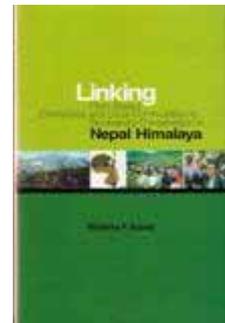


**Subedi, B.P. 2006. Linking Plant-Based Enterprises and Local Communities to Biodiversity Conservation in Nepal Himalaya. New Delhi: Adroit Publishers. Pp. 244 (ISBN: 81-87392-70-3).**

People in the mountainous region of Nepal are struggling only to get food to hold on their lives and the nearby forest gives them hopes to live. They have easy ways ahead to fetch fuel and fodders form the rich forest. People know that they are emptying the forest but don't know they are destroying lives and environment. This way, people are digging into the pit of poverty and downsizing their lives into it. The practice results in increased poverty and decreased biodiversity almost leaving nothing for the future. The question ahead, can't poverty be alleviated and biodiversity be improved? Isn't there any synergistic way that brings both the factor together? Or, how poverty alleviation and biodiversity conservation be sustainable? The challenges in several ways are embedded in the book and the author applies different methods and experimentations to come up with a practical solution to the challenges.



The author makes a conclusion that enterprise-oriented community forest management can generate positive outcomes on both conservation and local livelihood. In the light of different approaches being tested and implemented to resolve conservation problems, the findings challenge the approaches that set communities aside from the forest resources and keep forest untouched. The author discovers high prospects for forest based enterprise development keeping eyes on the local, national as well as international markets of the products. He makes clear answers on how enterprise can help promote the biodiversity. Besides, the research has identified strategies and approaches that can bring favorable changes in government policies, market structure, and effective implementation of conservation programs. For the study, the author has selected six districts in the mountainous region of Nepal that are endowed with rich forest-based biodiversity and suffered with acute poverty.

Summary of the findings is presented hereby.

## SUMMARY

1. In developing countries, generally two approaches of biodiversity conservation are adopted. The traditional approach is to make protected areas, in which all kinds of regulatory measures are taken. The other approach emphasizes effective role of local communities in biodiversity conservation. This research, based on the second approach of conservation, focuses on biodiversity-linked enterprises that generate meaningful income for improving the livelihood of local communities. Apart from this, an analysis of potential of non-timber forest products (NTFPs) at country level was made.
2. In the study on enterprise-oriented community forest management (EOCFM), the major question addressed was whether it can improve the livelihood of local communities as well as biodiversity conservation. The factors required to achieve this goal were also analyzed.
3. Spread over an area of 147,181 km<sup>2</sup>, Nepal is primarily a mountainous country with a wide ecological range from tropical to alpine. One of the global biodiversity hotspots is located in Nepal. Harboring about 7000 species of flowering plants, Nepal is exceptionally rich in biodiversity and NTFPs of commercial use (more than 160 species already in NTFPs trade). However, the anthropogenic pressure on rich biodiversity is high. To indicate the scale of NTFPs used following observations may be cited: according to an estimate 10-15 thousand tons of NTFPs are harvested from high mountain areas of Nepal alone; NTFPs worth US \$8.6 million end-up in Indian market annually; the total sales is estimated to be US \$26 million annually; in total about 1000 species are used economically.
4. In spite of enormous biological wealth, Nepal is one of the poorest countries (per capita GDP estimated at US \$269). Agriculture is the mainstay of the economy providing livelihood for 80% of the population and accounting for 50% of national GDP. However, in mountains agriculture accounts for less than 10% of geographical area, it is primarily rain-fed and is able to meet foodgrain requirements of local people for less than 6 months. People derive fodder, firewood, and litter (for maintaining cropfield soil fertility) from the forest.

5. The country level analysis of NTFPs in this work was primarily based on secondary sources, while research on EOCFM was based on sampling of 37 CFUGs of districts, Humla, Jumla, Dolpa, Darchula, Bajhang and Dolakha. These high mountain districts are characterized by inaccessibility, remoteness, poverty of people, but rich biodiversity of forests and meadows. Identification of specific issues and their relationship in the 37 CFUGs were made following participatory action research. The major variables studied were biodiversity (amount, distribution of species populations, conservation measures, threats and ecosystem health), enterprises (types, distribution, technology, sales, income, employment, etc.), communities (institutional capabilities, technological knowledge, interest and dependency), and benefit sharing and community participation in biodiversity management. Efforts were made to examine the various aspects of interplays between biodiversity, enterprise and community, the three components which constitute the EOCFM system.
6. Vegetation of the area where the study CFUGs occurred consisted of both forests and meadows. The major forest species included *Quercus semecarpifolia* (an evergreen oak), *Rhododendron spp*, *Abies spectabilis* (silver fir), *Pinus wallichiana* (blue pine), *Taxus spp*, *Accer spp* (maples), *Picea smithiana* (spruce), *Betula utilis* (birch), and *Juniperus spp* (junipers). The major NTFP species in the region were *Daphne spp* (lokta), *Nardostachys grandiflora* (jatamansi), *Neopicrorhiza schrophulariflora* (kutki), *Valeriana jatamansi* (sugandhwal), *Swertia chirayita* (chiraito), *Rhododendron anthopogan* (sunpati), *Morchella spp* (morels), *Podophyllum hexandrum* (laghupatra), *Cordyceps sinensis* (yarshagumba), *Berberis aristata* (chutro), and *Dactylorhiza hatagirea* (panchaunle).
7. The main proximate threats to biodiversity are man-made fires, unmanaged harvesting, overgrazing, and conversion of forest into cropland. Though poaching of wild animal is common, people think that it is manageable. However, the underlying causes of threats include acute poverty, immediate cash need and lack of alternative income generating opportunities, uncertainty about property rights, lack of economic incentives for conservation, and lack of knowledge and training in management. Apart from these, external market demands often become a major threat in certain areas.

8. The NTFPs trade is based on a long marketing chain, starting from local harvesters to retailers both inside and outside the country. The local harvesters are primarily the village people who have limited knowledge of and exposure to marketing and entrepreneurship. They harvest NTFPs from wild, and clean, dry, store and transport them (business ranges between Rs. 10,000 and 50,000). The other groups in market chain are village traders, who play an important role in distribution of NTFPs to market places; local processors, who process NTFPs employing simple techniques; roadhead/airport traders, who are relatively wealthy rural people; regional traders, who export but remain well connected with rural trade system; big processors and manufacturers, which include national level companies with a legal backing; and retailers, who make heterogeneous group ranging from small shopkeepers exclusively dealing in herbal medicines or spices to large business houses handling finished goods in large cities. The scale of business increases along with this chain. For example, village traders do business of Rs. 50,000 to Rs. 100,000, roadhead traders up to Rs. 500,000, and regional traders upto Rs. 20 million. Though village collectors get only about their labor cost or bit more, this seasonal employment generates about 30-50% of their income.
9. In recent years government has taken initiatives to involve poor communities in resource management. Initiated in 1978, community forest user groups (CFUGs) have become a major institution in participatory natural resource management. Currently, there are more than 13,000 CFUGs, involving nearly one-third of the total population and managing about one-fourth of the total forest area of the country. A CFUG represents a group of people who use a particular forest land. It may consist of all villagers or part of them or also some individuals from other villages. A CFUG is legally recognized autonomous entities with ongoing succession. Its governance is defined by its constitution registered in District Forest Office (DFO), and the provisions for management and use of forests are specified in community forest management operational plan. To some extent, the CFUGs have freedom to modify their constitution, therefore constitutions across CFUGs may differ in certain details.
10. In our analysis of the study of the 37 CFUGs of 6 mountain areas the following criteria were used to examine whether EOCFM is able to contribute to both livelihood and conservation: economic – increase in cash income to households, subsistence benefits, such as availability of fodder and firewood, and the amount of group fund

generated; social – involvement of dalits and women, participation of household in economic activities, access of dalits, women and other poor people to forest resources, group fund mobilization and capacity building; conservation – increase in the area of forests and meadows under CFUG management, quality of management plan, improvement in harvesting practices, assistance to regeneration, and threat mitigation. For each of the criteria used, ratings were given on performance. For each of the components, economic, social and conservation, composite indexes were developed. This exercise was done for the study CFUGs, and correlations in different parameters were examined. Some of the major findings of this analysis are given below.

11. Interventions related to EOCFM brought significant increases in the participation of households in forest enterprise activities (from 1733 to 3254 households) and their income (on average by about Rs. 4000 per household). The two parameters showed significant positive correlation ( $r = 0.394$ ,  $p < 0.05$ ), indicating that the CFUGs with higher income also had higher household participation. Some of the factors that contributed to increase in household income were: 1) increased availability of NTFPs with the improvement of forest management, 2) increased selling prices of NTFPs with improved marketing information, and 3) use of processing which added value to NTFPs. The price of jatamansi rose from Rs. 15 to Rs. 45, as an example.
12. Since the management also improved the subsistence benefits, there was a positive correlation between increase in cash income and subsistence benefits across the CFUGs.
13. The above improvements were achieved through increased interest of people in conservation. With the realization of the cash value of NTFPs, people were observed to apply improved harvesting practices and impose regulations on themselves. In part, these changes were possible also because of the increased feeling of ownership of both resources and enterprises.
14. The enterprise-oriented CFUGs took care to provide employment to dalits, women and other disadvantaged people. The CFUGs provided cash and access to forest resources to dalits and other poor people for enterprise activities and raised group funds. Furthermore, the representation of women and dalits increased after the EOCFM interventions.

15. On the conservation front, the EOCFM brought about the following improvements: increased use of thinned and pruned branches for firewood to reduce whole tree cutting; initiation of nurseries and plantations; application of less wasteful methods while collecting lichens; reduced burning in meadows to save NTFP species, such as jatamansi; people undertook steps to secure natural regeneration; adoption of rotational/block-wise harvesting; employment of watchers; and introduction of monitoring of harvesting impacts. Though many of these measures are still in initial stage, it is important that conservation has been integrated in EOCFM.
16. This study clearly showed that it is possible to create synergy between improvement in livelihood and conservation ( $r = 0.48$  between indexes of economic performance and conservation performance;  $p < 0.01$ ). We suggest that some economic incentives or amelioration of economic hardship is necessary to make people suffering from acute poverty interested in conservation. EOCF empowers local people to choose an action that they think will be more rewarding in the long-run. The study provides support to this on the basis of a fairly large number of sample, studied over an extended period. However, even the period of 4 to 8 years, as in this study, is not enough to transform the whole society in the direction of conservation, as conservation requires people to be educated and made aware of many related aspects demanding greater manpower, funding and other efforts. Several facilitating steps may be required in this context: necessary policy changes to ensure certainty with regard to land tenure and resource use; technical assistance in enterprise development and management; capacity building in processing and marketing of NTFPs; improved knowledge about the ecology and the sustainable use of the species.