

Non-timber Forest Products and their Contribution to Poverty Alleviation and Forest Conservation in Mbulu and Babati Districts -Tanzania

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ABSTRACT This paper presents findings on the contribution of Non-timber Forest Products towards poverty alleviation and sustainable forest management. It draws results from Nou-Catchment Forest Reserve, Dareda and Dohom Village Land Forest Reserves (VLFRs), in Mbulu and Babati Districts, Manyara region, Tanzania. Data were collected from eight villages, four from each District using participatory rural appraisal, structured interviews, focused group discussion and baseline data from FARM Africa Babati, Tanzania. Results revealed that NTFPs have significant role, particularly fire wood (92%), fodder (63%) and bee keeping activities (40%). Environmental goods and services (40%), construction materials and medicinal plants are also remarkable. This indicated significant contribution in income and non-income poverty reduction and thus, incentive for sustainable forest management. However, the collection trend varied from different forest and management regimes, (65%) National forest reserve, Village forest (31%), and small quantity in Village general lands (5%). The findings also highlight constraint to their exploitation and policy implications of Non-timber Forest Products towards poverty reduction and sustainable forest management. It must be mentioned, however that, there is a need for policy and legislation framework to guarantee more impact on poverty reduction and sustainable forest management.

1. INTRODUCTION

Since the early 1990s, the role of Non-timber Forest Products (NTFPs) for sustainable forest management and poverty reduction has received increased attention (Sheil and Wunder 2002). Non-timber Forest Products are fundamental for development and sustainable forest management and conservation strategies (Arnold 2002). They play an important part in supporting household livelihoods and therefore can be used to raise the perceived value of forest resources. They act as incentives for more sustainable use of forest and woodland resources (Arnold 2002). In developing countries, including Tanzania, majority of rural household and a large proportion of urban household depends on NTFPs to meet some parts of their nutritional, health, construction material and income from selling these products. Elsewhere, NTFPs are the only source of income for the local communities (Wollenberg and Septianinawir 1998). Therefore, NTFPs form an integral part of the rural economy where the majority of the rural populations live especially around the forest resource base.

In this perspective, sustainable forest management will be achieved through encouraging

participatory management of forest and woodland resources. There are several positive developments, which have been attained in this regard in Tanzania, despite the scanty information existing on the role of Non-timber Forest Products (NTFPs) towards poverty reduction and sustainable forest management. Due to this knowledge gap, the paper examined the role of NTFPs towards poverty reduction and sustainable forest management, the limitation to their exploitation in the current policy context. The findings provides the benchmark information against which the initiation of appropriate and sound management strategies and policy issues on NTFPs towards poverty reduction and sustainable management of forest resources in Nou forest, Dareda escarpment forest and Dohom village forest reserves may be based.

2. THE STUDY AREA DESCRIPTION

Nou Catchment Forest Reserve lies between 3°53' – 3°12'S and 35°37' – 35°37'E and occupies 28.936 km² (FARM-Africa 2006). It is situated in the southern part of the Mbulu highland plateau and is found in both Mbulu and Babati districts in Manyara Region. In Babati District, the reserve

borders 7 villages namely Dareda Kati, Dohom, Qameyu, Madunga Kati, Utwari and Merr while in Mbulu District, the reserve borders 8 villages of Tumati, Arri, Tlawi, Maskaroda, Khaday, Murray, Hayloto and Kuta. Mbulu and Babati Districts have greater experience in Joint Forest Management (JFM) from Nou Forest reserve (Table 1). The villages surrounding the reserve are subject to a growing population in rural and peri-urban communities, and increasing social and ethnic heterogeneity through migration and increasing exposure to forces of globalization and decentralization of natural resources.

3. MATERIALS AND METHODS

This paper is based on the study that was conducted during the months of June and July, 2009. The paper relied on both secondary and primary data. Secondary data was collected from textbooks, scientific journals, international and national reports and internet sources. A cross-sectional survey was used to gather primary data from people living around Nou Catchment Forest Reserve forest reserves and the key informants working towards the conservation of the forest reserve. Random sampling method was used to select four villages from the two districts in which the forest reserve are located and in total, eight villages will be selected. Within these villages, random sampling method was further used to select respondents. The sample size was limited to 160 respondents across the selected villages. Purposive sampling method was used to select 20 key informants which included five District Natural Resource Officers, five Community Based Forest Management practitioners and 10 village key informants. Information was obtained using four main methods which include questionnaires, in-depth interviews, focus group discussions and visual observation. Questionnaires were used to collect data from 160 respondents while interviews were conducted on key informants. Two focus group discussions were held in each village. Focus group discussions are important for evaluating the accuracy of data collected using questionnaires and interviews (Kasemir et al. 2003). Each discussion comprised of 6 community members, who were well informed on NTFPs benefits and sustainable forest management. A combination of qualitative and quantitative methods were used to analyse the collected data. Qualitative data were analyzed using content and structural functional

analytical techniques in which components of verbal discussions from different respondents were broken down into the smallest meaningful units of information, values and attitudes of respondents. Quantitative data were analysed with the aid of Statistical Package for Social Sciences (SPSS) version 16 and Excel Spread Sheet 2003. Analysed data was presented in descriptive statistics, charts and tables. Pearson correlation test was used to correlate NTFPs and sustainable forest management.

4. RESULTS AND DISCUSSION

4.1 Existing NTFPs and their Importance at Household Level

The study revealed that dry firewood (90%), fodders (60%), honey (40%) and construction materials (40%) were the most collected NTFPs at household level compared to other NTFPs (Fig.1). There were also significant benefits accruing from environmental goods and services such as water from catchments forests, increasing rainfall and spiritual sites present in the forests. These NTFPs contributed to both monetary and non-monetary benefits, which acted as incentives for sustainable forest management.

Surprisingly, the value of medicinal trees was not significant in this case, as had been expected. Such situation occurs due to the usage of medicinal plants, which tend to overlap with those of forest foods that are used to improve palatability and act as health tonic (Arnold 2002). Nevertheless, medicinal products were used as major ingredients of the daily diet. These included *Securidaca longipedunculata*, *Crossopteryx febrifuga* and *Harrisonia abyssinica*. The perceived value of medicinal products and their utilization could increase villagers' motives and incentive for sustainable forest management as well. This observation is in line with the arguments of Arnold and Perez (2001) who reveal that the exploitation of NTFPs provides more sustainable base for forest resource management. The importance of wild fruits (2%) like *Azanza garkeana* and *Parinari curetelifolia* were not highly recognised. This could have been attributed to seasonality of forest fruits which makes them unavailable during certain seasons. Additionally, wild fruits were increasingly being domesticated in the farmlands and home gardens. Nevertheless, the importance of various NTFPs at household

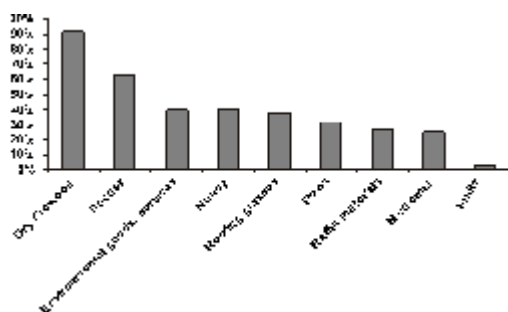


Fig. 1. NTFPs as sources of livelihood at household level

level depends on the dynamics of people's livelihoods, income needs, composition and condition of the forest resources and access to market (Falconer and Arnold 1989). A combination of these drivers can be used as a forum for forest resource conservation.

4.2 Quantity of NTFPs Collected from Different Forests and Management Regime

Results revealed that 65% of the respondents acknowledged that large quantities of NTFPs were collected from National forest reserve which is managed through Joint Forest Management (JFM). About 35% of the respondents mentioned some NTFPs collected from village forest reserve managed through Community Based Forest Management (CBFM) and small amount collected from village general land (Fig. 2). Small quantities of NTFPs collection from village general lands was due to over exploitation and open access characteristics of the area. The area was used for village expansion, agricultural expansion and for grazing.

From the focused group discussion, the

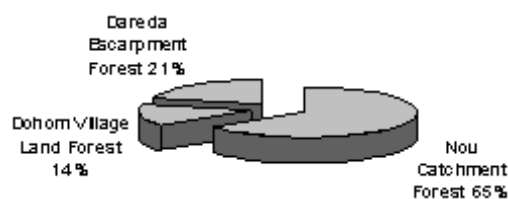


Fig. 2. Quantity of NTFPs collected from the forest with different management regimes

Village Environmental Committees and forest officers revealed that villagers were highly motivated to participate in Joint Forest Management in forest reserves due to the availability and utilization of available NTFPs. People were allowed to collect dead wood for domestic energy, they enjoyed increased water flow from catchments areas and wild life and benefited from the tourism activities in the area. The driving factors leading the exploitation of NTFPs in National Forest Reserve are presented in table 2.

4.3 Other Livelihoods Opportunities and NTFPS Options

The diversity of options available to households influenced the community ability's to pursue desired livelihood options. Nevertheless, household income and other livelihood options may be affected by forest management regimes in place, biophysical trends such as agricultural productivity and forest resource base and broader economic scale (Mertens et al. 2000) and policy trends. Based on focused group discussions, the study revealed a number of livelihood or income support categories (Table 3). From these livelihood option

Table 1: Forest coverage in Mbulu and Babati districts

Total forest area	Central and local government forest reserves	Community conservation areas	Forests on general lands
70,721.7ha (Mbulu)	39,370ha	226.7ha	31,125ha
80,000ha (Babati)	25,139ha	33,66ha	21,194ha

Source: FARM-Africa 2006.

Table 2: Contextual factors influencing collection of NTFPs from forest reserve (n=160)

Factors	Responses (%)
Shortages of firewood around village general lands	16
Shortages of grazing pastures during drought periods	21
Forest reserves are good sources for harvesting raffia and mates materials.	34
Forest Reserves are potential areas for beekeeping activities	19
Forest Reserves are potential areas for getting medicinal, hoe handles and handcrafts materials.	10

Table 3: Other livelihoods opportunities and NTFP options

<i>Farm produces</i>	<i>NTFPs</i>	<i>Labour</i>	<i>Others</i>
Food crops	Wild fruits and spices	Civil servants	Trading of petty commodities
Vegetable	Fuel wood	Semi skilled work	Retail shops
Cash crops	Bush meat	Earning from working in other people's farm	Remittances from relatives
Livestock	Thatching grass		
Poultry rearing	Medicines		
	Rafia and mates materials		
	Handcraft materials		
	Honey		
	Bees wax		
	Environmental goods and services		

categories available to the household, NTFPs provided more income support options. It was also noted that NTFPs were more available during crisis events and surprises, such as flood, drought and hunger. Thus, NTFPs were used as safety nets, since they could contribute important snacks during the period when other foods are scarce. They can facilitate adaptations to environmental and economic shocks while promoting long-term ecosystem integrity and human well-being (Lambin 2005).

4.4 NTFPs and Sustainable Management of Forest

To understand the roles of NTFPs in sustainable forest management, a correlation analysis was done. The Pearson correlation coefficient reveals that there is a strong positive correlation relationship between NTFPs collection and sustainable forest management as is testified by large coefficient correlations (R) from forest reserve which is managed through Joint Forest Management (0.754) and Community Based Forest Management (0.531). As more NTFPs become available to the people, sustainable management of forest is achieved. Taking into account the existing NTFPs as an alternative sources of benefits perceived by communities, the results suggest that benefits from NTFPs has a strong relationship to sustainable management of forests at Mbulu and Babati District. However, the results indicate a small correlation from village general land (0.212). This implies the roles of NTFPs do not contribute to sustainable management of village general land due to small amount of NTFPs derived from it.

Moreover, the study showed that 86% of the respondents agreed that it was wise to conserve forests. This suggests that the benefits accrued

by the communities through these NTFPs have positive influence towards sustainable forest management. As it is suggested by Fabricus (2004), benefits from natural resources management result in benefits to the natural resource and the community; it is mutually reinforcing relationship between the two. The majority of the respondents said it was wise to conserve forests because they provided means of getting firewood, fodder and honey for household's consumption and sale.

4.5 Policy Implications

This study revealed significant evidences that NTFPs support poverty reduction and Sustainable Forest Management in many respects. According to Tanzania National Forest Policy of 1998, NTFPs has been recognized to have the potential to increase economic development (MNRT 1998). The implications of this have not been fully supported by the government policies and programmes. There is need for a well-defined policy which is easy to understand by local communities. This will facilitate the contribution of NTFPs to poverty reduction and Sustainable Forest Management. For example, making provision for secure property rights, providing tax or other incentives for good catchments forest management or enabling communities to participate in and influence policy processes. There must be congruence in scale between policies and NTFPs exploitation as well as Participatory forest management (Lambin 2005). Policies that are conducive to the exploitation of NTFPs and sustainable forest management have to allow the integration of different sectors and knowledge systems. According to Xu et al. (2005), policies that promote economic development through

cultural revival could stimulate cultural revival and revive indigenous knowledge about forest resource management and NTFPs exploitation.

4.6 Constraints to NTFPs Utilization

4.6.1 Insecurity of Resource Base

The most important constraints to development and promotion of NTFPs in the study area were insecurity of resource base particularly tenure of both land and trees. This was mentioned by about 50% of the respondents. Access to land in the study area was regulated by a dual system of tenure, that is a customary or traditional system and a modern system. In the traditional system, membership of a particular tribe was sufficient to confer land access. Individuals, who were not members of the tribe, but resident in the area, could obtain access to land by application to the tribe leaders. The modern land tenure regime was represented by the land registration system enacted by the government. The system recognised individual ownership rights over land.

4.6.2 Climatic Factors

The diversity and availability of NTFPs in the study area were threatened by the changing ecological conditions. About 20% of the respondents mentioned changes in climatic conditions as one of the constraints to the development, utilisation, domestication, sustainability and commercialisation of NTFPs.

4.6.3 Fire

About 15% of the respondents mentioned that fire is the main constraints to NTFPs in the study area. The fierce and extensive bush-fires were annually started by lightening, by nomads in search of grazing, by honey gatherers and by cultivators practising shifting cultivation. This had great influence on the presence or absence of particular tree species and affected the growth form of individual tree. In addition, the fire killed the newly established saplings and reduced soil seed banks by killing trees and grass seeds. Eventually, natural regeneration was greatly affected.

4.6.4 Grazing

Grazing was mentioned by 15% of the

respondents as a threat to NTFPs. Traditionally, the study area hosts a large number of livestock both owned by sedentary and transhumance inhabitants. Moreover, during the dry season the study area is the most favoured grazing sites for nomadic tribes.

5. CONCLUSION

The study has revealed significant role of NTFPs towards poverty reduction and Sustainable Forest Management in Mbulu and Babati Districts of Manyara region. The products represent very significant component of the household livelihood and income options. Thus, it is clear that these products are extremely important to reduce income and non-income poverty and are considered to be an incentive for Participatory Forest Management. Communities are motivated from NTFPs collection and utilization and hence participate in forest management.

6. RECOMMENDATIONS

Despite this importance, further comprehensive study is needed to examine and quantify the amount of NTFPs collected over time against the existing stock and production trends while focusing issue of processing, marketing and traditional knowledge systems in this area. This will provide much needed information to be used for the sustainable forest management and poverty reduction strategies. Moreover, policies and more incentives should be thought of, that will enhance the potential of NTFPs in poverty reduction and empower communities through institutional framework to respond to the increasing demand without eroding forest resources base.

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