

Cultivating the Underutilized: Non - Timber Forest Produce in Jimma Zone, Ethiopia

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Abstract

Production of non-timber forest products (NTFPs) by forest fringe communities has invaluable importance, both from the perspective of rural livelihood security and resource conservation. It ensures food availability particularly during slack periods and provides cash income when other income sources such as coffee are non-existent. Despite the rich potential of Jimma zone for NTFPs, the community has not benefited from the multiple functions of the natural afro-montane forest in the area. This study was conducted to assess the state of production and utilization of NTFPs in the study area, and to identify major production challenges and opportunities. The analysis was made using both primary and secondary data. Descriptive statistics were used to examine the association between different groups and the degree of integration with NTFPs. The study found that pest incidence, lack of inputs, shortage of land and limited skilled personnel, absence of irrigation and the expansion of chat were the major production constraints identified. It was also found that the different wealth groups depend on NTFPs to varying degrees. Hence, the study underscores the importance of strengthening extension service, access to credit, control of wild animals, promoting farmers' field school and creating forward and backward linkages.

1. Introduction

Of the 600 million people living in sub-Saharan Africa, the World Bank estimates that quite a vast number (420 million) depend on forests and wood lands for their livelihood. Studies have also shown that many more around the world rely on forest products to varying degrees for fuel, food, fodder, medicinal plants, building materials, and as a source of income (Van Reenen, 2005; Stronkhorst, 2005; Vivero, 2002; FAO, 1995). Moreover, forests have different important functions such as regulating climate, providing homes for plants and animals, producing timber and non-timber products, and social values. It has been estimated that around 80 per cent of the people in developing countries to date,

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use non-Timber forest products (NTFPs) for health and nutritional needs (Van Reenen, 2005; FAO, 2003a). Wiersum (2005) indicated that the forests, on top of their ecological functions, harbor a number of valuable NTFPs such as honey and coffee which provide an important contribution to livelihood improvement. Van Reenen (2005) also shows that some of the NTFPs are significant in terms of international trade, which include honey, gum Arabic, rattan, resins, essential oils and plant and animal parts for pharmaceutical products. Therefore, enhancement of the production of NTFPs would help to address two issues viz., improved livelihood and forest conservation objectives.

In spite of a wide range of goods and services they provide, NTFPs have been rarely recognized as valuable products (Van Reenen, 2005; Bih, 2006). As a result, there is an ever-intensifying threat on the fragile forest resources of the country left in few pockets of the southwestern parts of Ethiopia where the Jimma zone is found. This does not only mean the loss of the big trees in themselves but is also endangering a wide variety of the high value NTFPs such as coffee, honey, fruits, resins, spices, root crops and many others that could be produced in an integrated system in such rich ecology.

The area primarily depends on coffee production as the economic base. Sole dependence on coffee production is often subject to market failure as coffee price is externally determined making the farmer coffee producers' price recipients. The situation has made the area vulnerable to market shocks forcing them to convert the coffee farm to alternative land uses such as cereals in response to fall in coffee prices. This does not only affect their livelihood-base but also the environment, as the coffee farm is converted to other land uses clearing the coffee forest and its shade trees.

Cognizant of the various purposes of forests that include environmental, economic and social benefits and values, the regional state of Oromiya in collaboration with different non-governmental organizations has tried different interventions to ensure the sustainable use of natural resources. Such interventions have long been preservationist in approach which tries to conserve forests through lowering forest dependence of local livelihoods. Despite the protectionist role of the state, Jimma area is rather known to have been providing timber, which is produced in a traditional and destructive manner not only inducing ecological degradation but also threatening the potential for rural livelihood diversification and income generating opportunities (ONRS, 2006).

The contemporary approach rather assumes direct linkage between livelihoods and conservation to relieve poverty (Van Reenen, 2005; Chowdhury, 2005). The two possible sustainable forest contributions to poverty alleviation that have been brought forward are NTFPs and ecotourism (Stronkhorst, 2005). NTFPs play a significant role in diversifying the sources of farm household income by adding up on the income from annual crop production and live stock rearing and by sustaining the flow of return in time by virtue of their perennial nature (FAO, 2005). Moreover, NTFPs production is also by far less damaging when compared with timber logging in the area. This demands the production of economically valuable NTFPs to tackle both problems of insecure rural livelihood and land degradation, simultaneously.

The study area, Jimma zone, appears to have a good potential for production of NTFPs, as it is one of the few areas of remaining natural forest vegetation in the country. However, the rural communities are not as such fully engaged in the production and processing of NTFPs and even those who are producing, face different problems in the production, management and marketing processes (ONRS, 2006). Therefore, the lower production and productivity relative to its potential might be attributed to socio-economic and biophysical factors within which local farmers operate. Studies carried out in the area have so far focused on the genetic conservation of selected species with little emphasis given to the role NTFPs play in livelihood security (Mbogga and Wubalem, 2004). Little attention has been given for the vast opportunity in such a potentially rich NTFPs site viz, Jimma area, where issues related to awareness; technological accessibility; and the overall role of NTFPs in rural livelihood is worth investigating.

This demands the assessment of the state of production of major NTFPs; identification of the challenges hampering the sector and opportunities awaiting its exploitation; and the role NTFPs play in improving livelihoods and resource conservation. This is central to set appropriate intervention mechanisms so as to promote production of NTFPs that supplement coffee, to establish improved livelihood-base through sustainable use of natural resources in pursuit of sustainable livelihood for the local community.

2. Methodology

This study used both primary and secondary data. The two districts of Jimma zone: Gomma and Manna were selected for this study for two reasons. One reason is they are the two densely populated districts of the zone and the other is spatial

accessibility to easily organize field work. Then three leading NTFP producing *kebeles* (smallest administrative unit of local government in Ethiopia) were selected based on a discussion with key informant farmers and district and zonal level agro-forestry experts. These *kebeles* were Haro from Manna district and Chidero Suse and Ganji Ilbu *kebeles* from Gomma district. The former *kebele* was chosen for it is relatively close and accessible to central markets (Agaro, Jimma) whereas the latter two *kebeles* are situated along the main road without a cooperative union and off the road/distant but with a cooperative union, respectively. A total of 105 households were drawn proportionately. It should however be noted that this study focuses on the two major NTFPs, namely; fruits and honey, in terms of their contribution to household income among many others.

A survey was then conducted through interview using individual pre-tested structured questionnaire. Well-trained enumerators under the researcher's close supervision and participation administered the questionnaires. A pre-coded questionnaire was used for the entry and analysis of data which was carried out using Statistical Package for Social Scientists (SPSS). Descriptive statistics were employed in the analysis of data. Regarding the scope of the study, attempt was made to cover the two major NTFPs; namely, fruits and honey.

3. Results and Discussion: Production and Management of NTFPs

It was realized in the study that the communities in the study area derive their livelihoods from diverse and often valuable non-timber forest products. These NTFPs were found to serve a number of purposes as sources of household consumption and means of income generation with different degrees of dependence by the households. Assessment of the production and utilization of the most important NTFPs such as fruits, and honey in the study area are presented as follows.

3.1. Fruit Production

The major fruits produced by the respondents include avocado, mango (*Mangifera indica*), orange (*Citros aurantium*), banana (*Musa acuminata*), guava (*Psidium guajaova*), and papaya (*Caracal papaya*) among others. The other fruits cultivated in the area include lemon (*Citros lemon*), cashmir, pineapple, jack fruit, etc. The last two were introduced very recently, i.e. during the past four years or so. Other commercially important perennial trees grown include chat (*Chatha edulis*), sugar cane and gesho (*Rhamnus prinoids*) among others. However, there is not much difference in the average number of fruit trees possessed by the different

- wealth groups except for avocado and mango which were relatively higher for the rich. Even though, fruit tree planting has long been a tradition in the area, the number of fruit trees owned by sample households and the corresponding yield was low. About 62 per cent of the respondents began fruit tree planting 15 years ago and 15 per cent of them planted fruits at least 10 years ago.

Table: 1 Average Number of Fruit Trees possessed by Sample Households by Wealth Group in 2006/07

Fruit type	Wealth Category						Total	
	Rich		Medium		Poor			
	N	No. of fruit trees	N	No. of fruit trees	N	No. of fruit trees	N	No. of fruit trees
Avocado	22	16.14	33	5.09	33	5.15	88	7.87
Mango	22	5.00	32	3.91	36	3.89	90	4.17
Pineapple	4	13.75	3	4.00	1	3.00	8	8.75
Banana	16	16.94	16	23.13	16	10.31	48	16.79
Orange	15	3.67	28	2.54	23	3.78	66	3.23
Coke	1	3.00	2	3.50	0	0	3	3.33
Guava	9	2.44	12	1.67	17	2.18	38	2.08
Papaya	10	4.90	17	4.12	14	3.00	41	3.93
Jack fruit	2	2.00	5	1.20	1	10.00	8	2.50

Source: - Field survey, 2008

As regards the reasons for planting fruit trees, 37.8 per cent of the sample households planted fruit trees with the objective of increasing cash income to supplement income gained from coffee and 39 per cent of them produced fruits for home consumption. The remaining 23 per cent planted fruit trees anticipating both cash income and household consumption.

On the other hand, the study found that damage by wild animals, shortage of land and lack of improved varieties are the major problems for not growing fruit trees. Despite this fact, 78 per cent of the respondents intended to plant more fruit trees in particular, avocado, mango, apple and jack fruit, and 63 per cent intended to plant avocado alone mainly due to its high nutritious value in household consumption, low input requirement once planted and matured, and high market demand with encouraging market return. It was also realized that avocado is not damaged by wild animals and seedlings are easily available. These were the important reasons favoring the plantation of avocado over others. The implication

is that the contribution to household consumption or to income generation of a particular NTFP as well as the constraints within which it is produced, matter the most.

3.1.1. Modes of Fruit Production

Fruits in the study area were produced under rain-fed condition. It is only the seedlings which need irrigable or hand fetched water to cope with extended drought periods. Nearly 60 per cent of the respondents perceived that fruit trees such as mango, avocado, banana, papaya, orange and guava are drought resistant and can grow well without irrigable water.

Fruit cultivation is, however, limited to homesteads and not grown in the field. This is due to the damage caused by the wild animals and problem of theft in remote areas. As a result, fruits like mango, banana, papaya, and guava, which the respondents considered to be most susceptible and preferred by apes and monkeys, are usually grown in home gardens being intercropped with *enset* and *chat*. However, avocado, which is not eaten by wild animals, is sometimes grown in the field with coffee, but is not an appropriate shade-tree for coffee due to its dense leaves, as reported by key informants.

3.2. Honey Production

Honey is a much valued NTFP in the study area. Trees of different species had an important role in honey production through the provision of fodder for bees during the different seasons of the year. The flowering of different nectar yielding trees during various seasons makes beekeeping an interesting enterprise, from which returns are expected throughout the year often meeting critical household needs. Moreover, beekeeping is a highly conservational livelihood strategy as income is generated through honey bee flora with little or not much input, once put in place.

It was found that 41.9 per cent of the sample households practice beekeeping, owning beehives ranging from traditional to modern ones. The average number of beehives per honey producing household is about 5.54. About 43 per cent of the respondent households practice beekeeping to benefit from the sale of honey and consumption at home; where as 30 per cent of honey producers owned bee hives to increase their livelihood asset. About 57 per cent of the households responded that they started beekeeping after the extension service had created high awareness for them to diversify their livelihood strategies than depending on income from coffee alone. Thirty one per cent of the respondents began beekeeping

in response to market failure for other products or bad harvest while the remaining 10 per cent were initiated by the improving market demand for honey.

3.2.1. Modes of Honey production

There were both traditional and modern hives possessed by those households practicing beekeeping. In 2006/07, a total of 264 beehives were owned by the sample households. Of these, 42 are traditional and 222 are modern ones. The traditional bee hives were kept in the coffee forest hung on large trees to attract bee swarm. Some households possessed traditional hives alone and some others own both traditional and modern types of hives. Traditional hives were meant for obtaining honey for one time (a season) and dumping the bees out or selling them to the owners of modern hives. The traditional hive owners do not worry about the next season and the sustainability of honey production as they believe another bee-swarm would be captured again to produce honey for the next season. This, indeed, is a threat to bees in general and honey production in particular, making bee swarm increasingly scarce for those who practice beekeeping sustainably using modern beehives.

Given the shortcomings of traditional hives, one usually enquires the reason why households do not use modern bee hives in order, to be able to increase both the quality and the amount of honey they produce while at the same time not endangering the bee swarm as opposed to the traditional bee hives. Table 2 below summarizes the reasons why households in the study area do not use/adopt modern hives.

Table: 2 Reasons for not having Modern Beehives

N = 65

Description of reasons	No of responses	% of cases
Inadequate provision or problem of affordability	38	58.6
Lack of awareness	18	28.5
Unavailability of bee swarm	14	21.5
Land shortage in a home garden	27	41.6
Lack of man power	3	4.6
Bees attack in home garden & theft if put in field sites	11	17
Unavailability of flowers and water	1	1.5
Total response	112	173.3

Source: -Field survey, 2008

From table 2 one can easily infer that affordability and inadequate provision is a problem for more than half of the bee keeper households. A good proportion of respondents also had a strong reservation for adopting modern hives because they feel that bees strongly constrain home garden land use for other important crops used as a coping strategy. Land in a home garden is as small as (25mx40m), but of valuable importance for a household accommodating (*chat*, *enset*, root crops, hives, and fruits) different livelihoods strategies.

Indeed, the beauty of these different enterprises accommodated in a home garden lies in its seasonality, i.e. each of them being very important either as transitory food or as a source of income during food deficit months making critical contribution to increased household resilience. The contribution of bee keeping should be carefully analyzed vis-à-vis what households could potentially derive from their home garden had it been put under multiple enterprises as they used to. This would help the households to make rational decisions regarding whether to forgo home garden activities in favor of bee keeping using modern hives. Options for keeping the hives in the field sites, relatively remote from home, should also be sought against the tradition of keeping them in home gardens alone. This, on the other hand, requires the creation of an enabling environment where the households can keep their hives in the field without any fear of theft.

Contrary to those households who do not use modern hives, those who are using them have different reasons for their preference of modern to traditional hives.

Table: 3 Reasons for using Modern Hives

N = 39

Description of reasons	No. of response	% of cases
It is more productive	31	79.6
Suitable for bee management	28	71.8
Avoids climbing trees to hang up hives	9	23
Allow us to use large trees for other purposes	1	2.6
Total response	69	177

Source: -Field survey, 2008

As can be seen from table 3 above, 79.6 per cent of modern hive owners prefer modern hives to the traditional ones mainly for their high productivity. It was reported that up to 25 kg/hive of pure honey would be obtained at times of

good harvest as opposed to 2-6 kg/hive of honey from the traditional one. Seventy two per cent responded that modern hives are by far suitable for bee management by making timely supervision possible, as the hives are kept in a home garden, but not in a field. Theft is a big problem to keep modern beehives in the field at distant sites from home. On the other hand, shortage of land in the home garden has constrained the number of hives to small sizes that a home garden accommodates usually along with other enterprises.

5.2.2.2. Honey Harvesting and Seasonality

The type of honey in the area is usually named by the dominant tree species (flora type) at any given particular time of the year during which honey is produced/ harvested. It was realized that the diversity of trees and shrubs in the area has greatly contributed to local honey production. Major honey bee trees identified in Jimma area (Gomma and Manna) include *Croton macrostachyus*, *Vernonia*, *Coffee arabica*, *Syzgium quineense*, *Acacia*, *Cordia*, *Albizia* and *Mangifera indica* species. As different nectar yielding plants flower at different times, bees make honey types different in terms of both quality and quantity. About 64.4 per cent of the households engaged in beekeeping responded that they harvest honey twice a year; whereas, 12.4 per cent and 6.7 per cent harvest three times and only once per annum, respectively. This being the case, the FGD revealed that there are circumstances under which honey is harvested even four times a year.

This implies the varying nature of the honey production calendar, from place to place and even year to year, depending on the flowering season of the existing high nectar yielding plant species which are in turn responsive to slight change the in rainy seasons.

Table: 4 Flowering Periods of Honey Bee Trees and Honey Production Periods in Jimma area

Dominant plant species	Flowering period	Type of Honey (Vernacular name)	Remark
Vernonia and coffee	January -February	'Damma Dheebicha' vernonia honey	Preferred to have medicinal value, but bitter in taste
<i>Croton macrostachyus</i>	June - July	'Damma Bakkaniisaa' Croton honey	Diluted, poor quality but large in volume of production
<i>Guizota scabra</i>	November-December	Damma Keelloo/Tuufoo Guizotia honey	Good for consumption, sweet in taste

Source: - Field survey, 2008

As regards honey quality and preference, 60 per cent of the respondents ranked (*damma dheebicha*) *Vernonia* honey first; where as 28.9 per cent of the respondents preferred (*damma Tuufoo*) *Guizotia* honey for consumption. Croton honey, which is white in color as croton flowers are white, is diluted which may be due to high availability of water during the rainy season when the plant flowers (June-July). This type of honey cannot be stored for long because it condenses and gets decayed and hence is not preferred. Nevertheless, it is well known to give the highest volume of honey when compared with other species. Therefore, the quality, appearance and availability of honey at one time or the other generally depend on flowering seasons of trees, rather than on conscious decision of vendors to sell one type of honey over the other during a particular time.

4. Management of NTFPs

Farmers' Experience: Despite a fairly long experience that farmers had in NTFP production, the culture of intercropping other NTFPs with coffee is not developed yet. Sample households have a long tradition of producing some of the major NTFPs as their livelihood strategy while they have recently embarked on producing a few others. For instance, fruit cultivation experience of about 63.3 per cent of the farmers dates back to 15 years ago and 27.6 per cent of them have at least 10 years of experience, with only 9 per cent of fruit producers having started fruit production five years ago. As opposed to the experience in fruit cultivation, only 20.5 per cent of honey producing households had 15 years or more experience in beekeeping; whereas 75 per cent started beekeeping during the last five years. However, given the experiences farmers have had, the production of different fruits is not developed enough both in terms of size and quality while beekeeping has developed to the extent it could make meaningful addition to household income.

Input Utilization: The farming households employ different farm management practices and utilize different inputs. A fairly good number of respondents use their own seedlings for coffee; whereas seedlings for fruits are not often grown. About 85 per cent of the households practice weeding, stumping, hoeing, and shade management (for coffee); for fruits and root crops, about 10 per cent apply compost. On the other hand, about 44.8 per cent and 29 per cent of the respondents do not utilize pesticides and fertilizer respectively, while 25 per cent do not apply both inorganic fertilizer and pesticides. Problem of affordability, inapplicability and lack of know-how were reported to be reasons for not applying inorganic fertilizer and pesticides by 32 per cent, 40 per cent and 20 per cent of the

respondents, respectively. The farmers also feel that application of such inorganic chemicals might reduce coffee quality when applied for other NTFPs grown along with coffee. This implies that the organic nature of coffee could be maintained through enhanced use of organic fertilizers for what they intercrop with coffee.

Extension Service: About 60 per cent of the sample households have received extension service on coffee production and resource management in general. Those who have had extension contact specific to fruits and beekeeping were 40 per cent and 30.5 per cent, respectively. Those who received extension service pertinent to both beekeeping and fruits constitute 18 per cent. The extension service includes training and advice concerning the production and processing of NTFPs. As regards the frequency of extension contact with extension agents and experts, it was found to be minimal as about 60 per cent of the respondents reported having had such contact once in over three months time. Hence, the extension service did not only focus on coffee but it was also found to be very minimal.

Input supply: Input supply in this regard includes the provision of improved variety seedlings for fruits and fully furnished modern hives for honey production. These are made on the basis of different terms and conditions. The fruit varieties in the area are traditional ones. According to the discussion held with Gomma woreda agriculture and rural development officer, 300 grafted avocado seedlings raised by Upper Awash Agro-Industrial Enterprise were already distributed by 2008. The woreda agricultural office has also made ready for distribution about 700 grafted mango species. However, for such densely populated districts as Gomma and Manna these figures indicate that the degree of intervention is very minimal compared to the size of the farming households. Moreover, these improved varieties brought from upper Awash Agro-Enterprise at a cost of 32 Birr/seedling for avocado, were distributed only for the rich 'Model' farmers free of charge.

Concerning input supply for honey production; Gomma woreda distributed 800 modern hives in 2006/07 and Haro kebele distributed 554 modern hives for 244 households and 243 additional locally made modern beehives. The provision of all these inputs was on credit basis which justifies the importance of reliable credit services if the poor households have to afford buying inputs made available to them. Contrary to this fact, however, the availability of credit service for inputs is disappointing as 84 per cent of the sample households had no access to credit. Among the beneficiaries of credit service, seven households used it to purchase

modern beehives and others used it for coffee berry drier. This implies poor as well as inaccessible credit arrangement.

5. Challenges and Opportunities in the Production and Management of NTFPs

The sample households were found to face different challenges and opportunities in the production and management of NTFPs.

Challenges

The challenges hampering production and utilization of NTFPs include the following:

1. **Pest incidence:** The widespread prevalence of both vertebral and non-vertebral pests seriously affect the production of NTFPs particularly fruits (orange) and honey.
2. **Lack of inputs:** there is serious problem in supplying various inputs such as seeds, seedlings, and beehives. It was found that efforts made in supplying seeds for spices and root crops production are insignificant. The study revealed that farmers have always been asking for improved varieties, but they could not get it. As a result, the farmers were entirely limited to the use of traditional varieties of fruits from their own nurseries and often by buying from other farmers.
3. **Shortage of land:** Land scarcity in both field and home garden areas is a serious challenge in the study area. Inappropriateness of most fruit trees for coffee shade in the study area coupled with wild life damage forced farmers to use their home garden for cultivating various NTFPs such as fruits, roots and tubers, species and beehives, among others. The shortage of land and competition of the different products limited a households' production capacity.
4. **Limited skilled personnel:** Extension agents and experts assigned at the different kebeles were found to be inadequate. There was also a bias towards promoting coffee alone. Experts available do not pay due emphasis to NTFPs other than coffee. It could be due to ignorance of their contribution to the household nutrition and/or income or due to training bias. It was revealed by the respondents that they received little

or no extension contact and training (if at all) for most of the NTFPs other than coffee.

5. **Invasion of Chat:** The cultivation of chat (*Chatha edulis*), owing to the high market demand, is aggressively replacing other NTFPs such as coffee, fruits, and roots due to the fact that chat cannot be cultivated under shade management. The growing trend for chat cultivation is therefore a potential threat for other NTFPs and requires immense effort to tackle before it becomes too late to reverse the trend.

Opportunities

Opportunities, on the other hand, include the following:-

1. **Physical endowments:** The area has good endowment of physical resources such as climate and biodiversity. The climate in the study area is quite suitable for the production of a variety of NTFPs such as fruits, honey, spices, root crops and tubers.
2. **Availability of diverse plant species:** The area is also endowed with varied high nectar yielding plant species that flower during different seasons of the year. This could be a potential for the apiculture industry which is a highly conservational economic sector.
3. **Organic nature of the products:** Inorganic inputs are rarely applied because of the non-degraded/self replenishing soil and a well-managed ecology. This helps to maintain the chemical free nature of the products like honey and fruits which would potentially be organically certified.
4. **Introduction of modern beehives:** Modern beehives, which are, by far, better than traditional hives in many aspects such as productivity and bee management, are progressively replacing the latter.
5. **Farmers experience and developing culture of diversification:** Farmers in the area are increasingly diversifying their livelihood basis through intensification. Home gardens of most of the households were found accommodating a variety of NTFPs.
6. **Shade-loving nature of some NTFPs:** NTFPs such as coffee, spices and roots like taro and yam are shade-loving which enhances the culture of intercropping.

7. **Proximity to research center:** The presence of Jimma Agricultural Research Center in the area may help in the identification of production and marketing challenges of NTFPs, and promote pre-extension service of research outputs.
8. **Road Access :** The district in general and the sample *kebeles* in particular are along the road passing thorough Jimma and Agaro and only one *kebele* is connected to this asphalt road by a gravel road.
9. **Establishment of IPMS:** The establishment of 'Improved Product Marketing Success', a non-governmental organization designed to make the area a fair-trade zone for honey is underway.

6. Concluding Remarks and Policy Implications

The study areas have untapped potential for the production of NTFPs such as fruits (avocado, mango, orange, banana, papaya, guava, jack fruit, lemon etc), roots and tubers (taro, yam, *enset*, and *kote-hare*), spices (ginger, *korerima* (*Cardamom*), turmeric and pepper) and honey among others. Among the NTFPs produced in the area, fruits and honey are well produced beyond subsistence mainly by the rich wealth group and are relatively better marketed. Root crops constitute the major NTFPs on which the community relies during slack periods, as a coping strategy, particularly the poor. These NTFPs, therefore, play a crucial role in rural livelihood diversification with the rich households benefiting from its marketing while other groups produce rarely in excess of their consumption. Highly valuable NTFPs are produced by the rich households which are entered into by choice where as transitory foods such as roots are commonly practiced by the poor to ensure food security during food deficit months. Hence, it is worth noting that the poor are forced to diversify as a means of survival whereas the rich do so by choice to further increase their wealth.

The study area is endowed with different potentialities and opportunities which remain unutilized for the betterment of both rural livelihoods and the environment. The major challenges identified include wild animal damage, lack of inputs, land shortage, limited skilled personnel and invasion of chat and eucalyptus which threatens other valuable NTFPs. Hence, NTFPs in the region were not well integrated into household livelihood strategies, particularly for the poor. Hence, it would be important to strengthen extension service to enhance the production of NTFPs beyond subsistence; to pay due emphasis by the concerned body not only in the production of fruits and honey but also in the

protection from diseases; to overcome the damage caused by wild animals through selective hunting; to promote farmers' field school to help them further develop the culture of intercropping fruits, roots and spices with coffee in the face of pressing land shortage problem; to promote credit arrangement; to develop irrigation schemes using potential rivers; promote those investors who are engaged in the processing of NTFPs and create both forward and backward linkages.

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