Community-based Non-Wood Forest Products Enterprise: A Sustainable Business Model

Tayan R. Gurung

SAARC Agriculture Centre

Centre on Integrated Rural Development for Asia and the Pacific
Community-Based Non-Wood Forest Products Enterprise: A Sustainable Business Model

Edited
Tayan Raj Gurung

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Centre on Integrated Rural Development for Asia and the Pacific
Community-Based Non-Wood Forest Products Enterprise: A Sustainable Business Model

SAARC Regional Expert Consultation on Community-Based Non-Wood Forest Products Enterprise: A Sustainable Business Model, 24-26 August 2017, SAARC Agriculture Centre, Dhaka, Bangladesh

Edited by
Tayan Raj Gurung
Senior Program Specialist (NRM)
2017

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This book contains the papers and proceedings of the regional Expert Consultation on Community-based Non-Wood Forest Products Enterprise: A Sustainable Business Model organized in Thimphu, Bhutan, from 24-26 August 2017, jointly by the SAARC Agriculture Centre, CIRDAP and DoFPS-MOAF. The focal point experts represented the respective Member States. The opinions expressed in this publication are those of the authors and do not imply any opinion whatsoever on the part of SAC, especially concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

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Foreword

Non-wood Forest Products (NWFPs) have made major contributions to the agrarian economy in the region. NWFPs form a major source of livelihood as it provides food, medicine, raw materials, and income for communities. NWFPs generate significant revenue from the royalties, taxes, and other charges on NWFPs. It is an important export commodity in the region and generates export earning ranging from US$ 7 million in Nepal to US$ 561 million in India. Pakistan and Sri Lanka exports NWFPs worth US$ 45 million and 78 million respectively. The collection, processing, and marketing of NWFPs provide employment to thousands of rural people. With the employment generators and security of regular earning through NWFPs, there is a recognizable growth in the quality of socio-psychological life of the involved population. In spite of the many constraints and hurdles the global trade of NWFPs has increased over the years. It is noteworthy that in the overall export, the percent contribution from the Asia-Pacific region has consistently been around two-fifths of the global export.

Considering the diversity of NWFPs and its role in sustainable livelihood of the communities in the region, it is important to develop a business model that will help in sustainable harvesting of the NWFPs and maintain sustainable flow of income and benefits. SAARC Agriculture Centre in collaboration with Centre for Integrated Rural Development for Asia and the Pacific (CIRDAP) organized a regional consultation meeting on “Community-based Non-Wood Forest Products enterprise: A Sustainable business model”. To generate interactions and exchange of knowledge and information, experts from SAARC Member States and four CIRDAP Member States (Laos, Myanmar, Philippines, and Fiji) participated in the meeting. This book “Community-based Non-Wood Forest Products enterprise: A Sustainable business model” is a collection of papers contributed by experts from SAARC Member States.

I would like to take this opportunity to express my sincere appreciation to Dr. Tayan Raj Gurung, Senior Program Specialist (NRM), SAARC Agriculture Centre who succinctly put together the manuscript. I am confident that this compilation will facilitate further research and development in Water-Energy-Food in SAARC Region.

Dr. S.M. Bokhtiar
Director
SAARC Agriculture Centre
Foreword

CIRDAP in collaboration with its partner SAARC Agriculture Centre (SAC) had organized an Expert Consultation Meeting in Bhutan to develop a Model for a regional project on Community-based enterprise on Non-Wood Forest Products. This is closely aligned to SDG 1, 3 and 15 which collectively calls for the need to end poverty, achieve food security and protection, restoration and promotion of sustainable use of forests, amongst others.

In this regard, CIRDAP fully support this project as it is a part of its focus areas in Rural Development and also that it is very beneficial to rural communities for their livelihood and promotes food security in CIRDAP member countries. It will also play an important role in filling seasonal income gaps.

SAARC (SAC) and CIRDAP commitment towards this project is in line with the increased interest towards the role of NWFPs in ensuring food security, health care, income sources, and conservation strategies. This is boosted by the emergence of new markets for natural forest related products and the ecological benefits from the smart forest conservation initiatives and activities.

The involvement of local communities in these activities will ensure that they reap maximum benefits leading to improvement in their quality of life. Therefore, the idea of having a Project by developing a Model on Community-based enterprise on Non-Wood Forest Products is an excellent initiative. It is encouraging to note that the project has started, beginning with an expert consultation meeting in Bhutan from 24th August to 26th August, this year.

CIRDAP is adamant to continue supporting this project till this it’s final stage of replication in its member countries.

Finally, we wish to express our sincere gratitude to SAARC (SAC) and all participants who attended the consultation meeting from member countries for their support toward this project. We wish the project a success and hope that this Book will provide deeper insights into the field of Community Based Enterprises on Non-wood Forest Products.

Tevita G. Bossewaqa Taginavulau
Director General
Centre for Integrated Rural Development for Asia and the Pacific
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<td>ADMA</td>
<td>Ayurvedic Drug Manufacturers Association of India</td>
</tr>
<tr>
<td>ANSAB</td>
<td>Asia Network for Sustainable Agriculture and Bioresources</td>
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<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<tr>
<td>BCC</td>
<td>Business Center Corporation</td>
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<td>BCCL</td>
<td>Business Center Corporation Limited</td>
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<td>BCN</td>
<td>Business Center Network</td>
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<td>BDC</td>
<td>Business Development Center</td>
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<td>BDSC</td>
<td>Business Development Services Centre</td>
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<td>BFD</td>
<td>Bangladesh Forest Department</td>
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<td>C.I</td>
<td>Corrugated Iron</td>
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<td>CBC</td>
<td>Community Based Commercial Enterprises</td>
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<td>CBCE</td>
<td>Community Based Commercial Enterprise</td>
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<td>CBD</td>
<td>Convention on Biological Diversity</td>
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<td>CBE</td>
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<td>Community Based Forestry Enterprise</td>
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<td>Community based forest management</td>
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<td>CBFM</td>
<td>Community Based Forest Management</td>
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<td>CBFMA</td>
<td>Community-Based Forest Management Agreement</td>
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<td>CBNE</td>
<td>Community-Based NWFPs Enterprise</td>
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<td>CBNRM</td>
<td>Community-based natural resource management</td>
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<td>CBNRM</td>
<td>Community-based Natural Resource Management</td>
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<td>CFC</td>
<td>Consumption of Fixed Capital</td>
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<td>CFI</td>
<td>Community Forestry Instructions</td>
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<td>CFMG</td>
<td>Community Forest Management Group</td>
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<td>CFUG</td>
<td>Community Forest User Group</td>
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<tr>
<td>CGMFPF</td>
<td>Chhattisgarh Minor Forest Products Federation</td>
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<td>CGMFPFED</td>
<td>Chhattisgarh State Minor Forest Produce Cooperative Federation limited</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<td>CIRDAP</td>
<td>Centre on Integrated Rural Development for Asia and the Pacific</td>
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<td>COE</td>
<td>Compensation of Employees</td>
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<td>Climate-Resilient Ecosystems and Livelihoods</td>
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<td>ED</td>
<td>Enterprise Development</td>
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<td>EU</td>
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<td>Food and Agriculture Organization</td>
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<td>FECOFUN</td>
<td>Federation of community Forestry Users Nepal</td>
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<td>FLMA</td>
<td>Forestland Management Agreement</td>
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<td>Forestry Master Plan</td>
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<td>Forest Stewardship Council</td>
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<td>GCC</td>
<td>Girijan Cooperative</td>
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<td>GIZ</td>
<td>Gesellschaft für Internationale Zusammenarbeit</td>
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<tr>
<td>GO</td>
<td>Gross Output</td>
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<td>IC</td>
<td>Intermediate Consumption</td>
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<td>Indian Council of Forestry Research and Education</td>
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<td>ICIMOD</td>
<td>International Centre for Integrated Mountain Development</td>
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<td>ICT</td>
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<td>IDRC</td>
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<td>IFMA</td>
<td>Integrated Forest Management Agreement</td>
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<td>IFOAM</td>
<td>International Federation of Organic Agriculture Movements</td>
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<td>INBAR</td>
<td>International Network for Bamboo and Rattan</td>
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<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
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<td>JFM</td>
<td>Joint Forest Management</td>
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<td>JFMC</td>
<td>Joint Forest Management Committee</td>
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<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>KP</td>
<td>Khyber Pakhtunkhwa</td>
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<td>MAIL</td>
<td>Ministry of Agriculture and Irrigation</td>
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<tr>
<td>MAP</td>
<td>Medicinal and Aromatic Plants</td>
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<tr>
<td>MEA</td>
<td>Multilateral Environmental Agreements</td>
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<td>MoAF</td>
<td>Ministry of Agriculture and Forests</td>
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<td>MPFS</td>
<td>Master Plan for Forestry Sector</td>
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<td>MSME</td>
<td>Micro Small Medium Enterprises</td>
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<td>MSP</td>
<td>Minimum Support Price</td>
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<td>NCSMED</td>
<td>National Centre for Small and Micro-Enterprise</td>
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<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NRM</td>
<td>Natural Resource Management</td>
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<td>NTIS</td>
<td>Nepal Trade Integration Strategy</td>
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<td>NWFPs</td>
<td>Non-wood forest products</td>
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<td>OS</td>
<td>Operating Surplus</td>
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<td>PAS</td>
<td>Permanent Forest Estate</td>
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<td>Protected Area Systems</td>
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<td>PFE</td>
<td>Permanent Forest Estates</td>
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<td>PHM</td>
<td>Post-Harvest Management</td>
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<td>PPF</td>
<td>Protected Public Forest</td>
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<td>R&amp;D</td>
<td>Research and Development</td>
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<td>RCDC</td>
<td>Regional Centre for Development Cooperation</td>
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<td>RECOFTC</td>
<td>Regional Community Forestry Training Center for Asia and the Pacific</td>
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<td>REDD</td>
<td>Reducing Emissions from Deforestation and Forest Degradation</td>
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<td>RF</td>
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<td>RTFs</td>
<td>Rosin and Turpentine Oil Factories</td>
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<td>SAARC</td>
<td>South Asian Association for Regional Cooperation</td>
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<td>SAC</td>
<td>SAARC Agriculture Centre</td>
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<td>SFD</td>
<td>State Forest Department</td>
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<td>Self Help Groups</td>
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<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>TK</td>
<td>Traditional Knowledge</td>
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<tr>
<td>TRIFED</td>
<td>Tribal Cooperative Marketing Federation of India</td>
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<tr>
<td>UAE</td>
<td>United Arab Emirates</td>
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<td>UK</td>
<td>United Kingdom</td>
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<td>UNICEF</td>
<td>United Nations International Children's Emergency Fund</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>VA</td>
<td>Value Added</td>
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<td>VCO</td>
<td>Virgin Coconut Oil</td>
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<td>VLSC</td>
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Executive Summary

Non-wood forest products (NWFPs) continue to be vital natural resources to rural communities for their livelihood and food security in SAARC Region. For centuries rural folks have collected, processed and traded bamboo, rattan, resins, gums, lac, oil seeds, essential oils, medicinal herbs, and tanning materials. Natural forests also provide edible products like tubers, ferns, mushrooms, fruits, honey, nuts, leaves, and many more. Some fill a part of seasonal income gaps and others are integrated into the market economy, forming an important source of household income. In the remote, high-altitude regions of Bhutan, India, and Nepal the collection of Caterpillar fungus (Cordyceps sinensis) are a major income source for many households. NWFPs are increasingly considered as a basis for sustainable management of forests and have become integral part of the household livelihood system.

There is an increased attention to potential role of NWFPs in food security, health care, income sources, and conservation strategies. New markets for natural products have emerged, such as phytochemicals in pharmaceutical industries and additives in food industries, which have revealed the economic significance of NWFPs. Further justification for emerging interest in the sector has been more socio-political and ecological in nature. According to FAO (2009) ecological benefits are achieved from reduced forest ecosystem disturbances, vis-à-vis timber extraction practices, while socio-political interests have centered on the promotion of new development models for forest-dependent communities.

The shift from community management to state management in the past alienated the user communities from the resource base leading to over harvesting, early harvesting and destructive harvesting that resulted in quantitative depletion, qualitative degradation and subsequent degradation affecting the regeneration of the NWFP resources. Past studies have illustrated that the trap of vicious cycle of unsustainable harvesting of NWFPs- reduced availability aggravating the rural poverty and highlighted the uneven field of multiple stakeholders of the NWFP sector. This has created new intuition around the NWFPs and the available models in institution building and the sustainability and right regimes for such new-institutional models. As an initiative in NWFP management at the SAARC nation level, it was suggested to develop a real-time market intelligence system for monitoring the market trends and intervening in the NWFP trade in the region.

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1 NWFPs are a broad “group” of products that encompass all plant and animal forest resources excluding timber. According to FAO “NWFPs consist of goods of biological origin other than wood, as well as services derived from forests and allied land uses.”
SAC in collaboration the Member States and Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) organized a regional consultation meeting on Community-based enterprise on Non-Wood Forest Products: A Sustainable livelihood model with the objective (i) to document the best community based enterprise on NWFPs for up/out scaling in the SAARC Region, and (ii) to develop a regional project on Community-based enterprise on Non-Wood Forest Products: A Sustainable livelihood model to up-out scale the successful model to improve livelihoods through product diversification and strengthening market linkages.

**NWFPs in SAARC Region**

Non-wood forest products (NWFP) are “all goods for commercial industrial or subsistence use derived from forests and their biomass, which can be sustainably extracted from a forest ecosystem in quantities and ways that do not downgrade the plant community’s basic reproductive functions” (FAO, 1993). Generally NWFP are also referred as goods derived from forests that are tangible and physical objects of biological origin other than wood. In the South Asia region, the NWFPs generally include non-wood plant and animal products collected from forest. NWFPs invariably include gum arabic, rubber/latex and resin, bamboo and rattan regardless of origin from forests or plantations. But NWFPs exclude products collected in tree stands in agricultural production systems, such as fruit orchards, oil palm plantations and agroforestry systems, and also woody raw materials and products, such as chips, charcoal, fuelwood and wood used for tools, household equipment and carvings and grazing in the forest; fish and shellfish.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Major Non-Wood Forest Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>Medicinal plants (<em>Ferrula asafoetida</em>, <em>Cumin</em>, <em>Zizyphus vulgaris</em>, <em>Glycorrhiza</em> spp.) and fruits (almonds, walnuts, pistachios, pine nuts). Other NWFP include morels, gums, wild animals, birds.</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>&gt;20 species of bamboo; Medicinal plants: kuruspata (<em>Holarrhena antidysentrica</em>), horitaka (<em>Terminalia chebula</em>), amlaki (<em>Phyllanthus emblica</em>) and behera (<em>Terminalia bellerica</em>); Cane (<em>Calamus viminalis</em>, <em>C. guruba</em>); Patipata or Murta (<em>Clinogynae dichotoma</em>); apiculture (<em>artificial beekeeping</em>); Gol-patta (<em>Nipa fruticans</em>).</td>
</tr>
<tr>
<td>Bhutan</td>
<td>NWFPs used daily, are taken for granted. NWFPs e.g. bamboo, such as <em>Dendrocalamus hamiltonii</em> in tropical areas, and Arundinaria maling on high altitudes, traditional medicine from &gt;300 species medicinal plant, Natural Dyes, Pine Resin and Lemon Grass, Forest food from yam, oil from wild seeds e.g. <em>Symlocos,</em></td>
</tr>
<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
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<tr>
<td></td>
<td>Gynocardia, Sal (<em>Shorea robusta</em>) etc. Spices- Piper and Cinnamomum and <em>Zanthoxylum</em>, Traditional paper made from Daphne and <em>Edgeworthia gardneri</em> a popular export product.</td>
</tr>
<tr>
<td>India</td>
<td>- NWFPs are derived from &gt; 3,000 species. NWFP classified as: Leaves, Bamboos, Gums, resins and oleoresins, Oil seeds, Essential oils, including oil-yielding grasses, Fibers and flosses, Grasses other than oil-yielding grasses, Tans and dyes, Drugs and spices, Animal products, and Edible products.</td>
</tr>
<tr>
<td></td>
<td>- Processing, storage, and marketing.</td>
</tr>
<tr>
<td>Maldives</td>
<td>- Most important NWFP are rattan, bamboo, medicinal plants and wild fruits. Other include palm, fibre, resin, gum, dye, oil, tannin, ferns, barks, vegetables and wood-oil. NWFP in the form of edible fruits meet only domestic requirements and are not exploited on a commercial scale.</td>
</tr>
<tr>
<td>Nepal</td>
<td>- NWFP also called “MFP”. Important NWFPs are medicinal and aromatic plants, loktapaper, pine resin, Sal seed, katha, sabai grass, bamboo and cane. About 700 species of medicinal and aromatic plants. Other NWFPs-Resin and turpentine, Sal seed oil, Katha and Cutch, Sabai Grass, Bamboo and cane.</td>
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<td></td>
<td>- Five high value products constitute over 50% of the volume and value in trade including 3 high altitude medicinal plant species Jatamasi (<em>Nardostachys grandiflora</em>), Kutki (<em>Neopicrorhiza scrophulariflora</em>) and Yarsagumba (<em>Cordyceps sinensis</em>).</td>
</tr>
<tr>
<td>Pakistan</td>
<td>- NWFP known as “MFP”. MFP include, Food products: Morels, Honey, Wild fruits and nuts, vegetables, Condiments; Medicinal plants; Industrial products- Resin, Babul bark, Bhabar grass; Fibers (e.g. mazri leaves); Silk cocoons and miscellaneous products-Soap-nut, Walnut bark, Palosa gum, Neem leaves.</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>- NWFP include, (a) Leaves, flowers and fruit, seeds, juice, caoutchouc, catechu, wood oil, resin, natural varnish, bark, lac, gum and myrabolans; (b) Grass, creepers, reed moss and all parts or produce of such plants; (c) Tusk horns, shed horns and edible birds’nests; and</td>
</tr>
</tbody>
</table>
|           | - Peat, surface soil, rocks, and minerals, including limestone, laterite, bitumen, bituminous shale, asphalt, mineral oils and all products of mines or quarries.
Economic and Social Benefits from NWFPs

NWFPs have made major contributions to the agrarian economy of the countries in the region. They generate significant earnings from the royalties, taxes, and other charges. Sophisticated finished articles and souvenirs made from NWFPs are major exportable items of the countries such as Bangladesh, Bhutan, Nepal and others which often carry with them the aesthetic cultural heritage of the nation. The collection, processing, and marketing of NWFPs provide employment to thousands of rural people. NWFPs homestead or mini industries use local labour and raw materials, which are of crucial importance to the rural economy. With the employment generators and security of regular earning through NWFPs, there is a recognizable growth in the quality of socio-psychological life of the involved population.

Based on the available data, it can be seen that NWFPs generate substantial export earning. For instance, India ranks first in export earning in 2005 from NWFPs with US$ 562 million followed by Sri Lanka (US$ 78 million), Pakistan (US$ 45 million) and Nepal (US$ 8 million). In terms of the benefit from the total forest area, Sri Lanka generated highest value of NWFP export per unit of forest area with US $ 40.3 followed by Pakistan with US$ 24, India with US$ 8 and Nepal with US$ 2.

Challenges to Developing NWFPs

While the countries benefit from NWFPs, there are many challenges to sustainably manage the resources and take benefit from NWFPs. Some of the obstacles which are common in the South Asia region are as follows:

- Inadequate knowledge and wrong notion on the part of national authorities, forests resource managers and R&D institutions regarding the value and potential of NWFP.
- The data for use, profitability and potential of NWFPs is not readily available; this results in low priority in management plans.
- Steady supplies of NWFP affected due to local, seasonal occurrence, difficulties in harvesting, storage and delivery. Droughs, floods and other climatic aberrations affect the supply of NWFPs.
- Gathering and utilization of NWFPs can give rise to competition and conflicts due to Access and Ownership.
- General lack of market research, marketing information system and commercial know-how, so entrepreneurs get no early warning of new or changing market needs and trends.
- Trained personnel and efficient management have not yet been developed for dealing with NWFP collection, processing and export in most of the countries.
- Incentives and inputs from the government, private and entrepreneurs for promoting NWFP development are lacking.
- NWFP management lacks professionalism and high technical standards.
- Lack of a detailed inventory of NWFP resources in these countries.
- In absence of sustainable extraction/harvesting practices in many countries environmental drawbacks due to over exploitation, degradation and depletion of forests may occur.

**Enabling Factors for Promotion of NWFPs**

In all the countries in South Asia has enacted enabling policies that can facilitate promotion of NWFPs. In particular, India and Nepal have formulated dedicated policies towards NWFP development while is others the National Forest Policy governs the use and management of NWFPs. Some of the polices related to NWFPs are as follows:

<table>
<thead>
<tr>
<th>Countries</th>
<th>Policy /policy brief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>Forest management law and rangeland law of MAIL- Afghanistan gave access to community residents to harvest NWFP.</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>National Forest Policy (1994)</td>
</tr>
<tr>
<td></td>
<td>Collection of major NWFPs governed by Forest Department.</td>
</tr>
<tr>
<td></td>
<td>Community Forestry strategy (2009)</td>
</tr>
<tr>
<td>India</td>
<td>Joint Forest Management, 1990</td>
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<tr>
<td></td>
<td>The Panchayat (Extension to the Scheduled Areas) Act, 1996</td>
</tr>
<tr>
<td></td>
<td>Under the new Foreign Trade Policy, 2004 expansion of the “Vishesh Krishi Upaj Yojana to include SMFEs and their products.</td>
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<tr>
<td></td>
<td>Scheduled Tribes and other Forest Dwellers (Recognition of Forest Rights) Act, 2006</td>
</tr>
<tr>
<td></td>
<td>More than a lakh JFMCs managing 23 million ha of forests.</td>
</tr>
<tr>
<td>Countries</td>
<td>Policy /policy brief</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Maldives</td>
<td>- Usufructs sharing rights of communities in the JFM area&lt;br&gt;- Ownership rights of NWFPs with <em>Panchayats</em> and <em>Gram Sabhas</em>&lt;br&gt;- Forest tenure rights, with scope for better NWFP use and management granted&lt;br&gt;All the states of the country have forest corporations dealing with collection, processing and marketing of forest produce.</td>
</tr>
<tr>
<td>Nepal</td>
<td>Agricultural Development Master Plan (2006-2020) estimate 3,716 ha forests&lt;br&gt;New company, ‘Business Center Corporation Limited’ (BCC) formed in March 2017 to support and assistance to small and medium businesses.</td>
</tr>
<tr>
<td>Pakistan</td>
<td>National Forest Policy (1999)&lt;br&gt;National Forest Policy (2002).&lt;br&gt;Forest ACT 2002 provides levying duties on NTPs only for documenting extent of extraction. No guidelines for proper and optimum harvesting&lt;br&gt;Special conservation plan for Chilghoza (<em>Pinus gerardiana</em>).</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>The National Forestry Policy (1995)&lt;br&gt;Greater participation of local communities encouraged in forestry activities through a social forestry program.</td>
</tr>
</tbody>
</table>
Non-Wood Forest Products Community-Based Enterprises in South Asia

A review of the existing Non-wood forest products community-based enterprises (NWFPs CBE) in South Asia region was undertaken based on the available information on literature and press and media, as well as on the website of the respective country. Few general and other specific findings on the enterprises are presented below.

- NWFPs CBE generate a range of goods and services and tend to invest more in the local economy than their private sector equivalents, fostering social cohesion, longer-term equity, and making more social investments.

- NWFPs CBEs apply traditional knowledge to their operations, creating innovative approaches, and finding new ways to increase employment and diversify income strategies e.g. *Pongamia* growers in Karnataka state of India produce oil, energy, biofuel and fertilizer; in Nepal, Dabur Nepal Ltd. cultivates medicinal plants, develop medicines and other products; and Bio-Bhutan in Bhutan produces and markets certified products.

- NWFPs CBE can be very profitable with high returns from their NWFPs activities as indicated in Case Studies from various countries.

- Mature NWFPs CBE have invested in diversification of economic activities, making more diverse use of their forest resource, managing risk and creating new sources of employment and community skills.

- In forest-rich areas, NWFPs CBEs have been positive forces for biodiversity conservation, including NWFPs CBE investment that leads to significant reduction in forest fires, and tended towards diversification of their enterprises as they mature, looking for means to make better use of the forest resource, generate greater employment, and minimize their costs relative to returns, and generating income for investment in conservation.

- Internal constraints and market barriers can limit NWFPs CBE emergence and growth. There are important internal barriers that constrain NWFPs CBE development, including: internal social conflicts, mismanagement of resources and income by individuals, lack of organizational and business skills, lack of technical skills, deforestation pressures from agriculturalists in the community, and unwillingness to adapt practices to market demands. These can result in limited growth or failure of a NWFPs CBE, but can be balanced by the positive dynamics that NWFPs CBE bring to an enterprise greater sense of ownership and commitment, a long-term commitment to their social group and resource base, and an ability to draw upon local social and cultural practices for innovation and problem-solving.

- Regulatory and policy barriers can be a major constraint for NWFPs CBE emergence and growth. Relative to other actors in the sector, too little funding has been provided directly to CBEs and their associations, starving them of
skills and knowledge to grow. (e.g. Nepal-governance model mandated in law; Nepal—forest taxes and burdensome transport rules).

The technical papers and consultation generated several ideas for the design of the sustainable business model. All the participating countries made presentation of their country status. Two keynotes papers were also presented from Bhutan and India. It was very clear that Community based forest management (CBFM) and community based forest enterprise (CBFE) face numerous challenges needing interventions to make it successful and sustainable. Some of the prominent challenges and interventions identified were as follows:

### Challenges

<table>
<thead>
<tr>
<th>Management</th>
<th>Lack of capacity of the community</th>
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<tbody>
<tr>
<td></td>
<td>Lack of constant monitoring</td>
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<td></td>
<td>Diverse group members and difficult to come to consensus</td>
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<td></td>
<td>Lack of transparency and leadership of the group</td>
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<td></td>
<td>Sporadic growth of resources</td>
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<tr>
<td>Harvesting</td>
<td>Limited access to forest resources</td>
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<td></td>
<td>Limitation in innovation by User</td>
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<tr>
<td></td>
<td>Lack of capacity of the user to harvest, collect and processed</td>
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<td></td>
<td>Lack of right equipment</td>
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<td>Collection</td>
<td>Lack of adequate knowledge on latest technology to harvest</td>
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<td></td>
<td>No proper transportation and high transportation cost</td>
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<td></td>
<td>Post harvest loss</td>
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<td>Lack of management protocol for collection</td>
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<tr>
<td>Value addition</td>
<td>Lack of technological know-how</td>
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<td></td>
<td>Lack of initiative in creating or adhering to international standards</td>
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<tr>
<td></td>
<td>Weak linkages with research and market</td>
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<td></td>
<td>Lack of training, infrastructure and fund support</td>
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<tr>
<td>Marketing</td>
<td>No marketing network</td>
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<td></td>
<td>Lack of good dealership</td>
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<tr>
<td></td>
<td>Limited access to market and market information</td>
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<tr>
<td></td>
<td>Too much of informal trading</td>
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</tbody>
</table>
Interventions

The meeting also identified some urgent interventions necessary to address the challenges and support development of sustainable business model for NWFPs in the region.

Management
- Constant monitoring and evaluation of resources
- Good inventory data on forest resources
- Formation of groups supported by group training about resource management plan and guideline development for institutional strengthening
- Business planning

Harvesting
- Capacity building for groups regarding the latest sustainable harvesting techniques
- Environment friendly and modern technology
- Transfer knowledge on good harvesting

Collection
- Capacity building on systematic collection systems and management
- Provide storage facilities at strategic locations
- Develop proper guidelines and implementation/enforcement
- Awareness raising and facilities for transportation

Value addition
- Subsidized rates for equipment required for post harvest processing of resource
- Train groups members on value addition and product development based on market demand
- Knowledge sharing and research technology transfer

Grading
- Government oversight in creating a standard or maintaining international standards
- Regional certification body and protocols
- Regulation on labeling, packaging with quality specification of the products

Marketing
- Facilitation during marketing such as setting up buyer-seller meetings
- Information availability market infrastructures development
- Provide updated information on both NTFP groups to market
- Support for market study and enabling condition to domestic and international market
The project concept and the key recommendations were presented by Dr. Tayan. The meeting agreed to adopt a simple value chain focused on all-inclusive business model wherein all stakeholders will be party to this model.

The key areas of the project interventions are:
1. Information Systems (Resource base and marketing)
2. Capacity development at different levels
3. Technology transfer and piloting
4. Inclusive and empowering
Chapter 1
Role of Non-Wood Forest Products Community-Based Enterprise in Livelihood Improvement in South Asia

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Introduction
About three decades back Non-wood forest products (NWFPs) were hailed with a lot of enthusiasm among researchers, forest managers, as well as policy makers for rural development and employment opportunities. The experience and knowledge accumulated thereafter on the potential of NWFPs has now proven that claim; and has reassured both scientific community and policy makers to look at Forests vis-à-vis NWFPs more seriously. This was further facilitated by the timely ratification of Nagoya Protocol on Access and Benefits Sharing of genetic resources (among signing parties) by most of the countries, which has renewed the acceptance and demand for NWFPs based livelihood and conservation. On the other hand the dependence of local people on these resources for fuel, fodder, nutrition and medicine and cash income has been increasing. Consequently, the legal and technical issues concerning sustainable extraction, trade and conservation of NWFPs are being debated much more frequently. In addition the importance of NWFPs Community Based Enterprise (CBE) is now realized and being emphasized in many countries.

In fact, the contribution of forests to food security, nutrition, community health, energy, employment and in tackling climate change is clearly recognized at international, national and local levels. The socioeconomic benefits of forests, including the role of NWFPs for generating income, food and nutritional security, basic human needs, and improving quality of life were recently documented by FAO in the State of World’s Forest 2014 report (FAO 2014). The report estimates that NWFPs generated US$88 billion in 2011, that about 76 million tonnes of food from the forest were consumed on average in the same year. Moreover, the report suggests that forest products contribute to the provision of shelter for about 1.3 billion people and to human health through the use of medicinal plants that originated in forests. But understanding the real contribution of forest products to lives and livelihoods of people is very difficult as authentic data are not readily available. The data on value and volume in trade and production of NWFPs is lacking in most of the countries.
The NWFPs in all the SAARC countries viz. Afghanistan Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan & Sri Lanka and Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) member countries viz. Myanmar, Thailand, Vietnam, Lao PRD, Malaysia, Philippines and Fiji and Indonesia are lifeline for vast rural population. However, information available on NWFP resources traded, current and anticipated market trends, and value addition approaches are inadequate. Only a fraction of NWFPs harvested, pass through organized channels of trade. As a result, the socioeconomic benefits of NWFPs and the full economic contribution of forests are underestimated.

The present paper reviews the status of NWFPs, their role in rural economy, the policies and their impacts on NWFPs and role of NWFP Community based enterprises (CBEs) in eight SAARC and seven CIRDAP countries in South Asia for livelihood improvement. It also highlights the new and emerging trend for management of NWFPs in this region.

**Non-Wood Forest Products (NWFP)**

FAO (1993) defined Non-wood forest products (NWFP) as, “all goods for commercial industrial or subsistence use derived from forests and their biomass, which can be sustainably extracted from a forest ecosystem in quantities and ways that do not downgrade the plant community’s basic reproductive functions”.

However, in general NWFP are Goods derived from forests that are tangible and physical objects of biological origin other than wood. In the South Asia region, the NWFPs generally include non-wood plant and animal products collected from forest. NWFPs invariably include gum arabic, rubber/latex and resin, bamboo and rattan regardless of origin from forests or plantations. But NWFPs exclude products collected in tree stands in agricultural production systems, such as fruit orchards, oil palm plantations and agroforestry systems, and also woody raw materials and products, such as chips, charcoal, fuelwood and wood used for tools, household equipment and carvings and grazing in the forest; fish and shellfish.

**Why NWFP?**

Free access to NWFPs is often essential to millions of people in rural areas, especially women and all members of tribal, migrant or landless groups, who depend on them for day to day life. NWFP not only cater to dietary, medicinal and other pressing needs, but are also traded on local markets, creating steady or seasonal employment for many who otherwise have no prospect of jobs or income. NWFP can help in sustainable forestry practices easier to promote by enhancing the value and fringe benefits of standing forests, so deflecting local pressures to over-harvest the timber component.
Beneficiaries of NWFPs Development

The intended beneficiaries of NWFPs development should be first, poor communities in forest lands, then consumers and traders. It is important, however, that a significant part of revenues from such products is re-invested in improving and renewing the products at their source, as well as in safeguarding the interests of local communities in whose custody forest lands and resources lie.

Economic and Social Benefits from NWFPs

NWFPs have made major contributions to the agrarian economy of these countries. A critical review of the contributions of NWFPs would reveal numerous economic and socio-psychological benefits.

Most Governments collect significant earnings from the royalties, taxes, and other charges on NWFPs. Modest export earnings are derived from the sale of many NWFPs by these countries. Sophisticated finished articles and souvenirs made from NWFPs are major exportable items of the countries such as Bangladesh, Bhutan, Nepal and others which often carry with them the aesthetic cultural heritage of the nation. The collection, processing, and marketing of NWFPs provide employment to thousands of rural people. NWFPs homestead or mini industries use local labour and raw materials, which are of crucial importance to the rural economy. With the employment generators and security of regular earning through NWFPs, there is a recognizable growth in the quality of socio-psychological life of the involved population.

For NWFPs the most common production unit is home-based. The employment pattern for NWFPs industries is not available, except for bamboo and rattan. As most industries based on NWFPs generate only part-time employment, with the exception of bamboo and rattan industries, which employ people full time. Additional part-time workers are often seasonally employed. Actually there is an estimated surplus of thousands of trained workers in the craft industry based on bamboo and rattan in these countries. This is mainly caused by the difficulty in obtaining raw materials due to legal hurdles, the lack of capital to pay for them, and a shortage of tools.

In spite of the many constraints and hurdles the global trade of NWFPs has increased over the years. It is noteworthy that in the overall export, the percent contribution from the Asia-Pacific region has consistently been around two-fifths of the global export. In fact as per earlier information the value of NWFPs exports per unit of forest areas was highest in Sri Lanka followed by Pakistan within the East Asia (Table 1).
Table 1. Value of NWFP Exports per Unit of Natural Forest Area, 2005

<table>
<thead>
<tr>
<th>Countries</th>
<th>Total natural forest area (in '000 ha)</th>
<th>NWFP exports (in '000 US$)</th>
<th>Value of NWFP export per unit of forest area (in US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>67701</td>
<td>561569</td>
<td>8.29</td>
</tr>
<tr>
<td>Indonesia</td>
<td>88495</td>
<td>360072</td>
<td>4.07</td>
</tr>
<tr>
<td>Nepal</td>
<td>3636</td>
<td>7707</td>
<td>2.12</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1902</td>
<td>45353</td>
<td>23.84</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>1933</td>
<td>77928</td>
<td>40.31</td>
</tr>
</tbody>
</table>

The economic contribution of NWFPs in the total value of forest based exports is quite high in this region as exemplified by India and Lao PDR and other countries.

**India** - The economic contribution of NWFPs exceeds 70% of the total value of forest-based exports from India. They provide 2.3 million person-years of employment. Of this total, 1.6 million person-years is related to NWFPs. It is estimated that NWFPs are capable of generating 4 million person-years of employment annually, if their full potential were exploited.

**Lao PRD** - The direct contribution of NWFPs to food security is roughly 50% compared to that of rice, the staple food, together these foods take up around 80% of total value of family subsistence expenditures. NWFPs also contribute indirectly to food security, as they can be sold to buy rice in times of shortage. NWFPs are estimated to contribute 40-50% of cash income of Lao rural households. NWFPs also have a high industrial and trade value. Estimates of the quantities, values and current prices of major NTFP exports would suggest that today official NWFP exports are worth between $6-7 million a year.

Similar examples are available from other countries of the region.

**Collection and Processing of NWFPs**

The extraction and trade of NWFPs in all the countries of SAARC and CIRDAP is essentially managed by Forest Department through contractors. After receiving royalties, permits are issued by the Forest Department to collect products from forest preserves. But in countries where forests are not managed by the Forest Department, the District Office/ Panchayat or other designated authority issues permits to collect products. NWFPs are almost exclusively gathered by local entrepreneurs. Little processing is done prior to their sale. In spite of all limitations, cottage industries making products of bamboo, cane, shells, oysters, honey, bees wax, lemon grass etc. have made notable progress in recent years.
Obstacles to Developing NWFPs
The use of NWFPs help in sustainable development to create chains of mutual social, economic and environmental benefits at local, national, regional and international levels. NWFP provide multiplying opportunities for entrepreneurship, new sources of income and new markets as well as aiding livelihood and self-sufficiency. However, there are a number of obstacles in developing NWFPs. Some of the obstacles which are common in the South Asia region are enumerated below and described in detail.

Common Obstacles
- In adequate knowledge and wrong notion on the part of national authorities, forests resource managers and R&D institutions regarding the value and potential of NWFP.
- The data for use, profitability and potential of NWFPs is not readily available; this results in low priority in management plans.
- Steady supplies of NWFP affected due to local, seasonal occurrence, difficulties in harvesting, storage and delivery. Droughts, floods and other climatic aberrations affect the supply of NWFPs.
- Gathering and utilization of NWFPs can give rise to competition and conflicts due to Access and Ownership.
- General lack of market research, marketing information system and commercial know-how, so entrepreneurs get no early warning of new or changing market needs and trends.
- Trained personnel and efficient management have not yet been developed for dealing with NWFP collection, processing and export in most of the countries.
- Incentives and inputs from the government, private and entrepreneurs for promoting NWFP development are lacking.
- NWFP management lacks professionalism and high technical standards.
- Lack of a detailed inventory of NWFP resources in these countries.
- In absence of sustainable extraction/harvesting practices in many countries environmental drawbacks due to over exploitation, degradation and depletion of forests may occur.

Policies and their Impact on NWFP Use and Management
In the South Asian countries most of the forests are owned by the State except in Fiji where forests are primarily under customary community ownership. But only handful countries such as Viet Nam, India and Nepal have formulated dedicated
policies towards NWFP development and in most countries the National Forest Policy govern the use and management of NWFPs. Overviews of policies in the Asia-Pacific region that impact NWFPs are given in Table 2.

Table 2. Major NWFPs, Policies and enabling factors that impact NWFPs in South Asia.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Major Non-Wood Forest Products</th>
<th>Policy brief</th>
<th>Enabling factors for promotion, management and development of NWFPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>Medicinal plants <em>(Ferrula asafoetida, Cumin, Zizyphus vulgaris, Glycyrrhiza</em> spp.) and fruits (almonds, walnuts, pistachios, pine nuts), Other NWFP include morels, gums, wild animals, birds.</td>
<td>Forest management law and rangeland law of MAIL-Afghanistan gave access to community residents to harvest NWFP.</td>
<td>Community members strictly prevent over exploitation of NWFP during legal harvesting. NRM strategy has been approved and is a roadmap for community based development projects NWFP (2017-2021).</td>
</tr>
<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
<td>Policy brief /policy Enabling factors for promotion, management and development of NWFPs</td>
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<tr>
<td></td>
<td>NWFPs used daily, are taken for granted. NWFPs e.g. bamboo, such as Dendrocalamus hamiltonii in tropical areas, and Arundinaria maling on high altitudes, traditional medicine from &gt;300 species medicinal plant, Natural Dyes, Pine Resin and Lemon Grass, Forest food from yam, oil from wild seeds e.g. Symplocos, Gynocardia, Sal (Shorearobusta) etc. Spices- Piper and Cinnamomum and Zanthoxylum, Traditional paper made from Daphne and</td>
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<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
<td>Policy brief /policy</td>
<td>Enabling factors for promotion, management and development of NWFPs</td>
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<tr>
<td>India</td>
<td><em>Edgeworthia gardneri</em> a popular export product. NWFPs are derived from &gt; 3,000 species. NWFP classified as: Leaves, Bamboos, Gums, resins and oleoresins, Oil seeds, Essential oils, including oil-yielding grasses, Fibers and flosses, Grasses other than oil-yielding grasses, Tans and dyes, Drugs and spices, Animal products, and Edible products. Processing, storage, and marketing.</td>
<td>Joint Forest Management, 1990 The Panchayat (Extension to the Scheduled Areas) Act, 1996 Under the new Foreign Trade Policy, 2004 expansion of the ‘Vishesh Krishi Upaj Yojana to include SMFEs and their products. Scheduled Tribes and other Forest Dwellers (Recognition of Forest Rights) Act, 2006 More than a lakh JFMCs managing 23 million ha of forests. -Usufructs sharing rights of communities in the JFM area -Ownership</td>
<td>- Presence of many Community-based institutions such as SHGs; - Appreciation and support from the government, donors and NGOs to promote NWFP-based enterprises - Emergence of support institutions and marketing platforms for trade - Health heritage of India (e.g. Ayurveda, Siddha and Unani) and rising income providing a domestic market for NWFP. Innovative initiatives by states such as UttarakhandJarieBootiUdyog by Uttarakhand State Forest Development Corporation; Andhra Pradesh- Girijan Cooperative Society for socio economic upliftment of tribal communities through NWFP; Chhattisgarh Minor Forest Products</td>
</tr>
<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
<td>Policy brief</td>
<td>Enabling factors for promotion, management and development of NWFPs</td>
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<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Maldives</td>
<td>Most important NWFP are rattan, bamboo, medicinal plants and wild fruits. Other include palm, fibre, resin, gum, dye, oil, tannin, ferns, barks, vegetables and wood-oil. NWFP in the form of edible fruits meet only domestic requirements and</td>
<td>Agricultural Development Master Plan (2006-2020) estimate 3,716 ha forests New company, ‘Business Center Corporation Limited’ (BCC) formed in March 2017 to support and assistance to small and medium businesses.</td>
<td>Communities of inhabited islands have access to natural resources from the uninhabited islands, which have an abundance of coconut palms and other NWFP.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Federation (CGMFPF) for NTFP trade and enterprise; Odisha-OFDC and TDCC for NWFP procurement. 69 NWFPs transferred to local panchayats, making the trade of these items free; and Madhya Pradesh- MFP Federation- NWFP benefit sharing model for nationalized products.</td>
</tr>
<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
<td>Policy brief</td>
<td>Enabling factors for promotion, management and development of NWFPs</td>
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<tr>
<td>Nepal</td>
<td>NWFP also called “MFP”. Important NWFPs are medicinal and aromatic plants, lokta paper, pine resin, Sal seed, katha, sabai grass, bamboo and cane. About 700 species of medicinal and aromatic plants. Other NWFPs-Resin and turpentine, Sal seed oil, Katha and Cutch, Sabai Grass, Bamboo and cane. Five high value products constitute over 50% of the volume and value in trade including 3 high altitude medicinal plant species Jatamasi (<em>Nardostachys grandiflora</em>) Kutki (<em>Neopicrorhizascr ophulariflora</em>) and Yarsagumba (<em>Cordyceps sinensis</em>). Master Plan for Forestry Sector (MPFS) 1989–NWFP based Enterprise Development Forest Act 1993 Community Forest Management-NWFPs in the National Forestry Programmes Herbs &amp; NTFP Development Policy 2004 Forest Policy 2015 Forestry Sector Strategy 2016 Nepal Trade Integration Strategy (NTIS) 2010 identified NTFPs/MAPs one of the priority product for export. -Usufructs sharing rights of communities at 100% (in the case of NWFPs) included. -The new NWFP policy provides a guideline for NWFP management, value addition and marketing. -Presence of an organized body such as FECOFUN (Federation of Community Forest Users) - Appreciation and support from government and NGOs to promote NWFP-based enterprises - Development of Market Information System facilities</td>
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<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
<td>Policy brief</td>
<td>Enabling factors for promotion, management and development of NWFPs</td>
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<tr>
<td>Pakistan</td>
<td>NWFP known as “MFP”. MFP include, Food products: Morels, Honey, Wild fruits and nuts, vegetables, Condiments; Medicinal plants; Industrial products- Resin, Babul bark, Bhabar grass; Fibers (e.g. mazri leaves); Silk cocoons and miscellaneous products-Soap-nut, Walnut bark, Palosa gum, Neem leaves.</td>
<td>National Forest Policy (1999) National Forest Policy (2002). Forest ACT 2002 provides levying duties on NTPs only for documenting extent of extraction. No guidelines for proper and optimum harvesting Special conservation plan for Chilghoza (\textit{Pinus gerardiana}).</td>
<td>Forest Department mandated to treat NTfp as integral part of forest ecosystem For sustainable management of NTfp a Directorate established in 2007. Establishment of capital incubator fund for CBEs Capacity building in product development Provision of harvesting tools</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>NWFP include, (a) Leaves, flowers and fruit, seeds, juice, caoutchouc, catechu, wood oil, resin, natural varnish, bark, lac, gum and myrabolans; (b) Grass, creepers, reed moss and all parts or produce of such plants; (c) Tusk horns, shed horns and edible</td>
<td>The National Forestry Policy (1995) Greater participation of local communities encouraged in forestry activities through a social forestry program.</td>
<td>Forest Department mandated to treat NWFP as integral part of forests. The legal protection of the NWFP species is well defined, illegal exploitation is common mainly because of the high demand for the products. The Ministry of Indigenous Medicine has started research into the medicinal aspects of NWFP.</td>
</tr>
<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
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<tr>
<td>Fiji</td>
<td>birds’ nests; and Peat, surface soil, rocks, and minerals, including limestone, laterite, bitumen, bituminous shale, asphalt, mineral oils and all products of mines or quarries.</td>
<td>Fiji places the importance of NWFPs in forest conservation</td>
<td>Community based enterprise development classified under the Small and Micro-Enterprise Development Act 2002. Kava or yaqona (<em>Piper methysticum</em>) as a successful NWFP.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>NWFPs are classified as: 1. Non-woody plants such as rattan, bamboo, illipe nuts, roots, fruits and drug plants, 2.</td>
<td>Indonesia Community Forestry Law (1991-2007)</td>
<td>- Government support for large-scale cultivation of rattan and bamboo to meet the increasing demands of the markets - Experience of being market leaders in niche</td>
</tr>
<tr>
<td>Countries</td>
<td>Major Non-Wood Forest Products</td>
<td>Enabling factors for promotion, management and development of NWFPs</td>
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<tr>
<td>Lao PDR</td>
<td>Resinous material and gums 3. Essential oils and fats 4. Unclassified 5. Fauna and derived products, including reptiles, mammals, and birds (live/preserved.)</td>
<td>Forest Law provides a legal framework for NWFPs for rural families to be able to satisfy their ‘family economic necessity’, including collection of NWFPs for sale. Under the Forest Strategy 2020, utilization and management of forest resources with the involvement of local communities considered important in fulfilling Forest Policy targets.</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>NWFPs contribute 40-50% of cash income of rural households. They also have a high industrial and trade value. Important NWFP harvest are mainly plant exudates (resin, oleo-resin, Siam benzoin), medicinal plants, spices/condiments, plant barks, fruits, Sugar Palm (<em>Arenga pinnata</em>, <em>Dialium indum</em>), bamboo, rattan and broom grass.</td>
<td>The Forest Law (1996) Forest Strategy (2020). Policy makes provisions for increasing the production of NWFP. The most important</td>
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MFPs are now known as NWFPs. They have relatively small.
<table>
<thead>
<tr>
<th>Countries</th>
<th>Major Non-Wood Forest Products</th>
<th>Policy brief</th>
<th>Enabling factors for promotion, management and development of NWFPs</th>
</tr>
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<tbody>
<tr>
<td>Philippines</td>
<td>NWFP known as “MFP”. NWFPs include firewood, charcoal, rattan, bamboo, daluru, bark, resin, gum, wood oil, beeswax, nipa, buri, fibre,</td>
<td>Indigenous territories Management of forests under CBFM Integrated Forest Management Agreement (IFMA)</td>
<td>Peoples Organizations manage forests. Policies, rules and regulations to support CBFM are in place. RA 9178 - “Barangay” (Village) Micro Business Enterprise Act of 2002 Technology transfer,</td>
</tr>
<tr>
<td>Countries</td>
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| Thailand  | NWFPs divided into two categories-  
   - Protected NWFPs- wild orchids, aromatic wood (*Dracaena*), agarwood (*Aquilaria*), sappan (*Caesalpinia sappan*) charcoal, yang oil (gurjan), palm leaves, bark (*Gasternopsis, Hopea, Persea, Artocarpus, Cinnamomum* etc.), *Platycerium*, gums, resin (guttapercha, jelutong, lacquer resin, oleoresin), ferns, and rattans.  
   - Unprotected- all others not specified above | National Forest Policy (1985)  
   - National Reserved Forest Act (1964, 1979, 1985)  
   - The “Community Forest Bill” 2005 | - Promoting community forest management started from 1977 and remains on-going.  
   - National Constitute 1997 permitted community participation in NRM.  
   - Community together with Forest officer manage forestry activities under the relevant laws and regulations. |
Technical and Institutional Issues in Developing NWFPs

The following technical and institutional issues affect developing NWFPs.

Lack of Technical Competence

General knowledge and awareness on NWFPs among the State Forest Department (SFD) officials and other stakeholders in most of the South Asian countries is reasonably high. However, the technical competence on resources identification, characterization, adopting participatory approaches of management and knowledge of tools for planning are not readily available. The resources and capacity of SFD are actually insufficient to adapt the changing environment and potential of NWFPs for socio-economic development, forest conservation, revenue generation and adaptation to climate change. In most of these countries the SFD needs more qualified resources, decision support system and training for the sustainable development of NWFPs and livelihoods.
Lack of Marketing Information System

The systematic information and data on NWFPs collection, processing, trade and marketing is lacking, as most of these products are traded in raw form. The absence of a harmonized strategy hinders the sustainability of the NWFPs and local livelihoods. The lack of market information of existing high value NWFPs resources is one of the major constraints for price realization of these products. Primary collectors and even forest department officials do not have sufficient information on NWFPs price trends and markets. Because of the information gap primary collectors do not get the actual price of the commodity and are therefore, heavily exploited by the contractors and traders. Also, the prices of NWFPs fluctuate frequently and further discourage people to invest in the sector.

Lack of Institutional Capacities and Management Inputs

The limited institutional models and local level demonstration on management of NWFPs are a major hindrance in the region. Major resources of the forest department are primarily occupied with human resource management and the timber distribution system, with least or no attention on the scientific conservation and management of the forests vis-à-vis NWFPs. There is no information on the growing stock of NWFPs resources, extraction potential of economically important species and their sustainable harvesting limits, valuation of the resources, people’s dependency, and contribution of the resources to rural and urban economy. There is also lack of the coordination and exchange of information among various agencies.

Operational issues

Lack of NWFPs Management Plans

NWFPs sector could never found a suitable place in the forest management and planning of the state, as it is not given due importance. As such, the Forest Working Plans do not have any substantial information on the availability, conservation, identification keys, management or trade of NWFPs from their areas. Neither is there any information available on the species harvesting potential nor extent of people’s dependence on these resources. There are no NWFPs specific plans for the scientific management and development in most of the countries.

Destructive Extraction and Over-exploitation of Resources

The unsustainable extraction of NWFPs from forest negatively affects the regenerative capacity of species and their natural resource base. The overexploitation due to high market demand has accelerated species extinction and habitat destruction in many countries. This has not only threatened the
projected species, but has also endangered the population of associated species of the area. The increase in demand increases pressure on resources, as a result resources are exhausted, and consequently, to balance the supply and demand, people travel further to interiors of forests or substitute the product in demand with comparable product. Many collectors are not able to even identify the target species, they end up collecting similar species resulting in the adulteration of material. In other cases, people extract several species before seed setting, thereby diminishing chances of natural regeneration, which may lead to the extinction of species.

**Lack of Revolving Funds for Sustenance**

Due to poor economic conditions, local people borrow money from contractors and pay it back by extracting NWFPs at very low prices. They have limited access to formal credit organizations that could provide soft loans to them. In many cases, the wholesale traders issue loans in advance, charge high interest rates on the loans, and also purchase NWFPs at discounted rates. The poor village communities are thus trapped in a vicious circle. To pay back the loan quickly, the collectors generally harvest immature NWFPs hampering effective regeneration.

**Lack of Post-Harvest Management Protocols**

NWFPs material extracted from the wild needs Post-Harvest Management (PHM) like washing, cleaning, trimming and drying. The collectors or gatherers don’t always follow these standard PHM protocols. Neither has forest department established any such facilities in the region. Many time the extracted produce is left to dry on its own. In this process, raw material loses aroma, colour and gets infested with fungal attacks to further reduce its efficacy and quality. Lack of any post-harvest management decreases the value of raw material and products. Absence of opportunities for PHM, is one of the main causes of meagre returns to the primary collectors in most of the countries.

In countries such as Bangladesh, Bhutan, India, Nepal and Lao PDR, the participatory institutional arrangements for procurement, value addition and marketing of NWFPs have been established, which help in enhancing the efficiency of supply chain that will allow the NWFPs collectors to realize more income. Some of the interventions like primary value addition processes (proper washing followed by drying) and mechanization have been introduced with the help of research institutes and NGOs. There is great need to introduce the incentives for sustainably harvested NWFPs material to motivate the collector for sustainable extraction in other countries.

**Promoting NWFPs**

Almost all NWFPs are obtained from forests, and some effort has been made to
assess the present stock. Although the legal protection of these species as per the Forest Act/Policy is well defined, illegal exploitations is common mainly because of the high demand for these products. As a result, many species in these countries are almost extinct. The following aspects have to be studied to ensure proper management of remaining resources:

**Survey of Existing Stocks**
A comprehensive survey is needed to assess the present stock of NWFPs and to study the employment generation pattern of this industry. Both quantitative and qualitative data are needed. The status of individual species has to be ascertained so that vulnerable species and areas can be protected from over-exploitation.

The onsite and spatial mapping of resources will provide a clear picture about the species available, their distribution and growing stock. Communities will be able to diversify their livelihoods, through participation in planning for resource conservation, augmentation and commercial exploitation. Resource assessment will support in identifying the rare, endangered and threatened species, thus may contribute to conservation. It will also help in participatory management and conservation of the resources to aid in conflict resolution between forest department officials and local people.

**Assessment of Supply and Demand-Including Future Marketing Potential**
Lack of information about the supply and demand of NWFPs severely hinders the prospect of collectors to get a fair price. As collectors sell their harvest to local traders (in informal markets), information about prices, product flow and marketing options is rarely available. The factual information on supply and demand of the potential species is also helpful in determining the revenue realization. It also helps in sustainable management of resources and increases transparency.

**Setting of Sustainable Harvesting Limits for Potential Species**
Sustainable harvesting of resource like medicinal plants can contribute to the economic wellbeing of the forest dwellers and involve them in conservation of biodiversity. Over-exploitation and unsustainable harvesting of several NWFPs species are lead to resource depletion in the forests.

Prevailing harvesting practices of NWFPs resources are largely unscientific and unsustainable. These include one or more of the following: a) harvesting of immature fruits, b) over harvesting or complete harvesting of fruits, c) lopping of fruit bearing branches, d) uprooting entire plant, e) pulling out the climbers or vines while harvesting, f) use of fire, and g) untimely harvesting. Appropriate methods of sustainable harvesting that are already available with research
institutions must be made mandatory. Protocols on optimum harvesting level, time of harvesting, methodical procedures for different types of NWFPs, avoiding cutting of branches or twigs during harvesting, maintenance of proper hygiene during collection, processing and post harvesting period must be systematically implemented. Existing harvesting mechanisms (timely, methodical procedures) shall be strengthened and streamlined during the process.

**Awareness Programs**

Industries based on NWFPs are confined to households; the traditional methods used for collection and processing have not changed over the years. The waste of raw material during harvesting and processing could be reduced through awareness programs of propagation and harvesting techniques. Cultivation of rare species and the use of alternative species have to be promoted to reduce the pressure on species in natural forests. Most NWFPs do not fetch their proper prices in the market because of poor quality. People engaged in this industry have to be educated to new methods to improve the quality of the produce.

Some species are underutilized because of ignorance of processing methods. Katuuna (*Bamboosa bambos*), found in the dry zone for example, is underutilized. In India and other countries in the region, the same species is used for weaving mats. The existing techniques in the region could be used to overcome this problem.

**Research**

Research institutes and universities in the countries are still struggling with the basic research technique and have focused only on the development of agrotechniques of few easily available species or medicinal plants. Therefore, research programs have to be strengthened to propagate the rare and very important NWFPs. More budgetary support is required for continuing research carried out by the universities and the Forest Departments. Due to the degradation of forests, over exploitation of NWFPs and social benefits not accounting to vast rural population dependent on forests, renewed emphasis has been attached to NWFPs. Some significant steps have been taken by various countries to conserve, regenerate and propagate, some of the major NWFPs. These steps include:

- Artificial planting of bamboo and other NWFPs using improved planting materials at selected sites by the Forest Departments and other organizations including research institutes.
- Regeneration of cane through improved high-quality imported seeds in the state forests, and in homestead agroforestry areas.
- Promotion and improvement of NWFPs by restricting indiscriminate cutting and by enforcing rules for regeneration.
Why Non-Wood Forest Products Community-Based Enterprises (NWFPs CBE)?

There has been shift from community management to state management of the NWFPs in most of the countries, which has not helped the communities involved in it. This change has resulted in over exploitation of and subsequent degradation of resources affecting the trade of NWFPs. It is the experience from various countries of the region that community participation has helped in sustainable management of forests and in turn the NWFPs, therefore, of late there has been renewed interest in NWFPs CBEs.

The following points indicate the positive impacts CBEs for NWFPs vis-à-vis individual enterprise or private industry.

- NWFPs CBE generate a range of goods and services that are not created by individual enterprises or private industry.
- NWFPs CBE invest more in the local economy than their private sector equivalents.
- NWFPs CBE can be very profitable. High to very high returns from their NWFPs activities have been witnessed in many countries of the South Asia as indicated in some case studies from different countries in this article as well as in other chapters of the book.
- Mature NWFPs CBE invest in diversification of economic activities, making more diverse use of their resources, managing risk and creating new sources of employment and community skills.
- NWFPs CBE bring greater sense of ownership and commitment.
- NWFPs CBE are important conservation agents in forests of high biodiversity.
- The scope for NWFPs CBE to increase in importance and development contribution is huge in the South Asia.

Review of Non-Wood Forest Products Community-Based Enterprises in South Asia

A review of the existing Non-wood forest products community-based enterprises (NWFPs CBE) in South Asia region was undertaken based on the available information on literature and press and media, as well as on the website of the respective country (FAO, 1994; 2009a,b; 2010; NAFRI, 2006 and others). Few general and other specific findings on the enterprises are presented below.
General Findings

- NWFPs CBE are common in South Asian countries.

- NWFPs CBE have a mixed record, with many cases of failures as well as successes, but it is only in a few countries such as Bhutan, India, Nepal and Vietnam that favorable conditions have been in place over quite sometime to assess their development or viability over time.

- NWFPs CBE have expanded dramatically with the recognition of historic tenure rights and the transfer of responsibilities to local levels in some of these countries.

- NWFPs CBE are a growing type of small and medium scale enterprises. These have expanded as a component of the forest products and services industry in a number of countries particularly in Nepal and India. There is growing evidence that when policy and tenure constraints are lifted, there is a rapid response in their number and their contributions to employment and local income.

- NWFPs CBE have unique advantages for the rural economy and forest conservation yet faces serious challenges for growth. NWFPs CBE generate unique benefits and returns. They tend to have a longer time horizon for resource management, both for generating employment and for conserving the multiple values of the forests that support their livelihoods, and have specific social and cultural value.

- NWFPs CBE potential has not been realized in some countries due to lack of clear tenure rights and adverse policy and regulatory environments. Policies and subsidy schemes have generally been designed with large, formal industry in mind; regulatory frameworks in many countries disadvantage NWFPs CBE and greatly reduce their potential profitability.

Specific Findings

- NWFPs CBE generate a range of goods and services and tend to invest more in the local economy than their private sector equivalents, fostering social cohesion, longer-term equity, and making more social investments.

- NWFPs CBEs apply traditional knowledge to their operations, creating innovative approaches, and finding new ways to increase employment and diversify income strategies e.g. *Pongamia* growers in Karnataka state of India produce oil, energy, biofuel and fertilizer; in Nepal, Dabur Nepal Ltd. cultivates medicinal plants, develop medicines and other products; and Bio-Bhutan in Bhutan produces and markets certified products.
NWFPs CBE can be very profitable with high returns from their NWFPs activities as indicated in Case Studies from various countries.

Mature NWFPs CBE have invested in diversification of economic activities, making more diverse use of their forest resource, managing risk and creating new sources of employment and community skills.

In forest-rich areas, NWFPs CBEs have been positive forces for biodiversity conservation, including NWFPs CBE investment that leads to significant reduction in forest fires, and tended towards diversification of their enterprises as they mature, looking for means to make better use of the forest resource, generate greater employment, and minimize their costs relative to returns, and generating income for investment in conservation.

Internal constraints and market barriers can limit NWFPs CBE emergence and growth. There are important internal barriers that constrain NWFPs CBE development, including: internal social conflicts, mismanagement of resources and income by individuals, lack of organizational and business skills, lack of technical skills, deforestation pressures from agriculturalists in the community, and unwillingness to adapt practices to market demands. These can result in limited growth or failure of a NWFPs CBE, but can be balanced by the positive dynamics that NWFPs CBE bring to an enterprise greater sense of ownership and commitment, a long-term commitment to their social group and resource base, and an ability to draw upon local social and cultural practices for innovation and problem-solving.

Regulatory and policy barriers can be a major constraint for NWFPs CBE emergence and growth. Relative to other actors in the sector, too little funding has been provided directly to CBEs and their associations, starving them of skills and knowledge to grow. (e.g. Nepal-governance model mandated in law; Nepal—forest taxes and burdensome transport rules).

Some Examples of NWFPs Community-Based Enterprises from South Asia

Rattan and Bamboo Entrepreneurs: Creating Business and Value in Viet Nam

Skilled young craftsmen of rattan and bamboo products from the Phu Nghia and Phu Tuc Communes in the Ha Tay province of Viet Nam have become neo-rich, earning hundreds and thousands of US dollars. In the Phu Nghia commune, 85% of the 2,028 households are involved in producing rattan products for export. There are 25 limited companies, rattan cooperatives and enterprises in the region, out of which 17 are involved in rattan-based products for export to the Japanese, American and Australian markets. In the Phu Tuc Commune, there are an estimated 20 young entrepreneurs who sell handicraft products in cities including Ha Noi and Hai Phong and who employ about 40-50 persons.
NWFP-Based Interventions from Lao PDR

In the village of Nam Pheng in Oudomxay Province of Lao PDR, villagers realized that they could increase their income if they cooperatively sold for a fixed price measured not by bundle but by kilogram, in a fixed location. Every family agreed to join the initiative. The results exceeded expectations. In five months, the village sold over 47 tonnes of shoots and earned 50 million kip, or US$6,670 (on average 1 million or US$130 per family), at least four times more than the previous year. 7 surrounding villages adopted similar systems. Over 50 organizations reported NWFP selling activities throughout all provinces of Lao PDR.

Development of New Value Chains: Handmade Paper Production in Nepal

Hand-made paper production in Nepal based on lokta is a typical example of the changing fortunes of small-scale forestry enterprises. Favourable market opportunities were taken advantage of by the UNICEF/ADBN project on “Production of Handmade Paper” launched in 1980. The project facilitated the creation of a global value chain including the creation of a craft products factory with the final products ending as UNICEF greeting cards and other artefacts. Currently there are about 600 hand-made paper units including 377 registered units. The industry is currently growing at an annual rate of 16% and paper making is now done in 16 hill districts. Community involvement in the management of forests through Forest User Groups (FUGs) has strengthened the resource base and a number of FUGs have taken up hand-made paper production. Presently the industry is reported to employ about 28,000 persons of which over 70% are women.

Organized Cultivation by Dabur in Nepal

Dabur Nepal Limited (DNL) (the sister-concern of the multinational Indian Ayurvedic manufacturer) entered cultivation of medicinal plants in Nepal in 1995. It has since established one of the biggest medicinal plants greenhouses in the South Asia region at Banepa, Kavre District in Nepal. Through IFAD assistance under a leasehold forestry project in 2002, cultivation has spread in some 16 districts in Nepal.

Nepal and “The Body Shop” Connection

Wild Earth in Nepal, a private company supplies products to The Body Shop and retails its own range of herbal products. It established linkages with organizations like Women's Craft, WEFD, ICIMOD, the Mountain Institute and WWF Nepal.
Bio Bhutan: Linking Communities to Markets through Certified Products

Bio Bhutan is a pioneer enterprise that produces and markets natural and organic certified products from Bhutan since 2005. The NWFPs are lemon grass oil (*Cymbopogon flexuosus*) and pipla (*Piper pedicellatum*). Farmers from the Dozam village (also the oldest community forestry group in Bhutan) supply lemon grass oil from their 5 distillation units, and they are being trained on an annual basis by Bio Bhutan on the standards and requirements of organic certification.

Bhutan- Community-Based Cordyceps Management

Community-based natural resource management (CBNRM) model for *Ophiocordyceps* spp. was introduced in 2004. Collection period is strictly restricted to one month period for all the region, collection only allowed only to highlanders of 6 Districts of Bumthang, Gasa, Paro, Thimphu, Trashi Yangtse and Wangdue; harvesting and trade allowed on condition that they do it on a sustainable basis and long-term sustainability shall be the focus. Sold through only auction, it is major source of income for the communities in high altitude areas.

Bidi (*Diospyros melanoxylon*) Industry in India

Bidi, deemed the “poor man's cigarette” in India, is made by rolling a few grams of tobacco flakes in tendu (bidi) leaves, which is an NWFP, growing mostly on degraded forest lands in the States of Madhya Pradesh, Chattisgarh, Odisha, Maharashtra, Andhra Pradesh and Bihar. Bidi industry is one of the largest employers in the informal sector. Institutions like the MPMFP Federation, Chattisgarh MFP Federation and Orissa Forest Development Corporation manage the collection and trade of the tendu leaves. It is major revenue earner for the State exchequer. The collection is managed with the help of a 3-tier cooperative system in an attempt to prevent exploitation of the poor at the hands of traders.

Tribal Cooperative Marketing Federation of India (TRIFED)

The Tribal Cooperative Marketing Federation of India (TRIFED) was launched in 1987 to fulfil a nationwide programme of procurement, processing and marketing of forest and agricultural commodities produced in the country’s extensive tribal areas. India’s tribal groups number some 8.3 percent of the population and many are highly dependent on NWFPs for their livelihoods and cash income.

The TRIFED scheme has been responsible, for a 90 percent increase in prices earned at market by the collectors and extractors of NWFPs in early nineties. About 50 commodities are traded, including cashew nuts, lac, pepper, sal oil, sisal hemp, aloe, tamarind fruit, turmeric root, cardamom, sarsaparilla and tasar silk. A
A fortnightly price bulletin is published and circulated to trade, industry, tribal and official interest groups. Research and development projects aimed at identifying new products and markets are run from TRIFED laboratories in Mumbai and Delhi. Some 5000 local Service Centres are set up to procure goods at fair prices and a chain of warehouses and refrigerated stores are also under development.

Various initiatives have also been taken at state government level to encourage the growing of trees that yield useful wild goods, on ‘home farms’ and in between field crops in farming systems. In Odisha State, bonus incentives are payable to farmers who grow tendu, neem, sal and other productive trees, including those which play host to the lac beetle. The Bihar State Government pays fixed prices for a number of forest tree oilseeds, which have become nationalized commodities. The prices offered are remunerative.

**Road Map for Strengthening NWFPs CBEs in South Asia**

**Institutional Capacity Building**

There is a vital need to build capacity of the entrepreneur for the sustainable management of NWFPs with the help of the departments, academic institutions and NGOs. The major focus should be on the techniques of participatory resource management and conservation, identification, sustainable harvesting, value addition and marketing of commercially viable species. To sustainably produce and also to increase the supply of raw materials for pharmaceutical industries, it is required to develop techniques of production and sustainable utilization. Therefore, the focus must be on the training and capacity building of the entrepreneurs and their staff on cultivation, harvesting, value chain and marketing of the products. Based on the detailed technical training, the entrepreneurs may be directly involved in the management of the NWFPs (Table 3).

**Table 3. Approach to Institutional Strengthening**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Main Roles</th>
<th>Institutional Strengthening Activities</th>
<th>Expected Results</th>
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<tbody>
<tr>
<td>Country specific Nodal Department/State Forest Department</td>
<td>Create awareness on sustainable management of NWFPs, Build capacity on sustainable management of NWFPs, Build strategies and</td>
<td>Provide training specific needs related to sustainable management of NWFPs, Organize and support stakeholders consultation</td>
<td>Wider stakeholder engagements and awareness on sustainable management of NWFPs, Development of guidelines on</td>
</tr>
<tr>
<td>Institution</td>
<td>Main Roles</td>
<td>Institutional Strengthening Activities</td>
<td>Expected Results</td>
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<td>policies for sustainable management of NWFPs.</td>
<td>workshops, Prepare documentation on sustainable management of NWFPs.</td>
<td>participatory management of NWFPs and establishment of NWFPs CBE.</td>
</tr>
<tr>
<td>Community-Based Entrepreneurs</td>
<td>Organize planning for sustainable management of NWFPs</td>
<td>Facilitate Implementation of integrated forest management and socio economic benefit sharing.</td>
<td>Improved decision making, transparency, equity.</td>
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<td>Make decisions on sustainable management of NWFPs</td>
<td>Develop and implement capacity building program that cover both governance and technical issues for the people associated with it. Conduct hands-on training on sustainable management of NWFPs. Interface with SFD on policy and public services. Create a bridge between government and local communities for successful implementation of programs on NWFPs to ensure steady supply of products</td>
<td>Improved technical capacity in integrated forest management and conservation, Benefits to improved livelihoods through increased market access for NWFPs and benefit associated with conservation of NWFPs.</td>
</tr>
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</table>
Emerging Trends
Marketing Linkages and Information System
Sustainable Management and Marketing of NWFPs involves addressing the major constraints and opportunities faced by collectors, processors, traders and other businesses at multiple levels along a given value chain. Essential technical support may be created through development of knowledge products to promote desired value addition at all levels. Ensuring access to markets, strengthening the delivery of fair price to collectors, enabling the flow of information or increasing access to higher-value markets or value-added products, shall be the key factors in the approach. It is difficult to estimate the demand and supply until a dedicated information system collects these details. Better information about markets will assist the Forest Department to plan more value-addition opportunities near the primary stages of the supply chain to promote sustainable livelihoods.

Geographic Indication and Certification Systems
A geographic indication is a name or sign used on certain products which corresponds to specific geographical location. The use of geographical indication may act as a certification that the product belongs to a certain place, is made according to traditional methods and has assured qualities, due to its geographical origin. This mechanism can be used for obtaining IPR of many valuable species endemic to the state, and implementation of Access and Benefits Sharing mechanism of Biological Diversity Act 2002. It will also boost the markets for species produced in the state.

Whereas, certification is a mechanism for monitoring, tracing and labelling forest and NWFPs, where the quality of management from environmental, social and economic perspectives are judged against a series of agreed standards. It is a process that leads to the issuing of a certificate by an independent party, which verifies that a forest product is managed and supplied to a defined standard. Feasibility of forest certification under various international standards like Forest Stewardship Council (FSC) must be taken into consideration for the forward market linkages of NWFPs of the region. These certifications will fetch premium price for primary collectors and will ensure fair trade. It is therefore, essential to develop criteria & indicators for potential NWFPs species of the region for certification.

FSC Certification of NWFPs in Nepal
The collection and sale of NWFPs represents a potential long-term source of income for local villagers. In January 2005, the Rainforest Alliance awarded FSC certification to FECOFUN, whose members harvest their forest botanicals responsibly to ensure long-term availability of their natural resources and
maintain forest health. They then sell their wild-crafted ingredients to the international natural products industry, which so far has been quite responsive. The villagers' certified essential oils and hand-made paper are now available in the US and UK [Source: Rainforest-Alliance Newsletter, March 2007]

**Specialized Agencies Catering to the Emerging Needs of NWFPs**

Specialized agencies such as R&D institutes, microfinance institutions (MFIs) and certification agencies have emerged to address the research, capital and certification needs of stakeholders associated with NWFPs. There are also institutions specifically dedicated to oversee the interests of any individual product or product types, although most of these have a generalized approach ensuring the overall development of NWFPs.

Some of the specialized agencies catering to the needs of the Asia-Pacific region are:

- Ayurvedic Drug Manufacturers Association of India (ADMA) and Essential Oil Associations of India).
- Consortia (Global NTFP Partnership to which many National and International level NGOs, corporate entities, governments and donors are members, MAPSCON-India).
- Networks (IDRC and IFAD-supported International Network for Bamboo and Rattan [INBAR]; Viet Nam NTFP Network; IUCN-supported NTFP Network in South and Southeast Asia, WWF-supported Global Forest & Trade Network,
- ANSAB-Nepal, Honeybee Network-India.
- Others: IFOAM, FSC (Forestry Stewardship Council), service providers for the commercial enterprises.

**References**


Chapter 2
Community-Based Forest Management Stimulating Community-Based Forest Enterprises: A Key to Build Community Resilience

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Introduction
Historically, communities essentially own all forests. During the last five centuries, almost all the forests were claimed by the state. However, governments are increasingly recognizing local ownership and control of forests, forest tenure arrangements remain dispute or unclear in many places, including low, middle and high-income countries (FAO, 2016). The world’s total forest area in 2010 is estimated to be just 4 billion hectares corresponding to an average of 0.6 ha of forest per capita (FAO, 2010). In 2005, 80% of the global forest areas are publicly owned, 18% was privately owned and 2% was classified as other ownership including unknown and disputed ownership (FAO, 2010).

Community based forest management (CBFM) started during last three decades in the world. Some CBFMs have progressed well and some have faced numerous challenges, and one of the main bottlenecks for progressing CBFM is not having clear tenure rights. Community based forestry enterprise (CBFE) will be difficult to progress unless forest resources are handed over to the communities for management and utilization with clear tenure rights. Having clear tenure rights will enable communities to form groups and manage forest resources sustainably, hence stir to establish CBFE. Viable CBFE can enable communities to generate income and enhance their economy, furthermore, it will contribute to social, intuitional, natural and human capitals to communities and make them resilient.

This paper focuses on two aspects (i) clear tenure ship is critical for developing community based forest management eventually establishment of community based forestry enterprises and (ii) CBFM and CBFE can both contribute and build economical, social, institutional, natural, and human capitals, which are vital for building community resilience. The first few sections of this paper present an overview of global CBFM and tenure systems, development of CBFE, contribution of CBFE to building community resilience looking at different components such as social, economic, natural, institutional and human capitals or resilience, and lastly points out pertinent challenges, recommendations and ends with conclusion.
Global Scenario of CBFM and Tenure/Rights

During the 1970s and 1980s, smallholder and community-based forest management emerged in response partly to a perceived failure of the forest industry development model to lease to socioeconomic development, and partly to the increasing rate of deforestation and forestland degradation in developing countries (FAO, 2016). CBFM is popular in sub-Saharan Africa, Asia and the pacific and Latin America. It is important to highlight the CBFM development and its tenure rights in different regions, and stress clear tenure system is critical for the success of the CBFM and eventually initiating and establishment of CBFE.

CBFM in Africa and Tenure Rights

In sub-Saharan Africa, CBFM is underway in more than 35 countries mainly due to enabling policies and legal instruments, and in 2002, about 16% of the total forests area was under it (FAO, 2016). Cameroon, Central African Republic and United Republic of Tanzania have evidently reformed forest policy and legislation given clear tenure and rights to communities to manage and utilize forest recourses (Table 1). About 6% of forestland is under the CBFM having potential to establish CBFE and contribute to build community resilience.

Table 1. Extent of CBFM in Africa and tenure/rights

<table>
<thead>
<tr>
<th>Country</th>
<th>Forest Land (million ha)</th>
<th>Forest land under CBFM (million ha)</th>
<th>% of forest land under CBFM</th>
<th>Tenure /rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>58.48</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cameroon</td>
<td>19.92</td>
<td>1.18</td>
<td>5.9</td>
<td>Forest law 1994 enabled community to acquire the exclusive rights to manage and use up to 5000 ha for 25 years contract.</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>22.61</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Congo</td>
<td>21.28</td>
<td>0.44</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>Democratic Republic of the Congo</td>
<td>154.14</td>
<td>0</td>
<td>0</td>
<td>August 2014, the Prime Minister has signed a degree to empowering communities to access forest resources.</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>12.30</td>
<td>1.36</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Forest Land (million ha)</td>
<td>Forest land under CBFM (million ha)</td>
<td>% of forest land under CBFM</td>
<td>Tenure /Rights</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------</td>
<td>-------------------------------------</td>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Gabon</td>
<td>22.51</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Gambia</td>
<td>0.42</td>
<td>0.05</td>
<td>11.9</td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>3.47</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Togo</td>
<td>0.39</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>United Republic of Tanzania</td>
<td>31.35</td>
<td>21.00</td>
<td>67.0</td>
<td>Policy and legislation of 1999-2002 confirms management and ownership of community forest with agreement between Government and communities.</td>
</tr>
<tr>
<td>Zambia</td>
<td>49.47</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>396.34</td>
<td>24.03</td>
<td>6.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Forty years of community-based forestry – A review of its extent and effectiveness, FAO, 2016. CBF term from source is rephrased as CBFM

**CBFM in Asia and the Pacific and Tenure Rights**

In Asia and the Pacific, about 16 countries have a total of 185 millions hectares of forestland under the CBFM accounting to 34 % of total forestland (FAO, 2016), having potential to establish CBFE. In Asia, more than 300 million hectares of forestland is managed by communities (ICIMOD, 2011). The Asian countries have in common is the most forests are legally under state control and CBFM is generally involve some form of devolution of responsibility for forest management. Some countries have clearly shown communities having rights over forest resources (Table 2).
Table 2. Extent of CBFM in Asia and the Pacific

<table>
<thead>
<tr>
<th>Country</th>
<th>Forest Land (million ha)</th>
<th>Forest land under CBFM (million ha)</th>
<th>% of forest land under CBFM</th>
<th>Tenure /rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>123</td>
<td>41.90</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>2.52</td>
<td>0.27</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>2.73</td>
<td>0.080</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Forest and Nature Conservation Rules and Regulations 2017, clear gives rights to community forest management group (CFMG) over forest resources including sand and stones.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>11.12</td>
<td>0.25</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>181.38</td>
<td>108.91</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>68.43</td>
<td>23.20</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>131.2</td>
<td>0.84</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Lao</td>
<td>18.68</td>
<td>5.90</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>18.48</td>
<td>n.a.</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td>12.55</td>
<td>3.15</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Myanmar</td>
<td>20.41</td>
<td>0.05</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td>6.01</td>
<td>1.87</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Policy and legislation enabled allocation of forest land to CFUG for management and use resources.</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>25.33</td>
<td>25.08</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>18.08</td>
<td>10.96</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>17.22</td>
<td>0.54</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>13.52</td>
<td>3.81</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Forty years of community-based forestry – A review of its extent and effectiveness, FAO, 2016. CBF term from source is rephrased as CBFM and also added Bhutan in the list.

CBFM in Bhutan is more favourable due to clear policy and legislation. However, there are some limitations with regard to expansion of areas, since there is a cap for forest area to be allotted to communities. As per the Forest and Nature...
Conservation Rules and Regulations 2017, “the maximum ceiling of CF area to be allotted to individual household (hh) shall be as follows: a) mixed conifer/blue pine forest 3 ha/hh; b) Chirpine forest 4 ha/hh; c) mixed broadleaved and other forest type 5ha/hh.”

Nepal is pioneer in CBFM and there are already evident of growing CBFE. CBFM is more advanced in Nepal due to enabling policies and legal in place. About 10 million people or one third of the population of Nepal are officially engaged in the governance of community forests. Forest user groups have access, extraction, exclusion and management rights over community forest based on the provision of the operational plan (Karnel, 2009). In Nepal forest user groups can act as independent, automatous and self-governing institutions responsible for forest management utilization.

Papua New Guinea has demonstrated 99% forest is managed by communities, and also has clear tenure rights on conditions government has right to monitor harvestings and CBFM operation as per the agreements.

The most popular CBFM in India is a joint forest management (JFM). JFM is a public forest where both government and local communities are involved in forest management particularly for regeneration of degraded forests through effective protection, sharing of produce and improving livelihoods opportunities of forest dependent communities. Though there are clear responsibilities for communities, but there is a limited right for the communities to be involved and initiate. The National Forest Policy 1998 of India states that “the holders of customary rights and concessions in forest areas should be motivated to identify themselves with the protection and development of forests from which they derive benefits. The rights and concessions from forests should primarily be for the bonafide use of the communities living within and around forest areas, especially tribal.” In such situation, CBFE can be initiated in limited manner. In India, more than 23 millions hectares comprising 3% of total forest land is under the CBFM, potential to establish CBFE.

CBFM or community forestry can be implemented in Thailand in the economic zone, which consists of degraded forests suitable for cultivation of tree crops and plantation. Community forestry policy has not been enacted in Thailand. However, community forestry programme exist on land of every legal status including public land outside the permanent forest areas and national forest reserves or state forests based on informal agreements between local government officials and villagers. In such situation, though the CBFM exist, there is no clear tenure or rights for the villagers. In this sense, tenure system is not clear, yet communities are encouraged to manage forest resources. But big peril is that the government can take back the rights over the resources from communities at anytime. In such situation, CBFE development will be very difficult for long-term
sustenance. However, short term CBFE may emerge but its contribution to building community resilience may be difficult.

**CBFM in Latin America and Tenure Rights**

A new wave of land reforms, initiated in the 1980s, is unfolding in forest landscapes for forest dependent people in Latin America (FAO, 2016). Latin America has tenure systems resulting different governance systems. In Mexico more than 80 % of the country is under the CBFM or under the control of communities.

Table 3. Extent of CBFM in Latin America and tenure rights

<table>
<thead>
<tr>
<th>Country</th>
<th>Forest Land (million ha)</th>
<th>Forest land under CBFM (million ha)</th>
<th>% of forest land under CBFM</th>
<th>Tenure /rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td>57.2</td>
<td>14.8</td>
<td>25.9</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>519.5</td>
<td>134.1</td>
<td>25.8</td>
<td>2009 community and family forest management were provided with legal back up, allowed to have management plans</td>
</tr>
<tr>
<td>Colombia</td>
<td>60.5</td>
<td>29.9</td>
<td>49.4</td>
<td></td>
</tr>
<tr>
<td>Ecuador</td>
<td>9.9</td>
<td>7.6</td>
<td>76.8</td>
<td></td>
</tr>
<tr>
<td>French Guiana</td>
<td>8.1</td>
<td>0.7</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>Guatemala</td>
<td>3.7</td>
<td>0.5</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>64.8</td>
<td>38.7</td>
<td>59.7</td>
<td></td>
</tr>
<tr>
<td>Nicaragua</td>
<td>3.1</td>
<td>3.0</td>
<td>96.8</td>
<td>Encouraged indigenous people to engaged in sustainable forest management</td>
</tr>
<tr>
<td>Peru</td>
<td>68.0</td>
<td>13.1</td>
<td>19.3</td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td>46.1</td>
<td>30.6</td>
<td>66.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Forty years of community-based forestry – A review of its extent and effectiveness, FAO, 2016. CBF term from source is rephrased as CBFM

Nicaragua has 3 millions hectares of 3.1 forestlands about 96.8 % under the CBFM. Brazil has 134 million hectares, which 25.8% of the total forestlands (Table 3). More than 66 % of forestland is under the CBFM in Latin America
(Table 3), which means has huge potential to establish CBFE and eventually make the community resilient to disaster.

**Global extent of CBFM and Tenure Rights**

As mentioned by FAO report on forty years of community-based forestry review (2016) that in 52 countries, government administered forest is about 2,409.8 million hectares comprising 73% of the total forest area. 416 millions hectares of forest area comprising 12.6% of total forest area is owned by indigenous peoples and local communities, which mean equivalent number of communities have opportunities to develop CBFE and build resilience. Generally, tenure systems for forest resources are becoming clearer as CBFM progresses, ultimately favourable for CBFE establishment and development. Twelve countries in tropics (Table 4) where tenure transition is under way, community rights are recognized on 82 million hectares of community owned or managed forestlands, in such forests, robust CBFE have already emerged (Monlar et al, 2011).

Community forest management in Bhutan is expanding and with recent revision of Forests and Nature Conservation Rules and Regulations 2017, communities have rights over sand and boulder within the CF area. More than 34% of rural household population are involved in community forest management having huge potential to established CBFE in Bhutan.

In Nepal, forest act and regulations provide enough space for other civil societies and private sector in the development of community forests and promotion of forest enterprises (Karnel, 2009). Although security of tenure may be necessary for establishment of CBFE, but it looks, it is not sufficient in itself. Other factors need to be addressed at the same time, it is postulated that the interactions among tenure, regulatory frameworks and governance are critical (FAO, 2011).

CBFM and CBFE can be very profitable where tenure is secured and clear. Secure tenure is a fundamental element in achieving improved livelihoods and sustainable forest management. Having enabling environment for establishment and development of CBFE will definitely contribute to economy of communities.

**Community-Based Forestry Enterprise Development**

Glimour (2016) stated that in many countries, CBFM initially focused on providing communities with access to subsistence goods such as NWFPs, fuelwood and timber. However, over the time, as CBFM matures and comprehends sustainable resource management and starts excess production, they look for market to sell products. In recent time, CBFMs are even exploring to generate income through payment for environment services (PES). This is where the enterprise ideas emerged with the communities and move from managing their forests largely for subsistence to managing them for both subsistence and commercial purposes. Forestry in general and community forestry in particular needs to adapt to such changes, and develop new products and services to remain in business (Malla, 2009).
A survey of 20 tropical-forest case studies conducted in 2007 showed returns of 10-50% from wood-based and NWFP activities (Monlar et al., 2011). Additionally, rising prices for natural wood and NWF products and emerging markets for forest services favoured establishment of more CBFE. CBFE is generally local and fosters social cohesion and possibility of greater equity. Most of the CBFE being local, apply local traditional knowledge in the operations that keeps local culture alive.

Community based forestry enterprises have the potential to contribute to better and sustainable management of forest resources, along with providing income and employment opportunities to poor and disadvantage groups (Oberndorf et al., 2006). But clear tenure rights for the communities are critical for expansion of CBFE. Where the communities have tenure rights (Table 4), there is no doubt that CBFE development will not take place. Globally, as stated in Table 4 through case studies, it has shown huge potential to expand CBFE. As already indicated in the earlier CBFM in different regions that tenure rights are becoming more clearer and favourable for communities, so CBFE will grow and become more enterprising generating income and realizing other benefits, which could contribute to build community forest resilient or disaster SMART. While commercialisation and enterprise development is increasingly on the agenda of communities, they face series of market, bureaucratic and other constraints. Therefore, it is important to develop effective business services, promotion of market linkages, legally enshrined in forest tenure rights and appropriate institutional structures.

Table 4. Potential for expansion of enterprises in forest areas where communities have tenure rights

<table>
<thead>
<tr>
<th>Country</th>
<th>Case-study area ('000 ha)</th>
<th>Key mechanism</th>
<th>Area of similar forest resources/ownership transition (in 000 ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia (1 case study)</td>
<td>20</td>
<td>Hydropower watershed basin</td>
<td>400</td>
</tr>
<tr>
<td>Mexico (3 case studies)</td>
<td>100</td>
<td>Communities with forest management plans</td>
<td>14,000</td>
</tr>
<tr>
<td>Central America (3 case studies)</td>
<td>500</td>
<td>Community concessions</td>
<td>3,000</td>
</tr>
<tr>
<td>Amazon region (3 case studies)</td>
<td>100</td>
<td>Indigenous territories, associations or</td>
<td>30,000</td>
</tr>
<tr>
<td>Country</td>
<td>Case-study area (‘000 ha)</td>
<td>Key mechanism</td>
<td>Area of similar forest resources/ownership transition (in 000 ha)</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nepal (2 case studies)</td>
<td>3</td>
<td>Forest user group</td>
<td>1,000</td>
</tr>
<tr>
<td>India (1 case study)</td>
<td>70</td>
<td>Joint forest management, community forestry/agroforestry</td>
<td>20,000</td>
</tr>
<tr>
<td>West/Central Africa (3 case studies)</td>
<td>53</td>
<td>Village forests</td>
<td>4,200</td>
</tr>
<tr>
<td>East Africa (1 case study)</td>
<td>2</td>
<td>Village forest reserves and joint forest management</td>
<td>3,342</td>
</tr>
<tr>
<td>China (1 case study)</td>
<td>0.3</td>
<td>Village bamboo forests</td>
<td>4,000</td>
</tr>
<tr>
<td>Philippines (1 case study)</td>
<td>10</td>
<td>CBFM plans</td>
<td>1,570</td>
</tr>
<tr>
<td>Papua New Guinea (1 case study)</td>
<td>10</td>
<td>Customary lands</td>
<td>10,000</td>
</tr>
<tr>
<td>Bhutan (1 case study or entire CF in the country)</td>
<td>76</td>
<td>Community forest management groups</td>
<td>76</td>
</tr>
<tr>
<td>TOTAL</td>
<td>944</td>
<td></td>
<td>82,588</td>
</tr>
</tbody>
</table>


The CBFE are benefiting the local and low-income producers, who are unlikely to compete in export markets for commodity-grade timber, especially against the low-cost wood derived from industrial plantations. In most of the developing nations, domestic wood consumption is more than 95% of total production, indicating large potential market for low-income produces such as CBFM and small forestland holders. CBFE though generally cannot compete in global market, however, can find place in niche markets. As identified by (Monlar, 2011), the potential competitive markets for small and medium forest enterprise can fit and catch the niche market potential (Table 5). Community forests enterprises engaged more than 110 millions people managing 378 millions hectares of natural forest worldwide (Karnel 2009).
Table 5. Niche market potential for CBFE

<table>
<thead>
<tr>
<th>Niche market potential</th>
<th>Market Potential for low-income producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-value timber</td>
<td>Communities with secure rights</td>
</tr>
<tr>
<td>Pulp wood</td>
<td>Joint ventures, leasing the government land</td>
</tr>
<tr>
<td>Certified wood</td>
<td>Export market linkages (high value wood products)</td>
</tr>
<tr>
<td>NWFPs</td>
<td>Organise collectors with own intermediaries, added value</td>
</tr>
<tr>
<td>Processing enterprises</td>
<td>Group enterprises, finished products, where there are good market linkages</td>
</tr>
<tr>
<td>Watershed biodiversity services</td>
<td>Payment for protection of water sources and watersheds, even wildlife habitats, nature-based eco-tourism</td>
</tr>
</tbody>
</table>


Besides assured economic benefits from CBFM- CBFE, there are also other substantial benefits, which are important to communities, such as building social, natural, institutional and human capital making communities strong and resilient to disasters. The next section will focus more on how the CBFM and CBFE can bring more benefits besides income generation or economy and contribute to community resilience.

Community-Based Forest Enterprise for Community Resilience

The concept of disaster resilience has gained a wide interest and has become more popular especially after the adoption of the *Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters* (Mayunga, 2007). Since the adoption of the Hyogo Framework, the main goal of hazard planning and disaster risk reduction has slightly shifted to focusing more on building community resilience rather than only reducing vulnerability. The abundance of definitions of disaster resilience and the fact that this concept is shared by many disciplines makes it difficult to have a common definition or explanation. Therefore, it is important to set understanding of resilience that will form a basis for discussions in this paper. In this paper, the concept of community disaster resilience is referred to as the capacity or ability of a community to anticipate, prepare for, respond to, and recover quickly from impacts of disaster (Mayunga, 2007). Community resilience is like a muscle which, when exercised, builds both strength and flexibility (Wilding, 2011).

In this paper, a capital-based framework which includes the five major forms of capital; *Social, Economic, Natural, Institutional and Human*, are used to analyse how Community-based Forest Management (CBFM) promotes Community-based Forest Enterprise (CBFE), which contributes to building community resilience during the time of disaster. Generally, most of frameworks conceptualize disaster resilience in the same way, in which they all focus on similar factors that could
reduce vulnerability and increase community resilience. Such factors include economic resources, governance, information and knowledge, support and supportive networks, access to services, and shared community values (Mayunga, 2007).

The conventional wisdom is that the more the economic opportunities the community has, the more potential it possess for reducing disaster impacts; hence the more resilient the community becomes. The essence of CBFM and CBFE are for the development of a sustainable community economy through sustainable management of forest resources that is handed over to the communities with clear tenure and rights. However, while managing the group-based forest for economy, other essential benefits such as social, natural, institutional and human spews (Figure 1).

This modified from Mayunga capital-based framework is used to assess how CFBM and CBFE can contribute to build community resilience during the time of disaster.

![Figure 1. Conceptual Framework on the relationship of Capital Domain and building Community Resilience (Adapted from Mayunga, 2011)](image-url)
Each capital domain is essential and indispensable for building the community resilient. Individual domain contributes to community in different presents but collectively adding to build community robust during the time of disasters. It is discuss below how individual capital contribute in different forms and levels.

**Social Capital – Resilience**

Social capital basically means building trust, setting norms to operate and building networks or networking or connecting people to people through certain means. Four features are important: relations of trust; reciprocity and exchanges; common rules, norms, and sanctions; and connectedness in networks and groups (Pretty, 2003). In Nepal, where the FUG is made up of a small number of toles, social cohesion is seen to emerge more easily, especially where users have similar livelihoods and levels of dependency on the forest (Baginski et al, 2003). CBFE can build community resilience through strengthening social capital. a community with a lot of bonding social capital but no bridging capital is not very resilient when faced with an unfamiliar problem – it doesn’t know who to ask … and it is important to know who to ask who is not from your local community if you are going to be more resilient (Pete Ritchie, Farmer and One Planet Food programme, 2011).

When groups have trust amongst the members, set and agreed norms to operate, it is eminent the community will respond when there is a disasters, this is how the CBFM and CBFE can contribute to building social capital. In the context of community resilience, it reflects the quantity and quality of social cooperation. For instance, community ties and networks are beneficial because they allow individuals to draw on the social resources in their communities and increase the likelihood that such communities will be able to adequately address their collective concerns. Social capital is a source of community cooperation and coordination, keeps group members connected. Scholars of commons and institutional theorists have shown that social capital facilitates a range of cooperative actions including crafting of institutions for sustainable management of natural resources at the community level (Ostrom, 1992).

Social capital is not as smooth as we think, but it is also a big challenge to ensure women or disadvantage group member benefits the same way and in equal proportion as men or richer or powerful section of people does while their attachment to natural resources is even more significant. Rules and norms can also trap people within harmful social arrangements, and the role of men may be enhanced at the expense of women. Some associations may act as obstacles to the emergence of sustainability, encouraging conformity, perpetuating inequity, and allowing certain individuals to shape their institutions to suit only themselves; in this sense, social capital can also have its “dark side” (Pretty, 2003). It is clear that FUGs in Nepal can offer a valuable institutional basis for supporting the
development of the poorest members of rural society. There are great potential to improve livelihoods through credit facilities. Inclusive decision-making practices can help poorer members gain confidence in expressing their needs (Baginski et al, 2003).

There is evidence that high social capital is associated with improved economic and social well-being. Households with greater connectedness tend to have higher incomes, better health, higher educational achievements, and more constructive links with government (Pretty, 2003). Communities that have higher levels of social capital are more likely to overcome opportunistic behaviors and enforce management rules (Adhikari and Faclo, 2009). So, social capital can make communities more resilient.

Trust and norms of the group can also promote and strengthen good governance practices. Community Forestry has exhibited better governance in Nepal. However, practice of good governance principle is still challenging because of capacity of the group members. A number of studies (Malla, 2000; Pokharel, 2004; Pokharel et al, 2005; Dev et al, 2003) have revealed that CFUGs are increasingly being more responsible, accountable, transparent, compliant of rules, laws and decisions, decentralization and devolution of power and authority, defined roles and responsibilities, pursuant of participatory decision-making, gender sensitivity, equitable representation and user balance (Koirala et al, 2008). Good governance has been considered a necessary condition for overall economic advancement (FAO, 2011).

In order to have good governance principles practice in CBFM, substantial capacity building is required for key stakeholders including communities and agencies supporting the communities to establish CBFM or CBFE.

**Economic Capital – Resilience**

Having income, saving and investment can promote adequate business environment, provision of business development services and better access to finance, will more likely that CBFE can proliferate and succeed, leading to enhanced community resilience and empowerment. However, forest-based enterprises frequently face constraints related to their business performance (Tomaselli and Hajjar, 2011). In Nepal, it was demonstrated that CBFE could build economic capital. A furniture enterprise owned by community forest user group (CFUG) of Bharkhore CFUG in Prabat district in Nepal is successful. Main reasons for the success are employment generation, earn income and saving, most profound reason is the enterprise is based on local resources, local skills and a local market, all of which are easily accessed (Obrndorf et al, 2007).

Economic capital means financial resources that people use to achieve their livelihoods. In CBFM context, sustainable management of forest resources means
income generation for the group. Income can only generate by having an idea of enterprise, which in this paper it is called CBFE. Economic capital means savings, income, investments, and credit. The contribution of economic capital to building community resilience is straightforward that it increases the ability and capacity of individuals, groups, and communities to absorb disaster impacts and speed up the recovery process. Economic capital is an important determinant of community resilience (Mayunga, 2007). The more stable and growing economy will generally enhance resilience, while an unhealthy or declining economy is an indicator of increasing vulnerability. Among other factors, economic capital can thus be measured through household income, property value, employment, and investments.

**Natural Capital – Resilience**

In CBFM, natural capital refers to natural resources such as trees, sand, stone and boulders, services (refer PES), etc. which are handed over to the communities for management and utilization. In the context of disaster resilience, natural resources such as forest resources including vegetation cover play an important role in protecting the communities from natural disasters. Once the forests or natural resources are handed over to the communities, they ownership and careful in using it. Temphel et al (2005) states that once the forest is handed over to CFMG, there is increase vegetation cover in the CF area. The increased in vegetation cover is not only because of less forest fire incidences; CFMG have planted more seedling in barren and degraded areas. The incidence of forest fires has been reduced in CF areas (Temphel and Buekeboom, 2006). Community forests handed-over to community are natural capital. Evidences show that there are positive changes in both forest condition and the availability of forest products, with a concurrent reduction in the time spent for collecting forest products. Thousands of FUGs in Nepal have planted and protected denuded hills, carried out forest management and silvicultural operations, utilized and marketed various forest products for their livelihoods (Pokharel, 2003).

Once forest area is handed over to communities, they have not only taken up the responsibility of improving the forest condition, they have also shown that they want to protect it (Norbu, 2008). Once the forest resources are managed sustainably, it sustains all forms of life and act as food safety as well as environment protection, which makes community resilient. However, having lot of resources does not really address equity issues, there are ample chances that poor sections of the group may be left out, which make more vulnerable contrast to building resilient.
**Insititutual Capital - Resilience**

CBFM is commonly planned and operated by local people. Local people are the one who knows most about their own livelihood systems, and they will have to value and develop their knowledge and skills, put into theirs hands the means to achieve self-reliant (Pretty and Scoones, 2000). Well-governed CFMGs operating under an enabling policy and legislative framework can become viable local institutions for the sustainable management of forests. The key to creating and supporting such viable local institutions lies in the good group governance. By creating robust institution building means strengthening the applications of good governance principles (Phuntsho et al, 2011). When the local institutions such as CFMG are more worthwhile, resources can be managed sustainably building the natural capital. So all the capitals are complementary and make the community more resilient at the time of disasters.

When local communities, when granted sufficient property rights over local forest commons, can organize autonomously and develop local institutions to regulated the use of natural resources and manage them sustainably (FAO, 2016). Once the institution at the local level becomes vibrant and pro-active group, a collective action can be very powerful and productive. When there is a disaster in the community, firmed institutions can response in-group. However, the institution capital can be operating well only when the group practice good governance principles.

**Human Capital –Resilience**

Economists define the concept of human capital as the capabilities both inborn and resultant or gathered, embodied in the working-age population that allow it to work productively with other forms of capital to sustain the economic production (Smith et al., 2001). Since the inception of the Community Forestry Programme a number of trainings, workshops and exposure visits have been conducted for a number of organizations and individuals, community level, government and non government organization level that has increased knowledge and skill related to forest silviculture, community development, organizational management and leadership development, all of which are basically human capital (Pokharel, 2003). Human capital is probably one of the most important determinants of resilience among other forms of capital. Having an adequate, skilled, and trained work force is a prerequisite for economic development and capacity building. This means that the more the human capital available in the community, the more the capacity for building resilience (Mayunga, 2007).

In CBFM sense, human capital can number of people or members in the group. Of course, effective human capital can only possible when the group has good cooperation and coordination with good governance principles practices.
Conclusions

Globally, CBFM started about three decades in the world. CBFM has progressed well but some are not, due to not having clear tenure rights for the communities to management forest resources. Although security of tenure may be necessary for establishment of CBFE, it is not sufficient, other factors need to be addressed at the same time interactions among tenure, regulatory frameworks and governance are critical. Secure tenure is a fundamental element in achieving sustainable forest management and so for building community resilience. CBFM initially focused on providing communities access to subsistence goods, but overtime, when CBFM matures and started excess production, they look for market to sell products, then the CBFE ideas emerge and initiate. CBFE besides assured economic benefits, there are other substantial benefits, such as social, institutional, natural and human capitals, which are critical for the community, which can contribute to make community more resilience to disasters.

The five capitals are essentials, if the community has to be resilient to disasters. A capital based framework, which includes social, economical, institutional, natural, and human capitals are used to analyse how CBFM promote CBFE, which contributes to building community resilience. The essence of CBFM and CBFE are group-based forest management for economy. However, other essential benefits from other four capitals spew. Each capital domain is essential and indispensable for building community resilience.

Social capital is a source of community cooperation and coordination, which keeps group members connected and together through trust, norms and networks. It also has challenge to be inclusive. Women or disadvantage group members benefit the same way in equal proportion as men or richer or powerful section of people is a wish, while richer and powerful people or group will have more attachment to natural resources and is even more significant. Some associations may be as obstacles to the emergence of sustainability, encouraging conformity, perpetuating inequity, and allowing certain individuals to shape their institutions to suit only for themselves. In such situation, good governance principle practice in the CBFM is essential and is a challenge, which could need capacity building for stakeholders involved. Economic capital is a backbone of building community resilience. Having income, saving and investment are adequate to promote business environment. In CBFM context, sustainable management of forest resources means economy for community. The more stable and growing economy will generally enhance resilience. Natural capital is the forest resources that are handed over to communities. Once the forest resources are managed sustainably, it sustains all forms of life and act as food safety for community. Equity issue is always there when any programme is planned and implemented with and by groups similar to CBFM. So, if equity issue is not reckoned and not properly
addressed, it may hamper to build community resilience. Institutional capital is viable under an enabling policy and regulatory framework. Robust institutional development means strengthening the application of good governance principles. Human capital is one of the most important determinants of resilience. Having adequate, skilled and trained work force is a pre-requisite for economic development and capacity building that means the more human capital available in the community, the more capacity for building resilience.

In conclusion, all the capitals are complementary to each other and interconnected, and should remain interconnected to make community more resilient. Good governance principles practices by the group are absolutely vital to make all the capitals effective.

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Chapter 3
Community-Based Non-Wood Forest Products in Afghanistan

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Introduction

Over 80% of people in Afghanistan depend directly or indirectly on natural resources to meet their livelihood requirements (UNEP 2009c). This calls for decentralized community based natural resource management. Decentralized systems and local ownership will lead to greater efficiency, effectiveness and equity. The closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation, and use of local knowledge. Besides, "uncertainties" in ecosystem dynamics require close monitoring of and quick responses to the problems and crisis arising in the process. Forest and Non-wood forest products (NWFPs) play an important role in lives of local communities and all urban people of Afghanistan for centuries. For instance NWFPs are main sources of income, food, medicinal and aromatic products, fodder, fiber, and also used for local construction materials as well as supply raw material and support enterprises. NWFPs often are a safety net for poor people whenever needed as a food security measure. NWFPs offer a lifeline for many rural people in Afghanistan for households. Poorest of the poor and landless turn to the Common Property Resources (CPR) in forests and elsewhere for the materials and produce with which to make a living and often it is NWFPs. However, NWFP is used for handicrafts, dyes, waxes, tools, clothing, Medicines, food and fodder in local and urban areas of Afghanistan.

NWFPs have a great potential for income generation for the poor living in remote areas in Afghanistan. At present several case studies have demonstrated that NWFPs can contribute to income generation while managing the resources in a sustainable manner. However, the potential needs further consolidation and realization to provide local people with a stepping stone out of poverty. Recognizing the present situation, this strategy has been developed with the aim of contributing to poverty reduction through NWFP development while ensuring that the NWFP resources are managed on a sustainable basis. Based on forest management law and rangeland law NWFPs has been exploited as the natural products for incomes, livelihood and making good earning through collecting, packaging and selling. Afghanistan exports NWFP to neighboring countries and international markets and has potential for generating income for food security and economic stabilization.
Non-Wood Forest Products Country Situation

NWFP in Afghanistan has multipurpose use such as for food, medicine, aromatic and cosmetic purposes. The Department of natural resource management of Afghanistan since 2005 has been implementing rehabilitation and expansion projects for sustainable management NWFP for income generation. After several years of investment on NWFP, it has helped in enhancing awareness of citizens on NWFP as a source of income for local people. It also directly contributes to national income of Afghanistan. Meanwhile Afghanistan is a major exporter of NWFP including medicinal plants in regions; each year more than 45 different species are being exporting to different countries. Reports show that during 1394 about 20 different medicinal plants (38,070,401 tons) with total value of USD 130,179,374 have been exported. Liquorices and ferula are the major export items of the country and is mainly exporting roots and extracts, continuous growth over the last five years and medicinal plants (under which Liquorices and ferula) enjoy wider recognition for the application possibilities in the pharmaceutical and confectionary industry.

Global market conditions for Liquorices, ferula and other herbal plants looks fairly good, because of the basic high quality and competition in the international markets. Mostly Pakistan, India, USA, UAE, EU (notably the UK, Italy, France, Spain, The Netherlands and Germany), Japan and Israel are the most important markets for Afghan Liquorices, ferula and other wild medicinal plants. The regional and international demand for these plants is estimated at around 20,000 tons per year. According to the latest data Afghanistan export (34,768) tons NWFP to Pakistan, India, USA, UAE, EU (notably the UK, Italy, France, Spain, The Netherlands and Germany), as value of 123,444,273 dollar in 2015.

Among them any important economic plants in the country (Table 1), cumin (Carumbulbo castranum) is one of the principal spices that are exported internationally. The valleys of Badakhshan province in northern part of Afghanistan produce the highest quality cumin in the world and the seeds of this herb have been exported along the ancient Silk Road trade route for thousands of years.

Rangeland and medicinal plants provide specific values to the development of NWFP products, handicrafts, economic development, and rural livelihood development. Besides, feeding domestic animals, rangelands are also the important or sole supplier of some critically important ecosystem services and goods in Afghanistan: providing fire wood and 19 Medicinal plants for people, and habitat for biodiversity and pastoral culture, preserving soil and water. This multiple functionality of the rangelands has gained increasing recognition by the users.
Table 1. Some Important Traded Medicinal Plants

<table>
<thead>
<tr>
<th>Parts used</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td><em>Cumin cyminum</em> (Cumin); <em>Carum caravi</em> (Caraway); <em>Medicago sativa</em></td>
</tr>
<tr>
<td></td>
<td>(Alfalfa); <em>Citrullus vulgaris</em> (Watermelon); <em>Trifolium species</em> (Clover);</td>
</tr>
<tr>
<td></td>
<td><em>Sesamum indicum</em> (Sesame); <em>Coriandrum sativum</em> (Coriander); *Nigella</td>
</tr>
<tr>
<td></td>
<td>sativa* (Fennel)</td>
</tr>
<tr>
<td>Roots</td>
<td><em>Glycyrrhiza glabra</em> (Liquorice); <em>Centaurea species</em> (Knapweeds);</td>
</tr>
<tr>
<td></td>
<td><em>Alkanna tinctoria</em> (Alkanet); <em>Anacyclus pyrethrum</em> (Akarkara)</td>
</tr>
<tr>
<td>Leaves</td>
<td><em>Anethum graveolens</em> (Dill); <em>Mentha piperita</em> L (Peppermint); <em>Cichorium</em></td>
</tr>
<tr>
<td></td>
<td><em>endive</em> (Endives); <em>Nicotiana tobacum</em> (Tobacco); <em>Thymus afghanicus</em></td>
</tr>
<tr>
<td></td>
<td>(Thyme)</td>
</tr>
<tr>
<td>Gums</td>
<td><em>Ferula assafoetida</em> (Asafoetida); <em>Astragalus</em> (Milkvetch)</td>
</tr>
</tbody>
</table>

Policy Development – Focus on Community-Based (NWFP)

According to Afghanistan national forest policy (2006) and rangeland management policy (2017) forest and rangeland resources has been decentralized and prioritized community-based management for sustainable management natural resource throughout Afghanistan. Over the next five years a different approaches of short and long term measures were undertaken in the areas of natural resource management. The strategy will be underpinned by a concerted capacity development that places natural resource management department in a facilitative and implementing positions over the next five years as it shifts custodianship of common assets in to community, identifies key areas of medium to long-term income generation for communities wholly reliant on natural resources. Investment in these sectors will allow for rapid growth of products that will contribute directly to economic growth of the country in a substantive manner.

Forest

**Strategic objective one:** Community-based forest management includes conservation, restoration, reforestation, a forestation, sustainable utilization and local-based value addition, and watersheds improvement for resilient, climate adapted and sustainable economy of rural and pre-urban communities.

**Forest Management, Rangelands and Medicinal Plants Key Indicators:** Natural forests cover an area of 1.8 million hectares representing 2.8% of total area in Afghanistan. Of the total forest area, 7,235 ha natural forests are is conserved and improved. Some of targets of development of forests are given in Table 2.
Table 2. Targets till 2021

<table>
<thead>
<tr>
<th>Forests category</th>
<th>Area (Ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation/improvement (Natural Forests)</td>
<td>50,000</td>
</tr>
<tr>
<td>Reforestation (Pistachio and Pine nut forests)</td>
<td>34,500</td>
</tr>
<tr>
<td>Urban Greenbelts</td>
<td>22,500</td>
</tr>
<tr>
<td>Agro-forestry (industrial/fast growing forests)</td>
<td>16,000</td>
</tr>
<tr>
<td>Total Expansion by the country land area till 2021</td>
<td>1,854,045</td>
</tr>
<tr>
<td>Conservation/improvement: (Natural Rangelands and Medicinal Plants)</td>
<td>493,870</td>
</tr>
<tr>
<td>Restoration of Medicinal Plants: (Licorice, Ferula, Cumin, Alkantinctoria)</td>
<td>2,500, 10,000</td>
</tr>
<tr>
<td>Watershed Management (Check dams)</td>
<td>20,000</td>
</tr>
<tr>
<td>Desertification Control/Sand-dune fixation</td>
<td></td>
</tr>
</tbody>
</table>

**Rangeland and Medicinal Plan Management**

_**Strategic objective two:**_ Community based management of rangeland and medicinal plants through strengthening community-based interventions, introducing of good practices, and up-scaling indigenous knowledge, for a better livelihood of local and herder communities, desertification control and subsequently combat negative impacts of climate change.

**Status of Community-Based Enterprise**

According national forest policy (2006) and rangeland management policy (2017) of Afghanistan, forest and rangeland resources has been decentralized and prioritized community-based management for sustainable management natural resource throughout Afghanistan.

Since 2001 General Directorate of natural resource management of Afghanistan has been mandated as a national focal agency under the decentralization system and given right of utilization and conservation natural resources for community. Immediately since 2001 approximately 500 forestry and rangeland associations which involve member of community has been established around Afghanistan and has been performed following strategic activates for sustainable management natural resources:

**Institution development**

- National forest policy
- Rangeland management policy
- procedure for establishment forestry association (community mobilization)
- Procedure for utilization medicinal plants by community.
- Procedure for distribution sapling for expansion greenery
- Development by-law for forestry association.
- Developing national natural resources management strategy (2017-2021)

**Capacity building and training program**

- Being launched training workshop for mobilization and technical awareness for sustainable management natural resources.
- Being launched value addition pistachio and pin nut training for effective exploitation and standardization packaging system.
- Being launched training workshop on method of exploitation medicinal plants and value addition medicinal plants for sustainable management NWFP

**Key activities**

- Implementation Medicinal plants rehabilitation and expansion community based projects particularly flora and liquorice projects have been implemented through national budget around eleven provinces.
- Published brochures, technical guidance and awareness program for technical exploitation and sustainable management natural resources.
- Implementation fast growing trees projects for productions wood for multipurpose.
- Implementing income generation projects community based for enhancing rural economy.
- Boost up community members technical skills through practical training in fields for sustainable management NWFP.
- Access marketing in regional and international markets for selling pistachio, pin nut, medicinal plants and NWFP.

**Development of Community–Based Commercial Enterprise**

According the content of national natural resource management strategy of Afghanistan (2017-2021) particular attention given to development NWFP community based commercial enterprise and now technical research with close collaboration of other stakeholder is progresses for value addition on pistachio fruits, pin nut and medicinal plant and other sub product of NWFP community based in Afghanistan, currently a technical team from forest department and medicinal department of Afghanistan is working on developing comprehensive technical concepts and training manual for building technical capacity of
community members to generate skill on local community people for method of technical exploitation, processing approach and standardization the products and technical management NWPF for selling the products in domestic and international markets. The program will be a roadmap for supporting community based commercial enterprise, building rural economy and enhancing food security around Afghanistan.

Successful Model of Community-Based Commercial Enterprise

According to national forest policy and rangeland management policy community based management, productions and protections NWFP is being prioritized by state of Afghanistan. State of Afghanistan always have particular attention for increasing NWFP productions through community and provide technical facilities to improve community technical capacity, knowledge building, and providing technical tools for processing and adding value for NWPF products around the country. Since 2016 training for capacity building such as NWFP management on field, storage system, value addition pistachio and value addition medicinal plants community based is implementing with community members for sustainable productions, standardizations and avoiding from losses around the country this is an initial concrete steps for management NWFP in Afghanistan moreover in 2017 technical manual for effective management NWFP has been prepared and is implementing for technical management NWPF for increasing income, better livelihood and increment earning through local community meanwhile general directorate of natural resource management implement expansion projects such as Liquorice, flora, pistachio and peanut projects for extension and increasing more productions for enhancement economic and growing national economy in Afghanistan.

Features for a Successful CBCE

The national natural resource management strategy 2017-2021 of Afghanistan designed and developed with comprehensive features Community based forest, rangeland, medicinal plants and Non wood forest products (NWFP) management through strengthening community-based interventions, introducing of good practices, and up-scaling indigenous knowledge, for a better livelihood of local and herder communities, desertification control and subsequently combat negative impacts of climate change.

The ultimate result of this objective is to promote engagement of local communities in community based practices in NWFP management. As such, community-based sustainable management conservation, restoration, improvement, development and commercial enterprise will be used as mechanisms to manage sustainable utilization of rangelands and wild medicinal
plants, begin to systematically address sand-dune fixation in order to support and develop sustainable livelihoods of local communities and nomads. This will require indigenous knowledge management and up-scaling of good practices, and local communities to actively conserve and maintain NWFP. This will be done by establishing community-based organizations such as Rangeland Management Associations for undertaking community based rangeland assessment and developing rangeland management plans. Innovative approaches to engaging communities in watershed management, NWFP management commercial enterprise and the establishment of local producer groups and associations will be undertaken through mobilization and capacity building. Local communities will be capacitated to take local knowledge for sustainable management NWFP will be capacitated some efficient technicians involve for management and handling commercial enterprise NWFP community based for boost up income, livelihood and earning.

**Strategy to Replicate**

Strategic plan is national mandate for NWFP development in the country and therefore sustainable forest management will be the lead and driving force in coordinating the implementation of this strategy.

1. Policy, legal and regulatory frameworks should form the basis for further development of NWFP program based on the necessity of time.
2. NWFP harvesting should be based on the principle of sustainability (resource availability and sustainable management principles).
3. Resource utilization should be community-based.

The last principle means that local communities are given the priority in collection and management of NWFP resources. However, this principle should not hamper private sector development and individual entrepreneurs. The strategic plan for NWFP development describes the overall short-term and long-term objectives followed by a more in-depth description of the strategic plan per theme, including: Legal framework, Organizations and institutions, Capacity building NWFP resource management, Marketing and trade, and Research.

**Strategic plan one:**

**Objective**

- To develop policies and legal frameworks supportive of NWFP development
- Creation of an enabling legal and policy environment to support the sustainable utilization and management of NWFPs.
Promotion of domestic and international trade in NWFPs through standardization the products and simplication of trade procedures.

Clear policy arrangements should be established at the national levels for the sustainable management and commercial development of NWFPs programs in collaboration and coordination other stakeholders.

Support decentralization of NWFP management in line with the overall decentralization policies.

**Strategic plan Two:**

**Objective**

- To streamline responsibilities, strengthen collaboration and information sharing among NWFP related organizations, institutions and stakeholders involved in NWFP use, management and trade.
- To enhance the institutional set-up and increase the efficiency and effectiveness in NWFP development.
- To enhance the agenda and priority given to NWFP development among the different organizations.

**Strategic plan Three:**

**Objective**

NWFP development is a cross-cutting issue and involves many different organizations and stakeholders particularly as users and closely collaborate with all the relevant stakeholders including agencies involved in marketing, research, product development, private sector, educational institutions and community collection groups. A clear mandate and terms of reference for the NWFP program will be developed.

**Strategic plan Four:**

To establish NWFP training and extension programs for different management levels within the government as well as for local communities in order to enhance the capacity in NWFP development, including resource management, marketing, processing, enterprise and business skills development.

**Strategic plan Five: (management of NWFP Resources)**

**Objective:**

- To ensure the sustainable management of NWFP resources
- The development of guidelines for resource assessment and NWFP management will be continued for priority species. These guidelines (if...
properly applied) will help local communities in preparing community forest management plans and can Milestones relating capacity building NWFP.

- All forest officers have a good understanding of NWFP management, marketing, enterprise development and policies.

**Strategic plan: Research of NWFPs:**

**Objective:**
- Improve technical capacity for NWFP research and establish research networks with international research institutions Milestones relating to marketing and trade of NWFPs Products.
- Implement research to backstop local communities and government institutions as well as the private sector in resource management, marketing, product development, etc.; and respond to immediate research questions related to resource assessments, ecological characteristics of NWFPs, product development, marketing and other requests.
- Ensure the timely dissemination of research information to interested stakeholders

**Conclusions**

For centuries Forest and Non-wood forest products (NWFPs) have played an important role in lives of local communities and all urban people of Afghan for centuries. NWFPs are main sources of income, food, medicinal and aromatic products, fodder, fiber, and also used for local construction materials as well as supply raw material and support enterprises. NWFPs offer a lifeline for many rural people in Afghanistan for households. Poorest of the poor and landless turn to the Common Property Resources (CPR) in forests and elsewhere for the materials and produce with which to make a living and often it is NWFPs. however NWFP is used for handicrafts, dyes, waxes, tools, clothing, Medicines, food and fodder in local and urban areas of Afghanistan. At present several cases studies have demonstrated that NWFPs can contribute to income generation while managing the resources in a sustainable manner. Also, the potential needs further consolidation and realization to provide local people with a stepping stone out of poverty. Recognizing the present situation, this strategy has been developed with the aim of contributing to poverty reduction through NWFP development while ensuring that the NWFP resources are managed on a sustainable basis. Meanwhile sustainable community based management NWFP and commercial enterprise for enriching the NWFP products and empowering rural community is given prioritized in national natural resource management strategy (2017-2021). At the meantime Afghanistan is the country to export NWFP for neighboring countries
and international markets. The NWFP is potential sources of income for food security and economy stabilization around community of Afghanistan.

References
Chapter 4
Community-Based Non-Wood Forest Products
Enterprise: Sustainable Business Model (A case study on Sundarban Honey)

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Introduction
Forest resources other than timber and fuel wood are considered to be non-timber forest product or non-wood forest product (NWFP). NWFPs provide many vital forest resources such as food, medicine, honey, essential oil, spice, resin, gum, latex, fiber and floss, bamboo and cane, broom-grass, sun-grass, mushroom, tamarind, silk cocoon, lac, khoer (catechu), etc. As the economy of Bangladesh is predominantly agricultural and about 85% of the population live in rural areas (BBS, 2014; FAO, 2003), NWFP have the significant importance for the national economy and local livelihood.

Though there is wide scope and potentials for marketing of NWFPs, there are no well developed community-based production and marketing systems in Bangladesh. In recent years in Protected Area Co-management in different natural forest ecosystem, USAID funded Climate-Resilient Ecosystems and Livelihoods (CREL) project have developed community-based alternate livelihood activities and marketing of their products including NWFPs. This community based NWFP model can be developed in all forest ecosystems, which may be sustainable for marketing as well as to alleviate poverty of local community. This study will review the major NWFPs, their present status of marketing and further scope of community based approach in sustainable marketing with special reference to honey collection and marketing from Sundarban mangrove forests.

Important NWFPs and their Uses
The forests of Bangladesh provide a wide range of NWFPs for human use. The most important NWFP’s are Bamboo, Mangrove Fish and crab, Golpata (Nipa fruticans), Sun-grasses, Honey, Wax, Cane (Rattan) and Murta (Patipata). Others are broom-grasses (Thysanolaena maxima), stones, sand, nal (Saccharum spp.), Hogla (Typha elephantine) Hantal (Phoenix paludosa), medicinal plants (barks, fruits, leaves, etc. of plant), fodder, climbers (lota), menda bark (Litsea glutinosa) etc. (Khan, 1992; FAO, 2003).

Bamboo: Of all the NWFPs bamboo is the most important one. Bamboo (Melocanna baccifera, Bambusa tulda, etc.) is often called as the poor man’s
timber. Although officially grouped as a minor forest product, it plays a crucial role in the rural economy of Bangladesh. Roughly about 6% of the total revenue of FD (as per the FD revenue record) comes from bamboo. About 50 million bamboo culms are produced by the FD from Government forests per year. It is an essential material for construction of housing for the rural people, especially for the hill people. Over 20 species of bamboo occur in Bangladesh's natural forests and village homesteads (Alam, 1982; Alam and Basu, 1988). Bamboo is used for hundreds of purposes. It can honestly be said that bamboo is required from the cradle to the coffin in parts of Bangladesh and other developing countries.

**Golpata:** Golpata (*Nypa fruticans*) is one of the most abundant NWFPs in Bangladesh, growing naturally throughout the Sundarban forest and in other coastal areas. Made from the leaves of *nypa*, golpata thatching and roofing is very common in Khulna, Bagerhat, and Satkhira districts of Bangladesh. It provides considerable revenue for the Forest Department. The demand of golpata varies directly with the price of Corrugated Iron (C.I.) Sheet in the market. With the fall of the price of C.I. Sheet, the demand for golpata declined and accordingly the harvest also declined (Khan 1992; Zohora 2011).

**Sungrass:** Sungrass (*Imperata* spp.) is the most common roofing and thatching material for temporary low-cost housing in the villages and forests of Bangladesh. Sungrass grows naturally, especially in the forests of low-lying areas, or around the denuded and barren hills unfit for growing high-quality timber trees (Khan 1992; FAO 1995).

**Honey and wax:** Honey and wax are mostly extracted from the Sundarban. Roughly 300 to 500 metric tons of honey and 50 metric tons of wax are extracted every year (Siddiqi 2001). Honey occupies an important position as a foreign exchange earner. It is internationally known and is used as food, drink, and medicine in many parts of the world. Honey and wax are produced naturally in the beehives of the Sundarban. The main bee species in the Sundarban is *Apis dorsata* but sometimes *Apis cerena* are also found (Zohora 2011). Honey is also grown in the forest regions of Chittagong, Sylhet, Cox's Bazar, and Mymensingh. Recently apiculture (bee-keeping) has been introduced in some areas of North Bengal and Mymensingh district with considerable success. Honey is probably the most promising NWFP in Bangladesh in terms of export potential, provided its production can be better organized (Khan 1992).

**Cane:** Cane (*Calamus* spp.) is a climbing plant, mostly grown in homesteads and as under growth in the low-lying areas of tropical rain forests of Sylhet, Chittagong and Chittagong Hill Tracts. Canes are used for domestic purposes by the rural people and for making baskets, mats and sophisticated furniture and luxury souvenirs. It helps in developing cottage industries in rural areas. This is one of the major export items of cottage industries.
**Murta:** Patipata or Murta (*Clinogynae dichotoma*) grows naturally in the low-lying areas of Sylhet and also in rural areas of Tangail and Dhaka districts. It can be grown artificially in other areas of the country using suitable planting material. Patipata is an excellent material for floor mats, and is extensively used by rich and poor alike. In preparing ‘Sheetal Pati’, People are using Murta. These ‘Sheetal Pati’ have both home and foreign markets (Khan, 1992; Chaudhury, 1967; FAO 1994).

**Fish and Shell:** The water bodies including rivers within the forest areas of Sundarban, Chittagong Hill Tracts, and Sylhet as well as in the coastal belts and off-shore islands under the jurisdiction of the Forest Department produces a large quantity of fish (both fresh-water and saline fish) and shell are collected by local fishermen. So, fish and shell are important NWFP's. They bring reasonable revenue for the Government; a large number of poor and local fishermen get employment through fishing in the Sundarban. These fishermen pay small fees to the Government on the basis of their catch, take the product and often sell it in the open market. This generates employment locally for poor fishermen year round and is thus important for supporting local economic activities. At the same time during the winter months (December to February) fishermen from distant areas such as Chittagong, come to the Sundarban (Dublar-char) for fishing, temporarily moving a few thousand people into the Dublar-Char area of the Sundarban. On an average the yearly catch of fish from the Sundarban is about 8,000 to 10,000 tons (Khan, 1992; Siddiqi, 2001).

**Medicinal plants:** The leaves, bark, roots, stem and fruit of many plants are commonly used as medicines in Bangladesh. Among them most common are: kuruspat (Holarrhena antidysenterica), horitaka (*Terminalia chebula*), amlaki (*Phyllanthus emblica*) and bohera (*Terminalia bellerica*), etc. (Khan, 1992).

**Stone and sand:** Stone and sand are most important NWFPs, available only in some areas of Bangladesh, such as Sylhet, Hill Tracts, and Dinajpur (Khan, 1992). Stone and sand are required for construction of highways, buildings and other infrastructural needs.

**State of NWFP Management**

There are prescribed rules and management plan for collection of major NWFPs like bamboo, cane, murta, sunglass, golpata, honey, wax, fish and crab from government forests. Harvesting of some NWFPs are strongly seasonal and some are year-round. Bamboo is harvested almost year-round at an interval of four years. There are clear directives as to what can be done and what is prohibited in connection with the harvest of bamboo. Golpata is harvested every alternate year from a given site. There are rules for harvesting the golpata leaves. Honey is collected every year but only between mid April and mid June. There are
instructions as to what portion of the honeycomb can be cut and collected to extract honey (Zohora, 2011). Thus all the major NWFPs are under some sort of management and some regulations. Collection of NWFPs from USF land, private forest and Village Common Forests is not followed by any management prescriptions.

Villagers/professional collectors usually collect honey, wild vegetables, bamboo shoots, broom grass, medicinal plants, menda bark, sungrass, wild fruits, small fish, crabs and snails and other NWFPs from surrounding forest areas for household uses and/or income. Among the non-wood forest products of the country, bamboo, cane and murta are considered as very important forest commodities and for the development of these products Forest Department has completed ‘Development of bamboo, cane and murta plantation project’ during the period 1998-99 to 2005-2006 and another project of this kind also implemented during the period 2009-2010 to 2013-2014.

Role of NWFP’s in Bangladesh Economy

NWFPs play an important role in the daily life and economy of Bangladesh’s rural Population. NWFPs contribute to the food security of the rural people by supplementing agricultural crops. People live in and around forests depend on non-wood forest products for food, shelter, fuel, fodder, medicine, and other uses. Some people solely depend on NWFP’s both for their subsistence and incomes (Mukul et al., 2016).

Among the non-wood forest products of the country, bamboo, cane and murta are considered as valuable and important forest commodities in Bangladesh. The people especially, the rural people use these NWFP’s for various purposes. About 90% needs of construction materials for village houses are being meeting from these non-wood forest products in the rural areas (FMP, 1994). Moreover, they are popularly used in making furniture, mat and handicrafts in the rural areas and also being used in pulp and paper mills as raw materials.

Despite the importance of NWFPs for rural livelihoods and the economic development of the country, policy-makers, forest managers and practitioners have not paid sufficient attention to these resources. Although a variety of NWFPs have good potential for socioeconomic development, this sector has generally been overlooked by national-level forestry programs and certainly, there is a lack of institutional arrangements and targeted strategies for the sustainable management, extraction and marketing of many valuable NWFPs. There are no clearly defined action plans or guidelines to regulate and develop NWFP harvesting and trade. Bangladesh Forest Department (BFD) lacks an NWFP inventory or monitoring program, and, therefore, has little information about stock, abundance, and marketing of NTFPs. Therefore, the market potential of
many NWFPs remains underutilized. In addition, there are no incentives for local enterprise development, which results in both over and under-exploitation of resources. There is no record of what the NWFP-related needs of forest dwellers and other forest-dependent people living in the vicinity of the forest areas.

**Policy and Plan on NWFPs**

A comprehensive and well-articulated policy and plan is vital for the development of NWFPs. Such a policy would specify the relative role of NWFPs in supporting conservation and management, the level and nature of resource use and management, product development and promotion, entrepreneurship development, socioeconomic development and poverty reduction. But the previous forest policies of Bangladesh neglected the conservation and management of NTFPs. The clear-felling followed by artificial regeneration system in the hill forest management severely degraded the NWFPs. Again, the monoculture of *Tectona grandis* was not favorable for the natural regeneration of NWFPs.

The past forest policy and management strategies in Bangladesh were timber dominant. The timber dominated forest management did not give due attention to the sustainable management of NWFPs. There are harvesting rules for some products such as bamboo but is not strictly followed. So, depletion of resources is being accelerated.

The Forest Policy of 1994 prepared as part of Forestry Master Plan (FMP) considered NWFPs as priority forest products. It gives much emphasis on biodiversity conservation, which is also applicable for the conservation of NWFPs. But restriction on collection of NWFPs is mostly non-existent; there is no effective management system and little recognition goes to replenishing the resources. However, clear-cutting followed by artificial regeneration’ with monoculture is highly discouraged and mixed plantation is getting preference over mono-plantation. Again, cultivation of cane and medicinal plants along with tree plantations is getting preference in the plantation programs. Cultivation of bamboo and murta (*Clinogynae dichotoma*) is also being emphasized.

The Forestry Master Plan envisaged that the development of NWFPs in Bangladesh will be promoted, facilitated and financed in view of their economic importance and use of the rural communities. Small-scale enterprises based on NWFPs are given special consideration for providing off-farm income and employment to the rural communities. The National Forest Policy, 1994 also includes the provisions for community participation, private forestry development, poverty alleviation and involvement of voluntary and non-government institutions in community/social forestry programs.
Developing Community-Based Non-Wood Forest Products Enterprise

Up until two to three decades ago there was little commercialization of NWFPs except bamboo and cane in Bangladesh. The local people collected most of the NWFPs for their own consumption. Now with the development of modern communication and transportation and with the increasing demand of NWFPs for urban as well as local consumption, many people have entered the marketing of NWFPs. The harvesting and sale of NWFPs are now a major business for many rural poor. But there is no well-organized marketing infrastructure of NWFPs in Bangladesh. Product development is very important to add market value to NWFPs. Again, better products are dependent on the supply of good raw materials. So, addition of market value to NWFPs needs scientific management from harvesting to transportation of the raw materials and even up to product development and sale (FAO, 2003).

From 2003, USAID funded co-management in different Protected Areas, they have developed community-based alternate livelihood activities and also developed marketing chain of their products, little of them are NWFPs are included in the system (Mukul et al., 2010). This community-based NWFP marketing can be developed in all forest ecosystems, which may be sustainable for marketing as well as to alleviate poverty of local communities. One of the interventions is community-based business model of honey collection in Sundarban.

A Case Study on Community-Based Sustainable Business Model of Honey Collection in Sundarban

The Sundarban is the largest source of Natural Mangrove Honey, one of the key NWFP. An estimated 2000 honey collectors collects approx 450-500 MT of honey every years under the supervision of Forest Department. The Sundarban produces about 50% of the honey produced in Bangladesh (Gani, 2001).

The honey collectors are known as “Mawali” and they collect honey every year mostly during April-June. The major honey flow starts with the flowering of plants in the Sundarban Mangroves forests in mid March and continues into June. The Mawali collect ripe and unripe honey in a traditional way as they move in swampy jungles. They harvest all the colonies encountered as their return to same place as a hard work and hazardous too. Mawalis kill large numbers of bees while collecting honey due to the lack of training and awareness. There is need to improve the security and safety of Mawalis.

An initiative has been taken under the USAID funded Co-management project to upgrade and strengthening honey value chain that needs an integrated effort from all stakeholders includes: I) Forest Department, II) Co-management committee, III) honey collectors and IV) Private Sector. A Multi-stakeholders Business Model is needed to increase competitiveness of value chain in a win situation for all.
I) **Role of Forest Department**
As the guardian of the largest mangroves of the world, Forest Department will play following role:
- Facilitate optimum harvesting of honey.
- Provide pass and permit to the collectors as per the optimum harvesting amount.
- Train collectors on high quality honey collection in collaboration with development partners.
- Assist co-management committee to play a key role in the collection center.
- Assist Private sectors with legal supports and policy level support.

II) **Role of Co-management Committee**
- Ensure conservation of forest recourses through creating awareness on collection of optimum amount of honey
- Ensure rights of the VCF members (collectors)
- Provide local support to the proposed sales center/collection points
- Work in collaboration with the private sectors to reach all honey collectors of the community

III) **Role of Collectors**
- Cut Bee hives according to the guidance provided by the Forest Department (ensuring broods and a part of honey are left for future regeneration)
- Use food grade bucket supplied by the processing plants
- Ensure hygiene using gloves to handle the honey
- Ensure no adulteration during the collection of honey

IV) **Role of Private Sectors**
- Ensure a fair price of honey. This price should cover the increasing cost of honey collection for using food grade bucket and other hygiene materials.
- Provide Co-management Committee a commission for their local level service. For the private sectors, it is impossible to manage the large number of collectors which is possible by CMC as an umbrella organization.
- Ensure Sustainable harvest of honey according to the guideline given by forest department
- Process, brand and market Sundarban Honey.
Figure 1. Honey Value Chain (Traditional)

Figure 2. A Community based sustainable business model for Sundarban honey

**Key Challenge for Sustainability of Honey Collection and Marketing**

Though the Challenging Part of honey collection from the forest were efficiently done by the honey collectors with the assistance of Forest Department and CMC.
But the most important challenges was to find a private sector who has the capacity and willingness to work here to add value to honey and properly brand and market the finish product.

Forest Department has identified a Private Company “All wells Marketing Limited”. The company is now exporting over 500 MT of honey after collecting from all over Bangladesh. They have the most sophisticated processing plant established in collaboration with Danish company.

In addition to that “Akij Group”, one of the largest groups in Bangladesh showed their interest to work in this way. Akij is now establishing their own Plant with German machineries. Similar interventions are now expected not only for honey of Sundarban but also for other NWFPs of other forests areas too.

Expected Outcome of the Intervention
- Sustainable Harvest of precious Sundarban Honey
- Hygienic collection of the honey by the collectors
- Fair price of the honey for the collectors
- Process international standard honey in collaboration with private sector
- Establish “Sundarban Mangrove Honey” as a top brand in the international honey market.

Conclusions
The above intervention of collection of Sundarban honey and marketing with branding is a good example of public private partnership for sustainable business model to follow in other NFWPs. There are good scopes for all the above mentioned NWFPs especially for Bamboo, Cane and Murta to add value and marketing by involving local communities and private sectors in domestic as well as in international market.

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Chapter 5
Community-Based Non-Wood Forest Products Enterprises in Bhutan

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Introduction
Bhutan has a land area of 38,394 km$^2$ with 71% forest cover (National Forest Inventory Report - Vol. I, 2016) and 51.44% designated for conservation purposes in the Protected Areas (National Parks, Wildlife Sanctuaries and Biological Corridors). As of June 2017, 695 Community Forests (CFs) have been approved by the Department of Forests & Park Services and the total forest area managed is about 3% of the overall forest area. There are more than 28,000 rural households registered as Community Forest Management Group (CFMG) members and it corresponds to 35% of the rural household population. With 69% of its population living in rural areas, forest resources especially Non-Wood Forest Products (NWFPs), form a major source of peoples’ livelihoods. The contribution from the forest resources especially NWFPs to peoples’ livelihoods and the potential for commercialization have been widely acknowledged in Bhutan over the last few years. NWFPs play an important role in the daily lives and overall well-being of the rural community in Bhutan. For instance they are a major source for off farm income, food, medicinal and aromatic products, fodder, fiber, and also used for local construction materials. NWFPs often are a safety net for poor people in the off-farm season or whenever needed.

NWFPs Development in Bhutan
There are many NWFPs in Bhutan ranging from medicinal and aromatic plants, wild vegetables, mushrooms, incense, dyes, gums, fruits, essential oils, fibres, ferns, cane and bamboo. In the absence of adequate technical capacity within the Department of Forest and Park Services (DoFPS) on NWFPs, particularly knowledge on resources and their ecology and availability, habitats, opportunities and threats, the Department has been following the precautionary principle of protection over sustainable utilization and management. One of the broad principles is to allow for NWFP resource harvesting on community basis rather than issuing permits to individual collectors, traders and exporters.

For the long-term sustainable management of NWFP resources in the country, a National NWFP Development Strategy and a Framework for the management &
marketing of NWFPs have been prepared which currently guide the NWFP management in the country. Currently there are 130 NWFP management groups across the country for the sustainable management and marketing of the NWFP resources as shown in Figure 1.

![Bar chart showing NWFP Management Group in different districts of Bhutan](image)

**Figure 1.** NWFP Management Group in different districts of Bhutan

**Policies Enabling Community-Based Forest Enterprise Development**

Before 1969, access to forest resources in Bhutan could be described as “open access” in which all people were entitled to enter the forest and utilize products as desired. In many areas people self-regulated the utilization through traditional management systems which in turn regulated the impact of harvesting of the forest resources including NWFPs. After 1969, all forests were nationalized and people were no longer permitted to extract forest products freely: a system of permits and royalties was put in place in order to control and mitigate the negative impacts of forest extraction (Bhutan Forest Act, 1969).

In 1974, the first forest policy came into place, which set the framework for scientific forest management in Bhutan. This policy also included the objective of maintaining “a minimum of 60 % of the total land under forest” for all times to come. In 1979, the concept of Social Forestry emerged, while the legal basis for Community Forestry and private forestry came into place with the Forest and Nature Conservation Act in 1995.

In 2002, the Community-based Natural Resource Management (CBNRM) Framework was developed with the aim to: “Promote understanding about the
importance and scope for expanding community-based approaches to natural resource management in Bhutan, and to provide suggestions for accelerating the translation of CBNRM concepts and objectives into practice”. CBNRM is seen as a practical expression of decentralization and an approach for improving the governance of natural resources at the local level. It is also a practical approach for improving livelihood security and environmental sustainability.

Figure 2. Timeline of development of policies related to NWFPs in Bhutan
In 2008, the National Strategy for the Development of Non-wood Forest Products (NWFPs) in Bhutan was developed (Figure 2). The strategy is the roadmap and guides the way for NWFP development for the coming 10 years and coincides with the terms of the national 10th and 11th Five Year Plans (2008-2018). In line with the NWFP strategy, the Interim Framework for collection and management of NWFPs was developed and endorsed in 2009. This framework allows for the collection of 60 NWFP species based on a simplified management plan between the Department of Forests and Park Services and the community with the approval process decentralized to the district level.

In the National Forest Policy (2011), one of the policy objectives is to ‘enable an economically viable, environmentally friendly and efficient forest based industry aimed at adding value to forest products and build capacity of private sector and rural communities to utilize, process and market forest products’.

**Development of Community-Based Forest Enterprises**

In Bhutan, the formation of a community groups and a management plan are a prerequisite for commercial harvesting of forest products, including NWFPs. There are two ways to legally harvest NWFPs: one way is through an approved Community Forest (CF) management plan and the other way is through an approved NWFP management and marketing plan according to the framework developed by the Department. The framework is developed for the management and marketing of NWFPs from State Reserve Forest Land (SRLF) which are valid for a period of 3 years. For NWFPs an “Interim Framework for collection and management of NWFPs” is in place and describes the conditions and procedures for the collection, management and marketing of NWFPs, including the roles and responsibilities of the relevant stakeholders.

Community Forestry is the practice of forestry where any area of State Forests, that are suitable for management by a community and such forest area are designated as community forest. The communities manage their forest in line with the management plans which are normally for ten years. The plans are prepared by the communities with technical support from forestry extension staff. The community forest have the potential to produce wood products, such as construction timber and firewood, and a range of non-wood forest products, such as mushrooms, medicinal plants, fodder for animals, cane and bamboo. The community household members meet their own needs of timber and other forest produce first and if there is any excess of their requirement then they are allowed to sell and generate income for their group. The Department of Forest and Park Services is pursuing this program vigorously and as of June 2017, 77,213.45 hectares of SRF Land have been handed over to the communities in the country. It is hoped that, in future, the rural communities will obtain their requirement of timber, fuelwood, NWFPs and fodder, for their cattle, from their own forest.
Since the people living in the rural areas depend heavily on forest resources for their day to day requirements like fuelwood, timber, grazing areas for their cattle and edible non-wood forest products, the community forestry program seeks to strengthen this link between people and forests. It is seen that the program can make a significant contribution to the livelihood improvement, environmental conservation and sustainable use of forests resources.

**Successful Model of Community-Based NWFPs Enterprises**

*Ophiocordyceps sinensis*

The *Ophiocordyceps sinensis*, commonly called Cordyceps (‘Yartsaguenbub’ in Bhutan) is a valuable commodity intensively collected throughout the alpine grasslands of the Eastern Himalayas and the Tibetan Plateau. This component of traditional Chinese medicine consists of dried fruiting bodies of the fungus *Ophiocordyceps sinensis* emerging from the cadaver of its caterpillar host.

![Picture 1. Cordyceps](image)

**Status of *Ophiocordyceps sinensis* in Bhutan**

The Royal Government of Bhutan had put a ban on the collection/harvesting of *Ophiocordyceps sinensis* in Bhutan until the year 2003. The common perception of *Ophiocordyceps* spp. is that it is rare and endangered, thus requiring protection (Namgyel, 2005). In Bhutan, it is listed in the schedule I of the protected list under the provisions of the Forest and Nature Conservation Act of Bhutan, (1995).
Legalization of *Ophiocordyceps* in Bhutan

The harvesting of fungus was legalized following a Royal Command issued by His Majesty the Fourth King in 2004, so that our local high lander communities can benefit. Farmers are allowed to harvest and sell the *Ophiocordyceps* spp. on condition that they do it on a sustainable basis and long-term sustainability shall be the focus (Namgyel, 2005).

The community-based natural resource management (CBNRM) model for *Ophiocordyceps* spp. was introduced. This change in approach is important in remote rural areas of developing countries where biodiversity is concentrated, where poverty tends to be pervasive, and where the reach of development programmes is often limited. This will lead to renewed emphasis on finding ways of deriving new economic opportunities from biological resources which do not lead to further losses of biodiversity.

The *Ophiocordyceps* spp. is market through auctions facilitated by Local Government and the various agencies under the Ministry of Agriculture and Forests. About an income of Nu. 375 m (USD 5.7m) has been generated in 2016 alone through auction (Figure 4).
Community Forest for Management of *Tricholoma matsutake*

In Bhutan, particularly for the small farmers given the terrain and the small landholdings, mushroom collection (both wild and cultivated) is not only their source of cash income but will also be their source of livelihood. Wild edible mushrooms has been collected and consumed from times immemorial. Some of the popular wild edible mushrooms include *Tricholoma matsutake* commonly called Matsutake mushroom globally and Sangay Shamong in Bhutan, *Chanterelle* spp. (Sisishamong locally), Shiitake mushroom, Oyster mushroom and *Auricularia* spp. Mushroom collection during the season has been one of the important activity generating both income and employment, as the market demand for mushrooms especially for Matsutake mushroom are growing every year. Collection of wild edible mushroom has been a common activity and it is gaining popularity across the country. Mostly women and children are involved in the collection of mushrooms, fern shoots and sale at the roadside and in the local markets. The mushrooms contribute to household food security, nutrition and also help to generate additional employment and income.

It is an important source of income for the village communities of Geneykha as the capital city Thimphu being the most popular place for its trade. Though its trade is much developed at Geneykha in Thimphu, it is also found in the districts of Haa, Paro and Bumthang. Geneykha has formed a community forest for the

Figure 4. Average Income generated from Cordyceps (in million Nu.) from 2014 - 2016.
sustainable harvesting of Matsutake mushrooms. The two important factors essential for sustainable harvesting practices; the resource use rights and the rules are well established for the CFs.

Matsutake mushroom is graded into two categories Grade A and Grade B, the price differs for these grades. Figure 5 gives the income generated by the CFMGs from the sale of Matsutake mushrooms annually (2014-2016). Almost half of the income comes from mushroom in Geynekha though mushroom is a seasonal based commodity.

Figure 5. Income Generated from the sale of Matsutake mushroom (in million Nu.) from 2014 - 2016.

Picture 2. Matsutake mushroom
**Lemon grass** (*Cymbopogon flexuosus*)

The distillation of lemongrass has become a major source of income for the rural communities in Eastern Bhutan. It is important to note that Bhutan is an exceptional case where lemongrass is collected from the wild for the production of essential oil, thus has an added advantage of being organic in nature. The Dozam Community forest in Eastern Bhutan was the first community forest approved and handed over to the community in 1997 for the sustainable management of the lemongrass resources. The Lemongrass Cooperative, of which the Dozam Community Forest Management Group is a member, was established by the distillers for marketing the lemongrass oil.

The market based organic certification scheme for lemongrass was introduced to improve the resource management, processing of lemongrass oil and opening access to export markets. The Figure below shows the income earned from lemongrass oil for the year 2013-2015 (Figure 6).

![Figure 6. Income generated from Lemongrass oil (in Nu.)(image)](image)

**Chirata** (*Swertia chirayita*)

Chirata is one of the most important medicinal plants found in Eastern Bhutan and well known for its very bitter taste. Chirata is used for numerous purposes, including reducing fever, burning of the body and pain in the joints, removal of intestinal worm, treatment of skin diseases, and it is used to ease constipation, urinary discharges, ulcers, stomach aches, asthma, bronchitis, and gout.

There are eight NWFP management groups established for the sustainable management of Chirata in SamdrupJongkhar district (South Eastern Bhutan). The collection areas of each group are confined by traditional boundaries and agreed
to by the communities. The management plan is built on local knowledge since the local communities know more about their resources. The plan provides the harvesting prescriptions such as harvesting time, annual harvesting limit and the by-laws to ensure good governance of the group. The bylaws are developed to keep the members under the same rules & regulations, further to avoid illegal activities by both the group members and outsiders.

Chirata is harvested in November and December, which are then dried, stacked in bundles and ready to be transported for marketing. The Chirata are sold through auction at the collection site where most of the Bhutanese exporters are based. The income generated from the sale of chirata through auction is Nu. 2.0 million for the year 2016 (Figure 7). The payments are done at the site directly and the goods are exported mostly to India currently. The group formation has improved the marketing as the quality of the resources is checked by the executive members as prescribed in the bylaws. This is done mainly to ensure that there is no adulteration and the plants are not attacked by fungus.

Figure 7. Income Generated from *Swertia chirayita* (in Nu.)

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<th>Year</th>
<th>Income in Nu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.15 m</td>
</tr>
<tr>
<td>2015</td>
<td>1.08 m</td>
</tr>
<tr>
<td>2016</td>
<td>2.0 m</td>
</tr>
</tbody>
</table>

Picture 3. Farmer with dried Chirata bundle
Since Chirata is the main income generating resources in that area people have harvested it without proper management. The Chirata resources declined rapidly over the years for a number of reasons. The foremost reason mentioned for the declining resources is the ban on shifting cultivation; Chirata is a pioneer plant that grows well in open areas especially after burning and the other reason includes the unsustainable harvesting practices. Although collection of Chirata is only permitted after seed dispersal according to the management plan, people start harvesting much earlier, even during flowering. Collection areas are a couple of hours walk from the settlement and therefore difficult to control and monitor. Moreover, people from other neighboring areas such as Merakgeog (Bhutan) and Arunachal Pradesh (India) come to collect this valuable medicinal plant.

Community-Based Management of *Pipla* spp.

The most commonly harvested Pipla species and which has market value are namely, *Piper pedicellatum* (round pipla) and *Piper longum* (long pipla) in Eastern Bhutan. This plant is commonly called as Pipla and has high medicinal values, highly recognized species in the Indian Ayurvedic system, Tibetan and Bhutanese Medical tradition. It is valued as a powerful stimulant for the digestive and respiratory systems, as a rejuvenating agent, longevity enhancer and tonic for the immune system.

![Picture 4. Pipla](image)

The Pipla Management group harvests Pipla from the State Reserve Forest Land (SRFL) in the surrounding area. All the collectors are members of the group. In the past people harvested the fruits before maturity but now with the established group, there is a strict management guideline with mandates that harvesting can be done from September until November. Prior to collection there is a meeting to decide on the starting date for the collection among the group members.
Marketing

In the past, there was established market chain for pipla and its marketing followed either formal or informal trade routes/chain (Namgyel, et al, 2009). The collectors sold it informally to the local traders which then used to sell formally to the FCB (Food Corporation of Bhutan) through auction. It was also sold informally to national/district level Bhutanese traders and Indian traders which then sold the product further through formal auction system to the Indian traders. The major end market of Bhutanese Pipla is India where Indian traders buy the products from Bhutan and sell either in raw or processed form.

Currently other than export to India, the domestic markets are limited to only two agencies; i) Bio-Bhutan, a private firm which develop, manufacture and market natural and organic certified products and ii) Menjong Sorig Pharmaceuticals (MSP) with the Ministry of Health (MoH) which produces quality traditional medicine and other health promoting products. Their absorptive capacity is so small that they cannot fully utilize the pipla produced by the community groups. In 2015, MSP procured 150 kilograms of Pipla at the rate of Nu.180/kg. Whereas Bio-Bhutan bought 786 kg at the rate of Nu.180.00/kg against total production of 6 tons of Pipla (Rinchen, 2017).The volumes of Pipla traded in 2015 and 2016 seasons are approximately about 6 tons. The total income from the sale of Pipla was more than Nu. 0.66 million for the year 2015 (Figure 8).

Bio-Bhutan has developed honey product and herbal tea mixing with Pipla but the present domestic demand is negligible. National organization like Bio-Bhutan should be self-sustained then it can create the local employment through different value addition activities within country.

MSP is also a potential buyer and therefore its available human resource strength should be capitalized and further opportunities should be explored. Its traditional knowledge of herbal medicine can be used for new product development and sell in international markets where the demand of traditional medicines is relatively increasing where pipla can be one of the ingredients. Within country the demand is very low and product development and overseas marketing is not easy in the present capacity.
Rubia cordifolia is one of Bhutan’s important NWFPs that have been marketed for a long time. It is a woody climber, which can be used as a medicinal plant as well as a dye, is abundant in parts of central and eastern Bhutan. It is mostly collected from the wild and because of it ecological adaptability and wide distribution area, it is widely available in Bhutan.

Rubia is mostly used as a red dye and medicinal plant. Stems and roots are used for dyeing purposes, while medicinal properties are mainly found in its roots. It produces a great range of beautiful, fast red colour. With the current growing interest in natural dyes the attention for this plant is returning. Roots of Rubia are an important ingredient of many Ayurvedic preparations and are considered very effective in purifying blood. Locally its leaves are used to cure pain through scrubbing the skin and its stems to color fabrics, eggs and wooden floors.

Dry and cut Rubia stems are sold to Bhutanese middlemen who then market them to India which is the destination of most of the harvested Rubia ordifolia. Rubia is harvested from December to March and the marketing starts right after December if the demand allows it.

In Bhutan, marketing of Rubia is flourishing in Eastern Bhutan, especially from Pemagathsel, SamdrupJongkhar, Mongar and Trashigang. There are estimates that about 70 tons of Rubia are traded annually from SamdrupJongkhar alone and exported to India. Farm gate prices range from Nu 15 to Nu 35 per kg depending on the locality, accessibility and quality. The current high royalty rate of Nu 16 per kg drives the farm gate prices for Rubia down.
Rubia cordifolia

Figure 9. Income Generated from Rubia cordifolia (in million Nu.) for 2014–2016

Cane and Bamboo Products
Forest resources, especially NWFPs, form an important additional income for the rural poor. Bamboo plays very important role in the daily life of the rural people and is mostly grown naturally in the forest and also cultivated in and around the agricultural fields. In 1994, Stapleton recorded 15 genera and 31 species of bamboo in Bhutan, including three with large diameter culms suitable for use in construction. At present in Bhutan, bamboos are used for fencing, scaffolding, bamboo mats, roofing, baskets, handicrafts, etc. In addition to that bamboos have very high demand in the countries which are used as flagpoles, scaffolding and house construction. Meeting the requirement from in-country production is not
possible and large quantity is being imported from India every year. If the local farmers grow large scale plantations of bamboo then the farmers will have good opportunity to earn extra cash income from the sale of bamboo.

**Handicraft Development from Yula** (*Neomicrocalamus andropogonifolius*)

The *Neomicrocalamus andropogonifolius* is commonly called ‘Yula’ bamboo in Bhutan. The community forest is established for the sustainable management of cane and Yula bamboo in Zhemgang district called the Bjoka Community Forest. For the management of the bamboo and cane resources, management plans have been developed according to the rules for Community Forestry. The management plan needs to be approved by the Department of Forests & Park Services (DoFPS). After approval, the area is officially handed over to the community for management, providing the community legal access to the resources for a time span of 10 years (2007-2017). Almost all villagers are part of the Community Forestry Management Group.

![Picture 6. Bamboo collection (left) and women working as a group for bamboo product development (right).](image)

**Product development**

The product development process starts with the collection of Yula and cane from the natural forests. The cane and bamboo is cut into bundles to ease transportation to the village. In the village the cane and bamboo is further peeled and cut into and the strips are dried in the sun for up to three hours and afterwards dyed. The colored strips are then used to make the different products. For the processing no sandpaper, glue or varnish is used. According to the traders and buyers, customers in Bhutan prefer the natural rustic look.

The main handicraft products made out of bamboo and cane are the traditional baskets ‘bangchungs’ of various sizes and other baskets. Bangchungs are used as plates, lunch boxes or bowls to keep certain food products in the local villages while in urban areas they are mostly used for decoration. The handicraft skills and
patterns are handed over from one generation to the next. The materials needed for making Bangchungs are Yula bamboo and cane (*Calamus spp.* ) and dyes. The dyes are used to get the four basic colors of blue, red, green and yellow. The difficulty in the weaving designs depends on the number of colors used.

Handicraft production has been a traditional activity of the local villagers for over a number of generations. Nowadays almost all 150 households of the geog are involved in this craft and make all sorts of colorful baskets in Bhutan.

The by-laws of the management plan of Bjoka include the setup of a Community Development fund (raised through sale profits, membership fee, and fines) which will be used for the operation of the community forestry group, community works such as the repairs of monastery, drinking water supply and construction of an office, provision of loans to its members and for sending orphans to school.

![Picture 7. Cane and Bamboo products developed by the Bjoka Community Forest group members.](image)

**Marketing**

Because of the group formation, product diversification, and quality control, the direct income for the farmers in Bjoka is about Nu. 347,500 per year. On average this means Nu 2,635 per household which is about twice as much what they were earning before the group formation (Meijboom et al, 2008). The income generated through the sale of cane & bamboo products from Bjoka Community forest for the year 2015 is more than Nu. 640,000. The products are mostly sold through the sales counter at Zhemgang and to the crafts bazar in Thimphu.

**Features for a Successful Community-Based Forest Enterprises**

**Management plans**

It is essential to have a management plan in place in order to ensure the sustainable supply of the resources like NWFPs. The depletion of the resources is one of the major constraints in all production areas. Thus, the management plans should be developed in a participatory manner clearly describing the boundaries...
of the area, management prescriptions, harvesting rules, zoning, etc. It is important to carry out inventory exercises with local people as they will have then a better understanding and respect for the outcomes. Also the management prescriptions are best defined by combining traditional knowledge of farmers with technical and scientific knowledge of foresters.

The community’s interest to adhere to the management plan depends on a feeling of ownership of the plan and the resources to be managed. Apart from the description on natural resource management in the management plan, the by-laws are at least as important. Good leadership from the committee is crucial for the functioning of the group. Also Community Forest Management Groups that are homogenous and of a controllable size and have a strong cohesion are more likely to be successful in achieving their objectives.

Good Governance

The CFMGs are emerging local ‘civil society’ and provide an institutional framework for collective local decision-making for allocation of resources and distribution directly to their households’ member. There is an opportunity of building stronger local community based organizations through networks as a means of their voice to be heard to provide more responsive services. Existing community groups such as CFMGs or NWFP groups can play an important role in this process of strengthening local community based organizations.

The wide acceptance of community based forest management coupled with the country’s democratization process offers an ideal basis for focusing on the qualitative aspects of community based commercial enterprises such as promoting good governance at community level and supporting pro-poor income generation. The organization and the management of groups based on good governance principles is a precondition for community based forest management to achieve its expected social and socio-economic outcomes and impacts (e.g. contribution to poverty reduction). The good governance principles of equity, inclusiveness and accountability are considered particularly important. All members in a community are given equal opportunity to join the CFMG at the time of formation and the importance to ensure that such inclusive practices are maintained and included in the by-laws of the management plans.

The CFMGs and NWFP groups are decision-making bodies, with their own bylaws– framing decision making, planning activities, making collective choices and which are mostly through consensus based discussion that are not imposed from outside. These locally derived rules are an important part of ensuring equity within the group that provides an opportunity to redistribute the benefits of community forestry to poorer households.
The Community Based Commercial Enterprises (CBCE) is an opportunity to promote the participation of women in participatory forestry and create a forum on networking of women entrepreneurs to build their confidence & learning, increase their representation in decision making bodies.

**Challenges**

Most of the community based forest enterprises face similar problems in marketing their products. In most cases the areas are isolated, high transportation costs which thus results in relative expensive products. Furthermore, because of the isolated and dispersed location of the households in the mountainous terrain, it takes time to communicate the requests of the buyers and traders to the producers. Therefore, currently the local communities try to produce & sell their NWFP based products instead of producing the products based on market demands & potential. The isolated location furthermore makes it difficult for villagers to have access to new information, techniques and materials. Also villagers are less aware of the new market developments related to colors, patterns and product designs.

There is always a potential risk that the resources will be over-exploited as in the case of Cordyceps when there is high market demand and can entirely get depleted or become locally extinct. If resources get depleted, it will take more time to collect the raw materials for producing the crafts which will lead to higher prices of the products and thereby bring less income for the villagers.

One of the major challenges is in identification of products with comparative advantages and that can address niche markets as Bhutan cannot compete with Indian/Chinese markets.

**Conclusions**

There is a significant potential to generate employment and income in community-based forestry groups and private enterprises from the production, processing and marketing of NWFP resources. The community based commercial enterprise is perceived as a viable and sustainable livelihood option for the rural communities. The community based NWFP enterprises has a high potential of providing livelihood opportunities to rural communities when managed sustainably and according to good governance principles.

With the necessary capacities and collaboration amongst groups, CFMGs will be able to produce and market high quality forest products, thus generating income and contributing to poverty alleviation at national level. With establishment of Community based NWFP enterprises, strengthening the group governance, promoting the inclusion of women & women entrepreneurs will ultimately contribute to equitable socio-economic development and empowerment of the rural communities.
The main activities of commercial enterprises includes identification of groups with production potential, participatory analyses of market systems and market exploration (rapid market appraisals) and facilitation of the collaboration between producer groups, private sectors and other market actors. The work on NWFP also includes promoting production and product innovation. The development of a simple and robust market information system is equally foreseen. It is expected that these interventions will also contribute to the generation of employment, both in the groups as well as with private sector partners, particularly for young people.

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Chapter 6
Community-Based Non-Wood Forest Products Enterprise: Successful Model in India

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Introduction

India has a huge diversity and population living close to the forest with their livelihoods critically linked to the forest ecosystem. People living in these forest fringe villages depend upon forest for a variety of goods and services for their survival. Traditionally, trees are used for the inter-dependent benefits of 6Fs, i.e. food, fruit, fodder, fuel, fertilizer and fibre. The multi-various benefits and services generated from tree based systems are recognized as a tool to improve the livelihood status of forest dependent people.

Forest Produce is defined as "All material yielded by a forest estate. Forest produce is further classified as "Wood/Timber Forest Produce" and "Non Wood Forest Produce". Timber forest produce referred to timber, small wood and firewood and Non Wood Forest Produce referred to all forest produce other than wood forest produce including grass, fruit, leaves, animal products, soil and minerals obtained from the forests. NWFPs exhibit a high degree of heterogeneity in their source, production systems, characteristics, and utilization. Due to the prevalence of unorganized channels of trade and the fact that NWFP consumed for subsistence do not even enter the organized markets, precise estimates about total annual production of NWFPs is very difficult to obtain.

According to WHO, the majority of the world's human population, especially in developing countries, depends on traditional medicine based on MAP (WHO, 2002). A survey of published medicinal floras conducted by members of the Medicinal Plant Specialist Group of the Species Survival Commission, the World Conservation Union (IUCN) suggests that 72,000 species of higher plants are used medicinally worldwide, approximately 17 % of the world's higher plant flora. Relatively few MAP species are cultivated. The great majority is still provided by collection from the wild (Srivastava et al., 1996). Despite the globalization of the World’s economy and the rise of industry, NWFPs still remains an important source of income for hundreds of millions for rural livelihoods (Poffenberger, 2006). FAO estimated that NWFPs are capable of
generating 4 million man-years of employment annually (FAO, 2002; FAO, 2008).

**Non Wood Forest Products Situation in India**

The importance of Non Wood Forest Products (NWFPs) contributing to rural livelihoods and alleviating rural poverty is well known. Communities living inside and on the fringes of forest areas depend on NWFP for food, shelter, medicine, cash income etc. Studies conducted in some states have shown that contribution of NWFPs to the total income of the households varied between 10 to 70 % and majority of the forest dwellers depend on forests for 25 to 50 % of their food requirements. Apart from meeting subsistence and cash income needs of the dependent communities, NWFPs also support large number of small to large scale enterprises engaged in processing and/or trading of NWFP and NWFP based products. In many states of India NWFPs contribute major proportion of the revenue of the State Forest Departments. The States of Madhya Pradesh, Chhattisgarh, Orissa, Maharashtra and Andhra Pradesh account for more than 75 % of traded NWFP in India.

The NWFP of economic importance in India can be grouped into the following categories.

1. NWFP for Food Security: Honey, mushroom, edible fruits and nuts, foliage and rhizomes
2. NWFP for Wood and Biomass: Useful for fuel, furniture, thatching, forage and manure
3. NWFP for Medicines and Plant Protection: For human beings, animals and for control of pests and diseases in agricultural crops
4. NWFP for Aromatics, Dyes and Oilseeds: For medicinal and industrial uses

Among the above categories of NWFP, collection of food, fuelwood, fodder and other types of biomass in categories 1 and 2 are crucial, as these are the basic needs for survival of the local communities. The tribal communities living on the edge of the forests have developed a unique system to make sustainable use of food and biomass for their survival. In the absence of assured supply of these NWFP, particularly food products, tribal migrate to urban and semi-urban areas to meet their basic needs. In spite of such a critical demand for these products, no serious efforts are being made to enhance the productivity of these NWFP and ease the supply of these commodities for local communities. Furthermore, in spite of severe shortage of NWFP, most of the local communities are reluctant to procure commodities such as fuelwood, charcoal and forage from alternate sources, due to poor buying power and chronic poverty.

With regard to the other two categories of NWFP such as medicinal herbs, aromatics, dyes and oilseeds, there has been a good demand for many
commodities, not only in India but from all over the world. Systematic collection, value addition and marketing can help in enhancing the cash income of the local population and promoting international trade. However, there is a significant gap between the demand and supply situation. Generally, the demand for these products has been fluctuating due to the availability of alternatives, which are cheaper, although inferior in quality. As the NWFP collectors are located in remote areas, a large number of middlemen are involved in taking the products to processors and consumers. In such a situation, the NWFP collectors neither receive correct information about the product demand and uses nor do they get a fair price to even cover their labour charges for the collection of the products. These problems should be taken into consideration while developing a strategy for promotion of NWFP for providing sustainable livelihood to the local communities.

Although NWFP accounts for about 68% of the export in the forestry sector, conventional approaches of forest management focused largely on timber with but secondary attention to NWFP development. NWFP contributes a substantial share of the annual income of forest dwellers who are mostly disadvantageous and landless communities with a dominant population of tribal. It provides them critical subsistence during the lean seasons. Most of the NWFPs are collected and used/sold by women, so it has a strong linkage to women’s financial empowerment in the forest-fringe areas.

Depleting resource base either because of diversion of forest land for non-forest use, or due to unsustainable harvesting practices has been the major ecological challenge in the NWFP sector with growing and visible impacts of climate change on crop production. On the other hand, poor R&D focus, inadequate post-harvesting practices, insufficient infrastructure and unorganized nature of the trade have made it financially vulnerable particularly for the primary collectors. India's rich biodiversity of 45,000 plant species is spread across 16 Agro-climatic zones. Out of these, about 3000 species have been identified to yield NWFPs but only 126 have developed marketability (Maithani, 1994) due to higher economic returns and others NWFPs species are yet to be tapped economically. These include medicinal plants, edible plants, starches, gums and mucilage’s, oils & fats, resins & oleo-resins, essential oils, spices, drugs, tannins, insecticides, natural dyes, bamboos & canes, fibres & flosses, grasses, tendu leaves, animal products and edible products.

In India over 50 million people are dependent on NWFPs for their subsistence and cash income. About 70 % of the NWFPS collection in India takes place in the tribal belt of the country (Mitchell et al., 2003). Around 55 % of employment in forestry sector is attributed to the sector alone (Joshi, 2003). In the case of Gujarat, the contribution of NWFPs to the total households income varied from
20.1-34.1% while in the case of West Bengal, it ranged from 26.5 to 55.5%. One another study highlighted that tendu leaves were estimated to provide employment nearly to 4 million persons annually by way of Bidi (Local cigarette) manufacturing (Namdeo and Pant 1994). Commercial NWFPs are estimated to generate Rs. 3 billion (US$ 100 million) annually in India. It exports a large number of NTFPS to other countries earning foreign exchange revenue to the tune of Rs. 10 billion annually (FAO, 1995). India holds monopoly in world trade over some of the NWFPs such as Karaya gum (Sterculia urens), myrobalans (Emblica officinalis, Terminalia chebula), Sandalwood chips and dust (Santalum album).

The dependency of tribal population on NWFPs for livelihood is of particular significance in North Eastern Hilly region of India. In study conducted by Sharma et al. 2015, in the state of Arunachal Pradesh having more than 80% of geographical area under forest cover and predominantly inhabited by tribal people, documented the status and utilization pattern and assessed the economic value of NTFPs of the state. The study was carried out in eight districts of Arunachal Pradesh viz., Changlang, East Kameng, Lower Subansiri, Tawang, Tirap, Upper Siang, West Kameng and West Siang covering 34 villages and 350 households. Altogether, 135 plant based and 36 animal based non-timber forest products were recorded. Among plant based NTFPs, 54 species were collected for leaves, 30 for stem and 22 for fruits. Most of the animal based NTFPs (93%) were collected/hunted for food. Average 20~40 kg of NTFPs was collected annually per household. Maximum plant based NTFP collection was recorded from West Siang followed by West Kameng and Tawang. Similarly, highest collection of animal based NTFPs was recorded from West Siang followed by Tirap and Lower Subansiri. NTFP contributed more than 50% of annual income of the people of East Kameng, Tirap, Lower Subansiri and Upper Siang districts. The study concluded that a large section of people of Arunachal Pradesh are dependent on NTFPs for their livelihood however due to its unscientific harvesting, the availability of NTFPs is receding with time. There is an urgent need to promote cultivation and scientific harvesting of NTFPs in order to conserve the plant and animal diversity of this global biodiversity hotspot and for ensuring livelihood security of the people living in this area.

Chhattisgarh State Minor Forest Produce (T & D) Co-op. Federation Ltd., Raipur is the Apex body for trade and development of Minor Forest Produce / Medicinal Plants in the state. The Federation promotes the sector through the Purchase of full quantity of nationalized MFP from the collectors and value addition and processing of MFP, Product Packaging and marketing. The data in respect of some of the important NWFP collected by the federation in the year 2011-12 in the State is presented in Table 1.
Table 1. NWFP Collected by Chhattisgarh State Minor Forest Produce Co-op. Federation Ltd during 2011-12.

<table>
<thead>
<tr>
<th>NWFP</th>
<th>Collection Season</th>
<th>Collection Rate (Rs.)*</th>
<th>Collected quantity#</th>
<th>Sale price (Rs in Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tendu Leaves</td>
<td>2011</td>
<td>800</td>
<td>13.57</td>
<td>355.31</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>1100</td>
<td>17.15</td>
<td>646.90</td>
</tr>
<tr>
<td>Sal Seed</td>
<td>2011</td>
<td>500</td>
<td>0.392</td>
<td>954.94</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>500</td>
<td>7.22</td>
<td>610.71</td>
</tr>
</tbody>
</table>

*For Tendu leaves per lakh standard bag and for sal seed per quintals and # For Tendu leaves per lakh standard bag and for sal seed per lakh quintals.

NWFP revenue of the Uttar Pradesh from the 18 divisions of Terai, Bundelkhand and Bindhyan region constitutes about 80 % of the total revenue of the state. In terms of value realized to the state, tendu leave collection returns maximum (42 % of total value of forest produce and 93 % of NWFP value) among the NWFPs and comes only next to that from timber. But, at the household level, other NWFPs dominate in terms of returns (Choudhury, 2007). In Kerala, one hundred and twenty items of the NWFPs, mainly medicinal plants are permitted to be collected from the forests by the tribal people and 96 species by tribal cooperatives. About 56 % of their total income is from the NWFPs (Thomas, 1996). Nearly 80 % of the Indian traditional medicine industry is situated in Kerala with a predicted growth rate increase of 35 % annually (Nath 2010; Samraj 2010).

Lac-a Fauna Bases Natural Resin

Lac is a natural resin secreted by an insect *Kerria lacca* (Kerr) which thrives on the tender twigs of specific host trees viz. palas (*Butea monosperma*), ber (*Zizphus mauritiana*) Kusum (*Schleichera oleosa*), *Flemingia semialata* and *Ficus* spp. Raw lac is the source of three valuable natural and renewable products i.e. resin, dye and wax. Rangeeni and Kusmi are the two strains of lac insect which are classified based on preference of the insect for specific host plants. Lac cultivation is an important source of income for livelihood of the forest and sub forest dwellers in different states. Besides it has high potential for generating employment for both men and women in forest and degraded lands of Jharkhand, Chhattisgarh, Madhya Pradesh, West Bengal, Maharashtra, Odisha and parts of Uttar Pradesh, Telengana, Andhra Pradesh, Gujarat and NEH region of India. It is a highly remunerative crop, paying high economic returns to the farmers and also foreign exchange to the country through its export. The status of lac production in India during 2014-15 is given in Table 2.
Table 2. Lac Production in India during 2014-15 (in tons)

<table>
<thead>
<tr>
<th>Name of states / Districts</th>
<th>Name of Lac crop</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baisakhi</td>
<td>Jethwi</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>385</td>
<td>3895</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>1990</td>
<td>58</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>445</td>
<td>373</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>765</td>
<td>0</td>
</tr>
<tr>
<td>Odisha</td>
<td>40</td>
<td>95</td>
</tr>
<tr>
<td>West Bengal</td>
<td>91</td>
<td>30</td>
</tr>
<tr>
<td>Assam</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td>Meghalaya (Garo hills)</td>
<td>150</td>
<td>0</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Gujarat</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4001</strong></td>
<td><strong>4476</strong></td>
</tr>
</tbody>
</table>

Source: Yogi et al, 2017

**Pine Resin – A Flora Based Resin**

Pine resins are secretion of plants, particularly coniferous trees. These are valued for their chemical properties and associated uses like production of varnishes, adhesives, and food glazing agents. Extensive chirpine forests are found in the Himalayas between an elevation of 100 to 1900 m. Chirpine yields commercially important oleo-resin which forms the raw material for rosin and turpentine oil industry in India. Chirpine is widely tapped for resin on commercial basis, particularly in the hills of Himachal Pradesh, Uttarakhand, Jammu & Kashmir and North-Eastern states. The northern hill state annually produces around 8,000 to 9,000 tonnes of raw rosin extracted from pine tree. Major share of resin production comes from Himachal Pradesh and Uttarakhand (Table 3) and about 85% of this raw material is processed in the rosin and turpentine oil Factories (RTFs).
Table 3. State wise annual pine resin production and their contribution in the total production (in tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Uttarakhand</th>
<th>Himachal Pradesh</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>1875 (19.8)</td>
<td>7596 (80.2)</td>
<td>9471.2 (100.0)</td>
</tr>
<tr>
<td>2009-10</td>
<td>1961 (20.7)</td>
<td>7500 (79.3)</td>
<td>9460.8 (100.0)</td>
</tr>
<tr>
<td>2010-11</td>
<td>1764 (20.1)</td>
<td>7000 (79.9)</td>
<td>8764.1 (100.0)</td>
</tr>
<tr>
<td>2011-12</td>
<td>1614 (19.0)</td>
<td>6900 (81.0)</td>
<td>8514.2 (100.0)</td>
</tr>
<tr>
<td>2012-13</td>
<td>1467 (17.5)</td>
<td>6894 (82.5)</td>
<td>8361.3 (100.0)</td>
</tr>
<tr>
<td>2013-14</td>
<td>1486 (21.6)</td>
<td>5389 (78.4)</td>
<td>6875.3 (100.0)</td>
</tr>
<tr>
<td>2014-15</td>
<td>1442 (12.5)</td>
<td>5258 (78.5)</td>
<td>6699.3 (100.0)</td>
</tr>
<tr>
<td>Average</td>
<td>1658 (20.0)</td>
<td>6648 (80.0)</td>
<td>8306.6 (100.0)</td>
</tr>
</tbody>
</table>

Source: Yogi et al, 2017

Historically, the NWFP sector was neglected for many decades from main stream forestry, and they were considered as ‘minor’ (Minor Forest Produce), despite the fact that monopoly rights over several such NWFPs/MFPs fetched a good income for the Forest Department. After the ban on green felling, the income from NWFPs in the total income of the Department became the major one with that from timber marginalized, in many states. Export of NWFPs and its products contributes 68% of the total export from forestry sector.

The export of NWFP has grown by 20-25 % over the past few years and during 2006-07, India earned Rs 39.7 billion from export of NWFP and their valued added extracts (Ganguli, 2007). Total export value of Ayush and Herbal products from India is estimated as Rs. 764.25 and 570.76 crores respectively during 2009-10 (ICFRE, 2010). Based on the Forestry Statistics, 2011 (ICFRE, 2011), the annual production and value of resins and tendu leaves, one of the major NWFPs in India are presented in Table 4 and 5.
Table 4. Annual Production and value of resins in India during 2006-2010 (Weight = 100 tons; Value in Crore Rs.)

<table>
<thead>
<tr>
<th>States</th>
<th>2006-07</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>Value</td>
<td>Weight</td>
<td>Value</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>4.43</td>
<td>0.19</td>
<td>4.9</td>
<td>0.23</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>85.91</td>
<td>45.10</td>
<td>85.14</td>
<td>44.70</td>
</tr>
<tr>
<td>Jammu &amp; Kashmir</td>
<td>49.69</td>
<td>17.12</td>
<td>38.60</td>
<td>7.9</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>198.19</td>
<td>46.33</td>
<td>192.98</td>
<td>29.97</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>338.22</td>
<td>108.74</td>
<td>320.81</td>
<td>81.99</td>
</tr>
</tbody>
</table>

Figures in parentheses are estimated; Reporting of tendu leaf production by State is in standard bag unit (one standard bag= 1000 bundles; one bundle =50 tendu leaf).

Table 5. Annual Production and value of Tendu Leaves in India. (Weight = 100 tons; Value in Crore Rs.)

<table>
<thead>
<tr>
<th>State</th>
<th>2006-07</th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>Value</td>
<td>Weight</td>
<td>Value</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>4.43</td>
<td>0.19</td>
<td>4.9</td>
<td>0.23</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>271.80</td>
<td>36.36</td>
<td>368.58</td>
<td>73.42</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>643.80</td>
<td>191.60</td>
<td>1030.80</td>
<td>325.59</td>
</tr>
<tr>
<td>Gujarat</td>
<td>77.12</td>
<td>3.17</td>
<td>191.75</td>
<td>7.09</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>183.7</td>
<td>21.51</td>
<td>450.00</td>
<td>50.61</td>
</tr>
<tr>
<td>Karnataka</td>
<td>4.59</td>
<td>(0.61)</td>
<td>6.87</td>
<td>(1.37)</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>1452.60</td>
<td>373.64</td>
<td>1089.00</td>
<td>201.86</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>337.75</td>
<td>25.27</td>
<td>460.17</td>
<td>93.95</td>
</tr>
<tr>
<td>Odisha</td>
<td>387.65</td>
<td>247.71</td>
<td>445.70</td>
<td>264.30</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>139.80</td>
<td>3.75</td>
<td>315.60</td>
<td>16.36</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>173.66</td>
<td>4.81</td>
<td>163.16</td>
<td>4.68</td>
</tr>
<tr>
<td>West Bengal</td>
<td>11.64</td>
<td>(7.44)</td>
<td>8.49</td>
<td>(5.03)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3684.01</td>
<td>915.87</td>
<td>4530.12</td>
<td>1044.26</td>
</tr>
</tbody>
</table>

Figures in parentheses are estimated; Reporting of tendu leaf production by State is in standard bag unit (one standard bag= 1000 bundles; one bundle =50 tendu leaf).
Bamboo Resources

Bamboos are one of the important NWFPs ensuring livelihood security of the resource poor communities and mostly used as raw material for paper industry. Some of important bamboo species are *Arundinaria falcata*, *A. spathiflora*, *Bambosa arundinacea*, *B. balcooa*, *B. tulda*, *Dendrocalamus giganteus*, *D. strictus*, *D. hamiltonii*, *Melocanna bambusoides* etc. As per the FSI (2011) report, majority of the bamboo resources of India are available in the North Eastern Hill States as presented in the following figure.

Community Based Enterprise

The Government of India initiated the process of people’s involvement in the conservation, management and protection of forests with benefit sharing mechanism on the principle of Care and Share through Joint Forest Management (JFM) in 1990, generally known as “The JFM 1990 Resolution”. Joint Forest Management is a concept of developing partnerships between fringe forest user-groups and the forest department based on mutual trust and jointly defined roles and responsibilities with regard to forest protection and development. In JFM, the user (local communities) and owner (Government) manage the resource and share the cost equally. Currently, more than 118213 JFMCs are managing around 23 million hectares of forest in the country (FSI, 2011). The JFMCs are largely involved in the plantation and other forestry activities

*Madhuca latifolia* (syn. *Madhuca indica*) belongs to the family Sapotaceae, commonly called as mahua is considered as a boon by tribal. Mahua flower is one
of the top five minor forest produces in the country and tribal communities are permitted to collect and sell the yield in the market of central and northern plains of India. This forms an essential part of the local economy especially during a season such as summer when water is unavailable for agriculture. Mahua produce profound of flowers during March-April and collected widely to make alcohol for domestic consumption and sale. Also the seeds of Mahua play a dominant role in production of medicines and edible-oil. Mahua flower collection is distributed almost 13 districts of Bundelkhand. We had an opportunity to have discussion with Kucchias (Middleman) of mahua flowers in Chitrakut districts of Bundelkhand. He told that during flowering season, whole family engaged in collection of mahua flowers from adjoining forest and agricultural fields. An average sized tree yields about 50–100 kg of flowers in a season that lasts around a month and it depends on rainfall, size and age of trees. Large amounts of Mahua flowers are kept in bigger basket which is locally known as kadagi. On an average one family member manages to collect 10-15 kg (1 Basket) of Mahua in a day. The effective season of mahua flower collection is only 22-27 days. One family of 4-5 people can collect up to 1 tonne of dried mahua flowers during a good year. At present, mahua flowers are sold at the rate of Rs 10-20 per kg. So a tribal family can generate Rs 12,000 to 15,000 per season. Sources from Forest department of Lalitpur states that the forest area provides livelihood to 70 % of tribal population and Lalitpur division alone collects around 500 tonnes of dried mahua every year, but there is no clear records of that. After the flowering season, tribal collect mahua seeds, which also have potential to provide income. On an average middle aged tree can produce 70-100 kg of seeds which fetches around Rs 500. In some part of India, people do worship mahua tree as it provides food to poor people. One of the report mentioned that “Collection of mahua flower and seeds generates about 90 man days of work involving about 7.5 millions of tribal people throughout mahua growing belt of India for their livelihood”. However, under this scenario, the prime requisite is to establish proper market with storage facilities. Some states like Madhya Pradesh, Chhattisgarh and Orissa has well established a market chain with minimum support prize.

**Development of Community Based NWFPs Enterprise**

The local communities residing in the fringe areas of forests and gathering NWFPs for their livelihood are most often poorly organized. In most of the cases they face lot of problems in selling the NWFPs collected by them even in the local markets and at the throw away price. Majority of the NWFPs are generally in the form of seeds, fruits and leaves and go waste, if not collected at an appropriate time and stage of collection. Therefore, motivating the primary collectors to collect these NWFPs at proper stage will allow proper utilization of them on one hand and ensure economic return to the collectors on other hand.
The primary collector form the base of the pyramid in the spectrum of relationship from collection to utilization of the NWFPs and consumers are the top of the pyramid and traders and industry in between these two groups. The major concern is at the level of primary collectors. Very little efforts have been made at the level of gatherers to educate them about systematic collection, conservation, cultivation and resource management of these NWFPs. In order to increase their returns, the primary collectors often mine the plants excessively. The collection of NWFPs collection depends upon huge investment in form of labour and time and the economic returns are not in the same proportion for them and there was no clarity on the rights of the tribal population residing in the fringes of the forests on these resources. However, due to some changes in the late 2000 and as per Forests Right Act (2010), the Gramsab has have been empowered to assign the forest resources to these dependent communities.

Another favourable move by the Central government in the form of constitution of Minimum Support Price Commission (MSP) for NWFPs to assure minimum fixed price to tribal population is a positive step in this direction. This assurance of minimum price for primary collectors will help them at economic front and will improve the collection of NWFPs but there is also a need to form self help groups, NGOs and cooperative societies for value addition and dispose of the collected NWFPs. There is also a need to promote village level cottage industries for processing of NWFPs at local level for production of non-edible oils, dye preparation etc. Many agencies and cooperatives have been formed and supporting the organized NWFPs trade for economic up-liftment of the tribal communities.

A few examples of State initiated NWFP based benefit sharing models are available in India which have started from 1970s-2000. The States namely Madhya Pradesh, Chhattisgarh, Andhra Pradesh, Odisha and Uttarakhand developed some mechanisms. Various activities of micro-enterprise effort based on NWFPs are available for these States. Different stake holder group of NWFP (Primary collectors, traders and processing unit) primarily observed that institutional innovation has changed the trade situation in big way and further manifold improvement is possible. Many State governments have established separate organizations which are dedicated to the procurement, primary processing, storage and further marketing of raw products from NWFPs. There are some innovative initiatives taken by these States, e.g. Uttarakhand has developed Jarie Bootee Mandi under Uttarakhand State Forest Development Corporation; Andhra Pradesh government established Girijan Cooperative Society as early in 1956 for socio economic up-liftment of tribal communities in the State through intervention in NWFP; Chhattisgarh State government has established Chhattisgarh Minor Forest Products Federation (CGMFPF) taking leading role in NTFP trade and enterprise; Odisha government has two agencies OFDC and
TDCC for NWFP procurement and also transferred sixty nine NWFPs to local panchayats, making the trade of these items free; and Madhya Pradesh with MFP Federation has done the pioneering work on NWFP benefit sharing model in the country for the nationalized products.

**Features and Successful Model of CBNE**

Chhattisgarh State Minor Forest Produce Cooperative Federation limited (CGMFPFED) is promoting the NWFPs in the State through nationalized NWFPs purchase from the collectors and sharing the profit with the collectors. The entire value of the Nationalized NWFPs realized from purchasers is ploughed back to the NWFPs collectors. Primary cooperative societies are the basic unit for calculating the amount of profit, which in turn results in competitive spirit among various primary cooperative societies to earn maximum income through quality control. 80 % of the profit goes as incentive wages to the collectors, fifteen % for purchasing, processing and storage of NWFPs by the cooperative societies and five % profit is kept as fund to temporarily meet the loss of the societies from the trade. The net profit of the tendu leaves and Sal seeds for the collection years between 1999 and 2007 an amount of Rs 5546.92 lakhs have been provided to enhance the production of NWFPs (Singh, 2012). The Chhattisgarh State is supporting the NWFPs collectors through insurance scheme and various welfare schemes. Under Jan Shree Group Insurance Scheme for the head of a Tendu leave plucker’s family, there is a provision of Rs twenty thousand in case of normal death and Rs. 50000 in case of accidental death. The 50% amount of insurance premium is paid by Government of India and 37.50% and 12.50% paid by the State government and Federation, respectively. In addition to this there is provision of scholarship to the children of Tendu leaves pluckers family.

There are few success stories based on community based NWFPs entrepreneurship in the country through institutional interventions and innovations (Planning Commission, 2011). Sanjog, a small NGO of Odisha not only promoted and registered small NWFP based entrepreneurs with the district industries centre thereby getting them the benefitted under various schemes, but also established trade relationship with Tirupati temple which now procures siali leaf plates produced by about 200 tribal women in Mohangiri hills of Kalahandi – Balangir area. The Tirupati deal fetches these women 20% extra income. Sanjog is also working on promoting lac cultivation since lac cultivation in just three trees of the Kusum Tree (Lac host tree) in Jharkhand area gives a net income higher than that from one acre paddy cultivation.

In another example from Odisha, three women self help cooperatives promoted by Regional Centre for Development Cooperation (RCDC) an NGO of Odisha decided to adopt the minimum support price policy in 2011 for hill broom and cashew drupe which worked with encouraging results. In Andhra Pradesh, the
Girijan Cooperative (GCC) a public sector undertaking procures NWFPs from about 5.6 million tribal primary collectors. After value addition it sells them with Girijan Brand. GCC has demonstrated models of business beyond welfare into dynamic, challenging and encouraging.

BAIF Development Research Foundation a voluntary organization in India is engaged in providing sustainable livelihood for the rural poor including the tribals. Most of these tribals living in and around the forests have been dependent on collection of NWFP. With the depletion of these resources, they are involved in shifting cultivation on the periphery of the forests to ensure food security. However, in the absence of scientific agricultural practices and inadequate supply of critical inputs, agriculture has been contributing to soil erosion and further deforestation instead of providing sustainable livelihood. The important NWFP collected by the tribals in Maharashtra, Gujarat, Madhya Pradesh and Karnataka are presented in Table 6 (Hegde, 2005). The products like *Terminalia bellerica*, *Terminalia chebula* and *Emblica officinalis* are available in plenty and they have good demand in the local market. Nevertheless, the tribals are finding it very difficult to collect the available NWFP due to poor price realisation and hurdles faced by them due to adverse Government policies. Furthermore, the collection of these products alone will not be able to provide them sustainable livelihood. Realising the above problems, BAIF has initiated the promotion of NTFP in selected locations in Maharashtra (Thane, Nandurbar and Nashik districts) and Gujarat (Valsad and Navsari districts) in India. These districts located in the Western Ghat hill ranges are dominated by different types of tribals. In the absence of alternative sources of livelihood, BAIF has promoted the establishment of agri-horti-forestry on the degraded lands owned by these tribals, while arranging the collection of locally available NWFP as a supplementary activity.

Table 6: NTFP Collection Promoted by BAIF

<table>
<thead>
<tr>
<th>NTFP</th>
<th>Maharashtra</th>
<th>Gujarat</th>
<th>Madhya Pradesh</th>
<th>Karnataka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicinal</td>
<td><em>T.bellerica</em>, <em>T.chebula</em>, <em>Emblica officinalis</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oilseeds</td>
<td><em>Madhuca indica</em></td>
<td><em>Madhuca indica</em></td>
<td><em>Azadirachta indica</em>, <em>Derris indica</em>, <em>Madhuca latifolia</em></td>
<td></td>
</tr>
<tr>
<td>NTFP</td>
<td>Maharashtra</td>
<td>Gujarat</td>
<td>Madhya Pradesh</td>
<td>Karnataka</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
<td>---------</td>
<td>----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Food</td>
<td>Buchanania lanzan, Carissa carandus, Madhuca indica</td>
<td>Madhuca indica, honey</td>
<td>Tamarindus indica, Madhuca indica, honey</td>
<td></td>
</tr>
<tr>
<td>Gum, Wax and Resins</td>
<td>Boswellia serrata, Anogeissus latifolia, Acacia catechu</td>
<td>Acacia sp.</td>
<td>Garcia morella</td>
<td></td>
</tr>
<tr>
<td>Tans and Dyes</td>
<td>Acacia sp. bark, Terminalia nut</td>
<td>Acacia sp.</td>
<td>Garcia morella</td>
<td></td>
</tr>
<tr>
<td>Bamboo</td>
<td>Bambusa sp., Dendrocalamus sp., Ochlandra sp.</td>
<td>Dendrocalamus, Ochlandra sp.</td>
<td>Dendrocalamus, Ochlandra sp.</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>Butea monosperma</td>
<td>Butea sp.</td>
<td>Butea sp.</td>
<td>Butea sp.</td>
</tr>
</tbody>
</table>

(Source : Hegde, 2005)

To enhance the income further through NWFP, BAIF has been organizing training for farmers to adopt proper harvesting and collection techniques, improve the shelf life through proper drying and storage practices and establish direct linkage with the users to enhance price realization.

**Example of NWFP Collectors in Bundelkhand**

Bundelkhand is one of the drought prone areas of Central India, where dependency on agriculture for livelihood is very difficult due to limited irrigation facilities, uncertain rains, small land holdings and poor soil conditions. The region has a large population of other backward castes (53%), scheduled castes (25%) and tribals (10%). Tribal population in many districts is negligible but however in few districts they have good presence. Over the years, they have lost much of their land to powerful outsiders, due to debt or their land is of very poor quality, unfit for cultivation. Without access to good land, low educational attainment and far from development processes, tribal households are generally at the bottom of the social and economic ladder. It is in this context, they are mostly deriving their
livelihood from trees but they are being fully exploited by middlemen’s marketing system. An attempt has been made by Chavan et al. (2016) to record the different livelihood earnings and their economic analysis as depicted in Table 7.

Table 7. Economics analysis of different NWFP trees in Bundelkhand

<table>
<thead>
<tr>
<th>Name of the species</th>
<th>Products</th>
<th>Period of collection</th>
<th>Stake holder</th>
<th>Production per tree/year</th>
<th>Rate per unit or Kg (Rs)</th>
<th>Income per tree (Rs) per Family/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Butea monosperma</strong></td>
<td>Gum</td>
<td>Dec-Jan</td>
<td>Sahariya tribe</td>
<td>300 g</td>
<td>Rs 60-80/kg</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Lac</td>
<td>Oct-Nov</td>
<td>Farmer</td>
<td>1.5-2.0 kg</td>
<td>Rs 400-450</td>
<td>700-800</td>
</tr>
<tr>
<td></td>
<td>Dona</td>
<td>Whole year</td>
<td>Farmer</td>
<td>1200-1500</td>
<td>Rs 1 for 4 dona</td>
<td>400-500</td>
</tr>
<tr>
<td></td>
<td>Broom</td>
<td>Except rainy season</td>
<td>Landless/ Bargunda tribes</td>
<td>5-8 brooms</td>
<td>Rs 10/broom</td>
<td>50-60</td>
</tr>
<tr>
<td><strong>Phoenix sylvestris</strong></td>
<td>Crown</td>
<td>Dec-March</td>
<td>Artisan</td>
<td>1</td>
<td>Rs 800-1000/crown</td>
<td>800-1000</td>
</tr>
<tr>
<td></td>
<td>Jaggery</td>
<td>Sept-Jan</td>
<td>Farmers</td>
<td>10-12 kg</td>
<td>Rs 30-40/Kg</td>
<td>350-400</td>
</tr>
<tr>
<td></td>
<td>Basket</td>
<td>-</td>
<td>Bargunda tribes</td>
<td>1</td>
<td>Rs 30-40/piece</td>
<td>30-40</td>
</tr>
<tr>
<td><strong>Madhuca indica</strong></td>
<td>Flowers</td>
<td>Mar-Apr</td>
<td>Farmers &amp; Tribal’s</td>
<td>500 leaves (10 bundles)</td>
<td>Rs 1/bundles</td>
<td>15-20</td>
</tr>
<tr>
<td></td>
<td>Seed</td>
<td>May-June</td>
<td></td>
<td>70-100</td>
<td>Rs 10-20/kg</td>
<td>800-1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rs 4-5/kg</td>
<td>500</td>
</tr>
<tr>
<td><strong>Diospyrous melanoxylon</strong></td>
<td>Leaves</td>
<td>April-May</td>
<td>Farmers &amp; Tribal’s</td>
<td>500 leaves (10 bundles)</td>
<td>Rs 1/bundles</td>
<td>15-20</td>
</tr>
<tr>
<td><strong>Dendrocalamus strictus</strong> (Bamboo Clump)</td>
<td>Bamboo stick</td>
<td>Year around</td>
<td>5-8 stick</td>
<td>Rs 60-70/stick</td>
<td>300-450</td>
<td>20000-22000</td>
</tr>
</tbody>
</table>

**Successful Model of CBNE**

Udyogini a Non Governmental Organization came into existence in 1992 with an aim to help poor women get a higher value for the commodities they collect, grow and trade through aggregation, cleaning, grading and sorting the produce for increased value and sale in higher order market. Markets for the product are studied and linkage provided with potential buyers. Credit is provided for the establishment of value chain for supplying processed commodities. Udyogini is in existence for about 25 years and by 2010, Udyogini had trained over 1500
enterprise promoting staff from NGOs and government with a combined Grass root Management Trainee (GMT) eligible base of almost 50,000 women. It is currently operating in seven States of India namely Uttarakhand (Dehradun, Chamoli), Rajasthan (Udaipur, Bikaner, Pugal), Bihar (Patna, Kishanganj), Assam (Goalpara), Jharkhand (Ranchi, Khunti), Orissa (Keonjhar, Rayagada), and Madhya Pradesh (Jabalpur, Mandla, Chhindwara) (Oneworld Net, 2011). Initiatives in Jharkhand are currently undergoing intensive development showing lot of promise. In Jharkhand, Bundu block in Ranchi district is a densely forested and one of the largest tribal inhabited area. Socially it is a deeply patriarchal society. The girls are denied access to education and married at an early age. Assured livelihoods in the region is available only for four months in a year. The region is known for lac production and collected traditionally. Udyogini worked in the area with women groups particularly whose broad lac crop is pest infected. The technical assistance provided to the small women entrepreneur groups helped in revival of the crop and significantly raise the income of these women within a year. The work was scaled up to include 3000 tribal women in 2009-10 from 850 in 2008-09 into four blocks of Ranchi and Khunti districts instead of just one block selected earlier. Currently three Village Level Service Centres (VLSC) operate and add value to the lac produced after buying from Women Entrepreneur Groups (WEGs) and are directly linked the market. VLSC entrepreneurs are trained in the newly established Intel-Udyogini School of Entrepreneurship. Udyogini has helped women entrepreneurs to get a fair price for their good through transparency in the grading and price and fixation processes. The impact of Udyogini on the life of women entrepreneurs in the areas of operation is clearly identifiable and measurable.

**Strategy to Replicate**

To replicate and upscale the success of a CBNE, the first and foremost step is to involve those agencies and organizations with a strong credibility and knowledge to work with the rural communities and having a focused objective to help the tribal, rural and economical weaker sections to ensure their livelihood and achieve self sustenance. A number of organizations mentioned earlier in this paper such as Sanjog, Girijan, RCDC, Udyogini working in this context and achieved success due to dedicated team effort. There is need to identify the target clientele and form self help groups. In next step there is need to create awareness among the members of these SHGs about the importance of these NWFPs and how the scientific methods of collecting, harvesting and processing of these NWFPs will improve and sustain the productivity of these NWFPs. The exposure visit and interaction of the clientele groups with successful micro entrepreneurs is step towards fast tracking the confidence build up of the group. The training in value addition and linking the SHGs with financial institutions along with marketing
channels is the final step for developing community based entrepreneurship for NWFPs.

**Constraints and Opportunities for CBNE**

Due to unrestricted and unscientific collection along with over exploitation, the natural availability of NWFP has decreased. Moreover, the number of productive trees for NWFPs has decreased whereas the demands have gone very high. Since NWFP collections are seasonal and may vary from year to year, therefore, it is very difficult to ascertain real demand and supply data in the absence of a dedicated system. It can be overcome through mapping and inventorization of specific forest types in different agro-ecological zones.

The community based NWFPs entrepreneurs can be developed into a successful model for the economic upliftement of the tribal communities and enhance their social status. However, at present there are many constraints faced by these CBNE groups as well as primary collectors for getting better returns from the NWFPs, which is sometimes not equal to wages of a daily labourer. The major constraints faced by them are:

- Inadequate support to the primary collectors and their organizations for enterprise development and access to market.
- Unsustainable harvesting practices by the primary collectors leading to destruction of forest and absence of data to determine sustainable harvest levels.
- Unorganized market mechanism leading to exploitation of the primary collectors and producers.
- Poor capacities with the stakeholders for sustainable management of NWFP and linking it to livelihood security.
- Lack of market information system and market intelligence, product development and market development.
- Poor institutional arrangements for procurement, value addition, marketing of NWFP and other technical services.
- Poor supply chain infrastructure (warehousing, cold storage facilities, efficient and transparent trading platforms).
- Absence of infrastructure for quality standardization, quality control, certification, branding and promotion.
- It has been often seen that traders and collectors do not know the end use of the produce and the manufacturers don’t know where the produce has come from. This being the case the traders and collectors never come to know the real price of the produce. This situation affects the primary collectors and
local level traders much as they are mostly unaware of the commercial worth of the produce they collect and trade. Primary collectors sell it for whatever they get. It is not possible for them to find more lucrative market. Traders and manufacturers, on the other hand, derive benefits by manipulating the information flow. Poor availability of marketing information is closely related to the lack of capabilities in marketing.

In spite of these challenges and issues, there are many opportunities to turn around the things and make NWFPs a viable livelihood support system for the primary collectors and CNBEs. These opportunities can enhance the production, collection and value of the NWFPs and resulting in better revenue collection for the government. The diverse agro-climatic condition of India is one of the biggest opportunity to produce a variety of NWFPs and there is strong research base up to provide technical knowledge for scientific collection and harvesting of these NWFPs. The Sal seed case has demonstrated how R&D supplemented with favourable policy environment can revolutionize the commercial fate of the NTFP collectors.

Besides food security, NTFPs also provide for a big opportunity to establish eco-friendly, and small to medium enterprises at local level. In the recent past central government announce constitution of minimum support price commission for forest produce to fix assured price to tribal (Johnson et al, 2013). This is similar to minimum support price in agriculture.

**Conclusions**

The NWFPs are the backbone of tribal communities and the major source for their livelihood option. NWFPs help in poverty alleviation as NWFPs are mostly collected by the resource poor tribal communities, who lack land, skill and even education in most of the cases. These communities are generally forest dwellers and live in the forest fringes. NWFPs which are growing naturally in the forests need to be promoted. The market of NWFP is unorganized and mostly characterized by higher degree of exploitation at lower level. Besides, there is also absence of aggregation, intermediate processing/ storage and collective selling of NWFP at village level. Improved processing techniques, market creation, training and awareness programme will help in popularizing these hidden treasures. Therefore, it is a collective responsibility of all stakeholders, including government agencies to support livelihood options of NWFP gatherers. As long as the bottom of the pyramid is supported, enriched and equipped, rest of the strata can sustain for a long time. The NWFPs based entrepreneurship can be made successful through following measures:

- The traditional knowledge of the tribal and rural masses for NWPs need to be surveyed and documented.
- Refining of the value addition and developing a comprehensive value chain
analysis of key NWPs including untapped and under-utilized products can create demand resulting in economic empowerment of these communities.

- Deregulation and decentralization of NWFP collection and trade. Empowering communities based institutions to manage the trade and their benefits.
- Creation of Self Help Groups and cooperatives integrated with marketing channels needs to be promoted.
- Resource augmentation through in situ plantation.
- Creating awareness, social mobilization and capacity building of the primary collectors.
- A zone wise GIS based inventory of availability, cultivation status, demand and supply for NWFPs
- The issue of subsidy to NWFP gatherers can be explored. Premium pricing of NTFPs need to be thought to bring sustainable profit for the gatherers.
- Different NWFP-based agroforestry models to be promoted in tribal dominated areas for sustainable livelihood.
- Empowerment and strengthening of local institutions such as gram sabha, JFMC, Cooperatives and Self Help groups.

References


Chapter 7
Community-Based Enterprise on NWFPs in the Maldives

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Introduction
The Republic of Maldives is an archipelago of 1192 small coral islands that stretches over 90,000 square kilometres in the Indian Ocean making the country one of the world most dispersed countries. Amongst these islands, there are 187 inhabited islands with a total population of 338,434 (as of census 2014). These naturally formed islands are divided into 20 atolls for administrative purposes. The capital city Male’ located in Kaafu Atoll has a size of 1 square km. Less than 1% of the nation’s total economic zone consists of land. Among all these islands, only 28 islands have a land area greater than one square kilometre. 27.2% of the inhabited islands have a population of less than 500 and 62.5% of the inhabited islands have a population of less than 1,000. The capital city Malé has a population closer to 133,019 people or almost 39% of the population.

Forests in Maldives are designated for soil and water conservation, landscaping and natural beauty of islands and coastal protection. Forests are among the few resources that the people of Maldives have a great dependence on to accomplish basic needs. Coconut being the highest percentage of forest cover avail the island communities with the extensive use of coconut palms; coconut and oil as a major food source, palm trunks as timber to build transportation vessels, build up shelter, household utensils, furniture, thatch from palm leaves as roofing material.

The forest area of Maldives is not known. The Global Forest Resources Assessment of 2005 estimated the forest area at 1000 ha, and the Agricultural Development Master Plan (2006-2020) of Maldives quotes an estimate of 3716 ha of forests. Coconut groves, the most common form of woody vegetation found in the Maldives, are unaccounted in these estimates. These coconut groves are typically dense formations of different species of trees and bushes dominated by coconut palms. Almost all littoral forests show similar formations and provide reasonable protection to the coastline. Furthermore, forest plays a major role in providing wildlife habitats, protects land and water resources and therefore vital for development of the tourism sector. Forests also represent crucial, self-maintaining repositories of genetic resources. Changes in economic, social and demographic settings generate demand for land. Forestlands are mostly cleared for the expansion of agriculture, industrial growth, and development of tourist resorts and to provide housing to cater to the demands of the growing population.
Curent Situation of Non-Wood Forest Products

NWFP are mainly used as a source of food, however, traditionally NWFP have also been used for their medicinal and aesthetic values. Coconut (Cocos nucifera) is the main tree species found in the Maldives. The communities of inhabited islands have the access to natural resources from the uninhabited islands, which have an abundance of coconut palms.

Forests and forest products play a vital role in the Maldivian society. A typical house in an island is built from timber, other products from a coconut palm such as dried, and woven palm leaves. Similarly, traditional fishing vessels are built from timber of coconut palms and other forest trees. Large trees provide much needed shade for the islanders, which are also used for social gatherings and other social functions.

Coconut palms are useful natural resource economically as well as medically and nutrition wise. Almost all parts of the coconut tree, from its roots to its tip, are of use to the Maldivians. Coconut is essentially one of the most nutritious foods one can find in the island nation of Maldives. The health benefits of coconut and its medical usefulness is widely utilized by the Maldivians. Coconut water is traditionally used as a remedy for upset stomachs, nausea and vomiting, diarrhoea, weakness etc.

![Picture 1. Fresh young coconut](image)

Coconut leaves, coconut shell and coconut fibre has been used to make value added products, as in most of the island communities it is been used as means of livelihood income generating activity. The women community of the islands collects coconut leaves from the forest and leaves them to dry. One would still see the art of thatching in Maldivian resorts and local islands. In many resorts, the rooms and water bungalows are made by woven mats and palm leaf thatching (locally known as “Fangi”). Traditional houses were only built using palm leaves in the early 60’s. Thatching was used to line fences, for the walls of houses and temporary buildings. In early days, some people used the midrib of palm fronds to make the walls of kitchens.
Dry coconut leaves, husk, shell etc can be used as fire wood and as a source of charcoal. Traditionally coconut husk was used to make coir ropes. The process was locally known as ‘roanu veshun’. Husks are buried in the beach where the waves can reach them. After a few weeks, they are dug and beaten and the fibre within the husk is removed and woven into ‘roanu’ (coir rope). Coir ropes is used in coconut matting and as anchor ropes in ‘dhoni’ (traditional vessels used by Maldivians for transportation).
Coconut shell which is hard and fine grained, found its uses in being carved into useful objects like souvenirs. The sweet sap (raa) of coconut flowers are collected in containers made using coconut shell and coir. Cups, kitchen utensils like spoons, ladles, spatulas, scoops and smoking pipe bowel etc. were made using coconut shell. The charcoal from coconut shell was used in, smoking pipes, grills etc.

Picture 5. Preparing coconut thread

Picture 6. Coconut sweep sap collector – made out of dry coconut shell
The sweet sap (raa) of coconut flowers is another non-wood forest product which have a high price in the market, but now a very few community members are involved in this livelihood activity. This was a traditional drink from the ancestors. The sweet sap of coconut is used for making coconut honey locally known as “dhiyaa hakuru”, which have a high market value.
Palm leaves are still used in decorating events like wedding parties held on the beaches and in open grounds. The leaves are plaited into various designs. Similarly, household items such as baskets, mats, kitchenware and other works of art including hats, fruit trays, balls, fans, and shapes of birds, animals, fish etc used to be made by woven palm leaves. Stripping the leaflets of fronds to their midribs give eekle, used to make eekle brooms, a local broom used for sweeping the floor. These are still used in some households for cleaning. In festivals and special occasions objects such as the famous fish (bodumas) and famous “koadi” were made by woven coconut leaves.

**Bodu mas**

![Picture 10. Koadi – use for recreation during eid festivals](image)

“Kashikeyo” *Pandanus tectoris Parkinson* is an important component in the food security system of the Maldives and considered as the best source of food during food shortage and scarcity. Red portion of the ripe fruit is eaten raw. Also Juice is a very common drink among the local called as *baiypen, kandhi* is extracted from the fruits by cutting them into small pieces, boiling them in water with sugar and then crushed and strained. Fruit is also used in various food preparations. It is cooked with rice and sugar to prepare a delicious traditional sweet food called *kashikeyo bondibaïy*. 
A very important item used in the Muslim funerals to shower the dead body is *ziziphus zizyphus* (stone apple - kunnaaru) leaves. The leaves of *ziziphus zizyphus* plant is grinded and mixed with water and use it for the ritual shower. And now days the leaves *ziziphus zizyphus* have been widely used as a medicinal plant by the natural healers.

Reed Grass / Sedge are used for mat weaving, it is widely grown in only in a southern island G.Dh. Fiyoree, and the locals use it for the purpose of mat weaving from a long time. In olden days, it was used as bed or mattress to sleep, but now the mats are used as a souvenir for tourists. The Mat weavers are from the near by islands, Gdh.Gahdhoo and Gdh.Rathafandhoo.
Harvesting reed grass (sedge/hau) Drying reed grass (sedge)

Mat Weaving Mat (thun’du kunaa)

Betel leaves is particular are highly demanded commodity, especially in the capital where local production is non-existent. They provide considerable income to many island communities around the country.
Table 1. Male' market traded data (2015 to 2017)

<table>
<thead>
<tr>
<th>Years</th>
<th>Crops</th>
<th>Quantity (Bo'ndi)</th>
<th>Ave. Whole Sale Price (MVR)</th>
<th>Ave. Whole Sale Price (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Betel Leaves</td>
<td>201,648</td>
<td>32.00</td>
<td>2</td>
</tr>
<tr>
<td>2016</td>
<td>Betel Leaves</td>
<td>257,800</td>
<td>33</td>
<td>2.14</td>
</tr>
<tr>
<td>2017</td>
<td>Betel Leaves</td>
<td>186,990</td>
<td>41</td>
<td>2.65</td>
</tr>
</tbody>
</table>

Bread Fruit is also a staple food used by Maldivians, when rice and other staple food is not easily available in the islands the locals were using the bread fruit as it is a very common fruit available in most of the islands. It used in many ways, deep-fried as a chips sweetened, and boiled.

Picture 15. Sale of Breadfruit (Male’ harbour area) Breadfruit chips

Kanamadhu - *Terminali catappa* the flesh of the fruit is eaten when ripen and also the seed is used as a nut. This tree is a common tree in many islands in the forest in almost every island. There is a new trend in using the nut (kanamadhu ) as culinary. The kanamadhu cake is a new sweet food famous among local pastry chefs used in café’s and restaurants. This is a high source of income in many local communities, but it takes a lot of time and dedication to cut open the small fruit and remove the nut. The average price of 100 grms of “kanamadhu” is MVR 100 (USD 6.5).
Thus, maintenance of healthy forest system is critical for the livelihood of local islanders. Any establishment of economic activity should be within the capacity of the local agricultural and forestry production. In particular when NWFP has export potentials, Economic and environmental policies should be developed such that social, cultural and local needs are not compromised.

Table 2. Common commercially produced NWFP in Maldives

<table>
<thead>
<tr>
<th>Product</th>
<th>Scientific and local name</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country almond</td>
<td><em>Terminali catappa</em> (kanamadhu)</td>
<td>Nuts used for eating and cooking, deserts.</td>
</tr>
<tr>
<td>Gum</td>
<td>-</td>
<td>Boat building (sealant)</td>
</tr>
<tr>
<td>Reed grass / Mat sedge</td>
<td>Thundukunaa</td>
<td>Mats, rugs, home use, souvenirs</td>
</tr>
<tr>
<td>Breadfruit</td>
<td><em>Artocarpus altilis/Bambukeyo</em></td>
<td>Culinary use</td>
</tr>
<tr>
<td>Coconuts</td>
<td><em>Cocos nucifera</em> (Kaashi)</td>
<td>Culinary use, cosmetic</td>
</tr>
<tr>
<td>Betel leaves</td>
<td><em>Piper bitle</em> (Bileh)</td>
<td>Recreational</td>
</tr>
<tr>
<td>Screw pine fruit and leaves</td>
<td><em>Pandanus tectorius</em> <em>Parkinson kashikeyo</em></td>
<td>Culinary use, thatch weaving</td>
</tr>
<tr>
<td>Coconut honey</td>
<td>Dhiyaa hakuru</td>
<td>Culinary use</td>
</tr>
<tr>
<td>Coconut fruit (young coconut)</td>
<td>Kurumbaa</td>
<td>Culinary use</td>
</tr>
<tr>
<td><em>Launaea sarumentosa</em></td>
<td>Kuhlha filaa faih</td>
<td>Source of dietary fibre</td>
</tr>
</tbody>
</table>
Policy of Enterprise Development – Focus on Community-Based

Ministry of Economic Development in close collaboration with Asian Development Bank and Islamic Development Bank are trying to overcome the constraints faced by MSMEs (Micro Small Medium Enterprises) in Maldives and working towards a sustainable economic growth model by providing financial schemes, interventions on improving business environment and increasing access to Business Development Services.

Enterprise Development (ED) will be focusing on understanding the challenges faced by the SMEs and working towards addressing these challenges by providing technical support through the 7 business centers established covering every atoll and every inhabited island in Maldives. ED will also introduce various micro finance schemes for the overall economic growth and to support in creating a sustainable environment for SME growth.

- Provide SMEs with subsidies to minimize the difference between the rich and the poor and to encourage a business environment that will extend more economic benefits to the public.
- Establish an institution and develop human resources required for the development of SMEs within the Food Security sector.
- Create more opportunities for SME participation in the three main industries, tourism, fisheries and agriculture, through the formulation of relevant policies. Assist and facilitate SME participation in agriculture, transport and infrastructure development sectors.
- Provide technological capacity for SMEs to expedite the growth and development, given that the development of SMEs is crucial to economic progress.

Short Term Goals (1-3 years)

- Facilitate the growth and development of SMEs through the development of human resources.
- Encourage the participation of women in the SME sector.
- Revive the crafts industry by utilizing modern machinery and facilitate the trade of local souvenirs in the tourist market.
- Give priority to SMEs when awarding regional government contracts.
- Formalize the SME sector and facilitate for the registration of SMEs at the regional administrative centers of the country to further expedite the registration process for the start-up SMEs.
Long Term Goals (1-5 years)

- Promote local products in the domestic market and facilitate their export.
- Establish a training facility for those wishing to establish and promote SMEs in the Faculty of Management and Computing
- Facilitate access to low-interest loans for the SME sector and provide technological support training and assist in marketing and promotion.
- Support and develop traditional crafts practices in the atolls.

Community-Based Enterprise – Status (*both indigenous and newly formed*)

A new company titled ‘Business Center Corporation Limited’ (BCC) has been formed in March 2017 by Presidential Decree in order to provide support and assistance to small and medium businesses. The 100% government owned company reportedly has a capital of MVR 50,000,000, in 5 million shares of MVR 10 each. The objective of BCC is to operate SME related business centres, and to promote and support SME’s throughout the country.

Business Development Center (BDC) is already in operation to assist SME’s in a similar capacity, and the Ministry of Economic Development has stated that despite the forming of BCC, BDC will continue to provide their service to SME’s at no cost. The Business Center Network (BCN) includes seven (7) Business Centers including a Central BC stationed at MED, providing business development services to MSMEs throughout the country.

![Figure 1. Bussiness centers in different atoll](image-url)
The Business Development Services Centre (BDSC) is defined as a business development Centre that provides a wide-range of business development services (BDS), common use facilities, and financial support services to assist and promote Micro, Small and Medium-sized Enterprise (MSME) growth in the Maldives. Establishment of the BDSC is an initiative of the Maldives, Ministry of Economic Development (MED). Establishment of a network of BDSCs is in line with the government strategy to support private sector development, specifically the promotion of the MSME sector, as an important component of government decentralization policy and supporting economic development opportunities and income growth outside of Male.

When fully operational, the Business Development Services Centres (BDSC) will include seven (7) provincial business centres including a Central BDSC stationed in MED, providing business development services to MSMEs throughout the country. The Central BDSC office, which provides management oversight of the BDSC is already established in MED.

The BDSC will support government goals, strategies and priorities for achieving accelerated inclusive growth for broad-based and sustainable local economic development in the country by contributing to MSME sector development, increased job opportunities, expanded community participation in business activities, improved priority sector value chains, and a strengthened business environment conducive to broadening the country’s economic base.

BDSCs will provide valuable BDS support to both new and expanding micro and small business enterprises in the Maldives. This support will include a wide-array of technical, business and related skills training services for small entrepreneurs and communities desiring to expand business enterprise activities as well as specialized technical, marketing, and financial support, including intensive business guidance and mentoring, for a select group of new business enterprises which meet business incubator program criteria for working closely with BDSCs through strategic partnership agreements.

However, in local communities in Maldives, the people do business as individuals, and the model is more like from producers to the end user. There is no enterprise business model, like that is used in the neighboring SAARC countries, where the Government buys most of the local productions and market it to the tourist or control the export market.

**Development of Community-Based NWFPs Enterprise (CBNE)**

To develop a community based Enterprises we need to educate and create awareness among the public, about the importance of an Enterprise Model in the business. Unlike in the other countries the Maldives has a trading tradition of trusting people and selling and buying from local people rather than a shop and
other third parties. In order to change the habits of the Government and Public/Councils together need to build a business model that can bring both the producers and the buyers to a common ground. In this, we need to have a business centers in every Atoll that can do the collections and have an office in the capital city that will do the marketing for these products. The new Taxing system has made it difficult for the small business to cope up with the standards and maintain the books as per the new tax regulations. So having a Business Centre that can do the Bookkeeping and Market the products for the local manufacturers or producers will ease the business in the local islands and more effective.

As there are established BDC’s in different locations in the Maldives that BDC’s will be an advantage and can utilize to build a Business Enterprise for the Non-Wood Forestry Products.

Features for a Successful CBNE

Almost 65% of the population of Maldives lives in islands and these locals are not easily accessible to a trading. A Community-Based Enterprise (CBE) will provide a potential strategy for sustainable local development. This emerging form of entrepreneurship, typically rooted in community culture, natural and social capital are integral and inseparable from economic considerations, transforming the community into an entrepreneur and an enterprise. Drawing on interdisciplinary and multilevel approaches, we propose a theoretical model of the determinants, characteristics, and consequences of CBEs. Having a Community Based Non Wood Forestry Enterprise will signify the sub-sector within the wider social enterprise sector. The concept of “Community-Based Enterprise” (CBE), which we define as a community acting corporately as both entrepreneur and enterprise in pursuit of the common goods. CBE is therefore the result of a process in which the community acts entrepreneurially, to create and operate a new enterprise embedded in its existing social structure. Furthermore, CBEs are managed and governed to pursue the economic and social goals of a community in a manner that is meant to yield sustainable individual and group benefits over the short- and long-term.

We believe CBE represents a promising strategy for fostering sustainable local development. Whereas the community is typically treated in the literature as an exogenous part of the environment for entrepreneurship. An emerging point of view is to treat the entrepreneur and the enterprise as embedded in a network of relationships, were everyone will be benefited. On the other hand, it is commonly acknowledged that enterprise development is a crucial element in the process of economic development.
How it Works

Having such Enterprise will benefit the whole community, rather than individuals. The CBNE can have a government programs that can assist people to access finance that has otherwise not been available through commercial avenues.

- Services that provide financial and business advice and ongoing support
- Membership bodies that can link businesses into the supply chains of large companies and government agencies.

It will benefit the local community in a more social purpose with profits reinvested rather than going to shareholders. Through processing and value addition, one can enhance the income. Enough technical support, suitable mechanism and equipment or processing and value addition working capital and marketing strategies are not readily available for the community in these local islands. Hence with a CBNE we will be able to mobilize the community and convince them to only concentrate on their production and they can let the fear of selling their products as the CBNE will buy it to agreed price for the quality & quantity they agree.

Challenges

- Failing to provide sufficient ongoing support to local entrepreneurs
- Access to financial capital.
- Collecting the products from the local community with poor transportation

What we don’t know

- There is a lack of evaluation data or documentation to determine the number of businesses and their products and services, including data about entrepreneurs and community-based enterprises or co-operative societies.

Community-Based Enterprises

In contrast, several studies describe Indigenous ‘community-based enterprises’ or ‘social entrepreneurs’. These businesses have a more communal purpose and are not focused on individual profit. While still embracing basic business functions, these types of enterprises ‘differ from most conventional businesses in that they
are not based on utilitarian economic models but have broader political, social, cultural, environmental and economic goals and try to resolve pressing social problems. Key success factors will be, easy access to finance through the Government Authorities, there is a SME loan program that can benefit from the CBNE. As the Government will have full control on the business of the local community who receive the loan, success rate is high.

**Successful Model of CBNE (Present in the form of case study)**

**Case study:** Production of Virgin Coconut oil and value-added products for the enhancement of livelihood and food security through income generating opportunities. (TCP/MDV/3101)

In 2006, FAO began implementing the TCP project Production of virgin coconut oil and value added products for the enhancement of livelihoods and food security through income generating opportunities. Aimed at smaller and vulnerable rural island household groups and coconut producers, the project focused on developing small-scale innovative technologies to extract high quality virgin coconut oil from fresh coconuts and to produce value-added products like soaps and massages oils for sale to the tourist industry. The project has worked through women’s groups and established a successful production facility on the northern atoll. However, time ran out before a second facility could be developed on a southern atoll so a second phase was approved. This extended project was finalized in December 2010 with the completion of a second virgin coconut production facility on Gan Island with a network of small collection centers on outlying islands. Together, the two projects ran from 2006 to 2010 with a combined funding of US$ 459,000 provided by FAO. The main strength of the projects was the emphasis on women and young people, teaching production skills for value added products from the abundant surplus of coconuts found on the islands, while at the same time stimulating improved coconut management and production. On a macro level, the projects provided an alternate source of good quality virgin coconut oil for local consumption and marketing.

There is potential for increasing the income generating capabilities through forestry activities, even with limited available resources in the islands. The communities of inhabited islands have the advantage of access to resources from the many uninhabited islands scattered through the atolls, which have an abundance of coconut palms. The Government of Maldives was keen to promote value added products from coconut (Virgin Coconut oil / Soap / Creams Lotion etc using coconut oil) of in order to make people less dependent on some of the imports, most of which are costly and on which Maldivians heavily rely. The project has been flagged as high priority for government as it fits in well to the sixth national development plan process of promoting agricultural and regional development via value added products. With more private sector participation and
as a contributor to cause tsunami recovery of island communities. The youth and women were mobilized with the help of simple, relatively low cost innovative technology and methods for the production of a value added products. The tools and machinery use are simple and low-cost allowing the cost of production also to be low and affordable to the community groups.

The islands for the pilot projects was chosen based on the coconut production of the locality and conditions of and access to markets, in order to give the product a necessary, successful, initial launch in to the domestic market. Many of the women in the island communities go to the uninhabited islands to collect coconuts and firewood for their daily domestic use. As long as these resources are available, in these uninhabited islands it is not anticipated their wood arise any constrains in acquiring the national resources needed for the work. In addition, a locally made and readily available product will be fully utilized, at the same time as increasing the income generation and improving livelihoods at the community level. This project will be aimed at women and youth in particular, where there is an urgent social need to create employment and derive extra income for households now that the copra income has been lost.

The current world publicity and knowledge about coconut oil has shown that it contributes to reduction in cardiovascular diseases, weight loss as well as reducing other life style related heart problems, and are showing more and more in the lifestyle of Maldivians. With the current trends towards exercise and healthy living among Maldivians, the easy production, use of and accessibility to good quality virgin coconut oil for all and the resultant benefits, both material and immaterial, present a strong case for piloting the production of virgin coconut oil, derive from fresh coconut meat and not the often rancid copra of the past, in the Maldives.

**Coconut Production**

Coconut production remains the dominant agricultural/forestry product in the Maldives. In 1992, there were an estimated 937614 (MOFA, estimate) coconut palms throughout the country.

Table 4. Male market traded data (2015 to 2017)

<table>
<thead>
<tr>
<th>Years</th>
<th>Crops</th>
<th>Quantity (Nos)</th>
<th>Ave. Whole Sale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Coconut</td>
<td>989,153</td>
<td>3</td>
</tr>
<tr>
<td>2016</td>
<td>Coconut</td>
<td>1,071,677</td>
<td>4</td>
</tr>
<tr>
<td>2017</td>
<td>Coconut</td>
<td>628,822</td>
<td>8</td>
</tr>
</tbody>
</table>
Coconuts are at present not cultivated for the express purpose of extracting oil and coconut gathering is usually of those that fall off the palms and in very small quantities. Coconuts and coconut products form an integral part of the Maldivian diet. However, the productivity of the coconut palms is low as a result of the poor varieties, close planting, almost non-existent use of fertilizers and damage from pests such as the rhinoceros beetle, rats and other pest, including more recently the devastating Coconut Brontispa Beetle.

Historically, coconuts played a important role in the economic development of the region. The early trade and investment in the region was largely based on coconuts. However, the coconut boom ends with the decline in the copra prices. The decline in copra prices has led to the neglect of coconuts with respect to harvesting and gathering. Although Maldives exported, copra in the 1950 is the last half-century, this trade in copra has been phased-out altogether and as a result, very little use is made of the abundant resource of coconuts.

**Objectives**

Improvement of incomes and livelihoods and a reduction in overall vulnerability of small rural islands’s household groups and coconut producers in the Maldives

**Outputs**

The result of the accomplish a number of goals in order to meet the main objectives of the project. Below are the broader issues that were addressed by the projects main objective:

- Creation of sustainable income generating opportunities with the utilization of readily available coconuts
- Creation of employment opportunities, with emphasis on women and youth participation.
- Skills developed in the production of value added products from primary sources
- Trained staff on the handling and maintenance of machinery essentials to the production process
- Skills developed for the production, marketing and sales of products locally
- An alternative source of good quality virgin coconut oil available on the market which can be substituted for the presently imported products in to the country
- Value added virgin coconut oil products available for sale locally and in the tourist industry and ultimately for export income generation.
- Organic VCO available in designated areas.
Main outputs of the project:
Installation, of two large pilot training plants and eight smaller production units at these latter island community sites for production of Coconut oil and high quality products in small enterprise groups.

Activities carried out:

- The 2 plants were established in two island from most north and most southern part of Maldives.
- The plants were operated by trained community personals.
- 8 outreach islands were selected to consolidate the 2 main plants and given smaller VCO plants to produce virgin coconut oil.
- Construction materials were facilitated to the islands to build the smaller VCO plant operation house.
- Training were given to the beneficiary group from each island

2- Methodologies introduced for extracting virgin coconut oil and at least six value –added products developed, ready for marketing, from high quality, coconut oil and by-products produced by small enterprise groups. MOFA (Ministry of Fisheries and Agriculture) staff and community groups were trained.

Activities carried out:

- International Coconut processing specialist and technical experts advised and trained the MOFA staff and the beneficiary group from each island to make and package a range of value added based products (soap, oils, lotions, creams, cooking oil, cookies vinegar etc) using relevant technologies, in an environmental friendly way.

3- A production manual for producing the value added products from coconuts were developed to maintain the quality and standard of the products.

Activities carried out:

- Guidelines were developed for further outreach training of the virgin coconut oil and other value added products.
- A training manual were developed and distributed to the beneficiaries or interested communities.

4- An outreach program in the eight island communities arranged. Each group will have a VCO plant, setup to produce high quality coconut oil and have up to 50 people trained in oil production and value added product production from oil and residues, packaging and the marketing of the products and small business administration.
Activities carried out:
- Beneficiary groups from each islands were trained at the North VCO Processing Plant in Hdh. Hanimaadhoo.
- Develop linkages between VCO production communities and private sector groups in Maldives for marketing, promotion and exporters of value added VCO products.
- Develop linkages with funding agencies to assist with expansion of technologies to other needy communities.
- Improve cultural management of coconuts in islands with options for coconut products certification and improved production process and quality products organically certified by the relevant bodies, for marketing and sale in urban centers, the tourist resort market and for export

Activities carried out:
- Organic Coconut Production demonstration were setup to farming island groups of the 2 VCO Processing Plants.
- An international Specialist in Organic Certification setup a mechanism for organic certification of coconuts and coconut products and trained MOFA staff and the key island staff.
- Sustain production and technologies used through regular monitoring and evaluation of the outcomes of the project and ongoing training technical skills, sales and marketing and savings and credit schemes.

Activities carried out:
- Extension programs for management training and financial planning for budgeting for small business enterprising schemes was provided to the beneficiary group.
- Training for marketing, sales and quality assurance of end products of the coconut oil production.
- Market exploration and development through local advertising campaigns (at exhibitions at world food day / farmers day)

Capacity Building
- It strengthened the knowledge and technical skills of MOFA staff and island community to sustain production of coconut oil and coconut oil value-added products as well as promotion, marketing and all aspects of Small Business Management.
- The 2 main VCO processing Plant Units were developed to assist in technology transfer and Enterprise development with MOFA to outreach island communities.
MOFA staff participated in a study tour to familiarize themselves with the complete production process and the skills needed to provide the necessary skills training and the project development guidelines for the community groups.

They were given the capacity to develop and understand the community cultural environment and farming systems in Maldives and ow to assist communities in a holistic way.

Training conducted in production of baskets for souvenir packaging
Training conducted in entrepreneurship and marketing skills
Training conducted in leadership and empowerment skills
Training conducted in accounting and book keeping skills
Identification of a site in each of the outreach islands for the establishment of a small facility to accommodate equipment for producing VCO and arranging a suitable mechanism for maintenance, administration and management of the facility

Impact
The program did not work to achieve the overall objectives and the long term goals in the project targeted islands to Production of Virgin Coconut oil and value-added products for the enhancement of livelihood and food security through income generating opportunities. In the eight outreach islands and also in the main processing plants, due to the lack of production monitoring and evaluation of the program. However this pilot program was a good example and model to convince enthusiast entrepreneurs that Virgin Coconut Oil is a potential business and it motivated locals to start producing the Virgin Coconut oil and build new brands (some of them are: kaashitheyo, Organic Cocos, Frella Maldives, Faan and Kuri) are now in the market for local sale, tourist resorts, export market and have created a competitive business.

Strategy to Replicate

Introduction
Main purpose is to replicate a strategy that has been worked in other communities. We need to collect data from the rural communities who are producing the non-wood forestry products in Maldives. After collecting the information, we can identify their needs and recommendations. Development programs, particularly those that offer technical assistance (TA), should broaden focus to include value added products from coconut.
- Scaling social impact of an enterprise in addition to ensuring financial growth should be a key design feature of programs.
- Program approach should include working with individuals and corporate societies to strengthen and scale them, and build markets for through a bottom-up approach.
- Funds and financing instruments should meet unique needs of, such as the need for capital, to train them for innovative ideas to new products.
- Approach to Funding Agencies to meet the capital requirements of the rural communities
- Establish standalone funds in risk-averse markets that have proven their inability to change risk behavior due to fiscal policy or resource constraints.

Business Enterprise can leverage the experience and capital of impact the community in incorporating these recommendations and achieving growth and scale for the Enterprise for the Value added products from Coconut.

Table 5. Constraints and Opportunities for CBNE

<table>
<thead>
<tr>
<th>Constraints</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tradition of large enterprises</td>
<td>Improvement of logistics through inter and intra-island transportation system</td>
</tr>
<tr>
<td>Narrow economic structure</td>
<td>Possibilities to use existing facilities for BDS activities and services</td>
</tr>
<tr>
<td>Lack of entrepreneurial and managerial knowledge and skills</td>
<td>Development of entrepreneurial infrastructure</td>
</tr>
<tr>
<td>Lack of finance for CBNE</td>
<td>Existence of experienced entrepreneurs</td>
</tr>
<tr>
<td>Lack of entrepreneurial mindset</td>
<td>Opportunities for non-wood forest product commercialization</td>
</tr>
<tr>
<td>Few people oriented to modern working environment</td>
<td></td>
</tr>
<tr>
<td>Lack of financial resources</td>
<td></td>
</tr>
<tr>
<td>Dependence on government for action</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions
Looking to the Business Enterprises in other countries, we can say that having such an Enterprise in Maldives will benefit the overall community in the local islands. As having, such Enterprise will ease the business of producers and they can only concentrate on production rather than having the fear of marketing and selling their products.
Chapter 8
Status and Potential of Developing Community Based Commercial Enterprises of Non-Wood Forest Products in Pakistan

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Introduction
Pakistan makes a north-south corridor connecting central Asia with South Asia. It has an area of 881,913 square kilometers with a population of about 210 million. It is divided into five provinces viz. Sindh, Punjab, Khyber Pakhtunkhwa (KP), Baluchistan and Gilgit-Baltistan. More than 70% of its climate is arid and semi-arid. About 76% agriculture is irrigated through an extensive network of canal system. The country is deficient in natural forest resources estimated to be 5.2% of country's area making 0.03 ha per capita forest cover as compared to world average of 1 ha per capita.

Administratively 4.2 million ha of lands (or 4.8%) are allocated to natural forests that fall in the jurisdiction of provincial forest departments. Between the provinces, the KP is comparatively rich claiming almost 40% of Pakistan's forests. Although substantial areas have been brought under plantation through various projects including flagship Billion Tree Afforestation Program launched in KP whereby 0.3 million hectare wastelands have been planted, the deterioration of natural forests which are the main source of non-wood forest products (NWFP), could not be arrested due to increased pressure of rapidly growing population. According to Landsat-based assessment of forest cover change, the annual rate of deforestation in natural forests is estimated to be around 27,000 ha in Pakistan.

As per the forest classifications by functions and types, there are 42.8 % coniferous, 37.8 % scrubs, 6.5% riverine, 7.6% mangrove, 5.1 % irrigated plantations and 0.4 % linear plantations. Out of total 4.579 million hectare forest cover, only 1.266 million hectare is productive (Jan, 1992). These forests and rangelands are scattered over 60% of the country partly supporting about 95 million heads of livestock (AOU, 1992). Although plantations carried out on rangelands have increased the forest cover, yet these have to develop an ecosystem capable of producing NWFP other than forage and fodder.

The high topographic variations from Hindukush-Himalayan ranges in the north to Arabian Sea in the south cause diversity in climatic conditions producing a
wide array of NWFP. The northern Pakistan and Baluchistan in the south not only harbor a number of endemic species, but also from the centre of origin and radiation of many genera, such as Astragalus, Cousinia and Allium. The plant hotspots of Pakistan are spread over 13 Natural Regions; from alpine pastures to mangrove forests (Pak. J. Bot., 2011). The study reveals that there are more than 6,000 species of higher plants in Pakistan. More than 12% of the flora is used medicinally while several plants are exported. A well established indigenous herbal-drug market (Pansara) is spread over the country on the strength of hakims (herbal doctors). There are 39,584 hakims and 455 vaids (a variation of hakim) registered in Pakistan. Added to this are 457 Tibbi (herbal) dispensaries and clinics providing medication to the public. There are 300-350 Tibb-e-Unani (herbal) medicines manufacturing units. Like other countries of the world, NWFP; particularly medicinal plants (MP), are highly important for livelihoods of the rural population of the country. Local people have marvelous practical knowledge about various NWFP, transmitted from generation to generations. Pakistan is amongst the leading countries exporting medicinal plants.

Non-Wood-Forest-Products (NWFP) - Country Situation

In Pakistan, the NWFP includes medicinal and aromatic plants, mushrooms, honey, wild fruits, resin, mazri, chilgoza nuts, and a large variety of other products. Despite lack of institutional and legal framework, the business of NWFP is on the rise though the local collectors employ traditional and crude methodologies to extract and market the same. As is evident from the table below, Pakistan stands 12th in the line of countries doing trade in pharmaceutical plants annually.

Table 1. Trade of Pharmaceutical plants

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>67,000</td>
<td>291,200,000</td>
<td>China</td>
<td>147,000</td>
<td>281,800,000</td>
</tr>
<tr>
<td>Japan</td>
<td>51,350</td>
<td>136,000,000</td>
<td>Hong Kong</td>
<td>63,150</td>
<td>228,800,000</td>
</tr>
<tr>
<td>USA</td>
<td>49,600</td>
<td>135,500,000</td>
<td>India</td>
<td>33,900</td>
<td>56,650,000</td>
</tr>
<tr>
<td>Germany</td>
<td>45,350</td>
<td>110,200,000</td>
<td>Germany</td>
<td>15,100</td>
<td>70,050,000</td>
</tr>
<tr>
<td>Rep. Korea</td>
<td>32,250</td>
<td>52,300,000</td>
<td>USA</td>
<td>13,500</td>
<td>115,500,000</td>
</tr>
<tr>
<td>France</td>
<td>21,350</td>
<td>52,000,000</td>
<td>Mexico</td>
<td>13,000</td>
<td>11,250,000</td>
</tr>
<tr>
<td>China</td>
<td>13,650</td>
<td>41,600,000</td>
<td>Egypt</td>
<td>11,750</td>
<td>13,850,000</td>
</tr>
<tr>
<td>Italy</td>
<td>11,700</td>
<td>42,850,000</td>
<td>Chile</td>
<td>11,600</td>
<td>28,200,000</td>
</tr>
<tr>
<td>Pakistan</td>
<td>11,050</td>
<td>11,150,000</td>
<td>Bulgaria</td>
<td>10,050</td>
<td>14,500,000</td>
</tr>
</tbody>
</table>
--- | --- | --- | --- | --- | ---
Spain | 9,100 | 27,650,000 | Singapore | 9,600 | 56,600,000
United Kingdom | 7,650 | 27,000,000 | Morocco | 8,000 | 13,300,000
Singapore | 6,300 | 50,600,000 | Pakistan | 7,800 | 4,950,000
Total | 326,300 | 978,150,000 | Total | 344,400 | 893,400,000

Source: UNCTAD COMTRADE database, United Nation Statistics Division New York

Worldwide status of export of medicinal plants is given in Figure 1 below:

![Figure 1. Worldwide export status of medicinal plants](image)

Unfortunately NWFP does not emerge substantially in order of priorities embedded in forest polices and forest management. The legal instruments remain mainly focused on production and sale of wood. The rural population living in the vicinity of the forests uses NWFP for consumption and sale to earn their livelihoods. Forests and rangelands provide forage to about 95 million cattle heads. The mangrove forests situated on coastal area provide forage to 8,000 camels, 5000 buffaloes and 1000 goats as well as producing about 28.80 million tones of shrimps and 2.441 million tons of other fishes caught annually. (Pakistan Forestry Outlook: Working Paper No. APFSOS II/WP/2009/28)

**Policy of Enterprise Development**

NWFP, in its own right, needs to be managed, developed and promoted. Contrary to this, in different schemes of forest management, NWFP is focused only to shift dependence on timber for forest conservancy. This approach has undermined the
importance of NWFP to a great extent. Although in some provinces independent NWFP directorates have been established, but they are part of the forest department and lack relevant technical and managerial knowledge and expertise. In past the management of NWFP remained a component of forest polices being part of National Agriculture Policies. The forestry, under the constitution, is provincial subject. The provinces develop their own policies; however, on national scale the ministry of climate change is responsible for developing national forest policy in consultation with the federating units. A draft National Forest Policy (2004) has recently been developed covering forest, watershed, rangeland and wildlife with due focus on encouraging non-timber uses of forests in line with sustainable forest management principles. The Policy awaits cabinet approval. The KP has already promulgated Forest Policy 1999 taking promotion of NWFP as one of the main objectives of forests’ management. However the Forest Act 2002 in KP and Forest Act 1927 operative in rest of the country lack provisions for promotion and regulation of NWFP beyond levying taxes and forest duty on the product.

In the past, a number of projects were executed in green sector with integrated approach by community participation. These projects influenced the legal reforms and the mode of working of forest staff highlighting the need to integrate forestry with livelihoods- development of resource- dependent communities. An institutional change on local level was witnessed in the shape of local village organizations capable of undertaking certain roles in integrated- renewable-resources management initiatives. These local institutions may have a role in the management of NWFP.

In the same vein some NGOs have shown excellent performance particularly in creating mass awareness, informal forestry education, community nurseries, tree plantation and protection of forests from fires and theft. The scope of their activities could be enlarged to take care of NWFP management. National NGOs like the National Rural Support Programme (NRSP), Sungi Development Foundation, and international organizations like IUCN, WWF, and SUSG-Central Asia have been partners with the government in several projects concerning forestry, wildlife and biodiversity. Since most of the NGOs and international organizations depend on grants by the international donors their future role depends on donors’ interests.

The Pakistan Forest Institute (PFI) has been providing training and education in various Forestry disciplines to foresters to meet the requirements of federal institutions, provincial forestry departments, private sector and civil society organizations. In view of the foregoing there are ample opportunities for promotion of NWFP business which, in the absence of any special legal framework, can be served better by Community Based Commercial Enterprise (CBCE).
Community Based Enterprise (CBE) -Status
The studies conducted in various parts of the country (Gul, 2015), (Shinwari et al, 2011), (MO, 2010) paint the same scenario summarized as under:

i. NWFP are collected by poor strata of the society using crude techniques both for sale and domestic consumption.

ii. The NWFP are not properly classified hence chances of admixing NWFP of same species but different varieties. This negatively affects the quality of harvest.

iii. Due to prevailing mercenary culture, land tenure, and absence of effective monitoring system, the resource is subject to overexploitation.

iv. The middlemen exploit the local collectors by offering minimum purchase cost.

v. The business of NWFP is not institutionalized improving cost effectiveness and enhancing bargaining power of the local collectors.

vi. For timber, there is proper system of distribution of sale-proceeds among the owners / right holders, but for NWFP no such mechanism exists. On grass root level NWFP is gathered arbitrarily; individually or collectively by families for local consumption and for sale.

Given the situation the task of bringing all stakeholders on one page to develop NWFP in the framework of CBCE has many irritants to scale over. The NWFP collectors on grass root level maintain mutual information system for value addition and bargaining with the middlemen. External interventions are therefore essential to institutionalize their informal liaison.

Above limitations notwithstanding, the business of NWFP is increasing with the passage of time. As per Lange D (2004 referred in Gul, 2015), Pakistan occupies 12th position among the medicinal plants exporting countries in the world. Pakistan exports 11000 tons medicinal herbs annually worth $14.000 million. Although this report is at variance with figures reported in Table 1, above but it precipitates into a fact that there is big potential of initiating community based enterprise by launching specifically designed projects and developing necessary legal framework.

Development of Community Based Commercial Enterprise
For development of CBCE, assessment of resource potential: analysis of stakeholders, range of NWFP collected, patterns of collection and storage and marketing are prerequisite. Above all, an enabling land tenure system is mandatory for sustainability of initiative and equitable distribution of the benefits accrued. In case of Pakistan, a very small proportion of the forests and rangelands
wherefrom NWFP is procured, are owned by the state. Almost 90% of range and forest lands are either privately owned or burdened with rights of the families. All the community members are neither owners nor right holders. In case of timber harvesting, the sale proceeds are distributed amongst the right holders/owners as per the prescribed procedure. However, no such procedure exists in case of NWFP. Such a situation generates conflict of interests, particularly when mostly poor and landless are involved in the collection of NWFP. Further, in order to encourage growth of certain medicinal and other valuable species, besides other interventions, free grazing has to be stopped, which cannot be made possible without taking all the stakeholders on board. Extent of NWFP corresponds to the degree of biodiversity-richness, whereas except for a small portion of moist temperate forests in Northern Pakistan, most forest and range lands are poor in biodiversity-richness due to arid and semi-arid climatic conditions. Above warrants limited clientele to individuals and families already involved in NWFP business at any stage.

Currently NWFP management wings of the forest departments and projects launched for the purpose are focusing on imparting training to the collectors in harvesting and storage, and facilitating their access to market. For development of resource, forest departments are underpinning the conservation-oriented management. It goes without saying that initiatives for resource development are basic requirements for promoting NWFP, opening new channels of business.

**Successful Models of Community Based Commercial Enterprise**

Since KP is the pioneer of formulating Forest Policy in 1999 wherein NWFP promotion has been given adequate attention, therefore the initiatives taken in this province are analyzed for the purpose of this report. The province is spread over 7.45 million hectare, boasting more than 40% of the country’s forest resources. These forests, in the northern mountainous terrain, are mostly coniferous and rich in biodiversity. The land use statistics of the province is given below:

<table>
<thead>
<tr>
<th>Land use classes</th>
<th>Area (m Ha)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forests</td>
<td>1.51</td>
<td>20.3</td>
</tr>
<tr>
<td>Alpine pastures</td>
<td>0.65</td>
<td>8.7</td>
</tr>
<tr>
<td>Range Lands/Shrub/Bushes &amp; Barren land</td>
<td>1.97</td>
<td>26.6</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2.22</td>
<td>29.8</td>
</tr>
<tr>
<td>Others</td>
<td>1.10</td>
<td>14.6</td>
</tr>
<tr>
<td>Total</td>
<td>7.45</td>
<td>100</td>
</tr>
</tbody>
</table>
The province is remarkably diverse in flora and fauna thanks to its climatic and topographical variations. Numerous side ranges and shoulders extend in all directions from the Hindukush-Himalayan (HKH) chain making a mosaic of biologically isolated high altitude ridges and deep valleys. The complex vertical topography helps restrict gene flow across the landscape. People living in the forests and around are dependent on NWFP including wild fruits, nuts, medicinal and aromatic plants (MAPs), honey, water, and fodder for livestock. There are about 6000 plants species out of which about 600 are used as NWFP and have medicinal value. More than 50 species of medicinal and aromatic Plants (MAP) are in regular trade put to different uses inside and outside the country. Some of these MAP are high in value and low in volume against others; relatively bulky but low in value. It has been observed that during the last decade a significant number of NWFP, hitherto unknown, had entered the market.

A gradual recognition of the medicinal, economical, ecological, social and cultural role of NWFP is impacting on the policy makers to formulate compatible rules and regulations. Although the harvesting of NWFP from the wild is not a new phenomenon, but the growing realization of the nexus between a sustainable forest management and provision of income and livelihood opportunities for the forest fringe communities as well as improving the economy of the country is a new development. However, for any organized promotion of NWFP under the banner of CBCE, it is necessary to undertake research with comprehensive inventory of the production and its economic value devising a systematic, logical and broad-based structure in the backdrop of human health, environment and biodiversity resources. The exercise calls for a long term planning as part of an integrated planning for other natural resources.

MAP has a large variety of species in use; domestically and as market products, and correspondingly they occur in various ecological zones forming association with the local vegetation. However, a large variety of plants with relatively higher importance because of their non-cosmopolitan distribution, endemism, site-specificity, higher demand, higher market prices etc, are found in the northern mountains of KP, particularly in Malakand and Hazara regions.

The Government of KP is all set to promote the sustainable use of biodiversity components in the province in the public interest. This is in line with the national obligations to comply with the Multilateral Environmental Agreements (MEA) with special reference to the international Convention on Biological Diversity (CBD). During the last 2-3 decades, the rising demand for NWFP; MAP in particular, in the local and international markets, has resulted in overharvesting of certain species putting them on high risk. Unfortunately no baseline survey ascertaining the existence and potential of the NWFP has been completed so far. The data pertaining to the trade of the NWFP is the only information indicating its
market trends and availability of in a particular area. Survey conducted by USAID in 2013-14 in civil division Malakand reveals following detail:

Table 3. Volume of NWFPs harvested in Malakand

<table>
<thead>
<tr>
<th>No.</th>
<th>NWFP Extracted annually</th>
<th>Average Quantity (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Morel Mushroom (Morchella Spp)</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>Medicinal &amp; Aromatic Plants</td>
<td>70</td>
</tr>
<tr>
<td>3.</td>
<td>Chilghoza Nut</td>
<td>18</td>
</tr>
<tr>
<td>4.</td>
<td>Walnut (Akhrot)</td>
<td>110</td>
</tr>
<tr>
<td>5.</td>
<td>Wild Fruit</td>
<td>55</td>
</tr>
<tr>
<td>6.</td>
<td>Local Honey</td>
<td>11</td>
</tr>
<tr>
<td>7.</td>
<td>Wild vegetables</td>
<td>25</td>
</tr>
<tr>
<td>8.</td>
<td>Grasses, fodder, bushes</td>
<td>11000</td>
</tr>
<tr>
<td>9.</td>
<td>Pine Needles</td>
<td>9000</td>
</tr>
</tbody>
</table>

NWFP directorate was established in 2007 in the KP forest department. It is manned by 40 technical and 38 support staff. The directorate is put to many challenges on planning and operational sides. These include capacity building, management infrastructure, operations and expertise evaluation procedures, and a comprehensive monitoring and assessment system.

Although the financial and developmental importance of NWFP has been recognized, a legal framework is yet to be evolved so as to contain the abuse of the resource. In this regard the policy lacks legal interventions as well as incentives mandatory towards increasing the produce and maintaining sustainable harvest. Likewise a mechanism to regulate harvesting and merchandize of NWFP in the province has not been put in place encouraging the entrepreneurs to let loose their economic drive aggravating the overharvest and the likely extinction of the species, especially the MAP. It is therefore necessary that international, national and local regulations and guidelines are enforced to guarantee sustainable production practices at source.

The Forest Department is mandated to treat the NWFP as integral part of forest ecosystem, but the subject is dealt with in the context of social parameters. This mindset originates from the notion that NWFP was nothing but a seasonal source of income for the local forest dwellers and pastoralists. Then the demand was mostly local and in small quantities, limited to certain well known species, hence
the need for regularization of its produce and trade did not arise. However, during the last 10 to 15 years the demand picked up pace, exerting pressure on the species already in the market and driving people to search for the new ones, resulting in large-scale indiscriminate harvest. The trend necessitated the enforcement of legal instruments to regulate the business in the wake of a free-for-all field of NWFP. The spike in trade and legacy of the past did not leave much room for the government or for that matter for any public institution to engage specialized manpower equipped with relevant knowledge and skill to develop technical management in unison with the existing economic and social parameters. The staffs manning the NWFP directorate has insufficient educational and functional background and experience of the forest management. Moreover they are not members of the mainstream cadre of the Forest Department; rather they are ex-cadre employees with their own career path. They have no legal force like those in the mainstream forestry, to implement any regulation for management of NWFP in the forests and range lands.

The Directorate has an advisory status, as the territorial functionaries fall outside its authoritative domain. The prevailing situation reduces the role of the directorate to information centers demonstrating propagation of certain NWFP species in small plots selected inside the designated forests.

**Development of CBCEs**

Recently the KP Forest Department has launched a project titled “Mountains and Markets: Biodiversity and Business in Northern Pakistan” aiming to promote sustainable utilization of NWFP for livelihood improvement of local communities and biodiversity conservation in forest ecosystem. Local collectors, harvesters and traders are organized and CBCEs are formed on valley level for sustainable harvesting and effective marketing of NWFP. There are five CBCE, one each in Kalam, Miandam and Bishigram in Mingora District and Kumrat and Lamotai in Dir Kohistan. These CBCE have been coached and trained in the areas of improved harvesting techniques, collection tools, post harvesting processes, value addition, and marketing of NWFP to enhance their income by providing good quality products to consumers.

One of the main functions of these CBCEs is to cooperate with the forest department imposing ban on collection of rare and endangered species to improve their population in the wild. The department facilitated these CBCE through the following interventions:

**Establishment of processing units:** One CBCE has been provided with processing unit for postharvest treatment of wild mint and thyme tea leaves along with necessary equipments including solar dryer, grinder, packing machine and tubs. The CBCE has started collection, processing, and marketing of wild mint on
commercial scale. The mint is collected, washed, dried, and packaged by the CBCE. The entity is further facilitated to access the main provincial and national markets.

**Establishment of capital incubator fund for CBCEs:** Capital Incubator Fund for each CBCE has been established by opening bank account to be operated jointly by the chairman CBCE, sub-divisional forest officer, and project representative. A total amount of Rs. 3,500,000.00 with 10% share from local communities has been allocated for the purpose. An operational guide/mechanism; mutually agreed upon and signed, is provided for utilization of the fund. The fund is meant to promote the collective marketing of NWFP through improved collection and processing. The running expenditures of each CBCE for processing and marketing of NWFP are also met from this fund.

**Provision of harvesting tools:** All CBEs are provided with improved harvesting tools and trained in their use to minimize damage to forests during collection and harvesting of NWFP. The measure helps improve the quality of products.

**Management training:** Training is imparted to the office bearers of a CBCE in maintaining office record, making it readily available for audit by forest staff and community members. Necessary stationery and registers have also been provided.

**Training in Certification of NWFP:** Experts from Fair Wild Foundation and CBI (Center for promotion of imports from developing countries) of the Netherlands imparted training to officers of the Forest Department and CBCE members on certification of NWFP. Trainees were apprised of different biological, social, ethical, managerial, and legal requirements for certification. However, proper management plan, which is one of the essential requirements for certification, is yet to be developed.

**Training in Product Development:** CBCE are also imparted trainings in different product development including Morel mushroom, Mentha, Thyme, Valeriana, Viola, and other important species. For quality products, right time of collection, right part of collection, right method of collection, hygienic processing and grading are specially focused.

Although initial results of the above initiatives are quite promising, their sustainability is yet be determined which would be possible when project is over.

**Features of a Successful Community Based Commercial Enterprise**

A successful CBCE, inter alia, must be broad based, representing a well defined community, managing a distinctly delineated resource in accord with the prescriptions of a precisely elaborated management plan, having an organizational set-up ensuring observance of principles of sustainability and equitable distribution of benefits. It should be capable of excluding the outsiders to save the
resource from "tragedy of common". Further, the management structure should be capable enough to build managerial and technical skills of its members in harvesting, grading, storing, value addition and marketing. More so there should be an external agency mandated by the state to monitor the entity, involving research organizations and NGOs for capacity building, scaling up or scaling out an NWFP, and building linkages with the market.

Currently not a single CBCE is in a position to claim such characteristics. There is no resource management plan anywhere. Existing land tenure makes one of the basic hiccups. The forestry departments, also vested with the management of the NWFP, are primarily focused on forest protection against illicit cutting and encroachments. The NWFP is undermined in the existing management regimes.

Given the situation, it would be more practical to narrow down our options and study the existing business from collection to marketing to find weaknesses, if any, for removal. For example a study (Gul, 2015) conducted in the NWFP-rich Kohistan valley extending over 0.2 million hectares, situated in the Northern dry temperate zone of the KP, reveals that besides honey and Chalghoza nuts with the annual production of about 30,000 Kg, following medicinal plants are purchased by 19 local merchants for domestic consumption and export:

Table 4. Medicinal Plants and their uses

<table>
<thead>
<tr>
<th>No</th>
<th>Local Name</th>
<th>Scientific/ Technical Name</th>
<th>Major uses</th>
<th>Pictures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soon</td>
<td><em>Aphedra gerardiana</em></td>
<td>Locally its ash is used for making snuff/tobacco and in bad cold. Stimulant on arterial muscles, constrict blood vessels. Stimulate respiratory center, accelerate heart, causes relaxation of bronchial muscles and dilation of pupil.</td>
<td><img src="image" alt="Soon" /></td>
</tr>
<tr>
<td>2</td>
<td>Birch/Burs Pata</td>
<td><em>Bitula utilis</em></td>
<td>Leaves are anti-bacterial. Bark tea is diuretic, treat gout, and rheumatism. Dissolve kidney and bladder stones. Also lowers cholesterol levels.</td>
<td><img src="image" alt="Birch/Burs Pata" /></td>
</tr>
<tr>
<td>No</td>
<td>Local Name</td>
<td>Scientific/Technical Name</td>
<td>Major uses</td>
<td>Pictures</td>
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<td>----</td>
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<td>---------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>3</td>
<td>Dood Pata</td>
<td><em>Trillium govanianum</em></td>
<td>Roots are used as astringent, tonic, alterative and for emetic effect (it contains acrid saponin trillin and tannin chemicals).</td>
<td><img src="image1.jpg" alt="Dood Pata" /></td>
</tr>
<tr>
<td></td>
<td>Batrang</td>
<td><em>Lichen foliose</em></td>
<td>Used as dyes, has esthetic appeal in nature.</td>
<td><img src="image2.jpg" alt="Batrang" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Are antibiotic and effective in biodegradation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Also used as food and in lichenometry.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Chilli Dana</td>
<td><em>Juniperousmacropoda</em></td>
<td>Fruit is diuretic, also used for muscle pain and digestive problems.</td>
<td><img src="image3.jpg" alt="Chilli Dana" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fruit is also used for menstruation disorders, uterine cists treatment, female infertility, prostate and urinary problems.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Chotial</td>
<td><em>Rheum emodii Wall</em></td>
<td>Rhizome and roots are used as blood purifier, in piles, bronchitis fever, asthma, bruises and pain.</td>
<td><img src="image4.jpg" alt="Chotial" /></td>
</tr>
<tr>
<td>No</td>
<td>Local Name</td>
<td>Scientific/Technical Name</td>
<td>Major uses</td>
<td>Pictures</td>
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<tr>
<td>----</td>
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</tr>
<tr>
<td>6</td>
<td>Pudina</td>
<td><em>Mentha longifolia</em></td>
<td>Used for diarrhea, dysentery, and is very valuable in colic. Leaves are used for flavor, herbal tea, and as mouth wash. Also used in salad and chutneys and as carminative.</td>
<td><img src="image1" alt="Pudina Image" /></td>
</tr>
<tr>
<td>7</td>
<td>Mushk-e-bala</td>
<td><em>Valiriana wallichii</em></td>
<td>Roots are aromatic, carminative and antispasmodic. It is useful in neurosis, insomnia, and habitual constipation and over exhaustion.</td>
<td><img src="image2" alt="Mushk-e-bala Image" /></td>
</tr>
<tr>
<td>8</td>
<td>Kuth</td>
<td><em>Sassura lappa</em></td>
<td>Root is tonic, stomachachic, stimulant, carminative, spasmodic and useful in rheumatism.</td>
<td><img src="image3" alt="Kuth Image" /></td>
</tr>
<tr>
<td>9</td>
<td>Musli</td>
<td><em>Chlorophytum tuberosum</em></td>
<td>Used for diabetes, erectile dysfunction, premature ejaculation, low sperm count and low sperm motility.</td>
<td><img src="image4" alt="Musli Image" /></td>
</tr>
<tr>
<td>10</td>
<td>Shareela</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Kurr</td>
<td><em>Capparis spinosa</em></td>
<td>Used for its anti-microbial and anti-oxidant functions.</td>
<td><img src="image5" alt="Kurr Image" /></td>
</tr>
<tr>
<td>No</td>
<td>Local Name</td>
<td>Scientific/Technical Name</td>
<td>Major uses</td>
<td>Pictures</td>
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</tr>
<tr>
<td>12</td>
<td>Choden/yew</td>
<td><em>Taxus baccata</em></td>
<td>Its bark contains chemicals for breast and ovarian cancer control. Also used in cardiac problem. Leaves are used in bronchitis, asthma, epilepsy. Fruit is strong sedative and poisonous.</td>
<td><img src="image" alt="Picture of Taxus baccata" /></td>
</tr>
<tr>
<td>13</td>
<td>Shahrang</td>
<td>-</td>
<td>Used to cure hepatitis</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Rash Khatni</td>
<td><em>Lavateera cashmariana</em></td>
<td>It is mild laxative and also effective in treatment of throat problems. Roots are collected for use in Unani medicine.</td>
<td><img src="image" alt="Picture of Lavateera cashmariana" /></td>
</tr>
<tr>
<td>15</td>
<td>Atees/Patrees</td>
<td><em>Aconitum hetrophyllum</em></td>
<td>Rhizomes used as febrifuge and are excellent tonic for children. Also valuable for debility and aphrodisiac.</td>
<td><img src="image" alt="Picture of Aconitum hetrophyllum" /></td>
</tr>
<tr>
<td>16</td>
<td>Anjabar</td>
<td><em>Bistorta amplexicancis</em></td>
<td>Rhizomes are used to relieve sore throat, inflammation of mouth and tongue, and laryngitis.</td>
<td><img src="image" alt="Picture of Bistorta amplexicancis" /></td>
</tr>
<tr>
<td>17</td>
<td>Mamekh</td>
<td><em>Paeonia emodi</em></td>
<td>Infusion of dried flowers is used in diarrhea. Seed is emetic, and cathartic. Tuber is used in uterine diseases, colic, bilious obstructions, epilepsy, dropsy, hysteria, and rheumatism.</td>
<td><img src="image" alt="Picture of Paeonia emodi" /></td>
</tr>
<tr>
<td>No</td>
<td>Local Name</td>
<td>Scientific/Technical Name</td>
<td>Major uses</td>
<td>Pictures</td>
</tr>
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</tr>
<tr>
<td>18</td>
<td>Veralochi</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>Karo</td>
<td><em>Picorhiza kurroa</em></td>
<td>Rhizome is used for jaundice and liver infection. Also used in fever, allergy and asthma. It is also used for indigestion, constipation, diarrhea, epilepsy, malaria and rheumatoid arthritis.</td>
<td><img src="image" alt="Picorhiza Plants" /></td>
</tr>
<tr>
<td>20</td>
<td>Chalghoza</td>
<td><em>Pinus gerardina/pine nuts</em></td>
<td>Used as dry fruit and oil is good for respiratory, kidney and urinary problems. It is beneficial for a variety of skin complaints, wounds, sores, burns and boils.</td>
<td><img src="image" alt="Pine Nuts" /></td>
</tr>
<tr>
<td>21</td>
<td>Walnut/Akhrot</td>
<td><em>Juglan regia</em></td>
<td>Used as dry fruit. Leaves and fruit bark decoction are used as astringent, anti fungicide and antiseptic. Used in hair loss control and skin diseases. Its use in heart ailments is also gaining popularity.</td>
<td><img src="image" alt="Walnut" /></td>
</tr>
<tr>
<td>22</td>
<td>Maro rang/Lachi</td>
<td><em>Myrsine Africana</em></td>
<td>Used for its aroma in tea and also carminative.</td>
<td><img src="image" alt="Myrsine Africana" /></td>
</tr>
<tr>
<td>No</td>
<td>Local Name</td>
<td>Scientific/ Technical Name</td>
<td>Major uses</td>
<td>Pictures</td>
</tr>
<tr>
<td>----</td>
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<td>---------------------------</td>
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<td>----------</td>
</tr>
<tr>
<td>23</td>
<td>Daroon</td>
<td><em>Artemesia maritime</em> L</td>
<td>Used for intermittent fever and throwing squirms from stomach. Infusion is used to discourage slugs and insects.</td>
<td>![Daroon Image]</td>
</tr>
<tr>
<td>24</td>
<td>Gucchi</td>
<td><em>Marchella esculanta</em></td>
<td>It is the most prized mushroom on earth—also called the fish of land. Liked for its exceptional taste. Used for anti-fatigue and antiviral effects. It is antioxidant and used in cancer treatment and old age diseases.</td>
<td>![Gucchi Image]</td>
</tr>
</tbody>
</table>

Individuals from about 300 families; mostly women, are involved in collection, grading and storage of medicinal plants. Due to imperfect monitoring system, the purchasers usually evade taxation and transport without proper documentation. Hence, the correct quantity of sale/purchase may be much more than that recorded in the divisional forest office of Kohistan forest division.

The business is on the go without the formal institution of the CBCE as locals are earning their living as is evident from their continuous involvement in the work. Given this it would be in the fitness of things to address the most important issues so as to transform such informal business into CBCE. These are improper collection, and faulty storage. In this regard collectors need to be trained in establishing post-harvest initial processing units for increasing shelf-life of the raw material.

**Strategy to Replicate**

Although provision of training and information do a lot to improve performance, but in the instant case where issues and problems exist on grass root level: harvesting, storage, grading, initial processing and marketing to local merchants, the poor individuals and families need physical inputs to increase NWFP’s shelf-life. Proper storage after initial processing not only reduces quantity and quality losses, but also relieves the collectors from worries of spoilage of raw material by decay calling for their early disposal at throw-away prices.
In such a situation the model developed by “Mountains and Markets: Biodiversity and Business in Northern Pakistan”, as discussed in section '6' would be more practicable. The model paves the way for evolving CBCE simply by addressing the issues surfaced in SWOT analysis without tinkering with land tenure. Further, the project provides necessary inputs shedding light on the skills specifically required in various training courses. These initiatives would not only minimize losses to environment, but also help enhance NWPF quality for fetching more sale- cost.

Conclusions
The number of species and quantity available for extraction of NWFP corresponds with the degree of biodiversity-richness in an area. Forests growing in moist climatic conditions are rich in biodiversity. In low biodiversity forests, thanks to tough competition in face of less favorable business prospects, the number of stakeholders involved in NWFP, tapers off in search of new turfs. In Pakistan, biodiversity-rich moist temperate forests and alpine pastures are situated in a limited area of northern mountains. Rest of the wilds where the NWFP could be collected from, is dry though unique in biodiversity but poor in species abundance. Except for a small proportion of state land, majority of the habitat of NWFP comprises private properties normally owned jointly by families, clans or tribes. The NWFP business is operated by the poor and landless on grass root level. The informal trade has little to attract the landowners and the co-sharers for any meaningful investment. Inputs for increasing profitability and institutionalization of the business may result in exclusion of the poor lot involved in the business. Therefore proper homework is required before introducing the concept of CBCE. Further, in the absence of resource management plans founded on precise resource inventory and assessment of sustainable yield, the system of equitable distribution of benefits cannot be built to beef up organized collective management. Having said and done, as the first step, only individuals involved in collection, storage, and local marketing of the NWFP should be targeted. They should be trained in timely and proper harvest of the NWFP, its grading and storing, and how to develop links with the market and research institutes. Necessary infrastructure and tools should be provided for scientific collection and initial postharvest processing.

For sustainable management of resource, constitution of viable CBCE, value addition and scaling up NWFP, following measures are suggested:
- Based on functional and administrative considerations, divide the habitat into various management units.
- Conduct comprehensive baseline survey of each unit for determination of the baseline information and mapping the NWFP.
- Fix optimum sustainable harvest for each unit.

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- Ensure regular training of all the stake-holders in collection, processing and storage of the NWFP.
- Invest for value addition and scaling up of NWFP.
- Use modern technology in ascertaining indigenous knowledge of medicinal plants and conduct DNA test of various medicinal plants varieties.
- Ensure monitored harvesting of NWFP and enforcement of annual yields.
- Encourage cultivation of NWFP which are high in demand, but their populations and habitats are threatened.
- Promote creation of nature conservation areas; botanical gardens for the species which are endangered.
- Promote rationalization of Govt. Forest Department NWFP policies relating to NWFP production and levy of duties and taxes.
- Introduce enabling legislation for the monitored harvesting, processing, storage, marketing and cultivation of threatened/endangered plant species and creation of conservation areas.
- Promote linkages with relevant research and processing institutions for identification of new NWFP and their products for the greater benefit of humanity. And,
- Ensure regular monitoring of the conservation status of the key species of NWFP.

References
Allama Iqbal Open University. (2000). "Rangelands Management in Pakistan"
Ayaz, M., 2016, Experiences gained in implementation of project Mountain and Market: Biodiversity and Business in Northern Pakistan.
One UN Joint Programme on Environment. (2010). Study of Medicinal and Aromatic Plants in Grip Project Area (Astore and Naltar Valley)
Chapter 9
Non-Wood Forest Products Enterprise in Fiji
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Introduction
Fiji is located in the South Pacific and has a total land mass of 18,270 square kilometers. About 51% of Fiji’s total land mass is under forest cover where 42% is native forest and the remaining 9% is exotic pine and mahogany plantation. More than 80% of Fiji’s forest resources are located on indigenous land, in rural areas. Therefore, the forest sector is an important rural based component of Fiji’s economy.

Fiji’s the total population estimation in 2012 was 858,038 comprised indigenous Fijians (57%), Indians (37%) and minority groups (6%). About 57% of Fiji’s population resides in rural settlements and communal villages and the rest live in urban areas. A considerable size of the rural populace depends on forests as sources of livelihoods for their families and the Fijian Government places firm commitment in developing the Non-Wood Forest Products (NWFPs); incorporating both conservation an enterprising effort.

This paper therefore, provides a country situation on NWFPs. It also places emphasis on policies, status and the development of community based enterprises. Considerable emphasis is also placed on the features for successful Community Based NWFPs Enterprise (CBNE) in Fiji and the strategies to replicate this model. The paper then finally highlights the constraints and opportunities for CBNE.

Non Wood Forest Products Country Situation
Non-Wood Food Products cannot be isolated from the forest as the latter plays an important part in food security and generates regular income for affected local communities. Fiji’s definition of Non-Wood Forest Products is predicated on the FAO definition in that NWFPs are tangible and physical products of biological origin other than wood derived from forests, other wooded land and trees outside forests can be gathered from the wild (natural forest), or produced in forest plantations, agroforestry schemes and from trees outside forests.

NWFP is a diverse entity involving a multi-sectoral approach. Its raw products are categorized differently in Government agencies. This has led to its various
products, raw or processed being placed under the responsibility of various Ministries/Departments. The Department of Forests has a separate Inventory for NWFPs from that of Agriculture. The Department of Forests considers bamboo and sandalwood as NWFPs. Bush fruits, nuts, other trees, oleaginous fruits and kava are considered as NWFPs with the Ministry of Agriculture. Mulberry trees and its products with pandanus leaves are highly considered at the Ministry of Women only because the activities involving the extraction; processing and marketing of the products are mostly done by women and have a exceptional cultural significance and value.

Forest conservation is a prerequisite to the abundance on non-wood forest products and the exploitation of forest resources has a negative impact on the existence of these products. Sustainable Forest Management Practices is crucial. In Fiji, a number of initiatives have been implemented by Government to conserve biodiversity and one notable initiative is the Fiji REDD+. The Fiji REDD+ Policy was endorsed by Cabinet in 2011. Two Sustainable Development Goals that directly related to REDD+ are goal 13 – Taking urgent action to combat climate change and its impacts and Goal 15-Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss.

Apart from goals 13 and 15, REDD+ action can address other goals such as Goal 2 on ending hunger. Amongst the envisaged benefits, Fiji REDD+ hopes to maximize benefits arising from carbon and climate related financial instruments through a transition to sustainable forest management, reducing the loss of forest from the expansion on agricultural lands and other landuse change and protecting indigenous forests areas of high cultural, biological diversity and ecosystem service value. Fiji REDD+ is working closely with Government and local communities in the conservation of forested land areas.

Strategies have been implemented to explore ways to best utilize forest resources apart from timber alone. This has been encouraged in the country with an added consideration on the sustainability and conservation of forests. This coupled with the need for Fiji’s rural communities to enhance their livelihood through participation in income generating projects by using natural resources. Non-wood forest products are being looked at, as a feasible option.

The Department of Forestry looks at ways to promote sustainable forest management and encourages forest uses to look at alternative methods, ways and species of flora and fauna, harvesting and processing of forests. These methods are recognized as income generating for the resource owners while forest harvesting continues in a controlled, sustainable manner. It is currently looking at the possibility of investing in the production, harvesting and diversification of bamboo products. Consultations with the Chinese counterpart are still ongoing.
A nutrient from bamboo leaves contains nutrients similar to Guatemala leaves and can be used to feed livestock. Introduced bamboo species can be also used for the properties from bamboo shoots. The Department of Forestry currently has three indigenous bamboo species and 8 introduced species. Research into the durability of bamboo products is ongoing with the Department of Forestry and has identified invasive bamboo species that is likely to affect other trees or crops.

With the advent of modern medicine and its side effects, people are also turning to traditional medicine to cure ailments and sicknesses. There are catalogues of traditional medicine that specify the diseases and sicknesses they cure.

A comparison of the 2013 to 2014 indicates the contribution of species, aromatic, drug and pharmaceutical crops. This data is tabulated on table 2.1 below:

Table 1. Growing of Spices, Aromatic Drug and Pharmaceutical Crops

<table>
<thead>
<tr>
<th>Production in tonnes</th>
<th>2013 Aggregates Expressed as % of GO</th>
<th>2014 Aggregates Expressed as % of GO</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chillies</td>
<td>200</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>Price per tonne:</td>
<td>2,500</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>Macroeconomic Aggregates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Output (GO)</td>
<td>500,000</td>
<td>308,000</td>
<td>-38.4</td>
</tr>
<tr>
<td>Intermediate Consumption (IC)</td>
<td>245,000</td>
<td>49.0</td>
<td>163,240</td>
</tr>
<tr>
<td>Value Added (VA)</td>
<td>255,000</td>
<td>51.0</td>
<td>144,760</td>
</tr>
<tr>
<td>Compensation of Employees (COE)</td>
<td>101,000</td>
<td>20.2</td>
<td>69,608</td>
</tr>
<tr>
<td>Consumption of Fixed Capital (CFC)</td>
<td>5,500</td>
<td>1.1</td>
<td>3,696</td>
</tr>
<tr>
<td>Operating Surplus (OS)</td>
<td>148,500</td>
<td>29.7</td>
<td>71,456</td>
</tr>
</tbody>
</table>

Ministry of Agriculture 2013 & 2014 Data
Table 1 above only provides data on chillies. The 2013 and 2014 data on chillies does not reveal any significant percentage changes. This is attributed to the decrease in production between the two years.

The Department of Environment through the Nagoya Protocol is working towards Access Benefit sharing of genetic resources in Fiji to ascertain the curative properties. The process of extraction, compensation of resources owners and on whether these genetic resources do have unique properties, is all considered under the ABS.

Kava or ‘yaqona’ (*piper methysticum*) is lucrative in the local and also overseas market. 2013 and 2014 statistics reveal an increase in production and overall contribution the economy.

Table 2. Growing of Yaqona 2013-2014

<table>
<thead>
<tr>
<th></th>
<th>2013 Aggregates expressed as % of GO</th>
<th>2014 Aggregates expressed as % of GO</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production in tonnes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waka</td>
<td>2,613</td>
<td>2,458</td>
<td></td>
</tr>
<tr>
<td>Lewena</td>
<td>1,119</td>
<td>1,413</td>
<td></td>
</tr>
<tr>
<td>Price per tonne</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waka</td>
<td>35,000</td>
<td>35,000</td>
<td></td>
</tr>
<tr>
<td>Lewena</td>
<td>30,000</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>Macroeconomic aggregates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GO</td>
<td>125,025,000</td>
<td>128,420,000</td>
<td>2.7</td>
</tr>
<tr>
<td>IC</td>
<td>57,761,550</td>
<td>59,586,880</td>
<td>3.2</td>
</tr>
<tr>
<td>VA</td>
<td>67,263,450</td>
<td>68,833,120</td>
<td>2.3</td>
</tr>
<tr>
<td>COE</td>
<td>9,376,875</td>
<td>9,503,080</td>
<td>1.3</td>
</tr>
<tr>
<td>CFC</td>
<td>1,125,225</td>
<td>155,780</td>
<td>2.7</td>
</tr>
<tr>
<td>OS</td>
<td>56,761,350</td>
<td>58,174,260</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Ministry of Agriculture 2013 and 2014 data.

The gross output of Yaqona increased by 2.7% from its 2014 figure. The increase is reflective of the high quantity produced. An increase of 2.3% was also noted in the value added of the commodity when compared to 2013.
Contribution of women in NWFPs cannot be undermined. Women handicraft activities in Fiji are centered around the NWFPs. Raw materials such as pandanus leaves, bark from the mulberry tree, leaves from various palm tree species and herbal medicines are well utilised by women to generate income for the family.

**Policy of Enterprise Development – focus on community based**

Community based enterprise development in Fiji is classified under the Small and Micro-Enterprise Development Act 2002. This Act guides the work of small and micro enterprise institutions.

The Ministry of Industry and Trade administers small and micro grants which are distributed to successful applicants every financial year. In 2016 alone, the Ministry of Industry and Trade provided a total of 7,661 applicants of the micro and small grant scheme a cheque of $1,000 each. The National Centre for Small and Micro-Enterprise Development and the Integrated is an arm of the Ministry of Industry and Trade that provides services including loans, insurance, business skills training and savings mechanisms to raise the standard of living. The Centre also administers the Northern Development Programme to uplift the standard of living of the Northern Division. The same concept of the Centre is used in the NDP Programme. It is through these programmes where women, who are mostly seen to make use of NWFPs can access financial assistance.

Apart from the Ministry of Industry and Trade, there exist quite a number of Government programmes where assistance on developing enterprising on NWFPs can be accessed. The Department of Women under the Ministry of Women, Children and Poverty Alleviation also coordinates a livelihood programme. The Ministry organizes a National Women’s Expo every year providing women the opportunity to showcase their talents and skills. Most of the products showcased are NWFPs. The Ministry of Women has proceeded further on e-cataloguing where these products would be marketed locally and internationally.

The Ministry of Rural and Maritime Development Programme on Self-Help provides funding for income generating projects that supports the livelihoods of individual families and communities through a one third community contribution and two thirds government contribution. A Subsidy Programme with the Department of Forests has an allocation of $50,000 in its yearly budget which can assist wood carvers. Potential investors into the bamboo industry can also be assisted from this subsidy. The Ministry of Agriculture has a number of programmes including the Rural and Outer (ROI) Programme, Food Security Programme, the Export Promotion and Import Substitution programme that can be accessed for NWFPs food component.
Community-Based Enterprise–Status

There is a strong presence of indigenous and western business environments in Fiji. Experiences in small business operations in Fiji point to the presence and recognition of social capital in the delivery of small business support programs. The presence of social capital is based on the assumption of strong social bonds among existing solidarity groups in village communities including mother’s clubs, and the church women’s ministry. One case in point is the national microfinance program—a Fijian version of the Grameen Bank model that provides microcredit and savings products to poor household for the purpose of generating new employment opportunities through microenterprises. This model is used by the NCSMED.

The survival and sustainability of the village Micro-Finance Institutions is dependent on the strength of the bond within the existing solidarity groups in terms of the interconnectedness, the communication and exchanges and the commitment of the group to community rules. Tendency to become individualistic by some members often results in business failure, others who want to become successful leave the communal setting to operate in the peri-urban or squatter settlements in the main Centres.

A study to review the status of small business laws in Fiji, commissioned by the National Centre for Small and Micro-Enterprise (NCSMED) in 2008 found that one of the challenges to the survival of small business in Fiji was the lack of access and use of business advice and financial services; was an issue for owners.

Dissection of the for the support for small business support services in Fiji identified three interconnected and interrelated areas contributing to the Support Services and Assistance Programs (SSAPs) failure in Fiji. These included a disconnection between business needs and SSAP offering; inadequate planning and preparation by both the Small Business Owner (SBOS) and External Service Provider (ESPs) and an unfriendly entrepreneurial environment inhibiting small business survival and growth.

Development of Community Based NWDPs Enterprise (CBNE)

Initiatives by community based enterprises for non-wood forest products in Fiji are ongoing. Rural communities are mobilized along demands from suppliers of the end products. Much is still unknown about these products, their management, and their long term market prospects. Suppliers are often based in the urban Centres of the main islands while products are supplied by mostly women in the rural setting. One such example on non-wood forest product that is gaining momentum in Fiji is the coconut virgin oil which is used for medicinal and cosmetic purposes.
There are Government initiatives already underway to support the development of the NWFPs in Fiji. Some of these products target the tourist market, however, this can be affected by less authentic NWFPs that are imported from nearby overseas markets to be sold for the local tourist market. The development of community based NWFPs is dependent on the Support Services and Assistance Programmes that are offered by micro-finance institutions. A Financial Literacy Task Force has been established to ascertain the demand for microfinance assistance and the level and quality of assistance that has been rendered to the public.

Features for a Successful Model of CBNE
Fiji places the importance of NWFPs in forest conservation and in building the capacity of resources owners in rural communities and rightly considers that the empowerment of the resource owners cascades from developing their resources. The former Assistant Director-General and Regional Representative for FAO Regional Office and the Pacific once stated that the key to successful development of non-wood forest products lies in the people themselves-and in their empowerment. Local people must control development programs themselves, based on their own priorities. The former Director General further stated that assurances must be made that local people will, in fact, benefit from the forests and that sustainability can only be achieved when communities using the forest resources recognise the benefits.

Successful features of CBNE include protection of ecosystems through forest conversation. The activities of a CBNE must be conducted in a way that is non-detrimental to the environment. Local communities must be involved from the start of a project conception to ensure that they take ownership. Concurrently, CBNEs can thrive through the acknowledgement of Traditional Knowledge (TK). Further, Traditional Knowledge links people to their roots and forests contain sacred totems that communities identify with. The linkage of the CBNE to TK will ensure sustainability and an interest for conserving forests and other ecosystems that depend on it. Additionally, the success of CBNEs also thrives on the appropriate skills, knowledge and technology in the extraction, and treatment of raw materials.

Enterprises based on non-wood forest products (NWFPs) have attracted attention for their potential to make forest use more sustainable, both because they have extended the range of forest benefits because gathering and processing activities can be managed by communities near the forest resource. According to FAO, the main requirements for successful non-wood forest enterprises and sustainable forest management are strong local institutions and clear and supportive national policies (particularly related to land rights and marketing), rather than international markets. Experience suggests that for almost any forest product, international demand alone is more likely to yield only short-term economic gain.
and to lead to forest destruction. To bring this to fruition, partnerships between stakeholders is crucial.

**Successful Model of CBNE**

This paper highlights kava or yaqona (*piper methysticum*) as a successful NWFP. According to the statistics already highlighted, the gross put from yaqona in 2014 recorded a growth of 7.2 % compared to 2013 with an increase of 2.3 % noted in the value added of the commodity when compared to 2013.

The successful model of CBNE that will be used in this presentation is the ‘Taki Mai’ brand which produced by a local entrepreneur, the South Pacific Elixirs Company in Levuka on the Island of Ovalau in Fiji. Taki Mai is a locally grown kava-infused dietary supplement and also sold as sports drink for calm, soother and relaxation of the body. Taki Mai products have successfully targeted the tourist market and with interests from the local market as well. The company works with local yaqona farmers who sell their kava at the farm gate and earn additional income instead of having to sell their produce to middle man who pay them less than what Taki Mai offers. The sale of yaqona to Taki Mai ensures that the farmers consistently supply kava that is off international standard. These products are sold in more than fifty (50) outlets around the US including pharmaceutical and departmental stores in the Pacific and Hawaii. There is potential to further develop different flavours of Taki Mai, however the problem is with the supply of the two varieties of kava that have kava lactones levels required for the special Taki Mai Product.

To ensure consistency in supply and quality of raw kava the company, South Pacific Elixirs is now working with seventy (70) contracted farmers in the village of Lovoni, Ovalau. The Fiji Ministry of Agriculture is working with the Company to ensure that all kava farmers in Fiji are aware of the new market product to cultivate the two specific varieties required of the production of the product. The Ministry also supports Kava farmers through existing funding from the Export Promotion Program and the development of specifications and standard, training and workshop for the farmers.

**Strategy to Replicate**

There are quite a number of local best practices on CBNE in Fiji. However, what is lacking is the need to properly document this best practices and create knowledge sharing and awareness on them and the possibility of replication by other groups or communities in Fiji. The replication and scaling up of best practices on NWFPs that have brought evidence of desired impacts for small and micro enterprises and that link up to broader commercialization should be pursued. This will need the concerted effort of all stakeholders including the
government direction. The Horizontal Learning Programme strategies and techniques could be applied.

Traditional knowledge must also be well looked into as this will also ensure the sustainability of NWFP resources. This includes training and awareness and proper documentation for specific NWFPs. For successful CBNEs one of the important components of the success is the use of ICTs. This can be further pursued for NWPS entrepreneurs. The Ministry of Women, Children and Poverty organizes Women Expos for women artisans in Fiji from all parts of Fiji. A step up from these expos is the use of e-catalogue of products for the both the local and international market. One of the benefits of e-cataloguing ensures that there is a fixed price of various NWFP handicrafts allowing women to rightly price their items. The current practice is that certain products are sold lower then production price and yields no or less profit for the women.

**Constraints and Opportunities for CBNE**

Recognition on the importance of CBNE is something that needs to be further developed in Fiji. Some of the constraints that emanate from CBNE include sectoral government regulations and policies. While the mandate of certain government Ministries would concentrate on the planting, growth and conservation of NWFPs, other government Ministries or Departments continue thereon from the harvesting to marketing of the products. Clear government mandate needs to be assigned to the most suitable government department that looks after NWFPs. The Ministry of Forestry and Ministry of Agriculture have their own lists of NWFPs while other Ministries only look at the marketing of these products and not necessarily the production. For the past 10 years, issues pertaining to the NWFP have been debated and attempted to be addressed by the Ministry of Fisheries and Forests (MFF). Forest legislations, regulations, policies and plans only concentrated on timber productions. There was very little awareness and research initiated locally on NWFP and services. The MFF has identified NWFP as an opportunity to exploit for economic gain; therefore a strategic plan needs to be developed and implemented.

A clear definition and holistic list of NWFPs is necessary to ensure there is clear demarcation from that of forest or timber products.

Capacity building through research and training is required for NWFPs. The assistance of development partners both in government and externally is needed.

Consistency of data and information on NWFPs is also lacking. Not much information on NWFP has been gathered /collated or documented over the years. Its cottage industry nature means information on some products is unconfirmed or non-existent at all. Though the product is known to be sold or existing out there, data pertaining to it does not exist in the ministry it should come under. There is a
need for survey (baseline studies) of what is on the ground so plans can then be drawn up to forecast figures for NWFPs. Enterprising of these products would require consistency supplies that would meet the global market thus the need for data such as the inventory of NWFPs.

Opportunities available include ownership of resources by landowners and the abundance of raw materials that are available for women who are able to convert these resources into cosmetic products, handicrafts and other food products.

Projected potential of NWFPs could be reached through multi sectoral and multi stakeholder involvement with effective coordination. There were attempts to have such a committee established comprised representatives from lead agencies, Public sectors, Private sectors and NGOs by the MFF in 2005, however it did not quite eventuate.

Partnerships with Intergovernmental, donor agencies, local, regional and international organisations such as FAO, CIRDAP, and SAARC should be further enhanced. Fiji has and will continue to benefit from these partnerships in research, technical skills, training and sharing of best practices. Prospects of Memorandum of Understanding or Agreement must be further explored.

**Conclusions**

There is potential for NWFPs in Fiji. Government has seen the importance of this product through its legislations, policies and strategies. An integrated holistic Approach is required by Government and the various stakeholders have an interest in the Sector.

Appropriate research and study must be further developed to ascertain the value of NWFPs worldwide and the resources that are currently available in Fiji. Data and information are crucial and must be taken seriously in order to ascertain the availability of raw materials, production base, knowledge, skills and expertise to produce and value add NWFPs.

Business acumen must be further developed and studies to be commissioned to further ascertain the opportunities available and threats that continue to destabilize the development of indigenous and modern enterprises with appropriate measures designed to correct failures of initiatives already undertaken and to provide directions for the way forward for enterprise development.

**References**


Chapter 10
Community-Based Non-Wood Forest Products Enterprise: Successful Model in Myanmar

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Introduction
Myanmar is the largest country in mainland Southeast Asia with a land area of 676,577 km², bordered by Bangladesh and India to the northwest, the People’s Republic of China to the northeast and the Lao PDR and Thailand to the southeast (Figure 1). The Bay of Bengal and Andaman Sea lie to the south and west. More than 40% of Myanmar is mountainous. Prominent mountain chains include an extension of the eastern Himalaya, the Chin Hills, the Western Plateau/Rakhine Yoma, Bago Yoma, the Eastern Plateau/Shan Plateau and the Taninthayi Range. The Ayeyawady, Thanlwin/Salween, Chindwin, Sittaung and Kaladan are Myanmar’s major rivers. The country has three seasons: wet (from mid-May to mid-October), cold (from early November to late February) and dry (from March to mid-May). Temperature, precipitation and humidity vary greatly; from the Taninthayi coast which receives about 5,000 mm of rain annually to the arid Central Dry Zone in the central plains which receives only 500–750 mm of rain a year (Figure 2). This diverse topography and climatic conditions create numerous different ecosystems and support an incredibly wide range of associated species.

Myanmar is a forest resource rich country in Southeast Asia and forest resources are important not only for basic needs of over 70% of rural residents but also for earning national income. Currently, the natural forest cover of the country is about 29,041,000ha which equivalent to 42.92% of the country’s total land area (FAO, 2015). Major forest types are Mixed Deciduous forest (38.3%), Hill and Temperate Evergreen Forest (26.9%), Tropical Evergreen Forest (25.8%), Dry Forest (9.8%), Deciduous Indaing (Dipterocarp) Forest (4.2%), Scrub Land (2.2%) and Mangrove Forest (1.47%) (FD, 2011). These diverse forest ecosystems in Myanmar are habitat for nearly 7,000 plant species, 96 bamboo species, 36 rattan species, 841 orchid species, 360 mammal species, 360 reptile species and 1,000 bird species - an outstanding biodiversity not only on regional but also on a global scale (FD 2011). Teak (Tectona grandis), Pyinkado (Xyliya xylocarpa), Tamalan (Dalbergia oliveri), Padauk (Pterocarpus indicus), Thitya (Shorea obtusa), Ingyin (Shorea siamensis) etc are well-known commercial tree species while non timber forest products provide diverse goods for the livelihood of rural poor people.
All of Myanmar forests are state-owned national forest although there are some private and community forest plantations established with 30-year land lease contract. There are three major categories under state-owned national forests or Permanent Forest Estates (PFE) namely Reserved Forest (RF), Protected Public Forest (PPF), Protected Area Systems (PAS). Forest department under the Ministry of Natural Resource and Environmental Conservation targets to establish 30% of the total land area as RF and PPF for sustainable forest management and 10% as PAS for biodiversity conservation. So far, 24.05% (18% RF, 6.05% PPF) of the total land area has been gazetted as RF and PPF and 6.67% of the country area has already been declared and protected under PAS (FD, 2016).

![Figure 1. Distribution of major forest types in Myanmar](image)


**Non Wood Forest Products in Myanmar**

Non-timber Forest Products (NTFPs) have been shown to contribute to a large part of forest peoples’ incomes and livelihoods (Van Paddenburget et al., 2012). It accounts for an estimated 25% of the income of close to one billion people (Monlar et al., 2004 as cited in Guerrero et al., 2015) and form the base of community forestry enterprises in the ASEAN region.

Non timber forest products are all biological products other than timber extracted from forests for human use (de Beer and McDermott, 1989). NTFPs include fruits
and nuts, vegetables, fish and game, forest honey, medicinal plants, resins, essences and a range of barks and fibers such as bamboo, rattans, and a host of other palms and grasses, among other species. Well known NTFPs in ASEAN are thanaka bark in Myanmar used for facial treatment, various species of rattan in Indonesia that supplies 60-80% of all the rattan in the world, and resins and balsams from *Dipterocarp species* in Vietnam and Cambodia used in boat caulking and perfumes.

In Myanmar, forest products are normally divided into commercial forest produce which are mainly intended for timber and minor forest produce which are generally defined as “all kinds of forest produce other than timber and firewood” including animals, vegetables and mineral products (Khin Maung Lwin, 1995). Non-timber forest products can also be referred to as all the resources/products that may be extracted from forest ecosystem and are utilized within the household or are marketed or have social, cultural or religious significance (FAO, 1990). Myanmar’s non-timber forest products (NTFPs) can be divided into 13 groups according to their nature and uses: bamboo, rattan, tanning bark, straw best, scented wood and bark, gum, resin, spice, roofing material, dyeing material, animal products, medicinal plants, edible products and other miscellaneous products (Khin Maung Lwin, 1995).

**NTFPs for Households Provisioning**

(a) **NTFPs for construction materials**: Bamboos are the most important NTFPs in rural area of Myanmar especially for construction materials such as posts, roofs, walls, floors, beams, trusses, and fences. There are about 100 species of bamboo growing throughout Myanmar. The most common bamboo species in Myanmar are kyathaung (*Bambusa polymorpha*), tin (*Cephalostachyum pergracile*), myin (*Dendrocalamus strictus*), kayin (*Melocanna bambusoides*), thana (*Thysostachys tulda*), wabo (*Dendrocolmus brandisii*), wabo-myetsangye (*D. hamihoni*), waphyu (*D. membranaceae*), and wagok (*Oxytenanthera albo-ciliata*). Another important material are roofing materials such as thetke (*Imperata cylindrica*), dani (*Nypa fruticans*), salu (*Licuala peltata*), in (*Dipterocarpus tuberculatus*) and taunghtan (*Livistona spp.*). The species from Sterculiaceae and Tiliaceae families are also used for the rope-making in Myanmar and those species are shaw-ni (*Sterculia villosa*), don-shaw (*Sterculia ornata*), letpan-shaw (*Sterculia foetida*), shaw-gulu (*S. urens*) and tayaw (*Grewia spp.*) (Lwin 1995).

(b) **NTFPs for crafts**: Other important materials made from different NTFPs are handicrafts which are essential for daily domestic uses and agricultural activities such as baskets, sieves and mats. Those products are made from bamboo, rattan and fibres. There are about 36 species of rattan or canes
grow in swampy areas of semi-evergreen and evergreen forests. The common species are Yamata-kyein (*Calamus latifolius*), Kyet-u-kyein (*Calamus platyspathus*), Kabaung-kyein (*Calamus longisetus*), Ye-kyein (*Calamus floribundus*), Kyein-bok (*Calamus myrianthus*) and Thaing-kyein (*Calamus erectus*). Another famous and common product used by people is traditional mat called “Thinphyu” which is woven with the bast of thin (*Clinogynie dichotoma*) (Lwin 1995).

(c) **NTFPs for energy:** Firewood and charcoal are used by the majority of rural, and in some cases urban, households across the developing world (Shackleton.C.M, Pandey.A.K, and Ticktin.T 2015). In Myanmar also, firewood is the most common energy source not only in rural areas but also in urban households. Although firewood is not clearly mentioned as NTFPs, we can put it into NTFPs category according to the definition of non-timber forest products describing as "all kinds of forest produce other than timber”.

(d) **NTFPs for food:** Forest and woodlands offer rural dwellers a wide variety of foods, and contribute to food security and nutrition directly and indirectly by providing fruits, seeds, leaves, bulbs, mushrooms, honey, beverages, bush meat and fish, forage for domestic animals (Sheona Shackleton, Shackleton, and Shanley 2011). Some examples species include, bamboo shoot, mushroom, wild fruits such as Ziphyu (*Emblica officinalis*), Phankha (*Terminalia chebula*), etc and buds, leaves, flowers, tubers and corms. Different kinds of spicy are also used in Myanmar curry and these include Phala (Caradamom - *Elettaria cardamomum*), Ngayok-kaung (black pepper- *Piper nigrum*), Peikchin (long pepper- *Piper longum*) and Karawe (*Cinnamomum spp.*) (Lwin, 1995). Other products such as wildlife species especially bush meat provides a major source of protein to people diets in Myanmar (Tin Moe 2005) and birds, mammals, reptiles, amphibians, fish and insects are hunted not only for food but also for cash income.

(e) **NTFPs for medicine:** Medicinal plants are important in human healthcare since historical time, and continue to play a key role amongst forest communities (Sheona Shackleton, Shackleton, and Shanley, 2011). Modern medicine and healthcare services are often difficult to access and unaffordable for rural populations. In Myanmar, most of the rural areas are lack of modern medicine and health services and they mostly depend on the natural plants for their basic health problems. On the other hand, Traditional medicines are locally available and free or of low cost (Shackleton et al., 2011). Some prominent medicinal plants from Myanmar's forests are bomayaza (*Rauwolfia serpentina*), subyu (*Acacia arabica*), hnav (*Adina cordifolia*), Banbwe (*Careya arborea*), Ondon (*L. glutinosa*), and Pwegaing (*Cassia angustifolia*), etc (Lwin 1995).
Important Role of Non-Timber Forest Products for Livelihood

Forests and forest products have played a vital role in sustaining the livelihoods of poor, forest-dependent communities for centuries. According to the World Bank (2002), more than 1.6 billion people throughout the world rely on forests for their livelihoods, and some 350 million people depend solely on forests, both for their subsistence and incomes. Over two billion people, a third of the world’s population use biomass fuels, mainly firewood, to cook and heat their homes and rely on traditional medicines harvested from forests (Arnold et al., 2006). During the past two decades, there has been an increased recognition of the significant role of various forest products for household food and livelihood security, with an appreciation of the major role that NTFPs play. In fact, for a large number of people, NTFPs are still a more important resource than timber. Wunder (2000) estimated that smallholder families living in forest margins in diverse parts of the world earn between 10% and 25% of their household income from NTFPs. Another study suggests that tropical forests in parts of Southeast Asia provide as much as $50 per month per hectare to local people and that this comes only from exploiting NTFPs (Sedjo, 2000). Therefore, the role of NTFPs for livelihood is significant.

Forest-dwellers across the globe have a long history of dependence on forest products for household subsistence and sale. According to the FAO (2001), some 1.4–1.6 billion people worldwide are estimated to make use of at least some non-timber forest products (NTFPs). These products are collected from natural forests, woodlands, and other lands (such as fallows, agro-forests, secondary forests and fields) surrounding dweller’s villages and homesteads, and may include wild foods, forage, medicinal plants, construction materials, firewood, raw materials for handicrafts (rattans, vines, bamboo, grasses, reeds, and other fibres), and other products such as resins and honey. NTFPs are also major energy source for the majority of rural household across the developing world (Shackleton et al., 2011). In Myanmar wood fuel is the most common energy source and charcoal is the second (Khin Htun, 2009). Moreover fuel wood is the most important component for energy need of the country including rural and urban population in Myanmar. FAO (2014) estimated that about 2.4 billion people cook with wood fuel or about 40% of the population of less developed countries. While subsistence gathering for direct household provisioning tends to be the most widespread use of NTFPs, forest products are also often sold, in raw or processed form, in informal local and regional markets. In case of income, a recent study including “distribution of forest income among rural households” was measured by Pyi Soe Aung et al. (2014) in Natma Taung national park, Chin State of Myanmar revealed that the forest income is the first most important source of household income, contributing to about 50% to 55% of the total household income in two study villages.
Analysis of the significance of NTFPs in rural household economy in Thayarwady District (Moe and Liu, 2016), Bago Region showed that NTFPs income contributes 44.37%, and farm income and non-farm income contribute 32.55% and 23.07% to the total household income respectively. The lower and middle income level households derived more NTFPs income than high income level households. For low income households, share of NTFPs income in the total household income is over 75%. Major NTFPs include bamboo, thatch, firewood, charcoal, bamboo shoot, broom grass, bark and root, and others.

Study on extraction of Non-timber Forest Products by local people living around a Protected Area in Myanmar: A Case Study in Popa Mountain Park (Nway Mon., 2016) recommended that for the conservation of medicinal plants in PMP, it is necessary to explore the distribution patterns and the population and status of medicinal plants in PMP and to develop the zonation plan for the controlled extraction. Technical and financial support for semi-domestication of medicinal plants is possibly a kind of feasible measure.

Although there are number of Non Wood Forest Products, revenue is collected only from 57 items. In order to represent all states and regions collected revenue regularly only 21 items. However, nation-wide study on the situation of non-wood forest products including resource, market and technology or value added production and enterprise development has not been conducted yet.

Policy of Enterprise Development
The Myanmar’s Forest Law (1992) and Forest Policy (1995) are based on the principles of including local people in the management and conservation of forest resources and meeting their basic needs for food, fuel and shelter. The FD issued Community Forestry Instructions in 1995 to facilitate community participation in forest management and provide for the basic needs of local communities (RECOFTC, 2017). CFI encourages tree planting and reforestation in barren and degraded forest areas to contribute to reforestation activities. The National Forest Master Plan (2001) also recognizes community forestry as a tool for sustainable forest management and strengthening local livelihoods. Community forestry certificates are granted to local communities for a period of 30 years, and permit the community to collect forest products for domestic use (RECOFTC, 2017). The area of community forests (CF) has been gradually increasing since 2010. As of July 2017, around 158,218 ha of community forests had been established, involving 2,845 forest user groups with more than 76,490 members (MoNREC, 2017). CFI was revised in 2016 in order to promote livelihood improvement of CF members through income generation and commercialization of CF products by Community Forestry Enterprise Development. According to CFI 2016, Community Forestry means forestry operations in which the local community itself is involved in sustainable forest management and utilization. This
expression include establishing new plantations and managing existing forests to create employment and income opportunities from subsistence level to commercial purpose; stabilize ecosystem and improve environmental status and generate food.

The objectives of Community Forestry are as follows:

- To support forest related basic needs such as wood and non-wood forest products for local community
- To reduce rural poverty through employment and income opportunities for local community
- To increase forest cover area and to ensure the sustainable utilization of forest products
- To promote forest management system with peoples participation
- To enhance environmental services that can support climate change mitigation and adaption by protecting against deforestation and forest degradation
- Facilitate to obtain necessary investment for Community Forest
- Collaborate with international organizations to get Certification for wood and non-wood forest products and ecosystem services derived from Community Forest
- Operate nature-based tourism in Community Forest based enterprise with the approval of the Ministry of Natural Resources and Environmental Conservation.

In Community Forestry Instruction 2016, it is cleared mentioned for Establishment of Community Forest based Enterprise in paragraph (6) and 7 as follows-

- Forest Department shall allow UGs to implement the Community Forest based Enterprise or Community Forest Enterprise through which user groups can produce value added forest products in the commercial scale and can trade freely.
- In the case mentioned above, Forest Department shall communicate with the relevant departments, local and international organizations, business groups and private entrepreneurs to assist the following supports to User Group:
  - Improve capacity of local community by providing technical, social and business-oriented trainings
  - Develop community forest product-based enterprise organization
  - Facilitate between producers and buyers to secure the market
Assist in formation of national level networks or associations of community forest enterprise with different levels village, township, district and State/Regional level networks or associations in order to strengthen Community Forest-based Enterprise or Community Forest Enterprise

Recognizing that livelihood improvement is crucial for successful community based forest management as CF, Community forest enterprise development is highly promoted in revised Community Forestry Instruction (2016). However, apparently improvement is still limited especially in CF enterprise development in Myanmar. Tint et al., (2014) mentioned that a number of following immediate steps are needed to develop community forest enterprise opportunities. Forest legislation should allow communities use rights for both timber and non-timber forest products (NTFPs). Government and civil society should work together to raise community awareness of this commercial enterprise opportunities and market-led approach to community. The handover of local forests to Forest User Groups (FUGs) should be streamlined and accelerated. A working group of government extension staff and civil society groups should share experiences and expand capacity-building for FUGs in business management. Organization between community FUGs should be encouraged, through local associations and regional and national federations. A reliable investment environment should be assured to facilitate enterprise development.

Table 1. List of community forests (CF) in all States and Regions

<table>
<thead>
<tr>
<th>State/Region</th>
<th>Plantation (acre)</th>
<th>Natural forest conservation (acre)</th>
<th>Total CF area (acre)</th>
<th>Number of User Groups</th>
<th>Number of participants</th>
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<tr>
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<td>Plantation (acre)</td>
<td>Natural forest conservation (acre)</td>
<td>Total CF area (acre)</td>
<td>Number of User Groups</td>
<td>Number of participants</td>
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Source- Community Forestry working unit, Forest Department, Nay Pyi Taw, July 2017.

Picture 1. Bamboo shoot harvesting and selling (livelihood strategy in Dry zone Myanmar) at Thabyaythar village, Wundwin

**Community Based Enterprise- Status**

In case of Community Forest, just introducing Community based ecotourism in Shan sates by cooperation with Ministry of Hotel and Tourism and NGO GIZ, etc. In term of forestry, we have community forest conservation group in accordance with Community Forestry Instruction (1995) since 2005. They are just to meet basic need of CF members and for subsistence.

**Development of Community-Based NWFPs Enterprise (CBNE)**

In the assessment of participatory afforestation programs for rural livelihood improvement and forest conservation by Hlaing (2016) in Yoesone Community Forest household survey, 33 out of total 36 CF members get income from Community forest plantations, by selling non wood forest products (resin of *Sterculia versicolor* Wall.) and agricultural crops. Main non wood forest products which can get income are plum seeds (export to China) and Shaw phyu resin. In Wundwin township, they got a relatively higher income from collecting resin of Shaw Phyu (*Sterculia versicolor* Wall.) a tree with a spreading canopy, growing
up to 5 meters tall. The plant is a native species in that area and can be harvested from the wild as a source of fiber. Resin is used in making juice, dessert and is a kind of industrial raw material for making glue in rear-view mirror and glass of the cars. They can sell dried Shaw Phyu resin 1.63 kg (1 viss) with 30000 kyats (US$ 30). Normally, the member of 3 acres of CF can earn at least 30000 kyats (US$ 30) per day. Previously some of CF members were not so eager to plant forest tree (Shaw Phyu) and they want to grow agricultural crops only. During these years, when they seen the income from Shaw Phyu trees (resin and seeds), all of the members are now growing in all of their CF areas. Thus, community forest plantation can supply fuelwood as well as livelihood income and improve reforestation.

**Features of a Successful CBNE**
1. Marketability and suitable to local condition
2. Good Networking
3. Sustainable production
4. Leadership and entrepreneurship
5. Active participation of the members
6. Initial investment and support by Forest department

**Successful Model of CBNE (case study)**
YoeSone Community Forest was established at Taungyigone Reserve Forest Compartment (373,839), Wundwin Township, Meiktila District, Mandalay region in 2004. Total area of (550) acres was conserved and managed 84 members from nearest 3 villages YoeSone, Thabyaythar and Baho Seikuin. In order to be effective in management, land is allotted 5 acres to each member. CF chairman, U Ohn Nyunt is not only farsighted but also has good leadership and devoted his life in the establishment their CF. After getting certificate in 2004, CF was established in 2005 by using agroforestry technique with annual crops and Shaw Phyu (*Sterculia versicolor* Wall.) tree which is a native and traditional resin tapping tree in that area Because it is a kind of non wood forest product not only give income for livelihood and sustain forest conservation at the same time.

Being a self-initiated CF, difficulties are found for land preparation at initial state. But after 5 years, CF members started to get income by selling the resin of their own Shaw Phyu trees. To establish a common fund for CF sustainable management, each member has to pay 10000 Myanmar Kyats as a registration fee. In addition, their group have internal cooperative saving and borrowing for the welfare of CF members by saving 2000kyats per month by each member and can borrow that money in turn. And when any social activities are occurred they
contribute. Currently, the number of CF is increasing to over 100 as new family members are included.

**Plantation techniques**

Extraction of resin can be carried out from 3 years old trees. Normally, they planted with 15 x 15 feet spacing and 20 x 20 feet is more suitable to produce better quality resin like noodles shape. Tending operations include weeding and adding organic fertilizers, and harrowing among the tree lines are carried for weeding purposes, three times a year starting from 3 years old.

**Production capacity (a household case study)**

From 450 mature trees in 10 acres can produce 10 viss per day (1 noodles resin+ 9 normal resin) on November 26. Production amount range from 7- 12 viss per day from August and September. Production amount increase in winter and decline gradually in summer.

**Benefit-Cost Ratio**

**Benefits:** It is estimated that CF member with 10 acres of CF can get about 100,000 kyats per day for the whole season (about 150 days in a year). The middle men come and buy at the plantation site with 50000 kyats (40 US$) for 1 viss of good quality noodle-like resin and 35000 kyats (30 US$) for normal ones.

**Cost:** At the initial state, if the CF members who can’t work physically by themselves have to cost 1000,000 kyats per acre for site preparation. Seedlings are supported by Forest Department and organic fertilizers (cow’s dung) are normally free of charge. Labor cost are about (3000kyats x 7workers = 21,000kyats) for picking resin per day and soil working.

**Market**
- Resin price snow/stone shape= 35000 kyats, noodles shape= 50000 kyats
- Market= Local farm owner=> middle man=> Chinese or Thailand export

**Rules**
- If one seedling/plant is destroyed and the violator is arrested, 5000 kyats is fined.
- If someone stoles 10 kyat thars of gums, 100,000 kyats is fined as punishment. The chairman solves the conflicts and problems, and punishes the violations.

**Support**
- No significance technical supports were provided from FD and NGOs except from the local forest department staff during the first five years.
- The USG was self initiated and mainly organized by the chairman.
In the current situation, the USG attracted much interest from FD/ NGOs/ Private Entrepreneurs.

**Fundings**

- The revolving fund was developed to support the poor to invest the establishment cost with less interest rate.
- The fund also contributes the cost for funeral of USG members. (50,000) kyats per funeral.

Among all established community forests in Myanmar, Yoe sone CF has become popular due to the very impressive income from selling resin (non wood forest product). It can conserve forest, support climate change mitigation and ensure food security and improve rural livelihood. It is a unique model of sustainable community forestry gaining the objective of both forest conservation and rural livelihood improvement together with poverty reduction. Due to its peculiar success, Yoe Sone Community Forest got the National Energy globe award for 2017 which was founded in 1999 by Austrian energy pioneer Wolfgang Neumann and is one of the most prestigious environmental awards for successful sustainable and applicable environmental solutions and to motivate people to also become active in this area.

Therefore, now local people get attention in real benefits of community forestry and many exchange visits in the country are organized by forest department. Forest Department also would like to share and extension about similar kind of CF in respective state and region suitable to their biophysical feature.

![Figure 2. Resin of Sterculia versicolor Wall. (Shaw Phyu) in Yoe Sone Community Forest](image)
Strategy to Replicate

Local people get more awareness on real benefits of community forestry through Yoe Sone CF. Many exchange visits in the country are organized by forest department. Forest Department also would like to share and extension about similar kind of CF in respective state and region suitable to their biophysical feature. Even in Yoe Sone CF, it is necessary to support more about value addition and legalization matters for trade to foreign countries. These measures and supports are not provided yet and we still need capacity and knowledge about this. Thus, these 5 measures are the strategies for replication as well as promotion of community based Non wood forest products enterprise development in Myanmar.

i. Documentation of other potential marketable NWFPs in each states and region.

ii. Feasibility study for commercialization of these NWFP for enterprise development (Resource study, Market Study, Technical Study etc)

iii. Promotion of these NWFPs for domestication in Community Forest

iv. Cooperation and coordination with related ministries, departments other organizations

v. Creating enabling environment in effective ways including financial aid by giving loans or by supplier–consumer partnership for initial investment, research into appropriate technology, strong emphasis on market-led approach research through research based marketing plan in terms of fours Ps; product, price, place, promotion and encouraging producer based organization,
**Constraints and Opportunities for CBNE**

<table>
<thead>
<tr>
<th>Constraints/challenges</th>
<th>Strategic directions</th>
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<tbody>
<tr>
<td>Weak political commitment</td>
<td>Mobilise and raise the awareness of decision-makers.</td>
</tr>
<tr>
<td>Insecure commercial land and resource tenure and use rights</td>
<td>Enact and implement a national land-use policy and plan and grant CFUGs commercial forest use rights.</td>
</tr>
<tr>
<td>Shortage of investment</td>
<td>Secure investment through bank loans, members’ shares or supplier-consumer partnerships.</td>
</tr>
<tr>
<td>Lack of business skills</td>
<td>Enhance business skills through relevant training, workshops and exchange visits.</td>
</tr>
<tr>
<td>Insufficient technology</td>
<td>Build business-related technological capacity of CFUG members.</td>
</tr>
<tr>
<td>Lack of interest of forest officers in CF enterprise</td>
<td>Mainstream CF enterprise development into FD’s normal forest operation programme.</td>
</tr>
<tr>
<td>Lack of support from the government and related ministries</td>
<td>Mainstream community enterprise into national SME programme.</td>
</tr>
<tr>
<td>Weak community participation</td>
<td>Mobilise and raise awareness of communities and create financial incentives.</td>
</tr>
</tbody>
</table>

**Weak Political Commitment**

Community based non-wood forest products enterprises could be profitable SMEs with a great potential to contribute to national economic development, income generation, employment and most importantly, the rehabilitation and sustainability of dwindling forest resources. For CF enterprises to develop in a sustainable manner, local communities must have security of land tenure and the rights to use and control forests for commercial gain. This can be made possible only by top-level decision-makers. It is therefore crucial to mobilise and raise the awareness of decision makers about the potential of CF enterprises in the national economic, environment and social contexts.

**Insecure Commercial Land and Resource Tenure and Use Rights**

Secure land tenure and land use are basic to the sustainable development of land-based enterprises. To commercialize CF products, CFUGs need commercial rights. They must have the right to trade forest products freely. Under the CFI 1995, users possess the right to sell their surplus forest products in the markets outside their villages. This may be sufficient for CF communities to undertake commercial exchanges of their products. Otherwise, Ministry of Natural Resources and Environmental Conservation (MONREC) must grant CFUGs
commercial forest use rights exclusively. In addition, Myanmar has not yet enacted effective national land law to incarnate the National Land use policy (2016) and accompanying land-use plans at a national scale. There are, of course, sectoral policies and plans. In the absence of coordination between line ministries, however, land use conflicts occur often. Cases of land-grabbing by influential people have not been uncommon. Pursuit of economic policies inconsistent with environmental conservation has also led to the conversion of forests to rubber and palm-oil plantations, and mangrove forests to aquaculture ponds. State control over forest resources should be reduced gradually in favour of local control. Government departments and staff should ultimately have minimum involvement in CF affairs. They should deal with CF management committees not as managers but as facilitators, resourcing planning meetings, providing suggestions and assisting in resolving conflicts. The right to control the forest and its management and utilization is an effective incentive for a community to achieve maximum profit in a sustainable manner. MONREC needs to:

- enact the effective land law to make alive national land-use policy(2016) and implement it effectively;
- grant local communities the right to control forests; and
- reduce involvement of the forest staff to a minimum in all CF operations, and enhance post-formation technical and legal support.

**Shortage of Investment**

Community Forestry areas are mostly small in size. They do not therefore possess adequate potential for enterprise development – because any business needs to trade in significant volumes of product. CF areas need to be made much larger, scaling them up to commercially feasible/profitable sizes and forming networks and associations. There is a high demand for introducing better technology and business skills for CFUG members and creating business oriented extension institutions, including within the FD. Poor communities require both enabling and asset investment. The following options are available to achieve investment.

- Increase the average size of CF areas.
- Facilitate the organisation of CFUGs into regional clusters or associations to increase the scale of production.
- Set up revolving saving funds to pump-start investment.
- Form producer-buyer partnerships – with potential investment from the buyers.
- Explore innovative loans from the Myanmar Agricultural Development Bank.
- Borrow from microfinance institutions.
Lack of Business Skills

Educational levels within rural communities are generally low. Table 36 below shows that more than 73 per cent of the population of sixteen surveyed villages had primary education only. Therefore, a range of training from basic to advanced will be needed to enhance communities’ business capacity. Selected villagers should be trained on:

- organisational design and management;
- entrepreneurship and business management;
- budgeting and accounting (balance sheets, profit and loss statements, cash flow analysis);
- business plan and loan proposal preparation; and
- market analysis and marketing strategies.

Opportunities

Business development services for SMEs are emerging and promoting in the time of new Government. The democratic reform process has seen renewed emphasis on the importance of SMEs that are controlled by local people. CF enterprise programmes can tap into the resources of some of these programmes to help deliver some of the proposed solutions.

Ministry of Natural Resources and Environmental Conservation is promoting the sustainable climate change mitigation measures which includes reduce extraction amount of timber and encourage income generation by conservation and trade of Non Wood Forest Products which is a priority for sustainable livelihood development. This is one of the opportunities for CBNE.
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<th>No.</th>
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<th>Scientific Name</th>
<th>CITES Appendix</th>
<th>HS Code</th>
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<td>55.</td>
<td>Danone</td>
<td></td>
<td>Borassus flabellifer</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>56.</td>
<td>Nan-tharni</td>
<td>Red Sandal wood</td>
<td>Pterocarpus santalinus</td>
<td>II</td>
<td>-</td>
</tr>
<tr>
<td>57.</td>
<td>Phyan-u</td>
<td>Edible bulbous root</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>58.</td>
<td>Hmo-chauk</td>
<td>Mushroom</td>
<td>-</td>
<td>0712.31.00 00 95</td>
<td></td>
</tr>
<tr>
<td>59.</td>
<td>Wa-u (dried, powder, green)</td>
<td>Elephant foot yam tuber</td>
<td>Amorphophallus campanulatus</td>
<td>0714.30.90 00 7</td>
<td>1106.20.90 00 40</td>
</tr>
<tr>
<td>60.</td>
<td>Fruits/seeds</td>
<td>Fruits/seeds</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>61.</td>
<td>In-u</td>
<td>edible globular fung under the Dipterocarpus spp</td>
<td>Dipterocarpus tuberculatus</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No.</td>
<td>Myanmar Name</td>
<td>Common Name</td>
<td>Scientific Name</td>
<td>CITES Appendix</td>
<td>HS Code</td>
</tr>
<tr>
<td>-----</td>
<td>--------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>---------</td>
</tr>
<tr>
<td>62.</td>
<td>Charcoal by Saw dust</td>
<td>Charcoal by Saw dust</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>63.</td>
<td>Bamboo Charcoal</td>
<td>Bamboo Charcoal</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>64.</td>
<td>Thit-hmwe</td>
<td>Agarwood</td>
<td><em>Aquilaria malaccensis</em></td>
<td>II</td>
<td>-</td>
</tr>
<tr>
<td>65.</td>
<td>Kyauk-htin-shu</td>
<td>Yew Tree</td>
<td><em>Taxus wallichiana</em></td>
<td>II</td>
<td>-</td>
</tr>
<tr>
<td>66.</td>
<td>Tasaung-pya-that</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>67.</td>
<td>Mahogany</td>
<td>Mahogany</td>
<td><em>Swietenia mahagoni</em></td>
<td>II</td>
<td>-</td>
</tr>
<tr>
<td>68.</td>
<td>Gyap-new</td>
<td>Gyap-nwe</td>
<td><em>Gentum montanum</em></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>69.</td>
<td>Thit-min-pho</td>
<td>Brown pine</td>
<td><em>Padocarpus neriifolius</em></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>70.</td>
<td>Sha-saung-la-pat</td>
<td>Aloe vera</td>
<td><em>Aloe spp</em></td>
<td>I/II</td>
<td>-</td>
</tr>
<tr>
<td>71.</td>
<td>Pan Nu</td>
<td>-</td>
<td><em>Saussurea costus</em></td>
<td>I</td>
<td>-</td>
</tr>
<tr>
<td>72.</td>
<td>Kyauk-gin/ Taw-gyin</td>
<td>Wild Ginger</td>
<td>-</td>
<td>0910.11.00 00</td>
<td>56</td>
</tr>
<tr>
<td>73.</td>
<td>Chin-paung-phala</td>
<td>-</td>
<td><em>Amomum xanthioides</em></td>
<td>0908.31.00 00</td>
<td>35</td>
</tr>
<tr>
<td>74.</td>
<td>Dani/ Taung- htan</td>
<td>Nipa Palm</td>
<td>-</td>
<td>4601.99.90 00</td>
<td>141,142</td>
</tr>
<tr>
<td>75.</td>
<td>Value added Bamboo products</td>
<td>-</td>
<td><em>Saussurea affinis</em></td>
<td>-</td>
<td>4421.90.99 00</td>
</tr>
</tbody>
</table>

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Appendix

Table 1: Key products selected by four villagers in the dry zone as most promising for raising forest based income. (1 is most important rank, 9 is least important rank).

<table>
<thead>
<tr>
<th>Product</th>
<th>Key Use</th>
<th>Village</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pa Tee Go</td>
<td>2</td>
</tr>
<tr>
<td>Thanaka</td>
<td>Burmese Cosmetic</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Plums, Jujube</td>
<td>Chinese Medicine</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Lemon</td>
<td>Fruit</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Jinma</td>
<td>Firewood</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Coconut</td>
<td>Fruit, oil</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Teak</td>
<td>Timber</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Lime</td>
<td>Fruit</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Guava</td>
<td>Fruit</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Sugar Plum</td>
<td>Sugar</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Dahat</td>
<td>Firewood</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Banana</td>
<td>Fruit</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Mango</td>
<td>Fruit</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Betel palms</td>
<td>Stimulant</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Sandalwood</td>
<td>Aromatic wood</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Bamboo shoot</td>
<td>Food</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Tamarind</td>
<td>Food</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

**Detailed cost-benefit studies for selected products**

Based on these initial preferences of the communities visited, the consultants compared costs and benefits of four products: plums, thanaka, aloe vera and bamboo. These were chosen on the basis of: 1) Market potential 2) Land suitability and 3) Widest potential benefits to people.
### Comparative annual income of several NTFPs that could be planted in community forests in the dry zone.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price (Kyat/viss)</th>
<th>Yield (Per acre)</th>
<th>Unit</th>
<th>Gross Benefit Annual costs Kyat/acre/yr</th>
<th>Net income Kyat/acre/yr</th>
<th>Net income $/acre/yr</th>
<th>Other consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plum seeds</td>
<td>15,000</td>
<td>190</td>
<td>Viss</td>
<td>2,853,653</td>
<td>343,650</td>
<td>2,510,003</td>
<td>$3,050</td>
</tr>
<tr>
<td>Thanaka</td>
<td>4,000</td>
<td>346</td>
<td>Stems</td>
<td>1,382,857</td>
<td>170,995</td>
<td>1,211,862</td>
<td>$1472</td>
</tr>
<tr>
<td>Aloe vera</td>
<td>30,000</td>
<td>50</td>
<td>Viss</td>
<td>1,500,000</td>
<td>278,000</td>
<td>1,222,000</td>
<td>$1,485</td>
</tr>
<tr>
<td>Bamboo shoots</td>
<td>1,000</td>
<td>1,000</td>
<td>Viss</td>
<td>1,000,000</td>
<td>18,000</td>
<td>982,000</td>
<td>$1193</td>
</tr>
<tr>
<td>Bamboo culms</td>
<td>2,000</td>
<td>300</td>
<td>Stems</td>
<td>600,000</td>
<td>18,000</td>
<td>582,000</td>
<td>$707</td>
</tr>
<tr>
<td>Bamboo total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,564,000</td>
<td>$1,900</td>
</tr>
</tbody>
</table>

Source: Consultancy report for PYO PIN (2011)“Market Research and Enterprise Development for Community Forestry in Myanmar)

### Production and Market Potential of Plum Seed Production

Plum trees can start producing fruits from three years after planting. They reach full productive capacity after 10 years. One acre of mature trees (older than 10 years) can yield 232 viss. At a future price of 15,000 kyat per viss, 1 acre would yield an income of 4.6 million kyat or $5,633 per year. For younger trees aged 3-10 years, the average yield is estimated to be about one third of that of the mature trees.

Over the first three years, the owner will only have investment and maintenance costs. Over the early production years (years 4-10), the average net profit is 1.5 million kyat ($1,943) per acre per year. Over the last ten years when the trees are mature, net profits would be 4 million kyat ($4,959) per acre per year. The net profit over twenty years is on average 2.5 million kyat (US$ 3,050) per acre per year. With labor wages of 3,000 kyat per day, the average return per labor day is
21,960 kyat ($27). Plum trees are always individually owned, so they need to be planted in individual households plots or gardens. They are less suitable for planting in community forests under common pool management.

Over the last few years, demand for this product has been strong. Exports from Myanmar are estimated to be around 1000 tons (740,740 viss) per year, worth 13,000,000,000 Kyat or 16,250,000 US dollars per year. All of the produce is exported to China, where it is used as medicine against insomnia, “suan zao ren”. It is difficult to predict the long term prospects of any medicinal plants exported to China, and this is the main uncertainty of this product.

If Ecodev would succeed in establishing 50 acres per village in 12 villages, this would add 600 acres or 139,200 viss. At current prices, that represents an added value of 640,320 million kyat or $778,000 per year (after establishment) which is less than 5% increase in export volume. This is unlikely to affect prices much, so there is little risk of overproduction.

Production and Market Potential of Thanaka

Thanaka (Hesperathusa craenulata) is a product used by almost all women in Myanmar as a cosmetic, applied daily as a yellow powder applied to the face. Plantations of thanaka trees take around seven years to grow to harvestable size. The whole tree is cut and sold; it takes another seven years or more to replace the harvested trees.

Around the key production area in Yesagyo township, the trees are planted in rows 3x6 feet, that means 2,420 trees per acre (5.979 trees/ha). So 1 acre can yield a value of 7.26 to 14.5 million kyat on average per seven years; that is 1.30-2.7 million kyat ($1.579-3,281) per year. In the annex on thanaka below, several scenarios were calculated. The net profit ranges from 0.769 million kyat per acre per year (with fencing, counting labor costs, low selling price of 6,000 kyat per stem) to 2,015 million kyat per acre per year (no fencing, not counting labor costs and with a high price of 15,000 kyat per stem).

The main market for thanaka is domestic. With a population of 28 million women, 90% or 25.2 million women are estimated to be using the product daily. Annual domestic consumption would be between 201.6 to 403.2 billion kyat or $252-504 million per year. This is a much bigger market than the plum seed market. The question is, how much added production could the market absorb?

If Ecodev would succeed in planting 50 acres in each of 12 villages, this would add 600 acres, or 1.4 million trees that could be harvested every seven years. The average added value per year of this activity would 780 -1,620 million kyat ($0.948 -1.968 million) or less than 5% of the total annual production. This is unlikely to cause large price changes. Thanaka gardens look like a safe investment. However there will be many other people establishing thanaka
gardens, so investors should assess the possibility of a price drop in seven years after now.

**Production and Market Potential/ Absorption for Aloe Vera**

Aloe vera is a well-known medicinal plant in many areas of the world. There is a strong global demand for juice, gel, and concentrates made from the leaves of this succulent plant. World market of raw materials is estimated to be $70-90 million, the total sector including all processed products made from Aloe vera is estimated to be worth $35 billion per year. Main producers are US, Mexico. The main part of the plant used is the latex from the leaves, which has medicinal properties especially for healing skin wounds like burning wounds.

In Myanmar, production is concentrated in the dry zone, the center of production is in Yesagyo township in the Maway region. Average yields there are around 1,440 viss/acre fresh leaves. It takes 24 units of fresh leaves to produce 1 unit of “Moke Kha” a popular Aloe vera concentrate used as medicinal plant in Myanmar. Plantations of this crop can produce within one year after planting and produce for five years before a fresh crop needs to be planted. Buying seedlings in the main investment cost. The average net profit is around 1.1 million kyat ($1,357) per year. If farmers could produce their own seedlings or get them from a project, the net profit would raise to 1.7 million kyat ($2159) per acre.

The yields obtained in Yesagyo seem to be around 5,000 kg/ha, which is about 10% of the level of 50,000 kg/ha commonly cited as potential yields in other parts of the world. There would seem to be a good potential for raising productivity by improved water management and judicious fertilizer use.

Local demand is strong, there is also some export to China. In short it would seem like a good option for income generation on the short term for Community Forestry Groups. The main uncertainty is the size of the market. There are no statistics on the local market of Moke kha, so it is difficult to predict how an increase in production would affect the market. The annual production from Yesagyo area alone is estimated by local farmers to be perhaps 40,000 viss per year, or 65.5 tons of Moke kha. With a yield of 60 viss per acre, the Yesagyo area can be estimated to be around 670 acres only.

If Ecodev would enable 50 acres to be added in each of 12 target communities, this would add 720 acres to the resource, this could have a serious effect on the price. It would be safer for Ecodev to limit Aloe vera plantations to perhaps not more than 60-80 acres for now. On the long term the sector could grow much faster if a company could be identified who is willing to invest in developing the Aloe vera industry in Myanmar. More work could be done to develop this value chain by doing feasibility studies and attracting investors.
**Elephant Foot Yam**

Elephant foot yams, locally known as “Wa-u” or “phyan-u”, are tubers or „corms“ of several Amorphophallus species, e.g. A. paeonifolius and A. konjac. The dried tuber of the konjac plant contains around 40% glucomannan gum. This polysaccharide makes konjac jelly highly viscous. In Japan, India and China, the starch is known as “konjac” or “konyakku” and eaten as a vegan substitute for gelatin. Konjac has almost 0 calories but is very high in fiber. Thus, it is often used as a diet food.

Elephant Foot Yam can be found in many area of Myanmar especially in evergreen forest areas. Over-extracting from natural forest resources has reduced the production levels. Cultivation has started in Rakine Chin and Kachin States. Elephant foot yam can be harvested within 6-7 months, provided enough seed tubers are available. With a spacing of 3x3 feet the density is 4,856 plants/acre, 12,000 plants per ha.

Taking a 1:3 ration, each tuber of 0.3 viss will grow to 1 viss in weight in seven months. So one acre can yield 4,856 viss of fresh tuber per season (19.6 tons/ha). With one viss of dry chips produced from every seven viss of fresh tubers, 4,856 viss can produce 694 viss of dried chips per acre (2.8 tons/ha). With a price of 3,200 kyat/viss for dried chips, that represents a value of with 2.20 million kyat ($2,697) per acre.

The main cost is planting materials. There are also labor costs for clearing, planting, harvesting and drying. The total production cost is 942,720 kyat and 120 labor days. The net profit each years is 1.28 million kyat ($1552) per acre (3.16 million kyat or $3,835 per ha). With labor wages of 3000 Kyat per day, the net profit would be 13,643 kyat ($17) per labour day.

Seed yam production can be an attractive business as well. A tuber of 1 viss can be split into 5-6 pieces which will produce seed yams. These can be planted at 1x2 feet, or 19,020 plants/acre. It takes 6-7 months to grow these seed yams to desired size. On one acre, seed yam production yields 1.5 million kyat ($ 1,862) net profit, or 24,891 kyat ($30) per labor day. This plant is already providing jobs to thousands of farmers in the Kachin State especially for harvesting and drying process. The potential for creating more jobs would depend on the absorption capacity of the market. EFY is mainly exported to China via border trade, small amounts also go via international trade at higher prices to Japan and Korea. Total export amount is 4,000 tons approximately for both border trade and normal trade.

**‘Kanyin’ dog fruits, jengkol**

The fruits of “Kanyin” commonly known as “dog fruit” or “jengkol”, “jering” or “luk nieng” are derived from Archidendron pauciflorum, member of the Fabaceae or family of beans. Older synonyms often used are Pithecellobium lobatum and P.
jiringae. Jengkol is a tree about 18-24 m tall with a spreading crown. It has a grey stem and one pair of glabrous leaves. The leaf is oblong, stiff and papery with 3-5 flowers, which are borne in a panicle. The calyx is sessile with a white corolla. The filament tube is shorter than the corolla. The pods or fruits are 20-50 cm long, 4-5 cm wide, horseshoe-shaped or twisted, deep purple, deeply lobed along the lower suture, and easily broken by hand. There are 3-6 seeds per pod. The seed is 3-5 cm across with yellow testa when young, which turns brown at maturity. The seed is edible with a strong odour. The fruits are highly nutritious, with 23% protein and high contents of vitamin C (80 mg/100g), Calcium (140 mg/100g), Iron (4.7 mg/100g) and Phosphorus (167 mg/100g). The smell is not appreciated by everybody and over-consumption should be avoided as it may lead to kidney failure. The fruits grow in characteristic coiled pods on fast growing trees.

In Lwe Hkaw village near Myitkyina in Kachin State, these trees are grown in community forests for raising income. An average household may have around 200 trees planted in one acre, one tree is said to produce up to 2000 fruits per year. With a price of 20 kyat per fruit, such a household could earn 8 million kyat ($9,720) per acre per year.

This seems to be another good option for income generation from community forests in Kachin State. The market is so far mainly limited to Myanmar, but it is also a well-known product in southern Thailand, Malaysia and Indonesia. The consumption in those countries is estimated to be over 100 tonnes per day. With the current high price, there would seem little danger of overproduction. The market potential in nearby China should be explored.

**Rattan Value Chain Development**

State is the main resource for rattan exported from Myanmar, the center of production is in the Hu Kawng valley, which is currently not accessible for foreigners due to security concerns. The main market is China, the value of rattan exports is estimated to be 30,000 tonnes per year, worth about $7.2 million. The main problem is the depletion of raw materials (Myint 2004). NGO's like WCS are developing models for sustainable rattan production in natural forests. Such models have already been proven to be successful in Lao PDR. For them to succeed in Myanmar, policy changes will be needed. Most of the harvesting is now done by workers hired by export companies who obtained export licences. These companies are based in Mandalay and Yangon. Local communities are hardly sharing in any benefits. To engage local communities, they should be given a larger share in rattan trade benefits.

Secondly, rattan is mainly exported as a raw material at a very low price. There is a great potential for adding value by producing high quality furniture and handicraft products. Some smaller companies in the Yangon area have already
established themselves as exporters of such products for the high end of the market. Support for better networking in the rattan sector could build on these two pillars: sustainable production and better quality design and production of rattan furniture products.

Bamboos

Bamboos offer multiple uses. They are used for construction; for making household appliances, veneers, plywood, parquet, bamboo wood composite panels, bamboo fireboard and so on; and for pulp, paper and rayon manufacture. Bamboos are plentiful in Myanmar, with 96 species growing across the country. Their traditional and modern uses have not yet been fully tapped, however their further development is a priority. There is strong evidence from neighbouring countries that the bamboo industry can improve both the lives of dependent communities and the national income to a large extent. In 2005-2006, the production of bamboos was about 1,185 million stems, or culms. It had increased every year reaching 1,346 million culms (provisional actual) in 2010-2011. The market survey has identified bamboo as the most traded forest product in the local markets of Ayeyarwady and Mandalay. Value-added bamboos, such as baskets, tables, stools, hats, chopsticks, smoking pipes and so on, were traded most in the surveyed local markets in Shan State. In Kachin State, bamboo was the third priority in the local markets.

In 2010-2011, the official production of 1,346 million culms of bamboos generated a national income of around 8,076 million kyats. The perception of traders is that the bamboo market is extensive and unlimited. Bamboos can be marketed as raw materials for pulp and paper mills and furniture industries or as processed products. The export of bamboos reached 3,042 metric tonnes in 2010-2011. As yet CFUGs have not developed any extensive business based on bamboo but there is ample scope that needs further exploration.

Medicinal and Cosmetic Plants

There are many trees and wild or cultivated crops that are medicinally useful in Myanmar. Indeed the National Herbal Park in Nay Pyi Taw is one of several such parks in which thousands of medicinal plants of nearly 500 species are grown and nurtured, and commonly used and valuable regional herbs are studied. Both the public and private sectors manufacture traditional medicines. The Department of Traditional Medicine (established in 1989) is responsible for public-sector manufacturing, owns two pharmaceutical factories, and oversees the distribution of 21 core herbal remedies. The 1996 Traditional Medicine Drug Law aims “to enable the public to consume genuine quality, safe and efficacious traditional drugs”. More than 8,000 traditional medicine practitioners have registered in Myanmar. A Myanmar Traditional Medicine Practitioners Association was
established in 2002 after the unification of various groups. Further market research would be needed to develop any of these products into viable businesses.

Rattans and Canes
Like bamboos, these products are harvested in abundance and their products are exported, for example through the Myanmar Bamboo and Rattan Producers Association, whose members have 25 processing factories. CFUGs could enter into partnerships with such businesses for investment. In terms of supply, rattan is becoming scarce in natural forests. Members of the association have approached non-governmental organizations with the idea of promoting rattan cultivation in community areas to safeguard supply. For sustainable supply of raw rattans; manufacturers must either establish plantations themselves or invest in CFUGs establishing rattan plantations. Three potential areas of opportunity exist for developing CF enterprises around rattan: sustainable wild-harvesting enterprises; the development of domesticated production; and increased local processing to reduce the export of raw materials for overseas value addition.

Each of these options faces significant challenges. For example, the level of sustainable harvesting is unknown. Additionally, rattan cultivation is not widespread in Myanmar and the know-how would have to be introduced (in Rakhine there is a 10-20 acre test plot which will be ready to harvest in two years). Finally, the technology and skill required for the design and advanced finishing of rattan products are barriers to the latter option.

Rattans are present in 14 of 16 states in Myanmar (excepting Dry Zone states of Mandalay and Magwe). Varieties have different characteristics – larger (~20mm diameter) canes are different to smaller, finer (~5mm diameter) ‘water canes’. Varieties growing in lower altitude or saline areas are flexible and easier to work with than stiffer, brittle varieties found in upland areas or freshwater wetlands. Katane, the best and most flexible variety, is found in Kachin State. Chinese traders are monopolising katane, however, and exporting all raw product to China for processing. With several countries to choose from, such as Cambodia, Indonesia, Laos and Vietnam, they are less concerned with sustainability of supply, and the low cost of raw materials in Myanmar means that using Chinese processors is competitive.

The FD had officially permitted private companies to extract 7-26 million pieces (13 feet in length) annually from 2001-2002 to 2009-2010 (please contact author for data tables). The amount permitted had increased from 13 million in 2001-2002 to 26 million in 2006-2007, only to drop drastically to 7 million in 2010 (Source: Forestry in Myanmar, FD, October 2011). But the actual production was that presented in Figure 16. The annual production was 4.3 million and 5.1 million in 2001-2002 and 2002-2003 respectively. It rose dramatically to 48.4
million in 2003-2004 and continued to increase to 55.2 million in 2006-2007. It then decreased gradually to 39.1 million in 2009-2010, but was still more than five times higher than the approved yield of 7 million for that year. This demonstrates the urgent need for the FD to effectively monitor, evaluate and control the rattan extraction, as well as the huge potential to develop rattan-based CF enterprise.

**Gaharu (Agarwood)**

Gaharu, also known as agarwood, eaglewood and aloe, is the resin product of a fungal infection in trees of the Aquilaria and Gyrinops genera, both of which are listed as critically endangered species (CITES, 2012). Unlike many common NTFPs that are sourced from trees (latex, damar, palm oil, cinnamon, cork and so on), the tree must be felled, or damaged, to extract gaharu (ibid). Gaharu has been used since ancient times for perfumes and as a medicine. Today the fragrant oils are largely used for perfume in Arab countries, and unprocessed gaharu is used in religious ceremonies and for medicinal purposes in East Asia (Barden et al., 2000; Jensen & Meilby, 2008). The trees produce resin, primarily in their roots and trunk up to one metre above the ground, to protect against the fungal infection (Persoon & Heuveling van Beek, 2008).

This wood turns from white to dark brown or black and becomes fragrant. The infection process is not known, but Paoli et al. (2001) highlight that Bose (1938) and Peluso (1983) identify wood-boring insects and ants as potential vectors of the infection. Not all trees become infected. The FAO (1995) says that an experienced harvester can detect the level of infection in a tree without felling it, and Yamada (1995) details how preliminary testing is often done. Normal levels of harvest are about five kilograms per tree (Jensen & Meilby 2010). Mature trees produce significant quantities of seed, which often germinate when the light gap is opened by the felling of a mature tree, developing the required environment for a new generation of trees (Paoli et al., 2001).

Gaharu is among the highest valued NTFPs in the world (Wollenberg, 2001). It is processed into oil or used in raw form, with the oils reaching US$84,000 per litre sold in small vials. An estimated 80 per cent of production is sourced from Indonesia (Jensen, 2009) but Myanmar is one of a number of additional producing countries which include Malaysia, Cambodia, India, Laos, Vietnam and Papua New Guinea (Antonopoulou et al., 2010; Persoon & Heuveling van Beek, 2008). Processing is rarely done in these countries, and global wholesaling, processing and retailing centres are concentrated in Dubai, Bangkok, several points in India, and in Singapore (Jensen, 2009).

Several countries have commenced Aquilaria spp. plantations but the results have fallen short of expectations. Inoculated trees tend to produce low-quality gaharu.
that commands a lower price than that harvested naturally. Because of the high value, there is great impetus for illegal harvesting and trade of gaharu, despite its host trees being endangered species. Further, the rush to find gaharu has been detrimental to the livelihoods of many communities who steward the forests (Momberg et al., 2000). There is some doubt therefore about the prospects for developing CF enterprises based on this product.

**Essential Oils**

Essential oils are highly volatile aromatic liquids obtained from plants and are widely used in flavour, personal care, pharmaceutical and industrial products (Baser and Buchbauer, 2010). In Myanmar, which offers ideal conditions for cultivating essential oil plants, the industry is in its infancy compared with the booming essential oils markets in neighbouring countries such as India, China and Thailand (UNIDO, 2005). Essential oils in Myanmar are largely used in the perfume industry or medically, either processed into ointments or as chemical constituents in further processing. Myanmar produces eucalyptus (*Eucalyptus citriodora*), citronella (*Cymbopogon nardus* and *Cymbopogon winterianus*), sassafras (*Sassafras albidum*), agarwood (*Aquilaria agallocha* and *Aquilaria subintegra*), sandalwood (*Santalum album*) among others. But data indicate that the industry is underperforming because of a lack of knowledge and support for growing essential oil crops, along with insufficient market information, short supply of raw materials for distillers, a lack of sophisticated technology, and the unsustainable use and trade of naturally harvested essential oil plants.

There is one market segment in Myanmar where a high-quality essential oil dominates its cheaper synthetic competitor (Schmid, pers. comm.). Increasing numbers of tourists, for example, mean that the demand for high-quality essential oil products will rise – such as personal care and wellness products for luxury resorts and spas. Moreover, if there is a development in the manufacturing of other industrial products, domestic demand for essential oils will increase – such as essential oil spices in the production of convenience food and beverages.

The best way forward is probably to cultivate internationally well-known plants, such as jasmine or sandalwood. These achieve high prices, their oils have already gained international market access, and they avoid the high registration costs for trading new essential oils in some countries. To avoid selecting the wrong species, a focus on Myanmar’s unique environmental factors is essential. Success will strongly depend on various competitive advantages: for instance, choosing the right plant species based on the domestic and international market demand and its environmental factors, as well as investing in new distillation facilities to achieve the highest possible international quality standards. Government support could come through the Agriculture Extension Division (AED), which has responsibilities for oil crop extension.
Orchid Production

The recorded list of orchids in Myanmar consists of 841 species. They grow in natural forests all over the country and flower just once in a year. Eighteen species of the genus *Dendrobium*, such as *D. nobile* (believed to be a good tonic and improve the nervous system), which occurs in the cold climates of Chin, Kachin and Shan States; and *D. pulchellum* (used as an antipyretic), which thrives in the warmer regions of Bago, Yangon, Tanintharyi and Rakhine, have been identified as medicinal and widely used in preparing traditional medicines. Because these orchids can be grown on trees, they can be introduced in CFs on commercial scales, adding aesthetic and monetary value to tree crops.

<table>
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<th>No.</th>
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<th>Chin</th>
<th>Sagaing</th>
<th>Tanintharyi</th>
<th>Bago (East)</th>
<th>Bago (West)</th>
<th>Magway</th>
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<td>Yangon</td>
<td>Shan-South</td>
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Source: Forest Department (2016-17)
Proceedings of the
SAARC Consultative Meeting on Community-Based Non-Wood Forest Products enterprise: A Sustainable Business Model
Held during 24-26 August 2017 in Thimphu, Bhutan

Background
The Non-wood forest products (NWFPs) continue to be vital natural resources to the rural communities for their livelihood and food security in SAARC Region. For centuries rural folks have collected, processed and traded bamboo, rattan, resins, gums, lac, oil seeds, essential oils, medicinal herbs, and tanning materials. Natural forests also provide edible products like tubers, ferns, mushrooms, fruits, honey, nuts, leaves, and many more. Some fill a part of seasonal income gaps and others are integrated into the market economy, forming an important source of household income. In the remote, high-altitude regions of Bhutan, India, and Nepal the collection of Caterpillar fungus (Cordyceps sinensis) are a major income source for many households. The NWFPs are increasingly considered as a basis for sustainable management of forests and have become integral part of the household livelihood system.

There is an increased attention to potential role of NWFPs in food security, health care, income sources, and conservation strategies. New markets for natural products have emerged, such as phyto-chemicals in pharmaceutical industries and additives in food industries, which have revealed the economic significance of NWFPs. Further justification for emerging interest in the sector has been more socio-political and ecological in nature. According to FAO (2009) ecological benefits are achieved from reduced forest ecosystem disturbances, vis-à-vis timber extraction practices, while socio-political interests have centered on the promotion of new development models for forest-dependent communities.

The shift from community management to state management in the past alienated the user communities from the resource base leading to over harvesting, early harvesting and destructive harvesting that resulted in quantitative depletion, qualitative degradation and subsequent degradation affecting the regeneration of the NWFP resources. Past studies have illustrated that the trap of vicious cycle of unsustainable harvesting of NWFPs- reduced availability aggravating the rural poverty and highlighted the uneven field of multiple stakeholders of the NWFP sector. This has created new intuition around the NWFPs and the available models in institution building and the sustainability and right regimes for such new-institutional models. As an initiative in NWFP management at the SAARC nation level, it was suggested to develop a real-time market intelligence system for monitoring the market trends and intervening in the NWFP trade in the region.
The SAC in collaboration with its partners and Member States, proposes to develop a regional project on Community-based enterprise on Non-Wood Forest Products: A Sustainable livelihood model to be tested and up scaled in Member States.

**Inaugural Session**

The ‘SAARC Consultative Meeting on Community-based Non-Wood Forest Products enterprise: A Sustainable business model’ was opened through a formal opening ceremony (Marchang) attended by Dasho Rinzin Dorji, Secretary of Ministry of Agriculture& Forests, Director General-BAFRA, Senior Specialist cum Advisor to DoFPS, Chief Planning Officer-Policy & Planning Division of the MOAF, members from the SAARC country (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal & Pakistan), Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) participants from Fiji, Laos, The Philippines, Myanmar and Bangladesh, Senior Program Specialist from SAARC Agriculture Centre, participants from DAMC & PPD, CFOs and representatives from the functional divisions of the Department of Forests & Park Services.

The welcome address was given by Mr. Sangay, Senior Specialist cum Advisor to DoFPS where he conveyed the regrets of the Director, DoFPS for not being able to attend this important meeting due to other prior engagement. He thanked the Honourable Chief Guest, Secretary-MoAF for gracing the inaugural session in spite of his extremely busy schedule. His presence amply demonstrated the importance attached by him for the cause of sustainable management of forests and in particular the Non-wood Forest Products development in Bhutan.

He also extended a warm welcome to the entire participant, some of them who have travelled long distance and made it possible to attend this important consultative meeting. He further stressed on the Department of Forests & Park services National mandate for the overall management of the Non-wood forest resources in the country. However the DoFPS would like to fulfil this mandate in close collaboration with all relevant government, non-government agencies and our International partners. The sustainable management of the forest resources has been the key concept of the Department. He wished the participants and the organizers a success in developing a regional project on Community-based enterprise on Non-Wood Forest Products: A Sustainable livelihood model to improve our rural livelihoods through product diversification, strengthening market linkages and also in documenting the best community based enterprise on NWFPs for up-scaling in the SAARC Region.

Dr TR Gurung, Senior Program Specialist (NRM), SAARC Agriculture Centre highlighted on the concept, purpose and objectives of the meeting wherein he
mentioned that the idea was to bring together the experts from the SAARC member states and Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) together. Through the expert consultation, SAC and CIRDAP plans to document lessons (successful and unsuccessful) on community-based enterprise on NWFPs in South and South-East Asia and identify models for sustainable enterprise development and priority areas of intervention through the regional activities.

**Objectives of the Meeting:**

1. Develop a regional project on Community-based enterprise on Non-Wood Forest Products: A Sustainable livelihood model to up/out scale the successful model to improve livelihoods through product diversification and strengthening market linkages.
2. Document the best community based enterprise on NWFPs for up/out scaling in the SAARC Region.

**The Expected Outputs:**

1. A regional project Community-based enterprise on Non-Wood Forest Products: A Sustainable livelihood model.
2. Document on best community based enterprise on NWFPs in SAARC Region

**Address by Chief Guest:** Dasho Rinzin Dorji. Secretary, Ministry of Agriculture and Forests, the Chief Guest extended a warm welcome to all the participants from SAARC member states and Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) in this very important consultative meeting on ‘Development of SAARC Regional project on community based Non-wood Forest Products enterprise: A sustainable business model’. In his address, he highlighted the scenario of Non-wood forest products (NWFPs), its importance and sustainable management globally, at regional level and within the country for the benefit of the participants.

At Global level some 80 percent of the population of the developing world use NWFPs for health and nutritional needs. The NWFPs still form the basis of lives and livelihoods in many parts of the world and play a much more significant role in food and nutritional than previously.

The socio-economic benefits of forests, including the role of NWFPs for generating income, food and nutritional security, basic human needs, and improving quality of life have been reported. NWFPs have also attracted considerable global interest in recent years due to the increasing recognition of their contribution to environmental objectives, including the conservation of
biological diversity. Globally, rattan is the most important NWFPs that is traded internationally. At the local level, it is of critical importance as a primary source of income in the rural areas.

Asia is by far the world’s largest producer and consumer of NWFPs, not only because of its population size but to a greater extent because of its traditional use of a vast variety of products for food shelter and cultural needs. As for the rest of the world, the bulk of NWFP consumption in Asia is for subsistence needs and income, there is no official data reporting on country statistics. By sub-region, the medicinal plants are of major importance for the higher elevation regions of Nepal, Bhutan, Northern India and Pakistan. There is a growing interest worldwide in its natural foodstuffs, traditional medicines and herbs, handicrafts from bamboo and rattan.

In Bhutan the Non-wood Forest Products contribute significantly to the livelihoods. The people living in rural areas have been heavily depending on products like timber and non-wood forest products from the time immemorial. The Non-wood forest product development for poverty reduction is one of the priorities of the Royal Government of Bhutan. Therefore, the NWFP development and management should benefit the poorest of the poor and we must see that it should become a step out of poverty and not a poverty trap.

The importance of NWFPs for income generation was recognized for a long time. However, in the past the permits for the use of NWFPs were issued to individuals based on request of the traders. But now there are two ways of legal harvesting of NWFPs: one way is through an approved Community Forest (CF) management plan and the other way is through the NWFP management plan. Currently, there are 130 NWFP management groups and 17 Community Forest established specifically for the management of NWFPs in the country.

He also reiterated that there are opportunities to manage forests for multiple benefits and thereby contributing to income generation, employment and poverty reduction. Bio-prospecting is another emerging area that is likely to offer big opportunity for economic benefits in future. Since the economic prospects for alleviating poverty of the rural people from the indirect benefits of the forest is likely to out-weigh the direct benefits, it has become paramount important to mainstream these programs in the national and local plans. Involvement of local people in all aspects of planning and implementation will be very important if the programs are to make contribution for the socio-economic upliftment of the people. The benefits arising from the management should go to the people so that they become the lead actor in the program.

One of the main challenges for the natural resource sector has been over-exploitation leading to unsustainable utilization of natural resources both for timber as well as NWFPs. The over-exploitation and unsustainable use of natural
resources would accelerate the loss of biodiversity especially commercially valuable species such as Cordyceps and other medicinal and aromatic plants as well as high value timber species. Already there are visible signs of local extinctions occurring in some pockets. Since natural resources are provided almost free of cost to rural population, as such the resources are not valued and appreciated leading to misuse and over-exploitation.

Marketing of many NWFP species is also difficult in our country because of unorganized markets, low and dispersed volumes, low and fluctuating prices, irregular supply and demand, inadequate market information services and high transportation costs. Moreover, with India on our doorstep where prices are very low, we have to be creative and look for niche products and value addition.

Furthermore, ensuring the sustainable harvesting of NWFPs is challenging. Inventory methodologies for timber are not suitable for many NWFPs. Resource inventories should not be considered as the ultimate requirement, proper management prescriptions, how & when to harvest, how to ensure regeneration are much more important.

The data collection on NWFPs globally has not been systematic for several reasons: (1) the use of NWFPs is often confined to the informal sector and is thus very difficult to capture through formal statistics; (2) the wide variety of products and species that could potentially fall into this umbrella category is extremely vast. As a result, to this day, systematic data collection on NWFPs continues to be difficult. As such, it calls for more concerted efforts to improve the availability and quality of international statistics on NWFPs for evidence-based decision-making.

This gathering will definitely deal with the challenges associated with collection & dissemination of data on production, trade and economic activities. Thus will ultimately improve data collection on NWFPs within the SAARC region which would provide a sound evidence base for decision making regarding their uses. He reminded the experts gathered here for the next two days have a huge responsibilities resting on their shoulders to address the above mentioned problems which will ultimately benefit millions of poor communities living within the SAARC Region.

Therefore, he urged the participants to come with a constructive output on developing a project on community based NWFP enterprise as a sustainable business model. The Chief Guest stated that the workshop is timely as we are in the process of planning for the 12th FYP where one of the important program will be on developing a business master plan for the forestry sector.

The Ministry would look forward to the support from the SAARC countries and CIRDAP in building a successful NWFP based enterprises and optimize the flow of local and national benefits from commercialization, management and
sustainable utilization of NWFP resources. Let us work together and provide our local communities with the best opportunities to increase their income from NWFPs while ensuring the sustainable collection.

He wished the participants to have a fruitful discussion and come up with a concrete project which will help our rural communities depending on NWFP resources to reach the next level.

Mr. Passang W. Norbu, Chief Forestry Officer, SFED-DoFPS proposed the vote of thanks wherein on behalf of the Department of Forests & Park Services and on his own behalf thanked the Hon’ble Chief Guest for consenting to grace this very important consultative meeting and his presence for the inaugural session signifies the importance of the NWFP program and its contribution to improving the rural livelihood.

He thanked all the Department heads under the Ministry of Agriculture & Forests, Chiefs of the functional division under DoFPS for their presence. He thanked Dr. Tayan for being instrumental in bringing this very important consultative meeting to Bhutan and extended the gratitude to SAARC Agricultural Centre and Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) for funding this meeting. He also thanked the Policy & Planning Division of the Ministry of Agriculture & Forests for connecting the DoFPS with SAARC Agriculture Centre as a collaborating agency in organizing this workshop. Further he also extended the gratitude to Ministry of Foreign Affairs for their assistance & support in making it possible for the international participants to attend the meeting. He also thanked the team of Rochog Pel Hotel for their cooperation in organization this event. Last but not the least, he thanked all the participants from SAARC member states and CIRDAP, colleagues from DAMC & PPD for their participation and his co-workers from SFED for their support and cooperation. He urged the participants to be interactive and participative in making this workshop a successful one. Let us in our small way reach to the poorest of the poor in the most remote communities of the respective regions in helping them to step out from poverty by further promoting the NWFP programme.

**Technical Session I**

The technical session I for day 1 began with the presentations from the respective SAARC member countries in the following order:

i) Afghanistan
ii) Bangladesh
iii) Bhutan
iv) India
v) Maldives
vi) Nepal
vii) Pakistan

Technical session II
The technical session II was on the presentations on community based enterprise in SEA and pacific as follows:

i) **Keynote paper**: Role of Non-wood forest products community-based enterprise in livelihood improvement in South Asia – *Dr. SK Dhyani*

ii) Non-wood forest products community-based enterprise development: a way for livelihood improvement in Philippines

iii) Non-wood forest products community-based enterprise development: a way for livelihood improvement in Laos

iv) Non-wood forest products community-based enterprise development: a way for livelihood improvement in Myanmar

v) Non-wood forest products community-based enterprise development: a way for livelihood improvement in Fiji

Technical session III– Conceptualization of regional project on NWFPs community based enterprise.
The 2nd day started with the presentation on Community based Enterprise Development: A key to build economic resilience in Climate Change era by Mr. K. J. Temphel. His emphasis was that Community based forest management (CBFM) and community based forest enterprise (CBFE) are not only for sustainable management of resources and income generation, but they are the key for building community resilience. Further he elaborated on how CBFM and CBFE often face numerous challenges, however, a lack of clear tenure or rights are the fundamental disquiet for development of the CBFM ultimately progressing into CBFE.

Group Session
The group work was on the models based on the country presentation of Day 1 where Dr. Tayan had summarized and came up with few ideas on why we should have sustainable business model. The groups made the presentations based on their discussion. The participants also identified the challenges and the interventions that the project should have on the value chain based business model.
Challenges

Management
- Lack of capacity of the community
- Solidarity if the user group member
- Lack of constant monitoring
- Lack of conservation of forest resources
- Diverse group members and difficult to come to consensus
- Lack of transparency and leadership of the group
- Sporadic growth of resources
- Lack of proper functioning of user group

Harvesting
- Limited access to forest resources
- Limitation in innovation by User
- Lack of capacity of the user to harvest, processed and collect
- Unsustainable harvesting methods
- Harvesting is not based on trader
- High initial financial investment

Collection
- High transportation cost
- Lack of adequate knowledge on latest technology to harvest
- No proper transportation
- High post harvest loss
- Lack of management protocol for collection
- No good Packaging
- Marginal farmers are not interested in collection
- No systematic and sustainable collection of resources at right time

Value addition and product development
- No linkages to funding sources
- Lack of storage
- Technological know-how
- Lack of initiative in creating or adhering to international standards
- Weak linkages with research
- Lack of training and infrastructure and fund support
- Lack of demand assessment for products

**Marketing**
- No marketing network
- Lack of good dealership
- Limited access to market and market information
- Too much of informal trading
- Too much competitiveness
- Proper market area assessment

**Interventions**

**Management**
- Constant monitoring and evaluation of resources
- Good inventory data on forest resources
- Strengthen the forest department to ensure protection
- Formation of groups based on their area of interest and development of constitution
- Capacity building
- Good Governance
- Group training about resource management plan and guideline development for intuitional strengthening
- Dissemination of successful research and best practices
- Capacity building – awareness on all aspects of the value chain
- Sustainable utilization of NWFP, reviewing the stock, replenishing resources, harvesting protocol
- Capacity building on financial management, book keeping & accounting, marketing, findings buyers, using the MIS and accessing information
- Analyzing/Rationalizing information
- Business planning
- Communication, education and information
- Sensitize and convince the community on “there is strength in number.”
- Group formation with representative from all.
- Provision of resource and training

**Harvesting**
- Capacity building for groups regarding the latest harvesting techniques
- Package practices of best knowledge
- Facilitate the NWFP group in timely transportation
- Training on sustainable harvesting of NWFP
- Proper guidelines
- Environment friendly and modern technology
- Manual for how to harvest NTFP with required equipment
- Transfer knowledge on good harvesting
- Based on ITK
- Provision of skill and techniques

**Collection**
- Methodology and capacity building
- Provide storage facilities at central level
- Develop proper guidelines and implementation/enforcement
- Awareness raising and facilities for transportation
- Introduce use of proper collection equipment such as orate to avoid post harvest loss

**Value addition and product development**
- Subsidized rates for equipment required for post harvest processing of resource
- To develop strong policy/strategies that community based NWFP’s enterprise should follow in the process of value chain
- Primary processing options and training
- Tailored made training
- Train groups members on value addition and product development based on market demand
- Knowledge sharing and research technology transfer
- Based on market need
- Assessment
- Vocational trainings about use of NTFP
- Provide appropriate mechanics and equip the members with the much needed skills
- Provision of skill to add value to the product

**Standard and grade**
- Government oversight in creating a standard or maintaining international standards
- Guidelines
- Provide skills and equipment
- Enforcement of regulations
- Regional certification body
- Information and education about potential of products
- Poor labelling, packaging with detailed story of the products
- Trade marking and fixing of parameter to assess the standard

**Marketing**
- Facilitation during marketing such as setting up buyer-seller meetings
- Information availability market infrastructures development
- Provide updated information on both NTFP groups to market
- Provision of market information at right time
- Investment and subsidies
- Demand oriented marketing
- Support for market study and enabling condition to domestic and international market
- Make the members aware on the marketing dynamics and empower them with better bargaining power
- Decision support system
- Do linkage with local and international market

**Technical Session V**
The project concept and the key recommendations was presented by Dr. Tayan. The meeting agreed to adopt a simple value chain focused on all-inclusive business model wherein all stakeholders will be party to this model.
The key areas of the project interventions are:
1. Information Systems (Resource base and marketing)
2. Capacity development at different level
3. Technology transfer and piloting
4. Inclusive and empowering
5. Information base and Systems
6. Assessment and inventory of potential NEFPs within the region
7. Capacity development at different level
8. Primary processing
9. Technology transfer and piloting
10. Up/Out scaling

Closing Remarks:
Mr. Sangay, Senior Specialist cum Advisor to DoFPS, in his closing remark the senior specialist emphasised on the need for a strong local institution, strong policy & legislation and to start with a local market for any successful community based enterprises.
Participant List

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17. Yonten Norbu
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18. Rixzin Dorji
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19. Mr. Tshewang Norbu,
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20. Mr. Sonam Pelgen,
   Planning Officer, PPD, Ministry of Agriculture and Forests, Thimphu,
   Bhutan.
21. Mr. Sangay,
   Advisor to the Director, Department of Forest and Park Services, Ministry
   of Agriculture and Forests, Thimphu, Bhutan.
22. Dr. Tayan Raj Gurung,
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Meeting Agenda
SAARC Consultative Meeting on
Community-Based Non-Wood Forest Products Enterprise: A Sustainable Business Model
24-26 August 2017, Thimphu, Bhutan

Day 1 – Thursday, 24 August 2017
09:00-10:15hrs: Inaugural Session
09:00-09:30hrs: Registration
09:30-09:40hrs: Welcome Remarks
  Director, Department of Forests and Park Services
09:40-09:50hrs: Remarks: Concept, purpose and objective of the Meeting
  Dr TR Gurung, SPS (NRM), SAC
09:50-10:00hrs: Address by Chief Guest
  Secretary, Ministry of Agriculture and Forests
10:00-10:10hrs: Vote of Thanks
  Ms. Sonam Peldon, Deputy Chief Forestry Officer, DoFPS
10:10-10:30hrs: Group Photo and Tea/Coffee Break
10:30-13:00hrs: Technical Session I – Country presentation
  Chairperson: Director, DOFPs, MoAF, Bhutan (TBC)
  Rapporteur: DOFPS
10:30-10:45hrs: Afghanistan
10:45-11:00hrs: Bangladesh
11:00-11:15hrs: Bhutan
11:15-11:30hrs: India
11:30-11:45hrs: Maldives
11:45-12:00hrs: Nepal
12:00-12:15hrs: Pakistan
12:15-12:30hrs: Sri Lanka
12:30-13:00hrs: Discussion
13:00-14:00hrs: Lunch
14:00-18:30hrs: Technical Session II – Community-based enterprise in SEA and Pacific
Chairperson: 

Rapporteur: DOFPS

14:00-14:20hrs: Keynote paper: Role of Non-wood forest products community-based enterprise in livelihood improvement in South Asia – Dr. SK Dhyani

14:20-14:35hrs: Non-wood forest products community-based enterprise development: a way for livelihood improvement in Philippines

14:35-14:50hrs: Non-wood forest products community-based enterprise development: a way for livelihood improvement in Laos

14:50-15:05hrs: Non-wood forest products community-based enterprise development: a way for livelihood improvement in Myanmar

15:05-15:35hrs: Non-wood forest products community-based enterprise development: a way for livelihood improvement in Cambodia

15:35-16:00hrs: General Discussion

16:00hrs: Tea/Coffee break – End of Day

16:00-17:15hrs: Appointments/Visit to Office

18:00hrs: Reception Dinner

Day 2 – Friday, 25 August 2017

09:00-13:00hrs: Technical Session III – Conceptualization of regional project on NWFPs Community-based Enterprise: Working Group Session

Facilitator: Dr TR Gurung and KJ Temphel

Keynote paper: Community based Enterprise Development: A key to build economic resilience in Climate Change era: Mr. KJ Temphel

Group 1: Challenges and opportunities of developing Community-based NWFPs Enterprise

Group 2: Participatory CB-NWFPS-E Project conceptualization

12:00-13:00hrs: General Discussion

13:00-14:30hrs: Lunch

14:30-16:30hrs: Technical Session V – Closing session

14:30-14:45hrs: Presentation on the Project Concept

14:45-15:00hrs: Presentation of key recommendations
15:00-15:10hrs: Remarks by 3 participants
(2 from SA and 1 from SEA-P)
15:10-15:15hrs: Remarks
DG, CIRDAP
15:15-15:25hrs: Closing Remarks by Chief Guest
Secretary, MOFA
15:25-15:30hrs: Vote of Thanks
Dr T R Gurung, SPS (NRM), SAC
15:30-15:45hrs: Tea/Coffee break

Day 3 – Saturday, 26 August 2017
07:00-18:00hrs: Field visit to nearby community based NWFPs Enterprise – Punakha-Wangdue valley

Day 4 – Delegates leave for respective countries
Photo Gallery

Group photo with the Chief Guest Dasho Rinzin Dorji, Secretary
Ministry of Agriculture and Forests, Bhutan

Inauguration of the Meeting by the Chief Guest Dasho Rinzin Dorji, Secretary
Ministry of Agriculture and Forests, Bhutan
Meeting in Session under the Chairmanship of Mr. Sangay, Advisor to the Department of Forest and Park Services, Ministry of Agriculture and Forests, Bhutan

Group work in session
Group work in session

Field visit to Punakha and Wangdi Valley