traditionally dependent on local forest resources to provide additional income through the collection and marketing of non-wood forest products. Many rural dwellers, especially women, often generate their income by gathering some of these products from the nearby forest for sale. Non-wood forest products provide cash income for rural household. Leaves, rattan, honey, sap, gums from the small scale industries are important sources of income (Okafor, 1994).

2.2.2 Gender and Non- Wood Forest Product

The word gender does not seem to have a simple definition because of the confusion people have between 'gender' and 'sex'. The term 'gender' has been defined by various authors. Ozo-Eson, (2002) defined gender as the “symbolic construction of being male or female,” that is, gender is socially and culturally constructed while 'sex' is biologically created.

Odebode, (2010) defined sex as a term that is biologically created. Gender was interpreted as the relationship between women and men as cultural constructs that result from imposing social, cultural and psychological meanings upon biological sexual identities while 'gender' on the other hand has to do with activities carried out by women and men, as well as the value and meaning attached to these activities by the wider society. Women gather gums, oil, medicinal products, fruits, leaves, and

mushrooms for their livelihoods. They often depend on forest foods during the dry season. The markets are organized around the buyers-sellers who are mostly women, as in other West African countries intermediary traders also sort and grade non-wood forest products and often process them to some degree (Fereday, Gordon and Oji, 1997). Many women in rural communities rely on the marketing of non-wood forest products as an important component and often the sole source of income, thus they are the main harvesters and marketers of many non-wood forest products.

2.2.3 Food Security and Non-Wood Forest Products

Food security has been an important theme in the debate of rural development and poverty alleviation policies in many developing countries (FAO, 1999a). The concepts of food security have evolved in the last thirty years to reflect changes in official policy thinking (Clay, 2002; Heidhues *et al*, 2004). The world food summit of 1996 defined food security as existing when all persons at all times have access to sufficient, safe and nutritious food for the maintenance of a healthy life, this concept included physical and economical access to food that meet people's dietary needs. Non-wood forest products make significant contributions to food security of the rural population providing a vast array of food which supplies essential nutrients especially when other food sources are unavailable. These products ranges from being use as food or food additives (nuts, mushroom, wild fruits, herbs, spices, aromatic plants) and as plant materials (Fibres, and flowers) to animal products (honey, silk). Edible food

found in the forest (seeds, leaves, fruits, roots, gum, fungi, insects, rodents, wild game and fish) have superior nutritional quality when compare with domesticated varieties. Olawoye, (1996) stated that processed and stored food products help to secure all the year round food supply. In recent years attention has been focused on the potential of non-wood forest products in the reduction of food insecurity, thus improving nutritional and sustainable management of forest resources (Marshall, 2006). Jimoh, 2006 reported that in Nigeria, non-wood forest products contribute significantly to household income and food security.

2.2.4 Socio-Economic Factors Affecting Levels of Dependency on Forest Resources

It is imperative to clearly understand the socio-economic contributions that non-wood forest products can make to rural livelihoods in order to design poverty mitigation strategies, policies, interventions, and business ventures that will safeguard forest assets for the poor in a targeted manner (Sjaastad *et al.* 2005). While more data on the quantification of rural incomes in Africa is called for, the socio-economic contributions of NWFPs to forest-based livelihoods in Africa have been qualitatively assessed. This section briefly summarizes – from a vast body of literature – five of the most commonly recurring factors that affect levels of dependency on NWFPs for forest-dependent people in Africa. These five factors are: access to forests and markets, wealth status, gender, education, and seasonality.

A. Access to Forests and Markets

Rural people's dependence on forest resources is influenced by where they are physically situated in relation to forests (location), as well as by the governing institutions that restrict or enable their access to these forests. Where people are located in terms of proximity to transport routes, markets, and forested regions can influence the degree to which they depend on NWFPs.

Kamanga *et al.* (2009) found that poor households with access to forests had much higher forest incomes than those without access. In comparison, agricultural populations, farm households, and those processing and trading forest products tend to rely on nearby forests and trees on their own lands for some livelihood inputs (Arnold 2002). For these households, NWFPs contribute only a portion of household income; they must be considered in terms of systems as people most often use them in combination with other economic activities (Belcher *et al.*, 2003). Therefore, according to Shackleton and Shackleton (2004a), it is necessary to distinguish between dependence on NWFPs for an emergency net function (where NWFPs assist households to cope in times of shocks and adversity such as death, droughts, floods, frosts, or disease leading to crop failure or death of livestock) and a 'daily net' function (where rural households use several different NWFPs to meet their everyday needs). In acknowledging that access to forests is largely dictated by the institutions governing them, including the extent to which local residents have legal standing,

enforceable property rights, authority for resource management, and protection against arbitrary land-use decisions by state agencies (Balint 2006).

B. Wealth Status

Angelsen and Wunder, (2003) noted that there is solid empirical evidence regarding the positive link between rural poverty and NWFP dependence. The poor are more resource dependent than the rich and usually derive a greater share of their overall needs from forest products and activities (Arnold and Townson, 1998; Cavendish, 2000; Sander and Zeller, 2007). As a proportion of all income streams, incomes derived from NTFPs have been shown to make a greater contribution to the overall livelihoods of poor households (Arnold, 2001; Shackleton and Shackleton, 2006). In the Marovay region of northwestern Madagascar, Sander and Zeller, (2007) categorized 477 households into three poverty classes: 'poorest', 'less poor', and 'better-off'. The latter generated about 50% more cash-income than the poorest and 90% of the poorest households collected firewood, compared to only 80.2% and 76.8% of the less poor and better-off households, respectively (Sander and Zeller, 2007). In the Kat River area of the Eastern Cape, South Africa, a greater proportion of poor households (>30%) were found to engage in selling NWFPs as a means of cash generation than more wealthy households (Shackleton and Shackleton, 2004a).

Ease of access to NTFPs, combined with the low skill and capital needed for most small-scale forest-based enterprises, mean that these products can be important in the

coping strategies of the very poor (Arnold 1994, 2001). Where forest resources are easily accessible, income derived from their sale is often particularly important for poorer groups (e.g. Sander and Zeller, 2007) and may reduce income inequality across households (Arnold and Townson, 1998; Fisher, 2004).

C. Gender

Gender plays a key role in the degree to which rural Africans depend on NTFPs as women's and men's rights, responsibilities, and expectations within the milieu of natural resources tend to be culturally specific (Rico, 1998). In general, the importance of gender issues "depends on the extent to which differences between men and women influence resource use and control patterns, decision-making power, and livelihood strategies in the area in question" (Meinzen-Dick and Zwarteween, 2001). In Africa, fairly substantial differences in the ways in which men and women depend on and control NTFPs have been observed. For example, women collecting NTFPs in the Banyang-mbo wildlife sanctuary in Cameroon receive less income, but incur higher costs, than men. This sort of male dominance in earnings is not an uncommon occurrence in Africa, pointing to the need for more equitable benefit sharing mechanisms to be put in place in the forestry (and other agricultural) sectors (Nkambi, 2003).

Ease of access and low entry thresholds also mean that women may depend on forest gathering activities for income generation more than men (Arnold, 1994).

Both women and children, often from the poorest households, can obtain a major source of their subsistence from a diverse set of forest products, including many of the same products sold for cash income (Oksanen *et al*, 2003). NWFP activities can be particularly important for women because they can be combined with regular family and household tasks, often at or near home, thereby allowing women to combine these income earning activities with other household chores such as child care (Arnold, 1994, 2001; Arnold and Townson, 1998).

It is imperative to acknowledge that women and men in different countries, much less in different regions of the same country, will rely on different NWFPs. For instance, in Benin, shea nuts (*Vitellaria paradoxa*) are particularly important for those with few other income generating options, including the elderly (often widows and those without the physical strength necessary to engage in other activities) and young newly-married women without capital (Schreckenberg, 2004). While there is overlap between the forest-based activities of women and men, women generally tend to be more involved in gathering and trading of non-wood forest products (Arnold, 1994; Shackleton and Shackleton, 2004a) and rely more frequently than men on forest products activities for the generation of income (Arnold, 1995). Their dependence on more labour-intensive, low-return household-based activities means that women tend to be concentrated in the enterprise areas that are most exposed to shifts in markets,

prices, or costs, and are therefore likely to be more adversely affected by changes that occur over time (Arnold, 1994). In general, women in rural Africa:

- i. Produce and trade brushes and marula beer (Shackleton and Shackleton, 2004a);
- ii. Are involved in pottery-making (Cavendish, 2000);
- iii. Tend to be more involved than men in the collection of palm-related products (Sola, 2004);
- iv. Sell wild vegetables, fruits, and wine (Cavendish, 2000);
- v. Collect and/or sell thatching grass, fuel wood, and leaf litter (Cavendish, 2000);
- vi. Collect snails, mushrooms, seeds, pestle, plant medicines, and resins (Arnold, 1995);
- vii. Process chew sponge and sponge (Arnold, 1995; Townson, 1995), smoked snails, plant medicines, chew sticks, palm oil, and charcoal (Arnold, 1995);
and
- viii. Engage in the trade of mortars, pestles, sleeping mats, spirit, cane baskets, bush meat, and spices (Arnold, 1995).

Comparatively, almost all activities associated with wood (e.g. sales of wood, carpentry) are carried out by men (Cavendish, 2000). For instance, the literature shows that men in rural Africa generally:

- i. Dominate woodworking (Arnold, 1994; Shackleton and Shackleton, 2004a);
- ii. Hunt and sell wild animals (Cavendish, 2000);
- iii. Are involved in basketry and mat-making (Townson, 1995), and processing activities, including charcoal, spirit distilling, roof tiles, cane furniture, fish traps, and canoes/paddles (Arnold, 1995 and Townson 1995); and
- iv. Gather and produce honey, chewing stick logs, building poles, roofing materials, and palm wine (Arnold, 1995).

Some joint activities do exist. For example, the Tanalaha men and women of the Ranomafana in Madagascar have similar rights regarding the use and control of environmental resources in contrast to many other regions (Jaervilehto, 2005). As such, either gender can basically do any kind of resource-related work, although men tend to engage in the more labour-intensive activities like collecting firewood (Jaervilehto, 2005). In Zimbabwe, both men and women can make and/or sell certain mats (Cavendish, 2000). In addition, traditional healers can be either male or female, meaning that the sales of wild medicines can be done by either gender (Cavendish, 2000). In Ghana, both men and women are proprietors of a number of NTFPs (mushrooms and medicines) (Townson, 1995). There also appears to be some sharing of processing activities. Blay, (2004) found two categories of chew stick processors: first order processors are males who make cut stems and branches into round logs, while second order processors are mostly females who split the logs into small shards

for consumption. Regardless of gender, small-scale production and trading activities in forest products constitute one of the largest parts of rural non-farm enterprise employment in Africa (Arnold and Townson, 1998).

D. Education

The education level of rural Africans can influence their reliance on NWFP trading or production. Kamanga *et al.* (2009) found that households in Africa with higher education levels generally have more reliable sources of income opportunities and generally wider asset bases. In a more specific survey of African NWFP producers, Arnold *et al.* (1994) found that half of the respondents involved in grass, cane, and bamboo enterprises had no education, while most of the rest had only primary education and those owning forest products trade enterprises were only slightly better educated. “In contrast, very few wood working proprietors had no education and more than a third had qualifications beyond the primary level” (Arnold *et al.* 1994: 15). Given that it is men who are generally the woodworkers, Townson (1995) found that male proprietors typically (75%) had been educated to primary levels or sometimes higher, while female proprietors were likely to have not received any education (60%) or were only educated to primary level (27%). Within the same product categories, Townson, (1995) found that male dominated activities, such as bush meat hunting, carvings, and carpentry, showed little difference in the level of the proprietor’s education, but that amongst female dominated activities, chew sponge and sponge

processors showed markedly lower educational levels than the average for all female proprietors.

More recently, in their survey of Marula beer traders, Shackleton and Shackleton, (2004a) found that more than half of the traders had some secondary education; of those, 18% had a school-leaving certificate, and only one had a tertiary diploma. Of note, the authors suggest that lack of employment opportunities, rather than poor education and skills, has forced the women, as the primary producers and traders of marula beer, into selling NTFPs for income (Shackleton and Shackleton, 2004a)

E. Seasonality

The reliance on NWFPs in general and forest-based incomes in particular, varies depending on the season and accompanying household needs. Some activities are seasonal because the crop or material can only be gathered at certain times of the year and/or is directed by the seasonality of other activities (e.g., agricultural production), or because of seasonally induced cash needs (e.g., school fees) (Arnold, 1994). For instance, Schreckenberg, (2004) found that income from the sale of shea kernels was particularly important in bridging the shortfall at the start of the agricultural season. Likewise, Arnold (1994) noted that fuel wood collection for a market in Sierra Leone was concentrated during the off-peak agricultural period, providing cash income in periods when food supplies were generally at their lowest. Shackleton and Shackleton (2004a) found that income from the sale of Marula beer was crucial following the

Christmas season as there was a high demand for cash for school fees, books, and uniforms, at a time when cash reserves were particularly low. In fact, the timing and seasonality of rural incomes could be considered even more important than their magnitude (Angelsen and Wunder 2003; Arnold and Townson, 1998). Some of the most pressing needs that can be met by collecting and selling forest products include:

- i. The payment of school fees (Adebisi, 2004; Campbell *et al.* 2002; Sunderlin *et al.* 2005);
- ii. Funding investments in consumptive activities (such as new clothes, school uniforms, gifts, pots, and pans) (Campbell *et al.* 2002; Schreckenber, 2004);
- iii. Dealing with medical emergencies as they arise (Sunderland *et al.* 2004; Sunderlin *et al.* 2005) or meeting medicinal needs (Arnold and Perez, 2001);
- iv. The provision of low-cost energy as wood remains the main source of energy for the vast majority of rural Africans (Oksanen *et al.* 2003);
- v. Supplementing diets during particular seasons in the year or during shortfalls (Angelsen and Wunder 2003; Arnold and Perez 2001);
- vi. Using profits for participating in family ceremonies (Adebisi, 2004); and
- vii. Using incomes in productive activities (such as building a storage hut, purchasing a new goat or agricultural stocks for later resale (Schreckenber, 2004) or purchasing agricultural inputs (Sunderlin *et al.* 2005).

CHAPTER THREE

METHODOLOGY

3.1 Study Area

The study was carried out in Ikole local government area of Ekiti State; it is situated in the deciduous forest area of the State, which is located between longitude 45° east of Greenwich and latitude $7^{\circ} - 8^{\circ} - 15^{\circ}$ north of the equator. Its neighbours are Kwara State to the north, Kogi State to the north east, Ekiti east to the east, Gboyin local government in the south and Oye local government in the West. It has an area of 321 km^2 and a population of 168,436 at the 2006 census. Rainfall is about 70 inches per annum. Rain starts in March and stop in November. The people of Ikole are predominantly farmers. About 80% of the male adult population engages in farming. In addition we have some people who are Tailors, Traders, Carpenters, Bricklayers, Goldsmiths, Blacksmiths, and Shoe-makers by profession.

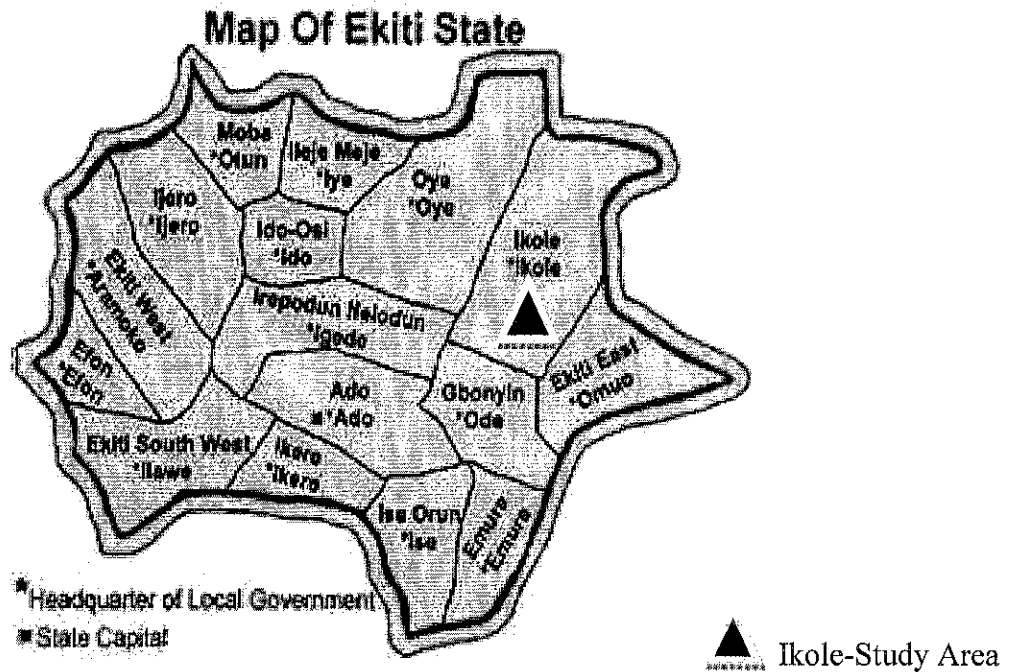


Figure1: Map of Ekiti State

3.2 Method of Data Collection

In this study, both primary and secondary data were used to obtain the necessary information required. The primary data was used to obtain data from the field by the use of well-structured questionnaire that will be administered on rural households involved in non-wood forest products in the study area, while the secondary data was used to obtain information from published journals, past projects, internet facilities, libraries and other relevant sources. The questionnaire sought out information on the personal features of the respondents such as gender, age, education status, household size and so on.

3.3 Sampling Techniques

A two-stage random sampling was used in this study; in the first stage three (3) towns were randomly selected from the fourteen towns in the Ikole local government area. The second stage involved the selection of twenty (20) harvesters involved in non-wood forest products from each of the selected towns which gave a total of sixty (60) respondents. Hence, the target population was the family household involved in harvesting non-wood forest products in Ikole Ekiti local government area of Ekiti State given the fact that non-wood forest products were restricted to the rural centers (towns) of the state.

Table1: Number of selected towns in the study area

S/n	Town	Respondents
1	Ikole Ekiti	20
2	Itapaji Ekiti	20
3	Oke-ako Ekiti	20
Total	3	60

3.4 Method of Data Analysis

Both descriptive and inferential techniques were used to analyze the data collected.

Descriptive statistic such as the frequency count, percentages, means and standard deviations were used to achieve objective 1, 2, and 4 while objective 3 was achieved using budgeting analysis.

Budgetary analysis was employed to estimate the monthly cost and return structure (profitability level) of non-wood forest products in the study area. The format is as follows;

Gross Margin Analysis

$$GM = TR - TVC \dots\dots\dots (3.1)$$

$$NI = GM - TFC \dots\dots\dots$$

(3.2)

Where,

GM = Gross Margin (₦)

TR = Total Revenue (₦)

TVC = Total Variable Cost (₦)

TFC = Total Fixed Cost (₦)

NI = Net Income (₦)

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Socio-economic Characteristics of the Respondents

This section includes the Socio-economic characteristics which are the components of both economic and social status that distinguish and characterize people, the affect both the social and personal status of the respondents. The socio-economic characteristics include the sex, marital status, age, experience, family size, primary occupation, their level of education and number of cooperatives.

4.1.1 Sex of the respondents

Gender may determine the ability to perform some physical work. It is popular beliefs that female are more efficient in carrying out business activities than male but not in all cases. This is in fact the basis for analyzing the sex of the harvesters. The distribution of respondents by sex of respondents is presented in Table 2

Table 2: Distribution of respondents by sex

Sex	Frequency	Percentage
Male	14	23.3
Female	46	76.7
Total	60	100

Source: Field Survey, 2016.

Tables 2 revealed that majority of the respondents (76.7%) are female while the remaining 23.3% were male. It implies that non-wood forest business is being dominated by the women and this give room for sex sensitivity and that the business is not gender bias.

4.1.2 Age of respondents

Age is an important determinant of productivity. The ability of the respondents to take advantage of emerging opportunities that could change their lives for better may have negative relationship with age baring education and experience. Age is also believed to influence the level of physical work and the willingness to take risk.

Table 3: Distribution of respondents by Age

Age (years)	Frequency	Percent
Below 30	10	16.7
30-39	15	25.0
40-49	20	33.3
50-59	11	18.3
>60	4	6.7
Total	60	100

Source: Field Survey, 2016.

From the table 3 presented above, it can be reported that majority (33.3%) of the respondents had their age falling between 40-49years,18.3% and 16.7% were for 50-

59years and below 30years respectively while 25% had their age falling between 30-39years and the remaining 6.7% had above 60 years. This implies that the respondents are in their prime working age which may translate to improved productivity or high efficiency.

4.1.3 Marital status of the respondents

Marital status of the respondents may determine the level of household size of the respondents which may have implications on the family labour, income composition, consumption and savings pattern. Below is the presentation of the distribution of respondents by marital status

Table 4: Distribution of respondents by marital status

Marital status	Frequency	Percent
Single	10	16.6
Married	46	76.7
Widowed	4	6.7
Total	60	100

Source: Field Survey, 2016.

In Table 4, it can be seen that majority (76.7%) of the respondents were married while 16.6% were single and the remaining 6.7% of the respondents are widow. This implies that majority of the respondents were married and have family responsibility which will make them to opt for financial assistance to enhance the level of their living.

4.1.4 Educational level of respondents

Education is an important factor in the recognition and utilization of investment opportunities. The study revealed that most of the respondents interviewed were found to have some form of formal education.

Table 5: Distribution of respondent by years of formal education

Education	Frequency	Percent
No formal education	5	8.3
Primary education	4	6.7
Secondary education	39	65.0
Tertiary	12	20.0
Total	60	100.0

Source: Field Survey, 2016.

The study as shown in Table 5 above revealed that 8.3% of the respondents had no formal education, 6.7% and 65% possess primary and secondary education respectively and the remaining 20% possess tertiary educational qualification. This implies that the respondents attained some educational standard to be able to get exposure and to enhance performance level.

4.1.5 Primary occupation

Table 6: Distribution of respondents by occupation

Occupation	Frequency	Percent
Trading	13	21.7
Farming	34	56.6
Civil Servant	10	16.7
Contractor	3	5.0
Total	60	100

Source: Field Survey, 2016

The table presented above shows that majority (56.7%) are farmers, while 21.6% and 5% reported of being traders and contractors respectively and the remaining 16.7% are civil servants. This implies that the respondents were predominantly engaged in farming and this make the result reliable with the subject matter.

4.1.6 Household size

Table 7: Distribution of respondents by household size

Members	Frequency	Percent
1-5	21	35.0
6-10	35	58.3
>10	4	6.7
Total	60	100

Source: Field Survey, 2016

Analysis of the household size presented on the table above indicates that 35% of the respondents had 5 members in their household while majority (58.3%) had 6 members and the remaining 6.7% had above 10 members as family size. This implies that large members of family size would assist in harvesting activities and this will eventually enhance productivity level.

4.1.7 Major Source of Income

Table 8: Distribution of respondents by major source of income

Source	Frequency	Percent
Farming	33	55.0
Selling of wood	6	10.0
Harvesting of non-wood forest products	21	35.0
Total	60	100

Source: Field Survey, 2016

The table presented above shows that majority of the respondents source for their income through farming while 10% are from selling of woods and the remaining 35% opted for harvesting of non- wood forest products. This implies that the respondents effectively exploit agricultural opportunities.

4.1.8 Years of harvesting experience

Experience is an important determinant of efficiency and performance among the non-wood forest harvesters. According to apriori expectation, years of business experience had positive relationship with profitability. The distribution of respondents by years of experience is presented below.

Table 9: Distribution of respondents by harvesting experience

Experience (years)	Frequency	Percent
Below 5	12	20.0
5-10	28	46.7
11-15	11	18.3
16-20	7	11.7
20	2	3.3
Total	60	100

Source: Field Survey, 2016

Analysis of non- wood forest harvest experience among the respondents revealed that only 20% of the respondents had less than 5years experience in harvesting non -wood forest product business indicating that about 80% of the respondents had more than 5years experience. This that implies that considerably high level of experience will result into probability of high profitability.

4.1.9 Number of Co-operative Societies they Belong to

Table 10 presented below shows that 6.7% of the respondents reported of joining only one cooperative society, 35% belong to three cooperative societies while 3.3% joined greater than 3 societies and the majority (55%) reported of joining two cooperative societies. It implies that those who join (respondents) more than one co-operative did so in order to enable them secure more loan to enhance the smooth running of the business and to have access to use facilities.

Table10: Distribution of respondents by number of cooperative society belong to

Number	Frequency	Percent
1	4	6.7
2	33	55.0
3	21	35.0
> 3	2	3.3
Total	60	100

Source: Field Survey.

4.1.10 Average Monthly Income

Table 11 implies that the harvester earn substantial income from non-wood forest products.

Table 11: Distribution of average monthly income of the respondent

Type	Amount	Frequency	Percent
Grasscutter,gaint rat	4,000-5,000	9	15.0
Honey	10,000-12,000	10	16.6
Mushroom	2,000-3,000	4	6.7
Vegetable	2,000-4,000	19	31.6
Chewing stick	2,500-3,500	4	6.7
Fruits	3,000-4,000	14	23.3
Total		60	100

Source: Field Survey, 2016.

Table 11 presented above shows that majority (31.6%) of the respondents earns about ₦ 2,000 to ₦ 4,000 as their monthly income, 23.3% earns about ₦ 3,000 to ₦ 4,000, 16.6% earns about ₦ 10,000 to ₦ 12,000, 15.0% earns about ₦ 4,000 to ₦ 5,000 while the rest earns 13.4%. This implies that non-wood forest products is a profitable business in the study area.

4.2 Various Types of Non-Wood Forest Products and Income Generated

From the table below different non-wood forest products harvested were listed thus; 16.7% reported of harvesting Mushroom (olu), root (itakun igi oju ologbo-*Abrus prectorious*, itakun igi botujepupa-*Jatropha gossypiiifolia*), vegetable (*Celosia argentea*, ebolo), wrapping leaves(ewe gbodugi), 6.7% were for honey, root (itakun igi iru-*Parkia biglobosa*),alligator pepper, shea butter, bamboo, nuts (dikanut , kolanut),23.3% and 15% harvested,fruits (iyeye- *Spondias mombin*, palm fruit), mushroom, honey, seed(locust beans), bark(mango, cashew),and alligator pepper- *Aframomum melegueta*, mushroom (olu), vegetable(waterleaf, scent leaf),kolanut, seed (locust beans), honey respectively while majority (31.6%) were harvesting bush meat (cane rat, giant rat, snail, antelope- *Antilocapra americana*, wild pig), chewing stick, *Chrysophyllum albidum* (agbalumon), vegetable (worowo-*solanecio biafrae*, *Amaranths*) root (itakun igi iru- *Parkia biglobosa*), kolanut and the remaining 6.7% reported of harvesting bark (*ira*),wrapping leaves (ewe gbodugi), fruits(mango, cashew, akee apple-*Blighia spida*),sheabutter. It implies that the harvester maximize their opportunity of not concentrating on only one type of non-wood forest products.

4.2.1 Non -wood forest products Harvested

Table 12: Distribution of respondents by type of NWFP harvested

Type	Frequency	Percent
Honey, root(itakun igi iru- <i>Parkia biglobosa</i>),alligator pepper,sheabutter,bamboo, nuts(dikanut, kolanut)	4	6.7
Mushroom (olu),root (itakun igi oju ologbo- <i>Abrus prectorious</i> ,itakun igi botujepupa- <i>Jatropha gossypifolia</i>),vegetable(<i>Celosia argentea</i> ,ebolo), wrapping leaves (ewe gbodugi)	10	16.7
Bush meat(cane rat, giant rat, snail, antelope- <i>Antilocapra americana</i> , wild pig),chewing stick, <i>Chrysophyllum albidum</i> (agbalumon), vegetable (worow- <i>solanecio biafrae</i> , <i>Amaranths</i>), root (igi iru- <i>Parkia biglobosa</i>), kolanut	19	31.6
Alligator pepper- <i>Aframomum melegueta</i> , mushroom (olu), vegetable(waterleaf, scent leaf),kolanut, seed (locust beans), honey	9	15.0
Fruits (iyeye- <i>Spondias mombin</i> , palm fruit), mushroom, honey, seed(locust beans), bark(mango, cashew)	14	23.3
Bark (<i>ira</i>),wrapping leaves(ewe gbodugi), fruits (mango, cashew, akee apple- <i>Blighia spida</i>), sheabutter	4	6.7
Total	60	100

Source: Field Survey, 2016.

4.2.3 Cost and return structure of non-wood forest products in the study area

Table 13: Budgetary analysis

variables	Minimum	Mean	Maximum
Total Revenue	20,000	347,655.55	512,000.00
Total Variable Cost	5,000	96,444.75	102,000.00
Total Fixed Cost	2,500	39,753.75	99,000.00
Total Cost	7,500	136,198.50	201,000.00
Gross Margin	15,000.00	251,210.80	410,000.00
Net Income	14,500.00	211,457.05	311,000.00
Rate of return on investment	0.24	0.7716	1.00
Rate of Return on Variable Cost	0.57	9.9219	70.68

Source: Field Survey, 2016

Table 13 shows the cost and return associated with non-wood forest products in which budgetary analysis was used to determine the profit and market performance. The result of budgetary analysis shows total revenue was found to be ₦ 347, 655.55. The Total Variable Cost was ₦ 96, 444.75 while the Total Fixed Cost was ₦ 39, 753.75.

The Net Income and Gross Margin levels for all respondents were ₦ 211, 457.05 and ₦ 251,210.80 respectively with rate of return on investment amounting to ₦0.7716 per product sold. This implies that harvesting of non- wood forest was profitable in the study area.

4.2.4 Problem encountered in harvesting non-wood Forest products

This section addresses the major constraints hindering the harvesting of non- wood forest products in the study area.

Table 14 presented below revealed that 26.7% of the respondents reported of being confronted with of unfavorable weather and poor access to credit, while 13.3% and 23.3% reported of being faced with poor storage facilities and road network and the remaining 10% complained of lack of access to forest.

Table 14: Distribution of respondents by problem encountered

Constraints	Frequency	Percent
Lack of Access to Forest	6	10.0
Unfavorable weather	16	26.7
Poor road network	14	23.3
Poor access to credit	16	26.7
Poor Storage facilities	8	13.3
Total	60	100

Source: Field Survey, 2016.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of Major Findings

The main objective of this study was to determine the economic analysis of non-wood forest products in Ikole local government area of Ekiti State. The result obtained from the study could be summarized as follows.

It was reported that majority of the harvester were female, married having age group of 40-49 years with household size falling within 6- 10 members with majority possessing secondary educational qualification. The major source of income are farming, harvesting of non-wood forest products and selling of wood. The harvesters were said to be experienced enough and were beneficiaries of cooperative societies. The result revealed that non-wood forest product mostly sold include; root (itakun igi iru- *Parkia biglobosa*, Itakun igi oju ologbo *Abrus prectorious*),bush meat (giant rat, grasscutter, snail),fruits (mango, cashew),nuts (dikanut, kolanut, cashewnut),honey, mushroom, herbs and spices like scent leaf, turmeric and alligator pepper of vegetables like (ebolo,worowo,water leaf, scent leaf, sheabutter and major constraint of non-wood forest products in the study area are lack of access to forest.

Further analysis on the profitability of the non-wood forest business showed that averagely the total revenue and total cost amounted to ₦ 347, 655.55 and ₦ 136,

198.50 respectively with the rate of return on investment estimated to be ₦ 0.7716 per product hence, it is a viable business.

5.2 Conclusion

It has been established that non-wood forest product is widely consumed in both rural and urban areas in Ekiti. According to this study, processing of non-wood forest product ensures food availability at household level; contribute to income generation and nutritional status within households. Harvesters make significant profits, indicating that the non-wood forest product harvesting trade has the potential to contribute to the nation's food security and human welfare. It also has the potential to make a substantial economic contribution to rural households. Despite the aforementioned successes, challenges notable among which were unfavorable weather condition, poor road network, lack of access to forest, poor access to credit of and storage problems.

5.3 Recommendations

Evidence from this work showed that non-wood forest harvesters participated on several products not minding the constraints faced in the study area. Based on the finding of this study, the following recommendations were suggested;

- i. Government should endeavour to provide basic amenities such as good storage facilities and teach the harvesters the best method of preservation in order to

prevent the spoilage of these products (non-wood forest products) after it have been harvested.

- ii. In order to safeguard the complete exploitation of non-wood forest products, rural farmers (including harvesters) have to be educated on the ways of domesticating some wildlife like grass cutter, and snails. This is an income-generating venture that has the potential of reducing exploitation pressure on the forest
- iii. Government should also intensify effort on cooperative education, training and public enlightenment in order to bring about increased participation and involvement of small scale farmers in the non-wood forest business.

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APPENDIX: Study Questionnaire

**DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION
FEDERAL UNIVERSITY OYE-EKITI, EKITI STATE-NIGERIA**

Dear respondent,

Individual interview schedule on “ECONOMICS OF NON-WOOD FOREST PRODUCTS” to rural households In Ekiti State, Nigeria.

This interview schedule was designed for the purpose of research and information on the above topic, your response will highly be held in confidence.

Thanks for your cooperation.

Medale. A.J

Schedule Number.....

Date.....

Please tick as appropriate and tick where necessary.

SECTION A: SOCIO-ECONOMIC CHARACTERISTIC

1. Location of respondent.....

2. L.G.A.....

3. Gender (a) Male () (b) Female ()

4. Age.....

5. Marital status: (a) Single () (b) Married () (c) Widow ()

6. What is your primary occupation? (a) Farming () (b) Civil servant ()

(c) Contractor () (d) Trading () (e) others () please specify.....

7. For how long have you been engage in the harvesting of non-wood forest products
.....years?

8. Educational status:

(a) Primary () (b) Secondary () (c) Tertiary () (d) others () please
specify.....

9. Household size:

Please tick as appropriate

No of Male	Age	No of Female	Age	Total

10. Do you belong to any cooperative? If yes how many
 (a) 1 () (b) 2 () (c) 3 () (d) 4 () (e) greater than 4 ()

11. What time of the year do you harvest

(a) Raining season () (b) Dry season () (c) all year round ()

12. What are the major sources of your income; chose many options possible

(a) Farming () (b) selling of wood () (c) harvesting non-wood forest products (d)
 gifts/transfer payments () (e) salary () (f) jobs ()

SECTION B: HOUSEHOLD FEEDING

13. How many people do you feed daily: (a) 9-10 () (b) 7-8 () (c) 5-6, () (d) 3-4
 ()

(e) 1-2 () (f) others specify.....

14. How many times a day do you feed; (a) once () (b) twice () (c) three times ()
 (d) more than 3 times () (e) others specify.....

15. How much money do you spend on feeding in a day.....

16. How much money do you spend on feeding in a week.....

17. How much money do you spend on feeding in a month.....

18. What are the major sources of income for food/food products?

Sources of income	Percentage used for feeding	Percentage used for other purposes
Farming		
Hunting		
Salary		

Job		
Loans/credit		
Selling of wood		
Selling of non-wood forest products		

SECTION C: HARVESTING AND USES OF NON WOOD FORST PRODUCTS

19. List non -wood forest products you eat.....
20. List non- wood forest products you use for medicinal purposes.....
21. List non- wood forest products you use as spices

TOOLS AND EQUIPMENT

22. What is the cost of tools and equipment use for the harvesting of the products?

Items	Unit price	Quantity	Total Cost
Basket/knife/cutlass/bag			
Others			
i			
ii			
iii			
iv			

23. Labour use efficiency in non-wood forest product

Type of labour use	Hours of work	No of labour	Output of labour	Cost of labour
Family				
Self				
Communal				

SALES

Non-wood forest product	Unit value	Total sales
Mushroom		
Latex		
Honey		
Vegetable		
Fruits		
Seeds		
Bush meat		
Roots		
Herbs		
Leaves		
Others please specify.		
2.		
3.		

24. How much do you get from the sales of non-wood forest products.....

25. Name the non-wood forest product you sell most.....and what amount do you get from it?.....

26. What do you use the money gotten from the sales of non-wood forest products for?
Chose as many as possible:

(a)Paying children school fees (b) Buying clothing (c) feeding and food, (d) Others.
Specify.....

27. What percentage of income from non-wood forest products do you use for feeding?

(a) 70-80 % (b) 60-50% (c) 40-30%, (d) 20-10 % (e) less than 10% (f) Others.
Specify.....

28. What percentage of wood forest products do you use for feeding?

(a) 70-80 % (b) 60-50% (c) 40-30%, (d) 20-10 % (e) less than 10% (f) Others.
Specify.....

29. What percentage of farm income do you use for feeding?

- (a) 70-80 % (b) 60-50% (c) 40-30%, (d) 20-10 % (e) less than 10% (f) Others.

Specify.....

30. How do you sell the non-wood forest product?

- (a) every market day () (b) every week () (c) every month ()

31. Do you have any other occupation different from harvesting of non-wood forest products? If yes specify.....

SECTION D OTHER FATORS

32. What problem do you encounter in the course of harvesting non-wood forest products?

- (a)
- (b)
- (c)
- (d)
- (e)

33. What do you think will be the possible solutions?

- (a)
- (b)
- (c)

PRESERVATION

34. How do you preserve your products?

- (a) Sun drying () (b) Salting () (c) drying under shade () (d) others specify.....

35. In what way do you think government can help?

- (a)
- (b)
- (c)

36. What are some customs/laws preventing exhausting /abuse of non-wood forest products?

- (a)
- (b)
- (c)
- (d)

37. What are the marketing arrangement/ regulations /restriction on selling and buying of non-wood forest products?

- (a)
- (b)
- (c)
- (d)
- (e)