

Resource Potential of Non Timber Forest Products in Dawro Zone, South Ethiopia

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Abstract

In this study Non timber resources potential and their income contribution to the local community in Dawro zone South Ethiopia were studied. The objectives of the study were (i) to assess the resource potential of non timber forest products, and (ii) to study the income contribution of the resources in the study area. The study was designed to collect both vegetation and socioeconomic data. Tree species and products which are considered as NTFPs were collected from purposively selected primary natural forest named 'Dodi natural forest' by the help of local elders and development agents and taken to the national herbarium for the proper identification and naming. From a total of 215 HHs in the study area, randomly selected 41 HHs were selected and structured questionnaire was administered for individual households. A total of eleven (11) NTFPs were recorded from the study area which are serving for both subsistence as medicinal for animals, human being, windbreak and fencing, food additives like species and income sources. It was understood some products like spice species and forest coffee are in problem of mismanagement and Bamboo products were underutilized. On the other hand, majority of the respondents (31%) indicated that products extracted from the forest are used for home consumption and commercial purpose even though, medicinal plants identified in the area are seldom used as only 2.4% of the total respondents indicated. It was suggested that better management and utilization method has to be set for diversifying products benefit for the local community.

Keywords: NTFPS, value addition, primary forests, mismanagement

Introduction

The harvesting and consumption of plant products from natural forests is known to account for a large proportion of the livelihood of people living close to such habitats (Padoch, 1992; Godoy and Bawa, 1993; Carpentier et al., 2000; Dovie et al., 2002; Ticktin, 2005).

The inadequate information on the ecology and physiology of NTFP species is the major drawback to initiatives aimed at managing the resource base (Macı́a and Balslev, 2000; Ticktin, 2004). Though there have been some successes, these do not equally match the rate at which the NTFP sector is developing. A robust management scenario comes only after several years of experimentation (Nakazono et al., 2004).

Ethiopia is endowed with a wide range of ecological and edaphic factors which has favored the formation of different habitat and vegetation zones (Zenebe G. et al., 2013). Ethiopia's forest resources supply most of the wood products used within the country's well as a large volume of diverse nontimber forest products (NTFPs), besides their ecological functions. Several authors and national or sub national inventory projects have carried out assessments and documented the extent of forest resources and other land uses of Ethiopia (Yitebitu M., et al., 2010). For instance it is estimated that there are between 6,500 and 7,000 species of higher plants in the Ethiopian flora, of which about 12% are endemic (Tewoldeberhan, 1991).

Non-timber forest products (NTFPs) are wild plant and animal products harvested from forests, savannahs and other natural vegetation types. This definition includes the use of wood for canoes, wood carvings, local house construction, fencing materials and firewood, but excludes industrial timber (Tinde van Andel, 2006). Non-timber forest products (NTFPs) have in the past been referred to 'minor' forest products. This term 'minor' forest product underestimated the importance of NTFPs and hence created a bias impression on the mind of practising foresters on their management (Vorgelegt Von, 2006). Non timber forest products have been essential for subsistence and commercial activities all around the world. NTFPs are also among the oldest and most long standing of internationally traded commodities, dating back thousands of years to ancient times and continuing in the present day (FAO, 1995). The study was conducted to document resource potential of NTFPs of the study area.

Methodology

Description of the study area

The study was conducted in Dawro zone, is located at 6.590 -7.340 N of latitude and 36.680 -37.520 E of longitude and at altitudinal range between 550-2820 meters above sea level in Southern Nations, Nationalities and Peoples Region (SNNPR).

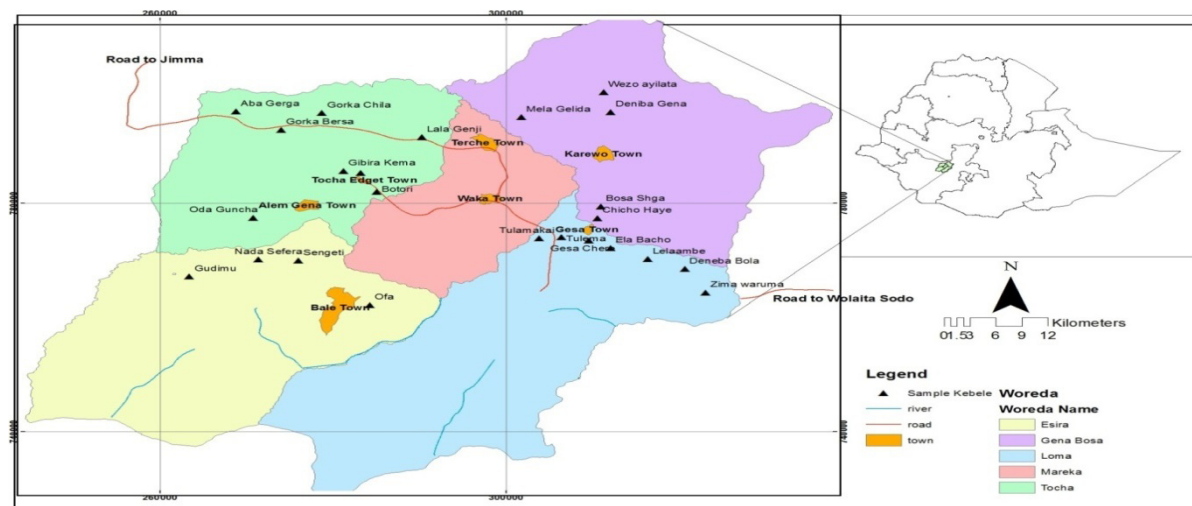


Figure 1: Location of the study area

Based on the 18 recently classified agroecological zones, the area consists of sub-humid types of agroecological zones containing deciduous woodland with elevation 550-2820m having *Boswellia papyrifera*, *Combretum mole*, *Terminalia browni*, *Acacia senegal*, *Balanites aegyptica*, *Lannea fruticosa* and others along the Omo and Gojeb river valleys (Mathewos A et al., 2013).

Study Design and Sampling Methods

The study was designed to collect both the vegetative and socioeconomic data of NTFPs in the study area. Preliminary survey was made to identify sample area and gather general information regarding the proposed study.

Vegetative data was collected from purposively selected natural forest located near to Kechi Tuta town named as Dodi natural forest with the help of local elders and experts from agricultural offices. The forest was selected due to its undisturbed diversity based on the information obtained from zone agricultural office personal observation. Sample species collected from the forest were taken to national herbarium in the department of biology in Addis Ababa University for further identification.

Participatory Rural Appraisal (PRA) methods were used to identify and document the availability and use of local NTFPs, with interviews conducted in local community households (Cunningham, 2001). A stratified random sampling of households in each sample area was employed.

Local elders were selected based on their experience to the area with the help of development agents (DAs) in the kebele. Moreover, to assess the subsistence contribution obtained from NTFPs, structured questionnaire was administered for individual households. Additionally, market surveys were made and mean market prices were used to estimate income of the both commercial and subsistence NTFPs.

Sample households which are situated near to the natural forests were randomly selected to conduct interview and from a total of 215 households in the study area about 41 sample households were included on the study.

Data Analyses

To meet the objectives of the study descriptive statistics was employed. The data collected was analyzed using Statistical Package for Social Sciences (SPSS) version 16 and Excel 2007 and vegetative data gathered from the natural forest was taken to national herbarium in the department of biology in Addis Ababa University, for proper identification of scientific names of sample species and analyzed qualitatively.

Result

Resource potentials in the study area

The forest in the study area is the basis for the lives of respondent households through provision of different goods and services.

Table 1: Major NTFPs documented in the study area

No	Botanical name of species	Family	Local name	Local importance of plants
1	<i>Hagenia abyssinica</i>	ROSACEAE	Kosso	Medicinal plant for human being
2	<i>Ekebergia capensis Sparm.</i>	MELIACEAE	Zagiya	Toxic plant used to avoid harmful termites and insects
3	<i>Pycnostachys abyssinica fresen</i>	LAMIACEAE	Hanchichiya	Used as a soap (detergent)
4	<i>Aframomum alboviolaceum</i>	ZINGIBERACEAE	Korerima	Used as a spice for feeding
5	<i>Pycnostachys eminii Gurke</i>	LAMIACEAE	Olomo	Toxic and bad smelling used to avoid harmful termites and insects
6	<i>Landolphia buchananii</i>	APOCYNACEAE	Dole	Has sticky material similar to rubber tree in nature and used by children for playing as a ball
7	<i>Piper capense</i>	PIPERACEAE	Timz	Used as a spice and food additives
8	<i>Vepris dainellii</i>	RUTACEAE	Chawaka	Known medicinal plant specially for stomach-ache
9	<i>Arundinaria alpina</i> /Bamboo	POACEAE	Woysa	Used for fuel wood and construction of fence and wind break
10	<i>Rhamnus prinoides</i>	MYRSINACEAE	Gesho	Used to make traditional drink
11	<i>Honey</i>	HONEY	Essa	Used for subsistence and to earn money

Table 2: categories of NTFPs

Plant products		Animals and animal products	
Categories	Description	Categories	Description
Food	Vegetal foodstuff and beverages provided by fruits, nuts, seeds, roots	Living animals	Mainly vertebrates such as mammals, birds, reptiles etc.
Fodder	Animal and bee fodder provided by leaves, fruits etc.	Honey, beeswax	Products provided by bees.
Medicines	Medicinal plants (e.g. leaves, bark, roots) used in traditional medicine and/or by pharmaceutical companies	Bushmeat	Meat provided by vertebrates, mainly mammals
Perfumes and cosmetics	Aromatic plants providing essential (volatile) oils and other products used for cosmetic purposes	Other edible animal products	Mainly edible in vertebrates such as insects (e.g. caterpillars), crabs and other "secondary" products of animals (e.g. eggs, nests)
Dying and tanning	Plant material (mainly bark and leaves) providing tannins and other plant parts (especially leaves and fruits) used as colorants	Hides, skins	Hide and skin of animals used for various purposes
Utensils, handicrafts	Heterogeneous group of products including thatch, bamboo, rattan, wrapping leaves, fibres (e.g. Arouma, Bwa Flo, Silk cotton floss, Screw pine)	Medicine	Entire animals or parts of animals such as various organs used for medicinal purposes (e.g. caterpillars, crab legs, snake oil)
Construction materials	thatch, bamboo, fibres,		
Ornamentals	Entire plants (e.g. orchids, ferns, philodendron) and parts of the plants (e.g. pots made from roots) used for ornamental purposes	Colorants	Entire animals or parts of animals such as various organs used as colorants
Exudates	Substances such as gums (water soluble), resins (water insoluble) and latex (milky or clear juice), released from plants by exudation	Other nonedible animal products	e.g. bones used as tools

Source: Adapted from FAO 1995; Shiva and Verma 2002.

A total of 11 (eleven) NTFPs (Table 1) were recorded in the study area. As the given description of each species, they have different benefits as household appliance like a spice; *Piper capense* L.f. and some others like *Vepris dainellii* (Pichi-Serm) Kokwaro, and *Hagenia abyssinica* (Bruce) J.F. Gmel are used as local medicinal plants. Forests contribute to all aspects of rural life: providing food, fodder, fuel, medicines, building materials, and materials for all sorts of household items, as well as many more intangible benefits such as cultural symbols, ritual artifacts and locals (Charlie and Sheona, 2004). Two species namely *Pycnostachys eminii Gurke* and *Ekebergia capensis Sparm.*, are local medicinal plants used for avoiding harmful insects from their home and farm land. Majorly, it was observed that the study area have a huge bamboo resources which is used only for the purpose of windbreak, fencing of the home and fuel wood.

As stated by (Muzayen S., 2009), there is, however, great variation in the extent to which forest products are used from area to area and even between households within a community. Because of this variation, it is difficult to set generalizations about NTFPs use, value addition and understanding of benefits of each and every species

including its management. In general, this variation reflects the level of understanding the importance of the products from the household to local, national or international market and the extent to which NTFPs are an integral part of rural livelihoods.

Conclusion and Recommendation

Non timber forest products came from a large variety of plant parts and are formed into a diverse set of products: leaves & twigs that may be component of decorative arrangements, food items such as fruits, fungi and juices, wood carved or woven into pieces of art or utilitarian objects and roots, leaves and bark processed into herbal remedies or medicines. Like timber, NTFPs may further be processed into consumer oriented products.

Generally, the study area has a diversity of NTFPs which gives immense contribution to the local community in the form of home consumption, commercial, medicinal, protection purpose and etc. Common NTFPs identified in the study area includes Honey, Spice, fuel wood, Bamboo, Medicinal plants, however, the result has indicated there is disparity in production/extraction and utilization. Measures have to be taken to reverse the current trend of harvesting NTFPs from the wild; otherwise most of these products will disappear before they are domesticated.

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